

RESOLUÇÕES DO

CONAMA



**NATIONAL
ENVIRONMENT
COUNCIL**



**Ministry of the
Environment**

1984 - 2012

Special Edition



Federative Republic of Brazil

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**Ministry of the Environment - MMA
National Environment Council - CONAMA**

CONAMA RESOLUTIONS

Current Resolutions published between September 1984 and January 2012

**Special Edition
Brasilia
2012**

CONAMA LEADERSHIP (1981 – 2012)

Current Leaders

President	Izabella Mônica Vieira Teixeira	Minister of the Environment
Executive Secretary	Francisco Gaetani	Executive Secretary/MMA
Director	Adriana Sobral Barbosa Mandarino	Conama Director

Leaders between 1981 e 2010

CONAMA Presidents

Mário David Andreazza	Interior Minister	1981-1984
Flávio Rios Peixoto da Silveira	Urban Dev. and Minister of the Environment	1985-1986
Deni Lineu Schwartz	Urban Dev. and Minister of the Environment	1986-1987
Luiz Humberto Prisco Vian	Minister of Habitat, Urbanism and Environment	1987-1988
João Alves Filho	Interior Minister	1989-1990
José Antônio Lutzemberger	Environment Secretary / Pres. Republic	1990-1992
José Goldemberg	Environment Secretary / Pres. Republic	1992
Flávio Miragaia Perri	Environment Secretary / Pres. Republic	1992
Fernando Coutinho Jorge	Minister of the Environment	1992-1993
Rubens Ricúpero	Minister of the Environment and Legal Amazon	1993-1994
Henrique Brandão Cavalcanti	Minister of the Environment and Legal Amazon	1994-1994
Gustavo Krause Gonçalves Sobrinho	Minister of the Environment, W. R. and Legal Amazon	1995-1999
José Samey Filho	Minister of the Environment	1999- 2002
José Carlos Carvalho	Minister of the Environment	2002
Marina Silva	Minister of the Environment	2003 -2008
Carlos Minc Baumfeld	Minister of the Environment	2008-2010

CONAMA Executive Secretaries

Paulo Nogueira-Neto	Special Environment Secretary	1981-1986
Roberto Messias Franco	Special Environment Secretary	1986-1988
Ben Hur Luttembarck Batalha	Special Environment Secretary	1988-1989
Fernando César de Moreira Mesquita	IBAMA President	1989-1990
Werner Eugênio Zulauf	IBAMA President	1990
José Carlos Carvalho	IBAMA President	1990
Tânia Maria Tonelli Munhoz	IBAMA President	1990-1991
Eduardo de Souza Martins	IBAMA President	1991-1992
Maria Tereza Jorge Pádua	IBAMA President	1992
Flávio Miragaia Perri	IBAMA President	1992
Humberto Cavalcante Lacerda	IBAMA President (acting)	1992-1993
Simão Marrul Filho	IBAMA President	1993-1994
Nilde Lago Pinheiro	IBAMA President	1994-1995
Raul Belens Jungmann Pinto	IBAMA President	1995-1996
Eduardo de Souza Martins	IBAMA President	1996
Raimundo Deusdará Filho	Program Director/Ministry of the Environment	1997-1999
José Carlos Carvalho	Executive Secretary/Ministry of the Environment	1999-2002
Marcos Vinicius Caetano Pestana Silva	Executive Secretary/Ministry of the Environment	2002
Mônica Maria Libório Feitosa de Araújo	Executive Secretary/Ministry of the Environment	2002-2003
Claudio Roberto Bertoldo Langone	Executive Secretary/Ministry of the Environment	2003-2007
João Paulo Capobianco	Executive Secretary/Ministry of the Environment	2007-2008
Izabella Mônica Vieira Teixeira	Executive Secretary/Ministry of the Environment	2008-20 10

CONAMA Coordinators and Directors

Zélia de Azevedo Campos	Coordinator	1981-1984
Ana Maria Evaristo Cruz	Coordinator	1984-1993
Anna Ferreira Lopes	Coordinator	1993-1996
Rodolfo Lobo da Costa	Coordinator	1996-1997
Cristine Branco	Coordinator	1997-1998
Paulo Maurício Teixeira da Costa	Coordinator	1998-1999
Jair Sarmento da Silva	Director	1999-2001
Maurício Andrés Ribeiro	Director	2001-2002
Eleonora Galvarros Bueno Ribeiro	Director (acting)	2002-2003
Muriel Saragoussi	Director	2003-2004
Nilo Sérgio de Melo Diniz	Director	2004-2011

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Presentation

The National Environment Council (CONAMA) has, since its creation in 1981, broken new ground and its Resolutions are a reflection of the achievements and changes aimed at the sustainable use and exploitation of natural resources. The Council was created during a period that was initially marked by a political and cultural environment that envisioned development at any cost and has, since then, achieved its consolidation and established itself as a standard in the context of practices related to sustainable development.

The processes adopted for the presentation and maturation of environmental standards in conjunction with the representativeness of Council members have granted CONAMA an important role in political negotiations. It was not an easy task to establish the Council as a collegiate and deliberative organ composed of representatives from the three levels of the federation – federal, state and municipal Governments – and from the entrepreneurial sector of civil society. Respect for divergent views is constantly reflected in the creation of concrete proposals and Resolution subjects which incorporate different visions and interests. This is the contribution to democracy that the Council has made since its creation: to aggregate the different viewpoints of governmental sectors, safeguard a unified vision of debated public policies through a dialogue with all entities of the federation while seeking convergences and interaction with representatives from the entrepreneurial sectors, civil society, academic circles and environmental and social entities.

My personal involvement with CONAMA can be regarded as intense. It was in this Council, while working as an assistant to Dr. Paulo Nogueira-Neto, the Presidency of the Republic's Special Secretary to the Environment Secretariat (Sema), that I started my career in the environment area within the Federal Government. Several years later, as the Executive Secretary of the Ministry of the Environment and of the CONAMA Council and later as Minister of the Environment and Council President, I realized that the creation of standards and regulations, compatible with a healthy environment, demanded decisive governance from the different levels of the government, the entrepreneurial sector and organized society in general.

The challenges facing the sustainable development agenda during the next years are centered in a few central topics such as climate and energy safety, subjects that demand clean matrixes and substantial progress in the area of renewable energy sources; food safety; the protection of biodiversity through the preservation of forests and the safeguarding of genetic resources; world peace, the eradication of poverty and the implementation of environmental justice.

The environment is a strategic variable in each of the above mentioned challenges and must be considered in every decision making process and in every action aimed at safeguarding development practices that harmonize economic growth, social equality and environmental sustainability. None of the world's countries will abdicate from economic development. Therefore, we need to be innovative, pragmatic and to promote social actions that further the implementation of sustainable development.

CONAMA must, in light of the complexity of the global environmental agenda, adopt a strong and leading role and set well defined objectives and consensual strategies. It is also fundamental to incorporate the different political agendas in the work of the Council in order to find consensus in a common base. The implementation of governmental decisions cannot ignore the contributions from organized civil society or from the productive sectors and requires the active participation of all citizens. Another objective that must be reached is the convergence between public and private management and in particular social and environmental sustainability.

These are the visions I embraced when I accepted the post as CONAMA's Executive Secretary and that I uphold today as President. During this period we have launched new methodological options, added new topics to the Council's work agenda, including measures that assure a stronger and more focused engagement, balanced, responsive and directed towards the implementation of approved Resolutions. These actions resulted in the creation and adoption, during the final months of 2011, of a new set of Internal Council Regulations.

The Ministry of the Environment hereby offers society an actualized version of the book containing CONAMA Resolutions, published during the United Nations Conference on Sustainable Development, the Rio+20.

It is my hope that CONAMA's Council members will enjoy and profit from the opportunities offered by a Conference on the level of Rio+20 and that it will incentivize them to further standards related to its main topics. These topics need to be addressed through adequate standards and assertive actions in harmony with the complexities of the current world situation. The Brazilian government is committed to the implementation and development of a green economy and to the eradication of all forms of poverty and these commitments

must be addressed by future CONAMA Resolutions.

I offer the current edition of the actualized book of CONAMA Resolutions to all participants of the Rio+20 Conference and I am convinced that the work undertaken by the Council represents a significant 30-yearlong Brazilian contribution to the achievement of an increasingly prosperous and sustainable society.

Izabella Mônica Vieira Teixeira
Minister of the Environment and CONAMA President

The National Environment Council (CONAMA) celebrated its 30th anniversary in August 2011. The Council held a commemorative meeting under the theme - 30 Years on the Path to Sustainability – which refers to the substance of CONAMA Resolutions: the creation of standards aimed at the furthering of sustainable and inclusive development.

Brazil has, during the last 30 years, adopted innovative methods for environmental preservation through the production of standards issued by CONAMA. Some examples of historic resolutions that have changed the landscape of environmental policies in the country are CONAMA resolution 1, from 1986, which established directives for the assessment of environmental impacts and CONAMA Resolution 18, also issued during 1986, which created the Program for the Control of Air Pollution by Motorized Vehicles.

During 1992, the year of the United Nations Conference on the Environment and Development, Rio 92, while the world debated the protection of current and future generations and the right to progress on all levels, as well as the methods for the furthering of sustainable development, Brazil was already creating standards through CONAMA based on the acknowledgement of the need to impose limits to economic interventions and on the adoption of a balanced approach to nature based on the fact that each individual lifestyle, country or society is responsible for the impact it has on the environment.

Industrial activity regulation and pollution control have been constantly addressed by the Council and have led to several resolutions related to the environmentally correct destination of wastes, such as tyres and different forms of batteries, anticipating mechanisms such as reverse logistics which were later consolidated through Federal Law 12.305/2010 regarding the obligations of the entrepreneurial sector in relation to used and discarded consumer goods.

During this year of 2012 Brazil is home to the United Nations Conference on Sustainable Development, Rio+20, a Conference that focuses on the methods that can further the relationship between the environment, social inclusion and development.

CONAMA Resolutions, passed both before and after Rio 92 have placed Brazil as one of the leading nations in relation to the adoption of environmental public policies. Rio+20 is another important benchmark for the establishment of directives for the next decades. It is the ambition of CONAMA, during the year of the most important Conference on Development of this decade, to increase its activities, actualize its mission and improve its contribution to the development of Brazil in harmony with current challenges.

It is in this context that the actualized edition of the book of CONAMA Resolutions is published. The Ministry of the Environment, through the publication of the collected work of the Council, acknowledges the importance of the contributions by members of the Council that have, during the last 30 years, worked to achieve an increasingly developed Brazil, more inclusive and environmentally just and sustainable.

Francisco Gaetani

Executive Secretary/Ministry of the Environment and CONAMA

CONAMA

CONAMA is in fact one of the world's rare environment parliaments. Its composition is decided by the powers of the Brazilian Federation and includes representatives from all States of the Brazilian Federation as well as the Federal District of Brasilia and, apart from the elected members and those appointed by the most representative entities of the economic, includes the industrial and agricultural sectors, members that represent civil society through environmental entities of the Republic, and the Federal Government through its main Ministries. Resolutions are reached through voting by the 109 members. Voting is preceded by studies and debates within the respective committees which study each subject matter, including legal aspects, before resolutions are debated and put to a vote by the plenary. However, and in spite of all this details, the remit of CONAMA is not to make laws as that this is the sole responsibility of legislative federal organs such as the Senate and the Chamber of Deputies.

The remit of CONAMA is restricted to the Regulation of Laws, in other words how they should be effectively implemented in order to protect the environment and the natural resources of the Federative Republic of Brazil. As Brazil is a true Federation, each State is entitled to make State Laws through their own legislative organs, some even more stringent than Federal laws.

The whole legislative architecture is aimed at safeguarding immediate and viable decisions for the environment, to optimize the exploitation of natural resources and safeguard, in particular, a quick and safe decision making process. If any of the decisions made by CONAMA show any failing the Council is always prepared to revise the matter, whenever necessary.

The National Environment Policy launched during a difficult political period in 1981, which created CONAMA, was approved by both Governmental and Opposition parties. I participated in the creation of this Basic Law and I witnessed that environmental matters have the power to unify members from all Political Parties, and lead them to defend our greater ideals such as the preservation of the environment and the optimization of exploited natural resources.

The collective decision making process connected to CONAMA Resolutions, now in its third edition, guarantees that decisions, including revisions, are well founded, enriched and lead to the best solutions and propositions that can be expected by Brazilian society. We must also join forces in order to defend these ideals on a universal level such as on the level of the International Conference Rio+20, and act decisively under the leadership of the CONAMA President, Minister Izabella Mônica Vieira Teixeira and The President of the Republic, Dilma Rousseff.

Paulo Nogueira-Neto

Current CONAMA Counselor and one of its Founding members
Special Secretary for the Environment from 1974 to 1986

CONAMA OPERATIONS

The National Environmental Council (CONAMA) has a collegial organization structure and is a deliberative and consultative organ of the National Environment System (SISNAMA).

CONAMA was created through Law 6.938 issued on August 31, 1981, which instituted the National Environment Policy. The competence of the Council is set by the above Law, regulated by Decree 99.274 issued on June 6, 1990 and its posterior alterations.

During its 30 yearlong existence CONAMA has been linked to the Interior Ministry, the Presidency of the Republic's Special Secretariat for the Environment (SEMA/PR) and to the Brazilian Institute for the Environment and Renewable Resources (IBAMA). The Council is currently linked to the Ministry of the Environment which was created through Law 8.490 issued on November 19, 1992.

RESPONSIBILITIES AND COMPETENCE

The Council was created in order to provide assistance, undertake studies and present proposals to the Government Council and other Environmental organs and to deliberate, within its competence, on standards and that lead to the preservation of a balanced environment as a prerequisite for healthy life conditions.

CONAMA's capacities are, according to art. 7 of Decree 99.274/1990:

I - establish standards and criteria, upon request from IBAMA, for the issuing of licenses granted by the Union, States, Federal District and Municipalities for activities that effectively, or potentially, pollute the environment under the supervision of Brazilian Institute for the Environment and Renewable Resources (IBAMA);

II - decide, when deemed necessary, to undertake studies on alternatives and possible environmental consequences related to public or private projects and to request pertinent indispensable information for the undertaking of environmental impact studies from federal, state and municipal organs, and request the respective reports in cases related to construction or activities that imply significant environmental degradation and in particular within areas considered as national patrimony;

III - determine, through the Special Recourse Chamber which is the last instance administrative organ, the recourses related to fines and other penalties imposed by IBAMA¹;

IV - determine, through IBAMA representation, the loss or restriction of general or conditional fiscal benefits granted by Public Powers as well as the loss or suspension of financial credit lines granted by public credit establishments

V - establish, exclusively, national standards and standards for the control of pollution caused by motorized vehicles, airplanes and embarkations after consultations with the respective Ministries;

VI - establish, standards, criteria and standards related to the control and maintenance of the quality of the environment in order to fulfill the rational exploitation of natural resources and Water resources in particular;

VII - assist, study and propose governmental policy directives on the environment and natural resources to the Government Council;

VIII - deliberate, within its competence, on standards and standards compatible with an ecologically balanced environment essential for a healthy quality of life;

IX - establish technical criteria for critical areas, saturated or in risk of saturation;

X - follow the implementation of the National System of Natural Conservation Areas (SNUC) according to the provisions of item I of art. 6 of Law 9.985 issued on July 18, 2000;

XI - propose systems for the monitoring, assessment and fulfillment of environmental standards;

XII - provide incentives for the institutional strengthening of State and Municipal Environment Councils related to the management of environmental resources as well as to Water Basin Committees;

XIII - evaluate the implementation and performance of Brazil's environmental policies;

XIV - request Quality Reports from the respective environmental organ(s) according to art.9 item X of Law 6.938 issued on August 31st, 1981;

XV - establish a system for the spreading of operational information;

XVI - promote the integration of collegiate environmental organs;

XVII - create, approve and follow the implementation of the National Environment Agenda which is presented as a recommendation to SISNAMA organs and entities;

XVIII - deliberate on the contents of resolutions, propositions and motions in order to comply with the objectives of the National Environment Policy, and

XIX - create internal regulations.

§ 1 The standards and criteria for the licensing of activities that are potentially or effectively polluting must comply with the necessary requirements for environmental protection.

¹ Capacity removed by Law 11.941/09, however, the Special Recourse Chamber is (CER) is still operational through a legal agreement and continues to analyze processes that have been finalized prior to May 27, 2009.

§ 2 The penalties foreseen in item IV of this article will only be applicable to cases previously defined in specific CONAMA Resolutions and the defendant is granted the right of contestation

§ 3 CONAMA must take into consideration, when setting standards, criteria and standards related to the control and maintenance of environmental quality, the capacity for self-regeneration of the affected areas and the need to establish generic measurable parameters.

§ 4 The National Environment Agenda that is the subject of item XVII of this article is a document that will be forwarded to SISNAMA with recommendations regarding subjects, programs and projects considered a priority for the improvement of environmental quality and the country's sustainable development and set the objectives that should be reached during a two year period.

COMPOSITION AND OPERATIONS

CONAMA is an important instance for social participation and cooperation between the government and society in general and allows for a relevant environmental debate between representatives of the Federal Union, states and municipalities as well as private initiatives and civil society organizations.

The Council's composition and operations have evolved during the past 30 years through changes to its Internal Regulations (RI) and their latest revision during the end of 2011. The most important restructuring was made by the work that became known as "Rethinking CONAMA", between 1999 and 2001. The Council previously counted with the participation of 72 members and was increased to over 100 counselors and the participation of Municipalities, Civil Society and the Entrepreneurial Sector. Furthermore, the Council, which previously operated through Technical Chambers restricted to Council members, created Work Groups which opened the Resolution elaboration process to include participants from the entire civil society.

CONAMA is presided by the State Minister of the Environment and its executive secretary is the Executive Secretary of the same Ministry and support team that lends technical and administrative assistance to the Council. CONAMA is composed by 5 representatives that are directly related to environmental matters: **the Federal Government, state and municipal governments, the entrepreneurial sector and civil society**, the latest is represented by members of environmental organizations, the scientific community, indigenous and traditional peoples, class organizations and labor movements. Apart from the above representatives CONAMA also includes representatives from the State and Federal Public Ministry and the National Congress, representatives that do not have the right to vote.

The members of CONAMA are:

106 Council members with the right to vote:

- The Minister of the Environment and the Executive Secretary of the Ministry of the Environment;
- 1 member from each of the Ministries, the Presidency of the Republic's Secretariat and the Military Command from the Ministry of Defense, Brazilian Environment and Renewable Natural Resources Institute, The National Water Agency, appointed by the respective leaders and totaling 27 Council members;
- 1 member from each of the Federal Governments and the Federal District of Brasilia, appointed by the respective leaders and totaling 27 Council members;
- 8 members from Municipal Governments;
- 22 members from civil society (labor unions, NGOs etc.);
- 8 members from private enterprises; and
- 1 honorary member appointed by the Plenary.

3 Council members without the right to vote:

- 1 member representing the Federal Public Ministry;
- 1 member representing the State Public Ministries, appointed by the National General Attorney Council; and
- 1 member representing the Chamber of Deputies' Commission for the Environment and Sustainable Development.

The Council instances are the **Plenary**, the **Committee for the Integration of Environmental Policies** (CIPAM), the **Technical Chambers**, the **Working Groups** and the **Advisory Groups**.

The **Technical Chambers (CTs)** are instances charged with the creation, the debate, the approval and the forwarding to the Plenary of directives, technical standards and environmental standards for environmental control and the sustainable exploitation of environmental resources. The Professional Chambers are composed of 10 members and count with the participation of different categories representing several sectors of Plenary representation and are appointed for a 2 year period. CONAMA has

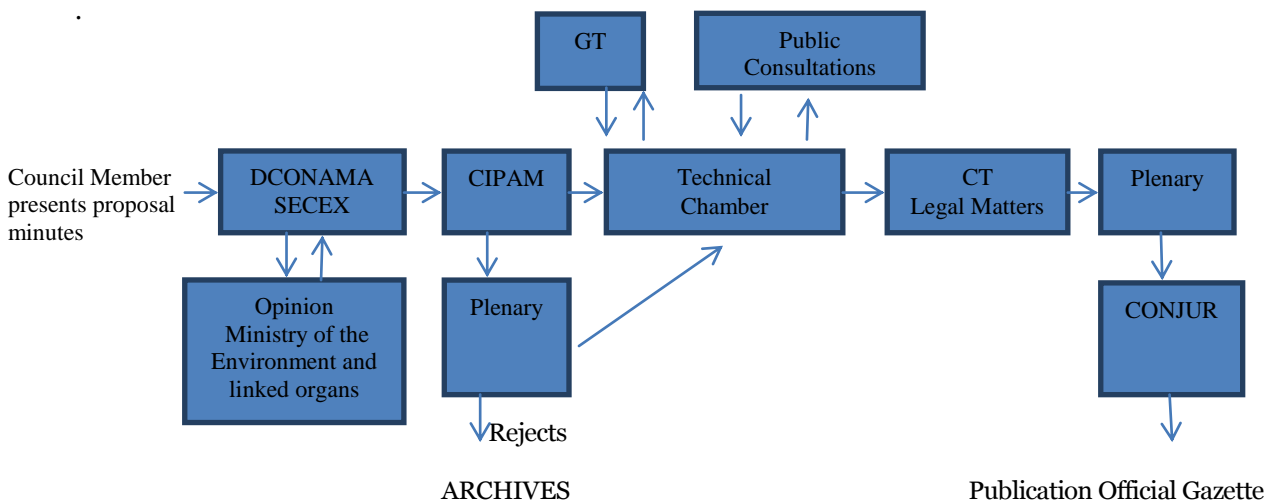
currently 7 Professional Chambers dealing with:

- Biodiversity;
- Environmental Control;
- Forests and other Vegetation types;
- Environmental Quality and Residual Management;
- Environmental Education and Sustainable Development;
- Territorial Management, Conservation Areas and other Protected Areas;
- Legal Affairs.

Subjects, based on written relator opinions, are debated and deliberated by the Professional Chambers after consultations with the professional organs of the Ministry of the Environment and the Brazilian Institute for the Environment and Renewable Natural Resources or the National Water Agency. Once approved the subjects are forwarded to the Legal Matters Professional Chamber which deliberates on the legality of the subject matter and its constitutionality before forwarding the matter to the Plenary.

The **Plenary** is the highest instance of the Council and reaches decision on proposals for **resolutions** forwarded by the Professional Chambers as well as on proposals for **recommendations, motions and decisions**. The Plenary usually meets once every three months as long as at least half of its members can be present and decisions are reached by single majority, half of the votes plus one of the present Plenary members. Once approved decisions are published in the Official Gazette and other CONAMA actions are published in the Service Bulletin of the Ministry of the Environment.

The **Committee for the Integration of Environmental Policies (CIPAM)** has achieved an important new role through the adoption of the new CONAMA Internal Regulations: it now assesses the pertinence of the subjects that are presented to CONAMA. The Committee is composed of 10 council members, two from each of the segments that compose CONAMA, and 1 president appointed by the Ministry of the Environment. It is the instance that deals with planning and technical and political integration and is also responsible for systematic assessments and the short, medium and long term planning of activities and, among other remits, the promotion of integration of themes debated by the Council.



The CONAMA organization also includes two other possible consultative instances:

Working Groups (GTs): When needed, the Professional Chambers can create Work Groups in order to improve and provide assistance to debates on professional subject matters. A Working Group is composed of a minimum of 10 members, with two members from each of the segments that form CONAMA and they always meet in public sessions and their final work is forwarded to the original Professional Chamber, and their report may include possible dissent on subjects' debate during meetings. The mandate of a Work Group is one year and this period can be extended by the Professional Chamber that created it.

Advisory Groups (GAs): are created by CONAMA'S Plenary which sets their scope and composition. They are also temporary and are dissolved as soon as their work is concluded. Support Groups gather opinions, reports and specific studies requested by the Plenary.

To get further information on CONAMA and participate in its discussions access the site www.mma.gov.br/conama

CONAMA's Advisory Department

INTRODUCTION

This special edition of the **BOOK OF RESOLUTIONS ISSUED BY THE NATIONAL ENVIRONMENT COUNCIL (CONAMA)** includes only normative resolutions issued between November 1984 and February 2012 and differs from the previous edition which also included administrative resolutions. The main objective of this edition is to collect and actualize CONAMA'S production and to distribute it during the United Nations Conference on Sustainable Development (Rio+20) that will take place between June 20 and 22 in Rio de Janeiro. The second objective is to communicate, through this new publication, the effect of the 1992 Conference on CONAMA'S work as far as results and directives are concerned.

In order to facilitate consultations on resolution we have prepared two indexes in the book: **Chronological**, with Resolutions according to years, according to the date of issue and from the most recent (448/2012) to the oldest one (11/1984) and a **Topical** Index which classifies Resolutions under the following identification keys:

- Protected Areas
- Biomes
- Environmental Education
- Fauna and Flora Species Management
- Water Quality
- Noise and Air Pollution Control
- Management of Wastes and Hazardous Products
- Environmental Licenses

Data and Information Systems - Registries These are the main topical keys but secondary topics have also been used in secondary classifications and according to their relevance.

These are the main topical keys but secondary topics have also been used in secondary classifications and according to their relevance.

Each Resolution includes its number, date of enforcement, data related to its publication in the Official Gazette or Service Bulletin, a heading and existing correlations.

All Resolutions published in this edition and the entire collection of CONAMA acts can be accessed through the CONAMA Internet site: www.mma.gov.br/conama.

At the end of the book you can also find a list of **Acronyms**.

It is also important to mention that the texts published in this book do not, for legal purposes, substitute those published in the Official Gazette.

In case of mistakes or omissions in this book please forward corrections or observations to conama@mma.gov.br or to the postal CONAMA address at the Ministry of the Environment. Your cooperation is very important in order to safeguard the quality of future editions of this publication and the content of the Internet site.

CHRONOLOGICAL INDEX OF CONAMA RESOLUTIONS published between September 1984 and January 2012

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Resolution 448, from Jan. 18, 2012	252
Published in Official Gazette 14, on Jan. 19, 2012 , page 76 <i>Changes articles 2, 4, 5, 6, 8, 9, 10 and 11 of Resolution 307, issued on July 5, 2002</i>	
2011	PAGE
Resolution 447, Dec. 30, 2011	243
Published in Official Gazette 2, on Jan. 3, 2012, pages 129 - 132 <i>Approves the list of indicator species and the successional</i>	
Resolution 446, Dec. 30 2011	240
Published in Official Gazette 2, on Jan. 3, 2012, page 129 <i>Approves the list of indicator species of the successional stages of beach vegetation in the state of Rio Grande do Norte, according to the provisions of Resolution 417 from November 23, 2009.</i>	
Resolution 445, Dec. 30, 2011	237
Published in Official Gazette 2, on Jan. 3, 2012, pages 128 – 129 <i>Approves the list of successional stages indicator species of the beach vegetation in the State of Piauí, according to Resolution 417 from Nov. 23, 2009.</i>	
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Published in Official Gazette 2, on Jan. 3, 2012, pages 127 - 127 <i>Approves the list of successional stages indicator species of the Beach vegetation in the State of Alagoas, according to Resolution 417 from Nov. 23, 2009.</i>	
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Published in Official Gazette 2, on Jan. 3, 2012, page 127 <i>Approves the list of successional stages indicator species of the Beach vegetation in the State of Sergipe, according to Resolution 417 from Nov. 23, 2009.</i>	
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Published in Official Gazette 2 on Jan.3, 2012 pages 126-127 <i>Approves the list of successional stages indicator species of the Beach vegetation in the State of Ceará, according to Resolution 417 from Nov. 23, 2009.</i>	
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Published in Official Gazette 2 on Jan. 3, 2012 pages 124-126 <i>Approves the list of successional stages indicator species of the Beach vegetation in the State of Rio Grande do Sul, according to Resolution 417 from Nov. 23, 2009</i>	
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Published in Official Gazette 2 on Jan. 3, 2012 pages 121 – 123 <i>Approves the list of successional stages indicator species of the Beach vegetation in the State of Pernambuco, according to Resolution 417 from Nov. 23, 2009.</i>	
Resolution 439, Dec, 30, 2011	209
Published in Official Gazette 2 on Jan. 3, 2012 pages 120 – 121 <i>Approves the list of successional stages indicator species of the Beach vegetation in the State of Paraíba, according to Resolution 417 from Nov. 23, 2009.</i>	
Resolution 438, Dec. 30, 2011	199
Published in Official Gazette 2 on Jan. 3, 2012 pages. 117 – 120 <i>Approves the list of successional stages indicator species of the Beach vegetation in the State of Espirito Santo, according to Resolution 417 from Nov. 23, 2009</i>	
Resolution 437, Dec. 30, 2011	191
Published in Official Gazette 2 on Jan. 3, 2012 <i>Approves the list of successional stages indicator species of the Beach vegetation in the State of Bahia, according to Resolution 417 from Nov. 23, 2009.</i>	
Resolution 436, Dec. 2, 2011	424

Published in Official Gazette 247 on Dec. 26, 2011, pages 304 - 311

Establishes the maximum rates of atmospheric pollution emissions from point sources or sources with operational licenses granted before Jan. 2, 2007.

Resolution 435, Dec. 16, 2011 569

Published in Official Gazette 243 on Dec. 20, 2011, page 99

Changes the texts of articles 20 and 33 of Resolution 418 from Nov, 25, 2009, changed by Resolution 426 from Dec. 14, 2010, and regulates the date of enforcement for inspection and maintenance programs, of motorcycles and similar vehicles with 4 Otto moped engines, in states and municipalities.

Resolution 433, July 13, 2011 553

Published in Official Gazette 134 on July 14, 2011 page 69

Provisions the inclusion of Motor Vehicles in the Air Pollution Program (PROCONVE) and establishes the maximum rates of noise emissions by new agriculture machines and new roadways.

Resolution 432, July 13, 2011 549

Published in Official Gazette 134 on July 14, 2011, page 69

Establishes new phases for the control of polluting gas emissions by mopeds, motorcycles and new similar vehicles and makes other provisions.

Resolution 431, May 24, 2011 765

Published in Official Gazette 99 on May 25, 2011, page 123

Changes art. 30 of Resolution 307 from July 5, 2002, issued by the National Environment Council (CONAMA) establishing a new classification for plaster.

Resolution 430, May 13, 2011 339

Published in Official Gazette 92 on May 16, 2011, page 89

Provisions the conditions and standards of effluents and complements and changes Resolution 357 from March 17, 2005 issued by the National Environment Council (CONAMA).

Resolution 429, Feb, 28, 2011 76

Published in Official Gazette 43 on March 2, 2011, page 76

Establishes provisions for the methodology used for the recuperation of Permanent Preservation Areas (APP:s).

2010

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Resolution 428, Dec. 17, 2010 880

Published in Official Gazette 242 on Dec. 20, 2010, page 805.

Establishes provisions, in respect to environmental licenses regarding permits issued by the organ responsible for the administration of the Conservation Unit (UC) that is the subject of § 3 of art. 36 of Law 9.985 from July 18, 2000, as well as on the awareness of the organ responsible for the administration of the Conservation Unit (UC) in respect to environmental licenses for enterprises that are not subjected to EIA-RIMA and makes other provisions.

Resolution 426, Dec. 14, 2010 568

Published in Official Gazette 164 on Dec. 15, 2010, page 164

Changes art. 5 and art. 12 of CONAMA Resolution 418 from 2009 and establishes new deadlines for the Plan for the Control of Vehicle Pollution and the Program for the Inspection and Maintenance of Vehicles in Use.

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Resolution 425, May, 25, 2010 764

Published in Official Gazette 100 on May 27, 2010 page 53

Establishes criteria for the characterization of sustainable agropecuary activities and enterprises undertaken by family farmers, rural family enterprises and traditional populations and communities of social interest, aimed at the production, intervention and recuperation of Permanent Preservation Areas and other areas of limited use.

Resolution 424, April 22, 2010 255

Published on Official Gazette 76 on April 23, 2010 page 113

Revokes the single paragraph of art. 16 of CONAMA Resolution 401/2008.

Resolution 423, April 12, 2010 888

Published in Official Gazette 69 on April 13, 2010, pages 55-57

Establishes provisions and basic parameters for the identification and analysis of primary vegetation and the successional stages of secondary vegetation in Elevation Fields associated to or part of the Atlantic Forest.

Resolution 422, March 23, 2010 888

Published in Official Gazette 56 on March 24, 2010 page 91

Establishes directives for the campaigns, actions and projects related to Environmental Education according to the provisions of Law 9.795, issued on April 27, 1999, and makes other provisions.

Resolution 421, Feb. 3, 2010.....	763
<i>Published in Official Gazette 24 on Feb. 4, 2010, page 74</i>	
<i>Establishes provisions related to the revision and actualization of CONAMA Resolution 344 from March 25, 2004.</i>	

2009

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Resolution 420, Dec. 12, 2009.....	748
<i>Published in Official Gazette 249 on Dec. 30, 2009, pages 81-84</i>	
<i>Establishes provisions for the criteria and guiding values regarding soil quality and the presence of chemical substances and establishes directives for the environmental management of contaminated areas by those substances due to anthropic practices</i>	
Resolution 418, Nov. 25, 2009.....	560
<i>Published in Official Gazette 226 on Nov. 26, 2010 pages 81-84</i>	
<i>Establishes provisions for the creation of Plans for the Control of Vehicle Pollution (PCPV) and for the establishment of Programs for the inspection and Maintenance of Vehicles in USE (I/M) by state and municipal environmental organ and sets new limits for emissions and proceedings for the evaluation of the state of vehicles in use.</i>	
Resolution 417, Nov. 23, 2009.....	187
<i>Published in Official Gazette 224 on Nov. 24, 2009, page 72</i>	
<i>Establishes provisions and basic parameters for the definition of primary vegetation and for the successional secondary stages of the Beach within the Atlantic forest and makes other provisions</i>	
Resolution 416, Sept. 30, 2009	745
<i>Published in Official Gazette 188 on Oct. 1, 2009, pages 64-65</i>	
<i>Establishes provisions for the preservation of environmentally degraded areas due to discarded tyres and their environmentally adequate destination, and makes other provisions</i>	
Resolution 415, Sept. 24, 2009	545
<i>Published in Official Gazette 184 on Sept. 25, 2009, pages 53-54</i>	
<i>Establishes provisions for the new phase (PROCONVE L6) regarding demands set by the Program for the Control of Air Pollution by Motor Vehicles (PROCONVE) for new light road motor vehicles, and makes other provisions.</i>	
Resolution 416, Sept. 30, 2009	745
<i>Establishes provisions for the preservation of environmentally degraded areas due to discarded tyres and their environmentally adequate destination, and makes other provisions.</i>	
Resolution 415, Sept. 24, 2009	545
<i>Published in Official Gazette 184 on Sept. 25, 2009, pages 53-54</i>	
<i>Establishes provisions for the new phase (PROCONVE L6) regarding demands set by the Program for the Control of Air Pollution by Motor Vehicles (PROCONVE) for new light road motor vehicles, and makes other provisions</i>	
Resolution 414, Sept. 24, 2009.....	543
<i>Published in Official Gazette 184 on Sept. 25, 2009, pages 52-53</i>	
<i>Changes CONAMA Resolution 18 from May 6, 1986 and restructures the Monitoring and Assessment of PROCONVE-CAP, its objectives, competencies, composition and operation</i>	
Resolution 413, June 26, 2009.....	868
<i>Establishes provisions for the granting of agricultural environmental licenses and makes other provisions</i>	
Resolution 412, May 13, 2009.....	866
<i>Published in Official Gazette 90 on May 14, 2009, pages 93-96</i>	
<i>Establishes criteria and directives for the granting of environmental licenses to new enterprises engaged in the construction of Social Interest housing</i>	
Resolution 411, May 6, 2009	900
<i>Published in Official Gazette 86 on May 8, 2009, pages 93-96</i>	
<i>Establishes provisions for inspection procedures related to industries that consume or process natural forest products and sub-products, as well as setting the respective nomenclature standards and volume yield coefficients, including vegetal coal and saw mill wastes.</i>	

Resolution 410, May 4, 2009	338
Published in Official Gazette 83 on May 5, 2009, page 106	
<i>Extends the deadline for the fulfillment of the conditions and standards related to effluent releases, foreseen in art. 44 of Resolution 357 issued on March 17, 2005 and in art. 3 of Resolution 397 issued on April 3, 2008.</i>	

Resolution 406, Feb. 2, 2009	292
Published in Official Gazette 26 on Feb. 6, 2009, page 100	
<i>Establishes technical parameters to be adopted for the preparation, presentation, technical assessment and enforcement of Sustainable Forestry Exploitation Plans (PMFS) related to the logging of native forests and their successional stages, within the Amazon biome.</i>	

2008

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Resolution 404, Nov. 11, 2008	864
Published in Official Gazette 220 on Nov. 12, 2008, page 93	
<i>Establishes criteria and directives for the granting of environmental licenses for small sanitary embankments of solid urban wastes.</i>	

Resolution 403, Nov. 11, 2008	537
Published in Official Gazette 220 on Nov. 12, 2008, page 92	
<i>Establishes provisions for the new phase of demands imposed by the Program for the Control of Air Pollution by Motor Vehicles (PROCONVE) for new heavy vehicles (Phase P-7), and other provisions</i>	

Resolution 402, Nov. 17, 2008	863
Published in Official Gazette 224 on Nov. 18, 2008, page 66	
<i>Changes articles 11 and 12 of Resolution 335 issued on April 3, 200, which provisions the granting of environmental licenses for cemeteries.</i>	

Resolution 401, Nov. 4, 2008	740
Published in Official Gazette 215 on Nov. 5, 2008 pages 108-109	
<i>Establishes the maximum amounts of lead, cadmium and mercury for batteries sold within the national territory and the criteria and standards for their adequate environmental management and makes other provisions.</i>	

Resolution 398, June 11, 2008	726
Published in Official Gazette 111 on June 12, 2008 pages 101-104	
<i>Establishes provisions for the minimum content of the Individual Emergency Plan for oil pollution incidents in waters under national jurisdiction within organized ports, port installations, terminals, ducts, land probes, platforms and support installations, refineries, shipyards, marinas, nautical clubs and similar installations, and provides guidelines for its elaboration.</i>	

Resolution 397, April 3, 2008	336
Published in Official Gazette 66 on April 7, 2008 pages 68-69	
<i>Changes item II of § 4 and Table X of § 5 both part of art. 34 of the National Environment Council (CONAMA) Resolution 357 from 2005 which establishes provisions for the classification of water bodies and environmental framework directives as well as establishing the conditions and standards for effluent releases.</i>	

Resolution 396, April 3, 2008	326
Published in Official Gazette 66 on April 7, 2008 pages 64-68	
<i>Establishes provisions related to the classification and groundwater environmental directive framework and makes other provisions.</i>	

2007

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Resolution 394, Nov. 6, 2007	273
Published in Official Gazette 214 on Nov. 7, 2007 pages 78-79	
<i>Establishes the criteria for the determination of wild species that can be bred and commercialized as pet animals.</i>	

Resolution 393, August 8, 2007	323
Published in Official Gazette 153 on August 9, 2007 pages 72-73	
<i>Establishes provisions for the continuous release of processed water or water produced on oil and natural gas sea platforms and makes other provisions.</i>	

Resolution 392, June 25, 2007	167
Published in Official Gazette 121 on June 26, 2007 pages 41-42	
<i>Defines the regeneration of primary and secondary vegetation of the Atlantic Forest in the State of</i>	

Resolution 391, June 25, 2007	165
Published in the Official Gazette 121 on June 26, 2007 page, 41 <i>Defines primary and secondary vegetation in initial, medium and advanced stages of regeneration of the Atlantic Forest in the State of Paraíba.</i>	
Resolution 388, Feb. 23, 2007	163
Published in Official Gazette 38 on Feb. 26, 2007, page 63 <i>Establishes provisions for the ratification of Resolutions which define the primary and secondary vegetation of the Atlantic Forest in initial, medium and advanced stages of regeneration in order to comply with the provisions of art. 40 § 1 of Law 11.428, issued on Dec. 22, 2006.</i>	
2006	
	PAGE
Resolution 387, Dec. 27, 2006	853
Published in Official Gazette 249 on Dec. 29, 2006, pages 665-668 <i>Established the procedures for the granting of Environmental Licenses for Agrarian Reform Settlement Projects and makes other provisions.</i>	
Resolution 386, Dec. 27, 2006	725
Published in Official Gazette 249 on Dec. 29, 2006, page 665 <i>Changes art. 18 of CONAMA Resolution 316 from October 29, 2002.</i>	
Resolution 385, Dec. 27, 2006	852
Published in Official Gazette 249 on Dec. 29, 2006, page 665 <i>Establishes the parameters to be adopted for the granting of environmental licenses agro-industries with small and low environmental impact.</i>	
Resolution 384, Dec. 27, 2006	267
Published in Official Gazette 249 on Dec. 29, 2006, pages 663-664 <i>Regulates the provisional concession of domestic storage of seized wild animals and makes other provisions.</i>	
Resolution 382, Dec. 26, 2006	398
Published in Official Gazette 1 on Jan. 2, 2007, pages 131-137 <i>Establishes the maximum levels of pollution emissions by stationary sources</i>	
Resolution 381, Dec. 14, 2006	788
Published in Official Gazette 240 on Dec. 15, 2006, pages 155-156 <i>Changes the provisions of Resolution 306 issued on July 5, 2002 and Annex II, which deals with the minimum demands for the realization of environmental audits</i>	
Resolution 380, Oct. 31, 2006	613
Published in Official Gazette 213 on Nov. 7, 2006, page 59 <i>Ratifies CONAMA Resolution 357/2006 – defines criteria and procedures for the agricultural use of sewage sludge generated in sewer treatment plants and their derivative products, and makes other provisions</i>	
Resolution 379, Oct. 19, 2006	896
Published in Official Gazette 202 on Oct. 20, 2006, pages 175-176 <i>Creates and regulates the data and information system on forest management by the National Environment System (SISNAMA).</i>	
Resolution 378, Oct. 19, 2006	787
Published in Official Gazette 202 on Oct. 20, 2006, page 175 <i>Defines enterprises that can potentially impact the national or regional environment in order to comply with the provisions of item IIID, § 1, art. 19 of Law 4.771 issued on Sept. 15, 1965 and makes other provisions.</i>	
Resolution 377, Oct. 9, 2006	850
Published in Official Gazette 195 on Oct. 10, 2006, pages 141-146 <i>Establishes provisions for the granting of simplified environmental licenses for Sanitary Sewer Systems</i>	
Resolution 375, Aug. 29, 2006	592
Published in Official Gazette 167 on Aug. 30, 2006, pages 141-146 <i>Defines criteria and procedures for the agricultural use of sewage sludge generated in sewage treatment plants and their derivate products, and makes other provisions</i>	
Resolution 373, May 9, 2006	535
Published in Official Gazette 88 on May 10, 2006, page 102.	

<i>Defines the criteria for the selection of areas supplied with Diesel Oil with Low Sulfur Content (DMTE) and makes other provisions</i>	87
Resolution 371, April 5, 2006	
Published in Official Gazette 67 on April 6, 2006, page 45	
<i>Establishes directives for environmental organs related to the calculation, collection, application, approval and control of spending of resources collected from environmental compensations according to Law 9,985 issued on July 18, 2000, which creates the National System of Natural Conservation Units (SNUC) and makes other provisions</i>	
Resolution 370, April 6, 2006	322
Published in Official Gazette 68 on April 7, 2006, page 235	
<i>Extends the deadline for compliance with the conditions and standards for effluent releases foreseen in art. 44 of Resolution 357 from March 17, 2005.</i>	
Resolution 369, March 28, 2006	68
Published in Official Gazette 61 on March 29, 2006, pages 150-151	
<i>Establishes provisions for exceptional cases of public and social interest or with low environmental impact which allow for interventions or suppressions of the vegetation in Permanent Preservation Areas (APPs)</i>	
Resolution 368, March 28, 2006	849
Published in Official Gazette 61 on March 29, 2006, pages 149-150	
<i>Changes the provisions of Resolution 335 from April 3, 2003, which provisions the granting of environmental licenses for cemeteries</i>	
2005	PAGE
Resolution 362, June 23, 2005	716
Published in Official Gazette 121 on June 27, 2005, pages 128-130	
<i>Establishes provisions for the gathering, collection and final destination of used or contaminated lubrication oil.</i>	
Resolution 359, April 29, 2005	588
Published in Official Gazette 83 on May 3, 2005, pages 63-64	
<i>Establishes provisions for the regulation of phosphor content in powder detergents used in the entire national territory and makes other provisions.</i>	
Resolution 358, April 29, 2005	710
Published in Official Gazette 84 on May 5, 2005, pages 63-65	
<i>Establishes provisions for the treatment and final disposal of health service wastes and makes other provisions.</i>	
Resolution 357, March 17, 2005	300
Published in Official Gazette 53 on March 18, 2005, pages 58-63	
<i>Establishes provisions for the classification of water bodies as well as environmental directives for their framework, establishes conditions and standards for effluent releases and makes other provisions.</i>	
2004	PAGE
Resolution 354, Dec. 13, 2004	533
Published in Official Gazette 239 on Dec. 14, 2004, pages 62-63	
<i>Establishes provisions for the adoption of on board diagnosis systems (ODB) for light motor vehicles aimed at the preservation the integrity of the performance of emission control systems</i>	
Resolution 350, July 6, 2004	847
Published in Official Gazette 161 on Aug. 20, 2004, pages 81-81	
<i>Establishes provisions for specific environmental licenses for maritime seismic data collection activities in transition zones.</i>	
Resolution 349, Aug. 16, 2004	844
Published in Official Gazette 158 on Aug. 17, 2004, pages 70-71	
<i>Establishes provisions for the granting of environmental licenses to low environmental impact railway enterprises and the regularization of operational enterprises</i>	
Resolution 348, Aug. 16, 2004	709
Published in Official Gazette 158 on Aug. 17, 2004, page 70	
<i>Changes CONAMA Resolution 307 from July 5, 2002 and adds asbestos to the hazardous wastes class</i>	
Resolution 347, Sept. 10, 2004	84
Published in Official Gazette 176 on Sept. 13, 2004, pages 54-55	
<i>Establishes provisions for the protection of the speleological patrimony.</i>	

Resolution 346, Aug. 16, 2004 265
 Published in Official Gazette 158 on Aug. 17, 2004, page 70
Regulates the use of wild native bees as well as the introduction of beehives

Resolution 344, March 25, 2004 702
 Published in Official Gazette 87 on May 7, 2004, pages 56-57
Establishes general directives and minimum requirements for the assessment of dredged materials in waters under national jurisdiction and makes other provisions.

2003

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Resolution 342, Sept. 25, 2003 531
 Published in Official Gazette 240 on Dec. 10, 2003, page 95
Establishes new levels for polluting gases for mopeds, motorcycles and new similar vehicles in order to comply with Resolution 297 from Feb. 26, 2002 and makes other provisions

Resolution 341, Sept. 25, 2003..... 66
 Published in Official Gazette 213 on Nov. 3, 2003, page 62
Establishes criteria for the characterization of sustainable tourism activities or enterprises of social interest such as the occupation of Coastal Zone dunes without vegetation.

Resolution 340, Sept. 25, 2003 700
 Published in Official Gazette 213 on Nov. 3, 2003,
Establishes provisions for the use of containers for the packaging, storage, transportation, collection and commercialization of gases that harm the Ozone Layer and makes other provisions.

Resolution 339, Sept. 25, 2003 81
 Published in Official Gazette 213 on Nov. 3, 2003, pages 61-62
Establishes provisions for the creation, standards and operations of botanical gardens and makes other provisions.

Resolution 335, April 3, 2003..... 841
 Published in Official Gazette 101 on May 28, 2003, pages 98-99
Establishes provisions for the environmental licensing of cemeteries.

Resolution 334, April 3, 2003..... 838
 Published in Official Gazette 94 on May 19, 2003, pages 79-80
Establishes provisions for processes related to the granting of environmental licenses to enterprises that collect/store empty agrototoxic packages

Resolution 321, Jan. 29, 2003 528
 Published in Official Gazette 53 on March 18, 2003, page 54
Establishes provisions for the alteration of CONAMA Resolution 226 from Aug. 20, 1997, that addresses specifications for commercial diesel oil and the regions where it is distributed.

2002

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Resolution 319, Dec. 4, 2002 837
 Published in Official Gazette 245 on Dec. 19, 2002, pages 224-225
Establishes provisions a new text for the provisions of Resolution 273/00 which sets directives for the granting of environmental licenses to fuel service stations and the prevention and control of pollution.

Resolution 317, Dec. 4, 2002 123
 Published in Official Gazette 245 on Dec. 19, 2002, page 224
Regulates Resolution 278 from May 24, 2001, which establishes provisions regarding the cutting and exploitation of Atlantic Forest species threatened with extinction.

Resolution 316, Oct. 29, 2002 689
 Published in Official Gazette 224 on Nov. 20, 2002, pages 92-95
Establishes provisions, procedures and criteria for the operations of systems for thermic residual treatment.

Resolution 315, Oct. 29, 2002 521
 Published in Official Gazette 224 on Nov. 20, 2002, pages 90-92
Establishes provisions for the new stages of the Program for the Control of Air Pollution by Motor Vehicles (PROCONVE) to comply with the ratification of new motor vehicles, national or imported, light or heavy produced exclusively for the national Brazilian market.

Resolution 314, Oct. 29, 2002 587
 Published in Official Gazette 224 on Nov. 20, 2002, page 90

Establishes provisions for the registration of medicinal products and makes other provisions.

Resolution 313, Oct. 29, 2002	675
Published in Official Gazette 226 on Nov. 22, 2002, pages 85-91	
<i>Establishes provisions for the National Inventory of Solid Industrial Wastes</i>	
Resolution 312, Oct. 10, 2002	833
Published in Official Gazette 203 on Oct. 18, 2002, pages 60-61	
<i>Establishes provisions for the granting of environmental licenses to shrimp cultivation enterprises on the coastal zone.</i>	
Resolution 310, July 5, 2002	285
Published in Official Gazette 144 on July 29, 2002, pages 78-79	
<i>Establishes provisions for the sustainable forest management of the Bracatinga (Mimosa Scabrella) in Santa Catarina State.</i>	
Resolution 307, July 5, 2002	671
Published in Official Gazette 136 on July 17, 2002, pages 95-96	
<i>Establishes directives, criteria and procedures for the management of wastes from building construction</i>	
Resolution 306, July 5, 2002	782
Published in Official Gazette 138 on July 19, 2002, pages 75-76	
<i>Establishes minimum requirements and references for the undertaking of environmental audits.</i>	
Resolution 305, June 12, 2002	826
Published in Official Gazette 127 on July 4, 2002, pages 81-82	
<i>Establishes provisions for Environmental Licenses, Environmental Impact Studies and Environmental Impact Report for activities and enterprises that include Genetically Modified Organisms and derivatives.</i>	
Resolution 303, March 20, 2002	63
Published in Official Gazette 90 on May 13, 2002, page 68	
<i>Establishes the parameters, definitions and boundaries of Permanent Preservation Areas.</i>	
Resolution 302, March 20, 2002	61
Published in Official Gazette 90 on May 13, 2002, pages 67-68	
<i>Establishes the parameters, definitions and boundaries of Permanent Preservation Areas with artificial reservoirs and regulates the use of their grounds</i>	
Resolution 300, March 20, 2002	122
Published in Official Gazette 81 on April 29, 2002, page 174	
<i>Complements cases awaiting licenses for cutting/logging foreseen in art. 20 of Resolution 278 from May 24, 2001.</i>	
Resolution 297, Feb. 26, 2002	510
Published in Official Gazette 51 on March 15, 2002, pages 86-88	
<i>Establishes limits for the release of polluting gases by mopeds, motorcycles and similar new vehicles</i>	
Resolution 292, March 21, 2002	894
Published in Official Gazette 87 on May 8, 2002, pages 330 - 331	
<i>Regulates the registration and re-registration of Environmental Entities in the CNEA.</i>	
2001	PAGE
Resolution 299, Oct. 10, 2001	517
Published in Official Gazette 95 on May 20, 2002, pages 67-68	
<i>Establishes procedures for the elaboration of rate reports for the control of emissions by new vehicles, including imported vehicles.</i>	
Resolution 294, Dec. 12, 2001	276
Published in Official Gazette 35 on Feb. 21, 2002, pages 142-144	
<i>Establishes provisions for the Management Plan for the Euterpe adulis Palmito in the Santa Catarina State.</i>	
Resolution 291, Oct. 25, 2001	506
Published in Official Gazette 79 on April 25, 2002, pages 130-131	
<i>Establishes complete regulations for the conversion of vehicles to gas combustion and makes other provisions.</i>	
Resolution 286, Aug. 30, 2001	886
Published in Official Gazette 239 on Dec. 17, 2001, page 223	
<i>Establishes provisions for the granting of environmental licenses to enterprises in malaria infested regions.</i>	

Resolution 284, Aug. 30, 2001	823
Published in Official Gazette 188 on Oct. 1 st , 2001, page 153	
<i>Establishes provisions for the granting of environmental licenses to irrigation enterprises</i>	
Resolution 282, July 12, 2001	499
Published in Official Gazette 220 on Nov. 19, 2001, pages 93-95	
<i>Establishes requirements for the replacement of catalytic converters and makes other provisions.</i>	
Resolution 281, July 12, 2001	781
Published in Official Gazette 156 on Aug. 15, 2001, page 86	
<i>Establishes provisions for the publication models for license requests.</i>	
Resolution 279, June 27, 2001	820
Published in Official Gazette 125-E on June 29, 2001, pages 165-166	
<i>Establishes the procedures for the granting of simplified environmental licenses to electrical enterprises with low pollution environmental impact.</i>	
Resolution 278, May 24, 2001	120
Published in Official Gazette 138-E on July 18, 2001, pages 51-52	
<i>Establishes provisions to prevent the logging and the exploitation of Atlantic Forest flora species threatened with extinction.</i>	
Resolution 275, April 25, 2001	670
Published in Official Gazette 117-E on June 19, 2001, page 80	
<i>Establishes the color code for the different types of wastes to be adopted for the identification of collectors and transporters as well as used in information campaigns aimed at selective collections.</i>	

2000

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Resolution 274 , Nov. 29, 2000	297
Published in Official Gazette 18 on Jan. 25, 2001, pages 70-71	
<i>Defines coastal bathing water criteria for Brazilian Waters.</i>	
Resolution 273, Nov. 29, 2000	812
Published in Official Gazette 5 on Jan.8, 2001, pages 20-23	
<i>Establishes directives for the granting of environmental licenses to fuel service stations and establishes provisions for the control and prevention of pollution</i>	
Resolution 272, Sept. 14, 2000	383
Published in Official Gazette 7 on Jan. 10, 2001, page 24	
<i>Establishes limits for noises caused by the acceleration process in national and imported vehicles, except motorcycles, scooters, mopeds and similar vehicles.</i>	
Resolution 269, Sept. 14, 2000	657
Published in Official Gazette 9 on Jan. 12, 2001, pages 58-61	
<i>Regulates the use of chemical dispersants in oil spills into the sea.</i>	
Resolution 268, Sept 14, 2000	382
Published in Official Gazette 237 on Dec. 11, 2000, page 29	
<i>Establishes alternative methods for the monitoring of motorcycle noise.</i>	
Resolution 267, Sept. 14, 2000	580
Published in Official Gazette 237 on Dec. 11, 2000 , pages 27-29	
<i>Regulates the ban of substances that destroy the Ozone Layer.</i>	

1999

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Resolution 264, Aug. 26, 1999	805
Published in Official Gazette 54 on March 20, 2000, pages 80-83	
<i>Regulates the licensing of rotation ovens for the production of clinker and the co-processing of wastes.</i>	
Resolution 261, June 30, 1999	180
Published in Official Gazette 146 on Aug. 2, 1999, pages 29-31	
<i>Approves the basic parameters for the analysis of the successional stages of the Beach vegetation in Santa Catarina State.</i>	
Resolution 249, Jan. 29, 1999	105

Published in Official Gazette 21 on Feb. 1, 1999, page 60

Establishes directives for the Sustainable Development and Conservation Policy for the Atlantic Forest.

Resolution 248, Jan. 7, 1999 103

Published in Official Gazette 6 on Jan. 11, 1999, pages 62-63

Establishes provisions for sustainable Forestry Management, Environmental Licensing and for the Control and Monitoring of forestry based enterprises within the Atlantic Forest located in the southern region of the State of Bahia

1998

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Resolution 244, Oct. 16, 1998..... 656

Published in Official Gazette 199 on Oct. 19, 1998, page 51

Excludes an item included in annex 10 of CONAMA Resolution 23 from December 12, 1996.

Resolution 242, June 30, 1998..... 573

Published in Official Gazette 148 on Aug. 5, 1998, page 43

Establishes emission rates for light commercial vehicles and maximum noise levels for off-road vehicles with special characteristics.

Resolution 241, June 20, 1998 498

Published in Official Gazette 148 on Aug. 5, 1998 page 43

Establishes provisions for the deadlines for the fulfillment of PROCONVE demands for imported vehicles

Resolution 240, April 16, 1998 102

Published in Official Gazette 73 on April 17, 1998, page 94

Suspends lumber exploitation activities within the Atlantic Forest in the Bahia State.

653

Resolution 235, Jan. 7, 1998 653

Published in Official Gazette 6 on Jan. 9, 1998, page 167

Changes annex 10 of CONAMA Resolution 23 from December 12, 1996.

1997

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Resolution 238, Dec. 22, 1997 93

Published in Official Gazette 248 on Dec. 23, 1997 page 30930

Establishes provisions for the approval of the National Policy for the Control of Desertification.

Resolution 237, Dec. 19, 1997 775

Published in Official Gazette 247 on Dec. 22, 1997 pages 30841-30843

Establishes provisions for the revision and complementation of procedures and criteria used for the granting of environmental licenses.

Resolution 230, Aug. 22, 1997..... 571

Published in Official Gazette 163 on Aug. 26, 1997, 18603-18604

Bans the use of tools that can reduce the efficiency of the control of noise and atmospheric pollution levels in motorized vehicles

Resolution 228, Aug. 20, 1997..... 619

Published in Official Gazette 162 on Aug. 25, 1997, pages 18442-18443

Establishes provisions for the importation of lead waste products and lead wastes from electric accumulators.

Resolution 226, Aug. 20, 1997..... 493

Published in Official Gazette 166 on Aug. 29, 1997, pages 18985-18986

Establishes maximum limits for soot/black smoke emissions by motor vehicles.

1996

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Resolution 23, Dec. 12, 1996 626

Published in Official Gazette 13 on Jan. 20, 1997, pages 1116-1124

Establishes provisions for the definitions and treatment of hazardous wastes according to the standards adopted by the Brazilian Convention for the Control of Cross-border Movement and Storage of Hazardous Wastes.

Resolution 19, Oct. 24, 1996 579

Published in Official Gazette 217 on Nov. 7, 1996, page 23071

Establishes provisions for the inclusion of warnings in materials/tools that contain asbestos.

Resolution 10, Oct. 24, 1996 885

Published in Official Gazette 217 on Nov. 7, 1996, page 23070

Regulates the granting of environmental licenses for beaches where turtles spawn.

Resolution 9, Oct. 24, 1996 ..Published in Official Gazette 217 on Nov. 7, 1996, pages 23069-23070 92

Defines "remaining corridors between vegetation" as transit areas for fauna.

Resolution 7, July 23, 1996	171
Published in Official Gazette 165 from Aug. 26, 1996, pages 16386 - 16390	
<i>Approves the basic parameters for the analysis of the Beach vegetation in the State of Sao Paulo.</i>	

Resolution 3, April 18, 1996	162
Published in Official Gazette 80 on April 25, 1996, page 7048	
<i>Acknowledges that the remaining Atlantic Forest vegetation includes the totality of primary and secondary vegetation in initial, medium and advanced regeneration stages for all purposes related to the enforcement of Decree 750 from Feb. 10, 1993.</i>	

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Resolution 17, Dec. 13, 1995	378
Published in Official Gazette 249 on Dec. 29, 1995, pages 22878-22879	
<i>Establishes the maximum emission limit rates for regular or modified passenger vehicles.</i>	

Resolution 16, Dec. 13, 1995	491
Published in Official Gazette 249 on Dec. 29, 1995, pages 22877-22878	
<i>Establishes the maximum emission pollution limit rates for engines installed in new heavy vehicles, national or imported, and determines the ratification and certification of new diesel vehicles regarding the rates of smoke emission in free acceleration.</i>	

Resolution 15, Dec. 13, 1995	487
Published in Official Gazette 249 on Dec. 29, 1995, pages 22876-22877	
<i>Establishes provisions for the new classifications of motor vehicles related to the control of emissions of gases and particle and evaporated materials, and makes other provisions.</i>	

Resolution 14, Dec.13, 1995	484
Published in Official Gazette 249 on Dec. 29, 1995, pages 22875-22876	
<i>Establishes deadlines for manufacturers of light engine passenger vehicles equipped with Otto cycle engines that must provide IBAMA with triennial durability test programs for each group of engines.</i>	

Resolution 4, Oct. 9, 1995	884
Published in Official Gazette 236 on Dec. 11, 1995, page 20388	
<i>Institutes Airport Safety Areas (ASAs).</i>	

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Resolution 34, Dec. 7, 1994	160
Published in Official Gazette 248 on Dec. 30, 1994, pages 21353-21354	
<i>Defines the Atlantic Forest primary and secondary vegetation in their initial, medium and advanced stages of regeneration in order to provide guidelines to environmental licensing processes related to forestry activities in the State of Sergipe.</i>	

Resolution 33, Dec. 7, 1994	158
Published in Official Gazette 248 on Dec. 30, 1994, pages 21352-21353	
<i>Defines the successional vegetation stages of the Atlantic Forest region in Rio Grande do Sul in order to facilitate the creation of criteria, standards and procedures for the management, rational usage and preservation of native natural vegetation.</i>	

Resolution 32, Dec. 7, 1994	155
Published in Official Gazette 248 on Dec. 30, 1994 , pages 21351-21352	
<i>Defines the Atlantic Forest primary and secondary vegetation in their initial, medium and advanced stages of regeneration in order to provide guidelines to environmental licensing processes related to forestry activities in the State of Rio Grande do Norte.</i>	

Resolution 31, Dec. 7, 1994	153
Published in Official Gazette 248 on Dec. 30, 1994 , pages 21350-21351	
<i>Defines the Atlantic Forest primary and secondary vegetation in their initial, medium and advanced stages of regeneration in order to provide guidelines to environmental licensing processes related to forestry activities in the State of Pernambuco.</i>	

Resolution 30, Dec. 7, 1994	151
Published in Official Gazette 248 on Dec. 30, 1994 , page 21350	
<i>Defines the Atlantic Forest primary and secondary vegetation in their initial, medium and advanced stages of regeneration in order to provide guidelines to environmental licensing processes related to forestry activities in the State of Mato Grosso do Sul.</i>	

Resolution 29, Dec. 7, 1994	149
Published in Official Gazette 248 on Dec. 30, 1994 , pages 21349-21350	

Defines the Atlantic Forest primary and secondary vegetation in their initial, medium and advanced stages of regeneration in light of the need to define cuts in the exploitation and suppression of the secondary vegetation in its initial stage of regeneration in the State of Espírito Santo.

Resolution 28, Dec. 7, 1994	147
Published in Official Gazette 248 on Dec. 30, 1994 , pages 21348-21349	
<i>Defines the Atlantic Forest primary and secondary vegetation in their initial, medium and advanced stages of regeneration in order to provide guidelines to environmental licensing processes related to forestry activities in the State of Alagoas.</i>	
Resolution 26, Dec. 7, 1994	145
Published in Official Gazette 248 on Dec. 30, 1994 , page 21347	
<i>Defines the Atlantic Forest primary and secondary vegetation in their initial, medium and advanced stages of regeneration in order to provide guidelines to environmental licensing processes related to forestry activities in the State of Piauí.</i>	
Resolution 25, Dec. 7, 1994	143
Published in Official Gazette 248 on Dec. 30, 1994 , pages 21346-21347	
<i>Defines the Atlantic Forest primary and secondary vegetation in their initial, medium and advanced stages of regeneration in order to provide guidelines to environmental licensing processes related to forestry activities in the State of Ceará.</i>	
Resolution 24, Dec. 7, 1994	618
Published in Official Gazette 248 on Dec. 30, 1994 , page 21346	
<i>Establishes that all imports and exports any quantity of radioactive material, of any chemical composition, is conditioned to the approval of the National Nuclear Energy Commission (CNEN).</i>	
Resolution 23, Dec. 7, 1994	803
Published in Official Gazette 248 on Dec. 30, 1994 , pages 21345-21346	
<i>Establishes specific procedures for the granting of licenses to activities related to the exploitation and extraction of liquid combustible and natural gas fields.</i>	
Resolution 20, Dec. 7, 1994	377
Published in Official Gazette 248 on Dec. 30, 1994 , 21344	
<i>Establishes the creation of the Noise Stamp, a mandatory requirement for any electric appliance that generates noise.</i>	
Resolution 12, May 4, 1994	141
Published in Official Gazette 149 on Aug. 5, 1994, pages 11824-11825	
<i>Approves the Glossary of Technical Terms created by the Temporary Technical Chamber for Atlantic Forest Affairs.</i>	
Resolution 6, May 4, 1994	139
Published in Official Gazette 101 on May 30, 1994, pages 7913-7914	
<i>Establishes definitions and measurable parameters for the analysis of the successional ecological stages of the Atlantic Forest in the State of Rio de Janeiro.</i>	
Resolution 5, May 4, 1994	137
Published in Official Gazette 101 on May 30, 1994, pages. 7912-7913	
<i>Defines the Atlantic Forest primary and secondary vegetation in their initial, medium and advanced stages of regeneration in order to provide guidelines to environmental licensing processes related to forestry activities in the State of Bahia.</i>	
Resolution 4, May 4, 1994	134
Published in Official Gazette 114 on June 17, 1994, pages 8877-8878	
<i>Defines the Atlantic Forest primary and secondary vegetation in their initial, medium and advanced stages of regeneration in order to provide guidelines to environmental licensing processes related to forestry activities in the State of Santa Catarina.</i>	
Resolution 2, March 18, 1994	131
Published in Official Gazette 59 on March 28, pages 4513-4514	
<i>Defines primary vegetation formations and the successional stages of secondary vegetation in order to provide guidelines for licensing processes related to native vegetation exploitation in the State of Paraná.</i>	
Resolution 1, Jan. 31, 1994	129
Published in Official Gazette 24 on Feb. 3, 1994, pages 1684-1685	
<i>Defines the Atlantic Forest primary and secondary vegetation in their initial, medium and advanced</i>	

stages of regeneration in order to provide guidelines to environmental licensing processes related to the exploitation of native vegetation in the State of Sao Paulo.

1993	PAGE
Resolution 16, Dec. 17, 1993	802
Published in Official Gazette 250 on Dec. 31, 1993, page 21541 <i>Establishes mandatory environmental licenses for specifications, manufacturing, commercialization and distribution of new combustibles and makes other provisions.</i>	
Resolution 10, Oct. 1, 1993	126
Published in Official Gazette 209 on Nov. 3, 1993, pages 16497-16498 <i>Establishes basic parameters for the analysis of the successional stages of the Atlantic Forest.</i>	
Resolution 8, Aug. 31, 1993	469
Published in Official Gazette 250 on Dec. 31, 1993, pages 21536-21541 <i>Complements Resolution 18/86 which creates the national Program for Air Pollution Control by Motor Vehicles (PROCONVE) through the establishment of maximum limits for pollution emissions for new heavy engine, both national and imported.</i>	
Resolution 5, Aug. 5, 1993	623
Published in Official Gazette 166 on Aug. 31, 1993, pages 12996-12998 <i>Establishes provisions related to the generation of solid wastes in ports, airports, railway and roadway terminals.</i>	
Resolution 4, March 31, 1993	883
Published in Official Gazette 195 on Oct. 13, 1993, page 15264 <i>Establishes mandatory environmental licenses for construction, plans and projects in Beach areas.</i>	
Resolution 2, Feb. 11, 1993	363
Published in Official Gazette 31 on Feb. 15, 1993, pages 2041-2044 <i>Establishes maximum limit levels for noises created by vehicles while running but still or in acceleration such as motorcycles, scooters, motorized tricycles, mopeds, bicycles with auxiliary engines and similar vehicles, national or imported.</i>	
Resolution 1, Feb. 11, 1993	349
Published in Official Gazette 31 on Feb. 15, 1993, pages 2037-2040 <i>Establishes maximum limit levels for noises created by vehicles while running but still or in acceleration, national or imported, with the exception of motorcycles, scooters, mopeds, tricycles and bicycles with auxiliary engines or similar vehicles.</i>	
1991	PAGE
Resolution 8, Sept. 19, 1991	617
Published in the Official Gazette on Oct. 10, 1991, page 24063 <i>Bans the entry into Brazil of residual materials for final storage or incineration.</i>	
Resolution 6, Sept. 19, 1991	622
Published in the Official Gazette on Oct. 10, 1991, page 24063 <i>Establishes provisions for the treatment of solid wastes from health establishments, ports and airports.</i>	
Resolution 2, Aug. 22, 1991	621
Published in the Official Gazette on Sept. 29, 1991, pages 20293-20294 <i>Establishes provisions for the treatment of deteriorated, contaminated or outdated load materials.</i>	
1990	PAGE
Resolution 11, Dec. 6, 1990	125
Published in the Official Gazette on Dec. 28, 1990, page 25541 <i>Establishes provisions for the revision and creation of plans for the management and the granting of environmental licenses for Atlantic Forest activities.</i>	
Resolution 10, Dec. 6, 1990	800
Published in the Official Gazette on Dec. 28, 1990, pages 25540-25541 <i>Establishes specific standards for the granting of environmental licenses for mineral extraction, class II.</i>	
Resolution 9, Dec. 6, 1990	798
Published in the Official Gazette on Dec. 28, 1990, pages. 25539-25540 <i>Establishes specific standards for the granting of environmental licenses for mineral extraction, classes I, III</i>	

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Resolution 8, Dec. 6, 1990	396
Published in the Official Gazette on Dec. 28, 1990, page 25539 <i>Establishes provisions for the establishment of maximum levels of emissions of air pollutants caused by external combustion processes by fixed pollution sources.</i>	
Resolution 5, Oct. 17, 1990	58
Published in the Official Gazette on Dec. 6, 1990, pages 23476-23477 <i>Establishes provisions for the creation of Serra da Abelha – Rio da Prata, Santa Catarina - Area of Relevant Ecological Interest.</i>	
Resolution 3, June 28, 1990	392
Published in the Official Gazette on Aug. 22, 1990, pages 15937-15939 <i>Establishes provisions related to air quality standards, as foreseen by PRONAR.</i>	
Resolution 2, March 8, 1990	350
Published in the Official Gazette on April 2, 1990, page 6408 <i>Establishes provisions for the National Program for the Education and Control of Sound Pollution <<SILÊNCIO>>.</i>	
Resolution 1, March 8, 1990	349
Published in Official Gazette 63 on April 2, 1990, page 6408 <i>Establishes criteria and standards for the emission of noise from any industrial, commercial, social or leisure activity, including political propaganda.</i>	

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Resolution 18, Dec. 7, 1989	56
Published in the Official Gazette on Jan. 24, 1990, page 1742 <i>Establishes provisions for the creation of the Pé-Gigante Cerrado Area of Ecologic Interest in the State of Sao Paulo.</i>	
Resolution 17, Dec. 7, 1989	264
Published in the Official Gazette on Jan. 24, 1990, page 1742 <i>Establishes provisions for the destination of non-edible products and by-products from animals seized by IBAMA</i>	
Resolution 12, Sept. 14, 1989	55
Published in the Official Gazette on Dec. 18, 1989, page 23405 <i>Establishes provisions related to the ban of activities that impact the ecosystems of Areas of Relevant Ecological Interest.</i>	
Resolution 11, Sept. 14, 1989	54
Published in the Official Gazette on Dec. 18, 1989, page 23405 <i>Establishes provisions for the creation of the Cagarras Archipelago Area of Relevant Ecologic Interest in the State of Rio de Janeiro.</i>	
Resolution 6, June 15, 1989	892
Published in the Official Gazette on Aug. 25, 1989, page 14714 <i>Establishes provisions for the National Registry of Environmental Entities (CNEA).</i>	
Resolution 5, June 15, 1989	389
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Published in the Official Gazette on Aug. 11, 1989, page 13661 <i>Establishes provisions related to wild fire management within Conservation Units.</i>	
Resolution 9, Dec. 14, 1988	578
Published in the Official Gazette on Aug. 11, 1989, page. 13660 <i>Establishes provisions for the amendment of Resolution 7/87 - regulation of the use of asbestos in Brazil.</i>	
Resolution 5, June 15, 1988	797
Published in the Official Gazette on Nov. 16, 1988, page 22123 <i>Establishes provisions for the granting of licenses for sanitation projects.</i>	
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Published in the Official Gazette on Nov. 16, 1988, page 22123
Establishes provisions for the creation of collective environmental associations.

Resolution 1, June 13, 1988 891
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Establishes provisions for the amendment of Resolution 7/87, which rules on the regulation of the use of asbestos in Brazil.

Resolution 6, Sept 16, 1987 794
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Establishes provisions for the granting of environmental licenses for the construction of electric energy generation plants.

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Establishes provisions for administrative procedures aimed at the integration of IBGE's Ecologic Reserve into the ARIE's Capatinga – Taquara located in the Federal District.

Resolution 18, May 6, 1986 459
Published in the Official Gazette on June 17, 1986, pages 8792-8795
Establishes provisions for the creation of the Program for the Control of Air Pollution by Motor Vehicles (PRONCOVE).

Resolution 14, March 18, 1986 793
Published in the Official Gazette on May, 2, 1986, page 6346
Establishes provisions for the referendum related to Resolution 5/85.

Resolution 11, March 18, 1986 773
Published in the Official Gazette on May, 2, 1986, page 6346
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Resolution 6, Jan. 24, 1986 771
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Establishes provisions for the transportation of hazardous products in the national territory.

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Establishes provisions for the basic criteria and general directives for the assessment of environmental impact.

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the Mangroves of the Estuary of the Mamanguape River/PB.

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Resolution 27, Dec. 3, 1986 52
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Resolution 11, Dec. 14, 1988 53
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Resolution 11, Sept. 14, 1989 54
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Establishes provisions for the creation of the Cagarras Archipelago Area of Relevant Ecological Interest in the State of Rio de Janeiro.

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Resolution 278, May 24, 2001 120

Published in Official Gazette 138-E on July 18, 2001, pages 51-52

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Resolution 300, March 20, 2002 122

Published in Official Gazette 81 on April 29, 2002, page 174

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Resolution 317, Dec. 4, 2002 123

Published in Official Gazette 245 on Dec. 19, 2002, page 224

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Published in the Official Gazette on Dec. 28, 1990, page 25541

Establishes provisions for the revision and creation of plans for the management and the granting of environmental licenses for Atlantic Forest activities.

Resolution 10, Oct. 1, 1993 126

Published in Official Gazette 209 on Nov. 3, 1993, pages 16497-16498

Regulates the granting of environmental licenses for beaches where turtles spawn

Resolution 1, Jan. 31, 1994 129

Published in Official Gazette 24 on Feb. 3, 1994, pages 1684-1685

Defines the Atlantic Forest primary and secondary vegetation in their initial, medium and advanced stages of regeneration in order to provide guidelines to environmental licensing processes related to the exploitation of native vegetation in the State of Sao Paulo

Resolution 2, March 18, 1994 131

Published in Official Gazette 59 on March 28, 1994, pages 4513-4514

Defines primary vegetation formations and the successional stages of secondary vegetation in order to provide guidelines for licensing processes related to native vegetation exploitation in the State of Paraná.

Resolution 4, May 4, 1994 134

Published in Official Gazette 114 on June 17, 1994, pages 8877-8878

Defines the Atlantic Forest primary and secondary vegetation in their initial, medium and advanced stages of regeneration in order to provide guidelines to environmental licensing processes related to forestry activities in the State of Santa Catarina.

Resolution 5, May 4, 1994 137

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Resolution 6, May 4, 1994 139

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Resolution 12, May 4, 1994 141

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Resolution 25, Dec. 7, 1994 143

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Defines the Atlantic Forest primary and secondary vegetation in their initial, medium and advanced stages of regeneration in order to provide guidelines to environmental licensing processes related to forestry activities in the State of Rio Grande do Norte.

Resolution 33, Dec. 7, 1994 158

Published in Official Gazette 248 on Dec. 30, 1994, pages 21352-21353

Defines the successional vegetation stages of the Atlantic Forest region in Rio Grande do Sul in order to facilitate the creation of criteria, standards and procedures for the management, rational usage and preservation of native natural vegetation

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Defines the Atlantic Forest primary and secondary vegetation in their initial, medium and advanced stages of regeneration in order to provide guidelines to environmental licensing processes related to forestry activities in the State of Sergipe.

Resolution 3, April 18, 1996 162

Published in Official Gazette 80 on April 25, 1996, page 7048

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Resolution 388, Feb. 23, 2007 163

Published in Official Gazette 38 on Feb. 26, 2007, page 63 establishes provisions for the ratification of Resolutions which define the primary and secondary vegetation of the Atlantic Forest in initial, medium and advanced stages of regeneration in order to comply with the provisions of art. 40 § 1 of Law 11.428, issued on Dec. 22, 2006.

Resolution 391, June 25, 2007 165

Published in Official Gazette 121 on June 26, 2007, page 41

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Resolution 392, June 25, 2007 167

Published in Official Gazette 121 on June 26, 2007, page 41-42

Defines the regeneration of primary and secondary vegetation of the Atlantic Forest in the State of Minas

Gerais.

Successional stages of the beach vegetation

Resolution 7, July 23, 1996	171
Published in Official Gazette 165 on Aug. 26, 1996, pages 16386 – 16390 <i>Approves the basic parameters for the analysis of the beach vegetation in the State of Sao Paulo.</i>	
Resolution 261, June 30, 1999	180
Published in Official Gazette 146 on Aug. 2, 1999, 29 - 31 <i>Approves the basic parameters for the analysis of the successional stages of the beach vegetation in Santa Catarina State.</i>	
Resolution 417, Nov. 23, 2009	187
Published in Official Gazette 224 on Nov. 24, 2009, page 72 <i>Establishes provisions and basic parameters for the definition of primary vegetation and for the successional secondary stages of the beach within the Atlantic forest and makes other provisions.</i>	
Resolution 423, April 12, 2010	255
Published in Official Gazette 69 on April 13, 2010, pages 55-57 <i>Establishes provisions and basic parameters for the identification and analysis of primary vegetation and the successional stages of secondary vegetation in Elevation Fields associated to or part of the Atlantic Forest.</i>	
Resolution 437, Dec. 30, 2011	191
Published in Official Gazette 2 on Jan. 3, 2012 <i>Approves the list of successional stages indicator species of the beach vegetation in the State of Bahia, according to Resolution 417 from Nov. 23, 2009.</i>	
Resolution 438, Dec. 30, 2011	199
Published in Official Gazette 2 on Jan. 3, 2012, pages 117 – 120 <i>Approves the list of successional stages indicator species of the beach vegetation in the State of Paraíba, according to Resolution 417 from Nov. 23, 2009</i>	
Resolution 439, Dec. 30, 2011	209
Published in Official Gazette 2 on Jan. 3, 2012, pages 120 – 121 <i>Approves the list of successional stages indicator species of the beach vegetation in the State of Paraíba, according to Resolution 417 from Nov. 23, 2009.</i>	
Resolution 440, Dec. 30, 2011	213
Published in Official Gazette 2 on Jan. 3, 2012, pages 121 – 123 <i>Approves the list of successional stages indicator species of the beach vegetation in the State of Pernambuco, according to Resolution 417 from Nov. 23, 2009.</i>	
Resolution 441, Dec. 30, 2011	220
Published in Official Gazette 2 on Jan. 3, 2012, pages 124 – 126 <i>Approves the list of successional stages indicator species of the beach vegetation in the State of Rio Grande do Sul, according to Resolution 417 from Nov. 23, 2009.</i>	
Resolution 442, Dec. 30, 2011	228
Published in Official Gazette 2 on Jan. 3, 2012, pages 126 – 127 <i>Approves the list of successional stages indicator species of the beach vegetation in the State of Ceará, according to Resolution 417 from Nov. 23, 2009.</i>	
Resolution 443, Dec. 30, 2011	232
Published in Official Gazette 2 on Jan. 3, 2012, page 127 <i>Approves the list of successional stages indicator species of the beach vegetation in the State of Sergipe, according to Resolution 417 from Nov. 23, 2009.</i>	
Resolution 444, Dec. 30, 2011	234
Published in Official Gazette 2 on Jan. 3, 2012, pages 127 – 128 <i>Approves the list of successional stages indicator species of the beach vegetation in the State of Alagoas, according to Resolution 417 from Nov. 23, 2009.</i>	
Resolution 445, Dec. 30, 2011	237
Published in Official Gazette 2 on Jan. 3, 2012, pages 128 – 129 <i>Approves the list of successional stages indicator species of the beach vegetation in the State of Piauí, according to Resolution 417 from Nov. 23, 2009.</i>	
Resolution 446, Dec. 30, 2011	240

Published in Official Gazette 2 on Jan. 3, 2012, page. 129 <i>Approves the list of indicator species of the successional stages of beach vegetation in the state of Rio Grande do Norte, according to the provisions of Resolution 417 from November 23, 2009.</i>	
Resolution 447, Dec. 30, 2011	243
Published in Official Gazette 2 on Jan. 3, 2012, pages 129 – 132 <i>Approves the list of indicator species and the successional stages of beach vegetation in the State of Paraná, according to Resolution 417 from Nov. 23, 2009.</i>	
Resolution 448, Jan. 18, 2012	252
Published in Official Gazette 14 on Jan. 19, 2012, page 76 <i>Changes articles 2, 4, 5, 6, 8, 9, 10 and 11 of Resolution 307, issued on July 5, 2002.</i>	
FAUNA AND FLORA SPECIES MANAGEMENT	
Fauna	
Resolution 17, Dec. 7, 1989	264
Published in the Official Gazette on Jan. 24, 1990, page 1742 <i>Establishes provisions for the destination of non-edible products and by-products from animals seized by IBAMA.</i>	
Resolution 346, Aug. 16, 2004	265
Published in Official Gazette 158 on Aug. 17, 2004, page 70 <i>Regulates the use of wild native bees as well as the introduction of beehives.</i>	
Resolution 384, Dec. 27, 2006	267
Published in Official Gazette 249 on Dec. 29, 2006, pages 663 – 664 <i>Regulates the provisional concession of domestic storage of seized wild animals and makes other provisions.</i>	
Resolution 394, Nov. 6, 2007	272
Published in Official Gazette 214 on Nov. 7, 2007, pages 78-79 <i>Establishes the criteria for the determination of wild species that can be bred and commercialized as pet animals.</i>	
Flora	
Resolution 294, Dec. 12, 2001	276
Published in Official Gazette 35 on Feb. 21, 2002, 142-144 <i>Establishes provisions for the Management Plan for the Euterpe adulis Palmito in the Santa Catarina State.</i>	
Resolution 310, July 5, 2002	285
Published in Official Gazette 144 on July 29, 2002, pages 78-79 <i>Establishes provisions for the sustainable forest management of the Bracatinga (Mimosa Scabrella) in Santa Catarina State.</i>	
Resolution 406, Feb. 2, 2009	292
Published in Official Gazette 26 on Feb. 6, 2009, page 100 <i>Establishes technical parameters to be adopted for the preparation, presentation, technical assessment and enforcement of Sustainable Forestry Exploitation Plans (PMFS) related to the logging of native forests and their successional stages, within the Amazon biome.</i>	
WATER QUALITY	
Resolution 274, Nov. 29, 2000	297
Published in Official Gazette 18 on Jan. 25, 2001, pages 70-71 <i>Defines coastal bathing water criteria for Brazilian Waters.</i>	
Resolution 357, March 17, 2005	300
Published in Official Gazette 53 on March 18, 2005, pages 58-63 <i>Establishes provisions for the classification of water bodies as well as environmental directives for their framework, establishes conditions and standards for effluent releases and makes other provisions.</i>	
Resolution 370, April 6, 2006	322
Published in Official Gazette 68 on April 7, 2006, page 235 <i>Extends the deadline for compliance with the conditions and standards for effluent releases foreseen in art. 44 of Resolution 357 from March 17, 2005.</i>	
Resolution 393, Aug. 8, 2007	323
Published in Official Gazette 153 on Aug. 9, 2007, pages 72-73 <i>Establishes provisions for the continuous release of processed water or water produced on oil and natural gas sea platforms and makes other provisions.</i>	

Resolution 397, April 3, 2008	336
Published in Official Gazette 66 on April 7, 2008, pages 68-69	
<i>Changes item II of § 4 and Table X of § 5 both part of art. 34 of the National Environment Council (CONAMA) Resolution 357 from 2005 which establishes provisions for the classification of water bodies and environmental framework directives as well as establishing the conditions and standards for effluent releases.</i>	
Resolution 410, May 4, 2009	338
Published in Official Gazette 83 on May 5, 2009, page 106	
<i>Extends the deadline for the fulfillment of the conditions and standards related to effluent releases, foreseen in art. 44 of Resolution 357 issued on March 17, 2005 and in art. 3 of Resolution 397 issued on April 3, 2008.</i>	
Resolution 430, May 13, 2011	339
Published in Official Gazette 92 on May 16, 2011, page 89	
<i>Provisions the conditions and standards of effluents and complements and changes Resolution 357 from March 17, 2005 issued by the National Environment Council (CONAMA)</i>	
NOISE AND AIR POLLUTION CONTROL	
Noise Pollution Control	
Resolution 1, March 8, 1990	349
Published in Official Gazette 63 on April 2, 1990, page 6408	
<i>Establishes criteria and standards for the emission of noise from any industrial, commercial, social or leisure activity, including political propaganda.</i>	
Resolution 2, March 8, 1990	350
Published in Official Gazette 63 on April 2, 1990, page 6408	
<i>Establishes provisions for the National Program for the Education and Control of Sound Pollution <<SILÊNCIO>>.</i>	
Resolution 1, Feb. 11, 1993	351
Published in Official Gazette 31 on Feb. 15, 1993, pages 2037-2040	
<i>Establishes maximum limit levels for noises created by vehicles while running but still or in acceleration, national or imported, with the exception of motorcycles, scooters, mopeds, tricycles and bicycles with auxiliary engines or similar vehicles.</i>	
Resolution 2, Feb. 11, 1993	363
Published in Official Gazette 31 on Feb. 15, 1993, pages 2041-2044	
<i>Establishes maximum limit levels for noises created by vehicles while running but still or in acceleration such as motorcycles, scooters, motorized tricycles, mopeds, bicycles with auxiliary engines and similar vehicles, national or imported.</i>	
Resolution 20, Dec. 7, 1994	377
Published in Official Gazette 248 on Dec. 30, 1994, page 21344	
<i>Establishes the creation of the Noise Stamp, a mandatory requirement for any electric appliance that generates noise.</i>	
Resolution 17, Dec. 13, 1995	378
Published in Official Gazette 249 on Dec. 29, 1995, pages 22878-22879	
<i>Establishes the maximum emission limit rates for regular or modified passenger vehicles.</i>	
Resolution 268, Sept. 14, 2000	382
Published in Official Gazette 237 on Dec. 11, 2000, page 29	
<i>Establishes alternative methods for the monitoring of motorcycle noise.</i>	
Resolution 272, Sept. 14, 2000	383
Published in Official Gazette 7 on Jan. 10, 2001, page 24	
<i>Establishes limits for noises caused by the acceleration process in national and imported vehicles, except motorcycles, scooters, mopeds and similar vehicles.</i>	
Air Pollution Control	
National Program for Air Quality Control (PRONAR)	
Resolution 5, June 15, 1989	389
Published in the Official Gazette on Aug. 25, 1989, pages 14713-14714	
<i>Establishes provisions for the National Program for the Control of Air Pollution (PONAR).</i>	

Resolution 3, June 28, 1990	392
Published in the Official Gazette on Aug. 22, 1990, pages 15937-15939	
<i>Establishes provisions for the air quality pattern, provided for in PRONAR.</i>	
Resolution 8, December 6, 1990	396
Published in the Official Gazette on Dec. 28, 1990, page 25539	
<i>Establishes provisions for the establishment of maximum levels of emissions of air pollutants caused by external combustion processes by fixed pollution sources.</i>	
Resolution 299, Oct. 25, 2001	517
Published in Official Gazette 95 on May 20, 2002 pages 67-68	
<i>Establishes procedures for the elaboration of rate reports for the control of emissions by new vehicles, including imported vehicles.</i>	
Resolution 315, Oct. 29, 2002	521
Published in Official Gazette 224 on Nov. 20, 2002, pages 90-92	
<i>Establishes provisions for the new stages of the Program for the Control of Air Pollution by Motor Vehicles (PROCONVE) to comply with the ratification of new motor vehicles, national or imported, light or heavy produced exclusively for the national Brazilian market.</i>	
Resolution 321, Jan. 29, 2003	528
Published in Official Gazette 53 on March 18, 2003, page 54	
<i>Establishes provisions for the alteration of CONAMA Resolution 226 from Aug. 20, 1997, that addresses specifications for commercial diesel oil and the regions where it is distributed.</i>	
Resolution 342, Sept. 25, 2003	531
Published in Official Gazette 240 on Dec. 10, 2003, page 95	
<i>Establishes new levels for polluting gases for mopeds, motorcycles and new similar vehicles in order to comply with Resolution 297 from Feb. 26, 2002 and makes other provisions.</i>	
Resolution 373, May 9, 2006	535
Published in Official Gazette 88 on May 10, 2006, page 102	
<i>Defines the criteria for the selection of areas supplied with Diesel Oil with Low Sulfur Content (DMTE) and makes other provisions.</i>	
Resolution 382, Dec. Dec. 26, 2006	398
Published in Official Gazette 1, on Jan. 2, 2007, pages 131 – 137	
<i>Establishes the maximum levels of pollution emissions by stationary sources.</i>	
Resolution 403/2008, Nov. 11, 2008	537
Published in Official Gazette 220 on Nov. 12, 2008, page 92	
<i>Establishes provisions for the new phase of demands imposed by the Program for the Control of Air Pollution by Motor Vehicles (PROCONVE) for new heavy vehicles (Phase P-7), and other provisions.</i>	
Resolution 414, Sept. 24, 2009	543
Published in Official Gazette 184 on Sept. 25, 2009, pages 52-53	
<i>Changes CONAMA Resolution 18 from May 6, 1986 and restructures the Monitoring and Assessment of PROCONVE-CAP, its objectives, competencies, composition and operation.</i>	
Resolution 415, Sept. 25, 2009	545
Published in Official Gazette 184 on Sept. 25, 2009, pages 53-54	
<i>Establishes provisions for the new phase (PROCONVE L6) regarding demands set by the Program for the Control of Air Pollution by Motor Vehicles (PROCONVE) for new light road motor vehicles, and makes other provisions</i>	
Resolution 435, Dec. 16, 2011	569
Published in Official Gazette 243 on Dec. 20, 2011, page 99	
<i>Changes the texts of articles 20 and 33 of Resolution 418 from Nov, 25, 2009, changed by Resolution 426 from Dec. 14, 2010, and regulates the date of enforcement for inspection and maintenance programs, of motorcycles and similar vehicles with 4 Otto moped engines, in states and municipalities.</i>	
Resolution 436, Dec. 22, 2011	424
Published in Official Gazette 247 on Dec. 26, 2011, pages 304 - 311	
<i>Establishes the maximum rates of atmospheric pollution emissions from point sources or sources with operational licenses granted before Jan. 2, 2007</i>	
Program for the Control of Air Pollution by Motor Vehicles (PROCONVE/PROMOT)	
Resolution 18, May 6, 1986	459
Published in the Official Gazette on June 17, 1986, pages 8792-8795	

<i>Establishes provisions for the establishment of the Air Pollution Control Program by Automotive Vehicles-PROCONVE.</i>	
Resolution 8, Aug. 31, 1993	469
Published in Official Gazette 250 on Dec. 31, 1993 pages 21536-21541 <i>Complements Resolution No.18/86, establishing, at the national sphere, the Program for the Control of Air Pollution by Motor Vehicles - PROCONVE, establishing maximum residue limits for pollutant emissions for engines for new heavy-duty vehicles, imported and domestic</i>	
Resolution 14, Dec. 13, 1995	484
Published in Official Gazette 249 on Dec. 19, 1995, pages 22875-22876 <i>Establishes deadline for automobile manufacturers of passenger light motor vehicles equipped with Otto cycle engine to submit to IBAMA a three-year program for the performance of durability test by engine group.</i>	
Resolution 15, Dec. 13, 1995	487
Published in Official Gazette 249 on Dec. 19, 1995, pages. 22876-22877 <i>Establishes provisions for new classification of motor vehicles for the control of vehicular emissions of gases, particulate and evaporative matter and makes other provisions.</i>	
Resolution 16, Dec. 13, 1995	491
Published in Official Gazette 249 on Dec. 19, 1995, pages. 22877-22878 <i>Rules on the maximum residue limits for the emission of pollutants for engines for new heavy-duty vehicles, national and imported, and determines the homologation and certification of new vehicles of Diesel cycle as the smoke index under free acceleration.</i>	
Resolution 226, Aug. 20, 1997	493
Published in Official Gazette 166 on Aug. 29, 1997, pages 18985-18986 <i>Establishes maximum limits for soot/black smoke emissions by motor vehicles.</i>	
Resolution 241, June 30, 1998	498
Published in Official Gazette 148 on Aug. 5, 1998, page 43 <i>Establishes provisions for the deadlines for the fulfillment of PROCONVE demands for imported vehicles.</i>	
Resolution 282, July, 12, 2001	499
Published in Official Gazette 220 on Nov. 19, 2001, pages 93-95 <i>Establishes requirements for the replacement of catalytic converters and makes other provisions.</i>	
Resolution 291, Oct. 25, 2001	506
Published in Official Gazette 79 on April 25, 2002, pages 130-131 <i>Establishes complete regulations for the conversion of vehicles to gas combustion and makes other provisions.</i>	
Resolution 297, Feb. 26, 2002	510
Published in Official Gazette 51 on March 15, 2002, pages 86-88 <i>Establishes limits for the release of polluting gases by mopeds, motorcycles and similar new vehicles.</i>	
Resolution 299, Oct 25, 2001	517
Published in Official Gazette 95 on May 20, 2002, pages 67-68 <i>Establishes procedures for the elaboration of rate reports for the control of emissions by new vehicles, including imported vehicles.</i>	
Resolution 315 , Oct. 29, 2002	521
Published in Official Gazette 224 on Nov. 20, 2002, pages 90-92 <i>Establishes provisions for the new stages of the Program for the Control of Air Pollution by Motor Vehicles (PROCONVE) to comply with the ratification of new motor vehicles, national or imported, light or heavy produced exclusively for the national Brazilian market.</i>	
Resolution 321, Jan. 29, 2003	528
Published in Official Gazette 53 on March 18, 2003, page 54 <i>establishes provisions for the alteration of CONAMA Resolution 226 from Aug. 20, 1997, that addresses specifications for commercial diesel oil and the regions where it is distributed.</i>	
Resolution 342, Sept. 25, 2003	531
Published in Official Gazette 240 on Dec. 10, 2003, page 95 <i>Establishes new levels for polluting gases for mopeds, motorcycles and new similar vehicles in order to comply with Resolution 297 from Feb. 26, 2002 and makes other provisions.</i>	
Resolution 354, Dec. 13, 2004	533

Published in Official Gazette 239 on Dec. 14, 2004, pages 62-63

Establishes provisions for the adoption of on board diagnosis systems (ODB) for light motor vehicles aimed at the preservation the integrity of the performance of emission control systems.

Resolution 373, May 9, 2006 535

Published in Official Gazette 87 on May 10, 2006, page 102

Defines the criteria for the selection of areas supplied with Diesel Oil with Low Sulfur Content (DMTE) and makes other provisions.

Resolution 403, Nov. 11, 2008 537

Published in Official Gazette 220 on Nov. 12, 2008, page 92

Establishes provisions for the new phase of demands imposed by the Program for the Control of Air Pollution by Motor Vehicles (PROCONVE) for new heavy vehicles (Phase P-7), and other provisions.

Resolution 414, Sept. 24, 2009 543

Published in Official Gazette 184 on Sept. 25, 2009 pages 52-53

Changes CONAMA Resolution 18 from May 6, 1986 and restructures the Monitoring and Assessment of PROCONVE-CAP, its objectives, competencies, composition and operation.

Resolution 415, Sept. 24, 2009 545

Published in Official Gazette 184 on Sept. 25, 2009 53-54

Establishes provisions for the new phase (PROCONVE L6) regarding demands set by the Program for the Control of Air Pollution by Motor Vehicles (PROCONVE) for new light road motor vehicles, and makes other provisions.

Resolution 432, July 13, 2011 549

Published in Official Gazette 134 on July 14, 2011, page 69

Establishes new phases for the control of polluting gas emissions by mopeds, motorcycles and new similar vehicles and makes other provisions.

Resolution 433, July 13, 2011..... 553

Provisions the inclusion of Motor Vehicles in the Air Pollution Program (PROCONVE) and establishes the maximum rates of noise emissions by new agriculture machines and new roadways.

Plan for the Control of Pollution by Vehicles in Use (PCPV) and Program for the Inspection and Maintenance of Vehicles in Use (I/M)

Resolution 418, Nov. 25, 2009 560

Published in Official Gazette 226 on Nov. 26, 2009, pages 81-84

Establishes provisions for the creation of Plans for the Control of Vehicle Pollution (PCPV) and for the establishment of Programs for the inspection and Maintenance of Vehicles in USE (I/M) by state and municipal environmental organs and Establishes new limits for emissions and proceedings for the evaluation of the state of vehicles in use.

Resolution 426, Dec. 14, 2010 568

Published in Official Gazette 164 on Dec. 15, 2010, page 164

Changes art. 5 and art. 12 of CONAMA Resolution 418 from 2009 and establishes new deadlines for the Plan for the Control of Vehicle Pollution and the Program for the Inspection and Maintenance of Vehicles in Use.

Resolution 435, Dec. 16, 2011..... 569

Published in Official Gazette 243 on Dec. 20, 2011, page 99

Changes the texts of articles 20 and 33 of Resolution 418 from Nov, 25, 2009, changed by Resolution 426 from Dec. 14, 2010, and regulates the date of enforcement for inspection and maintenance programs, of motorcycles and similar vehicles with 4 Otto moped engines, in states and municipalities.

Noise and Air Pollution

Resolution 17, Dec. 13, 1995 378

Published in Official Gazette 249 on Dec. 29, 1995 pages 22878-22879

Establishes maximum emission limit rates for regular or modified passenger vehicles.

Resolution 230, Aug. 22, 1997..... 571

Published in Official Gazette 163 on Aug. 26, 1997, 18603-18604

Bans the use of tools that can reduce the efficiency of the control of noise and atmospheric pollution levels in motorized vehicles

Resolution 242, June 30, 1998 573

Published in Official Gazette 148 on Aug. 5, 1998, page 43

Establishes emission rates for light commercial vehicles and maximum noise levels for off-road vehicles

with special characteristics.

MANAGEMENT OF WASTES AND HAZARDOUS MATERIALS

Use of Wastes and Hazardous Materials

- Resolution 7, Sept. 16, 1987** 576
Published in the Official Gazette on Oct. 22, 1987, pages 17500-17501
Establishes provisions for the amendment of Resolution 7/87, which rules on the regulation of the use of asbestos in Brazil.
- Resolution 9, Dec. 14, 1988** 578
Published in the Official Gazette on Aug. 11, 1989, page 13660
Establishes provisions for the amendment of Resolution 7/87 – regulation of the use of asbestos.
- Resolution 19, de 24/10/1996**..... 579
Published in Official Gazette 217 on Nov. 7, 1996, page 23071
Establishes provisions for warning on parts containing asbestos.
- Resolution 267, Sept. 14, 2000** 580
Published in Official Gazette 237 on Dec. 11, 2000, pages 27-29
Regulates the ban of substances that destroy the Ozone Layer.
- Resolution 314, Oct. 29, 2002** 587
Published in Official Gazette 224 on Nov. 20, 2002 page 90
Establishes provisions for the registration of medicinal products and makes other provisions.
- Resolution 359, April 29, 2005** 588
Published in Official Gazette 83 on May 3, 2005, pages 63-64
Establishes provisions for the regulation of phosphor content in powder detergents used in the entire national territory and makes other provisions.
- Resolution 375, Aug. 29, 2006**..... 592
Published in Official Gazette 167 on Aug. 30, 2006, pages 141-146
Defines criteria and procedures for the agricultural use of sewage sludge generated in sewage treatment plants and their derivative products, and makes other provisions.
- Resolution 380, Oct. 31, 2006** 613
Published in Official Gazette 213 on Nov. 7, 2006, page 59
Ratifies CONAMA Resolution 357/2006 – defines criteria and procedures for the agricultural use of sewage sludge generated in sewage treatment plants and their derivative products, and makes other provisions

Transportation, importation and exportation of wastes and hazardous products

- Resolution 1A, Jan. 23, 1986**..... 616
Published in the Official Gazette on Aug. 4, 1986
Establishes provisions for the transport of dangerous products in the national territory.
- Resolution 8, Sept. 19, 1991** 617
Published in the Official Gazette on Oct. 31, 1991, page 24063
Establishes provisions for the prohibition of the entry into the country of waste materials intended destined for final disposal and incineration in Brazil.
- Resolution 24, Dec. 7, 1994**..... 618
Published in Official Gazette 248 on Dec. 30, 1994 page 21346
Requires prior informed consent of the CNEN-National Commission of Nuclear Energy, to any import or export of radioactive material, in any form and chemical composition, in any quantity).
- Resolution 228, Aug. 20, 1997**..... 619
Published in Official Gazette 162 on Aug. 25, 1997, pages 18442-18443
Establishes provisions for the importation of lead waste products and lead wastes from electric accumulators

Treatment & final storage of wastes and hazardous products

- Resolution 2, Aug. 22, 1991** 621
Published in the Official Gazette on Sept. 20, 1991, pages 20293-20294
Establishes provisions for the treatment of deteriorated, contaminated or outdated local materials.

Resolution 6, Sept. 19, 1991	622
Published in the Official Gazette on Oct. 30, 1991, page 24063 <i>Establishes provisions for the treatment of solid waste of healthcare facilities, ports and airports.</i>	
Resolution 5, Aug. 5, 1993	623
Published in Official Gazette 166 on Aug. 31, 1993, pages 12996-12998 <i>Establishes provisions for the management of solid waste generated in ports, airports, rail and road terminals.</i>	
Resolution 23, Dec. 12, 1996	626
Published in Official Gazette 13 on Jan. 20, 1997, pages 1116-1124 <i>Establishes provisions for definitions and treatment to be given to hazardous waste in accordance with the standards adopted by the The Basel Convention on the control of Transboundary Movements of Hazardous Wastes and their Deposit.</i>	
Resolution 235, Jan. 7, 1998	653
Published in Official Gazette 6 on Jan. 19, page 167 <i>Changes annex 10 of CONAMA Resolution 23 from December 12, 1996.</i>	
Resolution 244, Oct. 16, 1993	656
Published in Official Gazette 199 on Oct. 19, 1998, page 51 <i>Excludes an item included in annex 10 of CONAMA Resolution 23 from December 12, 1996.</i>	
Resolution 269, Sept. 14, 2000	657
Published in Official Gazette 9 on Jan. 12, 2001, pages 58-61 <i>Regulates the use of chemical dispersants in oil spills into the sea.</i>	
Resolution 275, April 25, 2001	670
Published in Official Gazette 117-E on June 19, 2001, page 80 <i>Establishes the color code for the different types of wastes to be adopted for the identification of collectors and transporters as well as used in information campaigns aimed at selective collections.</i>	
Resolution 307, July 5, 2002	671
Published in Official Gazette 136 on July 17, 2002, pages 95-96 <i>Establishes directives, criteria and procedures for the management of wastes from building construction.</i>	
Resolution 313, Oct. 29, 2002	675
Published in Official Gazette 226 on Nov. 22, 2002, pages 85-91 <i>Establishes provisions for the National Inventory of Solid Industrial Wastes.</i>	
Resolution 316, Oct. 29, 2002	689
Published in Official Gazette 224 on Nov. 20, 2002 pages 92-95 <i>Establishes provisions, procedures and criteria for the operations of systems for thermic residual treatment.</i>	
Resolution 340, Sept. 25, 2003	700
Published in Official Gazette 213 on Nov. 3, 2001 pages 61-62 <i>Establishes provisions for the use of containers for the packaging, storage, transportation, collection and commercialization of gases that harm the Ozone Layer and makes other provisions</i>	
Resolution 344, March 25, 2004	702
Published in Official Gazette 87 on May 7, 2004 pages 56-57 <i>Establishes general directives and minimum requirements for the assessment of dredged materials in waters under national jurisdiction and makes other provisions.</i>	
Resolution 348, Aug. 16, 2004	709
Published in Official Gazette 158 on Aug. 17, 2004, page 70 <i>Changes CONAMA Resolution 307 from July 5, 2002 and adds asbestos to the hazardous wastes class.</i>	
Resolution 358, April 29, 2005	710
Published in Official Gazette 84 on May 4, 2005, pages 63-65 <i>Establishes provisions for the treatment and final disposal of health service wastes and makes other provisions.</i>	
Resolution 362, June 23, 2005	716
Published in Official Gazette 121 on June 27, 2005, pages 128-130 <i>Establishes provisions for the gathering, collection and final destination of used or contaminated lubrication oil.</i>	

Resolution 386, Dec. 27, 2006	725
Published in Official Gazette 249 on Dec. 29, 2006, page 665 <i>Changes art. 18 of CONAMA Resolution 316 of October 29, 2002.</i>	
Resolution 398/2008, June 11, 2008	726
Published in Official Gazette 111 on June 12, 2008, pages 101-104 <i>Establishes provisions for the minimum content of the Individual Emergency Plan for oil pollution incidents in waters under national jurisdiction within organized ports, port installations, terminals, ducts, land probes, platforms and support installations, refineries, shipyards, marinas, nautical clubs and similar installations, and provides guidelines for its elaboration.</i>	
Resolution 401/2008, Nov. 4, 2008	740
Published in Official Gazette 215 on Nov. 5, 2008, pages 108-109 <i>Establishes the maximum amounts of lead, cadmium and mercury for batteries sold within the national territory and the criteria and standards for their adequate environmental management and makes other provisions.</i>	
Resolution 416, Sept. 30, 2009	745
Published in Official Gazette 188 on Oct. 1, 2009, pages 64-65 <i>Establishes provisions for the preservation of environmentally degraded areas due to discarded tyres and their environmentally adequate destination, and makes other provisions.</i>	
Resolution 420, Dec. 28, 2009	748
Published in Official Gazette 249 on Dec. 30, 2009, pages 81-84 <i>Establishes provisions for the criteria and guiding values regarding soil quality and the presence of chemical substances and establishes directives for the environmental management of contaminated areas by those substances due to anthropic practices.</i>	
Resolution 421, Feb. 3, 2010	763
Published in Official Gazette 24 on Feb. 4, 2010, page 74 <i>Establishes provisions related to the revision and actualization of CONAMA Resolution 344 from March 25, 2004.</i>	
Resolution 424, April 22, 2010	764
Published in Official Gazette 76 on April 23, 2010, page 113 <i>Revokes the single paragraph of art. 16 of CONAMA Resolution 401/2008.</i>	
Resolution 431, May 24, 2011	765
Published in Official Gazette 99 on May 25, 2011, page 123 <i>Changes art. 30 of Resolution 307 from July 5, 2002, issued by the National Environment Council (CONAMA) establishing a new classification for plaster.</i>	
ENVIRONMENTAL LICENSING	
Standards and General Procedures for Environmental Licenses	
Resolution 1, Jan. 23, 1986	768
Published in the Official Gazette on Feb. 17, 1986, pages 2548-2549 <i>Establishes provisions for the basic criteria and general directives for the assessment of environmental impact.</i>	
Resolution 6, Jan. 24, 1986	771
Published in the Official Gazette on Feb. 17, 1986, page 2550 <i>Regulates the approval of models for environmental license requests.</i>	
Resolution 11, March 18, 1986	773
Published in the Official Gazette on May 2, 1986, page 6346 <i>Establishes provisions for changes in Resolution 1/86.</i>	
Resolution 9, Dec. 3, 1987	774
Published in the Official Gazette on July 5, 1990, page 12945 <i>Establishes provisions for the holding of Public Hearings in the environmental licensing process.</i>	
Resolution 237, Dec. 19, 1997	775
Published in Official Gazette 247 non Dec. 22, 1997, pages 30841-30843 <i>Establishes provisions for the revision and complementation of procedures and criteria used for the granting of environmental licenses.</i>	
Resolution 281, July 12, 2001	781
Published in Official Gazette 156-E on Aug. 15, 2001, page 86 <i>Establishes provisions for the publication models for license requests.</i>	

Resolution 306, July 5, 2002	782
Published in Official Gazette 138 on July 19, 2002, pages 75-76 <i>Establishes minimum requirements and references for the undertaking of environmental audits</i>	
Resolution 378, Oct. 19, 2006	787
Published in Official Gazette 202 on Oct. 20, 2006, page 175 <i>Defines enterprises that can potentially impact the national or regional environment in order to comply with the provisions of item IIID, § 1, art. 19 of Law 4.771 issued on Sept. 15, 1965 and makes other provisions.</i>	
Resolution 381, Dec. 14, 2006	788
Published in Official Gazette 240 on Dec. 15, 2006, pages 155 - 156 <i>Changes the provisions of Resolution 306 issued on July 5, 2002 and Annex II, which deals with the minimum demands for the realization of environmental audits.</i>	
Environmental Licensing by Activity	
Resolution 1, March 5, 1985	791
Published in Service Bulletin/MDU on May 3, 1985 <i>Establishes provisions for the suspension of the granting of license for the implantation of new alcohol distilleries in watersheds located in the Pantanal Matogrossense.</i>	
Resolution 5, Nov. 20, 1985	792
Published in the Official Gazette on Nov. 22, 1985, pages 17071-17072 <i>Establishes provisions for the licensing of transportation, storage and use activities of pentachlorophenol and sodium pentachlorophenol.</i>	
Resolution 14, March 18, 1986	793
Published in the Official Gazette on May 2, 1986, page 6346 <i>Establishes provisions for the referendum to Resolution No. 5/85.</i>	
Resolution 6, Sept. 16, 1987	794
Published in the Official Gazette on Oct. 22, 1987, page 17500 <i>Establishes provisions for the granting of environmental licenses for the construction of electric energy generation plants.</i>	
Resolution 5, June 15, 1988	797
Published in the Official Gazette on Nov. 16, 1988, page 22123 <i>Establishes provisions for the environmental licensing of sanitation works.</i>	
Resolution 9, Dec. 6, 1990	798
Published in the Official Gazette on Dec. 28, 1990, pages 25539-25540 <i>Establishes provisions for specific rules for environmental licensing of mineral extraction, classes I, III to IX.</i>	
Resolution 10, Dec. 6, 1990	800
Published in the Official Gazette on Dec. 28, 1990, pages 25540-25541 <i>Establishes provisions for specific rules for licensing mineral extraction, environmental class I Regulates the granting of environmental licenses for beaches where turtles spawn.</i>	
Resolution 16, Dec. 17, 1993	802
Published in Official Gazette 250 on Dec. 31, 1993, page 21541 <i>Establishes provisions for the compulsory environmental licensing to specifications, manufacturing, marketing, and distribution of new fuels, and makes other provisions.</i>	
Resolution 23, Dec. 7, 1994	803
Published in Official Gazette 248 on Dec. 31, 1994, pages 21345-21346 <i>Establishes specific procedures for licensing of activities related to the exploration and mining of liquid fuels and natural gas fields.</i>	
Resolution 264, Aug. 26, 1999	805
Published in Official Gazette 54 on March 20, 2000, pages 80-83 <i>Regulates the licensing of rotation ovens for the production of clinker and the co-processing of wastes</i>	
Resolution 273, Nov. 29, 2000	812
Published in Official Gazette 5 on Jan. 8, 2001, pages 20-23 <i>Establishes directives for the granting of environmental licenses to fuel service stations and establishes provisions for the control and prevention of pollution.</i>	
Resolution 279, June 27, 2001	820

Published in Official Gazette 125-E on June 29, 2001, pages 165-166 <i>Establishes the procedures for the granting of simplified environmental licenses to electrical enterprises with low pollution environmental impact.</i>	
Resolution 284, Aug. 30, 2001.....	823
Published in Official Gazette 188 on Oct. 1, 2001, page 153 <i>Establishes provisions for the granting of environmental licenses to irrigation enterprises.</i>	
Resolution 305, June 12, 2002.....	826
Published in Official Gazette 127 on July 4, 2002, pages 81-82 <i>Establishes provisions for Environmental Licenses, Environmental Impact Studies and Environmental Impact Report for activities and enterprises that include Genetically Modified Organisms and derivatives.</i>	
Resolution 312, Oct. 10, 2002	833
Published in Official Gazette 203 on Oct. 18, 2002, pages 60-61 <i>Establishes provisions for the granting of environmental licenses to shrimp cultivation enterprises on the coastal zone.</i>	
Resolution 319, Dec. 4, 2002.....	837
Published in Official Gazette 245 on Dec. 19, 2002, pages 224-225 <i>Provides a new text for the provisions of Resolution 273/00 which Establishes directives for the granting of environmental licenses to fuel service stations and the prevention and control of pollution.</i>	
Resolution 334, April 3, 2003.....	838
Published in Official Gazette 94 on May 19, 2003, pages 79-80 <i>Establishes provisions for processes related to the granting of environmental licenses to enterprises that collect/store empty agrototoxic packages.</i>	
Resolution 335, April 3, 2003.....	841
Published in Official Gazette 101 on May 28, 2003, pages 98-99 <i>Establishes provisions for the environmental licensing of cemeteries.</i>	
Resolution 349, Aug. 16, 2004	844
Published in Official Gazette 158 on Aug. 17, 2004, pages 70-71 <i>Establishes provisions for the granting of environmental licenses to low environmental impact railway enterprises and the regularization of operational enterprises.</i>	
Resolution 350, July 6, 2004.....	847
Published in Official Gazette 161 on Aug. 20, 2004, pages 81-81 <i>Establishes provisions for specific environmental licenses for maritime seismic data collection activities in transition zones.</i>	
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Published in Official Gazette 61 on March 29, 2006, pages 149-150 <i>Changes the provisions of Resolution 335 from April 3, 2003, which provisions the granting of environmental licenses for cemeteries</i>	
Resolution 377, Oct. 9, 2006.....	850
Published in Official Gazette 195 on Oct. 10, 2006, pages 141-146 <i>Establishes provisions for the granting of simplified environmental licenses for Sanitary Sewer Systems</i>	
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Resolution 387, Dec. 27, 2006.....	853
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Resolution 412, May 13, 2009	866
Published in Official Gazette 90 on May 14, 2009, pages 93-96	
<i>Establishes criteria and directives for the granting of environmental licenses to new enterprises engaged in the construction of Social Interest housing.</i>	
Resolution 413, June 26, 2009	868
Published in Official Gazette 122 on June 30, 2009, pages 126-129	
<i>Establishes provisions for the granting of agricultural environmental licenses and makes other provisions</i>	
Resolution 428, Dec. 17, 2010	880
Published in Official Gazette 242 on Dec. 20, 2010, page 805.	
<i>Establishes provisions, in respect to environmental licenses regarding permits issued by the organ responsible for the administration of the Conservation Unit (UC) that is the subject of § 3 of art. 36 of Law 9.985 from July 18, 2000, as well as on the awareness of the organ responsible for the administration of the Conservation Unit (UC) in respect to environmental licenses for enterprises that are not subjected to ELA-RIMA and makes other provisions</i>	
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<i>Institutes Airport Safety Areas (ASAs).</i>	
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Published in Official Gazette 217 on Nov. 7, 1996, page 23070	
<i>Regulates the granting of environmental licenses for beaches where turtles spawn.</i>	
Resolution 286, Aug. 30, 2001	886
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<i>Establishes provisions for the granting of environmental licenses to enterprises in malaria infested regions.</i>	
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<i>Establishes provisions for the Federal Technical Register of activities and environmental protection instruments.</i>	
Resolution 6, June 15, 1989	892
Published in the Official Gazette on Aug. 25, 1989, page 14714	
<i>Establishes provisions for the National Register of Environmentalists Entities –CNEA.</i>	
Resolution 292, March 21, 2002	894
Published in Official Gazette 87 on May 8, 2002, pages 330 - 331	
<i>Regulates the registration and re-registration of Environmental Entities in the CNEA.</i>	
Resolution 379, Oct. 19, 2006 de 19/10/2006	896
Published in Official Gazette 202 on Oct. 20, 2006, page 102	
<i>Creates and regulates the data and information system on forest management by the National Environment System (SISNAMA).</i>	
Resolution 411, May 6, 2009	900
Published in Official Gazette 86 on May 8, 2009, pages 93-96	
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PRESERVATION AREAS/UNITS – UCs

CONAMA RESOLUTION 11, September 26, 1984
Published in Service Bulletin/MI, on November 1, 1984

Establishes provisions for the execution of administrative procedures aimed at the creation of Areas of Relevant Ecological Interest - Mata de Santa Genebra/SP, Ilha do Pinheirinho/ PR, Ilhas Queimada Pequena and Queimada Grande/SP, and Ilha do Ameixal/SP.

THE NATIONAL ENVIRONMENT COUNCIL – CONAMA, in accordance with the power bestowed upon the Council by article 7, item X, of Decree 88.351, issued on June 1, 1983¹, and by Decree 89.336, issued on January 31, 1984, decides:

To request its Executive Secretary to prepare the respective Decree minutes and to forward them to the Executive Branch, through the Ministry of the Interior², aimed at the creation of the following Areas of Relevant Ecological Interest:

- Mata de Santa Genebra, Campinas Municipality, State of São Paulo.
- Ilha do Pinheirinho, Baía de Guaraqueçaba, Paraná State.
- Ilhas Queimada Pequena and Queimada Grande, along the littoral of the Itanhaém and Peruíbe municipalities, State of São Paulo.
- Ilha do Ameixal, located in river Una, Iguape Municipality, State of São Paulo.

The Decree must safeguard the interests of the Navy Ministry regarding the oceanic Islands and the installation of possible future navigation equipment without prejudice to nature conservation.

PAULO NOGUEIRA NETO – Council President

This text does not substitute the text published in Service Bulletin/MI on November 1, 1984

¹ Decree revoked by Decree 99.274 on June 6, 1990

² The Ministry of the Interior was dissolved by Law 8.028 issued on April 12, 1990.

CONAMA RESOLUTION 14, December 18, 1984
Published in Service Bulletin/MI, January 25, 1984

Correlations:

- Complemented by CONAMA Resolution 27/86

Establishes provisions for the creation of the Capetinga-Taquara Area of Relevant Ecologic Interest/Federal District of Brasilia

THE NATIONAL ENVIRONMENT COUNCIL – CONAMA, in accordance with the power bestowed upon the Council by article 7, item X, of Decree 88.351, issued on June 1, 1983³, and considering the urgent need to implement measures in order to safeguard areas of great ecological importance, and considering the provisions of Decree 89.336 from January 31, 1984 and CONAMA Proposition 16 from December 18, 1984, decides:

To request its Executive Secretary to prepare the respective Decree minutes and to forward them to the Executive Branch, through the Ministry of the Interior⁴, aimed at the creation of the following Area of Relevant Ecological Interest:

- Capetinga-Taquara, located in the region of the Capetinga and Taquara streams, in Brasilia, Federal District.

PAULO NOGUEIRA NETO – Council President

This text does not substitute the text published in Bulletin/MI on January 25, 1985.

³ Decree revoked by Decree 99.274 on June 6, 1990

⁴ The Ministry of the Interior was dissolved by Law 8.028, issued on April 12, 1990.

CONAMA RESOLUTION 17, Dec. 18, 1984
Published in Service Bulletin/MI, January 25, 1985

Establishes provisions for the creation of Areas of Relevant Ecologic Interest – Vale dos Dinossauros/PB and the Mangroves of the Estuary of the Mamanguape River/PB.

THE NATIONAL ENVIRONMENT COUNCIL – CONAMA, in accordance with the power bestowed upon the Council by article 7, item X, of Decree 88.351, issued on June 1, 1983⁵, and considering the need to implement measures in order to safeguard some natural areas of great ecological importance, and considering the provisions of Decree 89.336, issued on January 31, 1984 and CONAMA Proposition 15 from December 18, 1984, decides:

To request its Executive Secretary to prepare the respective Decree minutes and to forward them to the Executive Branch, through the Ministry of the Interior⁶, aimed at the creation of the following Area of Relevant Ecological Interest:

Vale dos Dinossauros, located in the Rio do Peixe Region, Souza and Antenor Navarro Municipalities, State of Paraíba.

Manguezais da Foz do Rio Mamanguape (Mangroves of the River Mamanguape estuary), located in the Municipality of Rio Tinto, Paraíba State.

· PAULO NOGUEIRA NETO – Council President

This text does not substitute the text published in Bulletin/MI on January 25, 1985C

⁵ Decree revoked by Decree 99.274 on June 6, 1990.

⁶ The Interior Ministry was dissolved by Law 8.028, issued on April 12, 1990.

CONAMA RESOLUTION 27, December 3, 1986
Published in the Official Gazette on January 22, 1987, Section 1 page 1122

Correlations:

· Complements CONAMA Resolution 14/84

Establishes provisions for administrative procedures aimed at the integration of IBGE's Ecologic Reserve into the ARIE's Capetinga – Taquara located in the Federal District.

THE NATIONAL ENVIRONMENT COUNCIL – CONAMA, in accordance with the power bestowed upon the Council by article 7 of Decree 89.336 issued on January 31, 1984 and

Considering the ecological importance of the IBGE's Ecological Reserve which is the best preserved area (1300 ha) of Cerrado in the Federal District and possesses representative samples of the Central Plateau ecosystems and a rich biota that includes 250 bird species and 1200 superior plant species, apart from numerous rare species, endemic or endangered with extinction such as: macuquinho de Brasília (*Scytalopus novacapitalis*), pira Brasília (*Cynolebias boitonei*), cachorro-vinagre (*Speothos venaticus*), the largest population of natural Cerrado wheat (*Tristachya leiostachya*) and native bamboo (*Olyra ciliatifolia* and *Olyra taquara*), and various species of micro-orchids;

Considering that the reserve was created through Resolution 26/75 issued by the IBGE's Presidency on December 22, 1975 and is in need of stronger legal protection in order to safeguard the preservation of its ecosystems;

Considering that this Reserve is contiguous to the Capetinga-Taquara Area of Relevant Ecological Interest, created by Decree 91.303, issued on June 3, 1985 according to a proposal presented by CONAMA, and considering the positive aspects of a joint management for these areas; decides:

I – To request its Executive Secretary to prepare Decree minutes and forward them to the Executive Branch, through the Urban Development and Ministry of the Environment⁷, aimed at the integration the Capetinga-Taquara Area of Relevant Ecological interest into the area of the Ecologic Reserve of the Brazilian Geography and Statistics Institute (IBGE), located in the region of the basins of the streams Capetinga and Taquara, in the Federal District of Brasília.

II – This Resolution shall enter into effect on the date of its publication.

DENI LINEU SCHWARTZ – Council President

This text does not substitute the text published in the Official Gazette on January 22, 1987.

⁷ The Urban Development and Ministry of the Environment was dissolved through Law 7.739, March 13, 1989. Environmental matters are currently the remit of the Ministry of the Environment.

CONAMA RESOLUTION 11, Dec. 14, 1988
Published in the Official Gazette on August 11, 1989, Section 1, page 13661

Establishes provisions related to wild fire management within Conservation Units.

THE NATIONAL ENVIRONMENTAL COUNCIL – CONAMA in accordance with the power bestowed upon the Council by article 8 of Law 6.938 from August 31, 1981, and art. 7 of Decree 88.351, from June 1, 1983⁸, decides:

Art. 1 Conservation Units composed of forest ecosystems must be cared for even when subjected to fires in order to achieve its natural recuperation through ecological successional processes.

§ 1 Burned lumber cannot be commercialized disrespect of the causes of the fire.

§ 2 Burned lumber can only be used for fences, bridges and for other purposes that benefit the Conservation Unit.

Art. 2 The construction or opening of firebreaks, paths and small dams within Conservation Units is allowed if foreseen by the respective Management Master Plan and in order to avoid and combat fires and their propagation.

§ 1 The construction or opening of paths of any nature within a Conservation Unit cannot be aimed at allowing the transit of persons, domestic animals or vehicles from locations situated outside of the Area, unless previously approved by CONAMA.

§ 2 The construction or opening of firebreaks, dams and paths to combat fires must be carried out without the destruction of notable or rare species of the local biota and cannot cause any type of accelerated erosion.

§ 3 Educational programs on fire control and prevention must be undertaken in localities that neighbor the Conservation Units.

Art. 3 The use of fire as a tool for the ecological management of fields, Cerrado and other types of savannah, adapted to periodical fires, must be preceded by environmental impact studies that identify possible dangers and must be carried out with full fire control.

§ 1 Management fires cannot exceed, per year, the equivalent of 20% of the total area of the Conservation Unit.

§ 2 Management fires must avoid the encircling of vertebrate animals and never hinder their possible exit from the Conservation Unit.

§ 3 Management fires can only be carried out during hours and occasions with high air humidity and when the wind cannot strengthen the fires

§ 4 Management fires must be accompanied by a group of individuals that possess adequate vehicles and hardware to combat the flames and thereby safeguard their effective control.

§ 5 Management fires cannot be undertaken in forestry Conservation Units unless they have been granted previous CONAMA authorization.

Art. 4 This Resolution shall enter into force on the date of its publication.

JOÃO ALVES FILHO – Council President

FERNANDO CÉSAR DE MORAES MESQUITA – Executive Secretary

This text does not substitute the text published in the Official Gazette on Aug. 11, 1989.

⁸ Decree revoked by Decree 99.274 on June 6, 1990.

CONAMA RESOLUTION 11, September 14, 1989
Published in the Official Gazette on December 18, 1989, Section 1, page 23405

Establishes provisions for the creation of the Cagarras Archipelago Area of Relevant Ecological Interest in the State of Rio de Janeiro.

THE NATIONAL ENVIRONMENT COUNCIL – CONAMA, in accordance with the power bestowed upon the Council by Item IX of article 17 of the Council’s Internal Regulations and considering the provisions of art. 7 of Decree 88.351 issued on June 1, 1983⁹, and art. 7 of Decree 89. 336 issued on January 31, 1984, decides:

To forward the following Decree proposal to the Presidency of the Republic:

Art. 1 The Ilhas Cagarras Area of Relevant Ecological Interest located in the Atlantic Ocean in front of the Ipanema Beach in the Rio de Janeiro State is hereby created.

Single paragraph. The territorial sea with a radius of 2 kilometers around each island is also an integral part of the Area.

Art. 2 The Navy Ministry is hereby granted the authorization to place and operate the necessary hardware and structures in the Area in order to safeguard navigation safety and other activities included in the Ministry’s remit.

Art. 3 The following activities are interdicted in the Ilhas Carragas Area of Relevant Ecological Interest:

I – Any activity that may cause any hazards to the integrity of the ecosystem and the harmony of the landscape;

II – Fishing activities with nets, traps and other apparatus considered by IBAMA as hazardous for the ocean fauna as well as the possession or use of explosives, firearms and objects that can kill animals;

III – Sports competitions as well as any other activity that can disturb the aquatic fauna and sea birds that inhabit the islands and their surrounding areas

IV – The use of tents or any form of camping without previous IBAMA authorization.

Art 4 The Area of Relevant Ecological Interest will be supervised and inspected by IBAMA who will, for these purposes, undertake public agreements with public organs or agreements with non-profit environmental conservation entities.

Art 5 Infractions to the above provisions will be imposed according to art. 4 of Decree 89.336 from January 31, 1984 without prejudice to obligations related to ecological reparation damages and other.

Art. 6 All provisions to the contrary are hereby revoked.

JOÃO ALVES FILHO – Council President

FERNANDO CÉSAR DE MORAES MESQUITA – Executive Secretary

This text does not substitute the text published in the Official Gazette on December 18, 1989.

⁹ Decree revoked by Decree 99.274 on June 6, 1990.

CONAMA RESOLUTION 12, Sept. 14, 1989
Published in the Official Gazette on December 18, 1989, Section 1, page 23405

Correlations:

· Revokes CONAMA Resolution 2/88

*Establishes provisions related to the ban of activities that impact the ecosystems of
Areas of Relevant Ecological Interest.*

THE NATIONAL ENVIRONMENT COUNCIL - CONAMA, in accordance with the power bestowed upon the Council by Item IX of article 17 of its Internal Regulations, and

Considering the provisions of articles 215, 216 and 225 of the Federal Constitution as well as art. 9, line VI of Law 7.804, issued on July 18, 1989, article 7 of Decree 88.351, issued on June 1, 1983¹⁰ and art. 7 of Decree 89.336, issued on January 31, 1984;

Considering that CONAMA Resolution 2 issued on March 16, 1988¹¹ needs to be improved and adapted to the new Federal Constitution, decides:

Art. 1 It is forbidden to undertake any activity that can, in Areas of Relevant Ecological Interest, present risks to :

I – the preservation of the ecosystems;

II – the particular protection of rare local biota species;

III – the harmony of the local landscape.

Art. 2 It is allowed to, among other non-predatory activities, undertake balanced pastoral activities and the limited harvesting of natural products under the control and supervision of environmental inspection organs.

Art. 3 Federal, State and Municipal Public Powers that create Areas of Relevant Ecological Interest will appoint the supervising and inspection organs which can set bannings and restrictions aimed at safeguarding the content of article 1.

Single paragraph. The inspection of Areas of Relevant Ecological Interest can be fully or partly delegated through an agreement with another public organ and can become a joint venture, through an agreement, with a non-profit environmental preservation Civil Foundation or Association.

Art. 4 CONAMA Resolution 2 issued on June 13, 1988¹² is hereby revoked.

Art. 5 This Resolution shall enter into force on the date of its publication.

JOÃO ALVES FILHO – Council President

FERNANDO CÉSAR DE MORAES MESQUITA – Executive Secretary

This text does not substitute the text published in the Official Gazette on Dec. 18, 1989.

¹⁰ Decree revoked by Decree 99.274 on June 6, 1990.

¹¹ Resolution revoked by Resolution 12/89.

¹² Correction of date of issue of Resolution 2/88 as the original text states date of issued on Dec. 18, 1989

CONAMA Resolution 18, December 7, 1989
Published in the Official Gazette on Jan. 24, 1990, Section 1, page 1742

Establishes provisions for the creation of the Pé-Gigante Cerrado Area of Ecologic Interest in the State of Sao Paulo.

THE NATIONAL ENVIRONMENT COUNCIL - CONAMA, in accordance with the power bestowed upon the Council by Item IX of article 17 of its Internal Regulations, and considering the provisions of articles 215, 216 and 225 of the Federal Constitution as well as art. 9, line VI of Law 7.804, issued on July 18, 1989, article 7 of Decree 88.351, issued on June 1, 1983¹³ and art. 7 of Decree 89.336, issued on January 31, 1984, decides:

To forward the following Decree proposal to the Presidency of the Republic:

Art 1 The Pé-de-Gigante Area of Relevant Ecological Interest is hereby created on the grounds with the same name located in the Forest Area of Vassunga, Santa Rita do Passo Quatro Municipality, State of São Paulo.

Art 2 The Pé-de Gigante Area of Relevant Ecological Interest has the following perimeter:

It starts at point "1", situated in the intersection of the divisionary marks of the D.E.R with the Guatapar Florestal S.A., close to the return point of Via Anhanguera SP 330; from here it follows the divisor mark until it meets the Guatapar Florestal S.A. property with AZ of 8116', and the distance of 1.588,39 m (one thousand five hundred and eighty eight meters and thirty nine centimeters) until it meets with point "2"; from here it follows the divisionary mark, still facing the Guatapar Florestal S.A. property, AZ of 0521', at the distance of 13,41 meters (thirteen meters and forty one centimeters) until it reached point "3"; from here, it follows the divisionary mark still facing the Guatapar Florestal S.A. property, AZ of 5021', and the distance of 3.770,77 meters (three thousand seven hundred and seventy meters and seventy seven centimeters) until it reaches point "4"; from here, it follows a straight line facing the property Champion Papel e Celulose Ltda., AZ of 2650' and the distance of 166,62 meters (one hundred and sixty six meters and sixty two centimeters) until it reaches point "5"; from this point it continues on a straight line still facing the Champion Papel e Celulose Ltda., AZ of 12542', and the distance of 631, 19 meters (six hundred and thirty one meters and ninety one centimeters) until it reaches point "6"; from this point it continues on a straight line facing the Usina Santa Rita property, AZ of 10519', and the distance of 3.514,00 meters (three thousand five hundred and fourteen meters) until it reaches point "7"; from this point it follows the divisionary mark of the D.E.R. facing the Via Anhanguera, AZ of 0852', and the distance of 207,31 m (two hundred and seven meters and thirty one centimeters) until it reaches point "8"; from this point it follows the divisionary mark of the D.E.R. facing the Via Anhanguera, AZ of 0927' and the distance of 3.132,59 m (three thousand one hundred and thirty two meters and fifty nine centimeters) until it reaches point "9"; from this point it follows the divisionary mark of the D.E.R. facing the Via Anhanguera, AZ 0710', and the distance of 130, 39 m (one hundred and thirty meters and thirty nine centimeters) until it reaches point "10"; from this point it follows the divisionary mark D.E.R. facing the Via Anhanguera, AZ 0140', and the distance of 111,99 m (one hundred and eleven meters and ninety nine centimeters) until it reaches point "11"; from this point it follows the divisionary mark of the D.E.R. facing Via Anhanguera, AZ of 0041', and the distance of 111,49 m (one hundred and eleven meters and forty nine centimeters) until it reaches point "12"; from this point it follows the divisionary mark of the D.E.R. facing Via Anhanguera, AZ 0124', and the distance of 106,70 m (one hundred and six meters and seventy centimeters) until it reaches point "13"; from this point it follows the divisionary mark of the D.E.R facing Via Anhanguera, AZ 2335', and the distance 94,23 m (ninety four meters and twenty three centimeters) until it reaches point "14"; from this point it follows the divisionary mark of the D.E.R. facing Via Anhanguera, AZ 1218', and the distance of 11,82 m (eleven meters and eighty two centimeters) until it reaches point "01"; the total of Azimuths and distances form a total area of 10.600.192,31 m (ten million six thousand one hundred and ninety two meters and thirty one square centimeters) corresponding to 438,03 bushels.

Art 3 All following activities are banned within the Cerrado Pé-de-Gigante Area of Relevant Ecological Interest:

- I – All activities that compromise the integrity of ecosystems and the harmony of the landscape;
- II – Fishing, except for scientific purposes;
- III – Sports competitions that may, in any possible way, harm the ecosystem;
- IV – Excessive pastoral activities that can have a negative effect on the vegetation cover;
- V – Harvesting of natural products if deemed to be a risk factor for the preservation of the ecosystems;
- VI – The building of industries that can damage the local landscape;
- VII – Activities that are hazardous to or hinder the regeneration of native plants;
- VIII - Activities that prejudice or hinder the regeneration of native plants;
- IX – Initiatives that may cause soil erosion and the course and flow of existing waters;

¹³ Decree revoked by Decree 99.274 on June 6, 1990.

X – Any type of activities and actions that pose a risk to the survival of the local native biota species.

Art 4 The construction, installation and operation of a Cerrado Museum and of the Managiba Ecological Station at the Cerrado Pé-de-Gigante Area of Relevant Ecological Interest are hereby allowed.

Art 5 The University of São Paulo is allowed to undertake inspections, directly or through an agreement with other public organs while abiding to the provisions of this Decree and without prejudice to IBAMA inspections.

Art. 6 This Resolution shall enter into effect on the date of its publication.

JOÃO ALVES FILHO – Council President

FERNANDO CÉSAR DE MORAES MESQUITA – Executive Secretary

This text does not substitute the text published in the Official Gazette on January 24, 1990.

CONAMA RESOLUTION 5, October 17, 1990
Published in Official Gazette on December 6, 1990, Section 1, pages 23476-23477

Establishes provisions for the creation of Serra da Abelha – Rio da Prata, Santa Catarina State - Area of Relevant Ecologic Interest.

THE NATIONAL ENVIRONMENT COUNCIL - CONAMA, in accordance with the power bestowed upon the Council by Item IX of article 17 of its Internal Regulations, and considering the provisions of articles 215, 216 and 225 of the Federal Constitution as well as art. 9, line VI of Law 7.80, issued on July 18, 1989, article 7 of Federal Decree 99.274, issued on June 6, 1990 and art. 7 of Federal Decree 89.336, issued on January 31, 1984, decides:

To forward the following Decree proposal to the Presidency of the Republic:

Art. 1 The SERRA DA ABELHA/RIO PRATA Area of Relevant Ecological Interest is hereby created, located at Serra da Abelha II and Rio da Prata, in the municipality of Vitor Meirelles, Santa Catarina State.

Art. 2 The Serra da Abelha/Rio da Prata Area of Relevant Ecological Interest has the following perimeters:

The first with 1.257,8 ha, starting from mark 1, spiked to the right margin of the Rio da Prata, geographic coordinates latitude 26°47'55"S and longitude of 49°56'10"WGr, follows a dry and straight line with azimuth of 170°30' and a distance of 715 m, facing the property of Indústria e Comércio de Madeiras S/A., until mark 2, geographical coordinates latitude 26°48'18"S and longitude 49°56'07" WGr; from this point it follows a dry and straight line with azimuth of 125°00' and a distance of 3.500 m, facing the property of Indústria e Comércio de Madeiras S/A, owned by Vitor Sadlowski and Benedito Humberto Sadlowski, until mark 3, geographic coordinates latitude 26°49'23"S and longitude 49°54'22"WGr; from this point it follows a dry and straight line with azimuth of 208°15' and distance of 2.530 m, facing the land property of Eberhardt Erich Ruttman, Heitor Moreira, Leopoldo Watraz and Casimiro Watraz, until mark 4, geographic coordinates latitude 26°50'35"S and longitude 49°55'06"WGr, from this point it follows a dry and straight line with azimuth of 261°00' and a distance of 2.210 m, facing the land property of Elias Haschel, Manoel Antonio Wolff and Manoel Luiz Antunes Camargo, until mark 5 with geographic coordinates latitude 26°50'47"S and longitude 49°56'25"WGr; from this point it follows a straight and dry line with azimuth of 350°45' and a distance of 4.510 m, facing the land property of Vitor Sadlowski, Gerci Waldrich and Miguel Sadlowski, until mark 6, spiked to the margin Rio da Prata, geographic coordinates latitude 26°48'22"S and longitude 49°56'51"WGr, from this point it follows the Rio da Prata for a distance of 1.700 m, until mark 1, the initial point of the description of this perimeter (Reference source: Carta Witmarsum, sheet SG-22Z-A-VI-3, MI-2.880/3, IBGE. Scale: 1:50.000).

The second with 2.976,9101 ha, starting from mark 1, spiked to the right margin of the Rio da Prata, coordinates UTM E = 611,950 m and N = 7.04.900 m, referred to MC 51°WGr, follows a dry line facing the building of Norberto Amorim, azimuth of 141°17' and a distance of 1.485 m, until mark 2; from this point it follows a dry line facing the building of Manoel Marchetti, azimuth of 124°32' and a distance of 2.950 m, until mark 3; from this point it follows a dry line facing the building of Erwin Scheidemantel, azimuth of 210°32' and a distance of 2.220 m, until mark 4; from this point it follows a dry line facing the building of Indústria e Comércio de Madeiras S/A, azimuth of 254°32' and a distance of 2.100 m until mark 5; from this point it follows a dry line facing the building of Indústria e Comércio de Madeiras S/A, azimuth of 210°32' and a distance of 4.925 m until mark 6; from this point it follows a dry line facing the building of João Maltezo, azimuth of 305°22' and a distance of 1.804 m until mark 7; from this point it follows a dry line facing the building of João Maltezo, azimuth of 210°32' and a distance of 295 m, until mark 8; from this point it follows a dry line facing the building of Eduardo Watraz, azimuth of 305°00' and a distance of 1.696 m, until mark 9; from this point it follows a dry line facing the building of Severa Watraz, azimuth of 350°30' and a distance of 715 m, until mark 10, spiked to the right margin of the do Rio da Prata, from this point it follows the Rio da Prata downstream with a distance of 13.800 m, until mark 1, the initial point of this description (Reference sources: DSG Map, sheets SG.22-Z-A-VI-I and SG.22-Z-A-VI-3, Scale 1:50.000, year of 1981 and topographical survey undertaken by land Surveyor Reinhold Müller, on September 28, 1972).

Art. 3 The following activities are banned on the Serra da Abelha/Rio da Prata Area of Relevant Ecological Interest:

- I – Any activity that can threaten the integrity of the ecosystems and the harmony of the landscape;
- II – All sports competitions that can, in any possible manner, damage the ecosystems;
- III – Excessive pastures that can have a negative effect on the vegetation cover;
- IV – The harvesting of natural products if they pose a threat to the preservation of the ecosystems;
- V – Industrial activities that can potentially threaten the integrity of the environment;
- VI – The construction of buildings that can significantly change the local landscape;
- VII – Any activity that poses a threat or hinders the regeneration of native plants;
- VIII – Initiatives that can lead to land erosion and change existing water courses;
- IX – Any type of activity that threatens the survivability of the local biota native species.

Art. 4 ACAPRENA – The Santa Catarina Association for the Preservation of Nature and APREMAVI – Alto do Vale Itajaí Association for Environmental Preservation are hereby allowed to inspect the Area through an agreement with public organs and according to the provisions of this Decree and without prejudice to any additional activity by these organs.

HELIO SETTI JÚNIOR – Acting Council President

TÂNIA MARIA TONEL MUNHOZ – Executive Secretary

This text does not substitute the text published in the Official Gazette on December 6, 1990.

PERMANENT PRESERVATION AREAS – APPs

CONAMA RESOLUTION 302, March, 20, 2002
Published in Official Gazette 90 on May 13, 2002, pages 67-68

Correlations:

· Complements CONAMA Resolution 303/02

Establishes the parameters, definitions and boundaries of Permanent Preservation Areas with artificial reservoirs and regulates the use of their grounds.

THE NATIONAL ENVIRONMENT COUNCIL - CONAMA, in accordance with the power bestowed upon the Council by Law 6.938, from August 31, 1981, regulated through Decree 99.274, from June 6, 1990, and considering the provisions of Laws 4.771, from September 15, 1965, and 9.433, from January 8, 1997, and its Internal Regulations, and

Considering that the socio-environmental function of property foreseen in articles 5, item XXIII, 170, item VI, 182, § 2, 186, item II and 225 of the Constitution, the principles of prevention, caution and pollution-compensation;

Considering the need to regulate art. 2 of Law 4.771, from 1965, in respect to Permanent Preservation Areas and the grounds of artificial reservoirs

Considering that Brazil is committed to responsibilities related to the Convention on Biodiversity held in 1992, the Ramsar Convention held in 1971 and the Washington Convention held in 1940 as well as the commitments assumed during the Rio de Janeiro Declaration in 1992;

Considering that Permanent Preservation Areas and other protected territorial areas, as tools for the preservation of the environment, are an integral part of sustainable development and an objective of current and future generations;

Considering the environmental importance of Permanent Preservation Areas for the preservation of water resources, landscapes, soil protection and the safeguarding of the wellbeing of human populations, decides:

Art. 1 It is the objective of the current Resolution to establish the parameters, definitions and boundaries of Permanent Preservation Areas with artificial reservoirs, the establishment of a mandatory environmental conservation plan and regulate the use of the respective grounds.

Art. 2 The following definitions are hereby adopted for the purpose of this Resolution:

I – Artificial Reservoir: Non-natural water accumulation for any purpose.

II – Permanent Preservation Area: The area surrounding the artificial reservoir and its islands created in order to preserve water resources, the landscape, the geological stability, biodiversity, the natural flow of fauna and flora, the protection of the soil and to safeguard the wellbeing of human populations;

III – Environmental Conservation Plan and Use of Artificial Reservoir Grounds: is a group of directives and proposals for conservation regulation, recuperation, usage and occupation of the grounds of artificial reservoirs, according to the parameters established by this Resolution and in other applicable standards;

IV – Maximum Normal Level: is the maximum quota for the operation of the reservoir;

V – Consolidated Urban Area: is an area that complies with the following demands:

a) legal definition by public organs;

b) existence of a minimum of four of the following urban infra-structures:

1. road network including the canalization of rain water;

2. water-supply system;

3. sewer system;

4. electric energy supply and public lighting;

5. collection of solid urban wastes;

6. treatment of solid urban wastes; and

c) demographic density over five thousand inhabitants by square kilometer.

Art 3 A Permanent Preservation Area is an area with a minimum width, in a horizontal projection, surrounding artificial reservoirs and measured according to the maximum normal level of:

I – thirty meters for artificial reservoirs located within consolidated urban areas and one hundred meters for reservoirs located in urban areas;

II – a minimum of fifteen meters for artificial reservoirs that generate electric energy with up to 10 hectares, without prejudice to environmental compensation;

III – a minimum of fifteen meters for artificial reservoirs that are not used for public supply or to generate electric energy, with up to twenty hectares and located in rural areas;

§ 1 The boundaries of Permanent Preservation Areas foreseen in item I can be increased or reduced, while observing the minimum standard of thirty meters, according to environmental licenses and the plan for water resources in the area of the reservoir, if applicable

§ 2 The boundaries of Permanent Preservation Areas, foreseen in item II, can only be increased according to the provisions of environmental licenses and, if applicable, according to the water resource plan for the basin

where the reservoir is located.

§ 3 The reduction of the boundary of the Permanent reservation Area, foreseen in § 1 of this article is not applicable to areas with a dense original ombrophylous forest – amazon region, including Cerrado and artificial reservoirs used for public supply purposes.

§ 4 The increase or reduction of the boundaries of Permanent Preservation Areas referred to by § 1, will be established according to the minimum following criteria:

I – environmental aspects of the hydrographic basin;

II – geology, geomorphology, hydrogeology and physiography of the hydrographic basin;

III – vegetal typology;

IV – ecological representation of the area in the biome present within the hydrographic basin, notably the existence of species threatened with extinction and the importance of the area as a biodiversity corridor;

V – purpose of water usage;

VI – usage and occupation of the soil within the grounds;

VII – environmental impact caused by the creation of the reservoir and on the grounds of the Permanent reservation Area with an area of up to one hundred meters.

§ 5 In cases related to reductions, human occupation of the soil, even if through allotment or subdivision in equal parts, or any other forms, the reduction cannot exceed ten percent of the total area, apart from existing benefits of the consolidated urban area granted previously to the request for the environmental license.

§ 6 The provisions of this article do not apply to artificial water accumulations inferior to five hectares as long as they do not lead to the hindrance of damming of water courses that are not part of the Permanent Protection Area, except those that are meant for public water supply

Art. 4 The entrepreneur that requests an environmental license, for artificial reservoirs aimed at the generation of energy and public supply, must present an environmental preservation plan for the use of the grounds of the artificial reservoir according to the reference terms issued by the respective environmental organ.

§ 1 It is the duty of the competent environmental organ to approve the environmental conservation plan and the use of the grounds of artificial reservoirs in relation to the water resource plan for the area, when existent, without prejudice to the procedures related to the granting of environmental licenses.

§ 2 The approval of the environmental preservation plan and of the use of the grounds of the artificial reservoirs must be preceded by a public consultation, the lack of which will lead to the annulment of the administrative act, according to the provisions of CONAMA Resolution 9 from December 3, 1987, when applicable, and the Public Ministry must be informed within thirty days of the respective date.

§ 3 The assessment of the environmental preservation plan and use of the grounds must include the opinion of the respective hydrographic basin committee, when applicable.

§ 4 The usage and preservation plan can include specifications for the creation of tourism and leisure activities on the grounds of the artificial reservoir not exceeding an area of ten percent of the total area of the grounds.

§ 5 The occupation of the areas foreseen in the previous paragraph are conditioned to compliance with municipal, state and federal legislation and to the granting of a license by the respective environmental organ of competence.

Art. 5 Enterprises that are the subject of privatization processes up to the date of this publication are subjected to current environmental demands valid during the time of the privatization, including the minimum specification of one hundred meters for Permanent Preservation Areas.

Single paragraph. Enterprises that hold operation licenses are subjected to obligations included in the respective licenses.

Art. 6 This Resolution shall enter into effect on the date of its publication and applies to proceeding environmental licensing processes

JOSÉ CARLOS CARVALHO – Council President

This text does not substitute the text published in the Official Gazette on May 13, 2002.

CONAMA RESOLUTION 303, March 22, 2002
Published in Official Gazette 90 on May 13, 2002, Section 1, page 68

Correlations:

- Complements CONAMA Resolution 302/02
- Altered by CONAMA Resolution 341/03 (adds new provisions)
- Revokes CONAMA Resolution 4/85

Establishes parameters, definitions and boundaries for Permanent Preservation Areas.

THE NATIONAL ENVIRONMENT COUNCIL - CONAMA, in accordance with the power bestowed upon the Council by Law 6.938, from August 31, 1981, regulated through Decree 99.274, from June 6, 1990, and considering the provisions of Laws 4.771, from September 15, 1965, and 9.433, from January 8, 1997, and its Internal Regulations, and

Considering the socio-environmental function of property foreseen in articles 5, item XXIII, 170, item VI, 182, § 2, 186 item II and 225 of the Constitution and the principles of prevention, care and pollution-compensation;

Considering the need to regulate art. 2 of Law 4.771 from September 15, 1965, in relation to Permanent Preservation Areas;

Considering that Brazil is committed to responsibilities related to the Convention on Biodiversity held in 1992, the Ramsar Convention held in 1971 and the Washington Convention held in 1940 as well as the commitments assumed during the Rio de Janeiro Declaration in 1992;

Considering the need to regulate articles 2 and 3 of Law 4.771 from September 15, 1966 in relation to Permanent Preservation Areas; consideration added by Resolution 341/03

Considering that it is the duty of the Public Powers and private individuals to preserve biodiversity, notably the flora, fauna, water resources, natural beauty and ecological balance, avoid the pollution of waters, soil and air, which are prerequisites for the acknowledgement of the right to property in the terms of articles 5, heading (right to life) and item XXIII (social function of property), 170, VI, 186, II and 225, all included in the Federal Constitution, as well as art. 1.299 of the Civil Code which requires proprietors and possessor to respect administrative regulations; consideration added by Resolution 341/03

Considering that sand dunes play a fundamental roll in the dynamics of the coastal zone in relation to erosion processes and in the formations and proliferation of aquifers; consideration added by Resolution 341/03

Considering the exceptional scenic beauty of the dune landscapes and the importance to uphold them for sustainable tourism; Consideration added by Resolution 341/03

Considering that Permanent Preservation Areas and other particularly protected territorial spaces possess inherent environmental relevance and are an integral part of sustainable development and of the ambitions and objectives of current and future generations, decides:

Art. 1 The purpose of the current Resolution is to establish parameters, definitions and boundaries in relation to Permanent Preservation Areas.

Art. 2º The following definitions are adopted for all purposes of this Resolution:

I – highest level: level reached during seasonal flooding by a continuous or intermittent water course;

II – spring or “water eye”: the place where subterranean water flows naturally to the surface, even if in an intermittent way;

III – parting: marshy or flooded space containing springs or heads of water courses, with hydromorphic soil occurrences, predominantly characterized by rows of *Mauritia flexuosa* and other forms of typical vegetation;

IV - hill: terrain elevation with a difference between the top and the base between fifty and three hundred meters and hillsides with an inclination of over thirty percent (approx. seventeen degrees) in its steepest sided;

V - mountain: a terrain elevation with a difference between the base and the top that is superior to three hundred meters;

VI – hill or mountain base: the horizontal plane defined by the flatland or adjacent waterbed surface or, undulated relief features, and by the lowest depression point within its surroundings;

VII – ridge line: the line that unites the highest points of a sequence of hills or mountains, forming a water divisor;

VIII - beach: sandy deposits parallel to the coast line, generally with elongated form, created through sedimentation processes and home to different communities influenced by the sea, also called edaphic communities as they are more dependent on the nature of the nourishment than on climate. The vegetation cover of the beach contains mosaic formations and can be found in beaches, arenaceous patches, dunes and depressions presenting, in accordance with the successional stage, herb extracts, shrubs and trees, the later more in the interior;

IX - mangrove: littoral low land ecosystem subjected to the action of the tides formed by recent muddy or arenaceous waters which is most often and predominantly associated with natural vegetation known as mangroves, subjected to the influence of sea and rivers, typical of the salty soils of estuary regions that are common, but not continuous, to the Brazilian coast between the states of Amapá and Santa Catarina;

X - dune: geomorphological unit predominantly arenaceous, with the semblance of a hill or mount, produced through the action of the wind, located in littoral or interior areas of the continent and may, or not, be covered by vegetation;

XI – plateau or “chapada”: landscape with a flat topography with medium inclination of less than ten percent, approximately six degrees, and a total area of over ten hectares which ends in a sharp and abrupt slope, the plateau is characterized by large areas with an elevation of more than six hundred meters

XII - slope: land ramp with an inclination that is equal or superior to forty five degrees and which delimitate plateau reliefs, mesas and uplands, with a positive rupture of inclination at the top (slope line) and at its base by a negative rupture of inclination, containing colluvium deposits mostly at the base of the slope;

XIII – consolidated urban area: an area characterized by the following criteria:

a) legal definition by the public power;

b) the existence of a minimum of the four following sets of urban infrastructure:

1. road network including rain water drainage;

2. water supply system;

3. sewer system;

4. electricity distribution and public lighting;

5. collection of solid urban wastes;

6. treatment of solid urban wastes; and

c) demographic density over five thousand inhabitants by square kilometer.

Art. The locations of Permanent Preservation Areas are:

I – marginal strips, measured from the highest point, horizontally, with a minimum width of:

a) thirty meters, for water courses with less than ten meters wide;

b) fifty meters, for water courses between ten and fifty meters wide;

c) one hundred meters, for water courses between fifty and two hundred meters wide;

d) two hundred meters, for water courses between two hundred and six hundred meters wide;

e) five hundred meters, for water courses that are more than six hundred meters wide;

II – near a spring or “water eye”, even if intermittent, with a minimum radius of fifty meters in order to protect, case by case, the hydrographic basin that feeds it;

III – around lakes and natural lagoons, with a minimum strip measure of:

a) thirty meters if located in consolidated urban areas;

b) one hundred meters if located in rural areas, except for water bodies with a surface of at least twenty hectares, whose marginal strip must be fifty meters;

IV – a parting in the marginal strip, in a horizontal position, with a minimum width of fifty meters, counting from the boundary of the marshy or flooded area;

V – at the top of hills and mountains, in areas delimited from the curve level corresponding to two thirds of the minimum height of the elevation in relation to its base;

VI – on ridge lines, in areas delimited from the curve level corresponding to two thirds of the height in relation to the base of the lowest top of the ridge, with the curve level for each of the segments of the ridge line set at the equivalent to one thousand meters;

VII – on a hillside or part of the hillside, inclination over one hundred percent or forty five degrees in the highest inclination line;

VIII – on slopes and on the edges of plateaus and mesas, starting from the line of rupture and a rate never less than one hundred meters in horizontal projection running contrary to the slope;

IX – on beaches;

a) minimum rate of three hundred meters measured from the highest flood line;

b) on any location and any extension when covered with vegetation and as a steadying factor for dunes and mangroves;

X – on mangroves, on the entire extension;

XI – on dunes;

XII – at altitudes over one thousand and eight hundred meters or in States that do not possess such elevations at the criteria of the competent environmental organ;

XIII – at locations of refuge or reproduction of migratory birds;

XIV – at locations of refuge or reproduction of fauna species threatened with extinction and included in the

list issued by the Federal, State or Municipal Public Powers;

XV – on beaches, at locations of wild fauna nidification or reproduction.

Single paragraph. In cases of more than two hills or mountains whose tops are separated by distances inferior to five hundred meters, The Permanent Preservation Area will include the group of hills or mountains, delimited from the curve level corresponding to two thirds of the height in relation to the base of the lowest hill or mountain of the group, according to the following specifications:

I – grouping of hills or mountains with distance between tops of up to five hundred meters;

II – identification of the lowest hill or mountain;

III – tracing of a line on the level curve corresponding to two thirds of the same; and

IV – the whole area above this level is considered a permanent preservation area.

Art. 4 CONAMA will establish, through a specific Resolution, the parameters for artificial reservoir Permanent Preservation Areas and regulate the use of their grounds.

Art. 5 This Resolution shall enter into effect on the date of its publication, CONAMA Resolution 4, from September 18, 1985 is hereby revoked.

JOSÉ CARLOS CARVALHO – Council President

This text does not substitute the text published in the Official Gazette on May 13, 2002.

CONAMA RESOLUTION 341, of September 25, 2003
Published in Official Gazette 213, on November 3, 2003, Section 1, page 62

Correlations:

- Changes CONAMA Resolution 303/02 (adds new Considerations)

Establishes criteria for the characterization of sustainable tourism activities or enterprises of social interest such as the occupation of Coastal Zone dunes without vegetation.

THE NATIONAL ENVIRONMENT COUNCIL - CONAMA, in accordance with the power bestowed upon the Council by articles 6 and 8 of Law 6.938 from August 31, 1981, regulated through Decree 99.274 from June 6, 1990 and considering the provisions of Laws 4.771 from September 15, 1965, 9.433 from January 8, 1997, and its Internal Regulations, annex to Administrative Order 499 from December 18, 2002¹⁴, and

Considering the provisions of art. 1, § 2, Item V, of Provisional Measure 2.166-67/2001, which defines social interest;

Considering the provisions of Law 7.661, May 16, 1988 that establishes the National Coast Management Plan (PNGC) and provides other provisions and in particular art. 3 which states that the PNGC must present zoning plans for Coastal Zone usage and activities and prioritize the conservation and protection of dunes and other natural patrimony;

Considering that dunes play an important role in the formation and renewal of aquifers;

Considering the fundamental importance of dunes for the dynamics of the coastal zone and for the control of erosion processes;

Considering the need to control, with rigor, the use and occupation of dunes lacking original vegetation along the Coastal Zone, decides:

Art. 1 To add the following considerations to CONAMA Resolution 303 from March 20, 2002, published in the Official Gazette on May 13, 2002, Section 1, page 42:

“Considering the need to regulate articles 2 and 3 of Law 4.771, issued on September 15, 1965, regarding Permanent Preservation Areas;

Considering that it is the duty of the Public Power and individuals to preserve biodiversity, notably the flora, fauna, water resources, natural beauty and the ecological balance, combat the pollution of waters, soil and air, which are considered intrinsic principles of the acknowledgement and exercising of the right to private property according to the provisions of articles 5, heading (right to life) and item XXIII (social function of property), 170, VI, 186, II and 225, all part of the Federal Constitution, as well as art.1.299, Civil Code, which stipulates that proprietors or possessors must respect administrative regulations;

Considering the fundamental function of dunes in coastal zone dynamics in particular for the control of erosion processes and in the formation and renewal of aquifers;

Considering the exceptional scenic and landscape beauty of dunes and the importance of their preservation for sustainable tourism. “

Art. 2 Sustainable tourism activities and enterprise related to the use of dunes lacking original vegetation may be declared of social interest through specific administrative procedures approved by the State Environmental Council conditioned to the directives, conditions and procedures established by this Resolution.

§ 1 In order to be declared of social interest the sustainable activities or enterprises must abide to the following requirements:

- I – possess regular water supply and the collection and/or treatment and/or adequate release of wastes;
- II – be compatible with the Municipality’s Master Plan, according to current legislation;

III – not pose any threat to the essential natural attributes of the area, notably the landscape, water and geologic balance and biodiversity;

IV – provide the local population with socioeconomic benefits and not cause any negative effects to the same;

V – obtain previous authorization from the Union or Municipality, when applicable;

VI – safeguard free access to beaches and water bodies;

VII – consider the opinions of the potentially effected human populations through a Public hearing; and

VIII – provide, preferentially, accesses (pavements, sidewalks) built with materials that do not hinder the infiltration of rain waters.

§ 2 Vegetation free dunes can only be used for sustainable tourism or enterprise activities on twenty percent of their extension, and their occupation is limited to ten percent of the dune filed, either covered or free of vegetation cover;

§ 3 The social interest statement is issued on an individual basis for each sustainable activity or enterprise, the National Environment Council must be informed within ten days after the final considerations by the State Environmental Council, as stated in the heading of this article.

¹⁴Administrative Order revoked by Administrative Order MMA 168, June 10, 2005.

Art. 3 Dunes that have been declared of social interest for sustainable tourism activities or enterprises must be previously defined and individualized, by the competent environmental organ and approved by the State Environmental Council.

§ 1 The identification and delimitation, by the competent environmental organ, of dunes that may be used for sustainable tourism activities and enterprises and declared of social interest must be based on professional and scientific studies that prove that the use of the areas will not compromise:

I – the hydrostatic recharge and pressure of the dune aquifer in the proximity of estuaries, lakes, lagoons, tide channels and on beaches;

II – the water quantity and quality available for multiple purposes in the region, notably human and animal consumption, and the demand for water must be considered in relation to seasonal population dynamics

III – the sand banks that act as expansion areas of the mangrove and beach ecosystems;

IV – the locations used as resting and feeding places for migratory birds and as refuges for the estuary fauna; and

V – the function of dunes for coastal stabilization and scenic beauty

§ 2 The identification and delimitation mentioned in the heading of this article must be considered by the State Environmental Council, based on the National Plan for Coastal Management, when available, and in accordance with the National Plan for Coastal Management in the provisions set by of Law 7.661, May 16, 1988.

Art. 4 The occurrence of significant environmental impact related to the construction, installation and operation of sustainable tourism activities or enterprises declared of social interest, of any nature or quantity, located on dunes lacking original vegetation, along the Coastal Zone, must be assessed by the competent environmental organ and requires, at all times, the publication of an Environmental Impact Study (EIA) and an Environmental Impact Report (RIMA).

Single paragraph. The Environmental Impact Study and the Environmental Impact Report must consider, for each landscape and among other aspects, the direct and indirect cumulative impact of the joint enterprises and activities on one and the same area.

Art. 5 This Resolution shall enter into effect on the date of its publication.

MARINA SILVA – Council President

This text does not substitute the text published in the Official Gazette on Nov. 3, 2002.

CONAMA RESOLUTION 369, from March 28, 2006
Published in Official Gazette 61 on March 29, 2006, Section 1, pages, 150 - 151

Correlations:

· In consideration of Law 4.771 from September 15, 1965, changed by MP 2.166/2001

Establishes provisions for exceptional cases of public and social interest or with low environmental impact which allow for interventions or suppressions of the vegetation in Permanent Preservation Areas (APPs).

THE NATIONAL ENVIRONMENT COUNCIL - CONAMA, in accordance with the power bestowed upon the Council by Law 6.938 from August 31, 1981, regulated through Decree 99.274 from June 6, 1990 and considering the provisions of Laws 4.771 from September 15, 1965, 9.433 from January 8, 1997, and its Internal Regulations, and

Considering the duty of the Public Powers and society in general to protect the environment for current and future generations according to the provisions of art. 225, heading, Federal Constitution;

Considering that Brazil is committed to responsibilities related to the Convention on Biodiversity held in 1992, the Ramsar Convention held in 1971 and the Washington Convention held in 1940 as well as the commitments assumed during the Rio de Janeiro Declaration in 1992;

Considering that Permanent Preservation Areas located in any possession or propriety represent a social interest patrimony in specially protected territorial areas, covered by or free of vegetation, and function as agents for the environmental preservation of water resources, landscapes, geological stability, biodiversity, the flow of fauna and flora, soil protection and safeguard the wellbeing of human populations

Considering the singularity and the strategic value of permanent preservation areas which, as shown by their denomination, are generally characterized by the ban to use them for direct economic purposes;

Considering that permanent preservation areas and other protected areas, as tools of relevant environmental interest, are integral parts of sustainable development, an objective of the current and future generations

Considering the socio-environmental function of property foreseen by articles 5, item XXIII, 170, item VI, 182, § 2, 186, item II and 225 of the Constitution and the principles for the prevention, care and pollution compensation;

Considering that the exercise of the right to property is limited by legislation and that the proprietor or possessor is required to respect administrative standards and regulations;

Considering that it is the legal duty of the proprietor or possessor to recuperate Permanent Preservation Areas (APPs) that have been irregularly suppressed or occupied;

Considering that the provisions of art. 8 of Law 6.938 from 1981, grant the National Environment Council the capacity to establish standards, criteria and standards related to the control and maintenance of environmental quality aimed at the rational use of environmental resources, and in particular water resources; and

Considering that the provisions of art. 1, § 2, item IV, line "c", and V, line "c", of Law 4.771, from September 15, 1965, changed by MP 2.166-67 from August 24, 2001 grant CONAMA the competent to foresee, through resolutions, the construction, activities or projects of public and social interest; decides:

Section I
General Provisions

Art. 1 This Resolution defines exceptional cases and the competence of environmental organs to grant authorizations for interventions or the suppression of the vegetation of Permanent Preservation Areas (APPs) in order to undertake construction, plans, activities or projects of public or social interest, or for the undertaking of temporary actions of low environmental impact.

§ 1 The suppression or intervention of vegetation of springs, wetlands, mangroves and dunes original covered with vegetation in Permanent Preservation Areas, foreseen in items II, IV, X and XI of art. 3 of CONAMA Resolution 303 from March 20, 2002 is banned except in cases related to public convenience according to item I of art. 2 of this resolution and in order to allow access to water by people and animals, according to the provisions of § 7, of art. 4, of Law 4.771 from September 15, 1965.

§ 2 The provisions of line "c" of item I of art. 2 of this Resolution do not apply for the intervention or suppression of vegetation of Permanent Preservation Areas (APPs) in wetlands, beaches, mangroves or dunes foreseen in items IV, X and XI of art. 3 of CONAMA Resolution 303 from March 20, 2002.

§ 3 The authorization for the intervention or suppression of vegetation in springs located within Permanent Preservation Areas, defined in item II of CONAMA Resolution 303 from 2002, is conditioned to the authorization that grants the right to the use of water resources, according to the provisions of art. 12 of Law 9.433 from January 8, 1997.

§ 4 The authorization for the intervention or suppression of vegetation of Permanent Preservation Areas is conditioned to the presentation by the entrepreneur that he/she will comply with all obligations related to these

areas.

Art. 2 The competent environmental organ can only grant an authorization for the intervention or suppression of vegetation in a Permanent reservation Area when duly filled and motivated and solely through a preceding autonomous administrative process that follows the requirements foreseen by this Resolution and other applicable federal, state and municipal standards as well as the Master Plan for Ecological-Economic Zoning and the Management Plan for Conservation Units, if existent, in the following cases:

I – public convenience:

- a) national security and sanitary protection activities;
- b) essential infrastructure construction of transportation, sanitation and energy services;
- c) research activities and the extraction of mineral resources, signed by the competent authorities and with the exception of sand, clay, gross sand and gravel;
- d) the creation of green areas in public urban spaces;
- e) archeological research;
- f) public construction for the creation of installations needed for the collection and conduct of water and treated effluents; and
- g) the construction of installations necessary for the collection and conduct of water and treated effluents for private agricultural projects, conditioned to the compliance with criteria and requirements foreseen in §§ 1 and 2 of art. 11 of this Resolution.

II – social interest:

- a) activities that are vital for the protection of the integrity of native vegetation such as the prevention, combat and control of fires, erosion, eradication of invaders and the protection of native species plantations, in accordance with the provisions established by the competent environmental organ;
- b) agroforestry management, environmentally sustainable, practiced by small rural family properties or possessions that do not damage the native vegetation cover or hinders its recuperation and as long as it does not presents an hazard to the ecology of the area;
- c) sustainable urban area land regularization;
- d) research activities related to the extraction of sand, clay, gross sand and gravel, authorized by the competent authority;

III – eventual intervention or suppressions of vegetation with a low environmental impact, conditioned to compliance with the parameters of this Resolution.

Art. 3 The intervention or suppression of the vegetation with a Permanent Preservation Area can only be granted when the requesting party can , among other demands, provide proof:

- I – of the non-existence of technical or locational alternative to the planned construction, activity or proposed project;
- II – compliance with the conditions and standards that apply to water bodies;
- III – protocol of the Legal Reserve Area; and
- IV – the non-existence of aggravation risks such as flooding, erosion of accidental movements of rocks.

Art. 4° All construction, plan, activity or project of public convenience, social interest or of low environmental impact is conditioned to an authorization issued by the competent environmental organ for the intervention or suppression of vegetation within a Permanent Preservation Area (APP), issued through a proper administrative process according to the terms of this Resolution and according to the standards for the granting of environmental licenses, professionally motivated and conditioned to the observation of applicable environmental standards.

§ 1 The intervention or suppression of the vegetation in a Permanent Preservation Area that is the subject of the heading of this article is conditioned to an authorization issued by the competent state environmental organ and its preceding approval, when applicable, by the federal or municipal environmental organ, except in cases related to § 2 of this article.

§ 2 The intervention or suppression of the vegetation in a Permanent Preservation Area located within an urban area is conditioned to the authorization issued by the municipal environmental organ, if the municipality possesses an Environment Council, of deliberative character and Master Plan or Legal Urban Directives in the case of municipalities with less than twenty thousand inhabitants, through previous approval by competent state environmental organ, based on a professional assessment.

§ 3 The following activities do not require the authorization of the competent environmental organ:

- I – emergency related public safety and civil defense activities;
- II – activities foreseen by Complementing Law 97 from June 9, 1999 related to the preparation and deployment of the Armed Forces in compliance with their constitutional duties, carried out in a military area.

Art. 5 The competent environmental organ will, before granting a license for the intervention or suppression of the vegetation with a Permanent Preservation Area, establish the ecological measures, of mitigating or compensatory nature, foreseen in § 4 , of art. 4 , of Law 4.771, from 1965, which must be adopted by the requesting party.

§ 1 The ecologic mitigation and compensation measures foreseen in this article for enterprises and activities subjected to environmental licenses will be defined through the licensing process, without prejudice and, when applicable, to compliance with the provisions of art. 36 of Law 9.985 from July 18, 2000.

§ 2 The compensation measures that are the subject of this article must consist in the effective recuperation or re-composition of the Permanent Preservation Area and implemented in the same hydrographic sub-basin, and prioritize:

- I – the area affected by the enterprise, or
- II – river headwaters.

Art. 6 The implantation of native species aimed at the recuperation of Permanent Preservation Areas is not conditioned to previous authorization when in accordance to previously agreed obligations, if applicable, and in accordance with applicable standards and professional requirements

Section II Research Activities and the Extraction of Mineral Substances

Art. 7 The intervention or suppression of the vegetation within a Permanent Preservation Area (APP) for the extraction of mineral substances, according to the provisions of Section I of this Resolution, is conditioned to the presentation of an Environmental Impact Study (EIA) and the respective Environmental Impact Report (RIMA) for the environmental licensing process, as well as other possible demands, such as:

- I – presentation of the title deed for the mineral rights, foreseen by any current title deed legislation, signed by the competent organ of the Ministry of Mines and Energy;
- II – justification of the need to extract the minerals from a Permanent Preservation Area and the non-existence of technical or location alternatives for the exploitation of the mine;
- III – assessment of the aggregate environmental impact caused by the mineral exploitation and the cumulative effects on the Permanent Preservation Areas, effects on the sub-basin caused by the group of activities for the exploitation of current and foreseeable activities available through the competent organs;
- IV – execution assessment undertaken by professionals legally licensed to conduct mineral extraction and control the impact on the physical and biotic environment through the presentation of a Professional Responsibility Note (ART) or a Technical Function Note (AFT) which must remain active until the closing of the mineral exploitation activity and of the respective environmental recuperation process;
- V – compatibility with the directives of the water resource plan, when available;
- VI – activities cannot be located in a remaining area of primary Atlantic forest;

§ 1 In cases related to intervention or suppression of the vegetation of a Permanent Preservation Area caused by an activity related to the extraction of mineral substances which does not potentially cause significant environmental impacts, the competent organ may, through a well-motivated decision, substitute the demand for the presentation of the EIA/RIMA by the presentation of other environmental studies foreseen by current legislation.

§ 2 Interventions or suppressions of the vegetation in Permanent Preservation Areas for mineral research activities, according to the provisions of Section I of this Resolution, are conditioned to the presentation of EIA/RIMA documentation for the licensing process if they pose any potential threat of significant environmental impact, as well as other demands such as:

- I - presentation of the title deed for the mineral rights, foreseen by any current title deed legislation, signed by the competent organ of the Ministry of Mines and Energy;
- II - execution assessment undertaken by professionals legally licensed to conduct mineral extraction and control the impact on the physical and biotic environment through the presentation of a Professional Responsibility Note (ART) or a Technical Function Note (AFT) which must remain active until the closing of the mineral research process and of the respective environmental recuperation process.

§ 3 The studies foreseen in this article must be presented during the initial stages of the licensing process independent of any other professional studies that may be requested by the environmental organ.

§ 4 The extraction of rocks to be directly used for building construction is conditioned to the provisions set by the territorial ordinance documentation on a scale defined by the competent environmental organ.

§ 5 If the documentation foreseen in § 4 does not exist or if existing ones do not include the extraction of rocks for direct building construction, the authorization for the intervention or suppression of the vegetation of a growing Permanent Preservation Area, the authorization cannot be granted for a period of 36 months after the publication of this Resolution.

§ 6 the deposition of sterile or rejected materials, effluent treatment systems that benefit mineral activity infrastructures, can only intervene in Permanent Preservation Areas in exceptional cases acknowledged by the licensing process undertaken by the competent environmental organ and according to the provisions of item I of art. 3 of this Resolution.

§ 7 In cases related to research activities and extraction of mineral substances, proof of the registration of the Legal Reserve, the subject of art. 3, will only be required for the following cases:

- I – the entrepreneur is the proprietor or possessor of the area;
- II – the existence of a legal financial contract between the entrepreneur and the proprietor or possessor, for the duration of the mineral activities.

§ 8 Apart from the ecological measures of mitigation or compensation character as foreseen by art. 5 of this Resolution, the title holders for the research and extraction activities in a Permanent Preservation Area are also required to undertake the recuperation of the degraded environment according to the provisions set by § 2 of art. 225 of the Constitution and current legislation which considers compliance with the Plan for the Recuperation of Degraded Areas (PRAD) as an obligation of relevant environmental interest.

Section III

The creation of Public Domain Green Areas within Urban Areas

Art. 8 The intervention or suppression of vegetation of a Permanent Preservation Area for the creation of public domain green areas within urban areas, according to the provisions of the single paragraph of art. 2 of 4.771 from 1965, can be granted by the competent environmental organ conditioned to the provisions set forward in Section I of this Resolution and in compliance with the Master Plan if it meets the following requirements and conditions:

I – can only be located in a Permanent Preservation Area as foreseen by items I, III of line “a”, V, VI and IX line “a” of art. 3 of CONAMA Resolution 303 from 2002, and art. 3 of CONAMA Resolution 302 from 2002;

II – approval by the competent environmental organ for a professional project that prioritizes the restoration and/or maintenance of the characteristics of the local ecosystem and the contemplation of the necessary measures for:

- a) recuperation of degraded areas of Permanent Preservation Areas through their inclusion in public domain green areas;
- b) re-composition of the vegetation with native species;
- c) minimum waterproofing of the surface area;
- d) hillside contention and erosion control;
- e) adequate flow of rain water;
- f) aquifer recharge area protection; and
- g) protection of the margins of water bodies.

III – waterproofing and alteration percentages for gardening are limited to 5% and 15% respectively of the total area of the Permanent Preservation Area inserted into the green public domain area.

§ 1 For the purpose of this Resolution, it is considered a green public domain area the public space for ecological, landscaping and leisure purposes which improves the esthetic, functional and environmental quality of cities and containing vegetation and free waterproofing spaces.

§ 2 The technical project must be approved by the competent environmental organ and can include the implantation of public services such as:

- a) eco-tourism tracks;
- b) bicycle lanes;
- c) small leisure parks excluding theme parks and the like;
- d) access to and crossing of water bodies;
- e) observatories;
- f) safety, leisure, culture and sport appliances;
- g) benches, water closets, showers and public drink water fountains; and
- h) ramps for the launching of boats and small boat piers.

§ 3 The provision contained in the heading of this article do not apply to areas with primary or secondary native vegetation at medium and advanced regeneration stages.

§ 4 The population is guaranteed free and no-cost entrance to all green public domain areas.

Section IV

Sustainable Regularization of Urban Land Areas

Art. 9 The intervention or suppression of vegetation in Permanent Preservation Areas for sustainable land regularization within urban areas can be granted by the competent environmental organ, according to the provisions set forward in this section of this Resolution, and the following requirements and conditions:

I – land occupations of residential areas by low income individuals;

II – occupations located in urban areas that have been declared as Special Social Interest Zones (ZEIS) by the Master Plan or through other municipal legislative organ;

III – occupation of urban areas that meet the following criteria:

a) possess a minimum of the three following infrastructural systems: road network, collection of rain water, sanitation sewers, collection of solid wastes, water supply system, electrical energy distribution;

b) demographic density of over fifty inhabitants per hectare;

IV – located, exclusively, within the following area of the Permanent Preservation Area:

a) along the margins of water courses, and around lakes, lagoons and artificial reservoirs according to the provisions of items I and III, line “a” of art. 3 of CONAMA Resolution 303 from 2002, and in item I of art. 3 of CONAMA Resolution 302 from 2002, conditioned to the minimum strips of 15 meters for water courses of up to 50 meters wide and fifty meters in other cases;

b) On the top of hills or mountains according to item V of art. 3 of CONAMA Resolution 303 from 2002 while respecting aquifer recharging areas, identified as such by an act issued by a public power;

c) On beaches, according to line “a” of item IX of art. 3 of CONAMA Resolution 303 from 2002, while respecting a strip of 150 meters counting from the maximum high tide line;

V – consolidated occupations, up to July 10, 2001, as defined by Law 10.257, July 10, 20^o01 and Provisional Measure 2.220 from September 4, 2001;

VI – presentation of the Sustainable Land Regularization Plan by the municipal public power that includes,

among other provisions:

a) survey of the sub-basin area where the Permanent Preservation Area is located, pointing the passive elements and environmental weak spots; restrictions and potentials, conservation units and fountainhead protection areas for both surface and subterranean waters;

b) physical-environmental, social, cultural and economic profile and an assessment of environmental resources and risks as well as a profile of existing consolidated land occupation;

c) specifications on existing urban infrastructure systems, basic sanitation, collection and destination of solid wastes, public services, green areas with open spaces and vegetation spaces containing native species that facilitate rain water infiltration and contribute to the recharge of aquifers;

d) specification of strips or areas that, due to environmental physical aspects can be regarded as holding the typical characteristics of the Permanent Preservation Area, while respecting the minimum strips defined by line "a" and "c", item IV¹⁵ of this article;

e) identification of areas considered to be in the risk zone for floods and movements of the rock mass, such as landslides, fall and rolling of blocks, mudslides and other possible risks;

f) measures that are necessary for the preservation, conservation and recuperation of the Permanent Preservation Area, not susceptible to regulations according to the terms of this Resolution;

g) proof of improvements to residential habitat and urban-environmental sustainability;

h) guarantee that the population will have free access to beaches and water bodies; and

i) undertake public hearings.

§ 1 In certain exceptional cases the competent organ may, through a well-motivated decision, reduce the restrictions provisioned by line "a" of item IV¹⁶ of this article in light of the particular characteristics of the occupation and in accordance with standards defined by the competent environmental council which will set specific criteria while respecting the objective of environmental improvement that is the basis of the Sustainable Land Regularization Plan.

§ 2 The regularization of occupations banned in areas identified by the Sustainable Land Regularization Plan as locations that run the risk of being flooded, subjected to mudslides, movements of the rock mass and other possible defined risks.

§ 3 The areas that are the subject of the Sustainable Land Regularization Plan must be foreseen by municipal legislation that addresses the use and occupation of land as Special Social Interest Zones, specifically identifies as areas for popular habitation, according to the provisions of Law 10.257 from 2001.

§ 4 The Sustainable Land Regularization Plan must safeguard the implementation of democratic management tools and other tools for environmental control and monitoring.

§ 5 The Sustainable Land Regularization Plan must safeguard the non-occupation of original untouched Permanent Preservation Areas.

Section V

Temporary Intervention or Suppression with Low Environmental Impact on the Vegetation of Permanent Preservation Areas

Art. 10. Competent environmental organs can authorize interventions or suppressions of the vegetation of any ecosystem within a Permanent Preservation Area.

Art. 11. The following are considered low environmental impact temporary interventions or vegetation suppressions of a Permanent Preservation Area:

I – opening of narrow internal access paths and bridges and small bridges where needed for river crossings or for the extraction of sustainable agro-forestry management products from small properties or rural family possessions;

II – installations needed for the collection and conduction of water and treated effluents, conditioned to legal right to the use of the water, when applicable;

III – creation of a corridor in order to allow access to water for people and animals;

IV – creation of tracks for the development of eco-tourism;

V – construction of ramps for the launching of boats and small piers;

VI – construction of housing for family farmers, quilombola descendant communities and other traditional farming populations living in rural areas of the Amazon or Pantanal, where water supply is carried out by the efforts of the residents;

VII – construction and maintenance of fences for the separation of properties;

VIII – scientific research, as long as it does not interfere with the ecosystems of the area and is not directed at economic exploitation and conditioned to other provisions foreseen in current legislation;

IX – collection of products, except lumber, for subsistence purposes and shifting production methods, such as seeds, chestnuts and fruits, as long as it is eventual and in accordance with specific legislation that addresses genetic resource access;

X – plantation of native species for the production of fruits, seeds, chestnuts and other vegetable produce in altered areas, planted together or in mixed form;

¹⁵ Ratified in the Official Gazette 68 on April 7, 2006, page 235.

¹⁶ Ratified in the Official Gazette 87 on May 9, 2006, page 91.

XI – other similar actions or activities, of event character and defines as having a low environmental impact by the state environmental council.

§ 1 All cases, including those acknowledged by the state environmental council, related to interventions or suppressions of the vegetation of a Permanent Preservation area cannot pose any risks to the environmental integrity of these areas, in particular:

- I – the stability of hillsides and of the margins of water bodies;
- II – fauna corridors;
- III – drainage and intermittent water bodies;
- IV – maintenance of the biota;
- V – regeneration and maintenance of native vegetation; and
- VI – water quality.

§ 2 Temporary and low environmental impact interventions or suppression of the vegetation of a Permanent Preservation Area may not, in any case, exceed 5% (five percent) of the property or possession located within a Permanent Preservation Area

§ 3 The competent environmental organ may demand proof from the requesting party, if deemed necessary, that professional studies show that there is no technical or locational alternative to the proposed intervention or suppression.

Section Final Provisions

VI

Art. 12. In cases conditioned to the presentation of EIA/RIMA the entrepreneur must present, until March 31 of each year, a detailed annual report that includes the geographic reference delimitations of Permanent Preservation areas signed by the head administrator and prove compliance with the obligations established for each issued license or authorization.

Art. 13. Unused authorizations for interventions or suppressions of the vegetation of a Permanent Preservation Area must be regularized by the competent environmental organ, according to the terms of this Resolution.

Art. 14. Breaches related to the provisions of this Resolution will import, among other, penalties and sanctions, respectively, foreseen by Law 9.605 from Feb. 12, 1998 and Decree 3.179 from September 21, 1999.

Art. 15. Organs that issue licenses must register these in the National Environment Information System (SINIMA) including licenses issued for construction, plans and activities of public convenience or social interest.

§ 1º CONAMA will create, within the first year of enforcement of this Resolution, a Working Group within the Technical Chamber for Territorial and Biome Management in order to monitor and analyze the effects of this Resolution.

§ 2 The report by the Working Group that is the subject of the previous paragraph will include the Environmental Quality Report that is the subject of items VII, X and XI of Law 6.938 from 1981.

Art. 16. The demands and obligations foreseen by this Resolution represent obligations of relevant environmental interest.

Art. 17. CONAMA must create a Working Group that will, within one year, present a proposal for the regulation of the methodology for the recuperation of Permanent Preservation Areas.

Art. 18. This resolution shall enter into effect on the date of its publication.

MARINA SILVA – Council President

This text does not substitute the text published in the Official Gazette on March 29, 2006.

RESOLUTION 425, May 25, 2010
Published in Official Gazette 100 on May 27, 2010, page 53

Establishes criteria for the characterization of sustainable agropecuary activities and enterprises undertaken by family farmers, rural family enterprises and traditional populations and communities of social interest, aimed at the production, intervention and recuperation of Permanent Preservation Areas and other areas of limited use.

THE NATIONAL ENVIRONMENT COUNCIL – CONAMA, in accordance with the power bestowed upon the Council by articles 6, item II, and 6, items I and VII of Law 6.938 from August 31, 1981 and according to the provisions of art 1, § 2, item V, line “c” of Law 4.771 from September 15, 1965 and its Internal Regulations, Annex to Administrative Order 168 from June 13, 2005 and the contents of Process 02000.002213/2009-48, decides:

Art. 1 This Resolution defines exceptional cases of social interest which may lead to the granting by the competent environment organ of the regularization of the intervention or suppressions of the vegetation of a Permanent Preservation Area (APP) which occurred prior to July 24, 2006, related to consolidated agropecuary enterprises undertaken by family farmers and rural family entrepreneurs.

Art. 2 The following activities are considered of social interest, based on art. 1, § 2, item V, line “c” of Law 4.771 from September 15, 1965, the activities named in art. 1 of this Resolution which can be characterized by one or several of the following situations:

I – extensive traditional grazing activities in high-elevation fields covered with vegetation that does not lead to the additional suppression of native vegetation or to the introduction of exotic vegetable species;

II – the maintenance of cultivation of timber types or perennial fruits, not subjected to seasonal logging, through the use of management practices that safeguard the environment of the area, in all its extension including elevations with an inclination of over 45 degrees and hilltops;

III – sustainable agro-forestry management activities provided they do not change the vegetation cover and do not present any risk to the environmental integrity of the area; and

IV – seasonal ebb related agricultural activities, practiced traditionally by family farmers and in particular for the cultivation of temporary short cycle harvests on the strip of land that is exposed during the river or lake ebb period, as long as they do not imply the suppression and transformation of native vegetation areas through the use of agro-chemicals and cultivation practices that affect water quality.

Single paragraph. Activities, acknowledged as social interest activities, that meet the requirements of one of the above situations named in this Resolution can be regularized by competent environmental organs through specific administrative procedures foreseen in art. 4 of Law 4.771 from

1965.

Art. 3 A family farmer and rural family entrepreneur is, for all purposes of this Resolution and including the conditions for agrarian reform projects, an individual that undertakes rural environment practices and meets the specifications of art. 3 of Law 11.326 from July 24, 2006.

Art. 4 For purposes that are the subject of this Resolution the interested parties must present a formal request to the environmental organ including:

I – Basic data:

- a) on the proprietor or possessor of the property;
- b) on the property;
- c) simplified location of the property;
- d) request date;
- e) current use of the permanent preservation area of limited use area; and
- f) regularity of the legal reserve or request for registration.

II – information on the methodology used for the recuperation of degraded permanent preservation areas and areas that are not liable for consolidation, according to current legislation

Art. 5 Authorized activities cannot compromise the environmental integrity of the areas, in relation to all cases that are the subject of this Resolution, and in particular:

I – the stability of hillsides and the margins of water bodies;

II – fauna corridors;

III – drainage and intermittent water courses;

IV – the upholding of the biota; and

V – water quality.

Art. 6 This Resolution shall enter into effect on the date of its publication.

IZABELLA TEIXEIRA – Council President

This text does not substitute the text published in the Official Gazette on May 27, 2010

RESOLUTION 429, FEB. 28, 2011
Published in Official Gazette 43 on March 2, 2011, page 76.

Establishes provisions for the methodology used for the recuperation of Permanent Preservation Areas (APP:s).

THE NATIONAL ENVIRONMENT COUNCIL – CONAMA, in accordance with the power bestowed upon the Council by item VII, art. 8 of Law 6.938 from August 31, 1981 and considering the provisions set by Law 4.771 from September 15, 1965; its Internal Regulations; and art. 17 of CONAMA Resolution 369 from March 28, 2006, decides:

Chapter I
General Provisions

Art. 1 The recuperation of Permanent Preservation Areas, considered to be in the social interest, according to the provisions of line “a”, item V of § 2 of art. 1 of the Forestry Code, must follow the methodology provisioned by this Resolution.

Single paragraph. The voluntary recuperation of a Permanent Preservation Area containing native species of the ecosystem where it is located, follows the recuperation methodology established by this Resolution and other applicable standards and does not require the approval of an environmental organ.

Chapter II
Definitions

Art. 2 The following definitions are adopted for the purpose of this Resolution:

- I – exotic species: any species that exists outside of its natural geographic distribution area;
- II – invading exotic species: exotic species whose introduction to or spreading throughout the area poses a threat to the ecosystem, the habitat or other species and has negative environmental, economic social or cultural consequences;
- III – native species: species that is naturally represented within the limits of the geographic distribution of the area and is a part of the ecosystems through interaction and demographic control;
- IV – agro-forestry systems (SAFs): are systems for the use and occupation of the soil and within which perennial ligneous plants are managed in association with herbaceous plants, bushes, trees, agriculture and forage all coexisting within the same management unit, in a certain space and temporal manner, with a diversity of native species and interaction between these components.

Chapter III
Methodologies for the recuperation of Permanent Preservation Areas

Art. 3 The recuperation of Permanent Preservation Areas can be achieved through the following methods:

- I – induction of the natural regeneration of native species;
- II – planting of native species; and
- III – joint planting of native species and induction of the natural regeneration of native species.

Art. 4 The recuperation of Permanent Preservation Areas through induction of the natural regeneration of natural species must observe the following requirements and procedures:

- I – protection, when needed, of native species through their isolation or fencing of the area in recuperation and, in special cases and professionally justified;
- II – adoption of measures to control and eradicate invading vegetable exotic species in order not to compromise the area in recuperation
- III – adoption of measures for the prevention, control and combat of fires;
- IV – adoption of measures to control erosion, when necessary;
- V – prevention and control of access by domestic or exotic animals;
- VI – adoption of measures for the conservation and attraction of native animals that disperse seeds.

Single paragraph. Induction methods used for the natural regeneration of native species must also consider the increase in the number of new plants through the introduction of sprouts

Art. 5 The recuperation of Permanent Preservation Areas through the planting of native species or through the joint measure of planting of native species and the induction of the natural regeneration of native species must follow, as a minimum requirement, the following procedures and requirements:

- I – individual maintenance of the native established species, planted or germinated, as long as necessary and a minimum of two years, through crowning, weeding, control of ants and fertilizers, among other;
- II – adoption of measures for fire prevention and control;
- III – adoption of measures to control and eradicate ruderal vegetable species and invading exotic species in order not to compromise the recuperating area;

IV - protection, when needed, of native species through their isolation or fencing of the area in recuperation and, in special cases and professionally justified;

V – soil preparation and erosion control, when needed;

VI – prevention and control of access by domestic animals;

VII - adoption of measures for the conservation and attraction of native animals that disperse seeds; and

VIII – planting of native species as foreseen in §§ 1 and 2 of this article.

§ 1 In the cases related to the planting of native species, even if as a joint measure with natural regeneration, the number of species and individual plants per hectare, planted or germinated, must attempt to be compatible with the local phyto-physiognomy and thereby accelerate the vegetation cover of the recuperated area.

§ 2 The natural regeneration of native species through induction must also consider the increase of new plants through sprouts.

§ 3 In exceptional cases, the planting of native species according to the provisions established by § 1, new herbaceous species or exotic green fertilizing bushes can be cultivated between the lines, or even agricultural exotic or native species, during a period of up to five years of the start of the recuperation process as a strategy for the maintenance of the area under recuperation, individuals interested in this method must inform the competent environmental organ, which will monitor the process, regarding the start and the location of the activity.

§ 4 In cases where prevails the lack of soil fertile horizons, the introduction of exotic species as pioneers and inductors of the restoration of the ecosystem may be allowed, as an exception and only if approved by the competent environmental organ. This method must be limited to one cycle of the used species and only efficient and approved species will be allowed to precede the natural regeneration of the area..

§ 5 Intercropped planting of native perennial native plants that produce fruits, seeds, chestnuts and other vegetable products can be permitted as a practice to support recuperation and can be harvested in a sustainable manner, with the exception of lumber.

§ 6° The competent environmental organ can, exceptionally and through the presentation of a professional project, authorize the usage of the bank of seeds and seedlings for exclusive use in native vegetation areas authorized for suppression, in cases related to public convenience or social interest and aimed at the use, of the same phyto-physiognomy, within the same hydrographic basin and as a complementing method.

Chapter IV Final Provisions

Art. 6 Sustainable agro-forestry management activities carried out at the small family rural property, as provided for in the Forestry Code, may be applied in the recovery of APPs, if they abide by the following specifications:

I – soil preparation and erosion control when necessary;

II – physiognomy re-composition and maintenance of the native vegetal physiognomy, maintaining the soil permanently fully covered;

III – limited use of agro-chemical products, prioritizing the use of green fertilizers;

IV – abstain from the use and control of ruderal and exotic invading species;

V – restrict the use of areas for pasture of domestic animals, except in cases related to the provisions of art. 11 of CONAMA Resolution 369/06;

VI – partnering with agricultural species cultivated on an annual basis;

VII – partnering with perennial species, native or non-invasive exotic species, aimed at the production and harvesting of non-lumber products such as fibers, leaves, fruits or seeds;

VIII – maintenance of established shifts, planted and/or germinated, through pruning/crowning, the control of perturbation factors such as competing species, insects, fire or other and the encircling or isolation of the area, when necessary.

Art. 7 The recuperation of a Permanent Preservation Area cannot compromise the structure and the environmental performance of these spaces, in particular:

I – stability of hillsides and the margins of water bodies;

II – maintenance of flora and fauna corridors;

III – maintenance of drainage and intermittent water courses;

IV – maintenance of the biota;

V – maintenance of native vegetation;

VI – maintenance of water quality;

Art. 8 The recuperation of Permanent Preservation Areas, according to the provisions of this Resolution and specifications for the recuperation of legal reserves, is eligible for economic incentives foreseen by national legislation and international agreements related to the protection, conservation and sustainable use of forest biodiversity and forests or for the mitigation and adaptation to climatic changes.

Art. 9 This Resolution shall enter into effect on the date of its publication.

FRANCISCO GAETANI – Acting Council President

This text does not substitute the text published in the Official Gazette on March 2, 2011.

OTHERS: Collective Environmental Associations, Botanical Gardens, Speleological Patrimony and Environmental Compensation

CONAMA RESOLUTION 3, March 16, 1988
Published in Official Gazette on November 16, 1988, Section 1, page 22123

*Establishes provisions for the creation of collective
environmental associations.*

THE NATIONAL ENVIRONMENT COUNCIL in accordance with the power bestowed upon the Council by article 48 of Decree 88.351 from June 19, 1983¹⁷, decides:

Art. 1 Civil entities engaged in environmental activities may partake in the inspection processes of Ecological Reserves, Public or Private, Environmental Protection Areas, Areas of Relevant Ecological Interest, other Conservation Units and other protected Areas.

Art. 2 Participation in inspection operations , foreseen by this Resolution, is achieved through the creation of Environmental Associations composed by a minimum of three individuals accredited by a competent Environmental Organ.

§1 The entity responsible for the Environmental Association may, in order to protect their members, request the presence and company of at least one public servant from a police department.

§ 2 If the request mentioned in the previous paragraph is not granted the participation by the Environmental Association must include at least 5 (five) individuals.

§ 3 Whenever possible the Environmental Association will be accompanied by a public servant experience with experience in the area of inspections, a doctor or an individual with experience in the area of social assistance.

§ 4 The competent environmental organ must inform the participants from the Environmental Association, during the accreditation process, regarding the technical, legal and administrative aspects of the inspection and provide them with identification tags

Art. 3 Should participants from Environmental Association encounter infractions to current legislation they must register the circumstantial infractions of the verified breaches, duly signed by the present individuals

§ 1 The above mentioned infraction act must be forwarded to the entity that provided accreditations to the Environmental Association in order to allow legislation enforcement and, when applicable, forward the process to the Public Ministry.

§ 2 Competent Federal organs may act as supplementary instance if local authorities do not undertake the necessary measures regarding verified infractions

Art. 4 This Resolution shall enter into effect on the date of its publication.

JOÃO ALVES FILHO – Council President
BEN HUR LUTTEMBARK BATALHA – Executive Secretary

This text does not substitute the text published in the Official Gazette on November 16, 1988.

¹⁷ Decree revoked by Decree 99.274 from June 6, 1990.

CONAMA RESOLUTION 339, September 25, 2003
Published in Official Gazette 213 on November 3, 2003, Section 1, pages 60-61

Correlations:

· Revokes CONAMA Resolutions 266/00 and 287/01.

Establishes provisions for the creation, standards and operations of botanical gardens and makes other provisions.

THE NATIONAL ENVIRONMENTAL COUNCIL – in accordance with the power bestowed upon the Council by articles 6 and 8 of Law 6.938 from August 31, 1981, regulated through Decree 99.274 from June 1990, and in accordance with its Internal Regulations, an annex to Administrative Order 499 from December 18, 2002¹⁸, and

Considering the need to establish directives for the creation of botanical gardens, regulate their operation and define their objective, decides:

Art. 1 A botanical Garden is, for all purposes of this Resolution, a protected area composed in its partially or entirely of living and scientifically acknowledged plant collections, documented and identified, aimed at the study, research and documentation of the Country's flora patrimony, entirely or partially accessible to the public as a tool for education, culture and leisure and for the preservation of the environment.

Art. 2 The objectives of botanical gardens are:

I – promote research, conservation, preservation, environmental education and leisure activities aimed at spreading the multicultural value of plants and their sustainable use;

II – protect, even through the application of appropriate cultivation technology, wild or rare species of economic and ecological importance to the restoration or rehabilitation of ecosystems;

III – hold germ-plasma reserves *ex situ* and genetic reserves *in situ*;

IV – undertake systematic and organized plant registration and documentation of its vegetal collection aimed at their full use for the nature conservation and preservation and for scientific research and education;

V – promote scientific exchange, professional and cultural, with other national and foreign entities; and

VI – foment and promote the empowerment of human resources.

Art. 3 Botanical gardens created by the Union, States, Municipalities, the Federal District or through private initiatives must be registered by the Ministry of the Environment which will supervise compliance with this Resolution.

§ 1 It is the duty of the Biodiversity and Forestry Secretariat of the Ministry of the Environment to follow up and analyze matters related to the implementation of this Resolution.

§ 2 The registration of botanical gardens will be effectuated by the Ministry of the Environment through the Rio de Janeiro Botanical Garden Research Institute (JBRJ).

Art. 4 Botanical garden registration requests must be addressed to the Rio de Janeiro Botanical Garden Research Institute (JBRJ) accompanied by the followed documents:

I – copy of the act of creation and its publication in the Official Gazette;

II – document describing the protected area; and

III – complete plans including proposals for operations, scientific research projects and for environmental education.

Art. 5 Botanical gardens will be classified under three categories named "A", "B" and "C" according to professional criteria related to their infrastructure, human resource and researcher professional qualifications, objectives, location and operational specialization.

¹⁸ Administrative order revoked by Administrative Order MMA 168 from June 10, 2005.

§ 1 Botanical gardens that do not meet the requirements for registration, contained in articles 6, 7 and 8 of this Resolution, can be provisionally registered in the “C” category as long as they meet at least six of the demands of the category that was originally requested.

§ 2 The deadline for compliance with all demands set for the requested category is one year, counting from the date of issue of the result of the assessment and registration certificate issued by the Rio de Janeiro Botanical Garden Research Institute (JBRJ), at the end of the deadline the Institute will reach a decision regarding the concession of registration and its definitive category

Art. 6 Botanical gardens that meet the following requirements will be registered as category “A”:

- I – possess professional and scientific human resources compatible with its activities;
- II – available vigilance and gardening services, employed or outsourced;
- III – possess a shift area preferentially for local native species;
- IV – possess administrative and logistic support services compatible with developed activities;
- V – develop research programs aimed at the conservation and preservation of species;
- VI – possess special collections of specimens that represent the native flora in adequate structures;
- VII – develop environmental educational programs;
- VIII – possess a basic visitor related infrastructure;
- IX – possess its own herbarium or in association with other institutions;
- X – possess a registration system containing information on its patrimony;
- XI – possess a specialized library;
- XII – uphold a program for series of technical-scientific publications, subordinated to the publication commission and/or editorial committee;
- XIII – possess a germ-plasma bank and regularly publish its Index Seminum;
- XIV – promote the professional empowerment of its staff;
- XV – offer public professional courses;
- XVI – offer professional, scientific and institutional support in cooperation with conservation units as foreseen by the National Nature Conservation Unit System (SNUC), created through Law 9.985 from July 18, 2000.

Art. 7 Botanical gardens that meet the following requirements will be registered as category “B”:

- I - possess professional and scientific human resources compatible with its activities;
- II - available vigilance and gardening services, employed or outsourced;
- III - possess a shift area preferentially for local native species;
- IV - possess administrative and logistic support services compatible with developed activities;
- V - develop research programs aimed at the conservation and preservation of species;
- VI - possess special collections of specimens that represent the native flora in adequate structures;
- VII - develop environmental educational programs;
- VIII - possess a basic visitor related infrastructure;
- IX - possess its own herbarium or in association with other institutions;
- X - possess a registration system containing information on its patrimony;
- XI - possess a specialized library;
- XII – spread its activities through Informative sheets;
- XIII – uphold programs for collection and storage of seeds, of its own or in association;
- XIV - offer professional, scientific and institutional support in cooperation with conservation units as foreseen by the National Nature Conservation Unit System (SNUC), created through Law 9.985 from July 18, 2000.

Art. 8 Botanical gardens that meet the following requirements will be registered as category “C”:

- I - possess professional and scientific human resources compatible with its activities;
- II - available vigilance and gardening services, employed or outsourced;
- III - possess a shift area preferentially for local native species;
- IV - possess administrative and logistic support services compatible with developed activities;
- V - develop research programs aimed at the conservation and preservation of species;
- VI - possess special collections of specimens that represent the native flora in adequate structures;
- VII - develop environmental educational programs;
- VIII - possess a basic visitor related infrastructure;
- IX - possess its own herbarium or in association with other institutions;
- X - possess a registration system containing information on its patrimony; and
- XI - offer professional, scientific and institutional support in cooperation with conservation units as foreseen by the National Nature Conservation Unit System (SNUC), created through Law 9.985 from July 18, 2000.

Art. 9 The National Botanical Garden Commission (CNJB), created according to the provisions set by Resolution 266 from August 3, 2000¹⁹ is a support organ to the Biodiversity and Forestry Secretariat of the Ministry of the Environment and is charged with the inspection and analysis of matters related to botanical gardens.

¹⁹ Resolution revoke by Resolution 339/03.

Art. 10. It is the duty of The National Botanical Garden Commission (CNPBJ) to:

I – consider the requests for the creation and framework of botanical gardens;

II – monitor and assess botanical garden activities; and

III – elaborate its internal regulations.

Art. 11. The National Botanical Garden Commission (CNPBJ) is composed by:

I – two representatives, title holder and substitute, from the following organizations and organs:

a) Ministry of the Environment;

b) Science and Technology Ministry;

c) Education Ministry;

d) Brazilian Botanical Garden Network; and

e) Brazilian Botanical Society.

II – one representative from a scientific entity representing the Brazilian botanical sector;

§ 1 The CNPBJ official, both title holder and substitute, will be appointed by the title holder of the organ and organizations that is the subject of items I and II or art. 11 through an act issued by the Minister of the Environment and the accumulation of representation is not allowed.

§ 2 The CNPBJ President will be appointed, though the same act referred to in the previous paragraph, as a member of the Commission.

§ 3º CNPBJ membership is considered of public interest relevance.

Art. 12. Membership in the Commission is not remunerated.

Art. 13. Registrations and their respective positions must be published in the Official Gazette, according to sequential numbering, and reviewed periodically at the discretion of the National Botanical Garden Commission (CNPBJ).

§ 1 Positions can be revised at the request of the interested party addressed to the Rio de Janeiro Botanical Gardens (JBRJ) if the member meets the requirements for the new position.

§ 2 Botanical Gardens can appeal the evaluation undertaken by the CNPBJ within thirty days after being notified of the assessment result, through a formal request and justification forwarded to the Rio de Janeiro Botanical Gardens.

Art. 14. Preferentially, botanical gardens should possess preserved adjacent areas, such as bush or conservation units, in order to be able to expand and reach their objectives.

Art. 15. The importation, exportation and exchange, or any other form of granted access to vegetation or part of it from the native or exotic flora, by botanical gardens is conditioned to specific legislation

Art. 16. The commercialization of plants or plant parts is conditioned to specific legislation.

Art. 17. Omitted cases will be resolved by the Ministry of the Environment's Biodiversity and Forestry Secretariat after consultations with the National Botanical Garden Commission (CNPBJ).

Art. 18. This Resolution shall enter into effect on the date of its publication.

Art. 19. CONAMA Resolutions 266 from August 3, 200, published in the Official Gazette on September 27, 2000, Section 1, page 153, and 287 from August 30, 2001, published in the Official Gazette on December 26, 2001, Section 1, page 97, are hereby revoked.

MARINA SILVA – Council President

This text does not substitute the text published in the Official Gazette on Nov. 3, 2003.

RESOLUTION 347, Sept. 10, 2004
Published in Official Gazette 176 on Sept. 13, 2004, pages 54-55

Correlations:

- Changes Resolution 428/2010
- Revokes Resolution 5/87

Establishes provisions for the protection of the speleological patrimony.

THE NATIONAL ENVIRONMENT COUNCIL – CONAMA, in accordance with the power bestowed upon the Council by Law 6.938 from August 31, 1981, regulated by Decree 99.274 from June 6, 1990 and the provisions of its Internal Regulations, approved by Administrative Order 499 from December 18, 2002, and

Considering the need to improve and actualize the National Program for the Protection of the Speleological Patrimony, approved by the Special Commission created by CONAMA Resolution 9 from Jan. 24, 1986 and the need to set provisions for the use of this patrimony;

Considering the need to grant environmental licenses for activities that affect, or may affect, the speleological patrimony or their areas of influence, according to the terms of CONAMA Resolution 237 from December 19, 1997 and, when applicable, Resolution 001 from 1986;

Considering the need to incorporate speleological patrimony environmental management tools with the environmental licensing system, aimed at the sustainable use and the continuous improvement of the life quality of populations living around natural subterranean caves;

Considering that natural subterranean caves within the national territory are part of the patrimony of the Union, according to art. 20, item X of the Federal Constitution, and that they must be preserved and maintained in order to allow for studies and technical-scientific, ethnical, cultural, touristic, recreational and educational activities;

Considering that natural subterranean caves compose the National Speleological Patrimony;

Considering that the principle of caretaking can be applied to the protection of the speleological patrimony;

Considering the need to institute monitoring and environmental control measures in order to avoid and minimize the degradation and destruction of natural subterranean caves and other associates ecosystems, decides:

Art. 1 Create the National Speleological Information Registry and establish procedures for the usage and exploitation of the national speleological patrimony aimed at the environmental protection of natural subterranean caves

Art. 2 The following definitions apply for all purposes of this Resolution:

I – natural subterranean cave: is all or any subterranean space that can be entered by human beings, with or without an identified opening, popularly known as cave, burrow, pit, abysm and hole including its environment, mineral and water content, present biotic communities and the rock bodies where they live, providing it was created through natural processes and independently of its dimensions or of the type of rock.

~~H – natural subterranean cave of relevance for approval by the Brazilian Institute of Environment and Renewable Natural Resources (IBAMA) through a licensing process – that which presents significant ecological, environmental, scenic, scientific, cultural or socio-economic attributes, in the local or regional context, presenting, among other, the following characteristics:~~

- ~~a) dimension, morphology, or landscape values;~~
 - ~~b) geological, geomorphological or mineralogical peculiarities;~~
 - ~~c) archeological or paleontological remains;~~
 - ~~d) significant water resources;~~
 - ~~e) fragile ecosystems; endemic species, rare or threatened with extinction;~~
 - ~~f) The entrepreneur is biologic diversity; or~~
 - ~~g) regional historical, cultural or socio-economic relevance.~~
- (Revoked by Resolution 428/2010)

III – speleological patrimony: the group of biotic and abiotic, socio-economic and historic-cultural, subterranean or surface elements that characterize natural subterranean caves and associated areas;

IV – area comprised by the speleological patrimony: area that includes the biotic and abiotic, surface or subterranean elements needed for the maintenance of the ecological balance and the physical integrity of the cave environment;

V – speleological management plan: professional document which, based on the general objectives for the area, establishes zones and standards that regulate the use of the area and the management of its natural resources including the creation of necessary physical structures aimed at the management of the natural subterranean cave; and

VI – speleological zoning: defines the sectors or zones of a natural subterranean cave aimed at management and the establishment of specific standards that allow the means and conditions for the achievement of all management activities.

Art. 3 The National Speleological Information Registry (CANIE), is part of the National Environmental Information System (SINIMA) will contain information related to the national speleological patrimony.

§ 1 It is the duty of IBAMA to manage the National Speleological Information Registry (CANIE) and to provide the necessary means for its execution.

§ 2 The competent environmental organ will establish, through legal cooperation tools for governmental and non-governmental entities, a system for the forwarding of available speleological information to the National Speleological Information Registry (CANIE).

§ 3 Competent environmental organs must forward all speleological information contained in environmental licensing processes to CANIE.

§ 4 Entrepreneurs that apply for environmental licenses must first provide all speleological patrimony data included in the licensing process to CANIE, independently of any other registration with any other organ

§ 5 IBAMA will, after consultations with the different sectors that compose CONAMA, create the National Speleological Information Registry within one hundred and eighty days.

Art. 4 The location, construction, installation, broadening, modification and operation of enterprises or activities considered as polluting, potentially polluting or degrading agents of the speleological patrimony or its area(s) of influence must be preceded by the granting of a license by the competent environmental organ, according to current legislation.

~~§ 1 Authorizations or environmental licenses related to relevant natural subterranean caves or their area of influence, according to art. 2, item II, are conditioned to previous IBAMA approval, who must reach a decision within ninety days, without prejudice to other demands.~~

(Revoked by Resolution 428/2010)

§ 2 The area under the influence of the speleological patrimony will be defined by the competent environmental organ that may, for the purpose, demand specific studies paid by the entrepreneur.

§ 3 Until the area of influence is defined according to the provisions of the previous paragraph the area of influence of natural subterranean caves is the horizontal projection of the cave and the surrounding area of fifty meters, convex and polygonal.

§ 4 Mineral research aimed at the exploitation of the area of influence of the speleological patrimony is conditioned to environmental licensing.

Art. 5 In order to analyze the intensity of environmental impact, the licensing organ must consider, among other aspects, the intensity, temporality, reversibility and synergy of the referred impacts.

Single paragraph. The impact assessment on the speleological patrimony must take into consideration, among other, the following aspects:

- I – dimensions, morphology and landscape value;
- II – geological, geomorphological and mineralogy peculiarities;
- III – archeological or paleontological remains
- IV – water resources;
- V – fragile ecosystems or endemic, rare or threatened species;
- VI – biological diversity; and
- VII – historical-cultural or socio-economic regional relevance.

Art. Touristic, religious or cultural activities that make use of the speleological patrimony environment must abide by the Speleological Management Plan, approved by IBAMA and created by the managing organ or by the proprietor of the land where the cavern is located.

§ 1 IBAMA will provide the terms of reference for the creation of the Speleological Management Plan that is the subject of this article in accordance with the different categories for the use of the speleological patrimony or for natural subterranean caverns.

§ 2 The use of caves located within private properties is conditioned to the approval of a management plan previously submitted to IBAMA.

Art. 7 Technical-scientific research activities in natural subterranean caverns that imply the collection or capture of biological or mineral materials, or which interfere with the speleological patrimony, are conditioned to previous IBAMA authorization or by an authorized SISMAMA organ.

§ 1 If the requesting party is a foreigner the research project must comply with current legislation demands and the request must be assessed within ninety days after the competent organ has certified that all documentation has been provided.

§ 2 In order to obtain a research license the requesting party must present all documentation demanded by IBAMA.

§ 3 The requesting party must provide IBAMA with a signed document stating that it will forward all research reports to IBAMA, which will forward the same to CANIE.

§ 4 The delegation, substitution or reassignment of the responsibilities for the execution of a licensed project is conditioned to previous IBAMA approval.

Art. 8 The entrepreneur must support and fund the implantation and maintenance of the conservation unit in cases related to licenses granted for enterprises and activities considered as effective or potentially damaging and/or degrading of the speleological patrimony and conditioned to the presentation of Environmental Impact Studies (EIA) and the respective Environmental Impact Report (RIMA), according to the provisions of art. 36, Law 9.985 from July 18, 2000.

§ 1 The support that is the subject of the heading of this article can, according to the provisions of Decree 4.340 from August 22, 2002, take the form of studies and research preferentially developed in the region of the enterprise which allow for the identification of areas for the implantation of conservation units with of speleological interest.

§ 2 The support that is the subject of the heading of this article applies to the hypothesis foreseen in art. 36 of Law 9.985 from July 18, 2000 which regulates art. 225, § 1, items I, II, III and VII of the Federal Constitution which created the National System of Natural Conservation Units and makes other provisions and other current legal acts.

Art. 9 Without any prejudice to the immediate application of this Resolution, the Ministry of the Environment must subsidize the National Program for the Protection of the Speleological Patrimony within one hundred and eighty days and set complementing criteria for the characterization of relevance that is the subject of art. 2, item II and forward them to the National Environment Council (CONAMA).

Art. 10. The competent environmental organ that rejects a license or authorization request, or its renewal, must inform, within thirty days from the date of decision, the entrepreneur and the organs that regulate the respective activity and the Public Ministry in order to allow for applicable measures.

Art. 11. The competent environmental organ must cooperate with the competent historical-cultural and mineral patrimony organ in order to protect the speleological, archeological and paleontological patrimony and supply information to the CANIE data bank.

Art. 12. In cases related to archeological and paleontological activities in the area of a natural subterranean cave, the competent environmental licensing organ must inform the respective competent organs, responsible for the management and protection of these patrimonies.

Art 13. Enterprises that have already started will have a deadline of sixty days to request the regularization of the same, according to the provisions set by this Resolution.

Art. 14. This Resolution shall enter into effect on the date of its publication.

Art. 15. CONAMA Resolution 5 from August 6, 1987 is hereby revoked.

MARINA SILVA – Council President

This text does not substitute the text published in the Official Gazette on September 13, 2004.

CONAMA RESOLUTION 371, April 5, 2006
Published in Official Gazette 67 on April 6, 2006, Section 1, page 45

Correlations:

· Revokes CONAMA Resolution 2/96
Published in Official Gazette 67 on April 6, 2006, 45

Establishes directives for environmental organs related to the calculation, collection, application, approval and control of spending of resources collected from environmental compensations according to Law 9.985 issued on July 18, 2000, which creates the National System of Natural Conservation Units (SNUC) and makes other provisions

THE NATIONAL ENVIRONMENT COUNCIL – CONAMA, in accordance with the power bestowed upon the Council by Law 6.938 from August 31, 1981, regulated by Decree 99.274 from June 6, 1990 and in accordance with the provisions of its Internal Regulations, annex to Administrative Order 168 from June 10, 2005;

Considering that art. 36 of Law 9.985 from July 18, 2000 that creates the National System of Natural Conservation Units (SNUC) determines that cases related to the granting of environmental licenses to enterprises that have a direct impact on the environment, according to assessments made by the competent environmental organ and based on environmental impact studies and their respective reports (EIA/RIMA), imply that the entrepreneur must support the implantation and maintenance of the Integral Protection Group in the affected conservation unit, according to the provisions of the above article and the regulations set by the above Law;

Considering the need to establish general directives for procedures related to the application of environmental compensation measures by the respective and competent environmental organs and according to the order of priority set by art. 33 of Decree 4.340 from August 22, which provides clarifications and objectivity;

Considering the need to establish general principles for the calculation and application of resources from environmental compensation that must be adopted by environmental organs; Considering the principle of Participation, established by the Rio Declaration on the Environment and Development (principle 10) and by the Federal Constitution (art. 225);

Considering that environmental compensation is a product of the demands placed on the entrepreneur to support the implantation and maintenance of the activities of the Integral Protection Group in conservation units, according to the provisions of Law 9.985 from 2000, which stipulates that the amount of the compensation cannot be less than half a percent of the total cost allocated for the enterprise;

Considering the both public and private enterprises are subjected to the same environmental compensation demands; and considering that CONAMA is the consultative and deliberative organ of SNUC, according to the provisions of art. 6 of Law 9.985 from 2000, decides:

Art. 1 This Resolution establishes the directives for the calculation, charging, application, approval and control of spending of financial resources from environmental compensation payments due to the implementation of enterprises with significant environmental impact, according to the assessments made by the competent environmental organ based on Environmental Impact Studies (EIA) and Environmental Impact Reports (RIMA), according to art. 36 of Law 9.985 from July 18, 2000, and art. 31 of Decree 4.340 from August 22, 2002.

Art. 2 The Licensing environmental organ will, during the licensing process, establish the rate/degree of impact caused by the implantation of each enterprise, based on specific professional data that allows for the assessment of negative and non-mitigation environmental impacts on the respective environmental resources according to the transparent EIA/RIMA studies.

§ 1 The establishment of the environmental impact rate/degree will only take into account the environmental impact on environmental resources, according to the provisions of art. 2, item IV of Law 9.985 from 2000, excluding the operational risks of the enterprise, without criteria redundancy.

§ 2 The licensing environmental organ must create a specific tool based on professional data in order to calculate the percentage, according to the provisions that are the subject of the heading of this article.

Art. 3 The calculation of environmental compensation must be based on the total foreseen costs for the implementation of the enterprise and the methodology used for the assessment of environmental impact degradation defined by the competent environmental organ.

§ 1 Environmental compensation calculation will consider the total amount of investments needed to improve environmental quality and for the mitigation of impacts caused by the enterprise, according to environmental legislations demands.

§ 2 Investments needed for the creation and implementation of plans, programs and actions, not demanded by environmental legislation but established during the environmental licensing process for the mitigation and improvement of environmental quality, will not be included in the total costs that are the basis for the calculation of environmental compensation.

§ 3º The costs that are the subject of the previous paragraph must be presented and justified by the entrepreneur and approved by the licensing environmental organ.

Art. 4 Entrepreneurs must present an assessment of the total cost of the enterprise before they are issued a Project License , which will be treated as confidential information according to current legislation, in order to calculate environmental compensation costs.

Art. 5 The percentage established for environmental compensation for new enterprises will be defined during the licensing process, when the Provisional License is granted, or when not applicable at the time when the Project license is granted.

§ 1 Payment of environmental compensation will not be demanded before the granting of the Project License.

§ 2 The amount set as environmental compensation and the signing of the respective commitment agreement must take place simultaneously with the issuing of the Project License.

§ 3 The commitment agreement that is the subject of the previous paragraph must foresee a mechanism for the actualization of the payments.

Art. 6 Environmental licenses for the enlargement or transformation of enterprises with previously granted licenses, subjected²⁰ to EIA/RIMA, which cause significant environmental damage will import an environmental compensation based on the total costs for the enlargement or transformation of the enterprise.

Art. 7 Enterprises that have already provided support to the implantation and maintenance of a conservation unit will not be subjected to a re-evaluation of applied costs nor be obliged to provide complementing resources, with the exception of matters related to the enlargement or transformation foreseen in art.6 of this Resolution and in cases foreseen in art. 19, items I and II of National Environment Council (CONAMA) Resolution 237 from December 19, 1997.

Art. 8 Environmental licensing organs shall create an environmental compensation chamber, foreseen in art. 32 of Decree 4.340 from 2002, aimed at the analysis and application of environmental compensation for federal, state and municipal conservation units, aimed at strengthening the National Conservation Unit System (SNUC) through the involvement of existing state and municipal systems for conservation units.

Single paragraph. The environmental compensation chambers must conduct hearings with federal representatives from the area conservation systems that are the subject of the heading of this article as well as the Conservation Unit Mosaic Councils and the existing Conservation Unit Councils in the areas affected by the enterprise.

Art. 9 The environmental organ that defines the areas or conservation that will benefit from funds from environmental compensation must, while respecting the criteria foreseen by art. 36 of Law 9.985 from 2000 and the order of priorities established by art. 33 of Decree 4.340 from 2002, follow the following specifications:

I – if there is more than one conservation unit or buffer zones that have been directly affected by the licensed enterprise or activity , independently of which group they belong, they shall all benefit from the environmental compensation resources while considering, among other, the criteria of proximity, dimension, vulnerability and existing infrastructure; and

II – if there is no area or buffer zone that has been affected, part of the resources from environmental compensation will be invested in the creation, implantation or maintenance of the conservation unit of the Integral Protection Group locate, preferentially, within the same biome and the same hydrographic basin of the licensed enterprise or activity, considering the Priority Conservation Units, Sustainable Use and Repartition of Biodiversity Benefits, identified according to the provisions of Decree 5.092 from May 21, 2004, as well as proposals presented by EIA/RIMA.

Single paragraph. Resources that will not be allocated according to items I and II of this article shall be used for the creation, implantation or maintenance of other conservation units of the Integral Protection Group in accordance with SNUC provisions.

Art. 10. NA entrepreneur that meets the criteria established in art. 9 of this Resolution must present the EIA/RIMA suggestions for which conservation units shall benefit or be created.

§ 1 Any interested party is granted the right to present suggestions by writing , during the licensing process, regarding areas that should be benefited or created.

§ 2 Suggestions presented by the entrepreneur or by any interested party do not bind the environmental licensing organ and who must, in all cases, justify the choice of conservation unit(s) that will be awarded benefits and comply with the provisions of articles 8 and 9 of this Resolution. Art. 11. The entity or organ that manages the selected conservation units must present a work plan for the use of resources which will be environmental compensation chamber for implementation purposes and in compliance with the order of priorities established by art. 33 of Decree 4.340 from 2002.

§ 1 Only areas of conservation that have been registered by the National Conservation Unit Registry are entitled to receive resources from environmental compensation, excluding funds that are allocated for the creation of new conservation units.

§ 2 The allocation of resources from environmental compensation for selected conservation units will only be

²⁰ Ratified in Official Gazette 68 on April 7, 2006, page 235

effective after their approval by the environmental compensation chamber and will, until then, remain under the supervision of the competent environmental organ, the work program created by the management entities or organs, which contain the activities, studies and projects that will be executed and their respective cost.

Art. 12. The environmental organs responsible for the management of resources from environmental compensation must publicize, as well as annually inform the respective environmental councils, the application of resources from environmental compensation including information on the licensed enterprise, the percentage rate, the value, and the application deadline for the compensation, the benefited areas of conservation and the respective conservation actions.

Single paragraph. Information of activities, studies and projects funded by resources from environmental compensations must be available to the public, publicized and transparent.

Art. 13. Informational material²¹ produced with compensation resources must include information regarding the source of the resources through the phrase: “resources prevented from environmental compensation according to Law 9.985 from 2000 – SNUC Law”.

Art. 14. Combined or paid sums will not be re-evaluated²², nor will there be any compulsion for the destination of complementing resources included in any agreement, terms of commitment, Conduct Adjustment Terms (TAC), contracts, agreements, minutes or any other formal document signed by environmental organs as compensation deeds as foreseen by art. 36 of Law 9.985 from 2000.

Art. 15. The total sum of environmental compensations is set at half a percentage point of the total costs foreseen for the implantation of the enterprise until the environmental organ establishes and publicizes the methodology for the definition of the degree/rate of the respective environmental impact.

Art. 16. This Resolution shall enter into effect on the date of its publication.

Art. 17. CONAMA Resolution 2 from April 18, 1996 is hereby revoked.

MARINA SILVA – Council President

This text does not substitute the text published in the Official Gazette on April 6, 2006.

²¹ Ratified in Official Gazette 68 on April 7, 2006, page 235.

²² Ratified in Official Gazette 68 on April 7, 2006, page 235.

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MANAGEMENT DIRECTIVES

CONAMA RESOLUTION 9, October 24, 1996
Published in Official Gazette 217 on Nov. 7, 1996, Section 1, pages 23069-23070

Correlations:

· Defines “remaining corridors” mentioned in art.7 of Decree 750/

Defines ”remaining corridors between vegetation” as transit areas for fauna.

THE NATIONAL ENVIRONMENT COUNCIL – CONAMA, in accordance with the power bestowed upon the Council by Law 6.938 from August 31, 1981, changes by Law 8.028 from April 12, 1990, regulated by Decree 99.274 from June 6, 1990 and Law 8.746 from Dec. 9, 1993 and considering the provisions of Law 8.490 from Nov. 19, 1992 and in accordance with the provisions of its Internal Regulations, and

Considering the provisions of art. 225 of the Federal Constitution and in particular the definition of Atlantic Forest as part of the National Patrimony;

Considering the need to strengthen the implementation of Decree 750/93 that addresses issues related to the protection of the Atlantic Forest;

Considering the need to define “corridors between remains” named in art. 7 of Decree 750/93 as well as to establish parameters and procedures for their identification and protection, Decides:

Art. 1 A corridor between remains is characterized as the strip of vegetation cover that exists between remains of primary vegetation in a medium or advanced stage of regeneration that is able to form a habitat or as a transit area for fauna living in the remains.

Single paragraph. Corridors between remains are composed by:

- a) neighboring forests in all of their extension and legally defined river margin strips;
- b) existing strips of vegetation cover that allow for the interconnection of remains, in particular in relation to conservation units and permanent preservation areas.

Art. 2 Areas that provide these properties and which are in need of interventions in order to achieve the renewal of their vegetation, shall be planted with regional native species previously defined for preservation or for exploitation.

Art. 3 The breadth of the corridors is set at 10% (ten percent) of their total length and a minimum of 100 meters.

Single paragraph. In respect to river marginal strips the minimum established breadth will be counted from both river margins.

Art. 4 All contrary provisions are hereby revoked.

Art. 5 This Resolution shall enter into effect on the date of its publication.

GUSTAVO KRAUSE GONÇALVES SOBRINHO – Council President

EDUARDO DE SOUZA MARTINS – Executive Secretary

This text does not substitute the text published in the Official Gazette on Nov. 7, 1996.

CONAMA RESOLUTION 238, Dec. 22, 1997
Published in Official Gazette 248 on Dec. 23, 1997, Section 1, page 30930

Establishes provisions for the approval of the National Policy for the Control of Desertification

THE NATIONAL ENVIRONMENT COUNCIL – CONAMA, in accordance with the power bestowed upon the Council by Law 6.938 from August 31, 1981, regulated by Decree 99.274 from June 6, 1990 and in accordance with the provisions of its Internal Regulations, and

Considering that the subject of desertification has been the subject of debate by the international community since the United Nations International Conference on Desertification, held in Nairobi in 1977;

Considering that the Nairobi Conference led to the creation of the Action Plan for the Combat of Desertification (PACD) which aimed at the development of global actions through the voluntary participation of countries that participated in the Conference;

Considering that the evaluation of the results from the PACD, undertaken by the United Nations Environmental Program (PNUMA), can be considered to be very modest due to a lack of investments, to the fact that the great majority of countries threatened with desertification did not make any national commitments and the lack of developed programs for the empowerment of specialized human resources;

Considering that in Brazil the lack of political decisions and of consensus among the scientific community which led to conceptual and methodical disputes which in turn led to the dispersion of efforts and hindered the creation of clear research lines that could lead to the allocation of resources and the definition of research areas;

Considering that the Rio 92 Conference led to the creation, within the United Nations context, of the International Convention to Combat Desertification and Draught, based on the International Conference on Climate, Sustainability and Development in Semi-Arid Regions held in Ceará State during January 1992. The Convention was held during 1993 and ended on June 17, 1994 and was signed by more than one hundred countries including Brazil;

Considering that the Brazilian government has, in light of the commitments made through the United Nations Convention to Combat Desertification, signed a professional agreement with the United Nations Development Program (PNUD) through the Ministry of the Environment, Water Resources and Legal Amazon²³ (MMA) and the Brazilian Cooperation Agency, aimed at the creation of the National Plan to Combat Desertification (PNCD) founded and implemented by the Fundação Grupo Esquel Brasil (Brazilian Esquel Group Foundation). This agreement is today approved and supported by the United Nations Food and Agriculture Organization (FAO) and by PNUMA;

Considering that Agenda 21 and the United Nations Convention to Combat Desertification have led to a workshop that counted with the participation of institutions and professionals within the subject matter aimed at the promotion of debate and the definition of the benchmarks for a national policy for desertification control;

Considering that the results from this inter-institutional and interdisciplinary effort can serve as a base for the formulation of desertification control policies that: safeguard improved life quality for affected communities; empower federal organs and agencies to strive for sustainable development; lead the international community to increased efforts and contribute to global sustainable development;

Art. 1 Approves the National Desertification Control Policy according to the text published in the Internal Bulletin of the Ministry of the Environment, Water Resources and Legal Amazon.

Art. 2 Enters into effect on the date of publication and all provisions to the contrary are hereby revoked.

GUSTAVO KRAUSE GONÇALVES SOBRINHO – Council President

RAIMUNDO DEUSDARÁ FILHO – Executive Secretary

NATIONAL DESERTIFICATION CONTROL POLICY
APPROVED DURING THE 49th REGULAR CONAMA MEETING

THE NATIONAL ENVIRONMENT COUNCIL – CONAMA, in accordance with the power bestowed upon the Council by Law 6.938 from August 31, 1981, regulated by Decree 99.274 from June 6, 1990 and in accordance with the provisions of its Internal Regulations, and

Considering that the subject of desertification has been the subject of debate by the international community since the United Nations International Conference on Desertification, held in Nairobi in 1977;

²³ The Ministry of the Environment, Water Resources and Legal Amazon is today named the Ministry of the Environment through MP 1.795 from Jan. 1, 1999, re-edited by MP 2.216-37 from Aug. 31, 2001, changing Law 9.649 from May 27, 1998.

Considering that the Nairobi Conference led to the creation of the Action Plan for the Combat of Desertification (PACD) which aimed at the development of global actions through the voluntary participation of countries that participated in the Conference;

Considering that the evaluation of the results from the PADC, undertaken by the United Nations Environmental Program (PNUMA), can be considered to be very modest due to a lack of investments, to the fact that the great majority of countries threatened with desertification did not make any national commitments and the lack of developed programs for the empowerment of specialized human resources;

Considering that in Brazil the lack of political decisions and of consensus among the scientific community which led to conceptual and methodical disputes which in turn led to the dispersion of efforts and hindered the creation of clear research lines that could lead to the allocation of resources and the definition of research areas;

Considering that the Rio 92 Conference led to the creation, within the United Nations context, of the International Convention to Combat Desertification and Draught, based on the International Conference on Climate, Sustainability and Development in Semi-Arid Regions held in Ceará State during January 1992. The Convention was held during 1993 and ended on June 17, 1994 and was signed by more than one hundred countries including Brazil;

Considering that the Brazilian government has, in light of the commitments made through the United Nations Convention to Combat Desertification, signed a professional agreement with the United Nations Development Program (PNUD) through the Ministry of the Environment, Water Resources and Legal Amazon (MMA) and the Brazilian Cooperation Agency, aimed at the creation of the National Plan to Combat Desertification (PNCD) founded and implemented by the Fundação Grupo Esquel Brasil (Brazilian Esquel Group Foundation). This agreement is today approved and supported by the United Nations Food and Agriculture Organization (FAO) and by PNUMA;

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Considering that the results from this inter-institutional and interdisciplinary effort can serve as a base for the formulation of desertification control policies that: safeguard improved life quality for affected communities; empower federal organs and agencies to strive for sustainable development; lead the international community to increased efforts and contribute to global sustainable development;

CONCEPTUAL FRAMEWORK

The United Nations Convention on Desertification that followed Agenda 21 defines desertification as “the degradation of the soil in arid, semi-arid and dry sub-humid zones caused by different factors such as climate variations and human activities” and earth degradation is understood as:

- a) soil and water resource degradation;
- b) vegetation and biodiversity degradation; and
- c) decreased life quality for affected populations.

This definition was adopted by the United Nations Environment Program (PNUMA) and serves as the basis for the definition of areas susceptible to desertification in arid, semi-arid and dry-sub-humid climates.

The acceptance of the definition of arid, for purposes related to the implementation of the United Nations Action Plan for the Combat Against Desertification, took place during 1977 through the methodology developed by Thornthwaite (1941) and was later published in the work *Map of the World Distribution of Arid Regions*, UNESCO, 1979.

According to the above definition, the rate of aridness in a region depends on the quantity of water from rainfall (P) and the loss of water through evaporation and transpiration (ETP), or the Evaporation-Transpiration Potential. The degrees of variation for this rate are:

Hyper-arid	< 0,05
Arid	0,05 - 0,20
Semi-arid	0,21 - 0,50
Dry Sub-humid	0,51 - 0,65
Sub-humid and humid	> 0,65

For Convention purposes the aridness index varies between 0.21 and 0.65.

Poverty is associated to the degradation of the Earth in arid, semi-arid and dry sub-humid zones and is today globally acknowledged as one of the main factors associated to the desertification process.

Areas susceptible to desertification occupy more than 30% of the planet's surface and are home to almost 1 billion people, according to PNUMA data.

Studies undertaken by the International Centre for Arid and Semi-Arid Land Studies - ICASALS, Texas University, on earth degradation estimate that 69% of all of the world's arid zones are being affected by desertification on different levels. Data provided by the United Nations show that the desertification process is

rendering production impossible on more than 6 million hectares annually due to over-pastoring, soil salinization and intensive production processes that lack any form of agricultural sustainability.

Desertification is behind annual losses of around 26 billion USD and the costs for the recuperation of these areas may reach 90 billion USD during a twenty year period, according to data from the assessment report published by PNUMA.

The causes for desertification have been widely debated throughout the world. It is today considered that it is mainly caused by inadequate management methods for resource exploitation and attempts to introduce new technological standards for traditional rural populations. However, all of these factors can be attributed to the fact that the post-war development method adopted by the large majority of countries is concentrated in the creation of integrated markets where products from the semi-arid regions cannot compete, or have a great competition disadvantage, with products from temperate zones.

This means that producers often without capital and employing agricultural production practices of a low technological level, in order to meet market demands, over exploit their natural resources and do not include their wearing in the cost of the products as if they did so they would lose competitiveness.

The above facts belong to the history of soil degradation in the whole world. a perverse cycle with a final result that has increased poverty and the destruction of national patrimony as degraded areas.

DESERTIFICATION IN BRAZIL

In Brazil the areas that fit the United Nations framework for degraded areas are the areas located in the semi-arid tropic regions

Environmentally degraded areas have also been identified in other areas of the country such as the now widely known phenomenon of Alegrete in Rio Grande do Sul state and the strong soil erosion in the states of Paraná, São Paulo, Rondônia and Jalapão, Tocantins state. These areas are considered as strongly and gravely environmentally degraded.

However, the above areas are not included in the framework of the United Nations Convention to Combat Desertification and in chapter 12 of Agenda 21.

The application of the PNUMA methodology for the identification of areas susceptible to the process of desertification in Brazil was used by Nucleus Desert/IBAMA during 1992. The result of that work is consubstantiated in the desertification susceptibility Map.

The semi-arid tropic region, as defined by SUDENE, comprehends an area of 980.711 square kilometers spread throughout eight States in the Northeastern Region of Brazil and the north of Minas Gerais state.

The semi-arid region is home to a broad ecosystems, where dry and draught periods has an effect on almost the entire agropecuary activity and even more so on small and medium properties, a fact that creates accentuated socio-economic problems and mass migrations to other parts of the Country.

The population of the semi-arid region, according to the Census from 1991, is 17.8 million and corresponds to 42% of the total population of the Northeastern region and 11% of the total Brazilian population. The area is marked by traditional rural practices with little or no access to the national market, does not benefit from the introduction of new technologies, and popular customs have been set throughout generations and have a very paternalistic relationship with the State.

The above characteristics have led to ambiguous social and political practices when compared to those of populations living in urban areas that have been modernized by the market and free access to information.

This ambiguity takes the form of a constant search for "protection" in the state apparatus and its representatives and, on the other side, a recurring difficulty in absorbing available professional information provided by the state for the solution of their problems.

Furthermore, the above mentioned dynamics are a reflection of structural problems with strong environmental consequences. When access to the market and its opportunities are structurally limited there is a tendency to over-exploit resources as a compensating measure which leads to medium term effects on the environment and decreases the possibilities to keep people settled in the region.

All of the above factors are pressing for the population and leads to their territorial dislocation when they cannot solve their problems locally.

As it is widely known, the colonization process of the northeastern territory started from the coastal region and was developed through the exploitation of extractable products and agricultural production for exportation purposes. It was only in the 17th century that the semi-arid regions were occupied through cattle farming practices.

Currently, the interior (sertão) is marked by subsistence poly-culture, extensive cattle ranches and some irrigated agricultural practices. Traditional activities are in the decrease because of climatic adversities and problems created decreased soil productivity and consequent loss of market competitiveness. On the other hand, irrigated show already signs of salinization due to the absence of investments in drainage systems.

Available studies show that the desertification process in the semi-arid region has already compromised an area of 181.000 square kilometers and created different types of environmental impacts throughout the territory.

Areas that suffer from diffuse impacts show signs of environmental damage such as soil erosion, impoverished caatinga areas and the degradation of water resources. All with direct effects on the quality of life of local populations.

Areas where the effects are concentrated in small parts of the territory show deep damage and they now form the Desert Nucleolus.

Studies have allowed the identification of the first four Nuclei where desertification can be considered extremely serious and where natural resources have been strongly compromised. They are: Gilbués, PI, Irauçuba, CE, Seridó, RN/PB, Cabrobó, PE, with a total area of about 15.000 square kilometers. The impact of desertification can be classified as: environmental, social and economic.

Environmental impacts can be seen as the destruction of biodiversity (flora and fauna), the decrease in water resource availability, the drying of rivers and reservoirs and the impoverishment of the chemistry and physical properties of the soil. All of the above factors decrease the soil's biological potential, reduce agricultural productivity and have thereby a strong effect on local populations

Social damage can be characterized by marked social changes caused by the increasingly loss of productivity and its respective effect on the fabric of families. Migrations split families and have a strong impact on urban areas which are not prepared to offer services to large quantities of immigrants. It is important to mention that the affected populations are very vulnerable as they belong to the poorest groups of the region and their quality of life is well below the national average.

Economic loss caused by desertification is also very important. According to the methodology developed by the United Nations losses due to desertification correspond to 250 USD per hectare in comparison to irrigated areas, 40.000 USD per hectare in dry agricultural areas and 7.00 USD per hectare in pastoral areas.

The total losses in Brazil caused by desertification, according to studies undertaken by the Ministry of the Environment, and reach up to 800 million USD per year . The total cost for the recuperation of these areas is estimated at 2 billion USD during a twenty year period.

REFERENCE BENCHMARKS FOR A DESERTIFICATION CONTROL POLICY

Chapter 12 of Agenda 21 sets the first group of directives that must be implemented in order to address the problem, they are:

- a) increased knowledge base and the development of information and monitoring systems for risk regions including the economic and social aspects of these ecosystems;
- b) combat the degradation of the land through soil conservation and forestry activities and forest replacement;
- c) create and strengthen integrated development programs aimed at the eradication of poverty and the promotion of alternative life systems in areas that are susceptible to desertification;
- d) develop comprehensive programs to combat desertification and integrate them with national planning and environmental management;
- e) develop plans to face droughts, including self-help for draught ridden areas, and develop programs to care for environmental refugees;
- f) provide incentives for and promote social participation and environmental education that emphasizes the control of desertification and the management of droughts.

Apart from the above recommendations the United Nations Convention to Combat Desertification has established annexes for regional implementation for the creation of action programs and professional cooperation on regional and sub-regional levels.

As previously mentioned and in spite of the fact that the scope of the United Nations Convention to Combat Desertification is restricted to arid, semi-arid and dry sub-humid regions, the Ministry of the Environment, Water Resources and Legal Amazon has identified, through specific studies, other areas in Brazil that must be cared for, namely areas that suffer from strong environmental degradation such as Alegrete/Rio Grande do Sul State and the micro regions of Jalapão/Tocantins State.

OBJECTIVES

The basic objective of the National Desertification Control Policy is to implement sustainable development in areas that are subjected to droughts and desertification. Including:

- a) create proposals for environmental management and the use of natural resources of the caatinga area and transition areas, without long term risks;
- b) created proposals for the short, medium and long term prevention and recuperation of areas that are currently affected by desertification;
- c) undertake actions for the prevention of environmental degradation of transitional semi-arid, sub-humid and humid areas aimed at the protection of these different ecosystems;
- d) increase communication between governmental and non-governmental organs in order to establish a model of economic and social development that is compatible with the preservation of natural resources and with social equality in the semi-arid region;
- e) coordinate federal, state and municipal actions for the implementation of local measures to combat and control desertification and the effects of droughts;
- f) contribute to the strengthening and empowerment of municipalities aimed at the development of local strategies for desertification control.

STRATEGIES AND ACTIONS

According to the United Nations Convention to Combat Desertification the main tool for the National Desertification Control Policy is the National Plan to Combat Desertification (PNCD) which is in its initial stages of creation.

The PNCD is a tool for the formulation and coordination of actions for the combat of desertification, nor only of those that are already under implementation but also those that will be developed within the different Governmental sectors.

As recommended by the Convention, the creation and posterior implementation of the PNCD implies the participation of civil society in all of its stages. This implies the adoption of a new paradigm where the process is increasingly important in relation to the old *modus-operandi*.

In order to reach the above mentioned objectives of a national policy several components and their respective priorities have been identified. The result of priority actions, which is the responsibility of several sectors of the government, must be based on a solid process that includes the participation of civil society and non-governmental organizations.

It must also be emphasized that the nature of the process of desertification is multi-dimensional and demands Governmental action that is composed of convergent policies in the areas of water resources, environmental management and the combat against the effects of droughts through the identification area requirements and the implementation of local policies.

COMPONENTS OF A NATIONAL STRATEGY FOR DESERTIFICATION CONTROL

Objective: The creation of a national plan aimed at the formulation and organization of regional actions to combat desertification

Component 1	Component 2
Institutional empowerment and interaction	Improved communication and flow of desertification related information
Component 3	Component 4
Management and professional empowerment of human resources for the management of areas subjected to desertification	Improved awareness and sensitivity by sustainable development managers in areas that run the risk of desertification
Component 5	Component 6
Creation of operational capacity for desertification control on a local level	Creation of strategies for the monitoring, prevention and recuperation of desertification areas
Component 7	
Define priority projects and actions	

OBJECTIVE

Empower and improve institutional formulation capacities and provide the Ministry of the Environment, Water Resources and Legal Amazon with a structure that allows the coordination of formulation and implementation of activities related to the National Plan to Combat Desertification (PNCD).

ACTIONS

- Create a commission for the coordination and support of the formulation of the Plan to Combat Desertification (PNCD) within the Ministry of the Environment;
- establish tools for professional cooperation between the institutions that will participate in the creation and implementation of the PNCD;
- promote and assist in the creation of events aimed at desertification related discussions and the sustainable development of the semi-arid regions;
- implement strategic processes for strategic planning related to the creation of the PNCD;
- assist in the realization of seminars and workshops related to strategic planning of PNCD application areas;
- formulate action plans for the Latin American area and the respective establishment of desertification related assessment, monitoring, prevention and control methodologies.

Component 2 - Improved communication and flow of desertification related information.

OBJECTIVE

Creation of a desertification related information and documentation network with institutions aimed at the research and/or information relevant to the subject, within the PNCD area of operations.

ACTIONS

- Survey, actualize and exchange information on the degree of desertification of the semi-arid regions;
- create a network for the collection of information on the climate, soil, vegetation, social and economic aspects, droughts and adequate and environmentally sustainable technologies;
- implement and maintain a data bank on national and international institutions and researchers within the subject area ;
- create systematic tools for the spreading of desertification related information;
- support and participate in activities that aim at the development of methodologies and indicators for the assessment and monitoring of desertification..

Component 3 - Management and technical empowerment of human resources for the management of areas subjected to desertification.

OBJECTIVE

empowerment and qualification of personnel in the areas of research, control and recuperation of areas in the process of desertification.

ACTIONS

- Promote the empowerment of human resources within the governmental and non-governmental sectors for the prevention and control of desertification;
- foment the creation of desertification related research programs in cooperation with local communities in order to collect empirical knowledge and establish practices to address problems related to desertification and droughts;
- cooperate with organs that promote research and resources for programs and projects aimed at the recuperation of areas in the process of desertification;
- promote and support courses and seminars on identification methodologies, study, control and recuperation of desertification processes;
- promote and provide assistance to empowerment programs for community leaders, technicians, farmers and rural workers focused on the sustainable use of resources and related subjects;
- present proposals for the inclusion of desertification related subjects in school curriculums within the PNCD area of operations;
- promote and provide assistance to sustainable development and recuperation processes related to management empowerment projects.

Component 4 - Improved awareness and sensitivity by sustainable development managers in areas that run the risk of desertification.

OBJECTIVE

Provide information the population living in areas that risk desertification on evaluations and other relevant information for the prevention, control and recuperation of desertification as well as information on the control of the effects of droughts and stimulate community participation in the formulation and implementation of the Plan to Combat Desertification.

ACTIONS

- Lend support to formal and informal environmental education programs on all levels and inform the local populations regarding practices that harm the environment;
- create and spread specific educational material for areas that are susceptible to desertification and droughts;
- provide economic, social and environmental desertification related data to professionals and authorities;
- define strategies for the inclusion of communities in PNCD related implementation activities;
- promote the participation of communities and civil society in the combat against desertification and promote sustainable development;
- lend support to local activities aimed at sustainable development and the sustainable use of natural resources;
- stimulate the participation and empowerment of local leaders in local development processes;
- promote and assist existing socio-economic initiatives as part of the combat against desertification;
- promote the institutionalization, on a municipal level and with broad communitarian participation, of actions related to the combat against desertification;
- assess, with the participation of local communities, alternatives for an adequate regional development.

Component 5 - Creation of operational capacity for desertification control on a local level.

OBJECTIVE

Create the professional and institutional conditions that are necessary for the support of emerging initiatives undertaken by local populations within desertification nuclei and aimed at the interruption of desertification processes and the recuperation of affected areas.

ACTIONS

- Establish permanent contact mechanisms between local authorities and organized civil society for the formulation of proposals for immediate action within desertification nuclei;
- foment the organization of civil society aimed at the formulation of actions that strengthen local institutions;
- promote and assist in the creation of local municipal environmental council within desertification areas;

- implement pilot projects for the management of natural resources, including micro-basin management, within desertification affected or risk areas;
- promote cooperation with federal and state organs for local level related actions;
- promote the use of agro-silvo-pastoral sustainable systems.

Component 6 - Creation of strategies for the monitoring, prevention and recuperation of desertification areas.

OBJECTIVE

Create strategies for the sustainable use of caatinga natural resources as well as proposals for the monitoring, prevention and recuperations of areas in the process of desertification.

ACTIONS

- Assist in the creation of municipal Master Plans that include environmental variables and in particular those that can lead to desertification processes;
- undertake economic and ecological zoning, on a compatible scale, aimed at the rationalization of natural resources in areas that face desertification;
- define specific strategies that take into account the use of alternative energy sources to the use of wood;
- implement an alarm system for the early identification of desertification processes based on the development of specific indicators;
- undertake studies and define standards for the environmental protection of the caatinga;
- create a system for the monitoring of desertification as a base for the assessment of the effectiveness of action programs and the progress degradation processes;
- assist governmental and non-governmental organization in the formulation of environmental management projects for desertification affected areas;
- undertake studies that identify the effects of desertification on biodiversity and climate change;
- undertake studies and present proposals for the management of hydrographic basins aimed at the control of desertification processes.

Component 7 – Define priority projects and actions.

OBJECTIVE

Define priority actions and projects that must be developed in order to achieve the prevention and recuperation of areas in the process of desertification.

ACTIONS

- Formulate and support to existing proposals for the development of the Northeastern region and the semi-arid regions, based on available knowledge and aimed at the sustainable use of the caatinga and the natural resources of semi-arid regions;
- create pilot projects aimed at the recuperation of areas in the process of desertification centered on sustainable development;
- lend support to the implementation of projects that promote alternative energy sources in cooperation with the Ministry of Mines and Energy's (MME) State Energy Development bureau;
- assist the implementation of fish implantation in dams, lakes and reservoirs as an economic alternative for the region;
- propose the adoption of economic tools and the use of funds from existing development financial lines aimed at the execution of plans for the prevention and recuperation of areas in the process of recuperation.

ONGOING ACTIONS

The Ministry of the Environment, Water Resources and Legal Amazon has, since 1996, developed and participated in several initiatives that address the problem of desertification. These initiatives are in the process of being incorporated to the general Ministry strategies in respect to the formulation and implementation of desertification control policies.

Among the relevant actions it is noteworthy to point to the creation of the National Plan to Combat Desertification; participation in the Desertification Information and Documentation Network (REDESERT); and the assistance provided to Desertification Nuclei in respect to organization and institutional empowerment.

The above mentioned initiatives are being developed in cooperation with other regional and national entities such as the Ceará State Meteorology Foundation, the Federal University of Pernambuco, The Joaquim Nabuco Foundations the Tropic Semi-Arid Research Center, The São Francisco Médio Faculty, the Desert Institute, IBAMA, INPE and IPEA.

Presently, the actions developed by the Ministry of the Environment in relation to the creation of the National Plan to Combat Desertification are connected to the formulation of a national policy for the combat against desertification as well as the implementation and execution of some of the policies. The most relevant is REDESERT and the assistance provided to desertification Nuclei and the strengthening of municipal institutions.

Therefore, the internalization of the above mentioned measures within the organs and secretariats of the Ministry of the Environment is a fundamental step towards the future implementation process of the National Desertification Control Policy.

TOOLS OF THE NATIONAL DESERTIFICATION CONTROL POLICY

The National Desertification Control policy must rest on a set of tools that allows its implementation. Among these tools we find the legal/institutional, the economical/financial and the informational. It is also important to mention the National Territory Ecologic-Economic Zoning, an ongoing project undertaken by the SAE²⁴, is an important tool for the planning of regional sustainable development.

The legal/institutional tools related to the implementation process of the National Desertification Control Policy are a set of legal provisions that harmonize existing natural resource conservation legislation with the demands for the control and recuperation of areas undergoing desertification process. This demands a complete examination of current legislation in cooperation with other Governmental organs in order to create specific legislation for the subject matter in accordance with the United Nations Convention to Combat Desertification.

In respect to the institutionalism of the desertification control mechanisms, nonetheless in light of the multidisciplinary and multi-sectorial nature of the subject matter, we should create a national commission in order to inform and enlighten the various sectors of the government and society in general on the nature of the problem, as well as involve them in the formulation process of new policies and development strategies for areas that are susceptible to desertification and droughts and in particular in respect to the incorporation, by local sectorial policies, of the principles related to the control of desertification.

The economical/financial tools needed for the implementation of the National Desertification Control Policy must address and improve existing initiatives and in particular those derived from the Green Protocol and current credit concession legislation. Studies related to the assessment of existing fiscal incentives must aim at the improvement of development priorities in relation to the need to preserve natural resources.

It is also important to mention the need to create a financial tool for the combat against desertification whose type, resources and application forms must become the object for a proposal by an inter-ministerial commission and approved by the appropriate organs and instances.

Finally, we must ponder on the fact that the combat against desertification is largely conditioned to public awareness the adequate spread of information. For this purpose we possess the previously mentioned and operational Desertification Information and Documentation Network (REDESERT) which will be one of the tools that can be used for governmental information.

²⁴ The Strategic Affairs Secretariat (SAE) of the Presidency of the Republic was dissolved through PProvisional Measure 1.795 from Jan. 1, 1999, re-edited by MP 2.216/37 from Aug. 31, 2001.

FINAL CONSIDERATIONS

Significant efforts have been undertaken by the Brazilian society to minimize regional inequalities through development policies and in particular in respect to the Northeastern region, a region that has been the object of preoccupations since 1950. However, only recently have we started to give attention to the quality of the environment and to resource exploitation levels.

This is due to several factors among them the fact that the process of desertification occurs in areas which are inhabited, generally, by the poorest populations and suffering from economic and political fragility. Furthermore, the measures to prevent such processes imply improvements in technical standards for the exploitation of natural resources as well as technical knowhow related to improved management models. As a rule, these demands generate costs that cannot be absorbed by the large majority of farmers active in semi-arid regions as they lack capital, do not have access to credit lines and suffer from long drought periods.

The above problems are aggravated by the inexistence of educational programs and projects that can improve social awareness.

All of these factors lead to the erosion of the potential for development within the semi-arid regions, even if their competitiveness has increased in many areas, due to the lack of proper policies for the exploitation of natural resources.

Governmental initiatives are therefore fundamental in order to organize and maximize the implementation of actions that are necessary for the combat against desertification.

The proposals contained in this document represent a contribution to create a group of objectives and strategies that are essential for solving the problem and they involve different departments of the Ministry of the Environment, Water Resources and Legal Amazon and other governmental and non-governmental sectors.

We should also remember that the group of proposed converges with the group of tools contained in an operational environmental policy, such as the Green Protocol, the National Environmental Program and the National Environmental Education Program..

The directives hereby proposed do not preempt further debate on the subject as they only represent the initial stages of the process aimed at the implementation of a nation policy for the combat and control of desertification whose most important aspect is the promotion of the sustainable development of the Brazilian semi-arid Northeastern region.

This text does not substitute the text published in the Official Gazette on Dec. 23, 1997.

CONAMA RESOLUTION 240, April 16, 1998
Published in Official Gazette 73 on April 17, 1998, Section 1, page 94

Correlations:

· Complemented by Resolution 248/99

Suspends lumber exploitation activities within the Atlantic Forest in the Bahia State

THE NATIONAL ENVIRONMENT COUNCIL – CONAMA, in accordance with the power bestowed upon the Council by Law 6.938 from August 31, 1981, regulated by Decree 99.274 from June 6, 1990 and in accordance with the provisions of its Internal Regulations, and

Considering the vital importance of the remains of the Atlantic Forest which are protected by a Decree issued by the Federal Public Power and Resolutions issued by federal and state environmental Councils;

Considering the provisions of art. 1, Single paragraph and art. 7 of Decree 750 from Feb. 10, 1993;

Considering that it is a priority for the State Government of Bahia to safeguard the perennial preservation of native ecosystems and in particular the remains of the primary Atlantic Forest in advanced regeneration stages; and

Considering the results obtained through the inspections undertaken by teams from the Brazilian Institute of Environment and Renewable Natural Resources (IBAMA), the Environmental Resource Center (CRA), the Forestry Development Department (DDF) and by the Projects for Sustainable Forestry Management, have proved the existence of continued lumber extraction operation in the Atlantic Forest and , furthermore, the exposé made by the State Committee of the Biosphere Reserve of the Bahia Atlantic Forest and the reports and opinions from audits, decides:

Art. 1 To order IBAMA and other Bahia State environmental organs to implement the immediate suspension of lumber exploitation activities that use the prime-resource of native Atlantic Forest, trees as well as any type of deforestation of native forests that have been granted licenses by IBAMA or by state environmental organs for forestry activities within the Bahia State Atlantic Forest area.

§ 1 The suspension that is the subject of this article is of a provisional character and is valid until completion of the realization of surveys in the remaining forest areas on the populations of forest species with commercial value and studies on the effects of forestry exploitation on the dynamics of the population.

§ 2 The Ecological-Economic Zoning of the area will be presented after the completion of the studies that are the subject of the previous paragraph in order to determine the minimum lumber stocks that are available for extraction..

Art. 2 This Resolution shall enter into effect on the date of its publications and the final results from the inspection and suspension will be forwarded to CONAMA during its next Ordinary Meeting.

GUSTAVO KRAUSE GONÇALVES SOBRINHO – Council President
RAIMUNDO DEUSDARÁ FILHO – Executive Secretary

This text does not substitute the text published in the Official Gazette on April 17, 1998.

CONAMA RESOLUTION 248, Jan. 7, 1999
Published in Official Gazette 6 on Jan. 11, 1999, Section 1, pages 62-63

Correlations:

- Complements CONAMA Resolution 240/98

Establishes provisions for sustainable Forestry Management, Environmental Licensing and for the Control and Monitoring of forestry based enterprises within the Atlantic Forest located in the southern region of the State of Bahia.

THE NATIONAL ENVIRONMENT COUNCIL – CONAMA, in accordance with the power bestowed upon the Council by Law 6.938 from August 31, 1981, regulated by Decree 99.274 from June 6, 1990 and in accordance with the provisions of its Internal Regulations, and

Considering that it is a priority to uphold the perennial recuperation of natural ecosystems and in particular the primary remains of the Atlantic Forest in medium and advanced stages of recuperation;

Considering the importance of the implementation of Ecological Corridors and the Atlantic Forest Biosphere Reserve for sustainable development and furthermore, that the “cabruca” cocoa agricultural system is one of the best examples of economic activity productivity in relation to the conservation of Atlantic Forest native species with commercial value;

Considering the provisions of articles 1, 2, items II and III, 4, single paragraph and 7 of Decree 750 from Feb. 10, 1993;

Considering that the Forestry Management concept implies that access to native forestry resources is conditioned to the auto-regeneration capacity of the ecosystem;

Considering the Federal Pact signed on July 17, 1998 between the Federal Government and the Bahia State Government, published in the Official Gazette on July 20, 1998 and in the Official State Diary on Aug. 4, 1998;

Considering the provisions of CONAMA Resolutions 237 from Dec. 19, 1997 and 240 from April 16, 1998, decides:

Art. 1 Determines that economic activities that imply the sustainable use of forestry resources of areas covered by dense ombrophylous forest within the Atlantic Forest, in primary, medium and advanced stages of regeneration in the State of Bahia can only be allowed in accordance with the following directives:

I – Sustainable forest management approved by the Brazilian Institute of Environment and Renewable Natural Resources (IBAMA) or by the state environmental organ and in accordance with the following general principles and technical specifications:

- a) natural resource conservation;
- b) preservation of the forest's structure and functions;
- c) uphold biological diversity;
- d) regional socio-economic development;
- e) civil liability of the project technician and contracting party;
- f) characterization of physical and biological means;
- g) assessment of existing stocks;
- h) exploitation intensity that is compatible with local capacity and corresponding forestry typologies;
- i) promote the natural regeneration of the forest;
- j) adoption of appropriate forestry treatment including re-planting when necessary;
- l) adoption of low impact exploitation methods;
- m) monitor the development of forest remains;
- n) guarantee technical-economic viability and social benefits;
- o) presentation of logistical plans for areas that will be subjected to exploitation.

II – Environmental License granted by the Bahia State Environmental Council to the forestry based enterprise must consider:

- a) characteristics of the processing unit;
- b) full supply of prime forestry resources and information on alternative resource supplies for the creation of forestry plantations with fast growing species, native or exotic;

c) proof of availability of prime forestry resources for a period that is equal or larger to the validity of the environmental license;

d) guarantee the supply of prime forestry resources with one year of antecedence for the period after the end of the validity of the license.

III – Control and Monitoring of forestry based enterprises through the following activities:

a) external audit of the enterprise, every six months, in the areas of exploitation and processing in order to allow the assessment of logistical planning;

b) geo-referencing of management and processing units based on data provided by the “Carta de Vegetação do Estado da Bahia” (Bahia State Vegetation Map);

c) presentation of annual exploitation program, including:

1) Survey of species with commercial value; and

2) Logistical area mapping of the management area that will be annually exploited.

Art 2 The granting of Environmental Licenses to forestry based enterprises and the Sustainable Forestry exploitation in the Low South, Extreme South and South of the State of Bahia in areas of dense ombrophylous forests is conditioned to the undertaking of preceding studies according to the provisions set by CONAMA Resolution 240/98, including:

I – current area survey of the vegetation cover of the remaining forest in the scale of 1:100.000 and through the use of remote sensors and field surveys;

II – survey of forest species with commercial value;

III – chronology proposal presented by the entrepreneur regarding the gradual substitution of native prime resources, full supply plan for planted species, native or exotic, for the local Atlantic Forest located in the State of Bahia.

§ 1 The studies that are the subject of this article can be undertaken with the participation of environmental and/or academic entities from interested States, or directly by the involved entrepreneurial sector, on its own or in association with the public sector.

§ 2 The deadline for the presentation of the studies that are the subject of this article is up to ninety days counting from the date of publication of this Resolution.

§ 3 The studies that are the subject of this article will be forwarded to the Bahia State Environmental Council (CEPRAM) in order to subsidize the granting of the environmental license that is the subject of art. 1, item II, through the application of applicable standards.

Art. 3 Determine that the suppression of native vegetation in agricultural activity areas shadowed by Atlantic Forest trees, “Cabruca”, or in areas covered by vegetation in initial regeneration stages, will only be allowed after the presentation of environmental studies and the authorization granted by the state environmental organ, according to the criteria approved by CEPRAM Resolution 1.157/96, State Law 6.569 from April 19, 1994 and by Federal Pact, without prejudice to other standards that may be instituted.

Art. 4 Determine that the suppression of Atlantic Forest native vegetation for the undertaking of public utility construction, plans, activities or projects, or for urban purposes, according to the provisions of Decree 750/93 and State Law 6.569/94, will only be allowed after the presentation of environmental studies and the authorization granted by the state environmental organ and/or by CEPRAM, according to the principles stipulated by this Council and specific standards established by the Federal Pact.

Art. 5 This Resolution shall enter into effect on the date of its publication.

Art. 6 All provisions to the contrary are hereby revoked.

JOSÉ SARNEY FILHO – Conama President

RAIMUNDO DEUSDARÁ FILHO – Executive Secretary

This text does not substitute the text published in the Official Gazette on Jan. 11, 1999.

CONAMA RESOLUTION 249, Jan. 29, 1999
Published in Official Gazette 21 on Feb. 1, 1999, Section 1, page 60

Establishes directives for the Conservation and Sustainment Development Policy for the Atlantic Forest.

THE NATIONAL ENVIRONMENT COUNCIL – CONAMA, in accordance with the power bestowed upon the Council by Law 6.938 from August 31, 1981, regulated by Decree 99.274 from June 6, 1990 and in accordance with the provisions of its Internal Regulations, and

Considering the Atlantic Forest biome has been widely debated by Brazilian society in light of its dimensions and biological diversity;

Considering that the debate within the Working Groups created by the Technical Chamber on Atlantic Forest Affairs resulted in the presentation of directives for the Policy for the Conservation and Sustainable Development of the Atlantic Forest;

Considering that the contributions provided by the Inter-ministerial Working Group, created during the 44th CONAMA meeting aimed at the integration of different components of the strategy contained in the proposal for Directives for the Policy for the Conservation and Sustainable Development of the Atlantic Forest;

Considering the consensus between the different segments of the scientific community, sectorial, governmental and environmental, for the implementation of tools that allow for the reversion of predatory practices and the establishment of mechanisms that safeguard the sustainability of the biome;

Considering the need to establish governmental action lines always based on the conceptual benchmark of conservation and sustainable exploitation, proclaimed by the Federal Constitution in relation to the Atlantic Forest;

Considering that several meetings and workshops have been realized with the participation of institutions and professionals involved with the subject matter and aimed at the definition of the main benchmarks for the proposal of a policy for the Atlantic Forest;

Considering that the results from the inter-institutional and multidisciplinary interaction are the basis for the formulation of action lines that uphold and safeguard improved life conditions for involved communities; provide governmental agencies and organs with improved capacity to induce development through environmental sustainability; the firm purpose to contribute to sustainable development on a national level, through the implementation of elements that form the strategy and directives for a Policy for the Conservation and Sustainable Development of the Atlantic Forest; decides:

Art. 1 To approve the directives for the Policy for the Conservation and Sustainable Development of the Atlantic Forest according to the text published in Service Bulletin, year V, 12/98 – Supplement 07/01/99, issued by the Ministry of the Environment (MMA).

Art. 2 This Resolution shall enter into effect on the date of its publication; all provisions to the contrary are hereby revoked.

JOSÉ SARNEY FILHO - Conama President
RAIMUNDO DEUSDARÁ
FILHO – Executive Secretary

This text does not substitute the text published in the Official Gazette on Feb. 1, 1999.

**MINISTRY OF THE ENVIRONMENT, WATER RESOURCES AND LEGAL AMAZON²⁵
SECRETARIAT FOR THE FORMULATION OF ENVIRONMENTAL STANDARDS AND POLICIES
DIRECTIVES FOR THE POLICY FOR THE CONSERVATION AND SUSTAINABLE
DEVELOPMENT OF THE ATLANTIC FOREST
Brasilia – Federal District
1998**

**WORKING GROUP FOR THE CREATION OF DIRECTIVES FOR THE POLICY FOR THE
CONSERVATION AND SUSTAINABLE DEVELOPMENT OF THE ATLANTIC FOREST**

Government participation:

**Ministry of the Environment, Water Resources and Legal Amazon (MMA) Secretariat for the
Formulation of Environmental Standards and Policies (SFP)**

General Coordination: Raimundo Deusdará Filho

Hélio dos Santos Pereira

Sávio José

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Fani Mamede

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Secretariat for the Implementation of Environmental Policies (SIP)

Marília Marreco

Magna Salumão

José Machado

Ivan Dantas

Executive Secretary (MMA – SECEX) Valéria Rodrigues

Legal Amazon Secretary

Fredmar Corrêa

Water Resources Secretary - SRH

Hidely Grassi

Hebert Cardoso

Brazilian Institute of Environment and Renewable Natural Resources (IBAMA)

Miguel Von Behr (DITAN)

Paulo César Ramos (DIREN)

Agriculture and Supply Ministry

Ricardo Villela

Luis Novaes de Almeida

Mauricio Carvalho de Oliveira

Planning and Budget Ministry (MPO)

Vera Ribeiro

Transportation Ministry (MT) Silvio Barbosa

Mines and Energy Ministry (MME)

Nida Coimbra

Carlos Frederico Menezes

²⁵ The Ministry of the Environment, Water Resources and Legal Amazon is today named the Minister of the Environment through MP 1.795 from Jan. 1, 1999, re-edited by MP 2.216-37 from Aug. 31, 2001, changing Law 9.649 from May 27, 1998.

Non-Governmental Organizations:

Atlantic Forest Biosphere Reserve (Reserva da Biosfera da Mata Atlântica) - José Pedro de Oliveira Costa/Clayton Lino Fernandes

NGO Atlantic Forest Network (Rede de ONG's da Mata Atlântica) - João Paulo Capobianco

Brazilian Forestry Society (Sociedade Brasileira de Silvicultura) - Rubens Galipp

Brazilian Environmental and Agricultural Certification Institute (Instituto Brasileiro de Certificação Ambiental e Agricultura) - IMAFLORA - Virgílio Vianna

Brazilian Association of Environmental Entities (Associação Brasileira de Entidades de Meio Ambiente)- ABEMA - Irismar Mendes

Vitae Civillis - Rubens Born

ABSTRACT

This document is the product of the work of a multidisciplinary working group which included governmental and non-governmental entities and presents the evolution of the tools for the management of natural resources and establishes principles and objectives that guide the Directives for the Policy for the Conservation and Sustainable Development of the Atlantic Forest.

The adopted methodology was the consultation of diverse studies, legislation and diagnostics on the subject of the Biome and the recommendations from national civil society environmental event, reinforced by the debates carried out by the inter-ministerial group that was created for this specific purpose. The document includes a flowchart of the formulation process upon which the Policy is based and which shows the interrelation between the directives, implementation tools and the actions that will be developed through the Action Plan.

PRESENTATION

The objective of this work is to address the aspirations of society and government alike regarding the need to establish a policy that contains the directives and the action lines for the Atlantic Forest.

The subject of the Atlantic forest has always been at the center of discussions related to the Country's environment and development processes. The dimension and importance of this biome is cause for intensive debates regarding the need to protect it.

References to the Atlantic Forest are always related to the need to stop the continuing degradation process and recuperate areas that are relevant for its balance and its rank as one of most important biomes with the Brazilian territory. The environmental debate is also related to the social and economic topics that have strong implications for its use and preservation

The current state of degradation of this biome is a preoccupation for the entire Brazilian society as 70% of the National Product is generated by activities, social and economic, within the Atlantic Forest area.

The process behind the formulation of Directive for a Policy for the Conservation and Sustainable Development of the Atlantic Forest is a product of work stages that counted with a broad social and public participation which evolved from initial studies and suggestions. The final proposal was submitted to the Atlantic Forest Technical Chamber of the National Environmental Council (CONAMA) which after its approval forwarded it to the plenary for further assessment.

The policy was defined through the referential contained in the Federal Constitution from 1988 which defines the Atlantic Forest as a National Patrimony whose preservation is the duty of all Brazilians and should be reached through exploitation that is conditioned to measures that will safeguard its sustainability.

After another period of debate and consultation the Ministry of the Environment (MMA), the Secretariat for the Formulation of Policies (SFP) and other ministries formulated a set of directives that form the Policy for the Conservation and Sustainable Development of the Atlantic Forest.

The strategic elements and tools that for the policy attempt to harmonize social and governmental requirements that can safeguard the protection of the Atlantic Forest.

The group of defined tools is intended to influence future decisions and guide the implementation of actions within the area of the Atlantic Forest. The political strategy is based on the premise that the Atlantic Forest is currently in a serious state of degradation and that solutions to the problem require immediate and integrated actions and their implementation requires the capacity to communicate and a continuous strife to achieve broad participation.

The delineation of the logic for the use and conservation of this biome rests on the directives which must follow the concept of dynamic balance between protection and development activities, and thereby safeguard the effective sustainability of remaining areas, halt the urban population expansion to natural areas, increase the number of conservation areas, promote the recuperation of degraded areas and incentivize the creation of ecological corridors through reforestation and the re-composition of the vegetation. All of these factors will have a positive effect on the quality of life of Atlantic Forest populations. The balance between exploitation and conservation must safeguard the continuity of development based on the value of the natural and social capital.

The Policy establishes pragmatic principles that will allow for the long term delineation of integrated actions based on the fundamental concepts of multiple use and participative management and, in particular, social participation. It is therefore understood that participative management through management committees that involve Conservatin Units (UC), hydrographic basins and coastal management, will become central elements for the implementation of actions and will enrich the decision processes of states and municipalities.

It is acknowledged that the creation of integrated policies for the Atlantic Forest, as a strategy for the

implementation of the directives, must be based on the principle of sectorial and environmental communication and must be backed by social interest and involvement from the different sectors of society. As far as the government is concerned, the viability of actions must be assessed through consultations with the different sectors of government and respect decisions reached by communication forums.

DIRECTIVES FOR THE POLICY FOR THE CONSERVATION AND SUSTAINABLE DEVELOPMENT OF THE ATLANTIC FOREST

Summary

Presentation

1. Introduction
2. Context
3. Referential Benchmarks
4. Concepts
5. Evolution of Legal Tools
6. Principles
7. Objective
8. Strategy 8.1. Strategy components
9. Directives and Pragmatic Lines
10. Implementation tools
11. Bibliographic References

1. INTRODUCTION

The policy aims at the delineation of mechanisms and tools needed for the establishment if integrates actions for the conservation and sustainable development of the Atlantic Forest.

The process behind the formulation of an integrated policy for the preservation of the Atlantic Forest is a reflection of the joint efforts of the Brazilian society to search for specific actions that will safeguard the protection of the biological diversity, the conservation and the sustainable management of the remaining resources of the Atlantic Forest.

The Atlantic Forest has, from an historical perspective, always occupied a central position in debates related to Brazilian environmental questions and the conflict between urban expansion and the development of the life standards of the Brazilian population, as well as in relation to the exploitation and occupation of forest areas. However, there is no historical proof of any national policy or management tools with specific directives for the Atlantic Forest. Decree 99.547/90²⁶ was the first initiative aimed at the establishment of measures for the control of the predatory exploitation of the Atlantic Forest. Later, starting with the mobilization of social and environmental movements, the Government issued Decree 750/93 which provisioned the management of forestry resources.

The above Decree was the benchmark for the creation of various organs such as the Technical CONAMA Chamber for the Atlantic Forest, CONAMA Resolutions, IBAMA standards and Federal and State actions aimed at the protection of the Atlantic Forest.

The general strategy of the Directives for the Policy for the Conservation and Sustainable Development of the Atlantic Forest is the implementation of a group of actions that will contribute to the reversal of the current degradation and can be characterized by a broad approach to different environmental aspects, such as: conservation of primary areas, recuperation of degraded areas and species management.

The following subjects were also considered: biological diversity, conservation units, hydrographic basins, forest fragments, ecological corridors, soil conservation, legal reserves, permanent preservation areas, urban expansion, reforestation, energy production, leisure, housing, sanitation and rural settlements.

The undertaking of actions must strive for adequate environmental management policies (environmental control/forests/fishing/water resources/desertification/conservation units/biological diversity) and their integration with extra sectorial policies (agriculture/mining/taxes/finance/urban sanitation/etc.) all aimed at the conservation and sustainable development of the Atlantic Forest.

2. CONTEXT

The Atlantic Forest has passed through a series of phases since the colonization of Brazil that involved the conversion of natural forests for other uses which resulted in the predominant domination of the landscape by humans. The large majority of ecosystems were eliminated throughout long and diverse development cycles, not always according to plans, which resulted in the destruction of habitat extremely rich in biological resources. The Atlantic Forest was the traditional and main source of agricultural products for consumption by coastal populations and is today home to the largest industrial and forestry exploitation areas in the Country, apart from being home to the most important urban agglomerates in Brazil.

Destruction was more intense during the last decades, even if it was already a fact since the 19th century, and has led to serious changes and notable damage. The large majority of animals and plants threatened with extinction in Brazil live in this biome and all of the seven species that have been extinct in recent times inhabited

²⁶ Decree revoked by Decree 750 from Feb. 10, 1993.

the Atlantic Forest.

The Atlantic Forest has also provided safety to various traditional populations. A large part of the indigenous subsistence nations are in a very precarious situation as their lands are constantly threatened by different interests. Another primordial aspect is the existing water resources that either originate or cut through the Atlantic Forest.

A significant part of the forest remains of the Atlantic Forest are located on hillsides with a high degree of inclination. Their protection is the greatest guarantee for the stability of these areas and has avoided the same fate that affected areas where the forest was decimated with extremely serious economic and social consequences. These regions also offer extremely beautiful landscapes, true tropical paradises whose protection is essential for the development of eco-tourism.

The Atlantic Forest was granted the status of National Patrimony by the Federal Constitution from 1988 (art. 225, paragraph 4) which, in effective terms, does not reflect the interests of the whole population. This categorization was granted in order to underline the importance of its conservation and preservation. However, this does not *per se* safeguard its protection if it is not accompanied by a change in the attitudes of proprietors and local governments in relation to the disorganized expansion of urban areas and other factors that impact the Atlantic Forest. This change requires the unquestionable need to reinforce the actions of the federal, state and municipal governments.

The need to protect the Atlantic Forest accompanied by changes to the standards of the use of rural properties which must accept their social function through the application of criteria that safeguard the adequate use and preservation of the environment (art. 186, CF/88) as well as organized changes in the use of urban spaces which will lead to the wellbeing of Atlantic Forest populations (art. 182, CF/88). The actions must reflect general constitutional principles.

The Atlantic forest is home to an extensive biological diversity, innumerable traditional communities and represents a rich cultural national patrimony and safeguards the protection of the soil, touristic sites and springs. These aspects have led UNESCO to acknowledge, in 1991, its significance as the Brazilian primary biosphere reserve.

The river springs safeguard the supply of potable water for more than 100 million individuals or 60% of the Brazilian population and their protection and recuperation are a priority for the Brazilian Government.

The United Nations Conference on the Environment and Development (UNCED) held in Rio de Janeiro in June 1992 attempted to identify the challenges and find solutions that will guide national policies during the next millennium. Agenda 21 dedicates several chapters to the conservation, protection and natural resource management. The Policy for the Conservation and Sustainable Development of the Atlantic Forest is a particular action that will provide contributions to the future consolidation of the UNCED/92 commitments and the importance of the biome. This contribution should be added to initiatives related to the formulation of state and local Agenda 21.

3. REFERENTIAL BENCHMARK

The conceptual benchmark that defines the Atlantic Forest as a National Patrimony according to the Federal Constitution of 1988 is the benchmark for the establishment of directives and implementation tools.

4. CONCEPTS

The following concepts were adopted for the formulation of the Directives for a Policy for the Conservation and sustainable development of the Atlantic Forest:

The Atlantic Forest dominion

“The space that contains phytogeography and botanical that are influenced by peculiar ocean climate conditions (July/70) including associated areas delimited according to the Brazil Vegetation Map (IBGE/1993) which includes the Dense Ombrophylous Forests, Mixed Ombrophylous Forests, Open Ombrophylous Forests, Seasonal Semi-deciduous Forests and Deciduous Seasonal Forests, mangroves, beaches and associated elevation fields, inland swamps and forest enclaves located in the Northeastern region” (Law Decree 750/93).

This concept is based on the opinions of the majority of botanists and phytogeographical experts who admit that the Atlantic Forest is a portion of territory that is covered by dense forests along the Brazilian Atlantic Ocean coast from Rio Grande do Sul State to the Northeast, penetrating some interior areas of the Country including the deciduous and semi-deciduous forests.

The study *Action Plan for the Atlantic Forest* based on IBGE's Vegetation Map from 1993 and undertaken by the SOS Atlantic Forest Foundation, sponsored by the MMA/IBAMA, is the basis for the concepts of phyto-physiognomy and localization of the Atlantic Forest.

The Atlantic Forest is composed by four groups with common phyto-physiognomies:

- Dense Ombrophylous Forests;
- Seasonal Semi-deciduous and Deciduous Forests;
- Mixed Ombrophylous Forests and
- Open Ombrophylous Forests.

Considering the above classification adopted by the majority of specialist and the study undertaken by the SOS Atlantic Forest Foundation based on data provided by the National Territorial Research Institute (INPE) and the

IBGE's Brazil Vegetation Map, the composition of the Atlantic Forest has been determined as:

- the totality of the Dense Ombrophylous Forest that runs from Rio Grande do Sul State to the Rio Grande do Norte State "along the littoral coast";
- the Seasonal Semi-deciduous and Deciduous Forests in the States of Rio Grande do Sul, Santa Catarina, Paraná, São Paulo, Rio de Janeiro and Espírito Santo;
- the Seasonal Semi-deciduous Forests of Mato Grosso do Sul State(including the valleys located on the right margin of Paraná river), Minas Gerais State(valleys of rivers Paranaíba, Grande and effluents) and Bahia State(valleys of rivers Paraíba do Sul, Jequitinhonha, intermediary rivers and effluents), costal littoral regions located in the northeast of the Country and contiguous to the Ombrophylous Forests located in the states of Paraná/Santa Catarina and Rio Grande do Sul;
- the totality of the Mixed Ombrophylous Forest and the Araucária enclave in the States of São Paulo, Rio de Janeiro, Paraná, Santa Catarina, Rio Grande do Sul and Minas Gerais;
- the totality of the Open Ombrophylous Forest mainly located in the Northeastern region;
- associated floristic formations (mangroves, beach vegetation and coastal islands);
- the Cerrado enclaves, fields and elevation fields located within Ombrophylous Forests;
- woods on top of hills and on the slopes of the Northeast (wetlands and "chãs") particularly those located in Ceará State and specially the Ibiapaba and Baturité mountains and the Chapada do Araripe; and
- the native vegetation of the Fernando de Noronha island and the Trindade archipelago.

The total area of the formations that compose the Atlantic Forests is 1.1000.000 square kilometers and encompass 4 of the 5 Brazilian geographical regions. The Atlantic Forest is currently 7% of its original sized. The remaining areas are not uniformly distributed in all of the biomes ecosystems and the majority is today subjected to a regime of conservation within conservation units (UC) or threatened by rural activities and/or urban expansion.

Its distribution between the line of the Equator and Parallel 23 Latitude South provides the Atlantic Forest with tropical predominantly tropical characteristics which allow for a diversified composition that is favored by the proximity to Atlantic coast mountain regions.

Rainfall rates vary from medium to high and is the reason for the richness in species variety, about 20.000 vegetal species and half of them are located within the Atlantic Forest.

This biome is also home to 261 species of mammal animals (30 endemic), 620 bird species (35% are endemic) and 260 amphibious species (128 are endemic).

- **Bioma**

Is the biotic community that upholds a certain physiognomic uniformity and climax between the existing vegetation and animal (definition adopted by the Ministry of Environment originating from the Font Quer – Botanical Dictionary/1970).

- **Ecosystem**

Is the group of living beings within a specific environment and in constant interaction (Jorge Eiten - Atlas of Brazilian Ecosystems - MMA/96).

- **Remaining Vegetation**

Atlantic Forest vegetation the comprehends the totality of primary and secondary vegetation in initial, medium and advanced stages of regeneration (CONAMA Resolution 3/96).

- **Biosphere Reserve**

Is the location or group of locations that are object of ecosystem and biological diversity protection activities, environmental research and other actions aimed at sustainable development and environmental education (MAB/UNESCO/96).

- **National Patrimony**

Is a good (natural resource) needed for the wellbeing of the entire collective whose conservation for the usage by current and future generations is the constitutional responsibility of all individuals (CF/88).

The purpose of this concept is to relate the need to uphold the continuity and permanence (sustainability) of any used natural resource.

- **Associated Ecosystems**

Are vegetation formations, not necessarily forest that are present within a Dominion of the Atlantic Forest. Including mangroves, beaches, elevation fields, interior swamps and forest enclaves within the northeastern region.

5. EVOLUTION OF LEGAL TOOLS

Atlantic Forest regulations derive from the normative provisions of the Forestry Code from 1934, revoked by Law 4.771/65 which instituted the new forestry code and the National Environment Policy, Law 6.938/81. These standards allowed for the establishment of conservation units, pollution control standards and tools for decentralized management. As far as management is concerned, these tools have always considered the pioneering nature of practices. However, not all of them have succeeded in breaking the impetus and the seriousness of the impacts on this biome.

The inclusion of the Atlantic Forest into the National Patrimony by the 1988 Constitution, as well as the Coastal Zone and the Sea Mountain regions, led to the *Atlantic Forest Dominion* which is the group of forests such as: Dense Ombrophylous Forests, Mixed Ombrophylous Forests, Open Ombrophylous Forests, Seasonal Semi-deciduous Forests and Deciduous Seasonal Forests.

Decree 99.574/90²⁷ was later issued and was the first initiative undertaken by the federal government aimed at the establishment of a tool origination in the Federal Constitution which set measures for the control of Atlantic Forest exploitation. The essence of this measure defined forest remains as untouchable and was questioned due to its unconstitutionality as the Federal Constitution from 1988 foresees in its article 225, paragraph 4, that Atlantic Forest exploitation should be carried out "...through conditions that safeguard the preservation of the environment including the use of natural resources".

The legal initiatives are linked to the premise of sustainability and provide guidance to constitutional definitions. Decree 99.547 lacked precision and was the object of reformulations and the creation of new texts that could substitute it. One of the central debate subjects was the question of the location of the Atlantic Forest. Later, the dominating subject became the preservation of the forest remains.

More recently, Decree 750/93 established the delimitations of the Atlantic Forest according to the contents of the IBGE's Vegetation Map which establishes a continuous strip, except for the enclaves in the Northeastern region, primarily occupied by vegetation formations that stretch from the southern region, southeast and mainly the center-west until reaching the northeast and the: Dense Ombrophylous Forests, Mixed Ombrophylous Forests, Open Ombrophylous Forests, Seasonal Semi-deciduous Forests and Deciduous Seasonal all included in the legal tools and also includes the formations that are encrusted into the Biome and denominates as associated ecosystems composed by Northeastern mangroves, beaches, elevation fields and interior swamps.

Decree 750/93 also establishes the joint responsibilities of the federal and state governments related to the regulations for the Atlantic Forest through the use of criteria that safeguard its conservation including the different stages of regeneration.

Decree 750/93 set the delimitation of the Biome and presented concepts that later allowed CONAMA to issue the following Resolutions: Resolution 3/93 which establishes measures for the protection of the different stages of regeneration of areas within the Atlantic Forest; Resolution 10/93, which establishes the concepts of the different stages of Atlantic Forest formation; Resolution 12/94, which provides a technical term glossary; Resolution 14/94, which sets parameters for forest assessment; Resolution 12/95, which establishes the composition of the Technical Atlantic Forest Chamber; Resolution 3/96, which defines the vegetation remains of the Atlantic Forest; Resolution 9/96, which defines the corridors between the forest remains and Resolution 7/96, which approved the basic parameters for the analysis of the stages of successional vegetation of the beach in the state of Sao Paulo. These Resolutions led to the inclusion of not only the Forest's primary vegetation but also degraded areas in stages of initial, medium (secondary) and advanced regeneration. After the definition of the above tools and standards for the assessment of the composition of forest remains, defined by Decree 750/93, some Atlantic Forest states issued Resolutions by State Environmental Councils (CONDEMA) They are: Alagoas, Bahia, Ceará, Espírito Santo, Mato Grosso do Sul, Paraná, Pernambuco, Piauí, Rio de Janeiro, Rio Grande do Norte, Rio Grande do Sul, Santa Catarina, Sergipe and São Paulo.

Decree 750/93 provided conceptual solutions for the management of the Atlantic Forest patrimony but failed to consolidate the regulation process that endorses integrated environmental actions. For this purpose Law 3.235/92 has been submitted to the National Congress and a substituted text was presented in 1997.

Legal management tools will always be based on the conditional obligations that safeguard the preservation of Atlantic Forest integrity. This reinforces the thesis that all actions that can change, use or exploit the natural resources of the Atlantic Forest must be based on the principle of preservation and any allowance for its use and exploitation must be preceded by institutional authorizations through public consultation.

The new logic established by the Policy for the Conservation and Sustainable Development of the Atlantic Forest takes into consideration the positive aspects of legal and normative tools for forestry and environmental policies (Forestry Code, Decree 750/93, resolutions and state forestry laws based on Decree 750/93, state constitutions, CONAMA Resolutions, etc.) apart from those that can be incorporated in order to broaden the scope of actions that are necessary to safeguard the preservation of the Atlantic Forest, such as the new Rural Territorial Tax – Law 9.393/96 and the Water Resources Law 9.433/97.

6. PRINCIPLES

The following principle are considered for the purpose of definition of the Policy for the Conservation and Sustainable Development of the Atlantic Forest :

- The use of the Atlantic Forest is conditioned to the application of measures that safeguard the preservation of the environment and the multiple use of its natural resources;
- Protection of biological diversity based on the principles of conservation and sustainable management;
- Recuperation of degraded areas and re-composition of forest formations;
- Promotion of initiatives that further social development based on sustainability and the importance of traditional populations;
- Integrated governmental actions that promote the decentralized and participative management of natural resources;
- Definition and strengthening of tools that safeguard the sustainable conservation and development of

²⁷ Decree revoked by Decree 750 from Feb. 10, 1993.

natural resources.

7. OBJECTIVE

The Directives for the Policy for the Conservation and Sustainable Development of the Atlantic Forest are aimed at the introduction of integrated actions that promote the conservation and the sustainable development of the Atlantic Forest.

8. STRATEGY

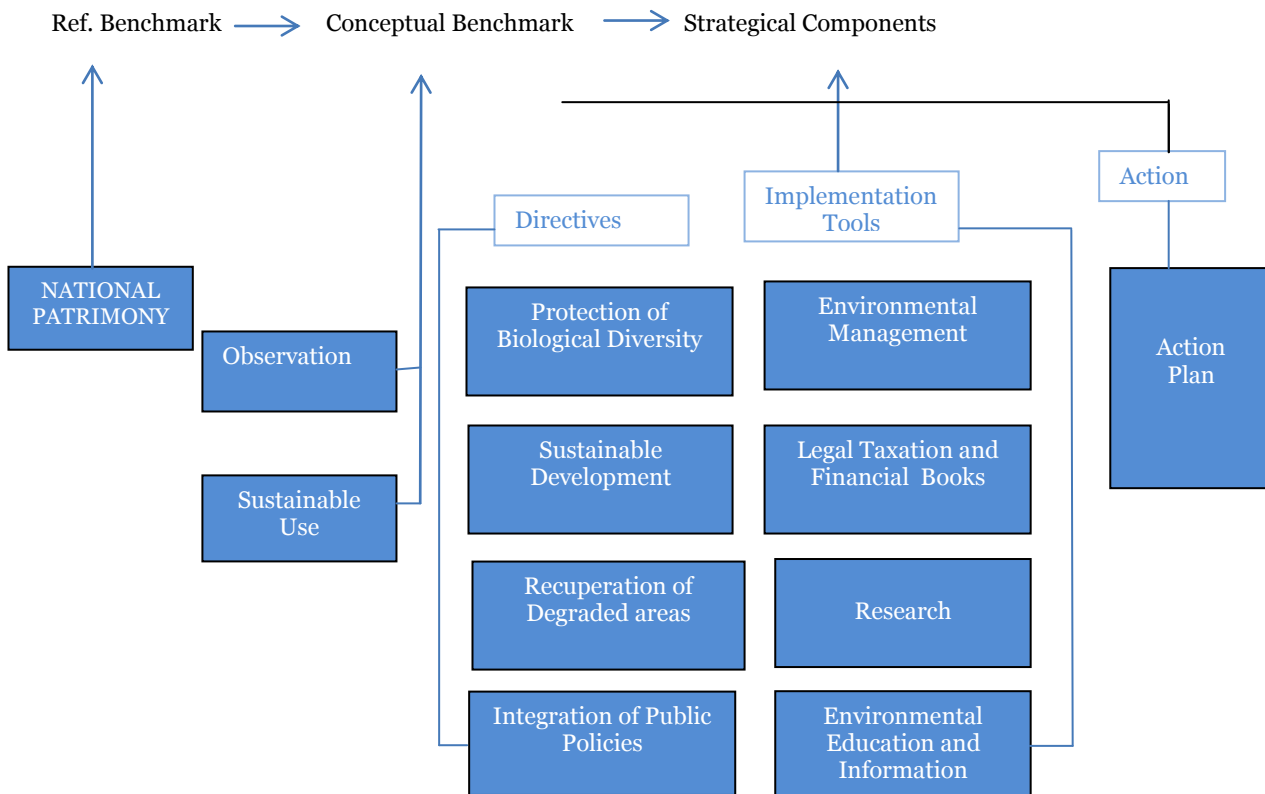
The strategic components are based on the constitutional benchmark that grants the Atlantic Forest the status of National Patrimony whose preservation and sustainable exploitation are basic principles.

In order to strengthen these elements the organization of strategic components has determined the formulation of the following directives: attain the sustainability of the Atlantic Forest areas through the promotion of biological diversity in connection with sustainable development through tools for the recuperation of degraded areas and the integration of public policies.

The defined implementation tools aim at establishing support mechanisms to attain conservation and sustainable development. The joint actions of each directive will be reflected in time and space through the Action Plan.

The Action Plan will abide by the strategic components of the Policy on two conceptual levels: preservation and sustainable exploitation. The development of short, medium and long term actions, incorporated into the Action Plan, will be based on planning units with focus on Conservation Unit associated forest remains and hydrographic basins. Therefore, the implementation of integrated actions gives priority to these fundamental special elements in order to safeguard the proper management of forest remains, springs and soils. These elements will provide the motivation for the preservation of the last untouched forestry areas of the Atlantic Forest, influence the re-composition of degraded areas, and promote new and integrated initiatives for the conservation of public and private areas and the establishment of ecological corridors throughout the entire Atlantic Forest.

8.1. Strategic Components of the Policy for the Conservation and Sustainable Development of the Atlantic Forest.



9. DIRECTIVES AND PRAGMATIC LINES

The following directives have been established in order to harmonize the Policy objectives with the group of tools for its implementation:

DIRECTIVE 1. PROTECTION OF THE BIOLOGIC DIVERSITY ASSOCIATED TO ATLANTIC FOREST ECOSYSTEMS

Objective:

Protect all of the forest remains and the biological diversity of the Atlantic Forest through the broadening of the conservation unit system; integration of management tools; creation of new conservation units, public and private; strengthen existing conservation units; promote land regularization and of new options for the establishment of ecological corridors.

Pragmatic Lines:

- 1.1. Consolidate the integrated conservation unit system through the strengthening of management and monitoring tools for public and private conservation units, in particular those being used indirectly, consolidating the forestry mosaics, ecological corridors and the biosphere reserve system;
- 1.2. Establish compensation tools for management areas, legal reserves, private conservation units and permanent preservation areas;
- 1.3. Promote the integration of conservation units with the regional state and municipal development plans;
- 1.4. Establish adequate management practices in traditional community areas through increased knowledge on the management and conservation of forest remains;
- 1.5. Promote land regularization within conservation units through the acquisition of financial resources needed for this purpose;
- 1.6. Establish actions that will lead to a decrease in urban expansion within and around conservation units;
- 1.7. Broaden the participation of local communities in practices related to conservation unit management;
- 1.8. Establish tools for the regulation of areas that surround conservation unit areas.

DIRECTIVE 2. SUSTAINABLE DEVELOPMENT OF ATLANTIC FOREST NATURAL RESOURCES

Objective:

Harmonize the exploitation of natural resources with the objective of conservation of forest remains. The group of tools for the implementation of the Policy must address the need to recuperate the role of the forest for traditional populations, reform land usage concepts, establish sustainable management practices and protect the Atlantic Forest fauna and springs.

Pragmatic Lines:

2.1. Forestry Resources

- 2.1.1. Identify, quantify and give priority to the goods and benefits of forests, capable of being transformed in a real potential and contribute to the preservation of remains of the Atlantic Forest;
- 2.1.2. Promote the sustainable development of forestry practices through adequate management and reforestation, value multiple use practices and foment associations for forestry related activities;
- 2.1.3. Promote the recuperation of forest areas and thereby contribute to the formation of mosaics, ecological corridors and the rehabilitation of areas of strong environmental interest;
- 2.1.4. Promote reforestation in order to allow for the full supply of forestry industries within degraded areas;
- 2.1.5. Establish specific tools for concession procedures for the exploitation of natural resources within Atlantic Forest private properties/areas;
- 2.1.6. Establish incentives for forestry associations that practice plantation and reforestation, forest management and contribute to the formation of mosaics within the Atlantic Forest;
- 2.1.7. Promote technological development both within the public and the private sectors in order to increase knowhow needed for sustainable management of native forest remains;
- 2.1.8. Establish criteria and indicators for the management of native species within the Atlantic Forest and in different stages of succession.

2.2. Fishing Resources

- 2.2.1. Promote regulations for inland and coastal fishing practices aimed at the preservation of biological diversity and the sustainable exploitation of fishing resources;
- 2.2.2. Establish licensing procedures and assessments practices related to the impact of different activities on fishing resources;
- 2.2.3. Promote fishing associations, both amateur and industrial.

2.3. Water Resources

- 2.3.1. Establish systems for the monitoring of the quality and quantity of springs;
- 2.3.2. Establish master plans for hydrographic basins in order to regulate and protect the use of water resources;
- 2.3.3. Establish community participative practices and mobilize social movements for water resource management;
- 2.3.4. Develop tools for the regulation of exploitation, treatment and final use of liquid effluents and wastes in order to accomplish the conservation of water resources;

- 2.3.5. Establish actions for improved water resource knowhow related to the Atlantic Forest biome and aimed at their preservation, control and mitigation of degradation processes, as well as the recuperation of degraded areas and the protection of springs;
- 2.3.6. Structure and consolidate Hydrographic Basin Committees and in particular those with rivers that run through federal land;
- 2.3.7. Undertake specific studies for the assessment of surface and subterranean waters and develop permanent conservation programs and projects for the rational exploitation of Atlantic Forest subterranean water resources.

2.4. Coastal Resources

- 2.4.1. Promote activities that safeguard the conservation, preservation and sustainable exploitation of resources that compose the coastal mosaic ecosystems of the Atlantic Forest through the establishment of participative and decentralized zoning procedures;
- 2.4.2. Establish tools that lead to the sustainability of human activities along coastal zones;
- 2.4.3. Harmonize Atlantic Forest coastal navigation instruments with the principles of environmental conservation.

2.5. Forest Fauna

- 2.5.1. Promote the study and monitoring of the fauna that inhabits all forest remaining areas;
- 2.5.2. Inhibit hunting and the illegal species commerce through intensifies inspection activities;
- 2.5.3. Strengthen research and the protection institutions;
- 2.5.4. Promote management and protection initiatives.

DIRECTIVE 3. RECUPERATION OF ATLANTIC FOREST DEGRADED AREAS (RAD)

Objective:

Recuperate the phytogeographical structure, contribute to the protection of biologic diversity and safeguard the integrity of natural ecosystems.

Pragmatic Lines:

- 3.1. Establish specific strategies, in the context of the Atlantic Forest, for the recuperation of degraded hydrographic basin areas and in particular for neighboring woods and areas adjacent to conservation units;
- 3.2. Develop reforestation practices with native species and the management of the vegetation cover; identify potentials and costs, benefits and limitations and scope and improvements;
- 3.3. Formulate and implement a pilot project that involves the public and private sectors aimed at the operational application of specific legislation related to obligation to plant native species in order to achieve the re-composition of Legal Reserve areas;
- 3.4. Identify the main methodologies and/or technologies that have the capacity to adapt to the geographical, social and economic situations of different areas and that can be used in programs aimed at the recuperation of degraded areas and for strategies aimed at mobilization, through Management Committees that operate in areas that will benefit from such actions;
- 3.5. Evaluate initiatives aimed at the recuperation of degraded areas within the Atlantic Forest;
- 3.6. Establish new programs in cooperation with research institutions;
- 3.7. Promote events to debate proposals for degraded area recuperation;
- 3.8. Establish extensive programs related to bordering and fragmentation effects associated with proposals for the implantation of ecologic corridors within the Atlantic Forest;
- 3.9. Broaden the forest seed program and harmonize it with recuperation activities in Atlantic Forest degraded areas;
- 3.10. Promote and foment actions, based on projects sponsored by the National Environment Fund, aimed at the recuperation of degraded areas.

DIRECTIVE 4. HARMONIZATION OF SECTORIAL POLICIES AIMED AT THE CONSERVATION AND SUSTAINABLE DEVELOPMENT OF THE ATLANTIC FOREST

Objective:

Harmonize environmental and sectorial policies in order to safeguard natural resource conservation and their ecologically sustainable exploitation.

Pragmatic Lines:

4.1. Mining

- 4.1.1. Develop and implement a methodology for the mining sector, establish regulations and inspection sectorial actions that prioritize conservation and the sustainable development of the Biome;

- 4.1.2. Use financial resources available for environmental compensation exclusively for conservation units, permanent preservation areas and for reforestation purposes;
- 4.1.3. Develop a methodology for the strategic assessment of mining policies, plans and programs within the Atlantic Forest;
- 4.1.4. Identify the main mineral resource locations susceptible to sustainable exploitation or ecologically sensitive in order to establish Ecological-Economic Zones;
- 4.1.5. Establish rigorous plans for areas suffering from mineral exploitation degradation according to the objectives and actions provisioned by this Policy.

4.2. Energy

- 4.2.1. Develop a methodology aimed at the strategic assessment of policies, plans and programs for the energy sector within the biome;
- 4.2.2. Create a specific expansion plan (energy generation and distribution) for the Atlantic Forest area aimed at the conservation and sustainable development of the region;
- 4.2.3. Introduce and operate electrical energy enterprises within the Atlantic Forest area that prioritize the use of technologies of low environmental potential impact;
- 4.2.4. Promote the basic geologic survey of the Atlantic Forest in order to collect knowledge on its potential, including geographical, geomorphological, hydrogeological and hydrological aspects.

4.3. Agriculture

- 4.3.1. Use hydrographic micro basins as work planning units as they constitute natural geographical areas and possess homogeneous environmental, economic and social conditions which allow for the establishment of appropriate environmental and exploitation management and monitoring plans and the assessment of human environmental interference;
- 4.3.2. Establish participative and multidisciplinary actions within micro basins, involving the community and its organizations and private and public entities, in order to allow for the identification of local and regional potentials and limitations while safeguarding environmental stability, improving agro-forestry productivity and the wellbeing of local populations;
- 4.3.3. Prioritize agricultural research studies for the development of agro-forestry systems and the creation of production alternatives through the use of native and exotic species of the Atlantic Forest which safeguard the re-composition of biological diversity through integrated and sustainable systems;
- 4.3.4. Establish municipal territorial zones in order to identify areas for urban development and agricultural production and thereby achieve the protection of environmental preservation areas, minimize anthropic pressure on natural environments and allow for the improvement of environmental policies, soil and water exploitation, social wellbeing, health and rural development;
- 4.3.5. Sponsor projects aimed at the recuperation of degraded areas through native species and conservational practices that allow for the re-composition of the vegetation cover, improve soil productivity and as a strategy to reduce the effect of human activities upon the remaining areas of the Atlantic Forest
- 4.3.6. Promote available micro basin water resource protection and monitoring aimed at increasing and safeguarding their availability for current and future demands and allow for an increase in economic activity diversification;
- 4.3.7. Promote training and empowerment activities related to the natural resource management, aimed at the intensification of sustainable production by area unit as well as the specialization of production manpower that will aggregate value to primary products and lead to new local and regional products and markets;
- 4.3.8. Condition the granting of official rural credit and other types of incentives, based on sustainability indicators and criteria, to practices that plan, use, recuperate and protect natural resources and in particular soil and water.

4.4. Agrarian Reform

- 4.4.1. Promote land regularization within public and private Conservation Units;
- 4.4.2. Define criteria for rural settlements in forest remaining areas;
- 4.4.3. Promote the application of Rural Territorial Tax included in Law 9.393/96 in order to safeguard the conservation and protection of forest remains.

4.5. Transportation

- 4.5.1. Implement assessment and control tools related to environmental impacts caused by road construction and maintenance;
- 4.5.2. Construct "park-roads" whenever possible.

4.6. Urban Development

- 4.6.1. Promote preventive character actions that result in an improvement of life conditions in urban centers located in the Atlantic Forest;
- 4.6.2. Promote basic sanitation activities and find solutions for the lack of treatment capacity for sanitation sewage within the Atlantic Forest;

4.6.3. Establish control mechanisms regarding the use of urban land and hinder the unorganized growth of cities and, in particular, and harmonize transportation and growth variables with economic growth within the Atlantic Forest;

4.6.4. Define fiscal, economic and taxation tools that allow for the regulation and control of urban land within the Atlantic Forest;

4.6.5. Prioritize, in the context of the Atlantic Forest, the formulation and creation of integrated and decentralized models for the implementation of environmental policies in urban spaces;

4.6.6. Establish a plan for the use of soil in areas adjacent to Conservation Units aimed at controlling soil erosion processes and the preservation of natural areas in areas allocated for agrarian reform, protect the areas influenced by Conservation Units and the protection of areas of cultural and spiritual areas;

4.6.7. Offer assistance to municipalities for processes related to the creation and implementation of master plans and establishes tools for the planning and management of Conservation Unit processes and their interface with municipalities.

4.7. Harmonization of Environmental Policies with Sectorial Policies

4.7.1. Undertake the strategic evaluation of policies, plans and programs for different sectors;

4.7.2. Sponsor the creation of voluntary based activities that lead to improvements in the quality and conservation of the Atlantic Forest and/or to the reduction of degradation risks;

4.7.3. Develop and implement regulation standards and control and inspection actions that prioritize conservation and the sustainable development of the Atlantic Forest;

4.7.4. Identify the locations of main natural resource areas that allow for sustainable exploitation as well as sensitive locations, aimed at the establishment of Ecological-Economic Zones.

10. IMPLEMENTATION TOOLS

The tools for the implementation of the Directives for the Policy for the Conservation and Sustainable Development of the Atlantic Forest serve the following purposes:

- Establish a system for the management of the Biome in light of the special role of the government regarding the coordination of actions in partnership with the states and municipalities and aimed at the implementation of permanent information exchange with non-governmental sectorial and environmental organizations and thereby safeguard their participation in decision processes.

- Reinforce IBAMA competence and harmonize it with state organs.

- Establish legal, taxation and financial provisions and tools in order to allow for the sustainable development of the Atlantic Forest.

- Develop sectorial natural resource research programs on national, regional and state levels aimed at the conservation and re-composition of Atlantic Forest remains.

- Incorporate new technologies that will increase sustainability based productivity, avoid environmental impacts and disasters and allow for the promotion of knowledge and respect of environmental values, in particular in relation to Conservation Units and private areas of relevant ecological interest within the Atlantic Forest.

10.1. Management, control and monitoring of Atlantic Forest remains.

Action Lines:

Management:

- Continue the administration decentralization process in relation to forestry resources, fishing, forest fauna, water and marine resources and environmental control aimed at the broadening of social participation through its representative entities such as, Basin Committees, CONDEMA's, Atlantic Forest Biosphere Reserve Committees, etc.;

- Establish a system for the management and coordination of actions through partnerships aimed at the permanent exchange of information and communication between sectorial non-governmental entities and environmental organizations;

- Review/revise existing tools and standards for the control, monitoring, exploitation and conservation of forest remains in order to safeguard sustainable development and that it proceeds according to the necessary demands for protection of the biological diversity of the Atlantic Forest;

- Complete the reorganization of the institutional model for environmental management and promote decentralization through the implementation of the Federal Environmental Management Pacts that include parts of the Atlantic Forest.

- Create a specific coordination department within the structure of the Ministry of the Environment in order to coordinate the implementation of the environmental actions and directives contained in the Policy for the Conservation and Sustainable Development of the Atlantic Forest and from the Renewable Natural Resource Commission and from the Atlantic Forest Technical Chamber of the National Environment Council (CONAMA);

- Create Basin Committees in all states that contain parts of the Atlantic Forest;

- Acknowledge state forestry organs and their equivalent as integral parts of the National Environmental System (SISNAMA) and promote their active participation in decision processes, and;

- Implement the actions foreseen by the coast management plan.

Control and Inspection:

- Harmonize the application of control and monitoring tools with local regional realities;
- Improve control and monitoring tools and practices through the incorporation of new technologies and remote sensors for activities related to Conservation Units and in all private areas that contain forest remains;
- Strengthen and improve the control and inspection systems for forest resources, fishing, water, coastal and fauna in areas of Atlantic Forest influence;
- Establish, in cooperation with the states, a National Plan for the Control and Inspection of Atlantic Forest Natural Resources in order to effectuate actions aimed at the protection and the safeguarding of its integrity, profit from the harmonization of state institutional actions and the assistance provided by Atlantic Forest related non-governmental organizations;
- Guarantee a broader and more effective application of control and inspection tools through the commitment and participation of the respective civil society entities.

10.2. Legal, Taxation and Financial Tools

Action Lines:

- Promote inter-institutional communication for the planning and sustainable development of the Atlantic Forest;
- Integrate the planning and actions of different sectors and environmental directives;
- Establish a zone and planning system for the exploitation and conservation of the Atlantic Forest;
- Establish financial mechanisms, specific credit lines and professional cooperation tools;
- Develop actions with municipalities for the management of financial resources and projects;
- Include the tools for the conservation of the littoral strip of Atlantic Forest remains in municipal planning processes and Master Plans.

Financing:

- Provide resources and create credit lines for forestry re-composition and for the implantation of sustainable forest management projects and agro-forestry systems in conditions that are compatible their activities and with their needs;
- Provide sustainable forestry management and reforestation actions with financial lines from the North, Northeast and Center-West Constitutional Funds;
- Link forest needs and industrial enterprises in order to collect financing and obtain credit for reforestation and sustainable forest management;
- Prioritize the concession of credit to enterprises that comply with demands related to the conservation and maintenance of the forest vegetation cover in legal reserves and permanent preservation areas;
- Adjust taxation policies in order to eliminate distortions related to the conservation and exploitation of forestry resources;
- Adjust credit concession and taxation conditions for agro-pecuary activities and condition them to legal standards and area aptitude;
- Strengthen the National Environment Fund in order to allow it to become a tool for conservation and sustainable development through financing initiatives;
- Adopt, as planning tools, the regulations and action lines contained in this document aimed at the conservation and multiple use of natural resources;
- Establish new compensation tools for private and public forest remains and the exploitation of land according to socio-economic and ecological zones.

Environmental Licensing:

- Guarantee the application and complementation of legal standards related to decentralized licensing practices with different levels of competence;
- Promote community participation in licensing processes and events.

10.3. Natural resource research aimed at conservation and sustainable exploitation

Action Lines:

- Undertake sectorial natural resource research on national, regional and state levels aimed at the conservation and re-composition of Atlantic Forest remains;
- Adjust the structure of technical and vocational education in order to empower workmanship needed for the implementation of adequate management and sustainable natural resource exploitation practices;
- Undertake research on biological diversity, ecological corridors, bordering effects and forest fragments of the Atlantic Forest;
- Undertake studies aimed at the identification of damages to species and ecosystems within the Atlantic Forest;
- Promote actions that further research on the recuperation of degraded Atlantic Forest Areas;
- Sponsor institutions and entities that hold collections of Atlantic Forest genetic material;
- Broaden scientific research activities within Conservation Units;
- Undertake studies on the climate of Atlantic Forest areas of influence;
- Undertake studies on water quality;
- Develop programs for the creation of partnerships between municipalities and states aimed at the realization of on location research at Atlantic Forest remains;
- Foment and sponsor the existing educational structure with Atlantic Forest areas in order to make it more efficient and assist the sustainable development of the Atlantic Forest;
- Develop technologies for the management of Atlantic Forest natural resources;
- Promote the empowerment of personnel in natural resource Biome management.

10.4. Atlantic Forest education, environmental extension and ecotourism

Action Lines:

Education and Environmental Extension:

- Promote environmental education aimed at the conservation and sustainable development of natural resources;
- Include the concept and principles of sustainable development in formal education and environmental education programs;
- Promote a survey on environmental education initiative within the Atlantic Forest areas;
- Develop informational material;
- Undertake actions in the context of the National Environmental Education Program (PRONEA);
- Undertake specific actions for traditional Atlantic Forest communities;
- Work with research and educational institutions in order to empower new professional cadres in Atlantic Forest environmental research and extension;
- Create and systematize the spreading of information material that furthers the conservation of the Atlantic Forest.

Eco-tourism:

- Formulate actions related to eco-tourism development and its contribution to the preservation and conservation of the Atlantic Forest;
- Harmonize eco-tourism activities with the conservation of natural public and private areas;
- Strengthen inter-institutional cooperation in order to broaden the potentials of eco-tourism;
- Include the participation of all eco-tourism agents in Atlantic Forest conservation decision processes;
- Promote and incentivize the empowerment of human resources in Atlantic Forest eco-tourism;
- Promote the harmonization of eco-tourism activities with environmental education;
- Establish eco-tourism programs in connection with traditional calendar events and within Atlantic Forest conservation Units;
- Undertake studies on eco-tourism opportunities in the Atlantic Forest;
- Promote cultural and artisanal activities associated to Atlantic Forest eco-tourism;
- Promote programs on Conservation Unit environmental education and extension;
- Develop eco-tourism programs within Conservation Units.

Technical Cooperation:

- Empower state forestry institutions and other institutions in order to make forest extension a strategy for institutional action with the capacity to allow for knowledge and technological transfer to users of natural resources and aimed at strengthening Atlantic Forest conservation activities.

11. BIBLIOGRAPHIC REFERENCES

Legal Affairs Technical Chamber of the National Environment Council – Ministry of the Environment, Water Resources and Legal Amazon. *Relatório sobre a proposta de resolução que sugere uma política de nacional para o bioma Mata Atlântica*. Brasília (DF),1997.

Chamber, I.G. *Plano de Ação para a Mata Atlântica*. Fundação SOS Mata Atlântica. São Paulo (SP), 1994.

Environmental Sanitation Technology Company. *Sistema de Planejamento e Gestão Ambiental da CETESB*. São Paulo (SP),1993.

- Northeastern Atlantic Forest Ecology Congress. *Relatório do 7º Congresso*. Itabuna (BA), 1997.
- Darolt, M.R. Small Sustainable Properties - *Experiências com Plantio Direto*. Ponta Grossa (PR), 1997.
- Feldman, F. Proposal for the Substitution of Law Bill 3.285/92. Brasília (DF), 1992. South Bahia Socio-Environmental Studies Institute - IESB. *Ação das Madeireiras no Sul da Bahia*. Ilhéus (BA), 1997.
- Ministry of the Environment, Water Resources and Legal Amazon – Secretariat for the Coordination of Integrated Development Affairs. *Diretrizes para a Conservação e Desenvolvimento Sustentável dos Recursos Florestais*. Brasília (DF), 1995.
- Ministry of the Environment, Water Resources and Legal Amazon. *Diretrizes para o Combate à Desertificação - Plano Nacional de Combate à desertificação*. Brasília (DF), 1998.
- Ministry of the Environment, Water Resources and Legal Amazon; Ministry of Industry, Trade and Tourism. *Diretrizes Para o Ecoturismo - Programa Nacional para o Ecoturismo*. Brasília (DF), 1996.
- Ministry of the Environment, Water Resources and Legal Amazon – Water Resources Secretariat. *Política Nacional para os Recursos Hídricos*. Brasília (DF), 1997.
- Ministry of the Environment, Water Resources and Legal Amazon. *Diretrizes Ambientais para o Setor Mineral*. Brasília (DF), 1996.
- Ministry of the Environment, Water Resources and Legal Amazon. *Plano Nacional de Gerenciamento Costeiro*. Brasília (DF), 1998.
- Ministry of the Environment, Water Resources and Legal Amazon. *Instrumento Político-Administrativo para o Desenvolvimento Sustentável*. Brasília (DF), 1994.
- Ministry of the Environment, Water Resources and Legal Amazon. *A Caminho da Agenda 21 - Princípios e Ações*. Brasília (DF), 1997.
- Ministry of the Environment, Water Resources and Legal Amazon – National Environment Fund. *Projeto Jataí - Relatório Técnico da Fase 1*. Brasília (DF), 1997.
- Ministry of the Environment, Water Resources and Legal Amazon. *Lei de Crimes Ambientais*. Brasília (DF), 1998.
- Ministry of the Environment, Water Resources and Legal Amazon. *Diretrizes para a Aquicultura*. Brasília (DF), 1997.
- Ministry of the Environment, Water Resources and Legal Amazon. *Primeiro Relatório Nacional para a Convenção sobre Diversidade Biológica no Brasil*. Brasília (DF), 1998.
- Ministry of the Environment, Water Resources and Legal Amazon. *Programa Piloto para a Proteção das Florestas Tropicais - Versão 1.1*. Brasília (DF), 1997.
- Noffs, P.S.; Galli, L.F.; Gonçalves, J.C. *Recuperação de Áreas Degradadas na Mata Atlântica* – Publication on Biosphere Reserve – Book 3. São Paulo (SP), 1996.
- Atlantic Forest NGO Network; SOS Atlantic Forest. *Relatório do Workshop sobre Pesquisa na Mata Atlântica*. São Paulo (SP), 1994.
- Research Society on Forest Life and Environmental Education- SPVSEA. *Programa Floresta Atlântica Guaraqueçaba*. Curitiba (PR), 1995.
- Paraibuna Hydroelectric Plant. *Serviço Implantação de Reflorestamento com Essências Florestais Nativas*. Paraibuna do Sul (SP), 1995.
- Vitae Civillis. *Plataforma Ambiental Mínima para o Desenvolvimento Sustentável do Vale do Ribeira - Agenda 21 para o Vale do Ribeira*. São Paulo (SP), 1995.

CONAMA RESOLUTION 278, May 24, 2001
Published in Official Gazette 138-E, on July 18, 2001, Section 1, pages 51-52

Correlations:

- Complements and changes CONAMA Resolution 3 00/02 (changes heading § 2 of art. 2º)
- Regulated through CONAMA Resolution 317/02

Establishes provisions to prevent the logging and the exploitation of Atlantic Forest flora species threatened with extinction.

THE NATIONAL ENVIRONMENT COUNCIL – CONAMA, in accordance with the power bestowed upon the Council by Law 6.938 from August 31, 1981, regulated by Decree 99.274 from June 6, 1990, changed by Decree 2.120 from Jan. 13, 1997²⁸ and in accordance with the provisions of its Internal Regulations, annex of Administrative order 326 from Dec. 15, 1994²⁹, and

Considering that the Atlantic Forest Biome is a national patrimony, according to the provisions of § 4 of art. 225 of the Constitution, and that the exploitation of its natural resources must be carried out without prejudice to environmental preservation;

Considering the provisions of art. 19 of the Forestry Code, Law 4.771 from Sept. 15, 1965 and articles 2, 7 and 12 of Federal Decree 750 from Feb. 10, 1993;

Considering that it is a priority to safeguard the growth, conservation and recuperation of the native species of the Atlantic Forest;

Considering the current critical state of flora species threatened with extinction, aggravated by the intense fragmentation of the Atlantic Forest biome, compromising the necessary genetic flow;

Considering the lack of consistent scientific information that can safeguard the sustainable management of flora species threatened with extinction, decides:

Art. 1 To order the Brazilian Institute of Environment and Renewable Natural Resources (IBAMA) to suspend all granted licenses, own licenses granted through delegation of authority to other organs of the National Environment System (SISNAMA), that allow the logging and exploitation of species threatened with extinction, according to the official IBAMA list, of natural populations within the Biome of the Atlantic Forest, until further professional criteria can be established, based on scientific research, which can safeguard the sustainability of exploitation and the genetic conservation of exploitable species.

Single paragraph. CONAMA will present, within one year, extendable by an equal period, a proposal for technical and scientific criteria for each species, referred to in the heading of this article.

~~Art. 2 The occasional exploitation, without direct or indirect commercial objectives, of native flora species threatened with extinction for the consumption within rural properties of by indigenous peoples and traditional populations can be authorized when there is no other possibility to use other species and in accordance with the following directives:~~

Art. 2 The occasional exploitation, without direct commercial objectives, of native flora species threatened with extinction for the consumption within rural properties of by indigenous peoples and traditional populations can be authorized when there is no other possibility to use other species and in accordance with the following directives: *(new text provided by CONAMA Resolution 300/02)*

I – exploitation that is not superior to fifteen cubic meters by property or possession during a five year period;

II – priority must be given to dead or fallen trees, through natural causes, and

III – exploitation cannot exceed twenty percent of existing adult stock.

§ 1 The license request for occasional logging that is the subject of this article must contain data related to the height, diameter at breast height (DAP), individual and total volume by species, list of selected trees, previous identification with numbered plaques and a justification for the logging.

~~§ 2 The authorization will be valid during a sixty day period and can be extended in exceptional cases by a further thirty days, if duly justifiable.~~

§ 2 The authorization will be issued after a professional inspection by the competent environmental organ and will be valid during a sixty day period and can be extended in exceptional cases by a further thirty days, if duly justifiable. *(new text provided by CONAMA Resolution 300/02)*

§ 3 The authorization will be issued after a professional inspection by the competent environmental organ.

Art. 3 IBAMA will carry out, every second year, a revision and actualization of the official list containing the fauna and flora species threatened with extinction.

Art. 4 This Resolution shall enter into effect on the date of its publication.

²⁸ Decree revoked by Decree 3.942 from Sept. 27, 2001.

²⁹ Administrative Order revoked by Administrative Order MMA 499 from Dec. 18, 2002.

Art. 5 All provisions to the contrary are hereby revoked.

JOSÉ SARNEY FILHO – Council President

JOSÉ CARLOS CARVALHO – Executive Secretary

This text does not substitute the text published in the Official Gazette on July 18, 2001.

CONAMA RESOLUTION 300, March 20, 2002
Published in Official Gazette 81 on April 29, 2002, Section 1, page 174

Correlations:

· Complements and changes CONAMA Resolution 278/01 (changes art. 2)

Complements cases awaiting licenses for cutting/logging foreseen in art. 20 of Resolution 278 from May 24, 2001.

THE NATIONAL ENVIRONMENT COUNCIL – CONAMA, in accordance with the power bestowed upon the Council by Law 6.938 from August 31, 1981, regulated by Decree 99.274 from June 6, 1990, and in accordance with the provisions of its Internal Regulations, and

Considering the need to complement cases that may be granted logging licenses for the exploitation of native flora specimens threatened with extinction, foreseen in art. 2 of CONAMA Resolution 278 from May 24, 2001, decides:

Art. 1 The text of art. 2 of CONAMA Resolution 278 from May 24, 2001 will, from this date onwards, have the following text:

“Art. 2 The occasional exploitation, without direct commercial objectives, of native flora species threatened with extinction for the consumption within rural properties of by indigenous peoples and traditional populations can be authorized when there is no other possibility to use other species and in accordance with the following directives:

.....

§ 2 The authorization will be issued after a professional inspection by the competent environmental organ and will be valid during a sixty day period and can be extended, in exceptional cases by a further thirty days, if duly justifiable.

.....”

Art. 2 The logging of native flora specimens threatened with extinction can be authorized, apart from cases that are the subject of the previous article, in the following cases:

I – when life or patrimony is at risk, proved by a professional report issued by the competent environmental or forestry organ;

II – specimens located in consolidated urban areas through a granted license and when other alternatives do not exist;

III – they are needed for scientific research;

IV – for public convenience.

Art. 3 Cases foreseen by articles 1 and 2 of this Resolution are conditioned to licenses for the logging and transportation, issued by the competent environmental or forestry organ, as well as to the obligation to replace the species after the presentation of proof of the environmental regularity of the property and integral compliance with all current environmental and forestry legislation.

Art. 4 This Resolution shall enter into effect on the date of its publication.

Art. 5 Art. 2 of CONAMA Resolution 278 from 2001 is hereby revoked.

JOSÉ CARLOS CARVALHO – Council President

This text does not substitute the text published in the Official Gazette on April 29, 2002.

CONAMA RESOLUTION 317, Dec. 4, 2002
Published in Official Gazette 245 on Dec. 19, 2002, Section 1, page 224

Correlations:

· Regulates art. 1 of CONAMA Resolution 278/01

Regulates Resolution 278 from May 24, 2001, which Establishes provisions regarding the cutting and exploitation of Atlantic Forest species threatened with extinction.

THE NATIONAL ENVIRONMENT COUNCIL – CONAMA, in accordance with the power bestowed upon the Council by Law 6.938 from August 31, 1981, regulated by Decree 99.274 from June 6, 1990, changed by Decree 2.120 from Jan. 13, 1997 and in accordance with the provisions of its Internal Regulations, annex of Administrative order 326 from Dec. 15, 1994³⁰, and

Considering that the provisions of the single paragraph of art. 1 of CONAMA Resolution 278 from May 24, 2001, requires the setting of criteria that safeguard genetic conservation and the sustainability of the use of exploitable species populations threatened with extinction.

Considering the need to regulate the conservation and exploitation of the Atlantic Forest Biome and its ecosystems, decides:

Art. 1 The necessary criteria for genetic conservation and the sustainability of the exploitation of Atlantic Forest flora species heathen with extinction must be consubstantiated by State Conservation and Exploitation Plans based on scientific and technical studies

§ 1 The State Conservation and Exploitation Plans mentioned in the heading of this article must be organized into ecosystems and include, at least, the following aspects:

I – diagnosis of the ecosystem’s forestry remains and in particular of species threatened with extinction and endemic to the local flora and fauna;

II – typological characterization of forest formations considering species threatened with extinction.

III – identification of priority conservation areas;

IV – zoning aimed at conservation and with due attention to scientific and technical criteria for species threatened with extinction;

V – conservation, conversion and selective exploitation criteria and standards per species, including at least

a) minimum stock needed for conservation of species that are the object of exploitation, based on ecological and genetic criteria;

b) maximum modular area limit for the execution of Sustainable Forestry Management Plans, when applicable, whose analysis, deliberation and monitoring must be carried out by the Technical Chamber of the competent environmental organ, created exclusively for this purpose.

c) environmental impact mitigation of explored areas, through low impact exploitation technologies and landscape ecology.

VI – regional socio-economic studies.

§ 2 The State Conservation and Exploitation Plans must, considering the state and regional peculiarities and the respective stages of current studies, be well articulated and congruent in order to allow the establishment, by competent environmental or forestry organs, of a System for the Conservation and Exploitation of the Atlantic Forest Biome and its ecosystems.

§ 3 The State Conservation and Exploitation Plans foreseen in the heading of the present article, must be formulated by the competent environmental or forestry organs and approved by deliberative State Environment Councils, linked to CONAMA.

Art. 2 This Resolution shall enter into effect on the date of its publication.

JOSÉ CARLOS CARVALHO – Council President

This text does not substitute the text published in the Official Gazette on Dec. 19, 2002.

³⁰ Administrative Order revoked by Administrative Order MMA 499 from Dec. 18, 2002.

SUCCESSIONAL STAGES OF THE ATLANTIC FOREST VEGETATION

CONAMA RESOLUTION 11, Dec. 6, 1990
Published in the Official Gazette on Dec. 28, 1990, Section 1, page 25541

Establishes provisions for the revision and creation of plans for the management and the granting of environmental licenses for Atlantic Forest activities

THE NATIONAL ENVIRONMENT COUNCIL – CONAMA, according to the power bestowed upon the Council by Law 6.938 from August 31, 1981, changed by Law 8.028 from April 12, 1990, regulated by Decree 99.274³¹ from June 6, 1990, and in accordance with the provisions of its Internal Regulations, and

Considering the content of Decree 99.547 from May 25, 1990 which Establishes provisions related to logging bans and exploitation of the native vegetation of the Atlantic Forest, as well as IBAMA's Administrative Order 218 from May 4, 1989;

Considering that the greater objective of the Decrees proclaimed by His Excellence the President of the Republic and considering the consequent IBAMA Administrative Orders regarding measures to avoid forest degradation in Brazil, including the Atlantic Forest remains;

Considering that state environmental organs have difficulties in understanding the scope of exploitation restrictions, notably in respect to the inspection of the Atlantic forests and secondary systems, due to a lack of clarity.

Considering that the criteria currently used for the creation of Licensing and Management Plans for Forestry Operations lack objectivity and have not been harmonized with the principles of sustainable development, decides:

Art. 1 To order IBAMA to define, for legislation purposes, the “native forest” areas, “successional native Atlantic Forest formations”, “Native Atlantic Forest vegetation” and “forest formations”.

Art. 2 To order IBAMA to institute a Working Group in order to create a proposal for a Law Bill that regulates § 4 of art. 225 of the Federal Constitution regarding the Atlantic Forest.

Single paragraph. The above mentioned working group that is the subject of this article shall include the effective participation of Civil Society and interested Federal State units and, in particular, the participation of States located in the Coastal Zone.

Art. 3 Recommend IBAMA to revise the criteria for the creation of Licensing and Management Plans for Forestry Operations and other Authorizations for Forest Exploitation.

Art. 4 Establish a deadline of 180 (one hundred and eighty) days for the presentation to CONAMA of reached results as well as a the Plan for Inspection Actions that IBAMA is under the process of completing in order to safeguard the legal provisions aimed at the protection of the Atlantic Forest.

Art. 5 This Resolution shall enter into effect on the dated of its publication.

JOSÉ A. LUTZENBERGER – Council President

TÂNIA MARIA TONELLI MUNHOZ – Executive Secretary

This text does not substitute the text published in the Official Gazette on Dec. 28, 1990.

³¹ Decree Revoked by Decree 750 from Feb. 10, 1993.

CONAMA RESOLUTION 10, Oct. 1, 1993
Published in Official Gazette 209 on Nov. 3, 1993, Section 1, pages 16497-16498

Correlations:

- Changed by CONAMA Resolution 11/93 (§ 1 of art. 1 changed)
- Revokes lines “n” and “o” of art. 2 of CONAMA Resolution 4/85
- Complemented by Resolutions 1, 2, 4, 5, 6, 12, 25, 26, 28, 29, 30, 31, 32, 33 and 34/94, 7/96, 261/99, 391 and 392/07
- Validated by CONAMA Resolution 388/07 for the purposes of provisions included in Law 11.428, from Dec. 22, 2006

Establishes basic parameters for the analysis of the successional stages of the Atlantic Forest.

THE NATIONAL ENVIRONMENT COUNCIL – CONAMA, according to the power bestowed upon the Council by Law 6.938 from August 31, 1981, changed by Law 8.028 from April 12, 1990, Law 8.490 from November 19, 1992³² and by Provisional Measure 350 from September 14, 1993 and based on Decree 99.274 from June 6, 1990, and in its Internal Regulations approved by CONAMA Resolution 25 from Dec. 3, 1986³³,

Considering the deliberation contained in CONAMA Resolution 3 from June 15, 1993, decides:

Art. 1 For the purposes of this Resolution and considering the provisions of articles 3, 6 and 7 of Decree 750 from Feb. 10, 1993, the following basic parameters for the analysis of the successional stages of the Atlantic Forest are hereby established:

- I - physiognomy;
- II – predominant strata;
- III – diametric and height distribution;
- IV – existence, diversity and quantity of epiphytes;
- V – existence, diversity and quantity of creepers;
- VI – presence, absence of understory;
- VII - underwood;
- VIII – species diversity and predominance;
- IX – indicator vegetation species.

§ 1 The specification of the parameters established by this article, as well as the definition of measurable variables, such as height and diameter, will be defined by the Brazilian Institute of Environment and Renewable Natural Resources (IBAMA) and by the State organ within SISNAMA, within 30 days, counted from the date of publication of this Resolution and submitted to the approval of the CONAMA President, “ad referendum” by the plenary that will reach a decision during the following ordinary meeting. deadline can be extended by 30 days according to the provisions of CONAMA Resolution 11/93.

§ 2 Complementing parameters can be added to those defined by this article, notably in respect to basal areas and others, when scientifically and technically justifiable.

Art. 2 The following concepts are hereby defined, based on the parameters contained in article 1 of this Resolution:

I – Primary Vegetation – dominant local vegetation containing a large biological diversity and exposed to minimal anthropic impacts that do not have any significant effect on its original species and structure

II – Secondary Vegetation or in Regeneration – vegetation that is the product of natural successional processes after the total or partial suppression of the primary vegetation through anthropic actions or natural causes, with possible occurrence of primary vegetation trees from forest remains. 3 The secondary regeneration stages that are the subject of art. 6 of Decree 750/93 are defined according to the following criteria:

I – Initial Stage:

- a) herbaceous/shrubby physiognomy of small size, with vegetation cover varying from closed to open;
- b) ligneous species diametrically distributed and low amplitude;
- c) epiphytes, if existing, mainly represented by lichens, bryophytes and pteridophytes with low diversity;
- d) creepers, if present, are generally herbaceous;
- e) understory, when present, forms a thin and decomposing layer, continuous or not;
- f) varied biological diversity with few arborous or arborous species, can hold seedlings of species that are present in other stages;

³² Law revoked by Law 9.649 from May 27, 1998.

³³ Resolution revoked through new Internal Regulations

- g) abundant pioneering species;
- h) absence of underwood.

II – Medium Stage:

- a) herbaceous/shrubby physiognomy, predominantly herbaceous, may constitute differentiated strata;
- b) arborous cover, varying from open to closed, may include the existence of emerging individuals;
- c) diametric distribution with moderate amplitude, composed mainly by small diameters;
- d) epiphytes with a larger number of individuals and species in comparison to the initial stage, more abundant in ombrophylous forests;
- e) creepers, when present that are predominantly ligneous;
- f) understorey, with varying thickness depending on season and location;
- g) significant biological diversity;
- h) presence of underwood.

III – Advanced Stage:

- a) herbaceous physiognomy, dominating, forming a closed canopy and can hold emerging trees;
- b) emerging species, with different levels of intensity;
- c) high tree tops, horizontal breadth;
- d) high amplitude diametric distribution;
- e) epiphytes, present in large number of species and very abundant, in particular within ombrophylous forests;
- f) creepers, mainly ligneous and more abundant and rich in seasonal forests;
- g) abundant understorey;
- h) high biological diversity due to structural complexity;
- i) herbaceous strata, shrubby and notably arborous;
- j) forests in this stage may present a physiognomy that is similar to primary vegetation;
- l) underwood, not as strong as in medium stages;
- m) may present domination species depending on forest formation.

Art. 4 The characterization of the vegetation regeneration stages defined in article 3 of this Resolution is not applicable to ecosystems associated to vegetation formations within the Atlantic Forest, such as mangroves, beaches, elevation fields, inland swamps and northeastern forest enclaves.

Single paragraph. The provisions contained in paragraphs 1 and 2 of art. 1 of this Resolution applies to all vegetation formations included in the heading of this article, except mangroves, in accordance with the respective protective legislation and in particular Law 4.771 from Sept. 15, 1965, Law 5.197 from Jan. 3, 1967, Law 6.902 from April 27, 1981. Law 6.938 from Aug. 31, 1981 and CONAMA Resolution 4 from Sept. 18, 1985³⁴.

Art. 5 These definitions have, for the purpose of this Resolution, been adopted for vegetation formations that are the subject of art. 4:

I - Mangrove – vegetation influenced by sea/rivers, typical of salty soils of estuary regions and non-continuous dispersion along the Brazilian coast between the States of Amapá and Santa Catarina. This halophyte environment is home to a specialized type of forest either dominated by *Spartina* and *Crinum*, which confer an herbaceous physiognomy, or by *Rhizophora*, *Laguncularia* and *Avicennia* trees. The mangrove, depending on the dominance of tree types, can be classified as a red mangrove (*Rhizophora*), white mangrove (*Laguncularia*) and mangrove siriuba (*Avicennia*), the two first are found in low locations and the third in higher locations and further away from the influence of the tides. When a mangrove penetrates sandy areas it becomes a dry mangrove.

II - Beach – vegetation influenced by the sea, present along the Brazilian littoral and also denominated an edaphic community, as it is more dependent on the nature of the soil than on climate conditions. The beach occurs as mosaics and can be found in beaches, sandy corridors, dunes and depressions and presents, depending on the successional stage, herbaceous strata, shrubby and arboreal, the later more present in inland beaches.

III – Elevation Fields – vegetation typical of mountainous environments and high-mountains that is mostly present in lithic high-elevation mountain tops, with a shrubby and/or herbaceous structure and mostly present sub-tropical or temperate climates. It is characterized by a rupture in the natural species sequence of neighboring physiognomic formations. The flower communities that are typical to this vegetation are characterized by endemism's.

IV – Inland Swamp – forest spots that can be found in northeastern regions of Brazil, in elevations and plateaus where humid winds condense the excess of water and create a high humidity environment. They are also called elevation swamps.

V – Northeastern Forest Enclaves – low tropical forests, xerophyte, deciduous broad leaf forests, which can be found within caatinga forests or semi-humid deciduous forests, swamps and mesophilic with closed arboreal layers, located on hillsides and created by higher air humidity and rainfall. They are in a transitional stage to wilderness. Within the ecotone of the caatinga we can often find palm trees and some arboreal cacti.

³⁴ Resolution revoked by resolution 303/02.

Art. 6º For the purpose of this Resolution, and in light of the provisions of articles 5 and 7 of Decree 750/93, we define:

I – Forest fauna and Flora Threatened with Extinction – species included in the official IBAMA lists, and species included in the lists of State environmental organs, including their respective biotas.

II – Vegetation of Exceptional Landscape Value – vegetation that is part of locations considered of holding exceptional landscape value by Federal, State or Municipal Public Powers.

III – Corridor between Forest Remains – strips of primary vegetation existing between the forest remains in medium or advanced stages of regeneration capable of providing habitat, or serve as a transit area, for the fauna that inhabits the forest remains, the breadth of the corridors and other characteristics will be the object of study by the Technical Temporary Chamber for Atlantic Forest Affairs and will be defined within 90 (ninety) days

IV – Areas Surrounding Conservation Units – areas with contiguous vegetation cover outside of the limits of Conservation Units that are the object of proposals in their respective Management Plans, Ecological-Economic Zoning or Master Plans in accordance with management categories. If the above legal tolls do not exist, or if they do not include the surrounding area, licensing will be granted without prejudice to the enforcement of the provisions contained in art. 2 of CONAMA Resolution 13/90

Art. 7 Rural areas covered by primary vegetation or vegetation in advanced or medium stages of regeneration of the Atlantic Forest, which are not the object of selective exploitation, according to art. 2 ³⁵of Decree 750/93 will be considered of ecological interest for the protection of ecosystems.

Art. 8 The Temporary Technical Chamber for Atlantic Forest Affairs, created through CONAMA Resolution 3/93, will publish a glossary of technical terms included in this Resolution.

Art. 9 This Resolution shall enter into effect on the date of its publication.

Art. 10. All provisions to the contrary are hereby revoked, in particular lines “n” and “o” of art. 2 of CONAMA Resolution 4/85.

RUBENS RICUPERO – Council President
SIMÃO MARRUL FILHO – Executive Secretary

This text does not substitute the text published in the Official Gazette on Nov. 3, 1993.

³⁵ Ratified in Official Gazette 229 on Dec. 2, 1993, page 18446.

CONAMA RESOLUTION 1, Jan. 31, 1994
Published in Official Gazette 24 on Feb. 3, 1994, Section 1, pages 1684-1685

Correlations:

Compliance with the provisions of art. 6 of Decree 750/93 and art. 1, § 1 of CONAMA Resolution 10/93

- Validated by CONAMA Resolution 388/07 for the enforcement of provisions contained in Law 11.428 from Dec. 22, 2006 *Defines the Atlantic Forest primary and secondary vegetation in their initial, medium and advanced stages of regeneration in order to provide guidelines to environmental licensing processes related to the exploitation of native vegetation in the State of Sao Paulo.*

THE PRESIDENT OF THE NATIONAL ENVIRONMENT COUNCIL – CONAMA, *ad referendum* of the Plenary, in accordance with his attributions and in light of the provisions of art. 9 of Decree 99.274 from June 6, 1990;

Considering the joint action between the Environment Secretary of the State of São Paulo, in accordance with the powers bestowed by art. 94 of State Decree 30.555 from Oct. 3, 1989, and the Superintendent of the Brazilian Institute of Environment and Renewable Natural Resources (IBAMA) in São Paulo, in accordance with the power bestowed by art 68 of the Internal Regulations approved by Administrative Ministerial Order 445 from Aug. 16, 1989;

Considering the provisions of art. 23, items VI and VII of the Federal Constitution and the need to define Atlantic Forest primary and secondary vegetation in pioneering, initial, medium and advanced stages of regenerations in compliance with the provisions of art. 6 of Decree 750 from Feb. 10, 1993, CONAMA Resolution 10 from Oct. 10, 1993 in order to provide guidance to licensing procedures for the exploitation of the native vegetation in the State of São Paulo, decides:

Art. 1 It is considered primary vegetation that which is locally dominant, of great biological diversity and subjected to minimal anthropic impacts which do not have a significant effect on its original species and structural characteristics.

Art. 2 Seasonal Ombrophylous Forests are characteristic of secondary vegetation:

§ 1 In initial regeneration stages:

- a) physiognomies that vary from savannah to low forests and can hold herbaceous strata and small trees;
- b) ligneous strata that can be either open or closed and with plants of varied heights;
- c) the height of ligneous plants is generally between 1.5 and 8.0 meters and the diameter of the stem at breast height (DAP=1.30 meters from the surface of the soil) is up to 10 centimeters, shows small quantities of ligneous fibers and the diametric distribution of the ligneous substances shows a small amplitude;
- d) epiphytes, when present, are not very abundant and are represented by moss, , lichen, polipodiacea and small lilies;
- e) creepers, if present, can be herbaceous or ligneous;
- f) the understory, when present, can be continuous or not, forming a thin layer with low levels of decomposition;
- g) the underwood can be home to young arboreal species of more mature stages;
- h) biological diversity is low and can contain around ten dominant arboreal or shrubby species;
- i) the most abundant and characteristic vegetation species are: cambará or candeia (*Gochnatia polymorpha*), leiteiro (*Peschiera fuchsiaefolia*), maria-mole (*Guapira spp.*), mamona (*Ricinus communis*), arranha-gato (*Acacia spp.*), falso ipê (*Stenolobium stans*), crindiúva (*Trema micrantha*), fumo-bravo (*Solanum granuloso-ebrosum*), goiabeira (*Psidium guaiava*), sangra d'água (*Croton urucurana*), lixinha (*Aloysia virgata*), amendoim-bravo (*Pterogyne nitens*), embaúbas (*Cecropia spp.*), pimenta-de-macaco (*Xylopia aromatica*), murici (*Byrsonima spp.*), mutambo (*Guazuma ulmifolia*), manacá ou jacatirão (*Tibouchina spp.* and *Miconia spp.*), capororoca (*Rapanea spp.*), tapiás (*Alchornea spp.*), pimenteira brava (*Schinus terebinthifolius*), guaçatonga (*Casearia sylvestris*), sapuva (*Machaerium stipitatum*), caquera (*cassia sp.*);

§ 2 In medium stage of regeneration:

- a) forest physiognomy with trees with various sizes;
- b) presence of layers with different heights, each layer presenting a vegetation cover that varies from open to closed and the surface of the top layer can be uniform and possess emerging trees;
- c) the height of the trees can vary between 4 and 12 meters, depending on location, and DAP can reach up to 20 centimeters. The diametric amplitude of trees is moderate with predominance of small diameters which can generate a reasonable amount of wood product;
- d) epiphytes are present in larger amounts and species (lichen, moss, hepatic, orchids, bromeliaceae, cacti, piperaceae, etc.) and are present in larger amount of species in Ombrophylous Forests;
- e) creepers, when present, are generally ligneous;
- f) the understory can vary in thickness depending on the season and location;

g) the underwood is often covered by ombrophylous bushes and mainly of the rubiaceae, myrtaceae, melastomataceae and meliaceae species;

h) biological diversity is significant and in some cases dominated by a few species, generally rapid growth species. Apart from these it may also contain palmito (*Euterpe edulis*), other palmaceae and ferns;

i) the most abundant and characteristic species, apart from the above mentioned, are: jacarandás (*Machaerium spp.*), jacarandá-do-campo (*Platypodium elegans*), louro-pardo (*Cordia trichotoma*), farinha-seca (*Pithecellobium edwallii*), aroeira (*Myracrodruon urundeuva*), guapuruvu (*Schizolobium parahiba*), burana (*Amburana cearensis*), pau-de-espeto (*Casearia gossypiosperma*), cedro (*Cedrela spp.*), canjarana (*Cabrlea canjerana*), açoita-cavalo (*Luehea spp.*), óleo-de-copaíba (*Copaifera langsdorfii*), canafístula (*Peltophorum dubium*), embiras-de-sapo (*Lonchocarpus spp.*), faveiro (*Pterodon pubescens*), canelas (*Ocotea spp.*, *Nectandra spp.*, *Cryptocaria spp.*), vinhático (*Plathymenia spp.*), araribá (*Centrolobium tomentosum*), ipês (*Tabebuia spp.*), angelim (*Andira spp.*), marinho (*Guarea spp.*) monjoleiro (*Acacia polyphylla*), mamica-de-porca (*Zanthoxylum spp.*), tamboril (*Enterolobium contorsiliquum*), mandiocão (*Didimopanax spp.*), araucária (*Araucaria angustifolia*), pinheiro-bravo (*Podocarpus spp.*), amarelinho (*Terminalia spp.*), peito-de-pomba (*Tapirira guianensis*), cuvata (*Matayba spp.*), caixeta (*Tabebuia cassinoides*), cambui (*Myrcia spp.*), taiúva (*Machlura tinctoria*), pau-jacaré (*Piptadenia gonoacantha*), guaiuvira (*Patagonula americana*), angicos (*Anadenanthera spp.*) among other;

§ 3 In advanced stages of regeneration:

a) closed forest physiognomy, contiguous tree-top distribution and the canopy may, or not, present emerging trees;

b) a large number of strata with trees, shrubs, grass, creepers, epiphytes etc. whose abundance and number of species vary with climatic conditions. the high tree-tops are generally horizontal and wide;

c) the maximum height is over 10 meters and the stem's medium DAP is always over 20° centimeters. Diametric amplitude is very broad and provides a good timber product;

d) epiphytes are present in large number of species and in abundance, in particular within Ombrophylous Forests;

e) creepers are mainly ligneous (leguminous, bignoniaceae, composed, malpighiaceae and mainly sapindaceae) and more abundant and richer in species in Seasonal Forests;

g) the undergrowth is present, and varies according to time and location, presenting an intense decomposition;

h) the undercover is always present, varies with seasons and location and is in intensive stages of decomposition; the underwood show bush and herbaceous strata with larger or minor frequency and the predominant bushes are those that have already been mentioned in the previous stage (ombrophylous bushes) and herbaceous which is mainly composed of bromeliaceae, araceae, marantaceae and heliconiaceae, notably in areas with higher humidity;

i) biological diversity is very broad due to the structural complexity and the number of species;

j) apart from the species named in previous stages and mature forest species the following are also commonly found: jequitibás (*Cariniana spp.*), jatobás (*Hymenaea spp.*), pau-marfim (*Balfourodendron riedelianum*), caviúna (*Machaerium spp.*), paineira (*Chorisia speciosa*), guarantã (*Esenbeckia leiocarpa*), imbuía (*Ocotea porosa*), figueira (*Ficus spp.*), maçaranduba (*Manilkara spp. and Persea spp.*), suiná or mulungú (*Erythrina spp.*), guanandi (*Calophyllum brasiliensis*), pixiricas (*Miconia spp.*), pau-d'algo (*Gallesia integrifolia*), perobas and guatambu (*Aspidosperma spp.*), jacarandás (*Dalbergia spp.*), among other;

§ 4 It is considered secondary vegetation in pioneering stages of regeneration that whose physiognomy, mainly campestrial, is initially predominated by herbaceous strata may contain bush strata and mostly composed by the first or the second. The bush strata may be open or closed, and the height of individuals of the uniform dominating species is generally up to 2 meters. The bushes stem is about 3 centimeters in diameter at surface level and they do not generate any wood product. Epiphytes do not occur in this stage. Creepers may be present, or not and if present they are predominantly herbaceous. The undercover, if present, is not continuous and/or incipient. The most abundant species are typically halophile, including forage plants, cultivated exotic species and invaders, and the most common are: vassoura or alecrim (*Baccharis spp.*), assa-peixe (*Vernonia spp.*), cambará (*Gochnatia polymorpha*), leiteiro (*Peschiera fuchsiaefolia*), maria-mole (*Guapira spp.*), mamona (*Ricinus communis*), arranha-gato (*Acacia spp.*), samambaias (*Gleichenia spp.*, *Pteridium sp.*, etc.), lobeira and joá (*Solanum spp.*). The biological diversity is low and with few dominating species.

Art. 3 The parameters defined in article 2 in order to typify the different stages of regeneration of secondary vegetation may vary from one geographical region to another and depend on:

- I – relief conditions, climate and local soil;
- II – history of soil exploitation;
- III – adjacent vegetation;
- IV – geographic location; and
- V – the area and the configuration of the analyzed formation.

Single paragraph. The variations in typology that are the subject of this article will be analyzed and considered during the examination of cases submitted to the competent authorities.

Art. 4 This Resolution shall enter into effect on the date of its publication and all provisions to the contrary are hereby revoked.

RUBENS RICUPERO – Council President

**CONAMA RESOLUTION 2, March 18, 1994
Published in Official Gazette 59 on March 28, 1994, Section 1, pages 4513-4514**

Correlations:

- In respect to art. 6 of Decree 750/93 and art. 1, § 1 of CONAMA Resolution 10/93
- Validated by CONAMA Resolution 388/07 for the implementation of provisions set by Law 11.428 from Dec. 22, 2006

Defines primary vegetation formations and the successional stages of secondary vegetation in order to provide guidelines for licensing processes related to native vegetation exploitation in the State of Paraná.

THE PRESIDENT OF THE NATIONAL ENVIRONMENT COUNCIL –CONAMA- *AD REFERENDUM* of the Plenary, in the use of his attributions and according to the provisions of art. 9 of Decree 99.274 from June 6, 1990;

Considering the joint action of the Environment Secretary of the State of Paraná and IBAMA's Superintendent of the State of Paraná;

Considering the need to define primary vegetation formations and the successional stages of secondary vegetation in order to provide guidelines to licensing procedures related to the exploitation of the native Atlantic Forest in the State of Paraná, decides:

Art. 1 Primary vegetation is composed by the total vegetation community, locally dominant, with large biological diversity and exposed to minimal anthropic impact that does not significantly affect its original structure and species

Art. 2 The forest formations comprised by the Dense Ombrophylous Forest (low lands, sub-mountainous and mountainous), Mixed Ombrophylous Forest (mountainous) and Semi-Deciduous Forest (sub-mountainous) in the different successional stages of secondary vegetation present the following parameters in the State of Paraná, and the samples of arboreal individuals possess a DAP that is equal or higher than 20 centimeters.

§ 1 Initial stage:

a) herbaceous/shrubby physiognomy, forming a strata that varies from open to closed containing species that are predominantly helophytes;

b) existing ligneous species vary between one and ten species, present a small diametric amplitude and low height amplitude, and the height of the ligneous species of the canopy can reach up to 10 meters, with a basal area (m²/ha) that vary between 8 to 20 m²/ha; with a diametric distribution that varies between 5 and 15 centimeters and DAP median amplitude of 10 centimeters;

c) the growth of the canopy trees is rapid and the medium life span of canopy trees is short;

d) epiphytes are rare, herbaceous lianas are abundant and ligneous lianas are not present at all. Grass species are abundant. The understory, when present, may be continuous or not and is formed by a thin decomposing layer;

e) there is no regeneration of canopy trees;

f) the most common species, indicators of the initial stage of regeneration, are, among other: brocading (*Mimosa scabrella*), vassourão (*Vernonia discolor*), aroeira (*Schinus terebenthi folius*), jacatirão (*Tibouchina selowiana* and *Miconia circrescens*), embaúba (*Cecropia adenopus*), maricá (*Mimosa bimucronata*), taquara and taquaruçu (*Bambusa spp.*).

§ 2 Medium stage:

a) shrubby and/or arboreal physiognomy formed by 1 or 2 strata and predominantly composed of optional species;

b) the number of ligneous species varies between 5 and 30 and are of medium diametric and height amplitude. The height of the canopy's ligneous species varies between 8 and 17 meters, possess a basal area (m²/ha) that varies between 15 and 35 variando entre 15 m²/ha; the diametric distribution of between 10 and 40 centimeters and the medium Dap amplitude is 25 centimeters;

c) the growth rate of canopy trees is moderate and the medium life span of the canopy trees is also medium;

d) epiphytes and herbaceous lianas are few and ligneous lianas are rare. Grass species are few. The thickness of the understory can vary due to seasonal or locational factors;

e) the regeneration of canopy species is low;

f) the most common species, indicators of the medium stage of regeneration, are, among other: congonha (*Ilex theezans*), vassourão-branco (*Piptocarpha angustifolia*), canela guaica (*Ocotea puberula*), palmito (*Euterpe edulis*), guapuruvu (*Schizolobium parayba*), guaricica (*Vochsia bifalcata*), cedro (*Cedrela fissilis*), caxeta (*Tabebuia cassinoides*), etc.

§ 3 Advanced stage:

a) arboreal physiognomy is dominant and forms a closed and uniform canopy and is formed by more than 2 strata and predominantly by ombrophylous species;

b) represented ligneous species are more than 30 in number, the diametric amplitude is high and the height

amplitude is also high. The height of canopy ligneous species is over 15 meters, basal area (m²/ha) is superior to 30 m²/ha; diametric distribution varies between 20 and 60 centimeters and the medium DAP amplitude is 40 centimeters;

c) the growth rate of canopy trees is slow and the medium life span of trees is long;

d) epiphytes are abundant, herbaceous lianas are rare but not ligneous lianas. Grass species are rare. The understory is present but its thickness varies with seasons and locations and is in a strong state of decomposition;

e) the regeneration rate of canopy trees is very high;

f) the most common species, indicators of the medium stage of regeneration, are, among other: pinheiro (*Araucaria angustifolia*), imbuia (*Ocotea porosa*), canafistula (*Peltophorum dubgium*), ipê (*Tabebuia alba*), angico (*Parapiptadenia rigida*), figueira (*Ficus sp.*).

Art. 3 The vegetation of the mountain Dense Ombrophyllous Forest differs from the above context as it holds a smaller number of arboreal species, lower in height and with low diametric and height amplitude.

Art. 4 The parameters defined in order to typify the different successional stages of the secondary vegetation can vary from one region to another, depending on topographical and edaphoclimatic conditions, geographical location as well as due to previous exploitation of the area within a certain forestry formation.

Art. 5 In accordance with the provisions of art. 3 of Decree 750/93 from Feb. 10, 1993, and for all purposes of this Resolution, it is considered Atlantic Forest, in the State of Paraná, all forest formations and associated ecosystems that are part of the Atlantic Forest according to the delimitations established by the Brazilian Vegetation Map, IBGE 1988: Dense Ombrophyllous Forest, Mixed Ombrophyllous Forest, Semi-Deciduous Seasonal Forest, Mangroves and beaches.

Art. 6 This resolution shall enter into effect on the date of its publication, any contrary provisions are hereby revised.

RUBENS RICUPERO – Council President

ANNEX³⁶

PARAMETERS FOR THE CLASSIFICATION OF SUCCESSIONAL VEGETATION STAGES

PARAMETERS	INITIAL	SECONDARY INTERMEDIARY	ADVANCED
Number of strata	1	1 a 2	≥2
Number of ligneous species	1 to 10	5 to 30	≥30
Basal area (m ² /ha)	8 to 20	15 to 35	≥30
Height of ligneous species canopy (meters)	Up to 10	8 to 17	≥30
Medium Diameter Amplitude - DAP (centimeters)	10	25	40
Diametric distribution (centimeters)	5 a 15	10 a 40	20 a 60
Canopy tree growth	Rapid	Moderate	Slow
Medium tree life span	Short	Medium	Long
Diametric amplitude	Small	Medium	Large
Height amplitude	Small	Medium	Large
Epiphytes	Rare	Scarce	Abundant
Herbaceous lianas	Abundant	Scarce	Rare
Ligneous lianas	Absent	Rare	Present
Grass species	Abundant	Scarce	Rare
Regeneration of canopy trees	Absent	Slow	Intense

This text does not substitute the text published in the Official Gazette on March 28, 1994.

³⁶ ratified in Official Gazette 73 on April 19, 1994, page 5759.

CONAMA RESOLUTION 4, May 4, 1994
Published in Official Gazette 114 on June 17, 1994, Section 1, pages 8877-8878

Correlations:

- In compliance with art. 6 of Decree 750/93 and art. 1, § 1 of CONAMA Resolution 10/93
- Validated by CONAMA Resolution 388/07 in order to comply with the provisions of Law 11.428 from Dec. 22, 2006

Defines the Atlantic Forest primary and secondary vegetation in their initial, medium and advanced stages of regeneration in order to provide guidelines to environmental licensing processes related to forestry activities in the State of Santa Catarina.

THE NATIONAL ENVIRONMENT COUNCIL –CONAMA, in accordance with the power bestowed upon the Council by Law 6.938 from Aug. 31, 1981, changed by Law 8.028 from April 12, 1990, regulated through 99.274 from June 6, 1990 and Law 8.746 from Dec. 9, 1993, considering the provisions of Law 8.490 from Nov. 19, 1992³⁷, and in accordance with its Internal Regulations, and

Considering the need to define Atlantic Forest primary and secondary vegetation in initial, medium and advanced stages of regeneration in compliance with the provisions set by art. 6 of Decree 750/93 from Feb. 10, 1993 and CONAMA Resolution 10 from Oct. 1, 1993 in order to provide guidelines to license procedures related to forestry activities in the Santa Catarina State, decides:

Art. 1 Primary vegetation is composed by the total vegetation community, locally dominant, with large biological diversity and exposed to minimal anthropic impact that does not significantly affect its original structure and species, where we can find medium basal areas superior to 20.00 m²/ha, medium DAP superior to 25 centimeters and total medium height superior to 20 meters.

Art. 2 Secondary vegetation or in a state of regeneration is the result of natural processes that occur after the total or partial suppression of the primary vegetation through anthropic activities or natural causes and can lead to the presence of trees from the remains of primary vegetation.

Art. 3 Secondary regeneration stages that are the subject of art. 6 of Decree 750/93, are defined as:

I – Initial regeneration stage:

- a) In this stage the medium basal area is up to 8 m²/ha;
- b) Low sized herbaceous/shrubby physiognomy ; medium height of up to 4 meters and a vegetation cover that varies between closed and open;
- c) Ligneous species with low amplitude diametric distribution : medium DAP of up to 8 centimeters;
- d) Epiphytes, when present, are mainly represented by lichen, bryophytes and pteridophytes of low diversity;
- e) Creepers, when present, are generally herbaceous;
- f) The understory, if existent, forms a thin layer in a low stage of decomposition, continues our not;
- g) variable biological diversity with few arboreal or bush species, may include seedlings of species that are characteristic to other stages;
- h) Abundant pioneer species;
- i) Absence of underwood;
- j) Indicator species:

j.1) Dense Ombrophylous Forest: *Pteridium aquilium* (Samambaia-das-Taperas), and hemicriptophytes *Melinis minutiflora* (Capim-gordura) and *Andropogon bicornis* (capim-andaime or capim-rabo-de-burro) that are more abundant and invading in the first covering phase of degraded soils, as well as *tenófitas* *Biden pilosa* (picão-preto) and *Solidago microglossa* (vara-de-foguete), *Baccharis elaeagnoides* (vassoura) and *Baccharis dracunculifolia* (Vassoura-braba),

j.2) Mixed Ombrophilous Forest: *Pteridium aquilium* (Samambaia-das Taperas), *Melinae mi-nutiflora* (Capim-gordura), *Andropogon bicornis* (Capim-andaime or Capim-rabo-de-burro), *Biden pilosa* (Picão-preto), *Solidago microglossa* (Vara-de-foguete), *Baccharis elaeagnoides* (Vassoura), *Baccharis dracunculifolia* (Vassoura-braba), *Senecio brasiliensis* (Flôr-das-almas), *Cortadelia sellowiana* (Capim-navalha or macegão), *Solanum erianthum* (fumo-bravo).

j.3) Seasonal Deciduous Forest: *Pteridium aquilium* (Samambaia-das-Taperas), *Melinis minutiflora* (Capim-gordura), *Andropogon bicornis* (Capim-andaime or Capim-rabo-de-bur-ro), *Solidago microglossa* (Vara-de-foguete), *Baccharis elaeagnoides* (Vassoura), *Baccharis dracunculifolia* (Vassoura-braba), *Senecio brasiliensis* (Flôr-das-almas), *Cortadelia sellowiana* (Capim-navalha or macegão), *Solanum erianthum* (Fumo-bravo).

II – Medium stage of regeneration:

- a) In this stage the medium basal area is up to 15.00 m²/ha;

³⁷ Law revoked by Law 9.649 from May 27, 1998

- b) The arboreal and shrubby physiognomy predominates over the herbaceous and may be composed of differentiated strata; total medium height of up to 12 meters;
- c) Arboreal cover that varies from open to closed and can include the presence of emerging individuals;
- d) Diametric distribution of moderate amplitude and mainly small diameters; medium DAP of up to 15 centimeters;
- e) Epiphytes are present in a larger quantity of individuals and species in relation to the initial stage and are more abundant in ombrophylous forests;
- f) Creepers, when present, are predominantly ligneous;
- g) Understory with varying thickness depending on season and location;
- h) Significant biological diversity;
- i) Underwood;
- j) Indicator species:
 - j.1) Dense Ombrophylous Forest: *Rapanea Ferruginea* (Capororoca), tree of height between 7 and 15 meters associated to *Dodonea viscosa* (Vassoura-vermelha).
 - j.2) Mixed Ombrophylous: *Cupanea vernalis* (Cambotá-vermelho), *Schinus therebenthifolius* (Aroeira-vermelha), *Casearia silvestris* (Cafezinho-do-mato).
 - j.3) Seasonal Deciduous Forest: *Inga marginata* (Inga feijão), *Baunilha candicans* (Pata-de-vaca).

III – Advanced stage of regeneration:

- a) The basal area in this stage is of up to 20.00 m²/ha;
- b) Dominant arboreal physiognomy forming a closed and relatively uniform canopy which can include emerging trees; medium height of up to 20 meters;
- c) Emergent species occur with different degrees of intensity;
- d) Tree tops are horizontal and broad;
- e) Epiphytes present with a large number of species and in great abundance, in particular in the ombrophylous forest;
- f) High amplitude diametric distribution: medium DAP of up to 25 centimeters;
- g) Creepers are in general ligneous and more abundant and rich in species in the seasonal forest;
- h) Abundant understory;
- i) High level of biological diversity due to structural complexity;
- j) Herbaceous, shrub strata and in particular arboreal;
- k) Forests in this stage can present a physiognomy that is similar to primary vegetation;
- l) Underwood that is, as a rule, less developed than in the medium stage;
- m) Dominant species may be present, depending on the forest formation;
- n) Indicator species:
 - n.1) Dense Ombrophylous Forest: *Miconia cinnamomifolia*, (Jacatirão -açú), tree of a height of between 15 and 20 meters, forming dense groups, with round treetops and olive green leaves, limited by the Tubarão area, *Psychotria longipes* (Caxeta), *Cecropia adenopus* (Embaúba), which form the first elements of the secondary vegetation, with the presence of *Euterpe edulis* (palmiteiro), *Schizolobium parahiba* (Guapuruvu), *Bathiza meridionalis* (Macaqueiro), *Piptadenia gonoacantha* (pau-jacaré) and *Hieronyma alchorneoides* (licurana), *Hieronyma alchorneoides* (licurana) starts to substitute *Miconia cinnamomifolia* (Jacatirão-açu), including the presence *Alchornea triplinervia* (Tanheiro), *Nectandra leucothyrsus* (Canela-branca), *Ocotea catharinensis* (Canela-preta), *Euterpe-edulis* (Palmiteiro), *Talauma ovata* (Baguaçu), *Chrysophyllum viride* (Aguai) and *Aspidosperma olivaceum* (peroba-vermelha), among other.
 - n.2) Mixed Ombrophylous Forest: *Ocotea puberula* (Canela guaica), *Piptocarpa angustifolia* (Vassourão-branco), *Vernonia discolor* (Vassourão-preto), *Mimosa scabrella* (Bracatinga).
 - n.3) Seasonal Deciduous Forest: *Ocotea puberula* (Canela-guaicá), *Alchornea triplinervia* (Tanheiro), *Parapiptadenia rigida* (Angico-vermelho), *Patagonula americana* (Guajuvirá), *Enterolobium contortisiliquum* (Timbauva).

Art. 4 The characterization of the vegetation regeneration stages defined in art. 3 and the medium DAP parameters, medium height and basal area included in art. 1 of this Resolution are not applicable to mangroves and beaches.

Single paragraph. Beaches will be subjected to specific regulations.

Art. 5 The parameters related to medium basal area, medium height and medium DAP defined in this Resolution, except for mangroves and beaches, are valid for all other existing forest formations within the territory of the Santa Catarina State, according to the demands set by Decree 750/93; other parameters may present differentiations due to local relief, climate and soil; and earlier land exploitation. Likewise, the above factors may lead to the exclusion of one or more indicator species, named in art. 3, which does not have any significant effect on its successional stage.

Art. 6 This Resolution shall enter into effect on the date of its publication and all provisions to the contrary are hereby revoked.

HENRIQUE BRANDÃO CAVALCANTI – Council President

NILDE LAGO PINHEIRO – Executive Secretary

This text does not substitute the text published in the Official Gazette on June 17, 1994.

CONAMA RESOLUTION 5, May 4, 1994
Published in Official Gazette 101 on May 30, 1994, Section 1, pages 7912-7913

Correlations:

- Compliance with art. 6 of Decree 750/93 and art. 1, § 1 of CONAMA Resolution 10/93
- Validated by CONAMA Resolution 388/07 in order to comply with the provisions of Law Lei nº 11.428 from Dec. 22, 2006

Defines the Atlantic Forest primary and secondary vegetation in their initial, medium and advanced stages of regeneration in order to provide guidelines to environmental licensing processes related to forestry activities in the State of Bahia.

THE NATIONAL ENVIRONMENT COUNCIL –CONAMA, in accordance with the power bestowed upon the Council by Law 6.938 from Aug. 31, 1981, changed by Law 8.028 from April 12, 1990, regulated through 99.274 from June 6, 1990 and Law 8.746 from Dec. 9, 1993, considering the provisions of Law 8.490 from Nov. 19, 1992³⁸, and in accordance with its Internal Regulations, and

Considering the need to define Atlantic Forest primary and secondary vegetation in initial, medium and advanced stages of regeneration in compliance with the provisions set by art. 6 of Decree 750/93 from Feb. 10, 1993 and CONAMA Resolution 10 from Oct. 1, 1993 in order to provide guidelines to license procedures related to forestry activities in the State of Bahia, decides:

Art. 1 Primary vegetation is composed by the total vegetation community, locally dominant, with large biological diversity and exposed to minimal anthropic impact that does not significantly affect its original structure and species.

Art. 2 Secondary vegetation or in a state of regeneration is the result of natural processes that occur after the total or partial suppression of the primary vegetation through anthropic activities or natural causes and can lead to the presence of trees from the remains of primary vegetation.

Art. 3 The regeneration stages of secondary vegetation that are the subject of art. 6 of Decree 750/93 are defined as:

I – Initial regeneration stage:

a) Low stature herbaceous/shrubby physiognomy; medium height inferior to 5 meters for dense ombrophylous forests and seasonal semi-deciduous forest and medium height inferior to 3 meters for other forest formations, presenting a vegetation cover that varies between open and closed;

b) Ligneous species with low diametric amplitude distribution: medium DAP less than 8 centimeters for all forest formations;

c) Epiphytes, when present, are mostly composed of lichen, bryophytes pteridophytes with low diversity;

d) Creepers, when present, are mainly herbaceous;

e) Understory, when present, forms a thin layer in a low state of decomposition, continuous or not;

f) Variable biological diversity containing few arboreal or bushy species, may include the presence of seedlings that are characteristic to other stages;

g) Abundant pioneer species;

h) Absence of underwood;

i) Floristic density is higher in dense Ombrophylous forest zones and seasonal semi-deciduous zones and includes: bete (*Piper*); tiririca (*Scleria*); erva-de-rato (*Pshychotria*) (*Palicourea*); canela-de-velho, mundururu (*Clidemia*) (*Miconia*) (*Henriettea*); quaresmeira (*Tibouchina*); corindiba (*Trema*); bananeirinha, paquevira (*Heliconia*); (*Telepteris*); piaçaba, indaiá (*Attalea*); sapé (*Imperata*); unha-de-gato (*Mimosa*); assa-peixe (*Vernonia*); lacre, capianga (*Vismia*).

Within other forest formations: gogoia, coerana (*Solanum*) (*Cestrum*); velame, pinhão-bravo (*Croton*) (*Jatropha*) (*Cnidocolus*); cansaço (*Cnidocolus*); jurema, candeia, calumbi (*Mimosa*) (*Piptadenia*); cipós (*Anemopaegma*) (*Pyrostegia*); cipó-tingui (*Serjania*).

II – Medium regeneration stage:

a) Arboreal and/or shrubby physiognomy predominantly herbaceous, may include differentiated strata; the medium height is 5 to 12 meters for dense ombrophylous and seasonal semi-deciduous forests and 3 to 5 meters for other forest formations;

b) Arboreal cover that varies from open to closed and may include emergent individual;

c) Moderate diametric distribution amplitude, predominated by small diameters: Medium DAP between 8 and 18 centimeter for dense ombrophylous and seasonal semi-deciduous forests and medium DAP between 8

³⁸ Law revoked by Law 9.649 from May 27, 1998.

and 12 centimeters for other forest formations;

d) Epiphytes show a larger number of individuals and species in comparison with the initial stage and are more abundant in ombrophylous forests;

e) Creepers, when present, are predominantly ligneous;

f) Understory, with varying thickness depending on seasons and locations;

g) Significant biological diversity;

h) Underwood;

i) Floristic density is higher in dense ombrophylous forest zones and seasonal semi-deciduous zones and includes: amescla (*Protium*); sucupira (*Bowdichia*); pau-d'arco (*Tabebuia*); murici (*Byrsonima*); pau-pombo (*Tapirira*); bicuiba (*Viola*); ingá (*Inga*); boleira (*Joannesia*); cocão (*Pogonophora*); morototo, sambaquim (*Didymopanax*); pau-paraíba (*Simarouba*); açoita-cavalo (*Luehea*); araticum (*Duguetia*) (*Gutteria*); amoreira (*Helicostylis*) (*Maclura*); cambuí, murta (*Myrcia*); camboatá (*Cupania*); sete-cascos (*Pera*).

Within other forest formations: surucuru, angico (*Piptadenia*) (*Anadenanthera*); pau-ferro (*Enterolobium*); flor-de-são-joão (*Senna*); mororó (*Bauhinia*); baraúna, cajá (*Schinopsis*) (*Spondias*); aroeira (*Astronium*); imburana-de-cheiro (*Amburana*); (*Centrolobium*); pereiro, peroba (*Aspidosperma*); quixabeira (*Bumelia*); pau-d'arco (*Tabebuia*).

III – Advanced regeneration stage:

a) Dominance of arboreal physiognomy forming a closed canopy and relatively uniform which may also include emerging trees; the medium height is over 12 meters for dense ombrophylous and seasonal semi-deciduous forests and over 5 meters in other forest formations;

b) Occurrence of emerging species with different degrees of intensity;

c) Horizontal and broad treetops;

d) Epiphytes present in large numbers of species and in abundance, in particular within ombrophylous forests;

e) Large diametric distribution amplitude: Medium DAP over 18 centimeters in dense and seasonal semi-deciduous ombrophylous forests and medium DAP over 12 centimeters in other forest formations;

f) Creepers generally ligneous and are more abundant and rich in the number of species within seasonal forests;

g) Abundant understory;

h) Very large biological biodiversity due to structural complexity;

i) Herbaceous, shrubby and in particular arboreal strata;

j) Forests in this stage may present characteristics similar to those possessing primary vegetation;

k) Underwood generally less abundant than in medium regeneration stages;

l) Dominant species may occur depending on the type of forest formation;

m) Floristic density is higher in dense ombrophylous forest zones and seasonal semi-deciduous zones and includes: oiti (*Licania*) (*Couepia*); louros (*Ocotea*) (*Nectandra*); manaiuba, jundiba (*Sloanea*); munguba, muçambê (*Buchenavia*); juerana, tambaipé (*Parkia*) (*Stryphonodendron*); conduru (*Brosimum*) (*Helicostylis*); oiticica, catrus (*Clarisia*); camaçari (*Caraipa*); bacupari (*Rheedia*); sapucaia (*Lecythis*); juerana-branca, inga (*Macrosamanea*) (*Inga*); randuba, paraju (*Manilkara*); fruta-de-pomba (*Pouteria*) (*Chrysophillum*); pau-paraíba (*Simarouba*); pau-jangada (*Apeiba*); mucugê (*Couma*); imbiruçu (*Bombax*).

Within other forest formations: barriguda (*Cavanillesia*); vilão, madeira-nova (*Pterogyne*); violeta, jacarandá (*Machaerium*) (*Dalbergia*); pau-sangue (*Pterocarpus*); sucupira-branca (*Pterodon*); peroba (*Aspidosperma*); baraúna (*Schinopsis*); pau-d'arco (*Tabebuia*); freijó, claraíba (*Cordia*); tapicuru (*Goniorrachis*); mussambê (*Manilkara*).

Art. 4 The characterization of the vegetation regeneration stages defined in art. 3 and the medium DAP parameters, medium height and basal area included in art. 1 of this Resolution are not applicable to mangroves and beaches.

Single paragraph. Beachs will be subjected to specific regulations.

Art. 5 The parameters related medium height and medium DAP defined in this Resolution, except for mangroves and beaches, are valid for all other existing forest formations within the territory of the State of Bahia, according to the demands set by Decree 750/93; other parameters may present differentiations due to local relief, climate and soil; and earlier land exploitation.

Art. 6 This Resolution shall enter into effect on the date of its publication and all provisions to the contrary are hereby revoked.

HENRIQUE BRANDÃO CAVALCANTI – Council President

NILDE LAGO PINHEIRO – Executive Secretary

his text does not substitute the text published in the Official Gazette on May 30, 1994.

CONAMA RESOLUTION 6, May 4, 1994

Published in Official Gazette 101 on May 30, 1994, Section 1, pages 7913-7914

Correlations:

- Compliance with art. 6 of Decree 750/93 and art. 1, § 1 of CONAMA Resolution 10/93
- Validated by CONAMA Resolution 388/07 in order to comply with Law 11.428 from December 22, 2006

Establishes definitions and measurable parameters for the analysis of the successional ecological stages of the Atlantic Forest in the State of Rio de Janeiro.

THE NATIONAL ENVIRONMENT COUNCIL –CONAMA, in accordance with the power bestowed upon the Council by Law 6.938 from Aug. 31, 1981, changed by Law 8.028 from April 12, 1990, regulated through 99.274 from June 6, 1990 and Law 8.746 from Dec. 9, 1993, considering the provisions of Law 8.490 from Nov. 19, 1992³⁹, and in accordance with its Internal Regulations, and

Considering the provisions of § 1, of art. 1 of CONAMA Resolution 10 from Oct. 1, 1993, published in the Official Gazette on Nov. 3, 1993, which provisions the presentation of measurable parameters for the analysis of the successional ecology of the Atlantic Forest, decides:

Art. 1 The dominating primary forest vegetation is considered the primary vegetation of the Rio de Janeiro State, holding a large biological diversity and suffering from minimal effects of anthropic impacts which do not significantly change its original characteristics and the structure of its species.

Art. 2 The Atlantic Forest of Rio de Janeiro State comprise the Dense Ombrophylous Forest and the Seasonal Semi-Deciduous Forest which, in their successional secondary stages possess the following parameters based on samples from arboreal individuals with a medium DAP of 10 centimeters.

§1 Initial Stage:

- herbaceous/shrubby physiognomy, open or closed cover, predominantly populated by heliophytic plants; ligneous plants, when present, have a medium DAP of 5 centimeters and a height of up to 5 meters;
- present ligneous individuals belong to a maximum of 20 botanical species per hectare;
- species show rapid growth rates and a short biological cycle
- the age of the community varies between 0 and 10 years;
- the medium basal areas is between 0 and 10 m²/ha;
- epiphytes are rare, creepers may be present;
- underwood is absent;
- understory, when present, forms a thin layer in low stages of decomposition, continuous or not;
- the most common small size or herbaceous species that are indicators of this stage are: alecrim-do-campo *Baccharis dracunculifolia* (Compositae), assa-peixe *Vernonia polyanthes* (Compositae), cambará *Lantana camara* (Verbenaceae), guaximba *Urena lobata* (Malvaceae), guizo-de-cascavel *Crotalaria mucronata* (Leguminosae), erva-colégio- *Elephantopus mollis* (Compositae), juá *Solanum aculeatissimum* (Solanaceae), jurubeba *Solanum paniculatum* (Solanaceae), pindoba *Attalea humilis* (Palmae), pixirica *Clidemia hirta* (Melastomataceae), sapê *Imperata brasiliensis* (Gramineae), samambaia-das-taperas *Pteridium aquilinum* (Polypodiaceae), oficial-de-sala *Asclepias curassavica* (Asclepiadaceae), vassourinha *Sida* spp. (Malvaceae), falsa-poaia *Borreria verticillata* (Rubiaceae), cipó-cabeludo *Mikania* spp. (Compositae),

- the most common ligneous species and indicators of this stage are: angico *Aradenanthera colubrina* (Leguminosae), araçá *Psidium cattleianum* (Myrtaceae), aroeira *Schinus terebinthifolius* (Anacardiaceae), crindiúva *Trema micrantha* (Ulmaceae), embaúbas *Cecropia* spp. (Moraceae), esperta *Peschiera laeta* (Apocynaceae), goiabeira *Psidium guajava* (Myrtaceae), maricá *Mimosa bimucronata* (leguminosae), candeia *Vanillosmopsis erythropappa* (Compositae), tapiá *Alchornea iricurana* (Euphorbiaceae), sangue-de-drago *Croton urucurana* (Euphorbiaceae)

§ 2 Medium Stage:

- shrubby/arboreal physiognomy, closed cover showing signs of differentiation and surging shadow species;
- ligneous species eliminate the initial stage herbaceous or small sized components through their shadow;
- three possess a medium DAP that varies between 10 and 20 centimeters, medium height varies between 5 and 12 meters and age between 11 and 25 years;
- understory is always present and contains many seedlings;
- medium basal area varies between 10 and 28 m²/ha;
- many initial stage trees can be thicker and higher;
- underwood;
- creepers, when present, are predominantly ligneous;
- other arboreal species are also typical of this stage and indicator species are: açoita-cavalo *Luethea grandiflora* (Tiliaceae), carrapeta *Guarea guidonia* (Meliaceae), maminha-de-porca *Zanthoxylon rhoifolium*

³⁹ Law revoked by Law 9.649 from May 27, 1998.

(*Rutaceae*), jacatirão *Miconia fairchildiana* (*Melastomataceae*), guaraperê *Lamanonia ternata* (*Cunoniaceae*), ipê-amarelo *Tabebuia chrysotricha* (*Bignoniaceae*), cinco-folhas *Sparattosperma leucanthum* (*Bignoniaceae*), caroba *Cybistax antisiphilitica* (*Bignoniaceae*), guapuruvu *Schizolobium parahiba* (*Leguminosae*), aleluia - *Senna multijuga* (*Leguminosae*), canudeiro - *Senna macranthera* (*Leguminosae*), pindaíba *Xylopia brasiliensis* (*Annonaceae*), camboatá *Cupania oblongifolia* (*Sapindaceae*);

j) the most usual underwood plants are: aperta-ruão, jaborandi *pp.* (*Piperaceae*), caapeba *Potomorphepp.* (*Piperaceae*), fumo-bravo *Solanum sp.* (*Solanaceae*), grandióva-d'anta *Pshychotria leiocarpa* (*Rubiaceae*), sonhos-d'ouro *Pshychotria nuda* (*Rubiaceae*), caeté *Maranta spp.* (*Marantaceae*), pacová *Helioconia spp.* (*Musaceae*).

§ 3 Advanced Stage:

a) arboreal physiognomy, closed cover forming a relatively uniform canopy, may contain emerging trees, differentiated underwood and one or several strata composed by shadow plant species;

b) large variety of ligneous species with a medium DAP of 20 centimeters and over 20 meters in height;

c) community with an age of over 25 years;

d) presence of lianas, creepers and an abundance of epiphytes;

e) the medium basal area is higher than 28 m²/ha;

f) understory is always present and in a strong decomposition;

g) arboreal species may be remains from the medium stage and species that characterize this stage are: canela-santa *Vochysia laurifolia* (*Vochysiaceae*), araribá *Centrolobium robustum* (*Leguminosae*), canela *Ocotea*, *Nectandra*, *Cryptocarya* (*Lauraceae*), canjerana *Cabralea canjerana* (*Meliaceae*), cedro *Cedrela fissilis* (*Meliaceae*), xixá *Sterculia chicha* (*Sterculiaceae*), sapucaia *Lecythis pisonis* (*Lecythidaceae*), cotieira *Johannesia princeps* (*Euphorbiaceae*), garapa *Apuleia leiocarpa* (*Leguminosae*), figueira *Ficus spp.* (*Moraceae*), jequitibá-branco *Cariniana legalis* (*Lecythidaceae*), jequitibá-rosa *Cariniana estrellensis*, jequitibá-rosa *Couratari pyramidata* (*Lecythidaceae*), bicuíba *Virola oleifera* (*Miristicaceae*), vinhático *Plathymenia foliolosa* (*Leguminosae*), perobas *Aspidosperma spp.* (*Apocynaceae*), guapeba *Pouteria sp.* (*Sapotaceae*), pau-d'alho *Gallezia integrifolia* (*Phytolaccaceae*), airi *Astrocaryum aculeatissimum* (*Palmae*), aricanga *Geonoma spp.* (*Palmae*), palmito *Euterpe edulis* (*Palmae*), pindobuçú *Attalea dubia* (*Palmae*);

h) underwood is less expressive than in the previous stage and as a rule very rich in shadow plant species, the number of rubiaceae and marantaceae is greater and in particular the appearing of Criciúma *Olyra spp.* (*Gramineae*), *Leandra spp.* (*Melastomataceae*), and many species from the *Pteridophyta* family.

§ 4 The parameters defined in this article do not apply to beaches which will be the object of specific regulation.

Art. 3 The parameters that are hereby provided in order to typify the different stages of successional secondary ecology vary from one region to another and depend on topographical, edaphic, climatic conditions as well as the previous use of the land where the forest is located, dubious cases or cases that are not foreseen by this Resolution must be analyzed and defined by the respective competent organs.

Art. 4 This Resolution shall enter into effect on the date of its publication and all provisions to the contrary are hereby revoked.

HENRIQUE BRANDÃO CAVALCANTI – Council President

NILDE LAGO PINHEIRO – Executive Secretary

This text does not substitute the text published in the Official Gazette on May 30, 1994.

CONAMA RESOLUTION 12, May 4, 1994
Published in Official Gazette 149, Aug. 5, 1994, Section 1, pages 11824-11825

Correlations:

· Compliance with art. 8, § 1 of CONAMA Resolution 10/93

Approves the Glossary of Technical Terms created by the Temporary Technical Chamber for Atlantic Forest Affairs.

THE NATIONAL ENVIRONMENT COUNCIL –CONAMA, in accordance with the power bestowed upon the Council by Law 6.938 from Aug. 31, 1981, changed by Law 8.028 from April 12, 1990, regulated through 99.274 from June 6, 1990 and Law 8.746 from Dec. 9, 1993, considering the provisions of Law 8.490 from Nov. 19, 1992⁴⁰, and in accordance with its Internal Regulations, and

Considering the provisions of art. 8 of CONAMA Resolution 10 from Oct. 10, 1993, decides:

Art. 1 To approve the Glossary of Technical Terms produced by the Temporary Technical Chamber for Atlantic Forest Affairs.

Wild: phytogeographical zone in the Brazilian Northeast between the Forest and the Inlands, characterized by rocky soil and small and scarce vegetation.

High mountainous: related to high elevation environments, above 1.500 meters.

Amaryllidaceae: botanic family that includes, among other, lilies.

Halophyte environment: environment characterized by the presence of vegetation that is tolerant to salt.

Anthropic: related to human action.

Basal area: area in square meters that is occupied by one or a group of trees.

Bryophytes: vegetable with small dimensions, without internal sap conduction channels, such as moss.

Cacti: family of plants that lack leaves and have a thick stem in order to reserve water. Possess generally a certain quantity of thorns; ornamental flowers with many petals and stems and produce fruits that are sometimes edible.

Edaphic community: group of vegetation populations that depend on the same kind of soil.

Structural complexity: group of forest species whose individuals interact with each other and provide singular forest characteristics due to the distribution and abundance of the species, strata formation and biological diversity.

Litholic ridges: the highest point of a hill or elevation that is basically formed by rocks

Deciduous: are plants that drop their leaves during certain periods of the year.

Diametric distribution: is the measure of stem diameters taken at 1.3 meters from the soil (DAP).

Biologic Diversity: variety of individuals, communities, populations, species and ecosystems within a specific region.

Species dominance: is the degree of dominance by certain species in a community, due to size, abundance or coverage and which has an effect on the potential of other species.

Canopy: is the high forest strata that is formed by treetops.

Ecotone: contact or transition zone between two vegetation formations with different characteristics.

Edaphic: related to soil.

Endemism: native species, restricted to a certain geographical area.

Epiphyte: plant that grows on another plant but does not feed on it and does not absorb any live tissue from the host.

Emergent species: species whose tree top grows higher than the medium forest canopy in order to reach for light.

Indicator species: species whose presence indicates the existence of certain environmental characteristics of its environment.

Pioneer species: species that establishes itself in a region, area or habitat that it did not previously occupy and starts to colonize empty areas.

Strata: the vegetation layer of a vegetation community . Examples: herbaceous strata, shrubby and arboreal.

Selective Exploitation: Previously determined extraction of species or products.

Physiognomy: characteristic features of a vegetation community.

Seasonal forest: forest that is subjected to adverse climatic effects, dry or cold, which leads to leave loss.

Ombrophylous forest: forest that occurs in shadowy environments with high and constant levels of humidity throughout the year.

Higrophyle: vegetation that is adapted to an environment with high levels of humidity.

Latifoliated: vegetation that contains an abundance of species with large leaves.

⁴⁰ Law revoked by Law 9.649 from May 27, 1998.

Lichen: permanent association between an algae and a fungus which are usually found on tree trunks and rocks.

Mesophilic: vegetation adapted to environmental conditions with relatively low availability of water, in the soil and atmosphere.

Mountainous: environments situated at between 500 and 1.500 meters above sea level.

Seedlings: young or newly germinated plant.

Pteridophytes: plants without flowers that reproduce through spores. Ex: ferns.

Estuary region: coastal area where fresh water is mixed with salt water.

Remains: spots of Atlantic Forest Primary or Secondary native vegetation.

Understory: layers of leaves, branches and other organic materials that covers the forest soil. **Underwood:** inferior forest strata. Vegetation that grows under trees.

Xerophyte: vegetation adapted to dry habitats.

Art. 2 This Resolution shall enter into effect on the date of its publication.

HENRIQUE BRANDÃO CAVALCANTI – Council President

NILDE LAGO PINHEIRO – Executive Secretary

This text does not substitute the text published in the Official Gazette on August 5, 1994.

CONAMA RESOLUTION 25, December 7, 1994
Published in Official Gazette 248 on December 30, 1994, Section 1, pages 21346-21347

Correlations:

- Compliance with art. 6 of Decree 750/93 and art. 1, § 1 of CONAMA Resolution 10/03
- Validated by CONAMA Resolution 388/07 in order to fulfill the provisions of Law 11.428 from December 22, 2006

Defines the Atlantic Forest primary and secondary vegetation in their initial, medium and advanced stages of regeneration in order to provide guidelines to environmental licensing processes related to forestry activities in the State of Ceará.

THE NATIONAL ENVIRONMENT COUNCIL –CONAMA, in accordance with the power bestowed upon the Council by Law 6.938 from Aug. 31, 1981, changed by Law 8.028 from April 12, 1990, regulated through 99.274 from June 6, 1990 and Law 8.746 from Dec. 9, 1993, considering the provisions of Law 8.490 from Nov. 19, 1992⁴¹, and in accordance with its Internal Regulations, and

Considering the need to define Atlantic Forest primary and secondary vegetation in initial, medium and advanced stages of regeneration in compliance with the provisions set by art. 6 of Decree 750/93 from Feb. 10, 1993 and CONAMA Resolution 10 from Oct. 1, 1993 in order to provide guidelines to license procedures related to forestry activities in the State of Ceará, decides:

Art. 1 Primary vegetation is composed by the total vegetation community, locally dominant, with large biological diversity and exposed to minimal anthropic impact that does not significantly affect its original structure and species.

Art. 2 Secondary vegetation or in a state of regeneration is the result of natural processes that occur after the total or partial suppression of the primary vegetation through anthropic activities or natural causes and can lead to the presence of trees from the remains of primary vegetation.

Art. 3 The regeneration stages of secondary vegetation that are the subject of art. 6 of Decree 750/93 are defined as:

I – Initial regenerations stage:

- a) herbaceous/shrubby physiognomy forming strata that varies from open to closed containing species predominantly halophytes with a medium height of up to 4 meters;
- b) small diametric distribution amplitude, medium DAP of up to 5 centimeters, medium basal area of 4m²/ha;
- c) epiphytes are mainly represented by lichen, bryophytes and pteridophytes with low diversity;
- d) creepers, when present, are mainly herbaceous;
- e) understory, when present, forms a thin layer in a low state of decomposition, continuous or nor;
- f) varied biological diversity, with few arboreal or bushy species, may show the presence of seedlings of species that are characteristic to other stages;
- g) abundant pioneer species;
- h) absence of underwood;
- i) indicator species: *Psychotria colorata*; *Clidemia sp.*; *Miconia sp.*; *Pteridium aquilium*; *Brumfelsia uniflora*.

II – Medium regeneration stage:

- a) shrubby and arboreal physiognomy dominates over herbaceous;
- b) the basal medium area of this stage is varies between 5 and 14 m²/ha, medium DAP of 5 to 14 centimeters and medium height between 4 and 10 meters;
- c) arboreal cover varies from open to closed and may show occurrences of emergent individuals;
- d) large number of epiphyte individuals and species diversity in comparison with the initial stage and more abundant within Ombrophylous forests;
- e) creepers, when present, are predominantly ligneous;
- f) understory varies with seasons and with hillside inclination;
- g) significant biological diversity;
- h) underwood;
- i) indicator species: *Machaerium amplum* (espinho-de-judeu); *Bauchinia jorticata* (mororó); *Cordia trichotoma* (freijó); *Braosimum gaudichaudii* (inharê).

III – Advanced regeneration stage:

- a) domination arboreal physiognomy that forms an uniform and continuous canopy and may include the

⁴¹ Law revoked by Law 9.649 from May 27, 1998.

presence of emergent trees. Treetops are horizontal and broad.

- b) Medium DAP over 14 centimeters, basal area over DAP 14 m²/ha and medium height over 10 meters;
- c) epiphytes in large numbers of species and individuals, in particular within ombrophyllous forests;
- d) abundant understory;
- e) large biological diversity;
- f) forests in this stage may present characteristics that are similar to primary vegetation;
- g) underwood generally less abundant than that of medium stages;
- h) indicator species: *Manilkara rufula* (massaranduba); *Miroxylon peruiferum* (bálsamo); *Copaifera langsdorffii* (copaíba); *Bulchenavia capitata* (mirindiba); *Ataleia ovata* (amarelão); *Basiloxylon brasiliense* (piroá).

Art. 4 The characterization of the vegetation regeneration stages defined in art. 3 and the medium DAP parameters, medium heights and basal areas included in art. 1 of this Resolution is not applicable to mangroves and beaches.

Single paragraph. Beaches will be subjected to specific regulations.

Art. 5 This Resolution shall enter into effect on the date of its publication and all provisions to the contrary are hereby revoked.

HENRIQUE BRANDÃO CAVALCANTI – Council President

ROBERTO SÉRGIO STUDART WIEMER – Executive Secretary

This text does not substitute the text published in the Official Gazette on Dec. 30, 1994.

CONAMA RESOLUTION 26, Dec. 7, 1994
Published in Official Gazette 248 on December 30, 1994, Section 1, page 21347

Correlations:

- Compliance with art.6 of Decree 750/93 and art. 1, § 1 of CONAMA Resolution 10/93
Validated by CONAMA Resolution 388/07 in order to fulfill the provisions of Law 11.428 from December 22, 2006

Defines the Atlantic Forest primary and secondary vegetation in their initial, medium and advanced stages of regeneration in order to provide guidelines to environmental licensing processes related to forestry activities in the State of Piauí.

THE NATIONAL ENVIRONMENT COUNCIL –CONAMA, in accordance with the power bestowed upon the Council by Law 6.938 from Aug. 31, 1981, changed by Law 8.028 from April 12, 1990, regulated through 99.274 from June 6, 1990 and Law 8.746 from Dec. 9, 1993, considering the provisions of Law 8.490 from Nov. 19, 1992⁴², and in accordance with its Internal Regulations, and

Considering the need to define Atlantic Forest primary and secondary vegetation in initial, medium and advanced stages of regeneration in compliance with the provisions set by art. 6 of Decree 750/93 from Feb. 10, 1993 and CONAMA Resolution 10 from Oct. 1, 1993 in order to provide guidelines to license procedures related to forestry activities in the State of Piauí, decides:

Art. 1 Primary vegetation is composed by the total vegetation community, locally dominant, with large biological diversity and exposed to minimal anthropic impact that does not significantly affect its original structure and species.

Single paragraph. The vegetation that is the subject of this article is composed by the forest formations denominated Seasonal Deciduous Forest (Low Land Forest, Sub-Mountainous Forest and Mountainous Forest), Seasonal Semi-Deciduous Forest (Sub-Mountainous and Mountainous Forest), beaches and mangroves.

Art. 2 Secondary vegetation or in a state of regeneration is the result of natural processes that occur after the total or partial suppression of the primary vegetation through anthropic activities or natural causes and can lead to the presence of trees from the remains of primary vegetation.

Art. 3 The regeneration stages of secondary vegetation that are the subject of art. 6 of Decree 750/93 are defined as:

I – Initial regeneration stage:

- a) small herbaceous/shrubby physiognomy with a medium height of less than 5 meters and a vegetation cover that varies from closed to open;
- b) ligneous species with low diametric distribution amplitude; medium DAP of less than 8 centimeters;
- c) epiphytes, when present, are mainly represented by lichen, bryophytes and pteridophytes with low biological diversity;
- d) creepers, when present, are mainly herbaceous;
- e) understory, when present, forms a thin layer with low decomposition and continuous or not;
- f) varied biological diversity with few arboreal or shrubby species and may include seedlings of species that are characteristic to other stages;
- g) abundant pioneer species;
- h) absence of underwood;
- i) floristic is mainly represented by: *Cnidocolus sp.* (urtiga-branca); *Cassia sp.* (mata-pasto); *Mimosa sp.* (espinheiro); *Vismia sp.* (lacre ou pau-de-lacre); *Himathanthus sp.* (janaguba ou pau-de-leite); *Attalea sp.* (piaçaba); *Psidium sp.* (araçá); *Lantana sp.* (cambaré); *Tibouchina sp.* (quaresmeira); *Scleria sp.* (tiririca); *Psychotria sp.* (erva-de-rato); *Platymeria sp.* (candeia); *Pithecelobium sp.* (jurema) e *Croton sp.* (velame).

II – Medium regeneration stage;

- a) arboreal and/or shrubby physiognomy that can form differentiated strata; medium height is between 5 and 12 meters;
- b) arboreal cover, varying between open and closed and possibly containing emergent individuals;
- c) centimeters;
- d) epiphytes in a larger numbers of individuals when compared to the initial stage;
- e) creepers, when present, are predominantly ligneous;
- f) understory, of varied thickness depending on season and location;
- g) significant biological diversity;
- h) underwood;
- i) floristic is ,mainly represented by: *Caesalpinia sp.* (catingueiro); *Thiloua sp.* (sipauaba); *Bowdichia sp.* (sucupira); *Sclerolobium sp.* (pau-pombo); *Inga sp.* (ingá); *Simarouba sp.* (pau-paraíba); *Luehea sp.* (açoita-cavalo); *Annona sp.* (araticum); *Myrcia sp.* (murta); *Enterolobium sp.* (tamboril); *Caesalpinia sp.* (pau-ferro); *Bauhinia sp.* (mororó); *Astronium sp.* (aroeira); *Bursera sp.* (imburana-de-cheiro); *Aspidosperma sp.* (peroba);

⁴² Law revoked by Law 9.649 from May 27, 1998.

Tabebuia sp. (pau-d'arco).

III – Advanced regeneration stage:

- a) dominating arboreal physiognomy forming a closed and relatively uniform canopy and may, or not, include emergent trees; medium height is over 12 meters;
- b) emergent species with different degrees of intensity;
- c) horizontal and broad treetops;
- d) large amplitude diametric distribution; medium DAP of over 18 centimeters;
- e) epiphytes present in large numbers of species and in abundance;
- f) creepers are generally ligneous;
- g) abundant understory;
- h) large significant biological diversity due to structural complexity
- i) herbaceous, shrubby and notably arboreal strata;
- j) forests in this stage may present characteristics that is similar to primary vegetation, differentiated by the intensity of anthropic impact;
- l) underwood that is less expressive than that of medium stages;
- m) existence of dominating species depending on forest formation;
- n) floristic is mainly represented by: *Guatteria* sp. (conduru); *Licania* sp. (oiticica); *Caráípa* sp. (camaçari); *Rheedia* sp. (bacupari); *Lecythis* sp. (sapucaia); *Macrosamanea* sp. (jurema-branca); *Simarouba* sp. (pau-paraiba); *Apeiba* sp. (jangada); *Caryocar* sp. (piquei ou pequi); *Bombax* sp. (imbiçu); *Cleome* sp. (mussambê); *Cavannilesia* sp. (barriguda); *Macherium* sp. (violeta); *Dalbergia* sp. (jacarandá); *Pterodon* sp. (sucupira-branca); *Aspidosperma* sp. (peroba); *Schynopsis* sp. (barauna); *Tabebuia* sp. (pau-d'arco); *Cordia* sp. (freijó).

Art. 4 The characterization of the vegetation regeneration stages defined in art. 3 and the medium DAP parameters, medium heights and basal areas included in art. 1 of this Resolution is not applicable to mangroves and beaches.

Single paragraph. Beachs will be subjected to specific regulations.

Art. 5 This Resolution shall enter into effect on the date of its publication and all provisions to the contrary are hereby revoked.

HENRIQUE BRANDÃO CAVALCANTI – Council President

ROBERTO SÉRGIO STUDART WIEMER – Substitute Executive Secretary

This text does not substitute the text published in the Official Gazette on Dec, 30,1994.

CONAMA Resolution 28, Dec. 7, 1994
Published in Official Gazette 248 on December 30, 1994, Section 1, pages 21348-21349

Correlations:

Compliance with art.6 of Decree 750/93 and art. 1, § 1 of CONAMA Resolution 10/93

Validated by CONAMA Resolution 388/07 in order to fulfill the provisions of Law 11.428 from December 22, 2006

Defines the Atlantic Forest primary and secondary vegetation in their initial, medium and advanced stages of regeneration in order to provide guidelines to environmental licensing processes related to forestry activities in the State of Alagoas.

THE NATIONAL ENVIRONMENT COUNCIL –CONAMA, in accordance with the power bestowed upon the Council by Law 6.938 from Aug. 31, 1981, changed by Law 8.028 from April 12, 1990, regulated through 99.274 from June 6, 1990 and Law 8.746 from Dec. 9, 1993, considering the provisions of Law 8.490 from Nov. 19, 1992⁴³, and in accordance with its Internal Regulations, and

Considering the need to define Atlantic Forest primary and secondary vegetation in initial, medium and advanced stages of regeneration in compliance with the provisions set by art. 6 of Decree 750/93 from Feb. 10, 1993 and CONAMA Resolution 10 from Oct. 1, 1993⁴⁴ in order to provide guidelines to license procedures related to forestry activities in the State of Alagoas, decides:

Art. 1 Primary vegetation is composed by the total vegetation community, locally dominant, with large biological diversity and exposed to minimal anthropic impact that does not significantly affect its original structure and species.

Art. 2 Secondary vegetation or in a state of regeneration is the result of natural processes that occur after the total or partial suppression of the primary vegetation through anthropic activities or natural causes and can lead to the presence of trees from the remains of primary vegetation.

Art. 3 The regeneration stages of secondary vegetation that is the subject of art. 6 of Decree 750/93, within the delimitations set for this State by the Brazilian Vegetation Map (IBGE/1988), are defined as:

I – Initial regeneration stage:

- a) medium height of up to 5 meters for ombrophylous forests and up to 3 meters for semi-deciduous seasonal forest;
- b) ligneous species with low amplitude diametric distribution: medium DAP up to 8 centimeters for ombrophylous forests and up to 5 centimeters for semi-deciduous forests;
- c) epiphytes, when present, are mainly represented by lichen, bryophytes and pteridophytes, with low diversity;
- d) creepers, when present, are generally herbaceous;
- e) understory, when present, forms a thin layer in a low state of decomposition, continuous or not;
- f) varied biological diversity with few arboreal or bushy species and may include seedlings of species that are characteristic to other stages;
- g) absence of underwood;
- h) indicator species:
 - h.1) ombrophylous forest: *Cecropia sp.* (imbaúba); *Stryphnodendron sp.* (favinha); *Byrsonima sp.* (murici); *Eschweilera sp.* (embiriba); *Tapirira guimensis* (cupiúba); *Himatanthus bracteatus* (banana-de-papagaio); *Sapium sp.* (leiteiro); *Thyrsodium schomburgkianum* (cabotã-de-leite); *Cocoloba sp.* (cabaçu); *Croton sp.* (marmeleiro); *Hortia sp.* (laranjinha);
 - h.2) semi-deciduous seasonal forests: *Stryphnodendron sp.* (canzenze); *Hortia arborea Engl.* (laranjinha); *Xilopia sp.* (pindaíba); *Eschweilera sp.* (embiriba); *Mimosa sp.* (espinheiro); *Bowdhchia sp.* (sucupira); *Cupania sp.* (Cabotão-de-rego); *Pithecolobium sp.* (barbatimão); *Cocoloba sp.* (cabaçu); *Pouteira sp.* (leiteiro-branco).

II – Medium regeneration stage:

- a) arboreal and/or shrubby phisiognomy that may compose differentiated strata, with a medium height of over 5 meters and less than 15 ,meters in ombrophylous forests and over 3 meters and less than 9 meters in semi-deciduous seasonal forests;
- b) arboreal cover, varying from open to closed, and possibly including emergent individuals;
- c) moderate diametric distribution amplitude predominantly of small diameters: medium DAP of up to 15 centimeters in both ombrophylous and semi-deciduous seasonal forests;
- d) epiphytes show a larger number of species and individuals than in the initial stage and are more abundant

⁴³ Law revoked by Law 9.649 from May 27, 1998.

⁴⁴ Correction of Resolution date as it contained na error in the text published on Dec.30, 1994.

in ombrophylous forests;

- e) creepers, when present, are mainly ligneous
- f) presence of understory with varied thickness depending on season and location;
- g) significant biological diversity;
- h) underwood;
- i) indicator species:

i.1) ombrophylous forests: *Himatanthus bracteatus* (banana-de-papagaio); *Byrsonima* sp. (murici); *Manilkara* sp. (maçaranduba); *Bombax* sp. (munguba); *Attalea* sp. (catolé); *Ditymopanax morototoni* (sambaquim); *Lecythis* sp. (sapucaia); *Thyrsodium schomburgkianum* (cabotã-de-leite); *Eschweilera* sp. (embiriba); *Cecropia* sp. (embaúba); *Tapirira guianensis* (cupiuba); *Stryphnodendron* sp. (barbatimão);

i.2) semi-deciduous seasonal forests: *Stryphnodendron* sp. (canzenze); *Syagrus coronata* (ouricuri); *Cupania* sp. (cabotã-de-rego); *Mimosa* sp. (espinheiro); *Hortia arborea* (laranjinha); *Bowdichia* sp. (sucupira); *Pisonia* sp. (piranha); *Cocoloba* sp. (cabaçu); *Byrsonima* sp. (murici); *Stryphnodendron* sp. (favinha); *Anacardium* sp. (cajueiro-bravo); *Cecrópia* sp. (embaúba); *Couepia* sp. (carrapeta).

III – Advanced regeneration stage:

a) dominating arboreal physiognomy forming a closed and relatively uniform canopy that can include emergent trees, medium height is over 15 meters in ombrophylous forests and over 9 meters in semi-deciduous forests

b) emerging species, present in different degrees of intensity;

c) horizontal and broad treetops;

d) large diametric distribution amplitude with a medium DAP above 15 centimeters for both ombrophylous and semi-deciduous seasonal forests;

e) epiphytes are present in large numbers of species and individuals, in particular in Ombrophylous forests;

f) creepers are generally ligneous and are richer and more abundant in seasonal forests;

g) abundant understory;

h) large biological diversity due to structural complexity;

i) herbaceous and bush strata and in particular arboreal;

j) forests in this stage can present a physiognomy that is similar to primary vegetation;

l) lianas, generally in less quantities than in the medium stage;

m) dominant species may occur depending on forest formation;

n) indicator species:

n.1) ombrophylous forests: *Attalea* sp. (palmeira pindoba); *Didymopanax* sp. (sambaquim); *Tapirira guimensys* (pau-pombo); *Bombax* sp. (munguba); *Hortia* sp. (laranjinha); *Parkia* sp. (visgueiro); *Lecythis* sp. (sapucaia); *Cassia* sp. (coração-de-negro); *Copaifera* sp. (pau-d'óleo); *Eschweilera* sp. (embiriba); *Byrsonima* sp. (murici); *Luehea divaricata* (açoita-cavalo); *Himatanthus bracteatus* (banana-de-papagaio); *Simaruba* sp. (praíba);

2) semi-deciduous seasonal forests: *Bowdichia* sp. (sucupira); *Bombax* sp. (munguba); *Eschweilera* sp. (imbiriba); *Pouteira* sp. (leiteiro-branco); *Thyrsodium* sp. (cabotã-de-leite); *Byrsonima* sp. (murici); *Pouteira* sp. (leiteiro); *Terminalia* sp. (mirinduba); *Tapirira guianensis* (cupiúba); *Stryphnodendron* sp. (canzenze); *Syagrus* sp. (coco-ouricuri); *Didymopanax* sp. (sambaquim); *Byrsonima* sp. (murici); *Simaruba* (praíba).

Art. 4 The characterization of the vegetation regeneration stages defined in art. 3 and the medium DAP parameters, medium heights and basal areas included in art. 1 of this Resolution is not applicable to mangroves and beaches.

Art. 5 The defined medium height parameters and medium DAP are valid for all Atlantic Forests forest formations within the State of Alagoas according to the IBGE's Brazil Vegetation Map(1988), foreseen by Decree 750/93. Other parameters may vary depending on relief, climate and local soils, previous land exploitation and geographic location.

Art. 6 This Resolution shall enter into effect on the date of its publication and all provisions to the contrary are hereby revoked.

HENRIQUE BRANDÃO CAVALCANTI – Council President

ROBERTO SÉRGIO STUDART WIEMER – Substitute Executive Secretary

This text does not substitute the text published in the Official Gazette on Dec. 30, 1994.

CONAMA RESOLUTION 29, Dec. 7, 1994
Published in Official Gazette 248 on Dec. 30, 1994, Section 1, pages 21349-21350

Correlations:

Compliance with art.6 of Decree 750/93 and art. 1, § 1 of CONAMA Resolution 10/93

Validated by CONAMA Resolution 388/07 in order to fulfill the provisions of Law 11.428 from December 22, 2006

Defines the Atlantic Forest primary and secondary vegetation in their initial, medium and advanced stages of regeneration in light of the need to define cuts in the exploitation and suppression of the secondary vegetation in its initial stage of regeneration in the State of Espírito Santo

THE NATIONAL ENVIRONMENT COUNCIL –CONAMA, in accordance with the power bestowed upon the Council by Law 6.938 from Aug. 31, 1981, changed by Law 8.028 from April 12, 1990, regulated through 99.274 from June 6, 1990 and Law 8.746 from Dec. 9, 1993, considering the provisions of Law 8.490 from Nov. 19, 1992⁴⁵, and in accordance with its Internal Regulations, and

Considering the joint decision by the Superintendence of the Brazilian Institute of Environment and Renewable Natural Resources (IBAMA) in the State of Espírito Santo, the State Secretariat for Environmental Affairs (SEAMA) and the Land, Cartography and Forest Institute (ITFC) in order to comply with the provisions of articles 4 and 6 of Decree 750 from Feb. 10, 1993 and CONAMA Resolution 10 from Oct. 10, 1993;

Considering the need to define Atlantic Forest primary and secondary vegetation in initial, medium and advanced stages of regeneration in order to regulate logging, exploitation and the suppression of Atlantic Forest secondary vegetation in initial stages of recuperation within Espírito Santo State, decides;

Art. 1 Primary vegetation is composed by the total vegetation community, locally dominant, with large biological diversity and exposed to minimal anthropic impact that does not significantly affect its original structure and species, and the species that characterize this successional stage are, mainly: peroba-amarela (*Aspidosperma polyneuron*), óleo-de-copaíba (*Copaifera langsdorffii*), araribá (*Centrolobium robustum*), ipê-roxo (*Tecoma heptaphylla*), pau-ferro (*Caesalpinia ferrea*), pau-de-cortiça (*Sterculia chicha*), ipê-amarelo (*Tabebuia spp.*), roxinho (*Peltogyne ongustiflora*), canela (*Ocotea sp.*), jequitibá (*Cariniana sp.*), louro (*Cordia trichotoma*), cedro-rosa (*Cedrela odorata*), jacarandá-caviúna (*Dalbergia nigra*), angico (*Piptadenia sp.*), vinhático (*Platymania foliolosa*).

Art. 2 Secondary vegetation or in a state of regeneration is the result of natural processes that occur after the total or partial suppression of the primary vegetation through anthropic activities or natural causes and can lead to the presence of trees from the remains of primary vegetation.

Art. 3 The regeneration stages that are the subject of art.6 of Decree 750/93 are defined as:

I – The initial Atlantic Forest regeneration stage is the secondary forest formation that presents the following characteristics:

- a) small sized herbaceous/arboreal physiognomy with a medium height of up to 7 meters and vegetation cover that varies from closed to open;
- b) ligneous species with low amplitude diametric distribution, medium DAP of up to 13 centimeters and basal area between 2 and 10 m²/ha;
- c) epiphytes, if present, are mainly represented by lichens, bryophytes and pteridophytes with low biological diversity;
- d) creepers, if present, are generally herbaceous;
- e) understory, when present, forms a thin layer in a low state of decomposition, continuous or not;
- f) varying biological diversity with few arboreal or bushy species and may contain seedlings of species that are characteristic of other stages;
- g) absence of underwood;
- h) abundance of pioneer species;
- i) the main vegetal species that characterize this successional stage are: embaúba (*Cecropia sp.*), jacaré (*Piptadenia communis*), goiabeira (*Psidium guajava*), assa-peixa (*Vernonia polyanthes*), pindaúva-vermelha (*Xylopia seriacea*), camará (*Moquina polymorpha*), ipê-felpudo (*Zeyhera tuberculosa*), aroeira (*Schinus terebenthifolius*), alecrim (*Rosmarinus officinalis*), fedegoso (*Cassia spp.*), araçá (*Psidium cattleyanum*), oitizeiro (*Licania tomentosa*), corindiba (*Trema micranta*), pindaíba (*Xylopia emarginata*), caviúns (*Dalbergia villosa*).

II – Vegetation that has been strongly changed and which contains predominantly herbaceous individuals, and rarely arboreal individuals, with a height that is inferior to 3 meters is also considered part of the initial stage of regeneration of the Atlantic Forest. Medium DAP is less than 8 centimeters and basal area does not surpass 2 m²/ha. Creepers, when present, are generally herbaceous. The most frequent species are: araçá (*Psidium cattleyanum*), jacaré (*Piptadenia communis*), aroeira (*Schinus terebenthifolius*), buganvilha (*Bougainvillea sp.*), assa-peixe (*Vernonia polyanthes*), samambaia-do-mato (*Nephrolepis esaltata*), maria-preta (*Cordia verbenaceae*), alecrim (*Rosmarinus officinalis*).

⁴⁵ Law revoked by Law 9.649 from May 27, 1998.

III – The medium stage of regeneration of the Atlantic Forest is the secondary vegetation formation that presents the following characteristics:

- a) arboreal and/or shrubby physiognomy that predominates over the herbaceous and may form differentiated strata with a medium height of between 5 and 13 meters;
- b) arboreal cover that varies from open to closed and may include emergent individuals;
- c) moderate diametric distribution amplitude with medium DAP that varies between 10 and 20 centimeters and basal area of between 10 and 18 m²/ha;
- d) larger quantities of epiphyte individuals and species in comparison to the initial stage and in particular within Ombrophylous Forests;
- e) creepers, when present, may be herbaceous or ligneous
- f) understory, whose thickness varies with seasons and location;
- g) significant biological diversity;
- h) underwood;
- i) the main species that characterize this successional stage are: cinco-folhas (*Sparattosperma vernicosum*), boleira (*Joanesia princeps*), pau-d'alho (*Gallesia gorazema*), goiabeira (*Psidium guajava*), jacaré (*Piptadenia communis*), quaresmeira-roxa (*Tibouchina grandiflora*), ipê-felpudo (*Zeyhera tuberculosa*), araribá (*Centrolobium sp.*), caixeta (*Tabebuia spp.*), jenipapo (*Genipa americana*), guapuruvu (*Schizolobium parahyba*), cajueiro (*Anacardium sp.*), oitizeiro (*Licania tomentosa*), quaresma (*Annona cacans*), ipê-roxo (*Tecoma heptaphila*).

IV – The advanced stage of regeneration of the Atlantic Forest is the secondary forest formation that presents the following characteristics:

- a) dominating arboreal physiognomy forming a closed and relatively uniform canopy with an height of over 10 meters and possibly containing varying rates of emergent trees;
- b) horizontal and broad treetops;
- c) high amplitude diametric distribution with a medium DAP that is over 18 centimeters and basal area above 18 m²/ha;
- d) epiphytes in large number of species and in abundance, in particular within ombrophylous forests;
- e) creepers are generally ligneous and are richer and more abundant in Seasonal Forests;
- f) abundant understory;
- g) very large biological diversity due to structural complexity;
- h) herbaceous and shrub strata and in particular, arboreal;
- i) forests in this stage may present a physiognomy that is similar to primary vegetation;
- j) presence of lianas, even if in not as often as in the medium stage
- l) dominating species may exist depending on forest formation;
- m) the main vegetal species that characterize this successional stage are: guapuruvu (*Schizolobium parahyba*), cinco-folhas (*Sparattosperma vernicosum*), boleira (*Joanesia princeps*), pau-d'alho (*Gallesia gorazema*), jacaré (*Piptadenia communis*), quaresmeira-roxa (*Tibouchina grandiflora*), cedro (*Cedrela fissilis*), farinha-seca (*Pterigota brasiliensis*), ipê-roxo (*Tecoma heptaphilla*), pau-ferro (*Caesalpinia ferrea*), óleo-de-copaíba (*Copa ifera langsdorffii*), araribá-vermelho (*Centrolobium robustum*), sapucaia-vermelha (*Lecythis pisonis*), pau-sangue (*Pterocarpus violaceus*), caviúna (*Dalbergia villosa*).

Art. 4 The parameters listed in art. 3 which define the Secondary Forest regeneration stages may present variations related to topographical, climatic and edaphic conditions apart from conditions created by previous land exploitation.

Art. 5 the logging, exploitation and suppression of the secondary vegetation of the Atlantic Forest in initial stages of regeneration is conditioned to the sustainable suppression or exploitation within rural properties that possess surplus areas of Legal Reserve areas, except permanent preservation areas.

Art. 6 This Resolution shall enter into effect on the date of its publication and all provisions to the contrary are hereby revoked, in particular IBAMA's Normative Instruction 79 from Sept. 24, 1991.

HENRIQUE BRANDÃO CAVALCANTI – Council President

ROBERTO SÉRGIO STUDART WIEMER – Substitute Executive Secretary

This text does not substitute the text published in the Official Gazette on Dec. 30, 1994.

CONAMA Resolution 30, December 7, 1994
Published in Official Gazette 248 on Dec. 30, 1994, Section 1, page 21350

Correlations:

- Compliance with art. 6 of Decree 750/93 and art. 1, § 1 of CONAMA Resolution 10/93
- Validated by CONAMA Resolution 388/07 in order to fulfill the provisions of Law 11.428 from Dec. 22, 2006

Defines the Atlantic Forest primary and secondary vegetation in their initial, medium and advanced stages of regeneration in order to provide guidelines to environmental licensing processes related to forestry activities in the State of Mato Grosso do Sul.

THE NATIONAL ENVIRONMENT COUNCIL –CONAMA, in accordance with the power bestowed upon the Council by Law 6.938 from Aug. 31, 1981, changed by Law 8.028 from April 12, 1990, regulated through 99.274 from June 6, 1990 and Law 8.746 from Dec. 9, 1993, considering the provisions of Law 8.490 from Nov. 19, 1992⁴⁶, and in accordance with its Internal Regulations, and

Considering the need to define Atlantic Forest primary and secondary vegetation in initial, medium and advanced stages of regeneration in compliance with the provisions set by art. 6 of Decree 750/93 from Feb. 10, 1993 and CONAMA Resolution 10 from Oct. 1, 1993 in order to provide guidelines to license procedures related to forestry activities in the State of Mato Grosso do Sul, decides:

Art. 1 Primary vegetation is composed by the total vegetation community, locally dominant, with large biological diversity and exposed to minimal anthropic impact that does not significantly affect its original structure and species.

Single paragraph. The vegetation that is the subject of this article is composed by the forest formations denominated Seasonal Deciduous Forest (Low Land Forest, Low Land Forest with emergent canopy, Sub-mountainous Forest, Sub-mountainous Forest with emergent canopy) and Seasonal Semi-deciduous Forest (Alluvial Forest, Alluvial Forest with emergent Canopy, Sub-mountainous Forest).

Art. 2 Secondary vegetation or in a state of regeneration is the result of natural processes that occur after the total or partial suppression of the primary vegetation through anthropic activities or natural causes and can lead to the presence of trees from the remains of primary vegetation.

Single paragraph. The regeneration stages of secondary vegetation are defined as:

I – Initial Stage:

a) herbaceous/shrubby physiognomy forming a strata, from closed to open, with the presence of predominating helophyte species;

b) between 1 and 10 ligneous species of small height and diametric amplitude, the height of ligneous species within the canopy can reach up to 10 meters, basal area (m²/ha) varies between 7 and 20 m²/ha, diametric distribution of up to 15 centimeters and medium DAP amplitude of 8 centimeters;

c) epiphytes are rare, herbaceous lianas are abundant but ligneous lianas are absent. Grass species are abundant. The understory, when present, may be continuous or not and forms a thin layer in a low state of decomposition;

d) ombrophyllous shrubs are common within the underwood areas, mainly rubiaceae, myrtaceae and melastomaceae species

e) biological diversity is low and may contain about 10 arboreal or shrubby dominant species;

f) The most common species, indicators of initial regeneration stages, are, among other: cancorosa (*Maytenus sp.*), assa-peixe (*Vernonia sp.*), araticum (*Annana sp.*), araçá (*Psidium sp.*), pimenta-de-macaco (*Xylopia aromatica*), fumo-bravo (*Solanum granuloso-lebrosum*), goiabeira (*Psidium guíava*), sangra-d'água (*Croton urucurama*), murici (*Byrsonima spp.*), mutambo (*Guazuma ulmifolia*), sapuva (*Machaerium sp.*), arranha-gato (*Acacia spp.*), açoita-cavalo (*Luchea speciosa*), envira (*Xylopia sp.*), amendoim-bravo (*Pterogyne nitens*) and urtigão (*Jatropha bahiana*).

II – Medium Stage:

a) shrubby and/or arboreal physiognomy forming 1-2 strata and the superior strata contains few predominant species and the majority occur optionally;

b) the number of ligneous species varies between 10 and 30 with medium diametric and height amplitude. The height of canopy ligneous species varies between 10 and 18 meters, the basal area varies between 15 and 30 m²/ha, the diametric distribution varies between 10 and 35 centimeters and medium DAP amplitude is 25 centimeters;

c) epiphytes and herbaceous lianas are few and ligneous lianas are rare. Grass species are few. The understory may vary in thickness depending on season and location;

d) biological diversity is significant and some areas can be dominated by a few species, generally fast growing species;

e) the most common and indicator species of the medium stage of regeneration are, among other: aroeira (*Astronium urundeuva*), angico (*Piptadenia pergrina*), guapeva (*Pouteria sp.*), jatobá (*Hymenaea stilbocarpa*), pau-marfim (*Balplouradendron riedelianum*), pau-d'óleo (*Copaifera langsdorffii*), caroba

⁴⁶ Law revoked by Law 9.649 from May 27, 1998.

(*Jacaranda sp.*), jacarandá (*Machaerium spp*), louro-pardo (*Cordia trichotoma*), farinha-seca (*Pithecellobium edwallii*), amburana (*Amburana cearensis*), cedro (*Cedrela fissilis*), canjerana (*Cabrlea canjerana*), canafistula (*Peltophorum dubium*), canelãs (*Ocotea spp. e Nectandra spp.*), vinhático (*Plathymenia spp.*), ipês (*Tabebuia spp.*), mamica-de-cadela (*Brosimum gaudichaudii*), mandiocão (*Didimopanex spp.*), peito-de-pombo (*Tapira guianensis*), pau-jacaré (*Callisthene fasciculata*), sucupira-branca (*Pterodon pubescens*), sucupira-preta (*Bowdichia virgiloides*), tarumã (*Vitex sp.*), tamboril (*Enterolbium contortisilquem*), pluna (*Psidium sp*), monjoleiro (*Acacia polyphulla*), palmitheiro (*Euterpe edulis*) and bocaiúva (*Acrocomia sclerocarpa*).

III – Advanced Stage:

a) closed arboreal physiognomy, contiguous treetop distribution and the canopy may or may not contain emergent trees;

b) large number of strata containing trees, shrubs, land herbs, creepers and epiphytes and their abundance and number of species varies with edaphoclimatic condition. Treetops are generally horizontal and broad;

c) the number of ligneous species is over 30, the diameter amplitude and height of ligneous species are over 18 meters, basal area (m²/ha) superior to 30 m²/ha, and diametric distribution varies between 20 and 50 centimeters, medium DAP amplitude is 30 centimeters;

d) epiphytes are abundant, herbaceous lianas are rare but ligneous lianas are common. Grass species are rare. The understory varies due to climate and location and is in an intense state of decomposition;

e) the underwood contains shrubby and herbaceous strata with varied frequency, shrub strata is common to medium stages of regeneration (ombrophylous shrubs) and the herbaceous, composed by bromeliaceae, araceae, marantaceae and heliconaceae are common within humid areas;

f) the most common species and indicators of the advanced stage of regeneration are, among other: peroba (*Aspidosperma sp*), canafistula (*Peltophorum dohium*), jequitibá (*Cariniana estrellensis*), louro-preto (*Cordia chamissoniana*), figueira (*Ficus sp*), breu (*Protium sp*), bálsamo (*Myrocarpus frondosus*), canjerana (*Cabrlea sp*), quebracho (*Schinopsis spp*), maria-preta (*Diatenopterux sorbifolia*), pau-ferro¹ (*Cacsalpinia ferrea*), jatobá (*Hymenea spp*), pau-marfim (*Balfourodendron riedelianum*), paineira (*Chrostia speciosa*), guaratã (*Esenbeckia leiocarpa*), alecrim (*Holocalyx balansae*), erva-mate (*Ilex paraguariensis*), among other.

Art. 3 The parameters defined in articles 1 and 2 of this Resolution in order to typify the different stages of regeneration of secondary vegetation may vary from one geographical region to another depending on:

I – local relief, climate and soil;

II – previous land exploitation;

III – circumjacent vegetation;

IV – geographical location; and

V – the area and the configuration of the analyzed formation.

Single paragraph. The typological variations that are the subject of articles 1 and 2 of this Resolution will be analyzed during the assessment of cases submitted for consideration to the competent environmental organs.

Art. 4 This Resolution shall enter into effect on the date of its publication and all provisions to the contrary are hereby revoked.

HENRIQUE BRANDÃO CAVALCANTI – Council President

ROBERTO SÉRGIO STUDART WIEMER – Substitute Executive Secretary

This text does not substitute the text published in the Official Gazette on Dec. 30, 1994.

CONAMA Resolution 31, December, 7, 1994
Published in Official Gazette 248 on Dec. 30, 1994, Section 1, pages 21350-21351

Correlations:

Compliance with art. 6 of Decree 750/93 and art. 1, § 1 of CONAMA Resolution 10/93

Validated by CONAMA Resolution 388/07 in order to fulfill the provisions of Law 11.428 from Dec. 22, 2006

Defines the Atlantic Forest primary and secondary vegetation in their initial, medium and advanced stages of regeneration in order to provide guidelines to environmental licensing processes related to forestry activities in the State of Pernambuco.

THE NATIONAL ENVIRONMENT COUNCIL –CONAMA, in accordance with the power bestowed upon the Council by Law 6.938 from Aug. 31, 1981, changed by Law 8.028 from April 12, 1990, regulated through 99.274 from June 6, 1990 and Law 8.746 from Dec. 9, 1993, considering the provisions of Law 8.490 from Nov. 19, 1992⁴⁷, and in accordance with its Internal Regulations, and

Considering the need to define Atlantic Forest primary and secondary vegetation in initial, medium and advanced stages of regeneration in compliance with the provisions set by art. 6 of Decree 750/93 from Feb. 10, 1993 and CONAMA Resolution 10 from Oct. 1, 1993 in order to provide guidelines to license procedures related to forestry activities in the State of Pernambuco, decides:

Art. 1 Primary vegetation is composed by the total vegetation community, locally dominant, with large biological diversity and exposed to minimal anthropic impact that does not significantly affect its original structure and species, occupy a basal area of more than 30 30 m²/ha, medium DAP over 0.18 meters and medium height over 20 meters.

Art. 2 Secondary vegetation or in a state of regeneration is the result of natural processes that occur after the total or partial suppression of the primary vegetation through anthropic activities or natural causes and can lead to the presence of trees from the remains of primary vegetation.

Art. 3 The regeneration stages of secondary vegetation that are the subject of art. 6 of Decree 750/93 are defined as:

I – Initial regeneration stage:

a) small sized herbaceous/shrubby physiognomy, medium height under 6 meters and vegetation cover that varies from closed to open;

b) ligneous species with low diametric distribution amplitude; with a medium DAP that is under 8 centimeters for all forest formations;

c) epiphytes, when present, are mainly represented by lichens, bryophytes and pteridophytes with low diversity;

d) creepers, when present, are mainly herbaceous;

e) understory, when present, forms a thin layer in a low state of decomposition, continuous or not;

f) varied biological diversity with few arboreal species, may include the presence of seedlings of species that are characteristic to other stages;

g) abundant pioneer species;

h) absence of underwood;

i) the floristic composition is mainly represented by the following indicator species: *Cecropia adenopus* Mart. vel aff (imbaúba); *Stryphnodendron pulcherrimum* Hochravinha); *Byrsonima sericea* DC (murici); *Didymopanax morototoni* Decne e Planch (sambaquim); *Cupania revoluta* Radlk (cabatan-de-rego); *Xylopia frutescens* Aubl (imbira-vermelha); *Guazuma ulmifolia* Lam (mutamba); *Trema micrantha* Blume (periquiteria); *Himatanthus bracteatus* DC. Woods (angélica), *Tapirira guianensis* Aubl. (cupiúba), *Mimosa sepriaria* (espinheiro), *Cassia hoffmansegii* (mata-pasto), *Scleria braquiateata* D.C. (tiririca), *Heliconia angustifolia* Hook (paquevira), *Cnidocolus urens* L. M. Arg. (urtiga-branca).

II – Medium stage of regeneration:

a) arboreal and/or shrubby physiognomy that can form differentiated strata; medium height is between 6 and 15 meters;

b) arboreal cover varying from open to closed and may include the presence of emergent individuals;

c) moderate diametric distribution amplitude with a medium DAP between 8 and 15 centimeters;

d) epiphytes show a large number of individuals and species in comparison to the initial stage;

e) creepers, when present, are predominantly ligneous;

f) understory of varying thickness depending on season and location;

⁴⁷ Law revoked by Law 9.649 from May 27, 1998.

- g) significant biological diversity;
- h) underwood;
- i) the floristic composition is mainly represented by the following indicator species: *Bowdichia virgilioides* H.B.K (sucupira); *Sclerolobium dens iflorum* Benth (ingá-porco); *Tapirira guianensis* Aubl. (cupiuba); *Sloanea obtusifolia* Moric. Scum (mamajuda); *Caraipa densifolia* Mart. (camaçari); *Eschweilera luschnathii* Miers. (imbiriba); *Inga* spp. (ingá); *Didymopanax morototoni* Decne e Planch (sambaquim); *Protium heptaphyllum* Aubl. March. (amescla); *Heliconia angustifolis* Hook (paquevira); *Lasiaci divaricata* Hitchc. (taquari); *Costu aff. discolor* Roscoe (banana-de-macaco).

III – Advanced stage of regeneration:

- a) dominating arboreal physiognomy forming a closed and relatively uniform canopy that may include emergent trees; medium height is over 15 meters;
- b) emergent species with different rates of intensity;
- c) horizontal and broad treetops;
- d) large amounts of epiphyte species and in great abundance;
- e) large diametric distribution amplitude: medium DAP over 15 centimeters;
- f) creepers are generally ligneous;
- g) abundant understory;
- h) very broad biological diversity due to structural natural complexity;
- i) herbaceous, shrub strata and arboreal, in particular;
- j) forests in this stage may present a physiognomy that is similar to primary vegetation, differentiated by the intensity of anthropic impacts;
- k) underwood less developed than in medium stages;
- l) possible presence of dominating species;
- m) floristic composition is mainly represented by the following indicator species: *Parkia pendula* Benth (visqueiro); *Vizola gardneri* (D.C.) Warb (urucu-ba); *Ficus* spp (gameleira); *Sloanea obtusifolia* (Moric) Schum (mamajuda); *Bowdichia Virgilioides* H.B.K. (sucupira); *Caraipa densifolia* Mart. (camaçari); *Manilkara salz-mannii* (A.DC.) Lam. (maçaranduba); *Simarouba amara* Aubl (praíba); *Didymopanax morototoni* Decne et Planch (sambaquim); *Tabebuia* sp (pau-d’arco-amarelo); *Ocotea* spp. (louro); *Plathymenia foliolosa* Benth (amarelo); *Licania kunthiana* vel aff (oiti-da-mata); *Sclerolobium densiflorum* Benth (ingá-porco); *Protium heptaphyllum* (Aubl.) March (amescla); *Pterocarpus violaceus* Vogel (pau-sangue); *Aspidosperma limac* Wooks (gararoba); *Coumaruna odorata* Aubl. (cumaru-da-mata); *Bombax gracilipes* Schum. (munguba).

Art. 4 The characterization of vegetation regeneration stages defined by art. 3 of this Resolution are not applicable to mangroves and beaches.

Single paragraph. Beachs will be the object of specific regulations.

Art. 5 This Resolution shall enter into effect on the date of its publication and all contrary provisions are hereby revoked.

HENRIQUE BRANDÃO CAVALCANTI – Council President
ROBERTO SÉRGIO STUDART WIEMER – Substitute Executive Secretary

This text does not substitute the text published in the Official Gazette on Dec. 30. 1994.

CONAMA RESOLUTION 32, December 7, 1994
Published in Official Gazette 248, Dec. 30, 1984, Section 1, pages 21351-21352

Correlations:

Compliance with art. 6 of Decree 750/93 and art. 1, § 1 of CONAMA Resolution 10/93

Validated by CONAMA Resolution 388/07 in order to fulfill the provisions of Law 11.428 from Dec. 22, 2006

Defines the Atlantic Forest primary and secondary vegetation in their initial, medium and advanced stages of regeneration in order to provide guidelines to environmental licensing processes related to forestry activities in the State of Rio Grande do Norte.

THE NATIONAL ENVIRONMENT COUNCIL –CONAMA, in accordance with the power bestowed upon the Council by Law 6.938 from Aug. 31, 1981, changed by Law 8.028 from April 12, 1990, regulated through 99.274 from June 6, 1990 and Law 8.746 from Dec. 9, 1993, considering the provisions of Law 8.490 from Nov. 19, 1992⁴⁸, and in accordance with its Internal Regulations, and

Considering the need to define Atlantic Forest primary and secondary vegetation in initial, medium and advanced stages of regeneration in compliance with the provisions set by art. 6 of Decree 750/93 from Feb. 10, 1993 and CONAMA Resolution 10 from Oct. 1, 1993 in order to provide guidelines to license procedures related to forestry activities in the State of Rio Grande do Norte, decides:

Art. 1 Primary vegetation is composed by the total vegetation community, locally dominant, with large biological diversity and exposed to minimal anthropic impact that does not significantly affect its original structure and species.

Art. 2 Secondary vegetation or in a state of regeneration is the result of natural processes that occur after the total or partial suppression of the primary vegetation through anthropic activities or natural causes and can lead to the presence of trees from the remains of primary vegetation.

Art. 3 The regeneration stages of secondary vegetation that are the subject of art. 6 of Decree 750/93 are defined as:

I – Initial regeneration stage:

- a) in this stage the medium basal area is up to 4 m² (four square meters) per hectare;
- b) small sized herbaceous/shrubby physiognomy, medium height of up to 4 meters (four meters), vegetation cover varies from closed to open;
- c) ligneous species with small diametric distribution amplitude, medium DAP is up to 4 cm (four centimeters);
- d) epiphytes are not very diverse and are mainly represented by lichens, orchids and bryophytes;
- e) Creepers, when present, are generally herbaceous;
- f) understory, when present, forms a thin layer in a low state of decomposition, continuous or not;
- g) varied biological diversity with few arboreal or shrubby species and may contain seedlings of species that are characteristic to other stages;
- h) abundance of pioneer species;
- i) absence of underwood;
- j) Indicator species:
 - j.1) Dense Ombrophylous Forest: *Cortadelia selowiana* (capim navalha), *Cyatopodium aliciares* (orquídea rabo-de-tatu), *Ibatia quinquelobata* (jitirana), *Anthurium affine* (antúrio), *Aechmea ligulata* (xinxo), *Hancornia speciosa* (mangabeira), *Guettarda angelica* (angélica), *Eugenia crenata* (camboim), *Cupania vernalis* (caboatã), *Solanum paniculatum* (jurubeba roxa), *Byrsonimia crassifolia* e *B. verbascifolia* (murici), *Cecropia sp* (embaúba), *Trema micranta* (candiúba), *Chamaecrista bahia* (pau-ferro);
 - j.2) Seasonal Semi-Deciduous Forest:
Cecropia sp (embaúba), *Piptadenia moniliformes* (catanduba), *Trema micranta* (candiúba), *Digitaria langiflora* (capim-rasteiro), *Myrcia lundiana* (araçá-cheiroso), *Sebastiania corniculata* (milona-roxa), *Ximenia americana* (ameixa), *Licania parvifolia* (cega-machado), *Tecoyena brasiliensis* (jenipapo-bravo), *Maytenus impressa* (pau-mondé), *Cassia splendida* (canagistinha), *Cyatopodium aliciares* (orquídea rabo-de-tatu), *Ibatia quinquelobata* (jitirana).

II – Medium regeneration stage:

- a) the medium basal area of this stage varies between 4 (four) and 14 m² (fourteen square meters) per hectare;
- b) arboreal and shrubby physiognomy dominates over the herbaceous and may form differentiated strata; medium height varies between 4 (four) and 10 m (ten meters);
- c) arboreal cover varies from open to closes and may contain emergent individuals;
- d) moderate diametric distribution amplitude, small diameters dominate, medium DAP varies between 4 (four) and 10

⁴⁸ Law revoked by Law 9.649 from May 27, 1998.

cm (ten centimeters);

e) epiphytes show a larger number of species and individuals than in the initial stage and are more abundant within the ombrophylous forest;

f) creepers, when present, are mainly ligneous;

g) understory, of varying thickness depending on season and location;

h) significant biological diversity;

i) underwood;

j) indicator species:

j.1) Dense Ombrophylous Forest:

Ximenia americana (ameixa), *Eugenia prasina* (batinga), *Myrcia multiflora* (pau-mulato), *Chamaecrista bahia* (pau-ferro), *Vitex polygama* (maria preta), *Combretum laxum* (cipó-bugi), *Dioclea grandiflora* (mucuna), *Simaba trichilioides* (cajarana), *Eugenia speciosa* (ubaia-doce), *Eugenia nanica* (murta-branca), *Guazuma ulmifolia* (mutumba), *Roupala cearensis* (castanheira), *Bauhinia cheilantra* (mororó), *Anseis pickelii* (pau-candeia), *Apuleia leiocarpa* (jitaí), *Paullinea elegans* (cipó mata-fome), *Gutteria oligocarpa* (miura), *Pyrenoglyphis marajá* (ticum);

j.2) Seasonal Semi-Deciduous Forest:

Manilkara aff. amazonica (maçaranduba), *Bauhinia cheilantra* (mororó), *Lecythis pisonis* (sapucaia), *Polypodium martonianum* (samambaia), *Vanilla chamissonis* (orquídea baunilha), *Tetracera breyniana* (cipó-de-brocha), *Combretum laxum* (cipó bugi), *Apuleia leiocarpa* (jitaí), *Philodendrom imbé* (imbé), *Bowdichia virgiliodes* (sucupira), *Byrsonima crassifolia* (murici), *Clausia nemorosa* (pororoca), *Syagrus coronata* (catolé), *Brunfelsia uniflora* (manacá), *Maytenus impressa* (paumondê), *Psidium oligospermum* (araça-de-jacu).

III – Advanced regeneration stage:

a) the basal area of this stage varies between 14 (fourteen) and 18 m² (eighteen square meters) per hectare;

b) dominating arboreal physiognomy forming a closed and relatively uniform canopy that may contain emergent trees; medium height varies between 10 (ten) and 15 m (fifteen meters);

c) emergent species occur with different levels of intensity;

d) horizontal and broad treetops;

e) epiphytes are present but only with a few species and within the ombrophylous forest;

f) medium diametric distribution amplitude, medium DAP varies between 10 (ten) and 15 cm (fifteen centimeters);

g) creepers are mainly ligneous and are more abundant and rich in species within the seasonal forest;

h) abundant understory;

i) significant biological diversity;

j) herbaceous-shrubby strata and in particular arboreal;

k) forests in this stage may possess a physiognomy that is similar to primary vegetation;

l) underwood not as extensive as in the medium stage

m) occurrence of dominating species depend on forest formation;

n) indicator species:

n.1) Dense Ombrophylous Forest:

Polypodium martonianum (samambaia), *Philodendrom imbé* (imbé), *Vanilla chamissonis* (orquídea baunilha), *Hymenaea courbaril* (jatobá), *Bowdichia virgiliodes* (sucupira), *Manilkara aff. amazonica* (maçaranduba), *Caesalpinia echinita* (pau-brasil), *Tabebuia roseoalba* (peroba), *Tabebuia impetiginosa* (pau d'arco roxo), *Inga fagifolia* (pau d'óleo), *Tetracera breyniana* (cipó-de-brocha), *Combretum laxum* (cipó-de-bugi), *Cordia superba* (grão-de-galo), *Pyrenoglyphis marajá* (ticum);

n.2) Seasonal Semi-Deciduous Forest:

Ficus nymphaeifolia (gameleira), *Bowdichia virgiliodes* (sucupira), *Hymenaea courbaril* (jatobá), *Manilkara aff. amazonica* (maçaranduba), *Inga fagifolia* (pau d'óleo), *Cordia superba* (grão-de-galo), *Campomanesia dichotoma* (guabiraba-de-pau), *Lucuma dukei* (golti-trubá), *Brosium goianense* (kiri), *Apuleia leiocarpa* (jibi).

Art. 4 The characterization of vegetation regeneration stages that is the subject of art. 3 of this Resolution are not applicable to mangroves and beaches.

Art. 5 the parameters related to medium basal area, medium height and medium DAP defined by this Resolution, except for mangroves and beaches, are valid for all other forest formations that exist within the territory of the Rio Grande do Norte State, as foreseen by Decree 750/93; other parameters may present differences due to relief, climate and local soil as well as due to previous land exploitation which may also be the cause for the non-existence of one or several indicator species, included in art. 3, but this fact does not mischaracterize the successional stage of a forest.

Art. 6 This Resolution shall enter into effect on the date of its publication and any contrary provision is hereby

revoked.

HENRIQUE BRANDÃO CAVALCANTI – Council President

ROBERTO SÉRGIO STUDART WIEMER – Substitute Executive Secretary

This text does not substitute the text published in the Official Gazette on Dec. 30, 1994.

CONAMA RESOLUTION 33, December 7, 1994
Published in Official Gazette 248 on December 30, 1995, Section 1, pages 21352-21353

Correlations:

Compliance with art. 6 of Decree 750/93 and art. 1, § 1 of CONAMA Resolution 10/93

Validated by CONAMA Resolution 388/07 in order to fulfill the provisions of Law 11.428 from Dec. 22, 2006

Defines the successional vegetation stages of the Atlantic Forest region in Rio Grande do Sul in order to facilitate the creation of criteria, standards and procedures for the management, rational usage and preservation of native natural vegetation.

THE NATIONAL ENVIRONMENT COUNCIL –CONAMA, in accordance with the power bestowed upon the Council by Law 6.938 from Aug. 31, 1981, changed by Law 8.028 from April 12, 1990, regulated through 99.274 from June 6, 1990 and Law 8.746 from Dec. 9, 1993, considering the provisions of Law 8.490 from Nov. 19, 1992⁴⁹, and in accordance with its Internal Regulations, and

Considering the provisions of art. 6 of Decree 750/93 from Feb. 10, 1993;

Considering the provisions of CONAMA Resolution 10 from Oct. 1, 1993;

Considering the need to define the successional stages of Atlantic Forest vegetation formations in Rio Grande do Sul State in order to provide criteria, standards and procedures for the management, rational exploitation and conservation of natural vegetation, decides:

Art. 1 Primary vegetation is composed by the total vegetation community, locally dominant, with large biological diversity and exposed to minimal anthropic impact that does not significantly affect its original structure and species.

Art. 2 Secondary vegetation or in a state of regeneration is the result of natural processes that occur after the total or partial suppression of the primary vegetation through anthropic activities or natural causes and can lead to the presence of trees from the remains of primary vegetation.

Single paragraph. The successional stages of regeneration of secondary vegetation that is the subject of the previous article, for regulation purposes related to the management, rational exploitation and biodiversity conservation of the Atlantic Forest, are defined as:

I – Initial regeneration stage:

a) successional vegetation with herbaceous/shrubby physiognomy, medium height of the formation is up to 3 (three) meters and DAP is less or equal to 8 (eight) centimeters; may possibly include formation dispersion, arboreal individuals;

b) epiphytes, when present, are mainly represented by low diversity Lichens, Bryophytes and Pteridophytes;

c) creepers, when present, are generally herbaceous;

d) understory, when present, forms a thin layer in a low state of decomposition, continuous or not;

e) varied biological diversity, few arboreal species and may include seedlings of species that are characteristic of other stages;

f) absence of underwood;

g) basic floristic composition:

Andropogon bicornis (rabo-de-burro); *Pteridium aquilinum* (samambaias); *Rapanea ferruginea* (capororoca); *Baccharias* spp. (vassouras); among other species of shrubs and arboretum.

II – Medium regeneration stage:

a) vegetation with a shrubby/arboreal physiognomy with a forest formation of up to 8 (eight) meters high and DAP of up to 15 (fifteen) centimeters; arboreal cover varying from open to closed which may contain the presence of emergent individuals;

b) epiphytes are present in larger numbers of individuals in comparison to the initial stage and more abundantly within the Ombrophylous Forest;

c) creepers, when present, are generally ligneous;

d) understory of varying thickness depending on season and location;

e) significant biological diversity;

f) underwood;

g) floristic composition characterized by the presence of:

Rapanea ferruginea (capororoca); *Baccharis dracunculifolia*, *B. articulata* e *B. discolor* (vassouras); *Inga marginata* (ingá-feijão); *Bauhinia candicans* (pata-de-vaca); *Trema micrantha* (grandiuva); *Mimosa scabrella* (bracatinga); *Solanum auriculatum* (fumo-bravo).

III – Advanced regeneration stage:

a) arboreal vegetation physiognomy that predominates over other strata, forms a closed and uniform canopy with large diametric amplitude, height is over 8 (eight) meters and medium DAP is over 15 (fifteen) centimeters;

b) presence of emerging species with different degrees of intensity;

c) treetops are broad and horizontal, above shrubby and herbaceous strata;

⁴⁹ Law revoked by Law 9.649 from May 27, 1998.

d) epiphytes are present in large number of species and in abundance, in particular within Ombrophylous Forests

e) creepers are generally ligneous;

f) abundant understory;

g) strong biological diversity;

h) forests in this stage may present a physiognomy that is similar to primary vegetation;

i) underwood, generally less extensive than in the medium stage;

j) floristic composition characterized by the presence of:

Cecropia adenopus (embaúba); *Hieronyma alchorneoides* (licurana); *Nectandra leucothyrsus* (canela-branca); *Schinus terebinthifolius* (aroeira vermelha); *Cupania vernalis* (camboatá-vermelho); *Ocotea puberula* (canela-guaicá); *Piptocarpha angustifolia* (vassourão-branco); *Parapiptadenia rigida* (angico-vermelho); *Patagonula americana* (guajuvira); *Matayba ealeagnoides* (camboatá-branco); *Enterolobium contortisiliquum* (timbaúva).

Art. 3 This Resolution shall enter into effect on the date of its publication and all provisions to the contrary are hereby revoked.

HENRIQUE BRANDÃO CAVALCANTI – Council President

ROBERTO SÉRGIO STUDART WIEMER – Substitute Executive Secretary

This text does not substitute the text published in the Official Gazette on Dec. 30, 1994.

CONAMA RESOLUTION 34, December 7, 1994
Published in Official Gazette 248 on Dec. 30, 1994, Section 1, pages 21353-21354

Correlations:

Compliance with art. 6 of Decree 750/93 and art. 1, § 1 of CONAMA Resolution 10/93
Validated by CONAMA Resolution 388/07 in order to fulfill the provisions of Law 11.428 from Dec. 22, 2006

Defines the Atlantic Forest primary and secondary vegetation in their initial, medium and advanced stages of regeneration in order to provide guidelines to environmental licensing processes related to forestry activities in the State of Sergipe.

THE NATIONAL ENVIRONMENT COUNCIL –CONAMA, in accordance with the power bestowed upon the Council by Law 6.938 from Aug. 31, 1981, changed by Law 8.028 from April 12, 1990, regulated through 99.274 from June 6, 1990 and Law 8.746 from Dec. 9, 1993, considering the provisions of Law 8.490 from Nov. 19, 1992⁵⁰, and in accordance with its Internal Regulations, and

Considering the need to define Atlantic Forest primary and secondary vegetation in initial, medium and advanced stages of regeneration in compliance with the provisions set by art. 6 of Decree 750/93 from Feb. 10, 1993 and CONAMA Resolution 10 from Oct. 1, 1993 in order to provide guidelines to license procedures related to forestry activities in the State of Sergipe, decides:

Art. 1 Primary vegetation is composed by the total vegetation community, locally dominant, with large biological diversity and exposed to minimal anthropic impact that does not significantly affect its original structure and species.

Art. 2 Secondary vegetation or in a state of regeneration is the result of natural processes that occur after the total or partial suppression of the primary vegetation through anthropic activities or natural causes and can lead to the presence of trees from the remains of primary vegetation.

Art. 3 The regeneration stages of secondary vegetation that are the subject of art. 6 of Decree 750/93 are defined as:

I – Initial regeneration stage:

- a) small sized herbaceous/shrubby physiognomy with a vegetation cover that varies from closed to open;
- b) ligneous species with small diametric distribution amplitude and medium DAP under 4 centimeters and medium height of up to 4 meters;
- c) epiphytes, if present, are mainly represented by lichens, bryophytes and pteridophytes and with low diversity;
- d) creepers, when present, are generally herbaceous;
- e) understory, if present, may be continuous or not and forms a thin layer in a low state of decomposition;
- f) low biological diversity with few arboreal or bushy species and may contain seedlings from species that are characteristic of other stages;
- g) abundant pioneer species;
- h) absence of underwood;
- i) floristic is mainly represented by: *Psidium spp.* (murta); *Myrcia sp.* (araçá); *Myrciaria sp.* (cambui); *Lantana spp.* (alecrim); *Solanum spp.* (jurubeba-braba); *Vismia sp.* (latre); *Cordia nodosa* (grão-de-galo); *Cecropia sp.* (umbaúba); *Miconia spp.* (folha-de-fogo); *Vernonia sp.* (candela).

II – Medium regeneration stage:

- a) arboreal and/or shrubby physiognomy predominates over herbaceous, presence of emergent individuals; arboreal cover, varying from open to closed and may include emergent individuals;
- b) moderate diametric distribution amplitude and predominantly small diameters, medium Dap between 4 and 14 centimeters and medium height of up to 12 meters;
- c) epiphytes, when present, show a larger number of species and individuals than in the initial stage;
- d) creepers, when present, may be herbaceous or ligneous
- e) understory may present thickness variations depending on seasons and location;
- f) significant biological diversity;
- g) underwood;
- h) floristic is mainly represented by: *Sclerolobium densiflorum* (ingá porca); *Casearia guianensis* (camarão); *Byrsonima sericea* (murici); *Cupania revoluta* (cambota); *Apeiba tibourbou* (pau-de-jangada); *Virtex sp.* (maria-preta); *Guaruma ulmifolia* (umbigo-de-caçador); *Cordia tricholoma* (freijó-da-folha-larga).

III – Advanced regeneration stage:

- a) dominance of arboreal physiognomy forming a closed and relatively uniform canopy and can include emergent trees;
- b) emerging species may occur with different degrees of intensity;

⁵⁰ Law revoked by Law 9.649 from May 27, 1998.

- c) horizontal and broad treetops;
- d) large amplitude diametric distribution; medium DAP over 14 centimeters and medium height over 12 meters;
- e) epiphytes are present in abundance and in many species, particularly within ombrophylous forests;
- f) creepers are generally ligneous and rich in the number of species;
- g) abundant understory;
- h) large biological diversity;
- i) herbaceous, shrubby and arboreal strata;
- j) forests in this stage may present a physiognomy that is similar to primary vegetation;
- l) underwood generally less expressive than in the medium stage;
- m) dominating species may occur, depending on forest formation;
- n) floristic is mainly represented by: *Tabebuia spp.* (pau-d'arco); *Manilkara salzmanni* (maçaranduba); *Lecythis sp.* (sapucaia); *Inga spp.* (inga); *Ocotea spp.* (louro); *Sclerolobium densiflorum* (inga porca); *Protium heptaphyllum* (amescla); *Bowdichia viroilioides* (sucupira); *Xilopia brasiliensis* (pindaíba); *Cedrella sp.* (cedro); *Astronium fraxinifolium* (gonçalo-alves); *Tapirira guianensis* (pau-pombo).

Art. 4 The characterization of vegetation regeneration stages that is the subject of art. 3 of this Resolution are not applicable to mangroves and beaches.

Single paragraph. Beachs will be the object of specific regulations.

Art. 5 the parameters related to medium basal area, medium height and medium DAP defined by this Resolution, except for mangroves and beaches, are valid for all other forest formations that exist within the territory of the Sergipe State, as foreseen by Decree 750/93; other parameters may present differences due to relief, climate and local soil as well as due to previous land exploitation.

Art. 6 This Resolution shall enter into effect on the date of its publication and all provisions to the contrary are hereby revoked.

HENRIQUE BRANDÃO CAVALCANTI – Council President

ROBERTO SÉRGIO STUDART WIEMER – Substitute Executive Secretary

This text does not substitute the text published in the Official Gazette on Dec. 30, 1994.

CONAMA RESOLUTION 3, April 18, 1996
Published in Official Gazette 80 on April 25, 1996, Section 1, page 7048

Correlations:

- provides elucidations on the single paragraph of art. 4 of Decree 750/93 from Feb. 10, 1993

Acknowledges that the remaining Atlantic Forest vegetation includes the totality of primary and secondary vegetation in initial, medium and advanced regeneration stages for all purposes related to the enforcement of Decree 750 from Feb. 10, 1993

THE NATIONAL ENVIRONMENT COUNCIL –CONAMA, in accordance with the power bestowed upon the Council by Law 6.938 from Aug. 31, 1981, items II and X of art. 7 of Decree 99.274 from June 6, 1990, changed by Law 8.028 from April 12, 1990, regulated through 99.274 from June 6, 1990, in relation to the enforcement of Decree 750/93, decides:

Art. 1 It is hereby acknowledged that: Atlantic Forest vegetation remains, which are the subject of the single paragraph of art. 4 of Decree 750/93 from Feb. 10, 1993, includes the totality of primary and secondary vegetation in initial, me stages of regeneration.

Art. 2 All provisions to the contrary are hereby revoked.

Art. 3 This Resolution shall enter into effect on the date of its publication.

GUSTAVO KRAUSE GONÇALVES SOBRINHO – Council President

AÉCIO GOMES DE MATOS – Substitute Executive Secretary

This text does not substitute the text published in the Official Gazette on April 25, 1996.

CONAMA RESOLUTION 388, Feb. 23, 2007
Published in Official Gazette 38 on Feb. 26, 2007, Section 1, page 63

Correlations:

· Validates CONAMA Resolutions 10/93, 1, 2, 4, 5, 6, 25, 26, 28, 29, 30, 31, 32, 33 and 34/94, 7/96 and 261/99

Establishes provisions for the ratification of Resolutions which define the primary and secondary vegetation of the Atlantic Forest in initial, medium and advanced stages of regeneration in order to comply with the provisions of art. 40 § 1 of Law 11.428, issued on Dec. 22, 2006.

THE NATIONAL ENVIRONMENT COUNCIL –CONAMA, in accordance with the power bestowed upon the Council by Law 6.938 from Aug. 31, 1981, regulated through Decree 99.274 from June 6, 1990, and in light of the provisions of Law 11.429 from December 22, 2006, decides:

Art. 1 The following Resolutions which set provisions related to the primary and secondary Atlantic Forest vegetation in the initial, medium and advanced stages of regeneration are hereby validated in order to fulfill the provisions of art. 4 § 1 of Law 11.428 from December 22, 2006, *ad referendum* of CONAMA's Plenary:

I - Resolution 10, from Oct. 1, 1993 – which establishes parameters for the analysis of the successional stages of the Atlantic Forest;

II - Resolution 1, from January 31, 1994 – which defines Atlantic Forest primary and secondary vegetation in pioneer, initial, medium and advanced stages of regeneration in order to provide guidelines for the granting of exploitation licenses for the exploitation of native vegetation in the state of Sao Paulo;

III - Resolution 2, from March 18, 1994 – which defines primary vegetation formations and the successional stages of secondary vegetation in order to provide guidelines for procedures related to the granting of licenses for native in the State of Paraná;

IV – Resolution 4, from May 4, 1994 – which defines Atlantic Forest primary and secondary vegetation in initial, medium and advanced stages of regeneration in order to provide guidelines for the granting of forestry licenses in the state of Santa Catarina;

V – Resolution 5, from May 4, 1994 - which defines Atlantic Forest primary and secondary vegetation in initial, medium and advanced stages of regeneration in order to provide guidelines for the granting of forestry licenses in the state of Bahia;

VI – Resolution 6, from May 4, 1994 – which sets definitions and measurable parameters for the analysis of the ecological succession of the Atlantic Forest in the state of Rio de Janeiro;

VII - Resolution 25, from December 7, 1994 - which defines Atlantic Forest primary and secondary vegetation in initial, medium and advanced stages of regeneration in order to provide guidelines for the granting of forestry licenses in the state of Ceará;

VIII - Resolution 26, December 7, 1994 - which defines Atlantic Forest primary and secondary vegetation in initial, medium and advanced stages of regeneration in order to provide guidelines for the granting of forestry licenses in the state of Piauí;

IX – Resolution 28, from December 7, 1994 – which defines Atlantic Forest primary and secondary vegetation in initial, medium and advanced stages of regeneration in order to provide guidelines for the granting of forestry licenses in the state of Alagoas;

X – Resolution 29, from December 7, 1994 - which defines Atlantic Forest primary and secondary vegetation in initial, medium and advanced stages of regeneration, considering the need to define logging, exploitation and the suppression of secondary vegetation in initial stages of regeneration in the state of Espírito Santo;

XI - Resolution 30, from December 7, 1994 - which defines Atlantic Forest primary and secondary vegetation in initial, medium and advanced stages of regeneration in order to provide guidelines for the granting of forestry licenses in the state of Mato Grosso do Sul; XII - Resolution 31, from December 7, 1994 - which defines Atlantic Forest primary and secondary vegetation in initial, medium and advanced stages of regeneration in order to provide guidelines for the granting of forestry licenses in the state of Pernambuco;

XIII – Resolution 32, from December 7, 1994 - which defines Atlantic Forest primary and secondary vegetation in initial, medium and advanced stages of regeneration in order to provide guidelines for the granting of forestry licenses in the state of Rio Grande do Norte;

XIV - Resolution 33, from December 7, 1994 – which defines the successional stages of vegetation formations within the Atlantic Forest of the state of Rio Grande do Sul, aimed at the creation of criteria, standards and procedures for the management, rational exploitation and conservation of natural vegetation;

XV - Resolution 34, from December 7, 1994 - which defines Atlantic Forest primary and secondary vegetation in initial, medium and advanced stages of regeneration in order to provide guidelines for the granting of forestry licenses in the state of Sergipe;

XVI - Resolution 7, from July 23, 1996 – which approves the basic parameters for the analysis of beach vegetation in the state of Sao Paulo; and

XVII - Resolution 261, from June 30, 1999 - which approves the basic parameters for the analysis of beach vegetation in the state of Santa Catarina.

Art 2 This Resolution shall enter into effect on the date of its publication.

MARINA SILVA – Council President

This text does not substitute the text published in the Official Gazette on Feb. 26, 2007.

CONAMA Resolution 391, June 25, 2007
Published in Official Gazette 121, June 26, 2007, Section 1, page 41

Correlations:

- Fulfill the provisions of art. 60 of Decree 750/93 and art. 1 of CONAMA Resolution 10/93

Defines primary and secondary vegetation in initial, medium and advanced stages of regeneration of the Atlantic Forest in the State of Paraíba

THE NATIONAL ENVIRONMENT COUNCIL –CONAMA, in accordance with the power bestowed upon the Council by Law 6.938 from Aug. 31, 1981, regulated through Decree 99.274 from June 6, 1990, and in accordance with its Internal Regulations and the contents of Process 02000.004030/2005-33, and

Considering the need to define Atlantic Forest primary and secondary vegetation in initial, medium and advanced stages of regeneration in compliance with the provisions set by art. 6 of Decree 750/93 from Feb. 10, 1993 and CONAMA Resolution 10 from Oct. 1, 1993 in order to provide guidelines to license procedures related to forestry activities in the State of Paraíba, decides:

Art. 1 It is hereby acknowledged, for all purposes of this Resolution, that:

I - Primary vegetation is composed by the total vegetation community, locally dominant, with large biological diversity and exposed to minimal anthropic impact that does not significantly affect its original structure and present botanical species;

II – Secondary vegetation, undergoing a regeneration process is: the result of successional natural processes after total or partial suppression of the primary vegetation through anthropic activities or natural causes or natural causes and may contain trees from the remains of primary vegetation.

Art. 2 Forest formation in the secondary stage of regeneration vegetation that is the subject of articles 2 and 4 of Law 11.428 from December 22, 2006 are defined as:

I – Initial regeneration stage:

a) small herbaceous/shrubby physiognomy, maximum height 5 (five) meters and may include adult trees from forest remains;

b) small diametric distribution amplitude ligneous species; medium DAP under 8 (eight) centimeters and may include isolated trees from forest remains which a higher DAP;

c) epiphytes, if present, are mainly represented by lichens, bryophytes, pteridophytes and bromeliaceae, with low diversity;

d) creepers, if present, are generally herbaceous;

e) understory, when present, forms a thin layer in a low state of decomposition, continuous or not;

f) varying biological diversity with few arboreal species, may include the presence of seedlings of species that are characteristic to other stages;

g) abundance of pioneer species;

h) absence of underwood;

i) basal area of up to 4 (four) square meters per hectare; and

j) floristic is represented by the following indicator species: *Cecropia* spp. (embaúba); *Stryphnodendron pulcherrimum* (favinha, caubi); *Byrsonima sericea* (murici); *Schefflera morototoni* (sambaqui); *Cupania revoluta* (cabatã-de-rego); *Xylopia frutescens* (imbira-vermelha); *Guazuma ulmifolia* (mutamba); *Trema micrantha* (periquiteira); *Tapirira guianensis* (cupiúba); *Mimosa bimucronata* (espinheiro); *Scleria bracteata* (tiririca); *Heliconia angusta* (paquevira); *Cnidocolus urens* (urtiga-branca).

II – Medium regeneration stage:

a) predominant arboreal and/or shrubby physiognomy, not herbaceous, which may form differentiated strata with an height of between 5 (five) and 15 (fifteen) meters; closed arboreal cover which may include emergent individuals;

b) moderate diametric distribution amplitude with a medium DAP of 8 (eight) to 15 (fifteen) centimeters;

c) tendency to include vascular epiphytes in a larger number of individuals and species than in the initial stage;

d) creepers, when present, are generally ligneous;

e) understory of varying thickness according to season and locations;

f) larger ligneous species diversity in comparison with the initial stage;

g) underwood;

h) basal area of between 4 (four) and 14 (fourteen) square meters per hectare; and

i) floristic composition represented by the following indicator species: *Bowdichia virgilioides* (sucupira); *Sclerolobium densiflorum* (ingá-porco); *Tapirira guianensis* (cupiúba); *Sloanea obtusifolia* (mamajuda); *Caraipa densifolia* (camaçari); *Eschweilera luschnathii* (embiriba); *Inga* spp. (ingá); *Schefflera morototoni* (sambaqui); *Protium heptaphyllum* (amescla); *Heliconia angusta* (paquevira); *Lasiacis divaricata* (taquari); *Costus arabicus* (banana-de-macaco); *Guapira* spp. (joão-mole); *Apuleia leiocarpa* (jitaí); *Byrsonima sericea* (murici); *Pera glabrata* (louro-canela); *Manilkara salzmannii* (maçaranduba); *Pogonophora schomburkiana* (cocão); *Couepia* spp. (goiti), *Hymenaea* spp. (jatobá).

III – Advanced regeneration stage:

- a) dominating arboreal physiognomy forming a closed and relatively uniform canopy which may contain emergent trees higher than 15 (fifteen) meters;
- b) horizontal and broad treetops;
- c) large abundance of epiphyte species;
- d) large diametric distribution amplitude with a medium DAP over 15 (fifteen) centimeters;
- e) creepers are generally ligneous;
- f) rich understory;
- g) underwood less developed than in the medium stage;
- h) may include dominating species;
- i) basal area over 14 (fourteen) square meters per hectare; and
- j) floristic composition represented by the following indicator species; *Parkia pendula* (visgueiro); *Viola gardneri* (urucuba); *Ficus* spp. (gameleira); *Sloanea obtusifolia* (mamajuda); *Bowdichia virgilioides* (sucupira); *Caraipa densifolia* (camaçari); *Manilkara salzmannii* (maçaranduba); *Simarouba amara* (praíba); *Schefflera morototoni* (sambaqui); *Tabebuia* sp. (pau-d'arco-amarelo); *Ocotea* spp. (louro); *Plathymenia foliolosa* (amarelo, vinhático); *Licania kunthiana* (oiti-da-mata); *Sclerolobium densiflorum* (ingá-porco); *Protium heptaphyllum* (amescla); *Pterocarpus rohrii* (pau-sangue); *Aspidosperma* sp. (gararoba); *Dipterys alata* (cumaru-da-mata); *Eriotheca gracilipes* (munguba); *Hymenaea* spp. (jatobá); *Pera glabrata* (louro-canela); *Tapirira guianensis* (cupiuba).

Art. 3 The characterization of vegetation regeneration stages that is the subject of art. 3 of this Resolution is not applicable to mangroves, beaches and ecotones.

Single paragraph. Beachs and ecotones will be the object of specific regulations.

Art. 4 This Resolution shall enter into effect on the date of its publication and all provisions to the contrary are hereby revoked

MARINA SILVA – Council President

This text does not substitute the text published in the Official Gazette on June 26, 2007

CONAMA RESOLUTION 392, June 25, 2007
Published in Official Gazette 121 on June 26, 2007, Section 1, pages 41-42

Correlations:

- Fulfill the provisions of art. 60 of Decree 750/93 and art. 1 of CONAMA Resolution 10/93

Defines the regeneration of primary and secondary vegetation of the Atlantic Forest in the State of Minas Gerais

THE NATIONAL ENVIRONMENT COUNCIL –CONAMA, in accordance with the power bestowed upon the Council by Law 6.938 from Aug. 31, 1981, regulated through Decree 99.274 from June 6, 1990, and in accordance with its Internal Regulations and the contents of Process 02000.004030/2005-33, and

Considering the need to define Atlantic Forest primary and secondary vegetation in initial, medium and advanced stages of regeneration in compliance with the provisions set by art. 6 of Decree 750/93 from Feb. 10, 1993 and CONAMA Resolution 10 from Oct. 1, 1993 in order to provide guidelines to license procedures related to forestry activities in the State of Minas Gerais, decides:

Art. 1 It is hereby acknowledged, for all purposes of this Resolution, that:

I - Primary vegetation: is composed by the total vegetation community, locally dominant, with large biological diversity and exposed to minimal anthropic impact that does not significantly affect its original structure and present botanical species;

II – Secondary vegetation, undergoing a regeneration process is: the result of successional natural processes after total or partial suppression of the primary vegetation through anthropic activities or natural causes or natural causes and may contain trees from the remains of primary vegetation.

Art. 2 The vegetation regeneration stages of the secondary vegetation of forest formations that are the subject of articles 2 and 4 of Law 11.428 from December 22, 2006, are defined as:

I – SEASONAL DECIDUOUS FOREST

a) Initial stage:

1. absence of defined stratification;
2. vegetation forms one single strata (tangled) with an height of up to 3 (three) meters;
3. ligneous species of low diametric distribution amplitude, medium DAP of up to 8 (eight) centimeters;
4. abundance of pioneer species;
5. epiphytes, if present, are mainly represented by lichen and bryophytes with low diversity;
6. understory, when present, forms a thin layer in a low state of decomposition, continuous or not;
7. creepers, when present, are generally herbaceous; and

8. indicator species: Arboreal - *Myracrodruon urundeuva* (aroeira-do-sertão), *Anadenanthera colubrina* (angico), *Piptadenia* spp., *Acacia* spp., *Aspidosperma pyrifolium*, *Guazuma ulmifolia*, *Combretum* spp.; Arbustivas - *Celtis iguanaea* (esporão-de-galo), *Aloysia virgata* (lixinha), *Mimosa* spp, *Calliandra* spp., *Hibiscus* spp., *Pavonia* spp., *Waltheria* spp., *Sida* spp., *Croton* spp., *Helicteres* spp., *Acacia* spp.; Cipós - *Banisteriopsis* spp., *Pithecoctenium* spp., *Combretum* spp., *Acacia* spp., *Merremia* spp., *Mansoa* spp., *Bauhinia* spp., *Cissus* spp.

b) Medium stage:

1. incipient stratification forming two strata: canopy and underwood;
2. predominance of arboreal species and a gradual decrease of tangled shrubs and lianas
3. canopy between 3 (three) and 6 (six) meters high;
4. ligneous species with moderate diametric distribution amplitude and, in general small diameters, medium DAP varies between 8 (eight) and 15 (fifteen) centimeters;
5. richer and more abundant epiphytes when compared to the initial stage;

6. understory of varying thickness depending on season and location;

7. creepers, when present, may be herbaceous or ligneous; and

8. indicator species: the same as those mentioned in line “a” of this item with a reduction in the number of shrubs and lianas.

c) Advanced stage:

1. stratification defined by the formation of three strata: canopy, under canopy and underwood;
2. canopy over 6 (six) meters high and frequent presence of emergent trees;
3. lower density of lianas and shrubs when compared to previous stages;
4. ligneous species with moderate diametric distribution amplitude, medium DAP over 15 (fifteen) centimeters;
5. underwood is generally less developed than in the medium stage;
6. richer and larger number of epiphytes in comparison with the medium stage;
7. creepers are more frequent and generally ligneous;
8. understory varies with location; and

9. indicator species: Arboreal - *Myracrodruon urundeuva* (aroeira-do-sertão), *Anadenanthera colubrina* (angico-vermelho), *Astronium fraxinifolium* (gonçalo-alves), *Dilodendron bipinnatum* (pau-pobre, mamoinha) *Sterculia striata* (chichá), *Amburana cearensis* (amburana), *Guazuma ulmifolia* (mutamba), *Tabebuia impetiginosa* (ipê-roxo, pau-d'arco), *Tabebuia roseo alba* (ipê-branco), *Enterolobium contortisiliquum*

(tamboril), *Pseudobombax* spp. (imbiuruçu), *Ficus* spp. (gameleiras), and, in the northern region of the Minas Gerais State, *Schinopsis brasiliensis* (pau-preto), *Cavanillesia arborea* (imbaré), *Commiphora leptophloes* (amburaninha), *Goniorrachis marginata* (itapicuru), *Syagrus oleracea* (guariroba), *Attalea phalerata* (acuri), *Spondias tuberosa* (umbu), *Caesalpinia pyramidalis* (catingueira), *Chloroleucon tortum* (rosqueira), *Cereus jamacaru* (mandacaru), *Machaerium scleroxylon* (pau-ferro), *Sideroxylon obtusifolium* (quixadeira), *Zizyphus joazeiro* (joazeiro), *Mimosa tenuifolia* (jurema).

II – SEASONAL SEMI-DECIDUOUS FOREST, DENSE OMBROPHYLOUS FOREST AND MIXED OMBROPHYLOUS FOREST

a) Initial stage:

1. absence of defined strata;
2. predominance of young individuals and arboreal, liana and shrubby species forming a dense conglomeration of trunks with an height of up to 5 (five) meters
3. ligneous species of low diametric distribution amplitude, medium DAP of up to 10 (ten) centimeters;
4. abundance of pioneer species;
5. predominance of few indicator species;
6. epiphytes, if present, are mainly represented by low diversity lichen, bryophytes and pteridophytes;
7. understory, when present, forms a thin layer in a low state of decomposition, continuous or not;
8. creepers, if present, are generally herbaceous; and
9. indicator species: Arboreal - *Cecropia* spp. (embaúba), *Vismia* spp. (ruão), *Solanum granulosoleprosum*, *Piptadenia gonoacantha*, *Mabea fistulifera*, *Trema micrantha*, *Lithrae molleoides*, *Schinus terebinthifolius*, *Guazuma ulmifolia*, *Xilopia sericea*, *Miconia* spp., *Tibouchina* spp., *Croton floribundus*, *Acacia* spp., *Anadenanthera colubrina*, *Acrocomia aculeata*, *Luehea* spp.; Arbustivas - *Celtis iguanaea* (esporão-de-galo), *Aloysia virgata* (lixinha), *Baccharis* spp., *Vernonanthura* spp. (assapeixe, cambará), *Cassia* spp., *Senna* spp., *Lantana* spp. (camará), *Pteridium arachnoideum* (samambaião); Cipós - *Banisteriopsis* spp., *Heteropteris* spp., *Mascagnia* spp., *Peixotoa* spp., *Machaerium* spp., *Smilax* spp., *Acacia* spp., *Bauhinia* spp., *Cissus* spp., *Dasyphyllum* spp., *Serjania* spp., *Paulinia* spp., *Macfadyenia* spp., *Arrabidaea* spp., *Pyrostegia venusta*, *Bignonia* spp..

b) Medium stage:

1. incipient stratification forming two strata: canopy and underwood;
2. predominance of arboreal species forming a defined canopy between 5 (five) and 12 (twelve) meters high, gradual decrease of shrub and sapling density;
3. abundance of lianas;
4. richer and more abundant presence of epiphytes when compared with the initial stage and in particular within Ombrophylous Forests;
5. creepers, when present, may be herbaceous or ligneous;
6. understory of varying thickness depending on season and location;
7. ligneous species with moderate diametric distribution amplitude, medium DAP between 10 (ten) and 20 (twenty) centimeters; and
8. indicator species are the same as those included in line “a” of this item, with a reduction in the number of shrubs.

c) Advanced stage:

1. stratification defined by the formation of three strata: canopy, sub-canopy and underwood;
2. canopy height is over 12 (twelve) meters and includes many emergent trees;
3. underwood is generally less developed than in the medium stage;
4. lower density of lianas and shrubs in comparison with the medium stage;
5. rich and abundant epiphytes, in particular within Ombrophylous Forests;
6. creepers are generally ligneous and present in a richer and larger number of species in Semi-Deciduous Forests;
7. understory varies with location;
8. ligneous species with high diametric distribution amplitude, medium DAP over 18 (eighteen) centimeters;
9. indicator species of Seasonal Semi-deciduous Forests: *Acacia polyphylla* (monjolo), *Aegiphila sellowiana* (papagaio), *Albizia niopoides* (farinha-seca), *A. Polycephala* (farinheira), *Aloysia virgata* (lixeira), *Anadenanthera* spp. (angicos), *Annona cacans* (araticumcagão), *Apuleia leiocarpa* (garapa), *Aspidosperma* spp. (perobas, guatambu), *Andira fraxinifolia* (morcegueira or angelim), *Bastardiopsis densiflora*, *Cariniana* spp. (jequitibás), *Carp otroche brasiliensis* (sapucainha), *Cassia ferruginea* (canafistula), *Casearia* spp. (espeto), *Chrysophyllum gonocarpum* (abiu-do-mato), *Copaifera langsdorfii* (pau-d’óleo), *Cordia trichotoma* (louro-pardo), *Croton floribundus* (capixingui), *Croton urucurana* (sangra-d’água), *Cryptocarya arshesoniana* (canela-de-batalha), *Cabralea canjerana* (canjerana), *Ceiba* spp. (paineiras), *Cedrela fissilis* (cedro), *Cecropia* spp. (embaúbas), *Cupania vernalis* (camboatã), *Dalbergia* spp. (jacarandá), *Diospyros hispida* (fruto-do-jacu), *Eremanthus* spp. (candeias), *Eugenia* spp. (guamirim), *Ficus* spp. (figueiras-bravas), *Gomidesia* spp. (guamirim), *Guapira* spp. (joão-mole), *Guarea* spp. (marinheiro), *Gutteria* spp. (envira), *Himatanthus* spp. (agoniada), *Hortia brasiliiana* (paratudo), *Hymenaea courbaril* (jatobá), *Inga* spp. (ingás), *Joannesia princeps* (cotieira), *Lecythis pisonis* (sapucaia), *Lonchocarpus* spp. (imbira-de-sapo), *Luehea* spp. (açoita-cavalo), *Mabea fistulifera* (canudo-de-pito), *Machaerium* spp. (jacarandás), *Maprounea guianensis* (vaquinha), *Matayba* spp. (camboatã), *Myrcia* spp. (piúna), *Maytenus* spp. (cafezinho), *Miconia* spp. (pixirica), *Nectandra* spp. (canelas), *Ocotea* spp. (canelas), *Ormosia* spp. (tentos), *Pera glabrata*, *Persea* spp. (maçaranduba), *Picramnia* spp., *Piptadenia gonoacantha* (jacaré), *Plathymenia reticulata* (vinhático), *Platydictyon elegans* (jacarandácanzil), *Pouteria* spp. (guapeba), *Protium* spp. (breu, amescla), *Pseudopiptadenia contorta* (angico-branco), *Rollinia* spp. (araticuns), *Sapium*

glandulosum (leiteiro), *Sebastiania* spp. (sarandi, leiteira), *Senna multijuga* (fedegoso), *Sorocea* spp. (folha-da-serra), *Sparattosperma leucanthum* (cinco-folha-branca), *Syagrus romanzoffiana* (jerivá), *Tabebuia* spp. (ipês), *Tapirira* spp. (peito-de-pomba), *Trichilia* spp. (catinguás), *Virola* spp. (bicuíba), *Vitex* spp. (tarumã), *Vochysia* spp. (pau-de-tucano), *Xylopia* spp. (pindaíba), *Zanthoxylum* spp. (mamica-de-porca), *Zeyheria tuberculosa* (bolsa-de-pastor), *Xora* spp. (ixora), *Faramea* spp. (falsa-quina), *Geonoma* spp. (aricanga), *Leandra* spp., *Mollinedia* spp., *Piper* spp. (jaborandi), *Siparuna* spp. (negramina), *Cyathea* spp. (samambaiáçu), *Alsophila* spp., *Psychotria* spp., *Rudgea* spp. (cafezinho), *Amaioua guianensis* (azeitona), *Bathysa* spp. (pau-de-colher), *Rellia* spp., *Justicia* spp., *Geissomeria* spp., *Guadua* spp. (bambu), *Chusquea* spp., *Merostachys* spp. (taquaras and bambus);

10. indicator species of Dense Ombrophylous Forests: *Ocotea* spp., *Nectandra* spp., *Eugenia* spp., *Myrcia* spp., *Calyptanthes* spp., *Campomanesia* spp., *Gomidesia* spp., *Myrciaria* spp., *Psidium* spp., *Miconia* spp. (pixirica), *Tibouchina* spp. (quaresmeira), *Solanum pseudoquina* (peloteiro), *Vernonanthura* spp., *Piptocarpha* spp., *Eremanthus* spp., *Gochnatia* spp. (candeias e vassourão), *Prunus myrtifolia* (pessegueiro-bravo), *Clethra scabra* (carvalho), *Ilex* spp. (congonha), *Alchornea* spp., *Inga* spp. (ingás), *Cecropia hololeuca* (embaúba), *Vochysia magnifica* (pau-de-tucano), *Lamanonia ternata* (cedrilho), *Drymis brasiliensis* (casca-d'anta), *Myrsine* spp. (capororoca), *Ta be buia alba* (ipê-branco), *Symplocus* spp., *Daphnopsis* spp. (embira) *Cyathea* spp., *Alsophila* spp., *Sphaeropteris gardneri* (samambaiáçu), *Dicksonia sellowiana* (xaxim), *Psychotria* spp., *Rudgea* spp. (cafezinho), *Justicia* spp., *Geissomeria* spp., *Piper* spp. (jaborandi), *Chusquea* spp., *Merostachys* spp. (taquaras e bambus); and

11. indicator species of Mixed Ombrophylous Forests: *Araucaria angustifolia* (araucária), *Podocarpus lambertii* (pinheiro-bravo), *Mimosa scabrella* (bracatinga), *Ocotea* spp., *Nectandra* spp., *Eugenia* spp., *Myrcia* spp., *Calyptanthes* spp., *Myrceugenia* spp., *Gomidesia* spp., *Myrciaria* spp., *Psidium* spp. (guabiobas e goiabeiras), *Miconia* spp. (pixirica), *Tibouchina* spp. (quaresmeiras), *Solanum pseudoquina* (peloteiro), *Vernonanthura* spp., *Piptocarpha* spp., *Eremanthus* spp., *Gochnatia* spp. (candeias, vassourão), *Prunus myrtifolia* (pessegueiro-bravo), *Clethra scabra* (carvalho), *Ilex* spp. (congonha), *Alchornea* spp., *Inga* spp. (ingás), *Weinmania paulinifolia*, *Lamanonia ternata* (cedrilho), *Drymis brasiliensis* (casca-d'anta), *Myrsine* spp. (capororoca), *Tabebuia alba* (ipê-branco), *Symplocus* spp., *Daphnopsis* spp. (embira), *Meliosma* spp. (pau-macuco), *Laplacea* spp., *Sebastiania commersoniana* (sarandi, leiteiro), *Cabralea canjerana* (canjerana), *Cyathea* spp., *Alsophila* spp., *Sphaeropteris gardneri* (samambaiáçu), *Dicksonia sellowiana* (xaxim), *Piper gaudichaudianum* (jaborandi), *Strychnos brasiliensis* (salta-martinho).

Single paragraph. In some particular situations, physiognomies that are similar to those mentioned in line "a" do not constitute an initial succession stage, such as elfin forests and dwarf forests located, among other locations, on the mountains of Brigadeiro, Ibitipoca, Caparaó and Poços de Caldas.

Art. 3 The absence of one or more native indicator species in this Resolution does not mischaracterize the respective vegetation successional stage.

Art. 4 This Resolution shall enter into effect on the date of its publication and all provisions to the contrary are hereby revoked.

MARINA SILVA – Council President

This text does not substitute the text published in the Official Gazette on June 26, 2007

SUCCESSIONAL STAGES OF BEACH VEGETATION

CONAMA RESOLUTION 7, July 23, 1996
Published in Official Gazette 165 on Aug. 26, 1996, Section 1, pages 16386-16390

Correlations:

- . Compliance with art. 6 of Decree 750/93 and art. 1, § 1 of CONAMA Resolution 10/93
- . Validated by CONAMA Resolution 388/07 in order to fulfill the provisions of Law 11.428 from Dec. 22, 2006

Approves the basic parameters for the analysis of the beach vegetation in the State of Sao Paulo.

The President of the NATIONAL ENVIRONMENT COUNCIL – CONAMA, *ad referendum* by this council and according to the power delegated to the President by art. 1, paragraph 1 of Resolution 10 from Oct. 1, 1993, and Considering the provisions contained in article 6 of Federal Decree 750 from Feb. 10, 1993, decides:

Art. 1 To approve the directives contained in the annex of this Resolution as the basic directives for the analysis of the successional stages of the beach vegetation in the State of Sao Paulo

Art. 2 This Resolution shall enter into effect on the date of its publication.

GUSTAVO KRAUSE GONÇALVES SOBRINHO – Council President

ANNEX

I – INTRODUCTION

Beach vegetation is understood as the group of vegetation communities, with different physiognomies, affected by marine and fluviomarine conditions. The communities are distributed as a mosaic, occur in areas of high biological diversity and are considered as edaphic communities as they depend more on the composition of the soil than on climatic conditions. For all purposes of this Resolution, these communities are divided as: Beach and Dune Vegetation, Vegetation on Arenaceous Land-strips and Depression Related Vegetation. The successional stages of beaches differ from those of ombrophylous and seasonal forests as they are slower due to the sub-strata that are not very propitious to initial vegetation growth, mainly due to dryness and the absence of nutrients. The cutting of this type of vegetation is followed by slow re-composition and generally leads to smaller and less diverse species and to the domination of the vegetation by some predominant species. The vegetation of these fragile ecosystems is fundamental to the stability of dunes and mangroves as well as for the upholding of natural drainage. The successional dynamics of the beach is characterized as:

II – BEACH AND DUNE VEGETATION

As these areas are under constant transformation due to the action of winds, rainfall and waves, their vegetation is characterized as subjected to constant and rapid dynamics and maintains its characteristics as pioneering primary vegetation (edaphic climax), also affected by tides, and are not considered successional stages.

a) The intertidal zone contains cryprogamic such as micro-algae and fungi that cannot be seen by the naked eye. The posterior area contains herbaceous plants provided with stolons and rhizomes that sometimes form sparsely distributed tussocks or totally covering the sand, may include shrubs, and in some areas it can form massifs;

b) herbaceous strata is only predominant on dunes;

d) parameters such as height and diameter are not considered in relation to herbaceous strata. The height of the shrub strata varies between 1 and 1.5 meters and the diameter is rarely over 3 centimeters;

e) epiphytes, when present in the shrub strata can be bryophytes, lichen, bromeliaceae and orchids (*Epidendrum spp.*);

f) species that are creepers in other formations cover the soil of these areas, such as: *Oxypetalum tomentosum*, *Vigna luteola*, *Canavalia obtusifolia*, *Stigmaphyllon spp*, *Smilax spp.*, abraço-de-rei (*Mikania sp.*), cipó-caboclo (*Davilla rugosa*);

g) no understory;

h) absence of underwood;

i) beaches contain a large diversity of fungi: *Ceriosporopsis halina*, *Corollospora spp.*, *Halosphaeria spp.*, *Cirrenalia macrocephala*, *Clavariospopsis bulbosa*, *Halosarpheia fibrosa*, *Didymosphaeria enalia*, *Pestalotia spp.*, *Lulworthia fucicola*, *Lentescospora spp.*, *Trichocladium achrasporum*, *Humicola alopallonella*, predominance of *Halosphaeria spp.*, *Ceriosporopsis halina* and *Corollospora maritima*. Species predominance does not occur on dunes and species diversity is very low;

j) indicator species: *Blutaparon portulacoides*, *Ipomoea* spp., timutu ou pinheirinho-de-praia (*Polygala cyparissias*), carrapicho-de-praia (*Acicarpa spathulata*); gramíneas (*Panicum* spp., *Spartina* spp., *Paspalum* spp.), grama-de-praia (*Stenotaphrum secundatum*), carrapicho (*Cenchrus* spp), ciperáceas (*Androtrichum polycephalum*, *Fimbristylis* spp, *Cladium mariscus*), acariçoba (*Hydrocotyle bonariensis*), cairussu (*Centella asiatica*) e as cactáceas (*Cereus peruvianus*, *Opuntia monoacantha*). If shrubs are present that are usually: camarinha (*Gaylussacia brasiliensis*), canelinha-do-brejo (*Ocotea pulchella*), caúna or congonhinha (*Ilex theezans*), *Dodonaea viscosa*, feijão-de-praia (*Sop hora tomentosa*), *Erythroxylum amplifolium*, pitanga (*Eugenia uniflora*), araçá-de-praia (*Psidium cattleianum*), maçazinha-de-praia (*Chrysobalanus icaco*);

l) on beaches the substrata is composed by marine sand and shells and it is often inundated by tides. The dune substrata is dry, affected by the wind and by occasionally sprinkled with sea water;

m) unknown endemism's;

n) the intertidal zones function as a resting, feeding and migration areas for birds that come from the boreal and austral hemispheres, such as maçarico (*Caladris* sp. and *Tringa* sp.), batuira (*Charadrius* sp.); pinguim (*Spheniscus megalanicus*) and gaivotão (*Larus dominicensis*); are areas available for the reproduction of marine turtles (*Caretta caretta* e *Chelonia mydas*) and resting, feeding and migrational places for marine mammals: elefante-marinho (*Mirounga* sp.), lobo-marinho (*Arctocephalus* sp.) and leão-marinho (*Otaria* sp.), and for critofauna that can not be seen by the naked eye; Dune areas are uses for resting, feeding and migratory routes for criptofauna característica não observável a olho nu; As áreas de dunas caracterizam-se como zona de descanso, alimentação e rota migratória de Charadriiformes and Falconiformes - falcão-peregrino (*Falco peregrinus*), águia-pescadora (*Pandion haliaetus*); batuira (*Charadrius collaris*); maçarico (*Gallinago gallinago*); migratória: piru-piru (*Haematopus palliatus*); batuiruços (*Pluvialis squatarola* and *Pluvialis dominica*); batuira (*Charadrius* spp.); maçaricos (*Tringa* spp., *Calidris* spp., *Arenaria interpres*, *Numerius phaeopus*, *Limosa haemastica*) and Passeriforme - caminheiro (*Anthus* sp.). Open areas are not used by migratory species and are often colonized by opportunistic species such as: chopim (*Molothrus bonariensis*), coruja-buraqueira (*Speotyto cunicularis*); anu-branco (*Guira guira*); gavião-carrapateiro (*Milvago chimachima*).

III – VEGETATION OF ARENACEOUS LAND-STRIPS

III.1 - SCRUBLAND

III.1.1 - PRIMARY/ORIGINAL

a) shrubby physiognomy predominantly composed by twisted branches that form bushes intercalated by empty spaces or agglomerated in continuous formations that hinder passage;

b) predominance of shrubby and herbaceous strata;

c) plant height: about 3 meters, diameter of the stem base of ligneous species is about 3 centimeters;

d) few epiphytes and mostly represented by lichen (*Usnea barbata*, *Parmelia* spp.), bryophytes, pteridophytes (*Microgramma vacciniifolia*), bromeliaceae (*Tillandsia* spp., *Vriesea* spp.), orchids *Epidendrum* spp., chuva-de-ouro (*Oncidium flexuosum* e *Encyclia* spp.);

e) significant creeper quantity and diversity, including *Stigmaphyllon* spp., *Oxypetalum* sp., *Mandevilla* spp., *Smilax* spp., *Mikania* spp., *Cassitha* spp., *Davilla rugosa*;

f) thin understory layers that can, in some areas, accumulate on bushes;

g) absence of underwood;

h) there may be a predominance of grass or sedge in the herbaceous strata; any of the present species may predominate in the herbaceous-shrubby strata; ground lichen (*Cladonia* spp.) and bryophytes are present in open and dry areas;

i) indicator species: *Dalbergia ecastaphylla*; *Dodonaea viscosa*; monjoleiro (*Abarema* spp.), canelinha-do-brejo (*Ocotea pulchella*), aroeirinha (*Schinus terebinthifolius*); orelha-de-onça (*Tibouchina holosericea*), maria-mole (*Guapira opposita*); feijão-de-praia (*Sophora tomentosa*); erva-baleera (*Cordia verbenacea*), araçá (*Psidium cattleianum*), camarinha (*Gaylussacia brasiliensis*), caúna or congonhinha (*Ilex* spp.), maçã-de-praia (*Chrysobalanus icaco*); *Erythroxylum* spp., *Pera glabrata*, pinta-noiva (*Ternstroemia brasiliensis*), pitanga (*Eugenia uniflora*); orquídeas terrestres (*Epidendrum fulgens*, *Catasetum trulla*, *Cleistes libonii*), sumaré or sumbaré (*Cyrtopodium polyphyllum*); bromeliáceas terrestres (*Nidularium innocentii*; *Quesnelia arvensis*; *Dyckia encholirioides*; *Aechmea nudicaulis*); pteridophytes: samambaia-de-buquê (*Rumohra adiantiforme*); *Blechnum* spp., *Schizaea pennula*;

j) arenaceous marine substrata, dry. Some stretches may accumulate rain water during the rainy season, depending on the height of the phreatic sheet;

l) endemism's are unknown;

m) presence of resident and migratory bird, such as: saíras (*Tangara* spp.); gaturamos (*Euphonia* spp.); tucanos and araçaris (*Ramphastos* spp., *Selenidera maculirostris* and *Bailloni bailloni*); arapongas (*Procnias nidicollis*); bem-te-vis (*Pitangus sulphuratus*); macucos (*Tinamus solitarius*); jaós (*Crypturellus* sp.); jacús (*Penelope obscura*).

III.1.2 – INITIAL SCRUBLAND REGENERATION STAGE

a) predominance of herbaceous physiognomy and may contain ligneous remains from the original vegetation;

b) predominance of herbaceous strata;

c) ligneous species, when present, are small measuring up to 1 meter in height and with small diameters;

d) epiphytes, when present, are generally represented by lichen;

e) creepers, when present, are ground based and from the same original species;

f) scarce or non-existent understory;

- g) absence of underwood;
- h) scarcer diversity in comparison to original vegetation with some predominating species (depending on location). Ruderal species may be present such as picão-preto (*Bidens pilosa*), *Gleichenia spp.*, samambaia-das-taperas (*Pteridium aquilinum*) and sapé (*Imperata brasiliensis*);
- i) indicator species depend on strata type changes and drainage;
- j) arenaceous substrata, of marine origin, dry;
- l) endemism's are unknown;
- m) fauna composed of less demanding and opportunistic species.

III.1.3 – MEDIUM SCRUBLAND REGENERATION STAGE

- a) herbaceous-subshrub physiognomy;
- b) predominating herbaceous and subshrub strata
- c) subshrub vegetation of up to 2 meters in height and stem diameter of about 2 centimeters
- d) larger quantity and diversity of epiphytes in comparison with the initial stage: *Tillandsia spp.*, barba-de-velho (*Usnea barbata*), *Vriesea spp.*, *Epidendrum fulgens*;
- e) creepers are the same as in the previous stage and in larger quantities;
- f) scarce understory;
- g) absence of underwood;
- h) higher diversity in comparison with the initial stage and may include the dominance of one or several species and may be invaded by ironweeds: (*Vernonia spp.*), carqueja (*Baccharis trimera*) and *Dodonaea viscosa*;
- i) indicator species: the same as in original vegetation and one or several species may predominate;
- j) marine origin arenaceous substrata;
- l) endemism's are not known;
- m) more demanding fauna species, endemic or restricted, disappear and less demanding species take over.

III.1.4 – ADVANCED SCRUBLAND REGENERATION STAGE

- a) herbaceous-shrubby physiognomy more open than in the initial stage;
- b) predominance of herbaceous and shrub strata;
- c) plant height may reach 3 meters and stem diameter of about 3 centimeters;
- d) higher diversity and quantity of epiphytes in comparison to the medium stage;
- e) higher diversity and quantity of creepers than in the medium stage and predominance of some species such as *Davilla rugosa* and *Smilax spp.*;
- f) scarce understory that may accumulate upon shrubs;
- g) absence of underwood;
- h) large species diversity. Naked sandy areas may include the presence of lichen (*Cladonia spp.*) and bryophytes (moss and hepatic). One or several species may dominate, depending on the location;
- i) indicator species are: *Dalbergia ecastaphylla*, *Dodonaea viscosa* jaroeirinha (*Schinus terebinthifolius*); *Sophora tomentosa*; orelha-de-onça (*Tibouchina holosericea*), araçá-de-praia (*Psidium cattleyanum*); *Gaylussacia brasiliensis*, *Eugenia spp.*;
- j) arenaceous, dry substrata of marine origin;
- l) endemism's are unknown;
- m) fauna similar to original but varies in quantity and diversity;

III.2 – LOW BEACH FOREST

III.2.1 - PRIMARY/ORIGINAL

- a) open canopy arboreal physiognomy, open inferior strata and emergent trees;
- b) predominance or shrubby and arboreal strata;
- c) trees are generally 3 to 10 meters high and emergent trees of up to 15 meters high, large number of plants with stem ramifications from the base and upwards, Small diametric amplitude (5 to 10 centimeters), which generally do not surpass 15 centimeters;
- d) epiphytes in large numbers and species and mainly bromeliaceae, orchidaceae, araceae, piperaceae, gesneriaceae, pteridophytes, bryophytes and lichen;
- e) low quantity and diversity of creepers which include vanilla (*Vanilla chamissonis*), *Smilax spp.*, abrecaminho (*Lygodium spp.*), cará (*Dioscorea spp.*);
- f) thin understory layers (between 4 and 5 centimeters) containing large quantities of fresh leaves; may accumulate in some locations;
- g) hardly visible underwood;
- h) large species diversity with predominance of myrtaceae: guamirim (*Myrcia spp.*), araçá-da-praia (*Psidium cattleyanum*), guabiroba-de-praia (*Campomanesia spp.*), murta (*Blepharocalyx spp.*), guamirim (*Gomidesia spp.*), pitanga (*Eugenia spp.*). Presence of palmas: guaricangas (*Geonoma spp.*), tucum (*Bactris setosa*), brejaúva (*Astrocaryum aculeatissimum*); gerivá (*Arecastrum romanzoffianum*); large quantities of land bromeliaceae, mainly *Quesnelia arvensis*;
- i) indicator species: myrtaceae, *Geonoma schottiana*, *Clusia criuva* and pinta-noiva (*Ternstroemia brasiliensis*);
- j) arenaceous substrata of predominantly marine origin, dry, with roots forming surface tissue;
- l) known endemism's: cambuí (*Siphoneugena guilfoyleiana*), on Cardoso Island, municipality of Cananéia/SP;

m) it is an important landing, feeding, sleeping area of migratory importance for forest birds, passerines and non-passerines, many endemic such as saíra peruviana (*Tangara peruviana*) and papa moscas de beach (*Philloscartes kronei*).

III.2.2 – INITIAL REGENERATION STAGE OF THE LOW BEACH FOREST

- a) herbaceous physiognomy which may contain original vegetation remains;
- b) predominating herbaceous and shrub strata;
- c) plant height of up to 2 meters and diameter of about 2 centimeters;
- d) low epiphyte diversity and quantity, bryophytes and lichen at plant base;
- e) low quantity and diversity of creepers: *Smilax spp.*, *Mandevilla spp.*, *Davilla rugosa*;
- f) scarce understory;
- g) absence of underwood;
- h) medium species diversity including many original species as seedlings; presence of ruderal invading species such as *Solanum spp.*, *Baccharis spp.* Re-colonization starts in the naked substrata and by dune and ruderal species;
- i) indicator species: myrtaceae, *Tibouchina holosericea* and *Clusia criuva*;
- j) dry, arenaceous substrata mainly of marine origin;
- l) endemism's are not known;
- m) original vegetation fauna disappears and is replaced by opportunistic species.

III.2.3 – MEDIUM REGENERATION STAGE OF THE LOW BEACH FOREST

- a) shrubby-arboreal physiognomy;
- b) predominant strata: herbaceous and shrubby-arboreal;
- c) trees of up to 6 meters high, small diametric amplitude, diameters of up to 10 centimeters;
- d) epiphytes represented by small sized lichen, bryophytes, pteridophytes and bromeliaceae, medium diversity and in small quantities;
- e) herbaceous creepers, low diversity and small quantities;
- f) thin understory layer, low state of decomposition;
- g) underwood (herbaceous strata) represented by bromeliaceae, pteridophytes, bryophytes and land lichen;
- h) medium species diversity, including many original species and myrtaceae may predominate;
- i) indicator species: myrtaceae, lauraceae and *Geonoma schottiana* Mart;
- j) arenaceous substrata and predominantly of marine origin, dry and with little humus;
- l) endemism's are not known;
- m) increasing fauna diversity.

III.2.4 - ADVANCED REGENERATION STAGE OF THE LOW BEACH FOREST

- a) open arboreal physiognomy, may include the presence of emergent trees;
- b) predominantly shrubby-arboreal strata;
- c) tree up to 8 meters high, small diametric amplitude which hardly surpasses 10 centimeters;
- d) represented by lichen, bryophytes, pteridophytes, bromeliaceae in large quantities, orchidaceae, gesneriaceae and piperaceae;
- e) low creeper diversity and quantity, generally herbaceous;
- f) thin understory layer, may accumulate in some places and contain large quantities of non-decomposed leaves;
- g) underwood (herbaceous strata) formed mainly by bromeliaceae and land pteridophytes, medium quantity and diversity;
- h) abundant species diversity possible domination by myrtaceae, lauraceae, *Ternstroemia brasiliensis*, *Ilex spp.*, *Clusia criuva*;
- i) indicator species: guaricangas (*Geonoma spp.*) *Ternstroemia brasiliensis*, *Ilex spp.*, *Clusia criuva* and myrtaceae species; j) arenaceous substrata of predominantly marine origin, dry with roots forming a surface tissue;
- l) endemism's are not known;
- m) fauna similar to original composition.

III.3 – HIGH BEACH FOREST

III.3.1 - PRIMARY/ORIGINAL

- a) closed canopy arboreal physiognomy;
- b) predominance of herbaceous strata;
- c) height between 10 and 15 meters and emergent trees may reach 20 meters. Diametric median amplitude varies between 12 and 25 centimeters, and some plants may surpass 40 centimeters;
- d) high epiphyte diversity and quantity. Possible presence of *Clusia criuva* as hemi-epiphyte, araceae (*Phyllodendron spp.*, *Monstera spp.*), bromeliaceae (*Vriesea spp.*, *Aechmea spp.*, *Billbergia spp.*), orquidaceae (*Epidendrum spp.*, *Phymatidium spp.*, *Octomeria spp.*, *Pleurothallis spp.*, *Maxillaria spp.*), ferns (*Asplenium spp.*, *Vittaria spp.*, *Polypodium spp.*, *Microgramma vacciniifolia*), bryophytes and lichen;
- e) significant quantities of creepers: *Asplundia rivularis*; *Smilax sp.*;
- f) thick humus and understory layers, understory may vary with seasons;
- g) underwood: young arboreal strata plants, shrubs such as: *Weinmannia paulliniifolia*, pinta-noiva

(*Ternstroemia brasiliensis*), *Erythroxylum* spp., *Amaioua inter-media*, arboreal ferns (*Trichipteris atrovirens*), guaricangas (*Geonoma* spp.) and tucum (*Bactris setosa*) few plants in the herbaceous strata;

h) high species diversity and the arboreal strata is dominated by: myrtaceae, lauraceae (*Ocotea* spp.), guanandi (*Calophyllum brasiliensis*), caúna (*Ilex* spp.) mandioqueira (*Didymopanax* spp.), *Pera glabrata*, palmito or juçara (*Euterpe edulis*), indaiá (*Attalea dubia*);

i) indicator species: *Clusia criuva*, canelinha-do-brejo (*Ocotea pulchella*), guanandi (*Calophyllum brasiliensis*), *Psidium cattleianum*, guaricanga (*Geonoma schottiana*), palmito or juçara (*Euterpe edulis*);

j) arenaceous substrata of predominantly marine origin, may include sand and argyle deposition of continental origin, some areas are subjected to occasional flooding. Acid pH (around 3);

l) endemism's are not known;

m) fauna: - birds: guaxe (*Cacicus haemorrhous*) choquinha (*Myrmotherula unicolor*) jaó do litoral (*Crypturellus noctivagus*) cricrió (*Carponis melanocephalus*), papagaio-de-cara-roxa (*Amazona brasiliensis*), (*Aramides cajanea*); - mammals: mico-leão-caiçara (*Leontopithecus caissara*), queixada (*Tayassu pecari*), bugio (*Alouatta fusca*), mono-carvoeiro (*Brachyteles arachnoides*).

III.3.2 - INITIAL REGENERATION STAGE OF THE HIGH BEACH FOREST

a) herbaceous-shrubby physiognomy which may include arboreal remains;

b) predominantly herbaceous and shrub strata;

c) shrubs and small trees of up to 3 meters high, low diametric amplitude with diameters under 5 centimeters;

d) epiphytes, when present, are represented by lichen, bryophytes and small bromeliaceae in low quantities and diversity;

e) creepers, when present, are represented by *Smilax* spp., *Mikania* spp., *Davilla rugosa* and *Mandevilla* spp.;

f) thin understory layers, if present;

g) underwood composed of herbaceous plants;

h) low species diversity and one or several species may predominate;

i) indicator species: graminiaceae (*Chusquea* spp.), sedges, capororoca (*Rapanea ferruginea*), embaúba (*Cecropia pachystachia*), congonha (*Ilex* spp.), ruderal species may also be present;

j) arenaceous substrata and of predominant marine origin, may include deposits of continental sand and argyle. May be subjected to occasional flooding;

l) endemism's are not known;

m) low diversity fauna and mostly composed by open area individuals.

III.3.3 - MEDIUM REGENERATION STAGE OF THE HIGH BEACH FOREST

a) shrubby-arboreal physiognomy.

b) predominantly arboreal-shrubby strata.

c) trees are up to 8 meters high, small diametric amplitude with diameters of up to 12 centimeters;

d) epiphytes represented by lichen, bryophytes, pteridophytes and small bromeliaceae; higher quantity and diversity than in the previous stage

e) herbaceous creepers;

f) thin understory layer;

g) underwood containing bromeliaceae, pteridophytes and land araceae, young shrub and tree plants;

h) low diversity, predominance of some species;

i) indicator species: pinta-noiva (*Ternstroemia brasiliensis*), canelinha-do-brejo (*Ocotea pulchella*), *Clusia criuva*, *Chusquea* spp.;

j) arenaceous substrata and of predominant marine origin, may include deposits of continental sand and argyle. May be subjected to occasional flooding;

l) endemism's are not known;

m) increased fauna diversity and quantity in comparison to the previous stage.

III.3.4 - ADVANCED REGENERATION STAGE OF THE HIGH BEACH FOREST

a) arboreal physiognomy;

b) predominantly shrubby-arboreal strata;

c) trees are up to 12 meters high, emergent trees may surpass 15 meters, medium diametric amplitude with diameters varying between 10 to 15 centimeters and may surpass 25 centimeters in some plants;

d) epiphytes represented by lichen, bryophytes, pteridophytes, bromeliaceae, orchidaceae, piperaceae and araceae;

e) creepers are represented by leguminous plants and sapindaceae;

f) thick understory layer with leaves in an advanced state of decomposition;

g) underwood with characteristics that are similar to original;

h) medium diversity, predominance of some species;

i) indicator species are mainly represented by: myrtaceae, lauraceae, palmaceae and rubiaceae;

j) arenaceous substrata and of predominant marine origin, may include deposits of continental sand and argyle. May be subjected to occasional flooding. Roots forming a surface tissue;

l) endemism's are not known;

m) fauna similar to original;

IV – DEPRESSION ASSOCIATED VEGETATION

This type of vegetation can be found between arenaceous corridors in areas originated by the siltation of old lagoons, lagoons and bayous or even by the blooming of phreatic sheets. The vegetation between arenaceous corridors and that of the beach wetlands, due to their location in areas under continuous change and variations in humidity rates and dynamism (height and extension), is characterized as primary occupation vegetation (Edaphic Climax) and is therefore not subjected to successional stages. Changes to these formations may lead to their own disappearance and/or become another type of vegetation formation.

IV.1 BETWEEN ARENACEOUS CORRIDORS

- a) shrubby-arboreal physiognomy;
- b) predominantly herbaceous-shrubby strata;
- c) plant height between 1 and 1.5 meters;
- d) absence of epiphytes;
- e) absence of creepers;
- f) absence of understory; absence of underwood;
- g) low species diversity, may include pteridophytes (*Lycopodium spp.*, *Ophioglossum sp.*), gramineae, ciperaceae, saprophytes (*Utricularia nervosa*), apart from botão-de-ouro (*Xyris spp.*), *Triglochin striata* and *Drosera villosa*;
- h) indicator species: *Tibouchina holosericea*, *Drosera villosa* and *Lycopodium spp.* and species of the cyperaceous family;
- i) arenaceous substrata of marine origin and containing large quantities of incorporated organic matter;
- l) endemism's are not known;
- m) are important places for the reproduction of aquatic birds: guará (*Endocimus ruber*), narceja (*Gallinago gallinago*); quero-quero (*Vanellus chilensis*); irerê (*Dendrocygna viduata*); pato-do-mato (*Cairina moschata*); (*Aramides cajanea*); - mammals: lontra (*Lutra longicaudis*) and reptiles such as the alligator-of-crop-yellow (*Caiman latirostris*);

IV.2 – BEACH WETLANDS

- a) herbaceous physiognomy;
- b) strata exclusively herbaceous;
- c) low height that can reach up to 2 meters in the case of the cattail (*Typha spp.*) and *Scirpus sp.*;
- d) absence of epiphytes;
- e) absence of creepers;
- f) absence of understory;
- g) absence of underwood;
- h) wetlands with larger quantities of brackish water may contain graminaceae (*Paspalum maritimum*, *Spartina spp.*), ciperaceae (*Scirpus sp.*, *Cyperus spp.*, *Scleria spp.*) and cattail (*Thypha domingensis*). Wetlands with less or no brackish water show increased diversity: ciperaceae (*Eleocharis spp.*, *Cyperus spp.*, *Scleria spp.*, *Fuirena spp.*), cattail (*Thypha spp.*), the exotic wetland lily (*Hedychium coronarium*), onagraceae: cruz-de-malta (*Ludwigia spp.*); melastomataceae (*Pterolepis glomerata*), chapéu-de-couro (*Echinodorus spp.*), cebolana (*Crinum erubescens*), orelha-de-burro (*Pontederia lanceolata*); gramineae (*Panicum spp.*), aguapé (*Eichhornia crassipes*), lentilha-d'água (*Lemna spp.*), *Nymphaea spp.*, erva-de-Santa-Luzia (*Pistia stratiotes*), murerê (*Salvinia spp.*), samambaia-mosquito (*Azolla spp.*) and bryophytes - veludo (*Sphagnum spp.*);
- i) the indicator species off brackish wetlands - *Scirpus sp.*, *Paspalum maritimum*; fresh water wetlands - taboa (*Thypha spp.*), lírio-do-brejo (*Hedychium coronarium*), chapéu-de-couro (*Echinodorus spp.*), cruz-de-malta (*Ludwigia spp.*);
- j) arenaceous substrata of marine origin, permanently flooded;
- l) endemism's are not known;
- m) are important zones for resting, feeding, reproduction, sleep and migratory routes for forest passeriformes and non-passeriformes birds; narceja (*Gallinago gallinago*); (*Aramides cajanea*).

IV.3 HYGROPHILOUS FOREST

- a) generally open arboreal physiognomy;
- b) predominance of arboreal strata;
- c) the height of trees within the arboreal strata is between 8 and 10 meters, medium diametric amplitude and plant diameter around 15 centimeters
- d) large epiphyte diversity and quantity: bromeliaceae, orchidaceae, gesneriaceae, araceae and pteridophytes;
- e) sporadic creeper occurrence;
- f) absence of understory;
- g) the fringes of the hygrophilous forests, the dryer locations, may contain *Trichipteris atrovirens*, *Bactris setosa* and garapuruna or guapuruva (*Marliera tomentosa*);
- h) caxeta (*Tabebuia cassinoides*) may be the dominating species or guanandi (*Calophyllum brasiliensis*), low species variety that may contain helophyte shrubs: *Tibouchina spp.*, *Marlierea tomentosa*;

- i) indicator species: caxeta (*Tabebuia cassinoides*) and guanandi (*Calophyllum brasiliensis*);
- l) arenaceous substrata of marine origin and permanently flooded, deposits of organic matter, water of brown-rusty color
- m) endemism's are not known;
- n) hygrophilous forests with caxeta predominance are important areas for the reproduction, feeding, rest and sleep of passeriformes and non-passeriformes (*Anatidae*, *Falconidae*, *Psittacidae*, *Tyrannidae*), in particular: papagaio-de-cara-roxa (*Amazona brasiliense*), pássaro preto (*Agelaius cyanopus*) and pato-do-mato (*Cairina moschata*), some mammals like the otter (*Lutra longicaudis*), cyclic fish and tree frogs.

IV.4 – HYGROPHILOUS FORESTS ON PEAT MOSS SUBSTRATA

IV.4.1 - PRIMARY/ORIGINAL

- a) open canopy arboreal physiognomy;
- b) predominating arboreal strata;
- c) height of around 15 meters, may include emergent trees of up to 20 meters. Large diametric distribution with largest diameters of between 20 and 30 centimeters; buttresses are common;
- d) high diversity and quantity of epiphytes: bromeliaceae (*Aechmea spp.*, *Billbergia spp.*, *Tillandsia spp.*, *Vriesea spp.*), orchidaceae (*Anacheilon spp.*, *Cattleya forbesii*, *Promenaea rolissonii*, *Epidendrum spp.*, *Maxillaria spp.*, *Oncidium trulla*, *O. flexuosum*, *Pleurothallis spp.*, *Octomeria spp.*, *Stelis spp.*), araceae (*Philodendron spp.*, *Anthurium spp.*, *Monstera adansonii*); *Microgramma vacciniifolia*, *Polypodium spp.*, *Asplenium spp.*, *Trichomanes spp.*; piperaceae, cacti and gesneriaceae;
- e) low creeper diversity and quantity: *Mikania cordifolia*, *Davilla rugosa*, *Mandevilla spp.*, *Dioscorea spp.*, *Quamoclit coccinea* and ligneous creepers represented by leguminosae, sapindaceae and Bignonia;
- f) thick understory layer;
- g) underwood composed of young arboreal strata species and predominantly rubiaceae (*Psychotria spp.*);
- h) high species diversity, notably in relation to epiphytes, lower number of arboreal species than in ombrophilous forests, some species may be predominant;
- i) indicator species: peito-de-pomba (*Tapirira guianensis*), cuvata (*Matayba elaeagnoides*), canela-amarela (*Nectandra mollis*), guanandi (*Calophyllum brasiliensis*), maçaranduba (*Manilkara subsericea*), juçara (*Euterpe edulis*), many myrtaceae and lauraceae, few leguminosae, fruta-de-cavalo (*Andira flaxinifolia*);
- j) peaty substrata, acid pH (around 2-3), surface root tissue with large quantities of organic material. Large presence of semi-decomposed vegetal rests;
- l) endemism's are not known;
- m) fauna: guaxinim (*Procion cancrivorus*); cachorro-do-mato (*Cerdocyon thous*) that feed on jerivá fruits (*Arecastrum romanzoffianum*); papagaio-de-cara-roxa (*Amazona brasiliensis*) that feed on *Arecastrum romanzoffianum*, *Psidium cattle yanum* and guanandi (*Calophyllum brasiliensis*); jacú-guaçu (*Penelope obscura*), anú-branco (*Guira guira*); saíras (*Tangara spp.*); gaturamos (*Euphonia spp.*) and tree frogs: *Aparasphenodon brunoi* (associated to bromeliaceae), *Osteocephalus langsdorffii* and *Phyllomedusa rhodei*;

IV.4.2 – INITIAL REGENERATION STAGE OF HYGROPHILOUS FORESTS ON PEAT MOSS SUBSTRATA

- a) herbaceous-shrubby and low-arboreal physiognomy;
- b) predominance of herbaceous and shrubby or shrubby and arboreal;
- c) tree are up to 8 meters high, small diametric amplitude with diameters that are less than 10 centimeters;
- d) epiphytes, if present, are represented by lichen and bryophytes;
- e) herbaceous creepers represented by *Ipomoea spp.*, *Quamoclit spp.* and *Mandevilla spp.*;
- g) understory is either absent or underdeveloped; underwood, when present, is represented by bromeliaceae
- h) low species diversity and dominance by one species is common;
- i) indicator species: taboa (*Typha spp.*), ciperaceae (*Cyperus spp.*), capororoca (*Rapanea spp.*) and quaresmeira-anã (*Tibouchina glazioviana*);
- j) peaty substrata containing large quantities of organic material and no or very little mineral material. Presence of semi-decomposed vegetal rests;
- l) endemism's are not known;
- m) very low fauna presence, falling diversity

IV.4.3 - MEDIUM REGENERATION STAGE OF HYGROPHILOUS FORESTS ON PEAT MOSS SUBSTRATA

- a) arboreal physiognomy;
- b) predominance of arboreal and shrub strata;
- c) trees are up to 10 meters high and may include higher specimen (*Rapanea spp.*), larger diametric amplitude with diameters around 15-15 centimeters;
- d) presence of epiphytes, mainly represented by small sized bromeliaceae;
- e) same type of creepers as in the previous stage;
- f) understory, if present, forms a thin layer;
- g) underdeveloped underwood containing bromeliaceae and araceae;

- h) low species diversity and predominance of some species;
- i) indicator species: *Cecropia pachystachia*, *Rapanea* spp. and *Clethra scabra*;
- j) peaty substrata containing large quantities of organic material and no or very little mineral material. Presence of semi-decomposed vegetal rests;
- l) endemism's are not known;
- m) low fauna diversity.

IV.4.4 - AVANCED REGENERATION STAGE OF HYGROPHILOUS FORESTS ON PEAT MOSS SUBSTRATA

- a) open canopy arboreal physiognomy;
- b) predominance of arboreal strata;
- c) trees are between 10 and 12 meters high, emergent trees may reach 15 meters, larger diametric amplitude with diameters of up to 20 centimeters
- d) large quantities of epiphytes represented by bromeliaceae, orchidaceae, cacti, piperaceae, gesneriaceae, pteridophytes and araceae;
- e) ligneous creepers, mainly represented by leguminous, sapindaceae and bignoniaceae, apart from compound and araceae;
- f) thick understory layer;
- g) presence of underwood containing young arboreal strata species;
- h) high species diversity, in particular epiphytes. Some of the arboreal species may dominate;
- i) indicator species: myrtaceae, lauraceae, *Tapirira guianensis*, *Matayba elaeagnoides* and *Calophyllum brasiliensis*;
- j) peaty substrata containing large quantities of organic material and no or very little mineral material. Presence of semi-decomposed vegetal rests;
- l) endemism's are not known;
- m) fauna similar to original composition.

V – BEACH-SLOPE TRANSITION FOREST

These formations occur also in flatlands, in close contact with previously mentioned formations, and on dryer substrata and overtaking substrata of continental or undifferentiated origin, more or less argillaceous and may be in contact, or be very similar to, Dense Slope Ombrophilous Forests, but with different regeneration stages. For all purposes of current regulation they are considered as belonging to the beach vegetation complex.

V.1 - PRIMARY /ORIGINAL closed canopy arboreal physiognomy;

- a) predominance of herbaceous strata;
- b) tree height varies between 12 and 18 meters, emergent trees may surpass 20 meters. Large diametric amplitude with diameters between 15 and 30 centimeters, some diameters may surpass 40 centimeters;
- c) high epiphyte diversity and quantity; araceae (*Philodendron* spp., *Monstera* spp.), bromeliaceae (*Vriesea* spp., *Aechmea* spp., *Billbergia* spp.), orchidaceae (*Epidendrum* spp., *Phymatidium* spp., *Octomeria* spp., *Pleurothallis* spp.), gesneriaceae, pteridophytes (*Asplenium* spp., *Vittaria* spp., *Polypodium* spp., *Hymenophyllum* spp.), bryophytes and lichen;
- d) creepers in small quantities and medium diversity: *Asplundia rivularis*; *Smilax* spp., cará (*Dioscorea* spp.), leguminous and sapindaceae;
- e) thick humus and understory layer that varies with yearly seasons;
- f) underwood, containing young arboreal and shrub strata plants such as: *Psychotria nuda*, *Laplacea fruticosa*, *Amaioua intermedia*, guaricangas (*Geonoma* spp.) and tucum (*Bactris setosa*); samambaia-açu (*Trichipteris corcovadensis*). Underdeveloped herbaceous strata;
- g) high species diversity and the arboreal strata is dominated by: myrtaceae and lauraceae (*Ocotea* spp. and *Nectandra* spp.), *Didymopanax* sp., *Pera glabrata*, palmito (*Euterpe edulis*), jequitibá-rosa (*Cariniana estrelensis*), *Pouteria psammophila*;
- h) indicator species: *Euterpe edulis*, carne-de-vaca (*Roupala* spp.), bico-de-pato (*Machaerium* spp.), *Didymopanax* spp.;
- i) arenaceous substrata, containing varying deposits of sand and continental argyle;
- l) endemism's are not known;
- m) fauna: - birds: guaxe (*Cacicus haemorrhous*), papagaio-de-cara-roxa (*Amazona brasiliensis*), (*Aramides cajanea*); - mammals: mico-leão-caiçara (*Leontopithecus caissara*), queixada (*Tayassu pecari*), bugio (*Alouatta fusca*), mono-carvoeiro (*Brachyteles arachnoides*), large felines such as the ocelot (*Felis pardalis*), onça parda (*Felis concolor*) and onça pintada (*Panthera onca*), as well as smaller felines such as the forest cat (*Felis tigrina*) and the maracajá cat (*Felis wiedii*).

V.2 – INITIAL REGENERATION STAGE OF THE BEACH-SLOPE TRANSITION FOREST

- a) shrubby-herbaceous physiognomy that may include arboreal remains;
- b) predominance of shrubby-herbaceous strata;
- c) shrubs and arboreta of up to 5 meters high, small diametric amplitude with diameters under 8 centimeters;
- d) epiphytes, if present, are represented by lichen, bryophytes and small bromeliaceae with low diversity and in small quantities;
- e) creepers, if present, are represented by *Smilax* spp., *Mikania* spp., *Davilla rugosa* and *Mandevilla* spp.;

- f) thin understory layer, when present;
- g) underwood composed of herbaceous plants;
- h) low species diversity and one or several species may dominate;
- i) indicator species: graminiaceae and ciperaceae, *Rapanea ferruginea*, *Cecropia pachystachia*, *Solanum spp.*, *Tibouchina glazioviana*, ruderal species may also occur;
- j) arenaceous substrata, containing varying deposits of sand and continental argyle;
- l) endemism's are not known;
- m) predominance of open area fauna, with low diversity.

V.3 - INITIAL REGENERATION STAGE OF THE BEACH-SLOPE TRANSITION FOREST

- a) shrubby-arboreal physiognomy;
- b) predominance of shrubby-arboreal strata;
- c) trees are up to 10 meters high, medium diametric amplitude with diameters of up to 15 centimeters;
- d) epiphytes are represented by lichen, bryophytes, pteridophytes and bromeliaceae;
- e) herbaceous creepers: *Smilax spp.*, *Mikania spp.*, *Mandevilla spp.*, *Dioscorea spp.* and *Davilla rugosa*;
- f) thin understory layer;
- g) underwood containing bromeliaceae, pteridophytes and land araceae as well as young shrub and tree plants;
- h) low diversity and some species may predominate;
- i) indicator species: chá-de-bugre (*Hedyosmum brasiliense*), *Guarea macrophylla*, fruto-de-cavalo (*Andira fraxinifolia*), tapiá (*Alchornea spp.*), *Solanum spp.*, apart from those already mentioned in the initial stage;
- j) arenaceous substrata with varying sand and continental argyle deposits;
- l) endemism's are not known;
- m) increasing fauna diversity in comparison to the initial stage.

V.4 - ADVANCED REGENERATION STAGE OF THE BEACH-SLOPE TRANSITION FOREST

- a) arboreal physiognomy;
- b) predominance of herbaceous strata;
- c) trees are up to 13 meters high, emergent trees surpass 15 meters, larger diametric amplitude with diameters varying between 12 and 20 centimeters and in some plants over 30 centimeters;
- d) epiphytes represented by lichen, bryophytes, pteridophytes, orchidaceae, piperaceae, araceae and gesneriaceae
- e) creepers are represented by leguminous and sapindaceae, *Smilax spp.* and *Dioscorea spp.*;
- f) thick understory layer containing leaved in an advanced state of decomposition;
- g) underwood presents the same characteristics as the previous medium stage containing myrtaceae and rubiaceae species;
- h) medium diversity with predominating species;
- i) indicator species are mainly represented by myrtaceae, lauraceae, palmaceae and rubiaceae;
- j) arenaceous substrata with varying sand and continental argyle deposits
- l) endemism's are not know;
- m) fauna similar to original composition.

VI – GENERAL PROVISIONS

It is considered Degraded Forest or Woodland that which has suffered, or suffers, anthropic perturbations such as the exploitation of species with commercial value or other types of exploitation such as fires, pastures or forest clearings which have led to the possible densification of lianas, creepers and bambuseae and species in pioneer and initial regeneration stages. The parameters defined in order to typify the different stages of secondary vegetation regeneration may vary from one geographical region to another and depend on:

- A – local relief, climate and soil conditions;
- B – previous land usage;
- C – neighboring fauna and vegetation;
- D – geographic location;
- E – the analyzed area and the configuration of the formation.

Typology variations of the different vegetation formations will be analyzed and considered during the assessment of cases that have been submitted to competent authorities.

This text does not substitute the text published in the Official Gazette on Aug. 26, 1996.

CONAMA RESOLUTION 261, June 30, 1999
Published in Official Gazette 146 on Aug. 2, 1999, Section 1, pages 29-31

Correlations:

- . Compliance with art. 6 of Decree 750/93 and art. 1, § 1 of CONAMA Resolution 10/93
- . Validated by CONAMA Resolution 388/07 in order to fulfill the provisions of Law 11.428 from Dec. 22, 2006

Approves the basic parameters for the analysis of the successional stages of the Beach vegetation in Santa Catarina State.

THE NATIONAL ENVIRONMENT COUNCIL –CONAMA, in accordance with the power bestowed upon the Council by Law 6.938 from Aug. 31, 1981, regulated through Decree 99.274 from June 6, 1990, changed by Decree 2.120 from January 13, 1997⁵¹, and considering the provisions of its Internal Regulations, and

Considering the provisions contained in art. 6 of Decree 750 from Feb. 10, 1993, decides:

Art. 1 To approve the directives contained in the annex of this Resolution as the basic directives for the analysis of the successional stages of the beach vegetation in the State of Santa Catarina.

Art. 2 This resolution shall enter into effect on the date of its publication

JOSÉ SARNEY FILHO - Conama President

JOSÉ CARLOS CARVALHO – Executive Secretary

ANNEX

1. INTRODUCTION

Beachs are a group of ecosystems that include floristic vegetal communities physiologically distinct, located on grounds that are predominantly arenaceous, of marine, fluvial, lacunar, eolic origin, or combinations of the same, quaternary age, and of generally low developed soils. These vegetal communities form an edaphic and pioneer vegetation complex which are more dependent on soil composition than on climatic conditions and are common to beaches, arenaceous strips, dunes and associated depressions, flatlands and terraces.

The beach vegetation includes originally herbaceous, sub-shrubby, shrubby or arboreal formations that may form mosaics and include areas deprived of vegetation; such formations may be primary or become secondary due to natural processes or human intervention. The beach vegetation, due to the fragility of its ecosystems, plays a fundamental roll in sediment stabilization and the upholding of original drainage as well as the preservation of resident and migratory that fauna which uses these areas in order to find food and as safe nesting grounds that offer protection from predators.

For all purposes of this Resolution, the vegetation of rocky environments associated to beaches, when composed by species that are also found in locations mentioned in the first paragraph, will be considered as beach vegetation. The vegetation located within transition areas between the beach and dense Ombrophylous forests will be considered as mangroves in relation to licensing processes granted to activities within the Atlantic Forest Dominion.

The floristic and structural composition of the three beach original or primary phyto-physiognomies and respective successional stages will be characterized bellow.

2. HERBACEOUS AND/OR SUB-SHRUBBY BEACH

Vegetation composed by predominantly herbaceous or sub-shrubby species of up to 1 (one) meter high, of relatively low diversity. It is mainly present on: beaches, coastal and inland dunes (mobile, semi-fixed and fixed), lagoons and their margins, flatlands and arenaceous terraces, wetlands and depressions. Due to intense morphodynamics (caused by the instability of waves, winds, rainfall and tides) the herbaceous and/or sub-shrubby beach is not defined by natural, or anthropic, successional stages.

2.1 – Beach and coastal dune vegetation

a) This vegetation is predominantly composed of herbaceous plants provided with stolons or rhizomes are generally sparsely distributed or form tussocks and may include ligneous vegetation, with dense groupings of sub-shrubs that hold to and cover the entire grounds. These vegetation groupings are closest to the sea and are strongly affected by marine salinity through the action of waves and splashes caused by the wind.

⁵¹ Decree revoked by Decree 3.942 from Sept. 27, 2001

- b) Predominance of herbaceous and/or sub-shrubby strata.
- c) Plant height is generally under 1 (one) meter.
- d) Epiphytes are rare or non-existent.
- e) Lianas (creepers) are predominantly creeping on the soil.
- f) Understory is considered as irrelevant for the characterization of this type of vegetation.
- g) Absence of underwood.

h) Main elements of the vascular forest: characteristic herbaceous species: *Ipomoea pes-caprae* (batateira-da-praia); *Canavalia rosea** (feijão-de-porco); *Panicum racemosum*, *Paspalum vaginatum*, *Sporobolus virginicus*, *Stenotaphrum secundatum*, *Spartina ciliata* (capim-da-praia); *Blutaparon portulacoides**; *Polygala cyparissias*; *Acicarpa spathulata* (rosetão); *Cenchrus* spp. (capim-roseta); *Centella asiatica*; *Remirea maritima* (pinheirinho-da-praia); *Alternanthera maritima*; *Ipomoea imperati**; *Petunia littoralis*; *Vigna luteola*, *Vigna longifolia* (feijão-da-praia); *Oxypetalum* spp. (cipó-leiteiro). Sub-shrubby characteristic species: *Lantana camara* (cambará); *Achyrocline* spp. (marcela); *Cordia curassavica** (baleeira); *Sophora tomentosa*; *Scaevola plumieri*; *Epidendrum fulgens**, *Cyrtopodium polyphyllum** (orquídea); *Eupatorium casarettoi* (vassourinha); *Noticastrum* spp. (margaridinha); *Porophyllum ruderale*; *Dalbergia ecastaphylla*; *Desmodium* spp. (pega-pega); *Stylosanthes viscosa* (meladinha); *Tibouchina urvilleana* (quaresmeira); *Oenothera mollissima*; *Smilax campestris* (salsaparrilha); *Diodia radula*, *Diodia apiculata*; *Vitex megapotamica* (tarumã); *Aechmea* spp., *Vriesea friburgensis* (bromélia, gravatá); *Cereus* sp., *Opuntia arechavaletae* (cacto); *Dodonaea viscosa* (vassoura-vermelha); *Rumohra adiantiformis**, *Polypodium lepidopteris* (samambaia); *Sebastiania corniculata*.

i) Endemic vegetable species, rare or threatened with extinction: *Petunia littoralis* (Rio Vermelho, Campeche and Pântano do Sul, em Florianópolis; Laguna), *Gunnera herteri* (Sombrio), *Aristolochia robertii* (Rio Vermelho, in Florianópolis), *Plantago catharinaea* (São Francisco do Sul, Araquari, Barra Velha, Florianópolis, Palhoça).

2.2 – Vegetation of inland dunes and flatlands

a) Vegetation is mainly composed by sub-shrubby species and may contain some herbaceous species as well as small bushes. It grows on mobile dunes, semi-fixed or fixed and can also occur upon arenaceous flatlands near beaches or areas associated with dunes and lagoons. Some areas may present very sparse vegetation cover or may even be deprived of vegetation. They are located near beach strips and/or frontal dunes, further away from the sea and are subjected to very low marine saline effects or none at all.

- b) Predominance of herbaceous and/or sub-shrubby strata.
- c) Plant height does not generally surpass 1.5 meters.
- d) Epiphytes are rare or non-existent.
- e) Lianas (creepers) mainly creep over the soil.
- f) Understory is considered as irrelevant for the characterization of this vegetation.
- g) Underwood is non-existent.

h) Main elements of the vascular forest (apart from those named in 2.1): *Alternanthera brasiliana*, *Alternanthera moquinii*; *Schinus terebinthifolius* (aroeira-vermelha); *Baccharis articulata* (carquejinha); *Baccharis radicans*; *Senecio platensis*; *Chenopodium* spp. (erva-de-santa-maria); *Davilla rugosa* (cipó-lixia); *Gaylussacia brasiliensis* (camarinha); *Centrosema virginianum*; *Plantago catharinaea* (tansagem); *Androtrichum trigynum*; *Andropogon arenarius*, *Andropogon bicornis*; *Aristida circinalis*; *Schizachyrium* spp.; *Chloris retusa*; *Ambrosia elatior*; *Conyza* spp.; *Gamochoeta* spp.; *Pterocaulon* spp.; *Desmodium* spp. (pega-pega); *Cordia monosperma* (baleeira).

i) Endemic vegetable species, rare or threatened with extinction: *Senecio reitzianus* (dunas da Lagoa da Conceição, in Florianópolis); *Petunia littoralis* (Florianópolis, Laguna); *Vernonia ulei* (Laguna); *Noticastrum hatschbachii* (Garopaba, Laguna), *Noticastrum psammophilum* (Imbituba, Araranguá), *Noticastrum malmei* (Massiambu, in Palhoça); *Eupatorium ulei* (Florianópolis, Palhoça, Laguna), *Eupatorium littorale* (Massiambu, in Palhoça; Sombrio); *Buchnera integrifolia* (Palhoça); *Plantago catharinaea* (São Francisco do Sul, Araquari, Barra Velha, Florianópolis, Palhoça); *Rollinia maritima* (Florianópolis, Garopaba).

2.3 – Lagoon, wetland and lowland vegetation

a) This type of vegetation is generally common to depressions, with or without running water, and may or may not be subjected to saline influence. It is mainly composed of herbaceous or sub-shrubby species. Locations under the effect of long-lasting flooding are generally predominated by macrophyte aquatic plants which are either emergent or amphibian but can also be floating or submersed.

- b) Predominance of herbaceous and/or sub-shrubby strata.
- c) Variable plant height; in less humid region or subjected to short flooding periods the height of the vegetation does not surpass 1 (one) meter but some aquatic macrophyte can reach up to 1-2 meters high.
- d) Epiphytes are rare or non-existent.
- e) Lianas (creepers) are generally few (*Rhabdadenia pohlii*, *Mikania* spp.) or non-existent.
- f) The understory does not have any relevance for the characterization of this vegetation.
- g) Underwood is non-existent.

h) Main elements of the vascular flora: *Drosera* spp. (papa-mosca); *Utricularia* spp.; *Paepalanthus* spp., *Syngonanthus* spp., *Eriocaulon* spp. (sempre-viva); *Eleocharis* spp.; *Juncus acutus*, *Juncus* spp. (junco); *Cyperus* spp., *Rhynchospora* spp., *Scirpus maritimus*; *Scirpus* spp. (junco, piri); *Xyris* spp. (botão-de-ouro, sempre-viva), *Polygonum* spp. (erva-de-bicho), *Ludwigia* spp. (cruz-de-malta), *Typha domingensis* (taboa);

Tibouchina asperior, *Tibouchina trichopoda**, *Rhynchanthera* spp. (quaresmeira); *Sphagnum* spp.; *Nymphoides indica* (soldanella-d'água), *Lycopodium* spp. (pinheirinho); *Pontederia lanceolata*, *Eichhornia* spp. (aguapé); *Acrostichum danaeifolium* (samambaia); *Fimbristylis spadicea*, *Cladium mariscus*, *Salicornia* sp.; *Limonium brasiliense* (guaicuru), *Sporobolus virginicus*; espécies de *Drosera* spp., *Utricularia* spp., *Paepalanthus* spp., *Syngonanthus* spp., *Eriocaulon* spp., *Eleocharis* spp.; *Juncus acutus*, *Juncus* spp., *Cyperus* spp., *Rhynchospora* spp., *Scirpus maritimus*; *Scirpus* spp., *Ludwigia* spp., *Tibouchina asperior*, *Tibouchina trichopoda**, *Rhynchanthera* spp., *Sphagnum* spp.; *Nymphoides indica*, *Lycopodium* spp., *Pontederia lanceolata*, *Eichhornia* spp., *Acrostichum danaeifolium*, *Fimbristylis spadicea*, *Cladium mariscus*, *Salicornia* sp.; *Limonium brasiliense*, *Sporobolus virginicus*, *Drosera* spp., *Utricularia* spp.; *Paepalanthus* spp., *Syngonanthus* spp., *Eriocaulon* spp., *Eleocharis* spp.; *Juncus acutus*, *Juncus* spp., *Cyperus* spp., *Rhynchospora* spp., *Scirpus maritimus*; *Scirpus* spp., *Ludwigia* spp., *Tibouchina asperior*, *Tibouchina trichopoda**, *Rhynchanthera* spp., *Sphagnum* spp.; *Nymphoides indica*, *Lycopodium* spp., *Pontederia lanceolata*, *Eichhornia* spp., *Acrostichum danaeifolium*, *Fimbristylis spadicea*, *Cladium mariscus*, *Salicornia* sp.; *Limonium brasiliense*, *Sporobolus virginicus*, *Lemnaceae* (lentilha-d'água); *Salvinia* spp., *Hydrolea spinosa*, *Bacopa monnieri*; *Senecio bonariensis* (margarida-do-banhado); *Mayaca* spp., *Spartina densiflora*, *Spartina alterniflora*; *Erianthus asper* (capim-pluma), *Ischaemum minus* (grama-de-banho), *Paspalum* spp., *Panicum* spp., *Potamogeton* spp.; *Eryngium* spp. (gravatá, caraguatá), *Pista stratiotes* (alface-d'água, repolho-d'água), *Crinum* sp. (cebolama), *Myriophyllum aquaticum**(pinheirinho-d'água), *Echinodorus* spp. (chapéu-de-couro).

i) Endemic vegetable species, rare or threatened with extinction: *Regnellidium diphyllum* (Sombrio), *Senecio oligophyllus* (Massambu, em Palhoça; Sombrio), *Tibouchina asperior* (Florianópolis, Sombrio), *Cuphea aperta* (Palhoça), *Gunnera herteri* (Sombrio).

2.4 – Cultivated species may also occur, apart from the vegetable species named in the previous items (*Casuarina* sp., *Pinus* spp., etc.) or so called invading species, secondary foreign or ruderal species, resulting from human intervention, such as: *Bidens pilosa* (picão), *Crotalaria* spp. (chocalho-de-cascavel), *Ricinus communis* (mamona); *Sida* spp., *Urena lobata*, *Malvastrum coromandelianum* (guanxumas); *Ageratum conyzoides* (mentrasto), *Solanum* spp. (joá, mata-cavalo); *Xanthium* spp., *Triumfetta* spp. (carrapicho); *Elephantopus mollis*, etc.

3. SHRUB BEACH

Vegetation predominantly composed by bush plants with a height of between 1 (one) and 5 (five) meters, is liable to stratification and the presence of epiphytes, creepers and understory accumulation. It generally holds a larger floristic diversification than the previous type of vegetation and can occur in well drained or humid areas. It is generally present in: semi-fixed and fixed dunes, depressions, arenaceous strips, flatlands and arenaceous terraces.

3.1 – Primary or Original

a) Dense vegetation forming continuous groupings or bushes intercalated with less dense areas; shrubby plants with strong branches that start just above the base and mixed with herbs and sub-shrubs; may include palm trees that stand above the phyto-physiognomies; land lichen can occur in more open and dry areas

b) Predominating shrub and herbaceous strata.

c) Generally between 1 and 5 meters high.

d) Few epiphytes and mainly represented by lichen, bryophytes, ferns (*Microgramma* spp., *Polypodium* spp.) and bromeliaceae (*Tillandsia* spp., *Vriesea* spp.). Some epiphytic orchids may also be included.

e) Creepers are generally not very abundant but can occur: *Oxypetalum* spp., *Mandevilla* spp. (cipó-leiteiro, leite-de-cachorro); *Mikania* spp., *Ipomea* spp., *Merremia* spp.; *Paullinia cristata*, *Paullinia trigonia*, *Serjania* sp. (cipó-timbó); *Trigonia pubescens* (cipó-de-paina), *Chiococca alba*; *Stigmaphyllon* spp. as well as other malpighiaceae species; *Smilax* spp. (salsaparrilha); *Davilla rugosa*, *Dolioscarpus* spp., *Tetracera* spp. (cipó-lixia, cipó-caboclo, cipó-vermelho); *Pyrostegia venusta* (cipó-são-joão); *Centrosema virginianum*, *Canavalia bonariensis*, *Dalechampia micromeria*; *Vanilla chamissonis* (orquídea-baunilha).

f) Understory may accumulate on some locations, particularly around dense bushes or lower areas

g) The underwood is considered irrelevant for the characterization of this type of vegetation.

h) Main elements of the vascular flora: Shrub strata: *Dalbergia ecastaphylla*; *Dodonaea viscosa* (vassoura-vermelha); *Schinus terebinthifolius* (aroeira-vermelha); *Lithrea brasiliensis* (aroeira-braba); *Ocotea pulchella* (canelinha-da-praia); *Butia capitata* (butiazeiro); *Gomidesia palustris*, *Eugenia* spp., *Myrcia* spp. (guamirim); *Vitex megapotamica* (tarumã); *Ilex* spp. (caúna); *Campomanesia littoralis* (guabirola-da-praia); *Eugenia uniflora* (pitangueira); *Tibouchina urvilleana*, *Tibouchina trichopoda**, *Tibouchina asperior* (quaresmeira); *Cordia curassavica**, *Cordia monosperma* (baleeira); *Guapira opposita* (maria-mole); *Gaylussacia brasiliensis* (camarinha); *Senna pendula** (cássia); *Myrsine parvifolia**, *Myrsine* spp. * (capororoca); *Calliandra tweediei* (topete-de-cardeal); *Psidium cattleianum* (araçazeiro); *Erythroxylum argentinum*, *Erythroxylum* spp. (cocão); *Tabebuia* spp. (ipê-amarelo), *Pera glabrata* (seca-ligeiro); *Cereus* sp., *Opuntia arechavaletae* (cacto, tuna); *Sapium glandulatum* (pau-leiteiro), *Schinus polygamus* (aroeira, assobieira), *Sebastiania* sp. (branquilha). Within humid locations, *Huberia semiserrata* (jacatirão-do-brejo), *Hibiscus tiliaceus* (uvira), *Ternstroemia brasiliensis*, *Annona glabra* (cortiça), *Pouteria lasiocarpa* (guapeba). Herbaceous strata: *Peperomia* spp.; *Anthurium* spp., *Philodendron* spp. (imbé); *Epidendrum fulgens**, *Cleistes* spp., *Cyrtopodium polyphyllum** (orquídeas terrícolas); *Vriesea friburgensis*, *Vriesea* spp., *Aechmeadenii*, *Aechmea* spp., *Nidularium* spp., *Bromelia antiacantha*, *Dyckia encholirioides*, *Canistrum* spp. (and other land bromeliaceae); *Rumohra adiantiformis**, *Polypodium lepidopteris*,

Cmistrum spp, (and other land bromeliaceae); *Rumohra adiantiformis**, *Polypodium leptopteris*, *Polypodium* spp., *Blechnum serrulatum* (e outras samambaias terrícolas); *Desmodium* spp. (pega-pega); *Stylosanthes viscosa* (meladilha), *Oea mollissima*; *Smilax campestris* (salsaparrilha); *Diodia radula*, *Diodia apiculata*. Occurrence of so called invading species, ruderal or cultivated does not mischaracterize the primary vegetation of the beach.

i) Endemic vegetable species, rare or threatened with extinction: *Prunus ulei* (Laguna, Sombrio), *Miconia lagunensis* (Laguna), *Mimosa catharinensis* (Rio Vermelho, em Florianópolis), *Aristolochia robertii* (Rio Vermelho, in Florianópolis), *Vernonia ulei* (Laguna), *Eupatorium ulei* (Florianópolis; Massiambu, in Palhoça; Laguna), *Eupatorium littorale* (Palhoça, Sombrio), *Weinmannia discolor* (Florianópolis), *Campomanesia reitziana* (Itajaí), *Campomanesia littoralis* (Florianópolis, Palhoça, Garopaba, Laguna, Sombrio), *Calyptranthes rubella* (Itapoá, Florianópolis, Palhoça, Sombrio), *Aechmea pimenti-velosoi* (Praia Braba, in Itajaí), *Aechmea kertesziae* (Itajaí, Porto Belo, Laguna), *Aechmea lindenii* (Porto Belo, Florianópolis, Palhoça), *Rudgea littoralis* (Massiambu, in Palhoça), *Rollinia maritima* (Florianópolis, Garopaba), *Tibouchina asperior* (Florianópolis, Sombrio).

3.2 – Initial Regeneration Stage of the Shrub Beach

- a) Predominating herbaceous physiognomy but may also contain individuals from the original shrubby vegetation.
- b) Predominance of herbaceous strata.
- c) If there are any ligneous species they are small and generally up to 1 (one) meter high.
- d) Epiphytes are rare or non-existent.
- e) Creepers are rare or non-existent.
- f) Scarce or no understory.
- g) Non-existent underwood.

h) Specific diversity is well lower in comparison to original vegetation. Main elements of the vascular flora: *Bidens pilosa* (picão), *Pteridium aquilinum* (samambaia-das-taperas), *Andropogon bicornis* (capim-rabo-de-burro), *Melinis minutiflora* (capim-gordura), *Rhynchelytrum repens* (capim-rosado), *Sporobolus indicus*, *Solidago chilensis* (erva-lanceta, rabo-de-foguete), *Phyllanthus* spp. (quebra-pedra), *Leonurus sibiricus*; *Ageratum conyzoides* (mentrasto), *Amaranthus* spp. (caruru), *Baccharis trimera* (carqueja), *Eleusine indica* (capim-pé-de-galinha), *Vernonia scorpioides* (erva-são-simão), *Crotalaria* spp. (chocalho-de-cascavel), *Ricinus communis* (mamona); *Scoparia dulcis* (vassourinha); *Sida* spp., *Malvastrum coromandelianum*, *Urena lobata* (guanxuma); *Solanum americanum* (erva-moura), *Solanum sisymbriifolium* (joá, mata-cavalo); *Xanthium* spp., *Triumfetta* spp. (carrapicho); *Aster squamatus*; *Asclepias curassavica* (oficial-de-sala), *Apium leptophyllum*, *Anagallis arvensis*, *Elephantopus mollis*, *Emilia fosbergii**, *Erechtites valerianifolia*, *Erechtites hieraciifolia*; *Galinsoga* spp. ties may lead to the occurrence of (picão-branco), *Sigesbeckia orientalis*; *Senecio brasiliensis* (flor-das-almas, maria-mole), *Sonchus* spp. (serralha), *Tagetes minuta* (cravo-de-defunto), *Lepidium virginicum* (mastruço); *Euphorbia hirta*, *Euphorbia heterophylla* (leiteira); *Portulaca oleracea* (beldroega). Anthropogenic human activities may lead to the occurrence of *Hedychium coronarium* (lírio-do-brejo) in humid areas.

i) Endemic vegetable species, rare or threatened with extinction: *Noticastrum hatschbachii* (Garopaba, Laguna), *Noticastrum psammophilum* (Imbituba, Araranguá), *Noticastrum malmei* (Massiambu, in Palhoça); *Petunia littoralis* (Florianópolis, Laguna).

3.3 - Medium Regeneration Stage of the Shrub Beach

- a) Predominance of shrubby physiognomy.
- b) Predominance of shrubby and herbaceous strata.
- c) Shrub strata plants between 1 and 2.5 meters high.
- d) May include some epiphytes: *Tillandsia* spp., *Vriesea* sp., *liquens*.
- e) May include some creepers, generally small: *Smilax campestris*, *Smilax* spp. (salsaparrilha); *Davilla rugosa*, *Doliocarpus* spp., *Tetracera* spp. (cipó-lixia, cipó-caboclo, cipó-vermelho); *Mikania* spp.; *Pyrostegia venusta* (cipó-são-joão), *Ipomoea cairica*, *Ipomoea* spp., *Merremia* spp.; *Tragia polyandra*, *Dalechampia micromeria* (cipó-urtiguinha); *Centrosema virginianum*, *Mutisia* spp.
- f) Scarce understory.
- g) Underwood is non-existent.

h) Main elements of the vascular flora: *Dodonaea viscosa* (vassoura-vermelha), *Gaylussacia brasiliensis* (camarinha), *Tibouchina urvilleana* (quaresmeira); *Baccharis dracunculifolia*, *Baccharis rufescens* (vassoura-branca); *Cordia curassavica**, *Cordia monosperma* (baleeira), *Dalbergia ecastaphylla*; *Senna pendula** (cássia), *Eupatorium casarettoi* (vassourinha), *Solanum paniculatum* (jurubeba), *Solanum erianthum* (fumo-bravo), *Schinus terebinthifolius* (aroeira-vermelha), *Mimosa bimucronata* (maricá, espinheiro, silva), *Lithrea brasiliensis* (aroeira-brava), *Myrsine parvifolia* * (capororoquina); *Sebastiania corniculata*, *Diodia radula*, *Diodia apiculata*; *Vriesea friburgensis* (gravatá), *Noticastrum* spp. (margaridinha), *Epidendrum fulgens** (orquídea), *Stylosanthes viscosa* (meladilha), *Oenothera mollissima*; *Remirea maritima* (pinheirinho-da-praia), *Petunia littoralis*; *Hydrocotyle bonariensis* (erva-capitão); *Rumohra adiantiformis**, *Blechnum serrulatum*, *Polypodium leptopteris* (samambaia).

i) Endemic or rare vegetable species threatened with extinction: *Noticastrum hatschbachii* (Garopaba, Laguna), *Noticastrum psammophilum* (Imbituba, Araranguá), *Noticastrum malmei* (Massiambu, in Palhoça), *Eupatorium ulei* (Florianópolis; Massiambu, in Palhoça; Laguna), *Miconia lagunensis* (Laguna), *Tibouchina asperior* (Florianópolis, Sombrio), *Aechmea lindenii* (Porto Belo, Florianópolis, Palhoça).

3.4 - Advanced Regeneration Stage of the Shrub Beach

a) Shrubby physiognomy that is more open than in the original state.

b) Predominance of shrubby, sub-shrubby and herbaceous strata.

c) Shrub strata plants between 2.5 and 5 meters high.

d) Higher diversity and quantity of epiphytes in comparison with the medium stage.

e) Higher diversity and quantity of creepers in comparison with the medium stage, such as *Smilax campestris* (salsaparrilha); *Davilla rugosa*, *Doliocarpus* spp., *Tetracera* spp. (cipó-lixá, cipó-caboclo, cipó-vermelho); *Paullinia cristata*, *Paullinia trigonia*, *Serjania* sp. (cipó-timbó); *Trigonia pubescens* (cipó-de-paina), *Mikania* spp.; *Pyrostegia venusta* (cipó-são-joão), *Ipomoea cairica*, *Ipomoea* spp., *Merremia* spp.; *Tragia polyandra*, *Dalechampia micromeria* (cipó-urtiguinha); *Centrosema virginianum*, *Canavalia bonariensis*, *Mutisia* spp.; *Vanilla chamissonis* (orquídea-baunilha); malpighiaceae species.

f) Scarce understory, some accumulation around denser shrubs.

g) The underwood is considered as irrelevant for the characterization of this stage.

h) Main elements of the vascular flora: *Myrsine* spp. * (capororoca), *Schinus terebinthifolius* (aroeira-vermelha), *Lithrea brasiliensis* (aroeira-brava), *Pera glabrata* (seca-ligeiro); *Erythroxylum argentinum*, *Erythroxylum* spp. (cocão); *Guapira opposita* (maria-mole), *Vitex megapotamica* (tarumã), *Butia capitata* (butiazeiro), *Psidium cattleyanum* (araçazeiro); *Gomidesia palustris*, *Eugenia* spp., *Myrcia* spp. (guamirim); *Vitex megapotamica* (tarumã); *Ilex* spp. (caúna); *Sapium glandulatum* (pau-leiteiro); *Calliandra tweediei* (topete-de-cardeal); *Hibiscus tiliaceus* (uvira); *Annona glabra* (cortiça); *Huberia semiserrata* (jacatirão-do-brejo); *Cecropia glazioui** (embaúba); *Campomanesia littoralis* (guabiroba-da-praia); *Cordia curassavica**, *Cordia monosperma* (baleeira); *Dalbergia ecastaphylla*, *Diodia apiculata*, *Diodia radular*; *Rumohra adiantiformis**, *Blechnum serrulatum*, *Polypodium lepidopteris* (and other land ferns); *Peperomia* spp.; *Anthurium* spp., *Philodendron* spp. (imbé); *Epidendrum fulgens**, *Cleistes* spp., *Cyrtopodium polyphyllum** (and other land orchids); land bromeliaceae such as *Vriesea friburgensis*, *Vriesea* spp., *Aechmea lindenii*, *Aechmea* spp., *Nidularium* spp., *Bromelia antiacantha*, *Dyckia encholirioides*, *Canistrum* spp.

i) Endemic or rare vegetable species threatened with extinction: *Campomanesia littoralis* (Florianópolis, Palhoça, Garopaba, Laguna, Sombrio), *Miconia lagunensis* (Laguna), *Tibouchina asperior* (Florianópolis, Sombrio), *Prunus ulei* (Laguna, Sombrio), *Aechmea lindenii* (Porto Belo, Florianópolis, Palhoça).

4. ARBOREAL BEACH OR BEACH WOODS

4.1 – Primary or Original

a) Arboreal physiognomy with developed shrubby and herbaceous strata. May be found in both in well drained or wet areas.

b) Predominance of arboreal strata.

c) Tree height generally varies between 5 and 15 meters, may include emergent trees up to 20 meters high.

d) Epiphytes: *Aechmea nudicaulis*, *Aechmea* spp., *Vriesea philippo-coburgii*, *Vriesea vagans*, *Vriesea gigantea*, *Vriesea incurvata*, *Vriesea carinata*, *Vriesea flammea*, *Nidularium innocentii*, *Canistrum lindenii* (gravatá); *Tillandsia usneoides* (barba-de-pau), *Tillandsia* spp. (cravo-do-mato); *Philodendron imbe* (cipó-imbé); *Anthurium* spp., *Philodendron* spp. (imbé); *Codonanthe* spp., *Peperomia* spp.; *Cattleya intermedia*, *Brassavola* spp., *Pleurothallis* spp. (orquídea); *Rhipsalis* spp. (rabo-de-rato), *Polypodium* spp. (samambaia).

e) Creepers: *Strychnos trinervis* (esporão-de-galo), *Vanilla chamissonis* (orquídea-baunilha), *Norantea brasiliensis*, *Marcgravia polyantha*; *Dioscorea* spp. (cará), *Passiflora* spp. (maracujá-de-cobra); *Smilax* spp. (salsaparrilha); *Paullinia* spp., *Serjania* sp. (cipó-timbó); *Forsteronia* spp., *Mimosa pseudo-obovata*; *Stigmaphyllon* spp. e outras espécies de malpighiáceas; *Mutisia* spp., *Mendoncia puberula*; *Davilla rugosa*, *Doliocarpus* spp., *Tetracera* spp. (cipó-lixá, cipó-caboclo, cipó-vermelho).

f) Thick understory layer, periodical variations.

g) Underwood.

h) Main elements of the vascular flora: Arboreal strata: *Clusia parviflora** (mangue-formiga); *Alchornea triplinervia*, *Alchornea iricurana* (tanheiro, tapiá-guaçu); *Arecastrum romanzoffianum* (jerivá, coquinho-de-cachorro); *Ficus organensis*, *Coussapoa microcarpa* (figueira); *Inga dulcis**, *Inga luschnathiana* (ingá); *Pithecellobium langsdorffii* (pau-gambá), *Nectandra oppositifolia** (canela-amarela), *Nectandra megapotamica* (canela-merda), *Ocotea pulchella* (canela-da-praia, canela-do-brejo), *Tapirira guianensis* (cupiúva), *Psidium cattleyanum* (araçazeiro), *Byrsonima ligustrifolia* (baga-de-pomba); *Ilex theezans*, *Ilex* spp. (caúna); *Pera glabrata* (seca-ligeiro), *Laplacea fruticosa* (santa-rita), *Posoqueria latifolia* (baga-de-macaco); *Sapium glandulatum* (pau-leiteiro); *Cecropia glazioui** (embaúba); *Myrsine umbellata**, *Myrsine* spp.* (capororoca); *Eugenia umbelliflora* (bagaçu), *Guapira opposita* (maria-mole); *Gomidesia schaueriana*, *Eugenia* spp., *Myrcia* spp. (guamirim); *Ormosia arborea* (pau-ripa), *Citharexylum myrianthum* (tucaneira), *Pouteria lasiocarpa* (guapeba), *Jacaranda puberula* (carobinha), *Cupania vernalis* (camboatá-vermelho), *Matayba guianensis* (camboatá-branco), *Ternstroemia brasiliensis*. The following species may be frequently present in humid soil areas: *Tabebuia umbellata* (ipê-amarelo), *Calophyllum brasiliense* (especialmente na metade norte de Santa Catarina; olandi), *Hibiscus tiliaceus* (uvira); *Myrcia multiflora*, *Myrcia dichrophylla* (guamirim); *Annona glabra* (cortiça), *Huberia semiserrata* (jacatirão-do-brejo). Subosque: *Geonoma* spp. (guaricana), *Bactris lindmaniana* (tucum); *Allophylus edulis* (chal-chal), *Esenbeckia grandiflora* (cutia), *Actinostemon concolor* (laranjeira-do-mato); *Ilex pseudobuxus*, *Ilex* spp. (caúna); *Mollinedia* spp. (pimenteira-do-mato), *Alsophila* spp. (xaxim), *Amaioua guianensis*; *Guarea macrophylla* (baga-de-morego), *Heliconia velloziana* (caeté); *Faramea* spp., *Psychotria* spp. (grandiúva-d'anta); *Rudgea* spp., *Peperomia* spp., *Piper* spp., *Coccocypselum* spp., *Alibertia concolor*; *Blechnum* spp., *Rumohra adiantiformis**, *Polypodium robustum*, *Polypodium* spp. (and other land ferns); *Aechmea* spp., *Vriesea* spp., *Nidularium innocentii*, *Bromelia antiacantha* (and other land bromeliaceae). Occurrence of so called invading species, ruderal or cultivated does

not necessarily mischaracterize the primary beach.

i) Endemic or rare vegetable species threatened with extinction: *Eupatorium rosengurtii* (São Francisco do Sul), *Campomanesia reitziana* (Itajaí), *Neomitranthes cordifolia* (Itapoá, Palhoça, Sombrio), *Eugenia tristis* (Garuva, Itapoá), *Gomidesia flagellaris* (Garuva, Itajaí), *Myrceugenia reitzii* (Itapoá, Itajaí), *Myrceugenia kleinii* (Itajaí), *Eugenia lanosa* (Florianópolis), *Eugenia cycliantha* (Governador Celso Ramos), *Marlierea reitzii* (Itapoá), *Calyptanthus rubella* (Itapoá, Florianópolis, Palhoça, Sombrio), *Eugenia sclerocalyx* (Itapoá), *Cyphomandra maritima* (Porto Belo, Florianópolis), *Campomanesia littoralis* (Florianópolis, Palhoça, Garopaba, Laguna, Sombrio), *Aechmea kertesziae* (Itajaí, Porto Belo, Laguna), *Aechmea lindenii* (Porto Belo, Florianópolis, Palhoça), *Aechmea pectinata* (Itapoá, São Francisco do Sul, Araquari), *Aechmea candida* (Araquari), *Vriesea pinottii* (Itapoá), *Cannarus rostratus* (Florianópolis), *Rourea gracilis* (Itapoá), *Cecropia catarinensis* (embaúba-branca; Laguna, Sombrio), *Mimosa catharinensis* (Rio Vermelho, in Florianópolis), *Rudgea littoralis* (Massambu, in Palhoça).

4.2 – Initial Regeneration Stage of the Arboreal Beach

a) Herbaceous-shrubby physiognomy, may contain isolated arboreal individuals from original forest remains such as *Arecastrum romanzoffianum* (coqueiro, jerivá) and *Ficus organensis* (figueira-de-folha-miúda).

b) Predominance of shrubby and herbaceous strata.

c) Shrub height is generally between 1 and 3 meters. Original arboreal beach areas which are today completely covered by *Mimosa bimucronata* (marica, Silva capensis, bramble), even if over 3 meters high, will be considered as part of the initial regeneration stage.

d) Epiphytes, when present, are represented by lichen, bryophytes and small bromeliaceae (*Tillandsia spp.*, *cravos-do-mato*), in small numbers of species and individuals.

e) Creepers, if present, are few in species and represented by *Mikania spp.*, *Ipomoea spp.*.

f) Understory is non-existent or forms a very thin layer.

g) Underwood is non-existent.

h) Main elements of the vascular flora: *Mimosa bimucronata* (maricá, espinheiro, silva); *Baccharis dracunculifolia*, *Baccharis rufescens* (vassoura-branca); *Dodonaea viscosa* (vassoura-vermelha); *Baccharis trimera* (carqueja); *Vernonia tweediana* (chamarrita, assapeixe); *Vernonia scorpioides* (erva-são-simão), *Vernonia chamissonis*; *Pteridium aquilinum* (samambaia-das-taperas), *Gleichenia spp.* (samambaia), *Senecio brasiliensis* (maria-mole, flor-das-almas), *Sonchus spp.* (serralha), *Tagetes minuta* (cravo-de-defunto); *Eupatorium inulifolium*, *Eupatorium laevigatum*, *Erechtites valerianifolia*, *Erechtites hieraciifolia*, *Elephantopus mollis*; *Bidens pilosa* (picão), *Crotalaria spp.* (chocalho-de-cascavel), *Ricinus communis* (mamona); *Sida spp.*, *Urena lobata*, *Malvastrum coromandelianum* (guanxuma); *Ageratum conyzoides* (mentrasto), *Centratherum punctatum* (perpétua), *Solanum sisymbriifolium* (joá, mata-cavalo), *Solanum erianthum* (fumo-bravo), *Solanum americanum* (erva-moura), *Solanum paniculatum* (jurubeba), *Heimia myrtifolia* (erva-da-vida), *Asclepias curassavica* (oficial-de-sala), *Raphanus raphanistrum* (nabiça), *Lepidium virginicum* (mastruço), *Amaranthus spp.* (caruru), *Apium leptophyllum*; *Andropogon bicornis* (capim-rabo-de-burro), *Melinis minutiflora* (capim-gordura), *Aster squamatus*, *Anagallis arvensis*; *Rumex spp.* (língua-de-vaca), *Sigesbeckia orientalis*, *Solidago chilensis* (rabo-de-foguete, erva-lanceta), *Sporobolus indicus*; *Eleusine indica* (capim-pé-de-galinha), *Rhynchelytrum repens* (capim-rosado), *Phyllanthus spp.* (quebra-pedra), *Emilia fosbergii**; *Galinsoga spp.* (picão-branco), *Leomurus sibiricus*; *Euphorbia heterophylla*, *Euphorbia hirta* (leiteira); *Scoparia dulcis* (vassourinha); *Xanthium spp.*, *Triumfetta spp.* (carrapicho). *Hedychium coronarium* (lírio-do-brejo) may predominate in humid locations.

4.3 – Medium Regeneration Stage of the Arboreal Beach

a) Shrubby-arboreal physiognomy.

b) Predominance of shrubby and arboreal strata.

c) Larger shrubs are generally 3 to 4 meters high and trees are up to 6 meters high.

d) Epiphytes are commonly developed bromeliaceae and orchids, ferns, cacti and other species in initial stages of colonization.

e) Higher richness of creepers in comparison with the previous stage, may include: *Pyrostegia venusta* (cipó-são-joão), *Mucuna urens*, *Dalechampia micromeria*; *Dioscorea spp.* (cará), *Dioclea sp.* (estojo-de-luneta), *Ipomoea spp.*, *Merremia spp.*; *Serjania sp.*, *Paullinia spp.* (cipó-timbó); *Mikania spp.*; *Passiflora spp.* (maracujá-de-cobra); *Smilax spp.* (salsaparrilha); espécies de malpigiáceas; *Vanilla chamissonis* (orquídea-baunilha), *Forsteronia spp.*, *Mutisia spp.*, *Canavalia bonariensis*, *Mendoncia puberula*; *Davilla rugosa*, *Dolioscarpus spp.*, *Tetracera spp.* (cipó-lixá, cipó-caboclo, cipó-vermelho).

f) Undeveloped understory.

g) Underwood is not yet completely formed or developed.

h) Main elements of the vascular flora: *Miconia ligustroides* (jacatirãozinho), *Guapira opposita* (maria-mole), *Myrsine coriacea* * (capororoca), *Casearia sylvestris* (chá-de-bugre, guaçuatunga, cafezeiro-do-mato), *Pera glabrata* (seca-ligeiro), *Clusia parviflora* * (mangue-formiga), *Solanum pseudo quina** (canema), *Eugenia umbelliflora* (bagaçu), *Tibouchina pulchra* (only in the north of Santa Catarina state; manacá), *Cecropia glazioui** (embaúba), *Vernonia puberula* (pau-toucinho), *Huberia semiserrata* (jacatirão-do-brejo), *Schinus terebinthifolius* (aroeira-vermelha); *Ilex theezans*, *Ilex dumosa*, *Ilex pseudobuxus* (caúna); *Gomidesia schaueriana*, *Gomidesia palustris* (guamirim); *Myrcia rostrata* (guamirim-de-folha-fina); *Myrcia spp.*,

Eugenia spp. (guamirim); *Jacaranda puberula* (carobinha), *Psychotria* spp. (grandiúva-d'anta), *Pschiera* sp. (jasmim-catavento, leiteira), *Erythroxylum* spp. (cocão), *Ocotea pulchella* (canelinha-da-praia), *Andira* sp. (pau-angelim), *Miconia sellowiana*, *Miconia rigidiuscula*; *Sapium glandulatum* (pau-leiteiro); *Cupania vernalis* (camboatá-vermelho), *Matayba guianensis* (camboatá-branco), *Citharexylum myrianthum* (tucaneira), *Heliconia velloziana* (caeté), *Faramea* spp., *Rudgea* spp., *Coccocypselum* spp., *Alibertia concolor*; *Polypodium* spp. (and other land ferns); *Aechmea* spp., *Vriesea* spp., *Nidularium innocentii*, *Bromelia antiacantha* (and other land bromeliaceae).

i) Endemic or rare vegetable species threatened with extinction: *Cecropia catarinensis* (embaúba-branca; Laguna, Sombrio), *Aechmea lindenii* (Porto Belo, Florianópolis, Palhoça), *Cyphomandra maritima* (Porto Belo, Florianópolis).

4.4 – Advanced Regeneration Stage of the Arboreal Beach

a) Arboreal physiognomy.

b) Predominance of arboreal strata.

c) Larger trees are between 6 and 15 meters high and may include emergent trees up to 20 meters high.

d) Significant epiphyte growth, represented by lichen, bryophytes, ferns *Aechmea nudicaulis*, *Aechmea* spp., *Vriesea philippo-coburgii*, *Vriesea vagans*, *Vriesea gigantea*, *Vriesea incurvata*, *Vriesea carinata*, *Vriesea flammea*, *Nidularium innocentii*, *Canistrum lindenii* (gravatá); *Tillandsia usneoides* (barba-de-pau), *Tillandsia* spp. (cravo-do-mato); *Philodendron imbe* (cipó-imbé); *Anthurium* spp., *Philodendron* spp. (imbé); *Codonanthe* spp., *Cattleya intermedia*, *Brassavola* spp., *Pleurothallis* spp. (orquídea); *Rhipsalis* spp. (rabo-de-rato), *Polypodium* spp. (samambaia).

e) Presence of various species of creepers such as *Norantea brasiliensis*, *Marcgravia polyantha*; *Dioscorea* spp. (cará), *Passiflora* spp. (maracujá-de-cobra), *Dioclea* sp. (estojo-de-luneta); *Mucuna urens*, *Mikania* spp.; *Strychnos trinervis* (esporão-de-galo), *Vanilla chamissonis* (orquídea-baunilha), *Smilax* spp. (salsaparrilha); *Paullinia* spp., *Serjania* sp. (cipó-timbó); *Forsteronia* spp., *Mimosa pseudo-obovata*; *Stigmaphyllon* spp. e outras espécies de malpiguiáceas; *Mutisia* spp., *Canavalia bonariensis*, *Mendoncia puberula*; *Davilla rugosa*, *Doliocarpus* spp., *Tetracera* spp. (cipó-lixia, cipó-caboclo, cipó-vermelho).

f) Increasing understory accumulation; leaves may already show signs of advanced states of decomposition.

g) Underwood that is similar to the original.

h) Main elements of the vascular flora: *Clusia parviflora** (mangue-formiga), *Gomidesia* spp. (guamirim), *Psidium cattleianum* (araçazeiro), *Alchornea triplinervia* (tanheiro, tapiá-guaçu), *Ocotea pulchella* (canelinha-da-praia), *Calophyllum brasiliense* (particularly in the northern part of the Santa Catarina state; olandi), *Tapirira guianensis* (cupiúva), *Guapira opposita* (maria-mole), *Nectandra oppositifolia** (canela-amarela), *Nectandra megapotamica* (canela-merda), *Citharexylum myrianthum* (tucaneira), *Inga* spp. (ingá), *Jacaranda puberula* (carobinha), *Cupania vernalis* (camboatá-vermelho), *Matayba guianensis* (camboatá-branco), *Geonoma* spp. (gamiova); *Aechmea* spp., *Vriesea* spp., *Nidularium innocentii*, *Bromelia antiacantha* (and other land bromeliaceae); *Polypodium robustum*, *Polypodium* spp., *Blechnum* spp. (and other land ferns); *Heliconia velloziana* (caeté), *Faramea* spp., *Psychotria* spp. (grandiúva-d'anta), *Rudgea* spp., *Coccocypselum* spp., *Alibertia concolor*.

i) Endemic or rare vegetable species threatened with extinction: *Cecropia catarinensis* (embaúba-branca; Laguna, Sombrio), *Aechmea lindenii* (Porto Belo, Florianópolis, Palhoça).

5. ANNEX

Various species that are marked with * in this Resolution and are listed below in alphabetical order have been mentioned by other names in Santa Catarina State botanical literature:

Blutaparon portulacoides - as *Iresine portulacoides*, *Philoxerus portulacoides* *Briza* spp. - as *Chascolytrum* spp., *Poidium* spp.

Canavalia rosea - as *Canavalia obtusifolia*, *Canavalia maritima*

Cecropia glazioui - as *Cecropia adenopus*

Clusia parviflora - as *Clusia criuva*

Cordia curassavica - as *Cordia verbenacea*

Cyrtopodium polyphyllum - as *Cyrtopodium paranaense*

Emilia fosbergii - as *Emilia coccinea*

Epidendrum fulgens - as *Epidendrum mosenii*

Inga dulcis - as *Inga striata*

Ipomoea imperati - as *Ipomoea stolonifera*

Myriophyllum aquaticum - as *Myriophyllum brasiliense*

Myrsine coriacea, *Myrsine* spp. - as *Rapanea ferruginea*, *Rapanea* spp., respectivamente *Nectandra oppositifolia* - as *Nectandra rigida*

Rumohra adiantiformis - as *Polystichum adiantiforme*

Senna pendula - as *Cassia bicapsularis*

Solanum pseudo quina - as *Solanum inaequale*

Tibouchina trichopoda - as *Tibouchina multiceps*.

This text does not substitute the text published in the Official Gazette on Aug. 2, 1999.

CONAMA RESOLUTION 417, Nov. 23, 2009
Published in Official Gazette 224 on Nov. 24, 2009, page 72

Correlations:

· Complemented by Resolutions 437, 438, 439, 440, 441, 442, 443, 444, 445, 446 and 447 from 2011.

Establishes provisions and basic parameters for the definition of primary vegetation and for the successional secondary stages of the Beach within the Atlantic forest and makes other provisions.

THE NATIONAL ENVIRONMENT COUNCIL – CONAMA, in accordance with the power bestowed upon the council by Law 6.938 from Aug. 31, 1981 and in light of the provisions of Law 4.771 from Sept. 15, 1965, Law 11.428 from Dec. 22, 2006, and in particular articles 2 and 4, and in accordance with its Internal Regulations, and,

Considering CONAMA Resolutions 10 from Oct. 1, 1993 and 388 from Feb. 27, 2001 which set provisions related to the basic parameters used for the definition of successional vegetation stages;

Considering the need to define primary vegetation and the basic parameters for the analysis of the secondary successional stages of the different physiognomies of Atlantic Forest Beach areas, aimed at the establishment of criteria that will guide the granting of licenses and other administrative processes related to the authorization of activities in the above mentioned areas;

Considering the biological importance, including endemism's and rare species that may be threatened with extinction within the Beach vegetation;

Considering the singularity of the physiognomy and the scenic beauty of the Beach;

Considering the restricted geographical distribution of Beach vegetation; and

Considering that the Beach vegetation is subjected to considerable damage and threatened by anthropic activities, decides:

Art. 1 This Resolution establishes basic parameters for the definition of primary vegetation and for the different successional stages of secondary vegetation within the Beach areas of the Atlantic Forest.

Art. 2 It is hereby understood, for all purposes of this Resolution, that:

I – Primary Vegetation: is the dominating local vegetation, home to a large biological diversity and subjected to minimal impacts from anthropic actions or natural causes, which have not significantly affected its original structure and the characteristics of species;

II – Secondary Vegetation or in Regeneration: vegetation that is the result of natural successional processes after the total or partial suppression of the primary vegetation through anthropic activities or natural causes, may include species from the remains of primary vegetation.

III – Beach Vegetation: is the grouping of vegetable communities distributed in mosaic formations and associated to the quaternary coastal arenaceous deposits and to littoral rocky environments – also called edaphic communities – as they are more dependent on soil composition than on climatic conditions, and can be found on beaches, arenaceous strips, dunes, depressions and adjacent transitional areas and may present, according to the predominant phyto-physiognomies, herbaceous, shrubby and arboreal strata, the last more common in inland areas;

IV – Beach Herbaceous and Sub-Shrubby Vegetation: vegetation predominantly composed of herbaceous or sub-shrubby species that can reach a height of up to 1 (one) meter and are common to beaches, frontal and inland dunes (mobile, semi-fixed and fixed), lagoons and their margins, flatlands and arenaceous terraces, wetlands and depressions, and uphold the primary succession pioneering vegetation (edaphic climax) and are not subjected to secondary successional stages;

V – Beach Shrubby Vegetation: vegetation predominantly composed of shrubby plants that can reach a height of up to 5 (five) meters, may include stratification, epiphytes, creepers and understory accumulation, and can be found on well drained or humid areas and mainly on semi-fixed and fixed dunes, depressions, arenaceous strips, flatlands and arenaceous terraces;

VI – Beach Arboreal Vegetation: Dense vegetation with arboreal physiognomy containing developed shrubby and herbaceous strata, the accumulation of understory and epiphyte and creeper species;

VII – Transition areas from Beach Vegetation to other Vegetation Typologies: vegetation that grows on recent arenaceous coastal deposits, generally in dry substrata and which may include sediments of varied granulometry, may be in contact with and present large similarities to adjacent vegetation typologies even if it follows a different regeneration standard.

Art. 3 The different phyto-physiognomic regeneration stages of the primary and secondary Beach vegetation that are the subject of article 4 of Law 11.428 from Dec. 22, 2006, are defined as:

I – Beach Herbaceous and Sub-Shrubby Vegetation:

a) Climax vegetation.

1. Herbaceous plants provided with stolons or rhizomes, may occasionally form tussocks, sparsely distributed or covering the sand totally, may include the presence of shrubs and form bush areas;

2. Predominance of herbaceous strata;

3. Height and diameter are parameters that are not considered in relation to herbaceous strata;

4. Epiphytes are rare, mainly represented by lichen and pteridophytes, or non-existent;
5. Species that may be creepers in other formations may cover the soil of this formation;
6. Understory is irrelevant;
7. Absence of underwood; and
8. Indicator vegetable species.

II – Beach shrubby vegetation:

a) Primary stage;

1. Shrubby physiognomy predominated by shrubs and twisted branches, may form bush areas intercalated with naked areas or continuous agglomerates
2. Predominance of shrubby strata;
3. Plant height: about 3 (tree) meters, may include the presence of emergent individuals up to 5 (five) meters high, base stem diameter of ligneous species around 3 (tree) centimeters;
4. Few epiphytes and mainly represented by lichen and pteridophytes;
5. Presence of creeper species;
6. Moderate understory layer thickness;
7. Underwood is absent;
8. Herbaceous strata is present in open and dry areas and is generally limited to associations of land lichen and bryophytes;
9. Indicator vegetal species.

b) Initial regeneration stage;

1. Predominance of herbaceous physiognomy but may also include ligneous species from primary vegetation;
2. Predominance of herbaceous strata;
3. Epiphytes and creepers do not exist;
4. Absence of understory;
5. Absence of underwood;
6. Lower diversity in comparison with original vegetation, may include the presence of ruderal species; and
7. Indicator vegetal species.

c) Medium regeneration stage;

1. Predominance of shrubby physiognomy;
2. Possible separation of herbaceous and shrub strata;
3. Shrubby vegetation with an height of up to 3 (tree) meters and base stem diameter of up to 2 (two) centimeters;
4. May include the presence of small epiphytes and creepers;
5. Scarce understory;
6. sence of underwood; and
7. Indicator vegetal species.

d) Advanced regeneration stage.

1. Predominance of shrubby physiognomy;
2. Evident stratification;
3. Plant height above 3 meters and base stem of up to 3 (tree) centimeters;
4. Presence of epiphytes and creepers;
5. Scarce understory, may accumulate in bush areas;
6. Underwood is irrelevant for the characterization of this stage; and
7. Indicator vegetal species.

III – Beach arboreal vegetation:

a) Primary Stage;

1. Predominance of arboreal physiognomy;
2. Evident stratification, both shrubby and herbaceous strata are well developed and with high diversification;
3. Tree height is over 6 (six) meters and have stems with ramifications from the base and medium DAP (1.3 meters) above 5 centimeters;
4. Larger quantity and diversity of epiphytes and creepers in comparison to other Beach phyto-physiognomies;
5. Presence of understory; and
6. Indicator vegetal species.

b) Initial regeneration stage; and

1. Herbaceous-shrubby physiognomy which may also include isolated arboreal individuals and ruderal species;
2. Predominance of herbaceous and shrub strata;
3. Individual arboreal height of up to 3 (three) meters and medium DAP of up to 3(three) centimeters;
4. Epiphytes are generally absent or occur with very few species and in small quantities of individuals;
5. Creepers are generally absent or, if present, with very low species diversity;
6. Understory is either absent or forms a very thin layer;
7. Absence of underwood; and
8. Indicator vegetal species.

- c) Medium stage of regeneration; and
 1. Shrubby-arboreal physiognomy;
 2. Predominance of shrubby and arboreal strata;
 3. Shrubs of up to 4 (four) meters high and trees up to 6 (six) meters high, medium DAP up to 10 (ten) centimeters;
 4. Epiphytes present in larger number of species than in the initial stage;
 5. Creepers present in greater number of species in comparison to the initial stage;
 6. Understory is present even if as a thin layer;
 7. Underwood under formation and very undeveloped; and
 8. Indicator vegetal species;
- d) Advanced regeneration stage.
 1. Arboreal physiognomy;
 2. Predominance of arboreal strata;
 3. Trees normally with an height between 6 (six) and 10 (ten) meters, medium DAP rarely surpasses 10 (ten) centimeters, may include emergent trees that can be up to 20 (twenty) meters high;
 4. Significant presence of epiphytes;
 5. Creepers are present in significantly larger number of species in comparison to the previous successional stages;
 6. More developed understory that may accumulate in some places with large quantities of leaves in an advanced state of decomposition;
 7. Presence of stratification with a developed underwood similar to primary formations; and
 8. Indicator vegetal species.

IV – Transition from Beach Forest to Dense Ombrophylous Forest:

- a) Primary Stage;
 1. Predominance of arboreal physiognomy with closed canopy;
 2. Evident stratification which includes both shrubby and arboreal strata equally diverse and developed;
 3. Tree height varies between 12 (twelve) and 18 (eighteen) meters, emergent trees may surpass 20 (twenty) meters, medium DAP varies between 5 (five) and 30 (thirty) centimeters, some may surpass 40 (forty) centimeters;
 4. Rich variety of epiphyte species;
 5. Rich variety of creeper species;
 6. Presence of understory with a thick humus layer; and
 7. Indicator vegetal species.
- b) Initial regeneration stage;
 1. Herbaceous-shrubby physiognomy, may contain some isolated arboreal individuals and some ruderal species;
 2. Predominance of herbaceous and shrub strata;
 3. Shrubs and small trees up to 5 (five) meters high, medium DAP generally under 8 (eight) centimeters;
 4. Epiphytes are absent or present in very low numbers of species and in small quantities;
 5. No creepers;
 6. Understory is either non-existent or forms a very thin layer;
 7. No underwood; and
 8. Indicator vegetal species.
- c) Medium regeneration stage; and
 1. Shrubby-arboreal physiognomy;
 2. Predominance of shrub and arboreal strata;
 3. Trees are up to 10 (ten) meters high, medium DAP is up to 15 (fifteen) centimeters;
 4. Epiphytes are present with richer species diversity in comparison to the initial stage;
 5. Creepers are present and are predominantly herbaceous;
 6. Thin understory layer;
 7. Presence of stratification with a developing underwood; and
 8. Indicator vegetal species.
- d) Advanced regeneration stage.
 1. Arboreal physiognomy;
 2. Predominance of arboreal strata;
 3. Trees are up to 13 (thirteen) meters high, emergent trees may surpass 15 (fifteen) meters, medium DAP varies between 5 (five) and 20 (twenty) centimeters, the diameter of some plants may be above 30 centimeters;
 4. Strong presence of epiphytes;
 5. Strong presence of creepers of many species in comparison to previous successional stages;
 6. Thick understory layer;
 7. Stratification with a developed underwood that resembles the primary formation; and
 8. Indicator vegetal species.

§ 1 The lists of indicator species mentioned in this article will be released through CONAMA Resolutions for each separate State of the Federation which will take into account the specific and respective Beach vegetation characteristics, in the meantime, Resolutions 7 from July 23, 1996 and 261 from June 30, 199, are hereby upheld.

§ 2 The successional dynamics of vegetation in a state of transition between the Beach and other typologies

will be established in separate CONAMA Resolutions for each State of the Federation.

Art. 4 The absence of one or more indicator species, or the occurrence of species that are not mentioned in article 3 does not mischaracterize the respective successional vegetation stage.

Single paragraph. The characterization of the successional vegetation stages are based on the abundance and predominance of present species.

Art. 5 The occurrence of invading, ruderal or cultivated species in native forest vegetation remains, while taking into account their pioneer character, does not mischaracterize the primary character of Beach vegetation.

Art. 6 The existence of ruderal species, native or exotic, in areas already occupied by agriculture, cities, pastures and planted forests or other areas deprived of their native vegetation, are not part of the characteristics of Beach vegetation remains, while safeguarding the provisions of art. 5 of Law 11.428 from December 22, 2006.

Art. 7 The specific resolutions for each State will underline, in the listing of indicator species, those that have been identifies as endemic, rare or threatened with extinction and be included in the official lists of the Federal Union and of the respective States.

Art. 8 This Resolution shall enter into effect on the date of its publication.

CARLOS MINC – Council President

This text does not substitute the text published in the Official Gazette on Nov. 24, 2009.

RESOLUTION 437, December 30, 2011
Published in Official Gazette 2 on Jan. 3, 2012

Approves the list of successional stages indicator species of the Beach vegetation in the State of Bahia, according to Resolution 417 from Nov. 23, 2009.

THE NATIONAL ENVIRONMENT COUNCIL – CONAMA, in accordance with the power bestowed upon the Council by art. 8, item I of Law 6.938 from August 31, 1981, and considering the provisions of art. 4, § 1 of Law 11.428 from December 22, 2006 and CONAMA Resolution 417 from December 23, 2009, decides:

Art. 1 The indicator species of primary vegetation and of the different successional secondary stages of the Atlantic Forest vegetation, which are the subject of art. 4 of Law 11.428 from Dec. 22, 2009 and § 1 of art. 3 of CONAMA Resolution 417 from Nov. 23, 2009, in the State of Bahia, are:

I – Beach Herbaceous and Sub-Shrubby Vegetation:

a) Climax Vegetation

Abildgaardia baeothryon, Abolboda americana, Achetaria ocymoides, Acicarpha spathulata, Actinocephalus polyanthus, Alternanthera brasiliiana, Alternanthera littoralis, Alternanthera philoxeroides, Alternanthera ramosissima, Alternanthera tenella, Amasonia campestris, Andira humilis, Andropogon bicornis, Andropogon leucostachyus, Andropogon seloanus, Andropogon virgatus, Angelonia campestris, Aristida setifolia, Asclepias mellodora, Baccharis singularis, Bacopa monnieri, Bahianthus viscosus, Becquerelia cymosa, Billbergia amoena, Blechnum serrulatum, Blutaaron portulacoides, Bredemeyera kunthiana, Bulbostylis paradoxa, Burmannia capitata, Canavalia ensiformis, Canavalia rosea, Cenchrus ciliaris, Centrosema arenarium, Centrosema brasiliianum, Centrosema coriaceum, Chamaecrista nictitans, Chamaecrista ramosa, Chamaecrista repens, Chloris pycnothrix, Chrysobalanus icaco, Clitoria laurifolia, Coccocypselum anomalum, Commelina erecta, Crinum americanum, Cryptanthus beuckeri, Cuphea aperta, Cuphea flava, Cuphea ingrata, Cuphea sessilifolia, Cynodon dactylon, Cyperus haspan, Cyperus sphacelatus, Cyrtocymura scorpioides, Cyrtopodium aliciae, Cyrtopodium holstii, Dactylaena microphylla, Dactyloctenium aegyptium, Dalbergia ecastaphyllum, Dalechampia scandens, Davilla rugosa, Diodella apiculata, Diodella radula, Diodella teres, Dodonaea viscosa, Drosera intermedia, Drymaria cordata, Echinodorus grandiflorus, Echinodorus tenellus, Eichhornia crassipes, Eleocharis interstincta, Emilia fosbergii, Epidendrum cinnabarinum, Epidendrum secundum, Epistephium lucidum, Eragrostis bahiensis, Eragrostis prolifera, Eryngium horridum, Eryngium splendens, Euphorbia hirta, Fimbristylis cymosa, Froelichia humboldtiana, Fuirena umbellata, Galactia striata, Gaylussacia brasiliensis, Gomphrena demissa, Gomphrena vaga, Griffinia esuritensis, Griffinia parviflora, Habenaria bractescens, Habenaria repens, Heteranthera reniformis, Hippeastrum stylosum, Hybanthus calceolaria, Hypolytrum pulchrum, Hypoxis decumbens, Hyptis mutabilis, Hyptis suaveolens, Imperata brasiliensis, Indigofera hirsuta, Indigofera microcarpa, Indigofera sabulicola, Ipomoea imperati, Ipomoea pes-caprae, Irlbachia purpurascens, Juncus microcephalus, Koellensteinia altissima, Krameria tomentosa, Kyllinga vaginata, Lagenocarpus rigidus, Lagenocarpus verticillatus, Lantana camara, Lantana undulata, Laportea aestuans, Laurembergia tetrandra, Leiothrix flavescens, Ludwigia nervosa, Ludwigia octovalvis, Ludwigia peploides, Lycopodiella alopecuroides, Lycopodiella caroliniana, Lycopodiella cernua, Mandevilla scabra, Marcetia ericoides, Marsypianthes chamaedrys, Mayaca fluviatilis, Melocactus bahiensis, Melocactus violaceus, Melocactus zehntneri, Merremia macrocalyx, Microgramma vacciniifolia, Microtea paniculata, Mollugo verticillata, Nymphaea lasiophylla, Otacanthus platyphilus, Panicum aquaticum, Panicum cyanescens, Panicum dichotomiflorum, Panicum gouinii, Panicum laxum, Panicum micranthum, Panicum nervosum, Panicum parvifolium, Panicum pilosum, Panicum racemosum, Panicum schwackeanum, Panicum sellowii, Panicum subulatum, Paspalum arenarium, Paspalum conjugatum, Paspalum corcovadense, Paspalum distichum, Paspalum hyalinum, Paspalum maritimum, Paspalum notatum, Paspalum paniculatum, Paspalum plicatulum, Paspalum pumilum, Paspalum scutatum, Paspalum urvillei, Paspalum vaginatum, Passiflora capsularis, Pavonia tricalycaris, Perama hirsuta, Pharus lappulaceus, Pilosocereus arrabidae, Piper gaudichaudianum, Piriqueta viscosa, Plumbago scandens, Polycarpaea corymbosa, Polygala cyparissias, Polygala glochidiata, Polygala grandifolia, Polygala paniculata, Polygonum acuminatum, Polygonum ferrugineum, Polygonum punctatum, Portulaca oleracea, Portulaca pilosa, Psidium cattleianum, Pterocaulon virgatum, Pterolepis cataphracta, Pterolepis glomerata, Pycreus polystachyos, Rhynchospora ciliata, Rhynchospora filiformis, Rhynchospora holoschoenoides, Rhynchospora ridleyi, Rhynchospora riparia, Rhynchospora tenerrima, Ruellia geminiflora, Ruellia solitaria, Sagittaria lancifolia, Sauvagesia erecta, Sauvagesia sprengelii, Scaevola plumieri, Schizachyrium condensatum, Scleria bracteata, Scleria latifolia, Scoparia dulcis, Securidaca diversifolia, Senna australis, Senna uniflora, Sesuvium portulacastrum, Smilax campestris, Smilax elastica, Smilax hilariana, Solanum sisymbriifolium, Sophora tomentosa, Spartina alterniflora, Sporobolus virginicus, Stachytarpheta angustifolia, Stemodia foliosa, Stenotaphrum secundatum, Stylosanthes guianensis, Stylosanthes viscosa, Tephrosia cinerea, Tilia baccata, Trachypogon macroglossus, Utricularia erectiflora, Utricularia flaccida, Utricularia foliosa, Utricularia hydrocarpa, Utricularia juncea, Utricularia myriocista, Utricularia subulata, Utricularia tricolor, Utricularia triloba, Vanilla bahiana, Vellozia dasypus, Vernonanthura vinhae, Vigna halophila, Vriesea friburgensis, Xyris ciliata, Xyris jupicai, Xyris mertensiana, Zephyranthes robusta, Zornia glabra, Zornia latifolia.

II – Beach Shrub Vegetation :

a) Primary stage

Adenocalymma trifoliatum, *Actinostachys pennula*, *Aechmea aquilega*, *Aechmea blanchetiana*, *Aechmea nudicaulis*, *Affonsea densiflora*, *Agarista revoluta*, *Allagoptera arenaria*, *Allamanda blanchetii*, *Allamanda cathartica*, *Andira legalis*, *Andira nitida*, *Asclepias curassavica*, *Bauhinia pentandra*, *Bernardia axillaris*, *Boehmeria cylindrica*, *Bonnetia stricta*, *Borreria verticillata*, *Brasiliopuntia brasiliensis*, *Bredemeyera kunthiana*, *Bromelia antiacantha*, *Byrsonima sericea*, *Byrsonima verbascifolia*, *Calliandra harrisii*, *Centropogon cornutus*, *Cereus fernambucensis*, *Chaetocarpus myrsinites*, *Chamaecrista desvauxii*, *Chiococca alba*, *Chiococca nitida*, *Chrysobalanus icaco*, *Chrysophyllum lucentifolium*, *Clidemia biserrata*, *Clidemia hirta*, *Coccoloba alnifolia*, *Coccoloba declinata*, *Coccoloba laevis*, *Coccoloba ramosissima*, *Aslia ovalifolia*, *Costus arabicus*, *Couepia rufa*, *Cryptanthus beuckeri*, *Cupania rugosa*, *Cyrtopodium holstii*, *Dalbergia ecastaphyllum*, *Davilla flexuosa*, *Davilla kunthii*, *Davilla rugosa*, *Dioclea wilsonii*, *Diodella radula*, *Dodonaea viscosa*, *Endlicheria paniculata*, *Epidendrum denticulatum*, *Epidendrum rigidum*, *Era grostis bahiensis*, *Eragrostis prolifera*, *Erythroxylum andrei*, *Eugenia ayacuchae*, *Eugenia excelsa*, *Eugenia hirta*, *Eugenia rostrata*, *Euphorbia heterophylla*, *Exostyles venusta*, *Gaylussacia brasiliensis*, *Guapira obtusata*, *Guapira opposita*, *Guapira pernambucensis*, *Helicteres heptandra*, *Heteropterys alternifolia*, *Heteropterys coleoptera*, *Hirtella ciliata*, *Hirtella corymbosa*, *Hohenbergia augusta*, *Indigofera suffruticosa*, *Jacaranda bracteata*, *Jacaranda jasminoides*, *Lacistema robustum*, *Leandra ionopogon*, *Licania littoralis*, *Licania tomentosa*, *Ludwigia peruviana*, *Mandevilla scabra*, *Manilkara triflora*, *Marcetia taxifolia*, *Matelea bahiensis**, *Maytenus opaca*, *Melanopsidium nigrum**, *Miconia ciliata*, *Miconia prasina*, *Microgramma geminata*, *Microgramma vacciniifolia*, *Mimosa elliptica*, *Mimosa invisa*, *Mimosa misera*, *Myrcia guianensis*, *Myrcia pub iflora*, *Myrcia sylvatica*, *Myrcia thy rsoidea*, *Neoregelia cruenta*, *Neoregelia pascoaliana*, *Ocotea puberula*, *Ouratea cuspidata*, *Passiflora capsularis*, *Passiflora galbana*, *Passiflora kermesina*, *Passiflora mucronata*, *Paullinia racemosa*, *Paullinia ternata*, *Paullinia weinmanniifolia*, *Pavonia tricalycaris*, *Peplonia asteria*, *Phoradendron crassifolium*, *Pilosocereus arrabidae*, *Poly gala grandifolia*, *Polygonum acuminatum*, *Polygonum ferrugineum*, *Polygonum punctatum*, *Psidium cattleianum*, *Psittacanthus dichrous*, *Psittacanthus robustus*, *Psychotria mapourioides*, *Rauwolfia mattfeldiana*, *Rhynchanthera dichotoma*, *Romanoa tamnoides*, *Schoepfia brasiliensis*, *Sebastiania multiramea*, *Securidaca diversifolia*, *Senna affinis*, *Serjania clematidifolia*, *Serjania corrugata*, *Serjania ichthyoctona*, *Serjania salzmanniana*, *Skytanthus hancorniiifolius*, *Smilax campestris*, *Smilax elastica*, *Smilax hilariana*, *Solanum caavurana*, *Solanum paludosum*, *Solanum paniculatum*, *Sparattosperma leucanthum*, *Stigmaphyllon blanchetii*, *Struthanthus flexicaulis*, *Struthanthus marginatus*, *Struthanthus maricensis*, *Struthanthus rhynchophyllum*, *Swartzia apetala*, *Swartzia simplex*, *Syagrus schizophylla*, *Talipariti pernambucense*, *Thy rsodium spruceanum*, *Tibouchina urceolaris*, *Tillandsia gardneri*, *Tillandsia mallemonii*, *Tillandsia stricta*, *Tillandsia tenuifolia*, *Tocoyena sellowiana*, *Tournefortia membranacea*, *Tournefortia rubicunda*, *Tripodanthus acutifolius*, *Turnera cuneiformis*, *Typha domingensis*, *Urena lobata*, *Vanilla bahiana*, *Varronia curassavica*, *Vriesea friburgensis*, *Vriesea gigantea*, *Vriesea procera*, *Waltheria cinerescens*.

b) Initial regeneration stage

Acicarpha spathulata, *Allagoptera arenaria*, *Asclepias mellodora*, *Baccharis singularis*, *Bahianthus viscosus*, *Calopogonium mucunoides*, *Canavalia ensiformis*, *Cenchrus ciliaris*, *Cereus fernambucensis*, *Coccocypselum anomalum*, *Crotalaria incana*, *Crotalaria pallida*, *Crotalaria retusa*, *Crotalaria vitellina*, *Croton sellowii*, *Cyperus odoratus*, *Cyrtocymura scorpioides*, *Dactyloctenium aegyptium*, *Dalechampia scandens*, *Davilla rugosa*, *Desmodium adscendens*, *Desmodium barbatum*, *Desmodium glabrum*, *Desmodium incanum*, *Desmodium triflorum*, *Digitaria insularis*, *Diodella radula*, *Diodella teres*, *Drymaria cordata*, *Emilia fosbergii*, *Eryngium horridum*, *Euphorbia hirta*, *Galactia striata*, *Hedychium coronarium*, *Hybanthuscalceolaria*, *Hyparrheniarufa*, *Imperatabrasiliensis*, *Indigoferahirsuta*, *Indigofera microcarpa*, *Indigofera suffruticosa*, *Ipomoea indivisa*, *Ipomoea pes-caprae*, *Ipomoea procumbens*, *Irlbachia purpurascens*, *Laportea aestuans*, *Macroptilium atropurpureum*, *Macroptilium gracile*, *Macroptilium panduratum*, *Merreria aegyptia*, *Mimosa pudica*, *Perama hirsuta*, *Petiveria alliacea*, *Pharus lappulaceus*, *Phyllanthus klotzschianus*, *Phyllanthus niruri*, *Phytolacca thyrsoiflora*, *Pilosocereus arrabidae*, *Pityrogramma calomelanos*, *Poly gala cyparissias*, *Polygala hebeclada*, *Polygala paniculata*, *Portulaca oleracea*, *Pterocaulon virgatum*, *Richeria grandis*, *Schultesia guianensis*, *Schwenckia americana*, *Solanum sisymbriifolium*, *Stachytarpheta angustifolia*, *Stachytarpheta cayennensis*, *Stylosanthes guianensis*, *Stylosanthes scabra*, *Stylosanthes viscosa*, *Tephrosia cinerea*, *Tephrosia purpurea*, *Tilesia baccata*, *Trachypogon macroglossus*, *Vernonanthura vinhae*, *Zornia curvata*, *Zornia reticulata*.

c) Medium regeneration stage

Acrostichum aureum, *Asclepias curassavica*, *Cassytha filiformis*, *Croton sellowii*, *Dalechampia scandens*, *Davilla rugosa*, *Diodella radula*, *Epidendrum cinnabarinum*, *Epidendrum secundum*, *Epistephium lucidum*, *Eryngium horridum*, *Euphorbia hirta*, *Guettarda angelica*, *Ludwigia long ifolia*, *Richeria grandis*, *Senna obtusifolia*, *Skytanthus hancorniiifolius*, *Smilax campestris*, *Smilax elastica*, *Smilax hilariana*, *Sobralia liliastrum*, *Stachytarpheta cayennensis*, *Stigmaphyllon ciliatum*, *Stigmaphyllon paralias*, *Talipariti pernambucense*, *Tillandsia stricta*, *Tournefortia villosa*, *Vanilla chamissonis*.

d) Advanced regeneration stage

Acrostichum aureum, *Actinostachys pennula*, *Adenocalymma trifoliatum*, *Aechmea nudicaulis*, *Andira*

nitida, *Bauhinia pentandra*, *Boehmeria cylindrica*, *Bonnetia stricta*, *Borreria verticillata*, *Bromelia antiacantha*, *Chiococca alba*, *Chiococca nitida*, *Chrysophyllum lucentifolium*, *Clidemia biserrata*, *Clidemia hirta*, *Coccoloba alnifolia*, *Coccoloba declinata*, *Coccoloba laevis*, *Coccoloba ramosissima*, *Aslia ovalifolia*, *Croton sellowii*, *Cupania rugosa*, *Davilla flexuosa*, *Davilla kunthii*, *Davilla rugosa*, *Diodella radula*, *Dodonaea viscosa*, *Epidendrum cinnabarinum*, *Epidendrum secundum*, *Epistephium lucidum*, *Eugenia ayacuchae*, *Eugenia excelsa*, *Eugenia hirta*, *Eugenia rostrata*, *Fuirena umbellata*, *Gaylussacia brasiliensis*, *Guapira obtusata*, *Guapira opposita*, *Guapira pernambucensis*, *Guettardaangelica*, *Helicteres heptandra*, *Jacaranda bracteata*, *Jacaranda jasminoides*, *Leandra ionopogon*, *Ludwigia longifolia*, *Manilkara triflora*, *Marcetia taxifolia*, *Melanopsidium nigrum**, *Miconia ciliata*, *Miconia prasina*, *Microgramma geminata*, *Microgramma vacciniifolia*, *Myrcia guianensis*, *Myrcia pubiflora*, *Myrcia sylvatica*, *Myrcia thyrsoidea*, *Ouratea cuspidata*, *Passiflora capsularis*, *Passiflora galbana*, *Passiflora kermesina*, *Passiflora mucronata*, *Paullinia racemosa*, *Paullinia ternata*, *Paullinia weinmannifolia*, *Psidium cattleianum*, *Psychotria mapourioides*, *Rauwolfia mattfeldiana*, *Rhynchanthera dichotoma*, *Schoepfia brasiliensis*, *Serjania clematidifolia*, *Serjania corrugata*, *Serjania ichthyoctona*, *Serjania salzmanniana*, *Skytanthus hancornifolius*, *Sobralia liliastrum*, *Solanum caavurana*, *Solanum paludosum*, *Solanum paniculatum*, *Sparattosperma leucanthum*, *Stigmaphyllon blanchetii*, *Stigmaphyllon ciliatum*, *Stigmaphyllon paralias*, *Talipariti pernambucense*, *Tibouchina urceolaris*, *Tillandsia gardneri*, *Tillandsia mallemonitii*, *Tillandsia stricta*, *Tillandsia tenuifolia*, *Tocoyena sellowiana*, *Tournefortia membranacea*, *Tournefortia rubicunda*, *Tournefortia villosa*, *Turnera cuneiformis*, *Vanilla bahiana*, *Vanilla chamissonis*, *Vriesea procera*, *Waltheria cinerescens*.

III - Beach arboreal vegetation:

a) Primary stage

Abrus precatorius, *Adenocalymma assum*, *Adenocalymma marginatum*, *Adiantum latifolium*, *Aechmea lingulata*, *Albizia polycephala*, *Allophylus edulis*, *Anacardium occidentale*, *Anaxagorea dolichocarpa*, *Andira fraxinifolia*, *Andira vermifuga*, *Anemia phyllitidis*, *Annona glabra*, *Aparisthium cordatum*, *Aspidosperma cuspa*, *Asterostigma lividum*, *Asterostigma riedelianum*, *Atractantha radiata**, *Avicennia germinans*, *Bactris bahiensis*, *Bernardinia fluminensis*, *Bignonia corymbosa*, *Billbergia euphemiae*, *Billbergia iridifolia*, *Billbergia morelii*, *Billbergia pyramidalis*, *Blepharocalyx salicifolius*, *Blepharodon pictum*, *Bonnetia stricta*, *Byrsonima bahiana*, *Caesalpinia echinata**, *Callichlamys latifolia*, *Calyptanthes brasiliensis*, *Campyloneurum phyllitidis*, *Casearia commersoniana*, *Cathedra bahiensis*, *Catopsis berteroniana*, *Catopsis sessiliflora*, *Cereus jamaecaru*, *Cheiloclinium serratum*, *Chrysophyllum lucentifolium*, *Cissus verticillata*, *Clethra scabra*, *Coccoloba alnifolia*, *Coccoloba declinata*, *Coccoloba laevis*, *Coccoloba ramosissima*, *Combretum laxum*, *Conchocarpus insignis*, *Condylcarpon intermedium*, *Connarus ovatifolius*, *Cordia taguahyensis*, *Cordia trichotoma*, *Couepia rufa*, *Ctenanthe glabra*, *Cupania emarginata*, *Cyathea atrovirens*, *Cyathea corcovadensis*, *Cyathea delgadii*, *Cyathea microdonta*, *Cyathea phalerata*, *Cyrtopodium gigas*, *Daphnopsis racemosa*, *Davilla rugosa*, *Denscandia cymosa*, *Desmoncus orthacanthos*, *Desmoncus polyacanthos*, *Dioclea wilsonii*, *Ditassa blanchetii*, *Ditassa crassifolia*, *Doliocarpus dentatus*, *Doliocarpus major*, *Dracontioides desciscens*, *Duguetia beache**, *Dulacia papillosa*, *Endlicheria paniculata*, *Enterolobium contortisiliquum*, *Epidendrum cinnabarinum*, *Epidendrum rigidum*, *Epidendrum secundum*, *Epistephium lucidum*, *Eriotheca macrophylla*, *Erythrina crista-galli*, *Eugenia bahiensis*, *Eugenia brasiliensis*, *Eugenia excelsa*, *Ficus clusifolia*, *Ficus gomelleira*, *Ficus hirsuta*, *Ficus nymphaeifolia*, *Forsteronia leptocarpa*, *Guatteria australis*, *Guatteria candolleana*, *Guatteria oligocarpa*, *Hedyosmum brasiliense*, *Heliconia episcopalis*, *Heliconia pendula*, *Heliconia psittacorum*, *Heteropterys anomala*, *Heteropterys chrysophylla*, *Heterotaxis brasiliensis*, *Hippocratea volubilis*, *Hohenbergia augusta*, *Hohenbergia utriculosa*, *Huberia ovalifolia*, *Humiria balsamifera*, *Huperzia mandiocana*, *Hymenophyllum caudiculatum*, *Hymenophyllum polyanthos*, *Inga capitata*, *Inga laurina*, *Inga sessilis*, *Inga striata*, *Inga subnuda*, *Inga thibaudiana*, *Jacaranda obovata*, *Jacaranda puberula*, *Ladenbergia hexandra*, *Leandra melastomoides*, *Lereta cordata*, *Licania littoralis*, *Lundia virginalis*, *Macoubea guianensis*, *Manilkara salzmannii*, *Mansoa hymenaea*, *Maranta divaricata*, *Marlierea neuwiediana*, *Marlierea racemosa*, *Marlierea tomentosa*, *Marsdenia amorimii**, *Matayba guianensis*, *Maytenus distichophylla*, *Miconia albicans*, *Miconia amoena*, *Microgramma vacciniifolia*, *Mitracarpus lhotzkyanus*, *Montrichardia linifera*, *Mucuna urens*, *Myrcia bergiana*, *Myrcia fallax*, *Myrcia hirtiflora*, *Myrcia ilheosensis*, *Myrcia insularis*, *Myrcia multiflora*, *Myrcia rotundifolia*, *Myrcia vittoriana*, *Myrciaria tenella*, *Myrsine umbellata*, *Nectandra megapotamica*, *Nectandra oppositifolia*, *Nectandra psammophila*, *Nectandra puberula*, *Nectandra reticulata*, *Neoregelia cruenta*, *Nidularium innocentii*, *Nidularium rosulatum*, *Ocotea complicata*, *Ocotea glauca*, *Ocotea lobbii*, *Ocotea notata*, *Ocotea puberula*, *Oxandra nitida*, *Pachystroma longifolium*, *Parapiptadenia pterosperma*, *Paullinia racemosa*, *Paullinia ternata*, *Paullinia weinmannifolia*, *Peixotoa hispida*, *Peltastes peltatus*, *Peperomia tetraphylla*, *Peperomia urocarpa*, *Peplonia asteria*, *Pera glabrata*, *Pera heteranthera*, *Pereskia aculeata*, *Philodendron bipinnatifidum*, *Philodendron fragrantissimum*, *Philodendron imbe*, *Philodendron martianum*, *Philodendron ornatum*, *Philodendron pedatum*, *Phoradendron affine*, *Phoradendron bathyoryctum*, *Phoradendron chrysocladon*, *Phoradendron crassifolium*, *Phoradendron falcifrons*, *Phoradendron obtusissimum*, *Phoradendron piperoides*, *Phoradendron quadrangulare*, *Pilocarpus giganteus*, *Piper mollicomum*, *Poecilanthus falcata*, *Polyandrococos caudescens*, *Polypodium chnoophorum*, *Portea petropolitana*, *Posoqueria latifolia*, *Pouteria caimito*, *Pouteria grandiflora*, *Prestonia coalita*, *Protium heptaphyllum*, *Protium icariba*, *Pseudananas sagenarius*, *Pseudobombax grandiflorum*, *Psidium cattleianum*, *Psittacanthus dichrous*, *Psittacanthus robustus*, *Qualea cryptantha*,

Quararibea turbinata, *Rourea martiana*, *Sacoglottis mattogrossensis*, *Schefflera selloi*, *Schizaea elegans*, *Senna angulata*, *Serjania clematidifolia*, *Serjania corrugata*, *Serjania ichthyoctona*, *Serjania salzmanniana*, *Simarouba amara*, *Sloanea guianensis*, *Sorocea hilarii*, *Stigmaphyllon blanchetii*, *Struthanthus flexicaulis*, *Struthanthus marginatus*, *Struthanthus maricensis*, *Struthanthus rhynchophyllum*, *Swartzia simplex*, *Syagrus oleracea*, *Syagrus schizophylla*, *Tapirira guianensis*, *Tassadia propinqua*, *Tetracera breyniana*, *Thyrsodium spruceanum*, *Tillandsia gardneri*, *Tillandsia mallemonii*, *Tillandsia recurvata*, *Tillandsia stricta*, *Tillandsia tenuifolia*, *Tillandsia usneoides*, *Tripodanthus acutifolius*, *Tynanthus labiatus*, *Vanilla bahiana*, *Vanilla chamissonis*, *Vantanea obovata*, *Voyria flavescens*, *Voyria obconica*, *Vriesea atra*, *Vriesea carinata*, *Vriesea gigantea*, *Vriesea jonghei*, *Vriesea pauperrima*, *Vriesea procera*, *Vriesea rodigasiana*, *Vriesea scalaris*, *Weinmannia paulliniifolia*, *Xylopia brasiliensis*, *Xylopia ochrantha*, *Xylopia sericea*, *Zollernia ilicifolia*.

b) Initial regeneration stage

Acicarpha spathulata, *Andropogon bicornis*, *Andropogon leucostachyus*, *Andropogon selleanus*, *Andropogon virgatus*, *Antheophora hermaphrodita*, *Asclepias mellodora*, *Axonopus canescens*, *Axonopus obtusifolius*, *Axonopus polydactylus*, *Axonopus pressus*, *Baccharis singularis*, *Bahianthus viscosus*, *Bredemeyera kunthiana*, *Calopogonium mucunoides*, *Campylopus savannarum*, *Campylopus trachyblepharon*, *Canavalia ensiformis*, *Cecropia pachystachya*, *Cenchrus ciliaris*, *Centrosema pascuorum*, *Clidemia hirta*, *Crotalaria incana*, *Crotalaria pallida*, *Crotalaria retusa*, *Crotalaria vitellina*, *Croton sellowii*, *Cryptochloa capillata*, *Cyperus odoratus*, *Cyrtocymura scorpioides*, *Dactyloctenium aegyptium*, *Dalechampia scandens*, *Desmodium adscendens*, *Desmodium barbatum*, *Desmodium glabrum*, *Desmodium incanum*, *Desmodium triflorum*, *Digitaria ciliaris*, *Digitaria insularis*, *Dodonaea viscosa*, *Drymaria cordata*, *Eleusine indica*, *Emilia fosbergii*, *Eragrostis pilosa*, *Euphorbia hirta*, *Froelichia humboldtiana*, *Galactia striata*, *Gomphrena demissa*, *Gomphrena vaga*, *Hedychium coronarium*, *Hybanthus calceolaria*, *Hyparrhenia rufa*, *Ichnanthus pallens*, *Imperata brasiliensis*, *Indigofera hirsuta*, *Indigofera microcarpa*, *Indigofera suffruticosa*, *Ipomoea indivisa*, *Ipomoea procumbens*, *Irlbachia purpurascens*, *Jacquemontia montana*, *Laportea aestuans*, *Lasiacis divaricata*, *Lasiacis ligulata*, *Luffa cylindrica*, *Macroptilium atropurpureum*, *Macroptilium gracile*, *Macroptilium panduratum*, *Merremia aegyptia*, *Mimosa bimucronata*, *Mimosa pudica*, *Olyra ciliatifolia*, *Olyra latifolia*, *Oplismenus hirtellus*, *Petiveria alliacea*, *Pharus lappulaceus*, *Phyllanthus klotzschianus*, *Phyllanthus niruri*, *Phytolacca thyrsoiflora*, *Pityrogramma calomelanos*, *Polygala glochidiata*, *Polygala grandifolia*, *Polygala hebeclada*, *Polygala paniculata*, *Pseudechinolaena polystachya*, *Pterocaulon virgatum*, *Raddia brasiliensis*, *Schultesia guianensis*, *Schwenckia americana*, *Securidaca diversifolia*, *Senna obtusifolia*, *Sida ciliaris*, *Solanum sisymbriifolium*, *Stachytarpheta angustifolia*, *Streptochaeta spicata*, *Stylosanthes guianensis*, *Stylosanthes scabra*, *Stylosanthes viscosa*, *Tephrosia cinerea*, *Tephrosia purpurea*, *Tilesia baccata*, *Trachypogon macroglossus*, *Triumfetta rhomboidea*, *Turnera subulata*, *Urena lobata*, *Vernonanthura vinhae*, *Waltheria viscosissima*, *Zornia curvata*, *Zornia reticulata*. Medium regeneration stage

Allophylus edulis, *Andira fraxinifolia*, *Boehmeria cylindrica*, *Campylopus savannarum*, *Campylopus trachyblepharon*, *Casearia sylvestris*, *Cassytha filiformis*, *Cecropia pachystachya*, *Centrosema pascuorum*, *Cestrum axillare*, *Chrysophyllum lucentifolium*, *Clidemia hirta*, *Croton sellowii*, *Cupania emarginata*, *Cupania rugosa*, *Cupania scrobiculata*, *Dalechampia scandens*, *Davilla rugosa*, *Ditassa blanchetii*, *Ditassa crassifolia*, *Dodonaea viscosa*, *Erythroxylum andrei*, *Euphorbia heterophylla*, *Euphorbia hirta*, *Guapira opposita*, *Inga blanchetiana*, *Licania tomentosa*, *Lindsaea stricta*, *Lygodium volubile*, *Marlierea tomentosa*, *Matayba guianensis*, *Mimosa bimucronata*, *Myrcia sylvatica*, *Myrcia thyrsoidea*, *Ocotea nutans*, *Olyra micrantha*, *Passiflora alata*, *Passiflora amethystina*, *Passiflora cincinnata*, *Passiflora edulis*, *Passiflora foetida*, *Passiflora galbana*, *Passiflora haematostigma*, *Passiflora kermesina*, *Passiflora misera*, *Passiflora organensis*, *Passiflora ovalis*, *Passiflora rhamnifolia*, *Paullinia racemosa*, *Paullinia ternata*, *Paullinia weinmanniifolia*, *Pera glabrata*, *Phyllostylon brasiliense*, *Psidium guineense*, *Psychotria alba*, *Rauwolfia grandiflora*, *Senna obtusifolia*, *Serjania clematidifolia*, *Serjania corrugata*, *Serjania ichthyoctona*, *Serjania salzmanniana*, *Sideroxylon obtusifolium*, *Solanum paludosum*, *Solanum paniculatum*, *Stigmaphyllon ciliatum*, *Stigmaphyllon paralias*, *Tetrapterys acutifolia*, *Thyrsodium spruceanum*, *Tillandsia gardneri*, *Tillandsia mallemonii*, *Tillandsia stricta*, *Tillandsia tenuifolia*, *Tournefortia bicolor*, *Tournefortia breviflora*, *Tournefortia gardneri*, *Trema micrantha*, *Varronia curassavica*, *Vismia martiana*, *Vriesea procera*, *Ximenia americana*, *Xylosma prockia*.

c) Advanced regeneration stage

Actinostemon concolor, *Adenocalymma assum*, *Adenocalymma marginatum*, *Adenocalymma trifoliatum*, *Adiantum latifolium*, *Allophylus edulis*, *Anacardium occidentale*, *Andira fraxinifolia*, *Anemia phyllitidis*, *Annona glabra*, *Asterostigma lividum*, *Asterostigma riedelianum*, *Atractantha radiata**, *Bignonia corymbosa*, *Blepharocalyx salicifolius*, *Bonnetia stricta*, *Caesalpinia echinata**, *Callichlamys latifolia*, *Calyptanthes brasiliensis*, *Campyloneurum phyllitidis*, *Casearia commersoniana*, *Casearia sylvestris*, *Cathedra bahiensis*, *Cecropia glaziovii*, *Cecropia pachystachya*, *Cestrum axillare*, *Cheilochlinium serratum*, *Chrysophyllum lucentifolium*, *Cissus verticillata*, *Clethra scabra*, *Coccoloba alnifolia*, *Coccoloba declinata*, *Coccoloba laevis*, *Coccoloba ramosissima*, *Conchocarpus insignis*, *Cordia taguahyensis*, *Couepia rufa*, *Coussapoa microcarpa*, *Cupania emarginata*, *Cupania scrobiculata*, *Cyathea atrovirens*, *Cyrtopodium gigas*, *Daphnopsis racemosa*, *Davilla rugosa*, *Denscantia cymosa*, *Dioclea wilsonii*, *Ditassa blanchetii*, *Ditassa crassifolia*, *Dracontioides desciscens*, *Dulacia papillosa*, *Endlicheria paniculata*, *Epidendrum cinnabarinum*, *Epidendrum rigidum*, *Epidendrum secundum*, *Epistephium lucidum*, *Eugenia bahiensis*, *Eugenia brasiliensis*, *Eugenia excelsa*, *Ficus clusiifolia*, *Ficus gomelleira*, *Ficus hirsuta*, *Ficus nymphaeifolia*, *Ficus*

pertusa, *Guapira opposita*, *Guatteria australis*, *Guatteria candolleana*, *Guatteria oligocarpa*, *Heteropterys anomala*, *Heteropterys chrysophylla*, *Heterotaxis brasiliensis*, *Hippocratea volubilis*, *Huberia ovalifolia*, *Humiria balsamifera*, *Inga blanchetiana*, *Inga capitata*, *Inga laurina*, *Inga sessilis*, *Inga striata*, *Inga subnuda*, *Inga thibaudiana*, *Jacaranda obovata*, *Jacaranda puberula*, *Ladenbergia hexandra*, *Laplacea fructifera*, *Leandra melastomoides*, *Licania tomentosa*, *Lindsaea stricta*, *Lundia virginalis*, *Lygodium volubile*, *Manilkara salzmannii*, *Mansoa hymenaea*, *Maranta divaricata*, *Marlierea neuwiediana*, *Marlierea racemosa*, *Marlierea tomentosa*, *Matayba guianensis*, *Miconia albicans*, *Miconia amoena*, *Microgramma vacciniifolia*, *Mitracarpus lhotzkyanus*, *Montrichardia linifera*, *Mucuna urens*, *Myrcia bergiana*, *Myrcia fallax*, *Myrcia hirtiflora*, *Myrcia ilheosensis*, *Myrcia insularis*, *Myrcia multiflora*, *Myrcia rotundifolia*, *Myrcia vittoriana*, *Myrciaria tenella*, *Myrsine umbellata*, *Nectandra megapotamica*, *Nectandra oppositifolia*, *Nectandra psammophila*, *Nectandra puberula*, *Nectandra reticulata*, *Nidularium innocentii*, *Ocotea complicata*, *Ocotea glauca*, *Ocotea lobbii*, *Ocotea notata*, *Ocotea nutans*, *Ocotea puberula*, *Olyra micrantha*, *Passiflora amethystina*, *Passiflora cincinnata*, *Passiflora edulis*, *Passiflora foetida*, *Passiflora galbana*, *Passiflora haematostigma*, *Passiflora kermesina*, *Passiflora misera*, *Passiflora organensis*, *Passiflora ovalis*, *Passiflora rhamnifolia*, *Paullinia racemosa*, *Paullinia ternata*, *Paullinia weinmanniifolia*, *Peixotoa hispidula*, *Peperomia tetraphylla*, *Peperomia urocarpa*, *Pera glabrata*, *Pera heteranthera*, *Pereskia aculeata*, *Philodendron bipinnatifidum*, *Philodendron fragrantissimum*, *Philodendron imbe*, *Philodendron martianum*, *Philodendron ornatum*, *Philodendron pedatum*, *Phoradendron affine*, *Phoradendron bathyoryctum*, *Phoradendron chrysocladon*, *Phoradendron crassifolium*, *Phoradendron falcifrons*, *Phoradendron obtusissimum*, *Phoradendron piperoides*, *Phoradendron quadrangulare*, *Piper mollicomum*, *Polyandrococos caudescens*, *Polypodium chnoophorum*, *Posoqueria latifolia*, *Pouteria caimito*, *Pouteria grandiflora*, *Protium heptaphyllum*, *Psidium cattleianum*, *Psidium guineense*, *Psittacanthus dichrous*, *Psittacanthus robustus*, *Psychotria alba*, *Qualea corymbifera*, *Romanoa tamnoides*, *Sacoglottis mattogrossensis*, *Schizaea elegans*, *Serjania clematidifolia*, *Serjania corrugata*, *Serjania ichthyoctona*, *Serjania salzmanniana*, *Sideroxylon obtusifolium*, *Simarouba amara*, *Sorocea hilarii*, *Stigmaphyllon blanchetii*, *Stigmaphyllon ciliatum*, *Stigmaphyllon paralias*, *Struthanthus flexicaulis*, *Struthanthus marginatus*, *Struthanthus maricensis*, *Struthanthus rhynchophyllus*, *Swartzia simplex*, *Syagrus schizophylla*, *Tapirira guianensis*, *Tassadia propinqua*, *Tetrapterys acutifolia*, *Thyrsodium spruceanum*, *Tillandsia gardneri*, *Tillandsia mallemonii*, *Tillandsia stricta*, *Tillandsia tenuifolia*, *Tillandsia usneoides*, *Tournefortia bicolor*, *Tournefortia breviflora*, *Tournefortia gardneri*, *Tripodanthus acutifolius*, *Tynanthus labiatus*, *Vanilla bahiana*, *Vanilla chamissonis*, *Vantanea obovata*, *Varronia curassavica*, *Voyria flavescens*, *Voyria obconica*, *Vriesea gigantea*, *Vriesea jonghei*, *Vriesea procera*, *Weinmannia paulliniifolia*, *Ximenia americana*, *Xylopia brasiliensis*, *Xylopia ochrantha*, *Xylopia sericea*, *Xylosma prockia*, *Zollernia ilicifolia*.

IV – Beach Transitional Forest – Another vegetation typology

a) Primary stage

Abarema jupunba, *Abuta convexa*, *Abuta selleana*, *Adenocalymma assum*, *Adenocalymma marginatum*, *Adiantum raddianum*, *Aechmea aquilega*, *Aechmea lingulata*, *Albizia pedicellaris*, *Albizia polycephala*, *Amaioua guianensis*, *Ampelocera glabra*, *Anadenanthera colubrina*, *Anaxagorea dolichocarpa*, *Andira fraxinifolia*, *Andira surinamensis*, *Andira vermifuga*, *Anemia phyllitidis*, *Annona glabra*, *Aspidosperma cuspa*, *Aspidosperma parvifolium*, *Aspidosperma pyriforme*, *Asterostigma lividum*, *Asterostigma riedelianum*, *Aureliana fasciculata*, *Bignonia corymbosa*, *Billbergia euphemiae*, *Billbergia iridifolia*, *Billbergia pyramidalis*, *Blepharodon pictum*, *Bowdichia virgilioides*, *Brunfelsia clandestina*, *Callichlamys latifolia*, *Campyloneurum phyllitidis*, *Cassia ferruginea*, *Catopsis sessiliflora*, *Cedrela fissilis*, *Cedrela odorata*, *Cereus jamacaru*, *Cheiloclinium serratum*, *Chondrodendron microphyllum*, *Chondrodendron platyphyllum*, *Chrysophyllum gonocarpum*, *Clarisia racemosa*, *Colubrina glandulosa*, *Combretum laxum*, *Condyllocarpon intermedium*, *Copaifera langsdorffii*, *Copaifera lucens*, *Cordia trichotoma*, *Cordia concolor*, *Couepia belemii*, *Couepia schottii*, *Cyathea atrovirens*, *Cyathea corcovadensis*, *Cyathea delgadii*, *Cyathea microdonta*, *Cyathea phalerata*, *Dalbergia nigra**, *Dioclea wilsonii*, *Diplon cuspidatum*, *Ditassa blanchetii*, *Ditassa crassifolia*, *Dolichocarpus dentatus*, *Dolichocarpus major*, *Dracontioides desciscens*, *Emmeorrhiza umbellata*, *Emmotum nitens*, *Endlicheria paniculata*, *Enterolobium contortisiliquum*, *Eriotheca macrophylla*, *Erythrina crista-galli*, *Eschweilera ovata*, *Esenbeckia grandiflora*, *Eugenia luschnathiana*, *Ficus luschnathiana*, *Forsteronia leptocarpa*, *Genipa americana*, *Guatteria australis*, *Guatteria candolleana*, *Guatteria oligocarpa*, *Gustavia augusta*, *Hedyosmum brasiliense*, *Heisteria blanchetiana*, *Heliconia episcopalis*, *Heliconia pendula*, *Heliconia psittacorum*, *Heterotaxis brasiliensis*, *Hillia parasitica*, *Hippocratea volubilis*, *Hohenbergia augusta*, *Humiria balsamifera*, *Huperzia mandiocana*, *Hymenaea courbaril*, *Hymenaea rubriflora*, *Hymenophyllum caudiculatum*, *Hymenophyllum polyanthos*, *Hyperbaena domingensis*, *Inga capitata*, *Inga laurina*, *Inga sessilis*, *Inga striata*, *Inga subnuda*, *Inga thibaudiana*, *Jacaranda obovata*, *Lacistema robustum*, *Leretic cordata*, *Licania hoehnei*, *Licania littoralis*, *Lundia virginalis*, *Macoubea guianensis*, *Macrolobium latifolium*, *Malanea macrophylla*, *Manilkara elata*, *Manilkara longifolia*, *Maprounea guianensis*, *Maranta divaricata*, *Marsdenia amorimii**, *Maytenusgida*, *Melanoxylon brauna**, *Miconia chartacea*, *Microrhiza crassipedicellata*, *Microrhiza venulosa*, *Montrichardia linifera*, *Nectandra megapotamica*, *Nectandra membranacea*, *Nectandra puberula*, *Neoregelia cruenta*, *Nidularium innocentii*, *Ocotea aciphylla*, *Ocotea cernua*, *Ocotea complicata*, *Ocotea glauca*, *Ocotea glomerata*, *Ocotea lobbii*, *Ocotea longifolia*, *Ocotea odorifera**, *Ocotea puberula*, *Orthomene schomburgkii*, *Pachystroma longifolium*, *Parkia pendula*, *Paullinia carpopoda*, *Paullinia pinnata*, *Paullinia revoluta*, *Paullinia rubiginosa*, *Peltastes peltatus*, *Pera glabrata*, *Persea aurata*, *Persea splendens*, *Persea willdenovii*, *Philodendron bipinnatifidum*, *Philodendron fragrantissimum*, *Philodendron imbe*, *Philodendron martianum*,

Philodendron ornatum, *Philodendron pedatum*, *Phoradendron affine*, *Phoradendron bathyoryctum*, *Phoradendron chrysocladon*, *Phoradendron crassifolium*, *Phoradendron falcifrons*, *Phoradendron obtusissimum*, *Phoradendron piperoides*, *Phoradendron quadrangulare*, *Phytolacca dioica*, *Picramnia bahiensis*, *Picramnia glazioviana*, *Piper mollicomum*, *Piper vicosanum*, *Piptadenia trisperma*, *Platymiscium floribundum*, *Polyandrococos caudescens*, *Portea petropolitana*, *Pouteria caimito*, *Pouteria peduncularis*, *Pouteria reticulata*, *Pradosia lactescens*, *Prestonia coalita*, *Protium heptaphyllum*, *Protium icicariba*, *Pseudananas sagenarius*, *Pseudobombax grandiflorum*, *Pseudopiptadenia contorta*, *Psidium cattleianum*, *Pteris denticulata*, *Pterocarpus rohrii*, *Quararibea turbinata*, *Randia armata*, *Rourea martiana*, *Ruprechtia laxiflora*, *Sabicea grisea*, *Sacoglottis mattogrossensis*, *Salzmannia nitida*, *Schefflera angustissima*, *Schefflera morototoni*, *Schizaea elegans*, *Senna angulata*, *Serjania caracasana*, *Serjania communis*, *Serjania paradoxa*, *Serjania scopulifera*, *Simarouba amara*, *Simira glaziovii*, *Siparuna guianensis*, *Sloanea guianensis*, *Solanum depauperatum*, *Sterculia striata*, *Stigmaphyllon tomentosum*, *Strychnos trinervis*, *Syagrus oleracea*, *Talisia esculenta*, *Tassadia propinqua*, *Tetracera breyniana*, *Tetrapteryx phlomoides*, *Tillandsia geminiflora*, *Tillandsia mallemonii*, *Tillandsia recurvata*, *Tillandsia tenuifolia*, *Tillandsia usneoides*, *Tocoyena brasiliensis*, *Tournefortia rubicunda*, *Tynanthus labiatus*, *Vantanea obovata*, *Vittaria lineata*, *Voyria flavescens*, *Voyria obconica*, *Vriesea atra*, *Vriesea carinata*, *Vriesea gigantea*, *Vriesea pauperrima*, *Vriesea rodigasiana*, *Vriesea scalaris*, *Weinmannia paulliniifolia*, *Xylopia brasiliensis*, *Xylopia ochrantha*, *Xylopia sericea*, *Zanthoxylum rhoifolium*, *Zollernia ilicifolia*.

b) Initial regeneration stage

Abarema jupunba, *Antheophora hermaphrodita*, *Axonopus canescens*, *Axonopus eminens*, *Axonopus obtusifolius*, *Axonopus polydactylus*, *Axonopus pressus*, *Baccharis singularis*, *Bahianthus viscosus*, *Boehmeria cylindrica*, *Bredemeyera kunthiana*, *Bredemeyera laurifolia*, *Bulbostylis paradoxa*, *Calopogonium mucunoides*, *Campylopus savannarum*, *Campylopus trachyblepharon*, *Cenchrus ciliaris*, *Centrosema pascuorum*, *Centrosema rotundifolium*, *Chamaecrista flexuosa*, *Chamaecrista rotundifolia*, *Chiococca alba*, *Chiococca nitida*, *Cissus erosa*, *Coccocypselum condalia*, *Coccocypselum cordifolium*, *Coccocypselum lanceolatum*, *Coutarea hexandra*, *Crotalaria incana*, *Crotalaria pallida*, *Crotalaria retusa*, *Crotalaria vitellina*, *Cryptochloa capillata*, *Curtia verticillaris*, *Cyperus odoratus*, *Cyrtocymura scorpioides*, *Dalechampia scandens*, *Desmodium adscendens*, *Desmodium barbatum*, *Desmodium glabrum*, *Desmodium incanum*, *Desmodium triflorum*, *Digitaria ciliaris*, *Digitaria insularis*, *Diodia saponariifolia*, *Drymaria cordata*, *Eleusine indica*, *Emilia fosbergii*, *Eragrostis pilosa*, *Eragrostis secundiflora*, *Euphorbia hirta*, *Galactia striata*, *Geophila repens*, *Guettarda angelica*, *Helicteres sacarolha*, *Hybanthus calceolaria*, *Hyparrhenia rufa*, *Ichnanthus nemoralis*, *Ichnanthus pallens*, *Imperata brasiliensis*, *Indigofera hirsuta*, *Indigofera microcarpa*, *Indigofera suffruticosa*, *Ipomoea procumbens*, *Irbachia purpurascens*, *Jacquemontia montana*, *Jacquemontia sphaerostigma*, *Lantana camara*, *Laportea aestuans*, *Lasiacis divaricata*, *Lasiacis ligulata*, *Luffa cylindrica*, *Macroptilium atropurpureum*, *Macroptilium gracile*, *Macroptilium panduratum*, *Margaritopsis cephalantha*, *Margaritopsis chaenotricha*, *Merremia aegyptia*, *Mimosa bimucronata*, *Mimosa hirsutissima*, *Mimosa pudica*, *Mimosa somnians*, *Mimosa velloziana*, *Minaria acerosa*, *Oldenlandia salzmannii*, *Olyra ciliatifolia*, *Olyra latifolia*, *Oplismenus hirtellus*, *Pavonia cancellata*, *Pavonia fruticosa*, *Petiveria alliacea*, *Pharus lappulacea*, *Phyllanthus klotzschianus*, *Phyllanthus niruri*, *Phytolacca thyrsoiflora*, *Polygala glochidiata*, *Polygala grandifolia*, *Polygala hebeclada*, *Polygala laureola*, *Polygala paniculata*, *Polygala violacea*, *Pseudechinolaena polystachya*, *Psychotria bahiensis*, *Psychotria deflexa*, *Psychotria leiocarpa*, *Psychotria myriantha*, *Psychotria stachyoides*, *Pterocaulon virgatum*, *Pterolepis polygonoides*, *Raddia brasiliensis*, *Renealmia alpinia*, *Richardia brasiliensis*, *Richardia grandiflora*, *Schultesia guianensis*, *Schwenckia americana*, *Securidaca diversifolia*, *Senna obtusifolia*, *Senna occidentalis*, *Senna pendula*, *Setaria parviflora*, *Setaria scandens*, *Setaria vulpiseta*, *Sida ciliaris*, *Sida linifolia*, *Sida rhombifolia*, *Smilax staminea*, *Smilax syphilitica*, *Solanum sisymbriifolium*, *Stachytarpheta angustifolia*, *Streptochaeta spicata*, *Stylosanthes angustifolia*, *Stylosanthes guianensis*, *Stylosanthes scabra*, *Stylosanthes viscosa*, *Tectaria incisa*, *Tephrosia cinerea*, *Tephrosia purpurea*, *Tilesia baccata*, *Tocoyena bullata*, *Trachypogon macroglossus*, *Triumfetta rhomboidea*, *Turnera diffusa*, *Turnera subulata*, *Vernonanthura vinhae*, *Vigna peduncularis*, *Waltheria americana*, *Waltheria viscosissima*, *Zornia curvata*, *Zornia reticulata*, *Zornia sericea*.

c) Medium regeneration stage

Abrus precatorius, *Actinostemon concolor*, *Allophylus edulis*, *Alseis floribunda*, *Andira anthelmia*, *Andira fraxinifolia*, *Aparisthium cordatum*, *Apeiba tibourbou*, *Atractantha radiata**, *Banara parviflora*, *Banisteriopsis membranifolia*, *Bauhinia acuruana*, *Bauhinia cheilantha*, *Bauhinia forficata*, *Bauhinia pentandra*, *Boehmeria cylindrica*, *Bougainvillea spectabilis*, *Bredemeyera laurifolia*, *Brosimum gaudichaudii*, *Brosimum rubescens*, *Brunfelsia uniflora*, *Byrsonima coccolobifolia*, *Byrsonima cydoniifolia*, *Byrsonima gardnerana*, *Byrsonima sericea*, *Byrsonima verbascifolia*, *Campomanesia aromatica*, *Campyloneurum acrocarpon*, *Campylopus savannarum*, *Campylopus trachyblepharon*, *Canavalia dictyota*, *Casearia javitensis*, *Casearia sylvestris*, *Cassytha filiformis*, *Cayaponia tayuya*, *Cayaponia trifoliolata*, *Cecropia glaziovii*, *Cecropia pachystachya*, *Centrosema pascuorum*, *Chamaecrista bahiae*, *Chamaecrista cytisoides*, *Chamaecrista ensiformis*, *Chamaecrista rotundifolia*, *Chloroleucon foliolosum*, *Chrysophyllum marginatum*, *Chrysophyllum rufum*, *Cissus erosa*, *Cissus pulcherrima*, *Cissus simsiana*, *Cissus verticillata*, *Citharexylum myrianthum*, *Clematis dioica*, *Clethra scabra*, *Coccocypselum condalia*, *Coccocypselum cordifolium*, *Coccocypselum lanceolatum*, *Coccoloba cordata*, *Combretum leprosum*, *Combretum mellifluum*, *Conchocarpus longifolius*, *Copaifera coriacea*, *Copaifera*

luetzelburgii, *Coussapoa curranii*, *Coussapoa microcarpa*, *Coutarea hexandra*, *Cryptochloa capillata*, *Cupania oblong ifolia*, *Cupania paniculata*, *Cupania racemosa*, *Cupania rugosa*, *Dalbergia frutescens*, *Daphnopsis coriacea*, *Davilla flexuosa*, *Ditassa blanchetii*, *Ditassa crassifolia*, *Dorstenia brasiliensis*, *Drimys brasiliensis*, *Eugenia florida*, *Eugenia ilhensis*, *Eugenia pluriflora*, *Eugenia puniceifolia*, *Eugenia stictopetala*, *Euphorbia heterophylla*, *Ficus pertusa*, *Funifera brasiliensis*, *Guapira laxiflora*, *Guarea guidonia*, *Guazuma ulmifolia*, *Guettarda angelica*, *Guettarda platypoda*, *Guettarda uruguensis*, *Guettarda viburnoides*, *Hedyosmum brasiliense*, *Heisteria perianthomega*, *Helicteres sacarolha*, *Heteropterys macrostachya*, *Lantana camara*, *Lindsaea lancea*, *Luehea divaricata*, *Luehea ochrophylla*, *Luehea paniculata*, *Machaerium aculeatum*, *Machaerium brasiliense*, *Machaerium lanceolatum*, *Machaerium uncinatum*, *Maclura tinctoria*, *Margaritopsis cephalantha*, *Margaritopsis chaenotricha*, *Metrodorea nigra*, *Miconia albicans*, *Miconia ligustroides*, *Miconia mirabilis*, *Miconia splendens*, *Miconia stenostachya*, *Mimosa bimucronata*, *Mimosa ophthalmocentra*, *Mimosa tenuiflora*, *Minaria acerosa*, *Mouriri pusa*, *Myrceugenia miersiana*, *Myrcia tomentosa*, *Myrciaria cuspidata*, *Myrciaria floribunda*, *Myrciaria strigipes*, *Ormosia arborea*, *Ouratea fieldingiana*, *Ouratea salicifolia*, *Passiflora amethystina*, *Passiflora cincinnata*, *Passiflora edulis*, *Passiflora foetida*, *Passiflora galbana*, *Passiflora haematostigma*, *Passiflora kermesina*, *Passiflora misera*, *Passiflora organensis*, *Passiflora ovalis*, *Passiflora rhamnifolia*, *Peltogyne confertiflora*, *Pera glabrata*, *Phyllostylon brasiliense*, *Pilocarpus riedelianus*, *Pilocarpus spicatus*, *Piper aduncum*, *Piper amalago*, *Piper amplum*, *Piper arboreum*, *Piper divaricatum*, *Piptadenia adiantoides*, *Piptadenia paniculata*, *Piptadenia stipulacea*, *Pogonophora schomburgkiana*, *Pourouma velutina*, *Prockia crucis*, *Prunus myrtifolia*, *Pseudananas sagenarius*, *Psidium guineense*, *Psidium oligospermum*, *Psychotria bahiensis*, *Psychotria carthagenensis*, *Psychotria deflexa*, *Psychotria leiocarpa*, *Psychotria myriantha*, *Psychotria stachyoides*, *Pterolepis polygonoides*, *Rauia nodosa*, *Rauwolfia mattfeldiana*, *Rhynchosia phaseoloides*, *Salacia elliptica*, *Sebastiania brasiliensis*, *Sequiaria americana*, *Sequiaria langsdorffii*, *Senna alata*, *Senna gardneri*, *Senna macranthera*, *Senna obtusifolia*, *Senna pendula*, *Senna silvestris*, *Senna splendida*, *Senna trachypus*, *Serjania caracasana*, *Serjania communis*, *Serjania paradoxa*, *Serjania scopulifera*, *Sideroxylon obtusifolium*, *Smilax staminea*, *Smilax syphilitica*, *Solanum asperum*, *Solanum caavurana*, *Solanum crinitum*, *Solanum gardneri*, *Solanum granulosoleprosum*, *Solanum palinacanthum*, *Solanum paludosum*, *Solanum paniculatum*, *Solanum swartzianum*, *Sorocea guillemianiana*, *Sparattanthelium botocudorum*, *Stephanopodium blanchetianum*, *Stigmaphyllon auriculatum*, *Strychnos brasiliensis*, *Strychnos parvifolia*, *Styrax glabratus*, *Tabebuia aurea*, *Tapirira guianensis*, *Tectaria incisa*, *Terminalia glabrescens*, *Tetrapterys acutifolia*, *Tetrorchidium rubrivenium*, *Tillandsia gardneri*, *Tillandsia mallemonii*, *Tillandsia tenuifolia*, *Tocoyena bullata*, *Tournefortia bicolor*, *Tournefortia breviflora*, *Tournefortia membranacea*, *Tournefortia villosa*, *Tragia volubilis*, *Trema micrantha*, *Trichilia casaretti*, *Trichilia elegans*, *Trichilia hirta*, *Trichilia lepidota*, *Trichilia pallens*, *Trichilia pseudostipularis*, *Trichilia silvatica*, *Trigonon eriosperma*, *Trigonon nivea*, *Turnera diffusa*, *Vigna candida*, *Vismia martiana*, *Vochysia laurifolia*, *Vochysia tucanorum*.

d) Advanced regeneration stage

Abrus precatorius, *Abuta convexa*, *Abuta seloana*, *Adenocalymma assum*, *Adenocalymma marginatum*, *Adiantum raddianum*, *Aechmea lingulata*, *Albizia pedicellaris*, *Albizia polycephala*, *Allophylus edulis*, *Alseis floribunda*, *Amaioua guianensis*, *Ampelocera glabra*, *Anadenanthera colubrina*, *Anaxagorea dolichocarpa*, *Andira anthelmia*, *Andira fraxinifolia*, *Andira surinamensis*, *Andira vermifuga*, *Anemia phyllitidis*, *Annona glabra*, *Aparisthmium cordatum*, *Apeiba tibourbou*, *Asterostigma lividum*, *Asterostigma riedelianum*, *Atractantha radiata**, *Aureliana fasciculata*, *Banara parviflora*, *Banisteriopsis membranifolia*, *Bauhinia cheilantha*, *Bignonia corymbosa*, *Bougainvillea spectabilis*, *Bowdichia virgilioides*, *Brosimum gaudichaudii*, *Brosimum rubescens*, *Brunfelsia clandestina*, *Byrsonima coccolobifolia*, *Byrsonima gardnerana*, *Byrsonima sericea*, *Byrsonima verbascifolia*, *Callichlamys latifolia*, *Camp yloneurum acrocarpon*, *Camp yloneurum phyllitidis*, *Casearia javitensis*, *Casearia sylvestris*, *Cassia ferruginea*, *Cedrela fissilis*, *Cedrela odorata*, *Chamaecrista bahiae*, *Chamaecrista ensiformis*, *Cheiloclinium serratum*, *Chloroleucon foliolosum*, *Chondrodendron microphyllum*, *Chondrodendron platiphyllum*, *Chrysophyllum gonocarpum*, *Chrysophyllum marginatum*, *Chrysophyllum rufum*, *Cissus pulcherrima*, *Cissus simsiana*, *Cissus verticillata*, *Citharexylum myrianthum*, *Clarisia racemosa*, *Clematis dioica*, *Clethra scabra*, *Coccoloba cordata*, *Colubrina glandulosa*, *Combretum laxum*, *Combretum leprosum*, *Conchocarpus long ifolius*, *Copaifera langsdorffii*, *Copaifera lucens*, *Cordia trichotoma*, *Cordia concolor*, *Coussapoa curranii*, *Cupania oblong ifolia*, *Cupania racemosa*, *Cyathea atrovirens*, *Cyathea corcovadensis*, *Cyathea delgadii*, *Cyathea microdonta*, *Cyathea phalerata*, *Dalbergia frutescens*, *Daphnopsis coriacea*, *Davilla flexuosa*, *Dioclea wilsonii*, *Diploon cuspidatum*, *Ditassa blanchetii*, *Ditassa crassifolia*, *Doliocarpus dentatus*, *Doliocarpus major*, *Dracontioides desciscens*, *Drimys brasiliensis*, *Emmeorhiza umbellata*, *Emmotum nitens*, *Endlicheria paniculata*, *Eschweilera ovata*, *Esenbeckia grandiflora*, *Eugenia florida*, *Eugenia ilhensis*, *Eugenia luschnathiana*, *Eugenia puniceifolia*, *Eugenia stictopetala*, *Ficus luschnathiana*, *Funifera brasiliensis*, *Genipa americana*, *Guapira laxiflora*, *Guarea guidonia*, *Guatteria australis*, *Guatteria candolleana*, *Guatteria oligocarpa*, *Guazuma ulmifolia*, *Guettarda platypoda*, *Guettarda uruguensis*, *Guettarda viburnoides*, *Gustavia augusta*, *Heisteria blanchetiana*, *Heisteria perianthomega*, *Heliconia episcopalis*, *Heteropterys macrostachya*, *Heterotaxis brasiliensis*, *Hillia parasitica*, *Hippocratea volubilis*, *Humiria balsam ifera*, *Hymenaea courbaril*, *Hymenaea rubriflora*, *Hyperbaena domingensis*, *Inga capitata*, *Inga laurina*, *Inga sessilis*, *Inga striata*, *Inga subnuda*, *Inga thibaudiana*, *Jacaranda obovata*, *Licania littoralis*, *Lindsaea lancea*, *Luehea divaricata*, *Luehea ochrophylla*, *Luehea paniculata*, *Lundia virginalis*, *Machaerium lanceolatum*, *Machaerium uncinatum*, *Maclura tinctoria*, *Malanea macrophylla*, *Manilkara elata*, *Manilkara long ifolia*, *Maprounea guianensis*, *Maranta divaricata*, *Maytenus rigida*, *Metrodorea nigra*, *Miconia chartacea*, *Miconia mirabilis*, *Miconia splendens*, *Miconia stenostachya*, *Micropholis*

crassipedicellata, *Micropholis venulosa*, *Montrichardia linifera*, *Mouriri pusa*, *Myrceugenia miersiana*, *Nectandra megapotamica*, *Nectandra membranacea*, *Nectandra puberula*, *Neoregelia cruenta*, *Nidularium innocentii*, *Ocotea aciphylla*, *Ocotea cernua*, *Ocotea complicata*, *Ocotea glauca*, *Ocotea glomerata*, *Ocotea lobbii*, *Ocotea long ifolia*, *Ocotea odorifera**, *Ocotea puberula*, *Ormosia arborea*, *Orthomene schomburgkii*, *Ouratea fieldingiana*, *Pachystroma long ifolium*, *Parkia pendula*, *Passiflora amethystina*, *Passiflora cincinnata*, *Passiflora edulis*, *Passiflora foetida*, *Passiflora galbana*, *Passiflora haematostigma*, *Passiflora kermesina*, *Passiflora misera*, *Passiflora organensis*, *Passiflora ovalis*, *Passiflora rhamnifolia*, *Paullinia carpopoda*, *Paullinia pinnata*, *Paullinia revoluta*, *Paullinia rubiginosa*, *Peltogyne confertiflora*, *Pera glabrata*, *Persea aurata*, *Persea splendens*, *Persea willdenovii*, *Philodendron bipinnatifidum*, *Philodendron fragrantissimum*, *Philodendron imbe*, *Philodendron martianum*, *Philodendron ornatum*, *Philodendron pedatum*, *Phoradendron affine*, *Phoradendron bathyoryctum*, *Phoradendron chrysocladon*, *Phoradendron crassifolium*, *Phoradendron falcifrons*, *Phoradendron obtusissimum*, *Phoradendron piperoides*, *Phoradendron quadrangulare*, *Phytolacca dioica*, *Picramnia bahiensis*, *Picramnia glazioviana*, *Pilocarpus riedelianus*, *Pilocarpus spicatus*, *Piper aduncum*, *Piper divaricatum*, *Piper mollicomum*, *Piper vicosanum*, *Piptadenia adiantoides*, *Piptadenia paniculata*, *Piptadenia stipulacea*, *Piptadenia trisperma*, *Piptadenia viridiflora*, *Platymiscium floribundum*, *Pogonophora schomburgkiana*, *Polyandrocos caudescens*, *Posoqueria latifolia*, *Pourouma velutina*, *Pouteria caimito*, *Pouteria peduncularis*, *Pouteria reticulata*, *Pradosia lactescens*, *Prestonia coalita*, *Prockia crucis*, *Protium heptaphyllum*, *Protium icariba*, *Prunus myrtifolia*, *Pseudananas sagenarius*, *Pseudopiptadenia contorta*, *Psidium cattleianum*, *Psidium guineense*, *Psychotria carthagenensis*, *Pteris denticulata*, *Pterocarpus rohrii*, *Quararibea turbinata*, *Randia armata*, *Rauia nodosa*, *Rhynchosia phaseoloides*, *Ruprechtia laxiflora*, *Sabicea grisea*, *Sacoglottis mattogrossensis*, *Salacia elliptica*, *Salzmannia nitida*, *Schefflera angustissima*, *Schefflera morototoni*, *Schizaea elegans*, *Seguiera americana*, *Seguiera langsdorffii*, *Senna angulata*, *Serjania caracasana*, *Serjania communis*, *Serjania paradoxa*, *Serjania scopulifera*, *Sideroxylon obtusifolium*, *Simarouba amara*, *Simira glaziovii*, *Siparuna guianensis*, *Sloanea guianensis*, *Solanum asperum*, *Solanum crinitum*, *Solanum depauperatum*, *Solanum granuloseprosum*, *Solanum swartzianum*, *Sorocea guilleminiana*, *Sparattanthelium botocudorum*, *Stephanopodium blanchetianum*, *Sterculia striata*, *Stigmaphyllon auriculatum*, *Stigmaphyllon tomentosum*, *Strychnos brasiliensis*, *Strychnos parvifolia*, *Strychnos trinervis*, *Syagrus oleracea*, *Tabebuia aurea*, *Talisia esculenta*, *Tapirira guianensis*, *Tassadia propin qua*, *Terminalia glabrescens*, *Tetracera breyniana*, *Tetrapterys acutifolia*, *Tetrapterys phlomoides*, *Tetrorchidium rubrivenium*, *Tillandsia gardneri*, *Tillandsia geminiflora*, *Tillandsia mallemonii*, *Tillandsia recurvata*, *Tillandsia tenuifolia*, *Tillandsia usneoides*, *Tocoyena brasiliensis*, *Tournefortia bicolor*, *Tournefortia breviflora*, *Tournefortia rubicunda*, *Tragia volubilis*, *Trichilia casaretti*, *Trichilia lepidota*, *Trichilia pallens*, *Trichilia pseudostipularis*, *Trichilia silvatica*, *Tynanthus labiatus*, *Vantanea obovata*, *Vittaria lineata*, *Vochysia tucanorum*, *Voyria flavescens*, *Voyria obconica*, *Vriesea gigantea*, *Vriesea rodigasiana*, *Weinmannia paulliniiifolia*, *Xylopia brasiliensis*, *Xylopia ochrantha*, *Xylopia sericea*, *Zanthoxylum rhoifolium*, *Zollernia ilicifolia*.

Art. 2 This Resolution shall enter into effect on the date of its publication.

FRANCISCO GAETANI – Acting Council President

(*) endemic and rare vegetal species or species threatened with extinction.

This text does not substitute the text published in the Official Gazette on Jan. 3, 2012

RESOLUTION 438, December 30, 2011
Published in Official Gazette 2 on Jan. 3, 2012

Approves the list of successional stages indicator species of the Beach vegetation in the State of Paraíba, according to Resolution 417 from Nov. 23, 2009.

THE NATIONAL ENVIRONMENT COUNCIL – CONAMA, in accordance with the power bestowed upon the Council by art. 8, item I of Law 6.938 from August 31, 1981, and considering the provisions of art. 4, § 1 of Law 11.428 from December 22, 2006 and CONAMA Resolution 417 from December 23, 2009, decides:

Art. 1 The indicator species of primary vegetation and of the different successional secondary stages of the Atlantic Forest vegetation, which are the subject of art. 4 of Law 11.428 from Dec. 22, 2009 and § 1 of art. 3 of CONAMA Resolution 417 from Nov. 23, 2009, in the State of Espírito Santo, are:

I – Beach Herbaceous and Sub-Shrubby Vegetation:

a) Climax vegetation

Abildgaardia baeothryon, Achyrocline satureiroides, Acicarpa spathulata, Acrostichum danaeifolium, Actinocephalus ramosus, Aechmea saxicola, Aechmea sphaerocephala, Aeschynomene brasiliana, Aeschynomene paniculata, Aeschynomene sensitiva, Agarista revoluta, Alternanthera littoralis, Aphelandra nitida, Aspidia clauseniana, Asplenium laciniatum, Baccharis crispa, Baccharisplatypoda, Baccharis reticularia, Baccharisserrulata, Becquerelia cymosa, Billbergia amoena, Billbergia tweediana, Blutaparon portulacoides, Bredemeyera kunthiana, Bulbostylis capillaris, Bulbostylis junciformis, Bulbostylis scabra, Cambessedesia setacea, Canavalia parviflora, Canavalia rosea, Caperonia buettneriacea, Catasetum discolor, Cenchrus echinatus, Centrosema arenarium, Centrosema coriaceum, Centrosema virginianum, Chamaecrista ramosa, Chloris pycnothrix, Chromolaena odorata, Chrysobalanus icaco, Cnidoscolus urens, Comanthera imbricata, Crinum americanum, Croton triqueter, Cryptanthus beuckeri, Cryptanthus maritimus, Cucumis anguria, Cuphea flava, Cuphea ingrata, Cuphea sessilifolia, Cynodon dactylon, Cyperus articulatus, Cyperus haspan, Cyrtopodium flavum, Cyrtopodium holstii, Dactylaena microphylla, Dactyloctenium aegyptium, Dalbergia ecastaphyllum, Dalechampia convolvuloides, Davilla rugosa, Dichorisandra pubescens, Dichorisandra thrysiiflora, Diodella apiculata, Diodella radula, Ditassa arianaeae, Eleocharis geniculata, Eleocharis interstincta, Eleocharis maculosa, Eleocharis minima, Eleocharis mutata, Enydra sessilis, Epidendrum denticulatum, Epidendrum secundum, Epistephium lucidum, Esterhazyia splendida, Eugenia puniceifolia, Euphorbia thymifolia, Evolvulus genistoides, Evolvulus maximiliani, Fimbristylis aspera, Fimbristylis cymosa, Fimbristylis spadicea, Fuirena robusta, Fuirena umbellata, Gaylussacia brasiliensis, Gibasis geniculata, Gochnatia polymorpha, Griffinia espiritensis, Griffinia parviflora, Habenaria leptoceras, Habenaria longicauda, Habenaria parviflora, Habenaria repens, Heliotropium polyphyllum, Hippeastrum reticulatum, Hybanthus calceolaria, Hydrocotyle bonariensis, Hypolytrum verticillatum, Indigofera microcarpa, Ipomoea imperati, Ipomoea pes-caprae, Irlbachia purpurascens, Koellensteinia altissima, Kyllinga vaginata, Lagenocarpus rigidus, Lagenocarpus verticillatus, Laurembergia tetrandra, Leiosthrix hirsuta, Lepidaploa coulonioides, Lepidaploa rufogrisea, Lepidaploa sororia, Ludwigia nervosa, Ludwigia octovalvis, Lycopodiella alopecuroides, Lycopodiella cernua, Mandevilla uniflora, Mandevilla hirsuta, Mandevilla moricandiana, Melocactus violaceus, Microgramma vacciniifolia, Microtea paniculata, Mikania biflora, Mikania glomerata, Minaria decussata, Minaria lourteigiae, Mollugo verticillata, Neomarica northiana, Neomitranthes obscura, Nymphoides indica, Oeceoclades maculata, Otacanthus platycheilus, Oxypetalum alpinum, Oxypetalum banksii, Paepalanthus bifidus, Paepalanthus klotzschianus, Paepalanthus tortilis, Panicum laxum, Panicum nervosum, Panicum racemosum, Panicumschwackeanum, Panicum subulatum, Paradisanthus micranthus, Paspalum arenarium, Paspalum conjugatum, Paspalum corcovadense, Paspalum paniculatum, Paspalum pumilum, Paspalum vaginatum, Passiflora capsularis, Pavonia alnifolia*, Pavonia tricalycaris, Peplonia axillaris, Perama hirsuta, Pharus lappulaceus, Piper corcovadense, Piper solmsianum, Piriqueta viscosa, Plumbago scandens, Polybotrya cylindrica, Polygala cyparissias, Polygala grandifolia, Polygala paniculata, Psidium brownianum, Psidium cattleianum, Pterolepis cataphracta, Pterolepis glomerata, Pycreus polystachyos, Remirea maritima, Rhynchospora exaltata, Rhynchospora filiformis, Rhynchospora gigantea, Rhynchospora glaziiovii, Rhynchospora holoschoenoides, Rhynchospora marisculus, Rhynchospora plusquamrobusta, Rhynchospora rugosa, Rhynchospora tenerrima, Rhynchospora tenuis, Ruellia riedeliana, Ruellia solitaria, Sagittaria lancifolia, Sauvagesia erecta, Sauvagesia sprengelii, Scaevola plumieri, Scleria hirtella, Scleria interrupta, Scleria latifolia, Scleria melaleuca, Sebastiania glandulosa, Securidaca diversifolia, Senna australis, Sesuvium portulacastrum, Sinningia sceptrum, Smilax elastica, Sophora tomentosa, Sporobolus virginicus, Stachytarpheta canescens, Stenotaphrum secundatum, Stylosanthes guianensis, Stylosanthes viscosa, Syngonanthus gracilis, Syngonanthus nitens, Ternstroemia brasiliensis, Thalia geniculata, Thelypteris serrata, Trichogonia salviifolia,*

Trichogoniopsis adenantha, *Trichogoniopsis podocarpa*, *Trixis antimenorrhoea*, *Utricularia erectiflora*, *Utricularia foliosa*, *Utricularia gibba*, *Utricularia tricolor*, *Utricularia triloba*, *Vanilla bahiana*, *Vigna halophila*, *Vigna luteola*, *Xyris jupicai*, *Xyris laxifolia*, *Zornia glabra*, *Zornia latifolia*.

II – Beach shrub vegetation:

a) Primary stage

Abarema brachystachya, *Abutilon inaequale*, *Acianthera saundersiana*, *Aechmea blanchetiana*, *Aechmea fasciata*, *Aechmea nudicaulis*, *Aechmea victoriana*, *Affonsea densiflora*, *Agarista revoluta*, *Albizia pedicellaris*, *Allagoptera arenaria*, *Allamanda polyantha*, *Andira legalis*, *Andira nitida*, *Asplenium laciniatum*, *Astrocaryum aculeatissimum*, *Bactris setosa*, *Boehmeria cylindrica*, *Bonnetia stricta*, *Borreria verticillata*, *Brasiliopuntia brasiliensis*, *Bredemeyera kunthiana*, *Bromelia antiacantha*, *Byrsonima sericea*, *Byrsonima verbascifolia*, *Campomanesia guazumifolia*, *Canistropsis billbergioides*, *Centropogon cornutus*, *Chaetocarpus myrsinites*, *Chiococca alba*, *Chrysobalanus icaco*, *Chrysophyllum januariense*, *Chrysophyllum lucentifolium*, *Clidemia biserrata*, *Clidemia bullosa*, *Clidemia hirta*, *Coccoloba alnifolia*, *Coccoloba declinata*, *Coccoloba laevis*, *Coccoloba rigida*, *Aslia ovalifolia*, *Conchocarpus heterophyllus*, *Cordia exaltata*, *Cordia sellowiana*, *Costus arabicus*, *Couepia ovalifolia*, *Cryptanthus beuckeri*, *Cupania rugosa*, *Cyrtopodium flavum*, *Cyrtopodium holstii*, *Dalbergia ecastaphyllum*, *Davilla flexuosa*, *Davilla kunthii*, *Davilla rugosa*, *Dictyoloma vandellianum*, *Dioclea wilsonii*, *Diodella radula*, *Diospyros apeibacarpus*, *Diospyros inconstans*, *Dolioscarpus lancifolius*, *Edmundoa lindeni*, *Endlicheria paniculata*, *Epidendrum rigidum*, *Eugenia ayacuchae*, *Eugenia copacabanensis*, *Eugenia cymatodes*, *Eugenia excelsa*, *Eugenia hirta*, *Eugenia psychotrioides*, *Eugenia rostrata*, *Eugenia seloi*, *Eugenia umbelliflora*, *Eugenia uniflora*, *Exostyles venusta*, *Fridericia conjugata*, *Fridericia rego*, *Galipea jasminiflora*, *Gaylussacia brasiliensis*, *Geonoma schottiana*, *Guapira obtusata*, *Guapira opposita*, *Guapira pernambucensis*, *Habenaria leptoceras*, *Habenaria parviflora*, *Henriettea saldanhaei*, *Heteropterys coleoptera*, *Hibiscus bifurcatus*, *Hirtella corymbosa*, *Hohenbergia augusta*, *Ilex buxifolia*, *Jacaranda bracteata*, *Jacaranda jasminoides*, *Jacquinia armillaris*, *Lacistema robustum*, *Lantana pohliana*, *Leandra ionopogon*, *Leptolobium Biju gum*, *Macroditassa melantha*, *Mandevilla funiformis*, *Mandevilla hirsuta*, *Mandevilla moricandiana*, *Manihot tripartita*, *Marctia taxifolia*, *Matelea bahiensis**, *Matelea maritima*, *Matelea orthosoides*, *Maytenus obtusifolia*, *Melanopsidium nigrum**, *Miconia ciliata*, *Miconia prasina*, *Miconia pusilliflora*, *Microgramma geminata*, *Microgramma vacciniifolia*, *Mimosa elliptica*, *Myrcia guianensis*, *Myrcia lundiana*, *Myrcia pubiflora*, *Myrcia recurvata*, *Myrcia thyrsoides*, *Neoregelia cruenta*, *Neoregelia pascoaliana*, *Ocotea puberula*, *Ocotea pulchella*, *Oeceoclades maculata*, *Ouratea cuspidata*, *Paradisanthus micranthus*, *Passiflora alliacea*, *Passiflora capsularis*, *Passiflora galbana*, *Passiflora jileki*, *Passiflora kermesina*, *Passiflora mucronata*, *Paullinia racemosa Wawra*, *Paullinia ternata*, *Paullinia trigonia*, *Paullinia weinmannifolia*, *Pavonia alnifolia**, *Pavonia malacophylla*, *Pavonia tricalycaris*, *Peplonia asteria*, *Pera glabrata*, *Phoradendron crassifolium*, *Pilosocereus arrabidaei*, *Pilosocereus brasiliensis*, *Polybotrya cylindrica*, *Polygala grandifolia*, *Pouteria coelomatica*, *Prescottia oligantha*, *Prescottia plantaginifolia*, *Psidium cattleianum*, *Psittacanthus dichroos*, *Psychotria mapouriaoides*, *Pyrostegia venusta*, *Quesnelia quesneliana*, *Rauwolfia mattfeldiana*, *Rhabdadenia madida*, *Romanoa tamnoides*, *Sacoila lanceolata*, *Schoepfia brasiliensis*, *Scutia arenicola*, *Sebastiania multiramea*, *Securidaca diversifolia*, *Senna affinis*, *Serjania clematidifolia*, *Serjania dentata*, *Serjania ichthyoctona*, *Serjania salzmanniana*, *Serpocaulon triseriale*, *Skytanthus hancorniiifolius*, *Smilax elastica*, *Smilax rufescens*, *Solanum caavurana*, *Solanum paniculatum*, *Solanum sycocarpum*, *Sop hora tomentosa*, *Sparattosperma leucanthum*, *Stachytarpheta schottiana*, *Stigmaphyllon blanchetii*, *Struthanthus flexicaulis*, *Struthanthus marginatus*, *Struthanthus polyrrhizos*, *Struthanthus uraguensis*, *Swartzia apetala*, *Swartzia simplex*, *Syagrus schizophylla*, *Tabebuia stenocalyx*, *Tabernaemontana catharinensis*, *Tabernaemontana flavicans*, *Tabernaemontana laeta*, *Tabernaemontana olivacea*, *Talipariti pernambucense*, *Ternstroemia brasiliensis*, *Thelypteris serrata*, *Tibouchina urceolaris*, *Tillandsia gardneri*, *Tillandsia malleontii*, *Tillandsia stricta*, *Tillandsia tenuifolia*, *Tocoyena formosa*, *Tournefortia membranacea*, *Tournefortia rubicunda*, *Turnera lucida*, *Urena lobata*, *Urvillea glabra*, *Urvillea rufescens*, *Vanilla bahiana*, *Varronia curassavica*, *Vitex polygama*, *Vriesea gigantea*, *Vriesea neoglutinosa*, *Vriesea procera*, *Vriesea vagans*, *Waltheria aspera*, *Zanthoxylum fagara*, *Zanthoxylum monogynum*, *Zeyheria tuberculosa*.

b) Initial regeneration stage

Achyrocline satureioides, *Acicarpa spathulata*, *Aspilia clauseniana*, *Baccharis crispa*, *Baccharis platypoda*, *Baccharis reticularia*, *Baccharis serrulata*, *Cenchrus echinatus*, *Chloris barbata*, *Chromolaena odorata*, *Croton glandulosus*, *Croton sphaerogynus*, *Croton triquetus*, *Dactyloctenium aegyptium*, *Dalechampia convolvuloides*, *Davilla rugosa*, *Dicranopteris flexuosa*, *Diodella radula*, *Doryopteris collina*, *Enydra sessilis*, *Euphorbia thymifolia*, *Gochnatia polymorpha*, *Hemiscola aculeata*, *Hybanthus calceolaria*, *Hyparrhenia rufa*, *Indigofera microcarpa*, *Irlbachia purpurascens*, *Lepidaploa coultonioides*, *Lepidaploa rufogrisea*, *Lepidaploa sororia*, *Mikania bififormis*, *Mikania glomerata*, *Mimosa pudica*, *Perama hirsuta*, *Petiveria alliacea*, *Pharus lappulaceus*, *Phyllanthus klotzschianus*, *Phytolacca thyrsiflora*, *Piper corcovadensis*, *Pityrogramma calomelanos*, *Polygala cyparissias*, *Polygala paniculata*, *Stachytarpheta canescens*, *Stachytarpheta cayennensis*, *Stylosanthes guianensis*, *Stylosanthes scabra*, *Stylosanthes viscosa*, *Trichogonia salviiifolia*, *Trichogoniopsis adenantha*, *Trichogoniopsis podocarpa*, *Trixis*

Acrostichum danaeifolium, *Blechnum serrulatum*, *Cassytha filiformis*, *Centrosema virginianum*, *Croton*

glandulosus, *Croton sphaerogynus*, *Dalechampia convolvuloides*, *Davilla rugosa*, *Diodella radula*, *Epidendrum denticulatum*, *Epidendrum secundum*, *Epistephium lucidum*, *Pseudolaelia vellozicola*, *Skytanthus hancornifolius*, *Smilax elastica*, *Smilax rufescens*, *Sobralia liliastrum*, *Sobralia sessilis*, *Sophronitis cernua*, *Stachytarpheta canescens*, *Stachytarpheta cayennensis*, *Stigmaphyllon ciliatum*, *Stigmaphyllon paralias*, *Talipariti pernambucense*, *Ternstroemia brasiliensis*, *Tillandsia stricta*, *Tournefortia villosa*, *Vanilla chamissonis*, *Xylobium colleyi*, *Zygopetalum intermedium*.

c) Advanced regeneration stage

Abutilon inaequale, *Acianthera saundersiana*, *Acrostichum danaeifolium*, *Aechmea nudicaulis*, *Agarista revoluta*, *Albizia pedicellaris*, *Andira nitida*, *Astrocaryum aculeatissimum*, *Bactris setosa*, *Boehmeria cylindrica*, *Bonnetia stricta*, *Borreria verticillata*, *Bromelia antiacantha*, *Campomanesia guazumifolia*, *Chiococca Alba*, *Chrysophyllum januariense*, *Chrysophyllum lucentifolium*, *Clidemia biserrata*, *Clidemia bullosa*, *Clidemia hirta*, *Coccoloba alnifolia*, *Coccoloba declinata*, *Coccoloba laevis*, *Coccoloba rigida*, *Aslia ovalifolia*, *Croton glandulosus*, *Croton sphaerogynus*, *Cupania rugosa*, *Cyrtopodium flavum*, *Davilla flexuosa*, *Davilla kunthii*, *Davilla rugosa*, *Diodella radula*, *Edundoa lindenii*, *Epidendrum denticulatum*, *Epidendrum secundum*, *Epistephium lucidum*, *Eugenia ayacuchae*, *Eugenia cymatodes*, *Eugenia excelsa*, *Eugenia hirta*, *Eugenia psychotrioides*, *Eugenia rostrata*, *Eugenia seloi*, *Eugenia umbelliflora*, *Eugenia uniflora*, *Fuirena robusta*, *Fuirena umbellata*, *Galipea jasminiflora*, *Gaylussacia brasiliensis*, *Geonoma schottiana*, *Guapira obtusata*, *Guapira opposita*, *Guapira pernambucensis*, *Habenaria leptoceras*, *Habenaria parviflora*, *Henriettea saldanhaei*, *Hibiscus bifurcatus*, *Ilex buxifolia*, *Jacaranda bracteata*, *Jacaranda jasminoides*, *Jacquinia armillaris*, *Lantana pohliana*, *Leandra ionopogon*, *Manihot tripartita*, *Marcetia taxifolia*, *Melanopsidium nigrum**, *Miconia ciliata*, *Miconia prasina*, *Miconia pusilliflora*, *Microgramma geminata*, *Microgramma vacciniifolia*, *Myrcia guianensis*, *Myrcia lundiana*, *Myrcia recurvata*, *Myrcia thyrsoides*, *Oeceoclades maculata*, *Ouratea cuspidata*, *Paradisanthus micranthus*, *Passiflora alliacea*, *Passiflora capsularis*, *Passiflora galbana*, *Passiflora jileki*, *Passiflora kermesina*, *Passiflora mucronata*, *Paullinia racemosa*, *Paullinia ternata*, *Paullinia trigonia*, *Paullinia weinmanniifolia*, *Pavonia malacophylla*, *Prescottia oligantha*, *Prescottia plantaginifolia*, *Pseudolaelia vellozicola*, *Psidium cattleianum*, *Psychotria mapourioides*, *Rauwolfia mattfeldiana*, *Schoepfia brasiliensis*, *Scutia arenicola*, *Serjania clematidifolia*, *Serjania dentata*, *Serjania ichthyoctona*, *Serjania salzmanniana*, *Serpocaulon triseriale*, *Skytanthus hancornifolius*, *Smilax elastica*, *Smilax rufescens*, *Sobralia liliastrum*, *Sobralia sessilis*, *Solanum caavurana*, *Solanum paniculatum*, *Solanum sycocarpum*, *Sophronitis cernua*, *Sparattosperma leucanthum*, *Stachytarpheta schottiana*, *Stigmaphyllon blanchetii*, *Stigmaphyllon ciliatum*, *Stigmaphyllon paralias*, *Talipariti pernambucense*, *Ternstroemia brasiliensis*, *Thelypteris serrata*, *Tibouchina urceolaris*, *Tillandsia gardneri*, *Tillandsia mallemonii*, *Tillandsia stricta*, *Tillandsia tenuifolia*, *Tournefortia membranacea*, *Tournefortia rubicunda*, *Tournefortia villosa*, *Turnera lucida*, *Urvillea glabra*, *Urvillea rufescens*, *Vanilla bahiana*, *Vanilla chamissonis*, *Vriesea procera*, *Waltheria aspera*, *Xylobium colleyi*, *Zanthoxylum fagara*, *Zanthoxylum monogynum*, *Zygopetalum intermedium*.

III – Beach arboreal vegetation:

a) Primary stage

Abarema barnebyana, *Abarema brachystachya*, *Abarema filamentosa*, *Abrus precatorius*, *Acanthostachys strobilacea*, *Acianthera auriculata*, *Acianthera saundersiana*, *Adenocalymma assum*, *Adenocalymma marginatum*, *Adenocalymma ternatum*, *Adiantum latifolium*, *Aechmea bromeliifolia*, *Aechmea floribunda*, *Aechmea lingulata*, *Aechmea ramosa*, *Aechmea saxicola*, *Aechmea sphaerocephala*, *Aiouea saligna*, *Alatiglossum ciliatum*, *Albizia polycephala*, *Alchornea glandulosa*, *Alchornea triplinervia*, *Allophylus puberulus*, *Amaioua intermedia*, *Amphilophium crucigerum*, *Amphirrhox longifolia*, *Anacardium occidentale*, *Anathallis adenochila*, *Anathallis obovata*, *Anaxagorea dolichocarpa*, *Anchieta pyriformis*, *Andira fraxinifolia*, *Anemia phyllitidis*, *Anemopaegma chamberlainii*, *Aniba firmula*, *Annona acutiflora*, *Annona glabra*, *Annona montana*, *Annona sericea*, *Annona sylvatica*, *Anthurium cleistanthum*, *Anthurium harrisii*, *Anthurium parasiticum*, *Anthurium pentaphyllum*, *Anthurium raimundii*, *Anthurium sellowianum*, *Anthurium solitarium*, *Aparisthium cordatum*, *Aristolochia cymbifera*, *Aspidosperma cuspa*, *Aspidosperma polyneuron*, *Asterostigma riedelianum*, *Astrocaryum aculeatissimum*, *Astronium graveolens*, *Attalea humilis*, *Bactris acanthocarpa*, *Bactris bahiensis*, *Bactris caryotifolia*, *Bactris hirta*, *Bactris pickelii*, *Bactris setosa*, *Bactris timbuiensis*, *Bactris vulgaris*, *Bignonia corymbosa*, *Billbergia euphemiae*, *Billbergia leptopoda**, *Billbergia pyramidalis*, *Billbergia tweediana*, *Blechnum serrulatum*, *Blepharocalyx salicifolius*, *Blepharodon pictum*, *Bonnetia stricta*, *Brassavola tuberculata*, *Buchenavia Tetraphylla*, *Byrsonima bahiana*, *Caesalpinia echinata**, *Callichlamys latifolia*, *Calophyllum brasiliense*, *Calyptanthes brasiliensis*, *Campomanesia guaviroba*, *Campylocentrum micranthum*, *Campyloneurum phyllitidis*, *Canistropsis billbergioides*, *Carpotroche brasiliensis*, *Casearia commersoniana*, *Cathedra bahiensis*, *Cathedra rubricaulis*, *Catopsis sessiliflora*, *Cattleya guttata*, *Cattleya harrisoniana*, *Cavanillesia umbellata*, *Ceiba glaziovii*, *Cereus fernambucensis*, *Cheilochlinium serratum*, *Christiana africana*, *Chrysophyllum januariense*, *Chrysophyllum lucentifolium*, *Chrysophyllum splendens*, *Cissus verticillata*, *Cleistes libonii*, *Clethra scabra*, *Clusia fluminensis*, *Clusia hilariana*, *Clusia nemorosa*, *Clusia spiritu-sanctensis*, *Coccoloba alnifolia*, *Coccoloba arborescens*, *Coccoloba declinata*, *Coccoloba laevis*, *Coccoloba rigida*, *Combretum laxum*, *Conchocarpus heterophyllus*, *Conchocarpus insignis*, *Condylocarpon intermedium*, *Cordia taguayensis*, *Cordia trichotoma*, *Couepia ovalifolia*, *Crateva tapia*, *Cratylia hypargyrea*, *Cryptanthus dorotheae*, *Ctenanthe glabra*, *Cupania emarginata*, *Cyathea axillaris*, *Cyathea corcovadensis*, *Cyathea phalerata*, *Cyrtopodium gigas*, *Dalbergia foliolosa*, *Daphnopsis racemosa*, *Davilla rugosa*,

Dendropanax cuneatus, *Desmoncus orthacanthos*, *Desmoncus polyacanthos*, *Dimerandra emarginata*, *Dioclea wilsonii*, *Dioscorea glandulosa*, *Ditassa banksii*, *Ditassa blanchetii*, *Ditassa burchellii*, *Ditassa crassifolia*, *Ditassa guillemianiana*, *Doliocarpus major*, *Dorstenia gracilis*, *Dracontioides desciscens*, *Dryadella aviceps*, *Duguetia bahiensis*, *Dulacia papillosa*, *Dulacia singularis*, *Edmundoa lindenii*, *Endlicheria paniculata*, *Epidendrum carpophorum*, *Epidendrum densiflorum*, *Epidendrum denticulatum*, *Epidendrum flexuosum**, *Epidendrum rigidum*, *Epidendrum secundum*, *Epiphyllum phyllanthus*, *Epistephium lucidum*, *Eriotheca macrophylla*, *Eriotheca pentaphylla*, *Erythroxyllum cuspidifolium*, *Erythroxyllum flaccidum*, *Erythroxyllum hamigerum*, *Erythroxyllum oxypetalum*, *Erythroxyllum passerinum*, *Erythroxyllum subrotundum*, *Erythroxyllum subsessile*, *Eugenia bahiensis*, *Eugenia blastantha*, *Eugenia brasiliensis*, *Eugenia catharinae*, *Eugenia excelsa*, *Eugenia monosperma*, *Eugenia sulcata*, *Eugenia umbelliflora*, *Euterpe edulis**, *Ficus clusifolia*, *Ficus elliotiana*, *Ficus gomelleira*, *Ficus hirsuta*, *Ficus nymphaeifolia*, *Ficus tomentella*, *Forsteronia leptocarpa*, *Geissospermum laeve*, *Geonoma elegans*, *Geonoma rubescens*, *Geonoma schottiana*, *Guatteria campestris*, *Hancornia speciosa*, *Handroanthus bureavii*, *Handroanthus cristatus*, *Handroanthus vellosi*, *Heliconia episcopalis*, *Heliconia pendula*, *Heliconia psittacorum*, *Herreria salsaparilha*, *Heteropsis salicifolia*, *Heteropterys aenea*, *Heteropterys anomala*, *Heteropterys chrysophylla*, *Heteropterys fluminensis*, *Heterotaxis brasiliensis*, *Himatanthus bracteatus*, *Himatanthus phagedaenicus*, *Hippocratea volubilis*, *Hohenbergia augusta*, *Hornschurchia bryotrophe*, *Huberia ovalifolia*, *Humiria balsamifera*, *Humiriastrum dentatum*, *Humiriastrum spiritu-sancti*, *Huperzia mandiocana*, *Hylocereus setaceus*, *Hymenophyllum caudiculatum*, *Hymenophyllum polyanthos*, *Ilex integerrima*, *Ilex theezans*, *Inga capitata*, *Inga exfoliata*, *Inga hispida*, *Inga ingoides*, *Inga laurina*, *Inga sellowiana*, *Inga striata*, *Inga subnuda*, *Inga thibaudiana*, *Inga vera*, *Jacaranda obovata*, *Jacaranda puberula*, *Kielmeyera albopunctata*, *Kielmeyera membranacea*, *Ladenbergia hexandra*, *Laplacea fructicosa*, *Lecythis chartacea*, *Lecythis lurida*, *Lepanthopsis floripecten*, *Letetia cordata*, *Licania heteromorpha*, *Licania kunthiana*, *Licania salzmanni*, *Lophiaris pumila*, *Lundia cordata*, *Lundia virginialis*, *Macoubea guianensis*, *Macroditassa melantha*, *Malaxis parthonii*, *Manilkara bella*, *Manilkara subsericea*, *Maranta divaricata*, *Marcgravia polyantha*, *Marlierea neuwiediana*, *Marlierea tomentosa*, *Marsdenia amorimii**, *Marsdenia dorothyae*, *Marsdenia macrophylla*, *Martiodendron mediterraneum*, *Matayba guianensis*, *Matayba intermedia*, *Maytenus ardisiaefolia*, *Maytenus communis*, *Maytenus distichophylla*, *Maytenus ilicifolia*, *Maytenus longifolia*, *Meliosma sellowii*, *Mendoncia velloziana*, *Mesadenella cuspidata*, *Mesocapparis lineata*, *Miconia albicans*, *Miconia amoena*, *Microgramma vacciniifolia*, *Mikania biformis*, *Mikania glomerata*, *Minaria cordata*, *Monstera adansonii*, *Montrichardia linifera*, *Mouriri arborea*, *Myrcia bergiana*, *Myrcia brasiliensis*, *Myrcia fallax*, *Myrcia ilheosensis*, *Myrcia multiflora*, *Myrcia pubipetala*, *Myrcia racemosa*, *Myrcia richardiana*, *Myrcia vittoriana*, *Myrsine guianensis*, *Myrsine parvifolia*, *Myrsine rubra*, *Myrsine umbellata*, *Myrsine venosa*, *Nectandra cuspidata*, *Nectandra nitidula*, *Nectandra oppositifolia*, *Nectandra psammophila*, *Nectandra puberula*, *Nectandra reticulata*, *Nectanthus fissus*, *Neoregelia carolinae*, *Neoregelia compacta*, *Neoregelia cruenta*, *Neoregelia macrosepala**, *Neoregelia sarmentosa*, *Nidularium innocentii*, *Nidularium procerum*, *Notylia pubescens*, *Ocotea complicata*, *Ocotea daphnifolia*, *Ocotea glauca*, *Ocotea lobbii*, *Ocotea notata*, *Ocotea polyantha*, *Ocotea puberula*, *Ocotea pulchella*, *Oeceoclades maculata*, *Oxandra nitida*, *Parapiptadenia pterosperma*, *Parinari parvifolia*, *Passiflora jileki*, *Paullinia racemosa*, *Paullinia riococensis*, *Paullinia ternata*, *Paullinia trigonia*, *Paullinia weinmanniifolia*, *Peixotoa hispidula*, *Pelexia laxa*, *Peperomia pereskiaefolia*, *Peperomia rupestris*, *Peperomia tetraphylla*, *Peplonia asteria*, *Peplonia axillaris*, *Pera glabrata*, *Pera heteranthera*, *Pereskia aculeata*, *Philodendron bipinnatifidum*, *Philodendron fragrantissimum*, *Philodendron hastatum*, *Philodendron hederaceum*, *Philodendron ochrostemon*, *Philodendron pedatum*, *Phoradendron affine*, *Phoradendron bathyoryctum*, *Phoradendron chrysocladon*, *Phoradendroncrassifolium*, *Phoradendron falcifrons*, *Phoradendron obtusissimum*, *Phoradendron piperoides*, *Phoradendron quadrangulare*, *Piper mollicomum*, *Piptadenia gonoacantha*, *Plathymenia reticulata*, *Platycyamus regnellii*, *Plinia grandifolia*, *Polyandrococos caudescens*, *Polybotrya cylindrica*, *Polystachya concreta*, *Portea petropolitana*, *Posoqueria latifolia*, *Pouteria caimito*, *Pouteria coelomatica*, *Pouteria cuspidata*, *Pouteria grandiflora*, *Pouteria psammophila*, *Pouteria venosa*, *Prescottia oligantha*, *Prescottia plantaginifolia*, *Prescottia stachyoides*, *Prestonia coalita*, *Prosthechea fragrans*, *Prosthechea pygmaea*, *Protium heptaphyllum*, *Protium icicariba*, *Prunus brasiliensis*, *Pseudananas sagenarius*, *Pseudobombax grandiflorum*, *Pseudoxandra spiritussancti*, *Psidium brownianum*, *Psidium cattleianum*, *Psittacanthus dichroos*, *Qualea cryptantha*, *Quararibea penduliflora*, *Rauhiella silvana*, *Rauwolfia paucifolia*, *Rhaphis baccifera*, *Rhaphis floccosa*, *Rodriguezia decora*, *Rourea glabra*, *Rourea glazioui*, *Rourea martiana*, *Sacoglottis mattogrossensis*, *Sacoila lanceolata*, *Sapium gladulosum*, *Sarcoglottis fasciculata*, *Schefflera seloi*, *Schinus terebinthifolius*, *Schizaea elegans*, *Schwartzia brasiliensis*, *Selaginella sulcata*, *Senna angulata*, *Serjania clematidifolia*, *Serjania dentata*, *Serjania ichthyoctona*, *Serjania salzmammiana*, *Serpocaulon triseriale*, *Simaba floribunda*, *Simaba paraensis*, *Simarouba amara*, *Siparuna bifida*, *Sloanea guianensis*, *Smilax rufescens*, *Solanum pseudoquina*, *Sorocea hilarii*, *Specklinia ramphastorhyncha*, *Stenostephanus lobeliiformis*, *Stigmaphyllon blanchetii*, *Stigmaphyllon gayanum*, *Struthanthus flexicaulis*, *Struthanthus marginatus*, *Struthanthus polyrrhizos*, *Struthanthus uraguensis*, *Swartzia linharensis*, *Swartzia oblata*, *Swartzia simplex*, *Syagrus botryophora*, *Syagrus flexuosa*, *Syagrus glaucescens*, *Syagrus picrophylla*, *Syagrus schizophylla*, *Symphonia globulifera*, *Tabebuia cassinoides*, *Tabebuia elliptica*, *Tabebuia rosealba*, *Tabebuia stenocalyx*, *Tabernaemontana catharinensis*, *Tapirira guianensis*, *Tassadia propinqua*, *Temnadenia odorifera*, *Ternstroemia brasiliensis*, *Tibouchina trichopoda*, *Tillandsia gardneri*, *Tillandsia malleomontii*, *Tillandsia recurvata*, *Tillandsia stricta*, *Tillandsia tenuifolia*, *Tillandsia usneoides*, *Tovomitia brasiliensis*, *Tovomitopsis paniculata*, *Trichocentrum fuscum*, *Trichomanes cristatum*, *Tynanthus labiatus*, *Unonopsis stipitata*, *Urvillea glabra*, *Urvillea rufescens*, *Vanilla bahiana*, *Vanilla chamissonis*, *Vantanea obovata*, *Vismia brasiliensis*, *Vismia latifolia*, *Voyria aphylla*, *Voyria flavescens*, *Voyria obconica*, *Vriesea carinata*, *Vriesea erythrodactylon*, *Vriesea gigantea*, *Vriesea jonghei*, *Vriesea longiscapa*, *Vriesea pauperrima*, *Vriesea procera*, *Vriesea rodrigiana*, *Vriesea scalaris*, *Vriesea vagans*, *Xylopia brasiliensis*, *Xylopia laevigata*, *Xylopia langsdorfiana*, *Xylopia ochrantha*, *Xylopia sericea*, *Zanthoxylum monogynum*, *Zeyheria tuberculosa*, *Ziziphus platyphylla*, *Zollernia glabra*, *Zollernia ilicifolia*, *Zygia latifolia*, *Zygopetalum intermedium*.

b) Initial regeneration stage

Achyrocline satureioides, *Acicarpa spathulata*, *Aspilia clauseniana*, *Asplenium lacinulatum*, *Axonopus canescens*, *Axonopus pressus*, *Baccharis crispa*, *Baccharis platypoda*, *Baccharis reticularia*, *Baccharis serrulata*, *Bredemeyera kunthiana*, *Cecropia pachystachya*, *Cenchrus echinatus*, *Chloris barbata*, *Chromolaena odorata*, *Clidemia hirta*, *Croton glandulosus*, *Croton sphaerogynus*, *Cryptochloa capillata*, *Dactyloctenium aegyptium*, *Dalechampia convolvuloides*, *Dicranopteris flexuosa*, *Doryopteris collina*, *Eleusine indica*, *Enydra sessilis*, *Eragrostis pilosa*, *Euphorbia thymifolia*, *Gochnatia polymorpha*, *Hemiscola aculeata*, *Hybanthus calceolaria*, *Hyparrhenia rufa*, *Ichnanthus pallens*, *Indigofera microcarpa*, *Irlbachia purpurascens*, *Lasiacis ligulata*, *Lepidaploa coulonioides*, *Lepidaploa rufogrisea*, *Lepidaploa sororia*, *Mikania biformis*, *Mikania glomerata*, *Mimosa pudica*, *Olyra latifolia*, *Petiveria alliacea*, *Pharus lappulaceus*, *Phyllanthus klotzschianus*, *Phytolacca thyrsoiflora*, *Piper corcovadensis*, *Pityrogramma calomelanos*, *Polygala grandifolia*, *Polygala paniculata*, *Raddia brasiliensis*, *Securidaca diversifolia*, *Senna multijuga*, *Streptochaeta spicata*, *Stylosanthes guianensis*, *Stylosanthes scabra*, *Stylosanthes viscosa*, *Tabernaemontana olivacea*, *Trichogonia salvifolia*, *Trichogoniopsis adenantha*, *Trichogoniopsis podocarpa*, *Trixis antimenorrhoea*, *Turnera subulata*, *Urena lobata*, *Zornia curvata*.

c) Medium regeneration stage

Allophylus leucoclados, *Allophylus puberulus*, *Andira fraxinifolia*, *Angostura bracteata*, *Annona neolaurifolia*, *Balfourodendron riedelianum*, *Bixa arborea*, *Boehmeria cylindrica*, *Calyptanthus ovalifolia*, *Casearia sylvestris*, *Cassytha filiformis*, *Cecropia hololeuca*, *Cecropia pachystachya*, *Celtis iguanaea*, *Centrosema virginianum*, *Cestrum axillare*, *Cestrum bracteatum*, *Chrysophyllum januariense*, *Chrysophyllum lucentifolium*, *Clarisia ilicifolia*, *Clidemia hirta*, *Clusia fluminensis*, *Clusia hilariana*, *Clusia nemorosa*, *Clusia spiritu-sanctensis*, *Coccoloba declinata*, *Conchocarpus heterophyllus*, *Cordia exaltata*, *Cordia sellowiana*, *Cordia trichoclada*, *Croton glandulosus*, *Croton sphaerogynus*, *Croton urucurana*, *Cupania emarginata*, *Cupania rugosa*, *Cupania scrobiculata*, *Dalechampia convolvuloides*, *Davilla rugosa*, *Dictyoloma vandellianum*, *Ditassa banksii*, *Ditassa blanchetii*, *Ditassa burchellii*, *Ditassa crassifolia*, *Ditassa guilleminiana*, *Eugenia cauliflora*, *Eugenia egensis*, *Eugenia macrosperma*, *Eugenia myrcianthes*, *Eugenia neotristis*, *Eugenia nutans*, *Eugenia pauciflora*, *Eugenia platyphylla*, *Eugenia pruniformis*, *Eugenia pyriformis*, *Ficus citrifolia*, *Ficus cyclophylla*, *Ficus mariae*, *Ficus microcarpa*, *Ficus tomentella*, *Ficus trigona*, *Guapira opposita*, *Guapira venosa*, *Guazuma crinita*, *Gurania tricuspidata*, *Helicostylis tomentosa*, *Ilex integerrima*, *Ilex thezanss*, *Inga laurina*, *Jacaratia spinosa*, *Jacquinia armillaris*, *Lindsaea stricta*, *Lonchocarpus cultratus*, *Lonchocarpus sericeus*, *Lygodium volubile*, *Machaerium oblongifolium*, *Machaerium violaceum*, *Margaritaria nobilis*, *Marlierea polygama*, *Marlierea tomentosa*, *Matayba discolor*, *Matayba guianensis*, *Matayba intermedia*, *Meliosma chartacea*, *Miconia francavillana*, *Miconia latecrenata*, *Miconia lepidota*, *Miconia rimalis*, *Minaria cordata*, *Mollinedia engleriana*, *Mollinedia fruticulosa*, *Mollinedia gilgiana*, *Mollinedia heteranthera*, *Mollinedia longifolia*, *Mollinedia stenophylla*, *Myrcia amplexicaulis*, *Myrcia freyreissiana*, *Myrcia pubiflora*, *Myrcia racemosa*, *Myrcia thyrsoidea*, *Neomitranthes obtusa*, *Ocotea nutans*, *Parodiolyra micrantha*, *Passiflora alata*, *Passiflora amethystina*, *Passiflora edulis*, *Passiflora galbana*, *Passiflora haematostigma*, *Passiflora kermesina*, *Passiflora misera*, *Passiflora organensis*, *Passiflora ovalis*, *Passiflora pentagona*, *Passiflora racemosa*, *Passiflora suberosa*, *Paullinia racemosa*, *Paullinia ternata*, *Paullinia trigona*, *Paullinia weinmanniifolia*, *Peplonia axillaris*, *Pera glabrata*, *Pimenta pseudocaryophyllus*, *Posoqueria longiflora*, *Psidium guineense*, *Psidium myrtoides*, *Psidium ovale*, *Psychotria alba*, *Pyrostegia venusta*, *Qualea multiflora*, *Ramisia brasiliensis*, *Rauwolfia grandiflora*, *Rhabdadenia madida*, *Schinus terebinthifolius*, *Senna multijuga*, *Serjania clematidifolia*, *Serjania dentata*, *Serjania ichthyoctona*, *Serjania salzmänniana*, *Sideroxylon obtusifolium*, *Simira eliezeriana*, *Solanum odoriferum*, *Solanum paniculatum*, *Solanum sooretamum*, *Solanum sycocarpum*, *Spiranthera parviflora*, *Stachytarpheta schottiana*, *Stigmaphyllon ciliatum*, *Stigmaphyllon paralias*, *Stryphnodendron polyphyllum*, *Stryphnodendron pulcherrimum*, *Swartzia acutifolia*, *Tabernaemontana flavicans*, *Tabernaemontana laeta*, *Ternstroemia brasiliensis*, *Tibouchina arborea*, *Tibouchina fassinervia*, *Tibouchina macrochiton*, *Tillandsia gardneri*, *Tillandsia mallemonii*, *Tillandsia stricta*, *Tillandsia tenuifolia*, *Tocoyena formosa*, *Tournefortia bicolor*, *Tournefortia breviflora*, *Trema micrantha*, *Trichilia quadrijuga*, *Urvillea glabra*, *Urvillea rufescens*, *Varronia curassavica*, *Vismia martiana*, *Vriesea procera*, *Ximenia americana*, *Zanthoxylum monogynum*.

d) Advanced regeneration stage

Abarema barnebyana, *Abarema brachystachya*, *Abarema filamentosa*, *Acacia plumosa*, *Acanthostachys strobilacea*, *Acianthera saundersiana*, *Actinostemon concolor*, *Adenocalymma assum*, *Adenocalymma marginatum*, *Adenocalymma ternatum*, *Adiantum latifolium*, *Aiouea saligna*, *Alatiglossum ciliatum*, *Alchornea glandulosa*, *Alchornea triplinervia*, *Allophylus leucoclados*, *Allophylus puberulus*, *Amaioua intermedia*, *Amphilophium crucigerum*, *Amphirrhox longifolia*, *Anacardium occidentale*, *Anathallis obovata*, *Anchietea pyriformis*, *Andira fraxinifolia*, *Anemia phyllitidis*, *Anemopaegma chamberlainii*, *Angostura bracteata*, *Aniba firmula*, *Annona acutiflora*, *Annona glabra*, *Annona montana*, *Annona sericea*, *Annona sylvatica*, *Anthurium cleistanthum*, *Anthurium harrisii*, *Anthurium parasiticum*, *Anthurium pentaphyllum*, *Anthurium raimundii*, *Anthurium sellowianum*, *Anthurium solitarium*, *Aspidosperma polyneuron*, *Asterostigma riedelianum*, *Astronium graveolens*, *Bactris hirta*, *Bactris pickelii*, *Bactris setosa*, *Bactris timbuiensis*, *Balfourodendron riedelianum*, *Bignonia corymbosa*, *Bixa arborea*, *Blepharocalyx salicifolius*, *Bonnertia stricta*, *Caesalpinia echinata**, *Callichlamys latifolia*, *Calophyllum brasiliense*, *Calyptanthus brasiliensis*, *Calyptanthus ovalifolia*, *Campomanesiaguaviroba*, *Campylocentrum*

micranthum, *Campyloneurum phyllitidis*, *Canistropsis billbergioides*, *Casearia commersoniana*, *Casearia sylvestris*, *Cathedra bahiensis*, *Cathedra rubricaulis*, *Cattleya guttata*, *Cattleya harrisoniana*, *Cavanillesia umbellata*, *Cecropia glaziovii*, *Cecropia hololeuca*, *Cecropia pachystachya*, *Ceiba glaziovii*, *Cestrum axillare*, *Cestrum bracteatum*, *Cheilochlinium serratum*, *Christiana africana*, *Chrysophyllum januariense*, *Chrysophyllum lucentifolium*, *Chrysophyllum splendens*, *Cissus verticillata*, *Clarisia ilicifolia*, *Cleistes libonii*, *Clethra scabra*, *Clusia fluminensis*, *Clusia hilariana*, *Clusia nemorosa*, *Clusia spiritu-sanctensis*, *Coccoloba alnifolia*, *Coccoloba arborescens*, *Coccoloba declinata*, *Coccoloba laevis*, *Coccoloba rigida*, *Conchocarpus heterophyllum*, *Conchocarpus insignis*, *Cordia exaltata*, *Cordia taguahyensis*, *Cordia trichoclada*, *Couepia ovalifolia*, *Coussapoa microcarpa*, *Cratylia hypargyrea*, *Croton urucurana*, *Cupania emarginata*, *Cupania scrobiculata*, *Cyrtopodium gigas*, *Dalbergia foliolosa*, *Daphnopsis racemosa*, *Davilla rugosa*, *Dendropanax cuneatus*, *Dictyoloma vandellianum*, *Dimerandra emarginata*, *Dioclea wilsonii*, *Dioscorea glandulosa*, *Ditassa banksii*, *Ditassa blanchetii*, *Ditassa burchellii*, *Ditassa crassifolia*, *Ditassa guilleminiana*, *Dracontioides desciscens*, *Dryadella aviceps*, *Duguetia bahiensis*, *Dulacia papillosa*, *Dulacia singularis*, *Endlicheria paniculata*, *Epidendrum carpophorum*, *Epidendrum densiflorum*, *Epidendrum denticulatum*, *Epidendrum flexuosum**, *Epidendrum rigidum*, *Epidendrum secundum*, *Epistephium lucidum*, *Erythroxylum hamigerum*, *Eugenia bahiensis*, *Eugenia blastantha*, *Eugenia brasiliensis*, *Eugenia catharinae*, *Eugenia cauliflora*, *Eugenia egensis*, *Eugenia excelsa*, *Eugenia macrosperma*, *Eugenia monosperma*, *Eugenia myrcianthes*, *Eugenia neotristis*, *Eugenia nutans*, *Eugenia pauciflora*, *Eugenia platyphylla*, *Eugenia pruniformis*, *Eugenia pyriformis*, *Eugenia sulcata*, *Eugenia umbelliflora*, *Euterpe edulis**, *Ficus citrifolia*, *Ficus clusiifolia*, *Ficus cyclophylla*, *Ficus elliotiana*, *Ficus gomelleira*, *Ficus hirsuta*, *Ficus mariae*, *Ficus microcarpa*, *Ficus nymphaeifolia*, *Ficus pertusa*, *Ficus tomentella*, *Ficus trigona*, *Geissospermum laeve*, *Geonoma schottiana*, *Guapira opposita*, *Guapira venosa*, *Guatteria campestris*, *Guazuma crinita*, *Handroanthus bureavii*, *Helicostylis tomentosa*, *Heteropsis salicifolia*, *Heteropterys anomala*, *Heteropterys chrysophylla*, *Heteropterys fluminensis*, *Heterotaxis brasiliensis*, *Himatanthus bracteatus*, *Hippocratea volubilis*, *Hornschurchia bryotrophe*, *Huberia ovalifolia*, *Humiria balsamifera*, *Humiriastrum dentatum*, *Ilex integerrima*, *Ilex theezanss*, *Inga capitata*, *Inga exfoliata*, *Inga ingoides*, *Inga laurina*, *Inga sellowiana*, *Inga striata*, *Inga subnuda*, *Inga thibaudiana*, *Inga vera*, *Jacaranda obovata*, *Jacaranda puberula*, *Jacaratia spinosa*, *Ladenbergia hexandra*, *Laplacea fructicosa*, *Lecythis chartacea*, *Lepanthopsis floripecten*, *Licania heteromorpha*, *Licania kunthiana*, *Licania salzmanni*, *Lindsaea stricta*, *Lonchocarpus cultratus*, *Lonchocarpus sericeus*, *Lophiaris pumila*, *Lundia cordata*, *Lundia virginialis*, *Lygodium volubile*, *Machaerium oblongifolium*, *Machaerium violaceum*, *Malaxis parthonii*, *Manilkara bella*, *Manilkara subsericea*, *Maranta divaricata*, *Maregravia polyantha*, *Margaritaria nobilis*, *Marlierea neuwiediana*, *Marlierea polygama*, *Marlierea tomentosa*, *Martiodendron mediterraneum*, *Matayba discolor*, *Matayba guianensis*, *Matayba intermedia*, *Maytenus ardisiaefolia*, *Maytenus communis*, *Maytenus ilicifolia*, *Maytenus longifolia*, *Meliosma chartacea*, *Meliosma sellowii*, *Mesadenella cuspidata*, *Miconia albicans*, *Miconia amoena*, *Miconia francavillana*, *Miconia latecrenata*, *Miconia lepidota*, *Miconia rimalis*, *Microgramma vacciniifolia*, *Minaria cordata*, *Mollinedia engleriana*, *Mollinedia fruticulosa*, *Mollinedia gilgiana*, *Mollinedia heteranthera*, *Mollinedia longifolia*, *Mollinedia stenophylla*, *Monstera adansonii*, *Montrichardia linifera*, *Mouriri arborea*, *Myrcia amplexicaulis*, *Myrcia bergiana*, *Myrcia brasiliensis*, *Myrcia fallax*, *Myrcia freyreissiana*, *Myrcia ilheosensis*, *Myrcia multiflora*, *Myrcia pubiflora*, *Myrcia pubipetala*, *Myrcia racemosa*, *Myrcia richardiana*, *Myrcia vittoriana*, *Myrsine guianensis*, *Myrsine parvifolia*, *Myrsine rubra*, *Myrsine umbellata*, *Myrsine venosa*, *Nectandra cuspidata*, *Nectandra nitidula*, *Nectandra oppositifolia*, *Nectandra psammophila*, *Nectandra puberula*, *Nectandra reticulata*, *Nematanthus fissus*, *Nidularium innocenti*, *Nidularium procerum*, *Notylia pubescens*, *Ocotea complicata*, *Ocotea daphnifolia*, *Ocotea glauca*, *Ocotea lobbii*, *Ocotea notata*, *Ocotea nutans*, *Ocotea polyantha*, *Ocotea puberula*, *Ocotea pulchella*, *Ocoteclades maculata*, *Parinari parvifolia*, *Parodylora micrantha*, *Passiflora amethystina*, *Passiflora edulis*, *Passiflora galbana*, *Passiflora haematostigma*, *Passiflora jileki*, *Passiflora kermesina*, *Passiflora misera*, *Passiflora organensis*, *Passiflora ovalis*, *Passiflora pentagona*, *Passiflora racemosa*, *Passiflora suberosa*, *Paullinia racemosa*, *Paullinia riodecensis*, *Paullinia ternata*, *Paullinia trigonia*, *Paulliniaweinmanniifolia*, *Peixotoa hispidula*, *Pelexia laxa*, *Peperomia pereskiaefolia*, *Peperomia rupestris*, *Peperomia tetraphylla*, *Peplonia axillaris*, *Pera glabrata*, *Pera heteranthera*, *Pereskia aculeata*, *Philodendron bipinnatifidum*, *Philodendron fragrantissimum*, *Philodendron hastatum*, *Philodendron hederaceum*, *Philodendron ochrostemon*, *Philodendron pedatum*, *Phoradendron affine*, *Phoradendron bathyoryctum*, *Phoradendron chrysocladon*, *Phoradendron crassifolium*, *Phoradendron falcifrons*, *Phoradendron obtusissimum*, *Phoradendron piperoides*, *Phoradendron quadrangulare*, *Pimenta pseudocaryophyllus*, *Piper mollicomum*, *Piptadenia gonoacantha*, *Plathymenia reticulata*, *Platygyamus regnellii*, *Polyandrococos caudescens*, *Polystachya concreta*, *Posoqueria latifolia*, *Posoqueria longiflora*, *Pouteria caimito*, *Pouteria coelomatica*, *Pouteria cuspidata*, *Pouteria grandiflora*, *Pouteria psammophila*, *Pouteria venosa*, *Prescottia oligantha*, *Prescottia plantaginifolia*, *Prescottia stachyoides*, *Prosthechea fragrans*, *Prosthechea pygmaea*, *Protium heptaphyllum*, *Prunus brasiliensis*, *Pseudoxandra spiritus-sancti*, *Psidium brownianum*, *Psidium cattleianum*, *Psidium guineense*, *Psidium myrtoides*, *Psidium ovale*, *Psittacanthus dichroos*, *Psychotria alba*, *Qualea cryptantha*, *Qualea multiflora*, *Ramisia brasiliensis*, *Rauhiella silvana*, *Rhipsalis baccifera*, *Rhipsalis floccosa*, *Rodriguezia decora*, *Romanoa tamnoides*, *Sacoglottis mattogrossensis*, *Sacoila lanceolata*, *Sapium glandulosum*, *Sarcoglottis fasciculata*, *Schinus terebinthifolius*, *Schizaea elegans*, *Schwartzia brasiliensis*, *Selaginella sulcata*, *Serjania clematidifolia*, *Serjania dentata*, *Serjania ichthyoctona*, *Serjania salzmanni*, *Serpocaulon triseriale*, *Sideroxylon obtusifolium*, *Simaba floribunda*, *Simaba paraensis*, *Simarouba amara*, *Simira elzezeriana*, *Siparuna bifida*, *Smilax rufescens*, *Solanum odoriferum*, *Solanum pseudoquina*, *Solanum sooretamum*, *Solanum sycocarpum*, *Sorocea hilarii*, *Specklinia ramphastorhyncha*, *Spiranthera parviflora*, *Stigmaphyllon blanchetii*, *Stigmaphyllon ciliatum*, *Stigmaphyllon gayanum*, *Stigmaphyllon paralias*, *Struthanthus flexicaulis*, *Struthanthus marginatus*, *Struthanthus polyrrhizos*, *Struthanthus uraguensis*, *Stryphnodendron polyphyllum*, *Stryphnodendron pulcherrimum*, *Swartzia acutifolia*, *Swartzia linharensis*, *Swartzia oblata*, *Swartzia simplex*, *Syagrus flexuosa*, *Syagrus glaucescens*, *Syagrus picrophylla*, *Syagrus schizophylla*, *Tabebuia cassinoides*, *Tabebuia stenocalyx*, *Tabernaemontana catharinensis*, *Tabernaemontana hystrix*, *Tabernaemontana salzmanni*, *Tapirira guianensis*, *Tassadia propinqua*, *Temnadenia odorifera*, *Ternstroemia brasiliensis*, *Tibouchina arborea*, *Tibouchina fissinervia*, *Tibouchina*

macrochiton, *Tibouchina trichopoda*, *Tillandsia gardneri*, *Tillandsia mallemontii*, *Tillandsia stricta*, *Tillandsia tenuifolia*, *Tillandsia usneoides*, *Tocoyena formosa*, *Tournefortia bicolor*, *Tournefortia breviflora*, *Tovomitopsis paniculata*, *Trichilia quadrijuga*, *Trichocentrum fuscum*, *Tynanthus labiatus*, *Unonopsis stipitata*, *Urvillea glabra*, *Urvillea rufescens*, *Vanilla bahiana*, *Vanilla chamissonis*, *Vantanea obovata*, *Varronia curassavica*, *Voyria aphylla*, *Voyria flavescens*, *Voyria obconica*, *Vriesea gigantea*, *Vriesea jonghei*, *Vriesea procera*, *Vriesea vagans*, *Ximenia americana*, *Xylopia brasiliensis*, *Xylopia laevigata*, *Xylopia langsdorfiana*, *Xylopia ochrantha*, *Xylopia sericea*, *Zanthoxylum monogynum*, *Ziziphus platyphylla*, *Zollernia glabra*, *Zollernia ilicifolia*, *Zygia latifolia*, *Zygopetalum intermedium*.

IV - Beach Transitional Forest – Another vegetation typology: a) Primary stage

Abarema jupunba, *Abarema filamentosa*, *Abuta convexa*, *Acanthostachys strobilacea*, *Adenocalymma assum*, *Adenocalymma marginatum*, *Adenocalymma ternatum*, *Aechmea bromeliifolia*, *Aechmea floribunda*, *Aechmea lingulata*, *Aechmea ramosa*, *Aechmea saxicola*, *Aegiphila sellowiana*, *Aiouea saligna*, *Albizia pedicellaris*, *Albizia polycephala*, *Amaioua guianensis*, *Amaioua intermedia*, *Ampelocera glabra*, *Amphilophium crucigerum*, *Amphirrhox long ifolia*, *Anaxagorea dolichocarpa*, *Anchietea pyrifolia*, *Andira fraxinifolia*, *Anemia phyllitidis*, *Anemopaegma chamberlaynii*, *Aniba canelilla*, *Aniba firmula*, *Annona acutiflora*, *Annona glabra*, *Annona montana*, *Annona sericea*, *Annona sylvatica*, *Anthurium cleistanthum*, *Anthurium harrisii*, *Anthurium parasiticum*, *Anthurium pentaphyllum*, *Anthurium raimundii*, *Anthurium sellowianum*, *Anthurium solitarium*, *Aristolochia cymbifera*, *Aspidosperma cuspa*, *Aspidosperma olivaceum*, *Aspidosperma parvifolium*, *Aspidosperma polyneuron*, *Asplundia brachypus*, *Asterostigma riedelianum*, *Attalea humilis*, *Aureliana fasciculata*, *Bactris setosa*, *Bignonia corymbosa*, *Billbergia euphemiae*, *Billbergia leptopoda**, *Billbergia pyramidalis*, *Billbergia tweediana*, *Blepharodon pictum*, *Buchenavia Tetraphylla*, *Cabrlea canjerana*, *Callichlamys latifolia*, *Calophyllum brasiliense*, *Campomanesia xanthocarpa*, *Campyloneurum phyllitidis*, *Canistropsis billbergioides*, *Cariniana estrellensis*, *Cassia ferruginea*, *Catopsis sessiliflora*, *Cavanillesia umbellata*, *Cedrela odorata*, *Ceiba glaziovii*, *Cereus fernambucensis*, *Cheiloclinium serratum*, *Chondrodendron platiphyllum*, *Christiana africana*, *Chrysophyllum gonocarpum*, *Chrysophyllum splendens*, *Clarisia racemosa*, *Combretum laxum*, *Condyllocarpum intermedium*, *Copaifera langsdorffii*, *Cordia trichotoma*, *Couepia belemii*, *Couepia schottii*, *Crateva tapia*, *Cyathea axillaris*, *Cyathea corcovadensis*, *Cyathea phalerata*, *Dalbergia nigra**, *Dendropanax cuneatus*, *Dioclea wilsonii*, *Dioscorea glandulosa*, *Diplon cuspidatum*, *Ditassa banksii*, *Ditassa blanchetii*, *Ditassa burchellii*, *Ditassa crassifolia*, *Ditassa guillemianina*, *Doliciarpus major*, *Dracontioides desciscens*, *Edmondia lindenii*, *Emmeorhiza umbellata*, *Emmotum nitens*, *Endlicheria paniculata*, *Eriotheca macrophylla*, *Eriotheca pentaphylla*, *Eschweilera ovata*, *Esenbeckia grandiflora*, *Eugenia blastantha*, *Eugenia luschnathiana*, *Eugenia macrantha*, *Eugenia pisiformis*, *Eugenia subterminalis*, *Euterpe edulis**, *Ficus luschnathiana*, *Ficus pulchella*, *Forsteronia leptocarpa*, *Geissospermum laeve*, *Genipa americana*, *Geonoma elegans*, *Geonoma pohliana*, *Geonoma rubescens*, *Geonoma schottiana*, *Hancornia speciosa*, *Handroanthus cristatus*, *Handroanthus vellosi*, *Heliconia episcopalis*, *Heliconia pendula*, *Heliconia psittacorum*, *Heteropsis salicifolia*, *Heterotaxis brasiliensis*, *Hillia parasitica*, *Himatanthus phagedaenicus*, *Hippocratea volubilis*, *Hiraea bullata**, *Hirtella couepiiflora*, *Hohenbergia augusta*, *Hornschurchia bryotrophe*, *Humiria balsam ifera*, *Humiriastrum dentatum*, *Humiriastrum spiritu-sancti*, *Huperzia mandiocana*, *Hymenaea rubriflora*, *Hymenophyllum caudiculatum*, *Hymenophyllum polyanthos*, *Hyperbaena domingensis*, *Inga capitata*, *Inga hispida*, *Inga laurina*, *Inga sellowiana*, *Inga striata*, *Inga subnuda*, *Inga thibaudiana*, *Inga vera*, *Jacaranda obovata*, *Joannesia princeps*, *Lacistema robustum*, *Laplacea fructicosa*, *Lecythis chartacea*, *Lecythis lurida*, *Leretic cordata*, *Leucaster caniflorus*, *Libidibia ferrea*, *Licania arianaeae*, *Licania hoehnei*, *Lundia virginalis*, *Macoubea guianensis*, *Macroditassa melantha*, *Macrolobium latifolium*, *Manilkara bella*, *Manilkara elata*, *Manilkara long ifolia*, *Maprounea guianensis*, *Maranta divaricata*, *Maranta incrassata*, *Maregravia polyantha*, *Marlierea excoriata*, *Marlierea glabra*, *Marlierea strigipes*, *Marsdenia amorimii**, *Marsdenia dorothyae*, *Marsdenia macrophylla*, *Maytenus ilicifolia*, *Maytenus long ifolia*, *Melanoxylon brauna**, *Meliosma sellowii*, *Mesocapparis lineata*, *Miconia chartacea*, *Microgramma lindbergii*, *Microgramma persicariifolia*, *Micropholis crassipedicellata*, *Micropholis venulosa*, *Mikania bififormis*, *Mikania glomerata*, *Minaria cordata*, *Monstera adansonii*, *Montrichardia linifera*, *Nectandra cuspidata*, *Nectandra membranacea*, *Nectandra nitidula*, *Nectandra puberula*, *Neoregelia carolinae*, *Neoregelia compacta*, *Neoregelia cruenta*, *Neoregelia macrosepala**, *Neoregelia sarmentosa*, *Nidularium innocentii*, *Ocotea aciphylla*, *Ocotea bicolor*, *Ocotea catharinensis**, *Ocotea cernua*, *Ocotea complicata*, *Ocotea corymbosa*, *Ocotea daphnifolia*, *Ocotea diospyrifolia*, *Ocotea divaricata*, *Ocotea elegans*, *Ocotea glauca*, *Ocotea lobbii*, *Ocotea long ifolia*, *Ocotea odorifera**, *Ocotea puberula*, *Ocotea pulchella*, *Ocotea tristis*, *Odontocarya vitis**, *Orthomene schomburgkii*, *Orthosia arenosa*, *Orthosia scoparia*, *Parkia pendula*, *Passiflora jileki*, *Paullinia carpopoda*, *Paullinia rubiginosa*, *Peperomia nitida*, *Peplonia axillaris*, *Pera glabrata*, *Persea aurata*, *Persea splendens*, *Philodendron bipinnatifidum*, *Philodendron fragrantissimum*, *Philodendron hastatum*, *Philodendron hederaceum*, *Philodendron ochrostemon*, *Philodendron pedatum*, *Phoradendron affine*, *Phoradendron bathyoryctum*, *Phoradendron chrysocladon*, *Phoradendron crassifolium*, *Phoradendron falcifrons*, *Phoradendron obtusissimum*, *Phoradendron piperoides*, *Phoradendron quadrangulare*, *Phytolacca dioica*, *Picramnia bahiensis*, *Picramnia gardneri*, *Picramnia glazioviana*, *Piper anonifolium*, *Piper juliflorum*, *Piper mollicomum*, *Piper sprengelianum*, *Piper vicosanum*, *Piptadenia trisperma*, *Platymiscium floribundum*, *Polyandrococos caudescens*, *Portea petropolitana*, *Pouteria bullata*, *Pouteria caimito*, *Pouteria coelomatica*, *Pouteria cuspidata*, *Pouteria peduncularis*, *Pouteria psammophila*, *Pouteria reticulata*, *Pouteria venosa*, *Pradosia lactescens*, *Prestonia coalita*, *Protium heptaphyllum*, *Protium icicariba*, *Prunus brasiliensis*, *Pseudananas sagenarius*, *Pseudobombax grandiflorum*, *Pseudopiptadenia contorta*, *Psidium cattleianum*, *Psychotria nuda*, *Pteris deflexa*, *Pteris denticulata*, *Pterocarpus rohrii*,

Quararibea penduliflora, *Quesnelia quesneliana*, *Randia armata*, *Rauwolfia paucifolia*, *Rhipsalis baccifera*, *Rhipsalis floccosa*, *Rhodostemonodaphne capixabensis**, *Rhodostemonodaphne macrocalyx*, *Rourea glazioui*, *Rourea martiana*, *Rudgea reticulata*, *Sabicea grisea*, *Sacoglottis mattogrossensis*, *Salzmannia nitida*, *Schefflera angustissima*, *Schefflera morototoni*, *Schizaea elegans*, *Schwartzia brasiliensis*, *Selaginella sulcata*, *Senna angulata*, *Serjania caracasana*, *Serjania communis*, *Serjania paradoxa*, *Simaba paraensis*, *Simarouba amara*, *Simira glaziouii*, *Siparuna bifida*, *Siparuna guianensis*, *Sloanea guianensis*, *Sterculia apetala*, *Stromanthe schottiana*, *Swartzia linharensis*, *Swartzia oblata*, *Syagrus botryophora*, *Tabebuia elliptica*, *Tabebuia rosealba*, *Tassadia propinqua*, *Tetrapterys phlomoides*, *Thelypteris interrupta*, *Thelypteris opposita*, *Tibouchina estrellensis*, *Tillandsia geminiflora*, *Tillandsia mallemonii*, *Tillandsia recurvata*, *Tillandsia tenuifolia*, *Tillandsia usneoides*, *Tournefortia rubicunda*, *Trichomanes cristatum*, *Tynanthus labiatus*, *Vantanea obovata*, *Voyria aphylla*, *Voyria flavescens*, *Voyria obconica*, *Vriesea carinata*, *Vriesea erythrodactylon*, *Vriesea gigantea*, *Vriesea longiscapa*, *Vriesea pauperrima*, *Vriesea rodrigasiana*, *Vriesea scalaris*, *Xylopia brasiliensis*, *Xylopia laevigata*, *Xylopia ochrantha*, *Xylopia sericea*, *Zanthoxylum caribaeum*, *Zanthoxylum rhoifolium*, *Ziziphus platyphylla*, *Zollernia glabra*, *Zollernia ilicifolia*, *Zygia latifolia*.

b) Initial regeneration stage

Abarema jupunba, *Achyrocline satureioides*, *Aspilia clauseniana*, *Axonopus canescens*, *Axonopus pressus*, *Baccharis crispata*, *Baccharis platypoda*, *Baccharis reticularia*, *Baccharis serrulata*, *Boehmeria cylindrica*, *Bredemeyera autranii*, *Bredemeyera kunthiana*, *Caperonia buettneriacea*, *Chamaecrista flexuosa*, *Chamaecrista rotundifolia*, *Chiococca alba*, *Chloris barbata*, *Chromolaena odorata*, *Cissus erosa*, *Claviya spinosa*, *Cnidocolus urens*, *Coccocypselum condalia*, *Coccocypselum lanceolatum*, *Coutarea hexandra*, *Cryptochloa capillata*, *Curtia verticillaris*, *Dicranopteris flexuosa*, *Eleusine indica*, *Enydra sessilis*, *Eragrostis pilosa*, *Euphorbia thymifolia*, *Geophila repens*, *Gochnatia polymorpha*, *Helicteres sacarolha*, *Hemiscola aculeata*, *Hybanthus calceolaria*, *Hyparrhenia rufa*, *Ichnanthus nemoralis*, *Ichnanthus pallens*, *Indigofera microcarpa*, *Irlbachia purpurascens*, *Lasiacis ligulata*, *Lepidaploa coulonioides*, *Lepidaploa rufogrisea*, *Lepidaploa sororia*, *Margaritopsis cephalantha*, *Mikania biformis*, *Mikania glomerata*, *Mimosa debilis*, *Mimosa pudica*, *Minaria acerosa*, *Olyra latifolia*, *Pavonia cancellata*, *Petiveria alliacea*, *Pharus lappulaceus*, *Phyllanthus klotzschianus*, *Phytolacca thyrsoiflora*, *Piper corcovadensis*, *Polygala grandifolia*, *Polygala laureola*, *Polygala paniculata*, *Psychotria bahiensis*, *Psychotria brachyceras*, *Psychotria deflexa*, *Psychotria hoffmannseggiana*, *Psychotria myriantha*, *Psychotria stachyoides*, *Raddia brasiliensis*, *Renealmia alpinia*, *Rhynchanthera brachyrhyncha*, *Securidaca diversifolia*, *Senna multijuga*, *Senna occidentalis*, *Senna pendula*, *Setaria scandens*, *Setaria vulpiseta*, *Smilax siphilitica*, *Solanum pseudoquina*, *Streptochaeta spicata*, *Stylosanthes guianensis*, *Stylosanthes scabra*, *Stylosanthes viscosa*, *Tectaria incisa*, *Tibouchina herincquiana*, *Tocoyena bullata*, *Trichogonia salvifolia*, *Trichogoniopsis adenantha*, *Trichogoniopsis podocarpa*, *Trixis antimenorrhoea*, *Turnera subulata*, *Vismia brasiliensis*, *Vismia latifolia*, *Zornia curvata*.

c) Medium regeneration stage

Abrus precatorius, *Actinostemon concolor*, *Albizia pedicellaris*, *Alchornea glandulosa*, *Alchornea triplinervia*, *Allophylus leucocladus*, *Almeidea rubra*, *Alseis floribunda*, *Andira anthelmia*, *Andira fraxinifolia*, *Andradea floribunda*, *Angostura bracteata*, *Aparisthium cordatum*, *Balfourodendron riedelianum*, *Banara parviflora*, *Banisteriopsis membranifolia*, *Boehmeria cylindrica*, *Bougainvillea spectabilis*, *Bredemeyera autranii*, *Brosimum rubescens*, *Byrsonima coccolobifolia*, *Byrsonima sericea*, *Byrsonima verbascifolia*, *Calyptanthus ovalifolia*, *Campyloneurum rigidum*, *Casearia javitensis*, *Casearia oblongifolia*, *Casearia sylvestris*, *Cassytha filiformis*, *Cayaponia tayuya*, *Cayaponia trifoliolata*, *Cecropia glazioui*, *Cecropia hololeuca*, *Cecropia pachystachya*, *Celtis iguanaea*, *Cestrum bracteatum*, *Chamaecrista bahiae*, *Chamaecrista cytisoides*, *Chamaecrista ensiformis*, *Chamaecrista rotundifolia*, *Chionanthus micranthus*, *Cissus erosa*, *Cissus paulliniifolia*, *Cissus pulcherrima*, *Cissus simsiana*, *Cissus sulcicaulis*, *Cissus verticillata*, *Clarisia ilicifolia*, *Claviya spinosa*, *Clematis dioica*, *Clethra scabra*, *Clusia fluminensis*, *Clusia hilariana*, *Clusia nemorosa*, *Clusia spiritu-sanctensis*, *Coccocypselum condalia*, *Coccocypselum lanceolatum*, *Coccoloba declinata*, *Conchocarpus heterophyllus*, *Conchocarpus longifolius*, *Coussapoa curranii*, *Coussapoa microcarpa*, *Coutarea hexandra*, *Cratylia hypargyrea*, *Cryptochloa capillata*, *Cupania furfuracea*, *Cupania oblongifolia*, *Cupania racemosa*, *Cupania rugosa*, *Cupania zanthoxyloides*, *Cybianthus amplus*, *Dalbergia frutescens*, *Daphnopsis coriacea*, *Daphnopsis fasciculata*, *Davilla flexuosa*, *Dictyoloma vandellianum*, *Ditassa banksii*, *Ditassa blanchetii*, *Ditassa burchellii*, *Ditassa crassifolia*, *Ditassa guillemianiana*, *Eugenia bimarginata*, *Eugenia cauliflora*, *Eugenia egensis*, *Eugenia florida*, *Eugenia ilhensis*, *Eugenia macrosperma*, *Eugenia myrcianthes*, *Eugenia neotristis*, *Eugenia nutans*, *Eugenia oblongata*, *Eugenia pauciflora*, *Eugenia platyphylla*, *Eugenia pluriflora*, *Eugenia pruniformis*, *Eugenia puniceifolia*, *Eugenia pyriformis*, *Eugenia speciosa*, *Ficus citrifolia*, *Ficus cyclophylla*, *Ficus mariae*, *Ficus microcarpa*, *Ficus pertusa*, *Ficus tomentella*, *Ficus trigona*, *Guapira cafferiana*, *Guapira hirsuta*, *Guapira laxiflora*, *Guapira venosa*, *Guarea guidonia*, *Guarea macrophylla*, *Guazuma crinita*, *Gurania tricuspidata*, *Heisteria perianthomega*, *Helicostylis tomentosa*, *Helicteres sacarolha*, *Heteropterys macrostachya*, *Hiraea cuneata*, *Jacquinia armillaris*, *Lindsaea lancea*, *Luehea ochrophylla*, *Machaerium aculeatum*, *Machaerium fulvovenosum*, *Machaerium hirtum*, *Machaerium lanceolatum*, *Machaerium oblongifolium*, *Machaerium violaceum*, *Maclura tinctoria*, *Margaritaria nobilis*, *Margaritopsis cephalantha*, *Marlierea polygama*, *Martiodendron mediterraneum*, *Matayba discolor*, *Maytenus schumanniana*, *Meliosma chartacea*, *Methodorea nigra*, *Miconia albicans*, *Miconia cinnamomifolia*, *Miconia francauwillana*, *Miconia latecrenata*, *Miconia lepidota*, *Miconia mirabilis*, *Miconia pusilliflora*, *Miconia rimalis*, *Miconia splendens*, *Minaria acerosa*, *Minaria cordata*, *Mollinedia engleriana*,

Mollinedia fruticulosa, *Mollinedia gilgiana*, *Mollinedia glabra**, *Mollinedia heteranthera*, *Mollinedia long ifolia*, *Mollinedia schottiana*, *Mollinedia stenophylla*, *Myrceugenia miersiana*, *Myrcia amplexicaulis*, *Myrcia freyreissiana*, *Myrcia pub iflora*, *Myrcia splendens*, *Myrciaria floribunda*, *Myrciaria strigipes*, *Myrsine coriacea*, *Myrsine parvifolia*, *Ormosia arborea*, *Orthosia arenosa*, *Orthosia scoparia*, *Osmunda regalis*, *Osmundastrum cinnamomeum*, *Passiflora amethystina*, *Passiflora edulis*, *Passiflora galbana*, *Passiflora haematostigma*, *Passiflora kermesina*, *Passiflora misera*, *Passiflora organensis*, *Passiflora ovalis*, *Passiflora racemosa*, *Passiflora suberosa*, *Peltogyne confertiflora*, *Peplonia axillaris*, *Pera glabrata*, *Pilocarpus riedelianus*, *Pilocarpus spicatus*, *Pimenta pseudocaryophyllus*, *Piper aduncum*, *Piper amalago*, *Piper amplum*, *Piper arboreum*, *Piper divaricatum*, *Piptadenia adiantoides*, *Piptadenia gonocantha*, *Piptadenia paniculata*, *Plathymentia reticulata*, *Platygyamus regnellii*, *Pogonophora schomburgkiana*, *Posoqueria long iflora*, *Pourouma velutina*, *Prockia crucis*, *Pseudananas sagenarius*, *Psidium guineense*, *Psidium myrtoides*, *Psidium ovale*, *Psychotria bahiensis*, *Psychotria brachyceras*, *Psychotria carthagenensis*, *Psychotria deflexa*, *Psychotria hoffmannseggiana*, *Psychotria myriantha*, *Psychotria stachyoides*, *Qualea multiflora*, *Ramisia brasiliensis*, *Rauia nodosa*, *Rauwolfia mattfeldiana*, *Ravenia infelix*, *Rhynchanthera brachyrhyncha*, *Rhynchosia phaseoloides*, *Salacia arborea**, *Salacia elliptica*, *Sapium gladulosum*, *Schinus terebinthifolius*, *Sebastiania brasiliensis*, *SeQUIERIA aculeata*, *Senna alata*, *Senna multijuga*, *Senna pendula*, *Senna silvestris*, *Senna splendida*, *Serjania caracasana*, *Serjania communis*, *Serjania paradoxa*, *Sesbania virgata*, *Sideroxylon obtusifolium*, *Simira eliezeriana*, *Smilax syphilitica*, *Solanum asperum*, *Solanum caavurana*, *Solanum insidiosum*, *Solanum martii*, *Solanum mauritanium*, *Solanum odoriferum*, *Solanum palinacanthum*, *Solanumpaniculatum*, *Solanumpseudoquina*, *Solanum sooretamum*, *Solanum sycocarpum*, *Sorocea guilleminiana*, *Sparattanthelium botocodorum*, *Spiranthera parviflora*, *Stephanopodium blanchetianum*, *Strychnos parvifolia*, *Stryphnodendron polyphyllum*, *Stryphnodendron pulcherrimum*, *Swartzia acutifolia*, *Tabebuia aurea*, *Tapirira guianensis*, *Tectaria incisa*, *Terminalia glabrescens*, *Tetrapterys glabra*, *Tibouchina arborea*, *Tibouchina fissinervia*, *Tibouchina herincuihana*, *Tibouchina macrochiton*, *Tillandsia gardneri*, *Tillandsia mallefontii*, *Tillandsia tenuifolia*, *Tocoyena bullata*, *Tontelea miersii*, *Tournefortia bicolor*, *Tournefortia breviflora*, *Tournefortia membranacea*, *Tournefortia villosa*, *Trema micrantha*, *Trichilia casaretti*, *Trichilia elegans*, *Trichilia pallens*, *Trichilia pseudostipularis*, *Trichilia quadrijuga*, *Trichilia silvatica*, *Trigonia nivea*, *Vigna candida*, *Vismia brasiliensis*, *Vismia latifolia*, *Vismia martiana*, *Vochysia laurifolia*, *Vochysia tucanorum*.d) Advanced regeneration stage

Abrus precatorius, *Abarema filamentosa*, *Abuta convexa*, *Acacia plumosa*, *Acanthostachys strobilacea*, *Adenocalymma assum*, *Adenocalymma marginatum*, *Adenocalymma ternatum*, *Aechmea floribunda*, *Aechmea lingulata*, *Aechmea saxicola*, *Aegiphila sellowiana*, *Aiouea saligna*, *Albizia pedicellaris*, *Albizia polycephala*, *Alchornea glandulosa*, *Alchornea triplinervia*, *Allophylus leucoclados*, *Alseis floribunda*, *Amaioua guianensis*, *Amaioua intermedia*, *Ampelocera glabra*, *Amphilophium crucigerum*, *Amphirrhox long ifolia*, *Anaxagorea dolichocarpa*, *Anchietea pyriformis*, *Andira anthelmia*, *Andira fraxinifolia*, *Anemia phyllitidis*, *Anemopaegma chamberlaynii*, *Angostura bracteata*, *Aniba canelilla*, *Aniba firmula*, *Annona acutiflora*, *Annona glabra*, *Annona montana*, *Annona sericea*, *Annona sylvatica*, *Anthurium cleistanthum*, *Anthurium harrisii*, *Anthurium parasiticum*, *Anthurium pentaphyllum*, *Anthurium raimundii*, *Anthurium sellowianum*, *Anthurium solitarium*, *Aparisthium cordatum*, *Aspidosperma polyneuron*, *Asterostigma riedelianum*, *Aureliana fasciculata*, *Bactris setosa*, *Balfourodendron riedelianum*, *Banara parviflora*, *Banisteriopsis membranifolia*, *Bignonia corymbosa*, *Bougainvillea spectabilis*, *Brosimum rubescens*, *Buchenavia tetraphylla*, *Byrsonima coccolobifolia*, *Byrsonima sericea*, *Byrsonima verbascifolia*, *Cabrlea canjerana*, *Callichlamys latifolia*, *Calyptanthes ovalifolia*, *Campomanesia xanthocarpa*, *Campyloneurum phyllitidis*, *Campyloneurum rigidum*, *Canistropsis billbergioides*, *Cariniana estrellensis*, *Casearia javitensis*, *Casearia oblong ifolia*, *Casearia sylvestris*, *Cassia ferruginea*, *Cavanillesia umbellata*, *Cecropia hololeuca*, *Cecropia pachystachya*, *Cedrela odorata*, *Ceiba glaziovii*, *Cestrum bracteatum*, *Chamaecrista bahiae*, *Chamaecrista ensiformis*, *Cheiloclinium serratum*, *Chionanthus micranthus*, *Chondrodendron platiphyllum*, *Christiana africana*, *Chrysophyllum gonocarpum*, *Chrysophyllum splendens*, *Cissus paulliniifolia*, *Cissus pulcherrima*, *Cissus simsiana*, *Cissus sulcicaulis*, *Cissus verticillata*, *Clarisia ilicifolia*, *Clarisia racemosa*, *Clematis dioica*, *Clethra scabra*, *Clusia fluminensis*, *Clusia hilariana*, *Clusia nemorosa*, *Clusia spiritu-sanctensis*, *Coccoloba declinata*, *Combretum laxum*, *Conchocarpus heterophyllum*, *Conchocarpus long ifolius*, *Copaifera langsdorffii*, *Cordia trichotoma*, *Couepia venosa*, *Coussapoa curranii*, *Cupania furfuracea*, *Cupania oblong ifolia*, *Cupania racemosa*, *Cupania zanthoxyloides*, *Cyathea axillaris*, *Cyathea corcovadensis*, *Cyathea phalerata*, *Cybianthus amplus*, *Dalbergia frutescens*, *Daphnopsis coriacea*, *Daphnopsis fasciculata*, *Davilla flexuosa*, *Dendropanax cuneatus*, *Dictyoloma vandellianum*, *Dioclea wilsonii*, *Dioscorea glandulosa*, *Diploon cuspidatum*, *Ditassa banksii*, *Ditassa blanchetii*, *Ditassa burchellii*, *Ditassa crassifolia*, *Ditassa guilleminiana*, *Doliocarpus major*, *Dracontioides desciscens*, *Emmeorhiza umbellata*, *Emmotum nitens*, *Endlicheria paniculata*, *Eschweilera ovata*, *Esenbeckia grandiflora*, *Eugenia blastantha*, *Eugenia cauliflora*, *Eugenia egensis*, *Eugenia florida*, *Eugenia ilhensis*, *Eugenia luschnathiana*, *Eugenia macrantha*, *Eugenia macrosperma*, *Eugenia myrcianthes*, *Eugenia neotristis*, *Eugenia nutans*, *Eugenia oblongata*, *Eugenia pauciflora*, *Eugenia pisiformis*, *Eugenia platyphylla*, *Eugenia pruniformis*, *Eugenia puniceifolia*, *Eugenia pyriformis*, *Eugenia speciosa*, *Eugenia subterminalis*, *Euterpe edulis**, *Ficus citrifolia*, *Ficus cyclophylla*, *Ficus luschnathiana*, *Ficus mariae*, *Ficus microcarpa*, *Ficus pulchella*, *Ficus tomentella*, *Ficus trigona*, *Geissospermum laeve*, *Genipa americana*, *Guapira cafferiana*, *Guapira hirsuta*, *Guapira laxiflora*, *Guapira venosa*, *Guarea guidonia*, *Guarea macrophylla*, *Guazuma crinita*, *Heisteria perianthomega*, *Heliconia episcopalis*, *Helicostylis tomentosa*, *Heteropsis salicifolia*, *Heteropterys macrostachya*, *Heterotaxis brasiliensis*, *Hillia parasitica*, *Hippocratea volubilis*, *Hiraea bullata**, *Hiraea cuneata*, *Hornschuchia bryotrophe*, *Humiria balsam ifera*, *Humiriastrum dentatum*, *Hymenaea rubriflora*, *Hyperbaena domingensis*, *Inga capitata*, *Inga laurina*, *Inga sellowiana*, *Inga striata*, *Inga subnuda*, *Inga thibaudiana*, *Inga vera*, *Jacaranda obovata*, *Joannesia princeps*, *Laplacea fructicosa*, *Lecythis chartacea*, *Leucaster caniflorus*, *Libidibia ferrea*, *Lindsaea lancea*, *Luehea ochrophylla*, *Lundia virginalis*, *Machaerium hirtum*, *Machaerium lanceolatum*, *Machaerium oblong ifolium*, *Machaerium violaceum*, *Maclura tinctoria*, *Manilkara bella*, *Manilkara*

elata, *Manilkara longifolia*, *Maprounea guianensis*, *Maranta divaricata*, *Maranta incrassata*, *Marcgravia polyantha*, *Margaritaria nobilis*, *Marlierea excoriata*, *Marlierea glabra*, *Marlierea polygama*, *Marlierea strigipes*, *Martiodendron mediterraneum*, *Matayba discolor*, *Maytenus ilicifolia*, *Maytenus longifolia*, *Maytenus schumanniana*, *Meliosmachartacea*, *Meliosma sellowii*, *Metrodorea nigra*, *Miconia chartacea*, *Miconia francauillana*, *Miconia latecrenata*, *Miconia lepidota*, *Miconia mirabilis*, *Miconia pusilliflora*, *Miconia rimalis*, *Miconia splendens*, *Microgramma lindbergii*, *Microgramma persicariifolia*, *Micropholis crassipedicellata*, *Micropholis venulosa*, *Minaria cordata*, *Mollinedia engleriana*, *Mollinedia fruticulosa*, *Mollinedia gilgiana*, *Mollinedia heteranthera*, *Mollinedia longifolia*, *Mollinedia schottiana*, *Mollinedia stenophylla*, *Monstera adansonii*, *Montrichardia linifera*, *Myrceugenia miersiana*, *Myrcia amplexicaulis*, *Myrcia freyreissiana*, *Myrcia pubiflora*, *Myrcia splendens*, *Nectandra cuspidata*, *Nectandra membranacea*, *Nectandra nitidula*, *Nectandra puberula*, *Neomitranthes langsdorffii*, *Neoregelia cruenta*, *Nidularium innocentii*, *Ocotea aciphylla*, *Ocotea bicolor*, *Ocotea cernua*, *Ocotea complicata*, *Ocotea corymbosa*, *Ocotea daphnifolia*, *Ocotea diospyrifolia*, *Ocotea divaricata*, *Ocotea elegans*, *Ocotea glauca*, *Ocotea lobbii*, *Ocotea longifolia*, *Ocotea odorifera**, *Ocotea puberula*, *Ocotea pulchella*, *Ocotea tristis*, *Odontocarya vitis**, *Ormosia arborea*, *Orthomene schomburgkii*, *Orthosia arenosa*, *Orthosia scoparia*, *Osmunda regalis*, *Osmundastrum cinnamomeum*, *Parkia pendula*, *Passiflora amethystina*, *Passiflora edulis*, *Passiflora galbana*, *Passiflora haematostigma*, *Passiflora jileki*, *Passiflora kermesina*, *Passiflora misera*, *Passiflora organensis*, *Passiflora ovalis*, *Passiflora racemosa*, *Passiflora suberosa*, *Paullinia carpopoda*, *Paullinia rubiginosa*, *Peltogyne confertiflora*, *Peperomia nitida*, *Peplonia axillaris*, *Pera glabrata*, *Persea aurata*, *Persea splendens*, *Philodendron bipinnatifidum*, *Philodendron fragrantissimum*, *Philodendron hastatum*, *Philodendron hederaceum*, *Philodendron ochrostemon*, *Philodendron pedatum*, *Phoradendron affine*, *Phoradendron bathyoryctum*, *Phoradendron chrysocladon*, *Phoradendron crassifolium*, *Phoradendron falcifrons*, *Phoradendron obtusissimum*, *Phoradendron piperoides*, *Phoradendron quadrangulare*, *Phytolacca dioica*, *Picramnia bahiensis*, *Picramnia gardneri*, *Picramnia glazioviana*, *Pilocarpus riedelianus*, *Pilocarpus spicatus*, *Pimenta pseudocaryophyllus*, *Piper aduncum*, *Piper anonifolium*, *Piper divaricatum*, *Piper juliflorum*, *Piper mollicomum*, *Piper sprengelianum*, *Piper vicosanum*, *Piptadenia adiantoides*, *Piptadenia gonoacantha*, *Piptadenia paniculata*, *Piptadenia trisperma*, *Plathymentia reticulata*, *Platycyamus regnellii*, *Platymiscium floribundum*, *Plinia rivularis*, *Pogonophora schomburgkiana*, *Polyandrococos caudescens*, *Posoqueria latifolia*, *Posoqueria longiflora*, *Pourouma velutina*, *Pouteria bullata*, *Pouteria caimito*, *Pouteria coelomatica*, *Pouteria cuspidata*, *Pouteria peduncularis*, *Pouteria psammophila*, *Pouteria reticulata*, *Pouteria venosa*, *Pradosia lactescens*, *Prestonia coalita*, *Prockia crucis*, *Protium heptaphyllum*, *Protium icicariba*, *Prunus brasiliensis*, *Pseudananas sagenarius*, *Pseudopiptadenia contorta*, *Psidium cattleianum*, *Psidium guineense*, *Psidium myrtilloides*, *Psidium ovale*, *Psychotria carthagenensis*, *Psychotria nuda*, *Pteris deflexa*, *Pteris denticulata*, *Pterocarpus rohrii*, *Qualea multiflora*, *Quararibea penduliflora*, *Ramisia brasiliensis*, *Randia armata*, *Rauia nodosa*, *Ravenia infelix*, *Rhipsalis baccifera*, *Rhipsalis floccosa*, *Rhodostemonodaphne capixabensis**, *Rhodostemonodaphne macrocalyx*, *Rhynchosia phaseoloides*, *Rourea glazioui*, *Rudgea reticulata*, *Sabicea grisea*, *Sacoglottis mattogrossensis*, *Salacia arborea**, *Salacia elliptica*, *Salzmannia nitida*, *Schefflera angustissima*, *Schefflera morototoni*, *Schizaea elegans*, *Schwartzia brasiliensis*, *Seguiera aculeata*, *Selaginella sulcata*, *Senna angulata*, *Serjania caracasana*, *Serjania communis*, *Serjania paradoxa*, *Sideroxylon obtusifolium*, *Simaba paraensis*, *Simarouba amara*, *Simira eliezeriana*, *Simira glaziovii*, *Siparuna bifida*, *Siparuna guianensis*, *Siphoneugena densiflora*, *Sloanea guianensis*, *Solanum asperum*, *Solanum mauritianum*, *Solanum odoriferum*, *Solanum pseudoquina*, *Solanum sooretamum*, *Solanum sycocarpum*, *Sorocea guilleminiana*, *Sparattanthelium botocudorum*, *Spiranthera parviflora*, *Stephanopodium blanchetianum*, *Sterculia apetala*, *Stromanthe schottiana*, *Strychnos parvifolia*, *Stryphnodendron polyphyllum*, *Stryphnodendron pulcherrimum*, *Swartzia acutifolia*, *Swartzia linharensis*, *Swartzia oblata*, *Tabebuia aurea*, *Tapirira guianensis*, *Tassadia propinqua*, *Terminalia glabrescens*, *Tetrapterys glabra*, *Tetrapterys phlomoides*, *Thelypteris interrupta*, *Thelypteris opposita*, *Tibouchina arborea*, *Tibouchina fissinervia*, *Tibouchina macrochiton*, *Tillandsia gardneri*, *Tillandsia geminiflora*, *Tillandsia mallemonii*, *Tillandsia recurvata*, *Tillandsia tenuifolia*, *Tillandsia usneoides*, *Tontelea miersii*, *Tournefortia bicolor*, *Tournefortia breviflora*, *Tournefortia rubicunda*, *Trichilia casaretti*, *Trichilia pallens*, *Trichilia pseudostipularis*, *Trichilia quadrijuga*, *Trichilia silvatica*, *Tynanthus labiatus*, *Vantanea obovata*, *Vochysia tucanorum*, *Voyria aphylla*, *Voyria flavescens*, *Voyria obconica*, *Vriesea gigantea*, *Vriesea rodigasiana*, *Xylopia brasiliensis*, *Xylopia laevigata*, *Xylopia ochrantha*, *Xylopia sericea*, *Zanthoxylum caribaeum*, *Ziziphus platyphylla*, *Zollernia glabra*, *Zollernia ilicifolia*.

Art. 2 This Resolution shall enter into effect on the date of its publication.

FRANCISCO GAETANI – Acting Council `President

(*) endemic and rare species and species threatened with extinction.

This text does not substitute the text published in the Official Gazette on Jan. 3, 2012.

RESOLUTION 439, December 30, 2011

Published in Official Gazette 2 on Jan. 3, 2012

Approves the list of successional stages indicator species of the Beach vegetation in the State of Paraíba, according to Resolution 417 from Nov. 23, 2009.

THE NATIONAL ENVIRONMENT COUNCIL – CONAMA, in accordance with the power bestowed upon the Council by art. 8, item I of Law 6.938 from August 31, 1981, and considering the provisions of art. 4, § 1 of Law 11.428 from December 22, 2006 and CONAMA Resolution 417 from December 23, 2009, decides:

Art. 1 The indicator species of primary vegetation and of the different successional secondary stages of the Atlantic Forest vegetation, which are the subject of art. 4 of Law 11.428 from Dec. 22, 2009 and § 1 of art. 3 of CONAMA Resolution 417 from Nov. 23, 2009, in the State of Paraíba, are:

I – Beach Herbaceous and Sub-Shrubby Vegetation:

a) Climax vegetation

Acanthospermum hispidum, *Acrocomia aculeata*, *Aechmea muricata**, *Alternanthera brasiliana*, *Alternanthera littoralis*, *Andira laurifolia*, *Aristida setifolia*, *Bidens pilosa*, *Blutaparon portulacoides*, *Bulbostylis capillaris*, *Bulbostylis paradoxa*, *Canavalia brasiliensis*, *Canavalia ensiformis*, *Canavalia rosea*, *Cayaponia angustiloba*, *Cenchrus ciliaris*, *Cenchrus echinatus*, *Centrosema arenarium*, *Centrosema virginianum*, *Chromolaena laevigata*, *Chrysobalanus icaco*, *Cnidioscolus urens*, *Commelina diffusa*, *Commelina erecta*, *Cuphea flava*, *Cynodon dactylon*, *Cyperus esculentus*, *Cyperus ligularis*, *Cyperus surinamensis*, *Cyrtopodium holstii*, *Dactyloctenium aegyptium*, *Dalbergia ecastaphyllum*, *Dalechampia micromeria*, *Dalechampia scandens*, *Digitaria horizontalis*, *Diodella teres*, *Dodonaea viscosa*, *Emilia fosbergii*, *Emilia sonchifolia*, *Eragrostis ciliaris*, *Eugenia punicifolia*, *Eupatorium ballotifolium*, *Euphorbia hyssopifolia*, *Fimbristylis cymosa*, *Galactia striata*, *Gaylussacia brasiliensis*, *Hippeastrum stylosum*, *Hybanthus calceolaria*, *Indigofera hirsuta*, *Ipomoea pes-caprae*, *Krameria tomentosa*, *Kyllinga odorata*, *Lantana camara*, *Laportea aestuans*, *Mandevilla scabra*, *Marsypianthes chamaedrys*, *Melocactus violaceus*, *Melocactus zehntneri*, *Merremia macrocalyx*, *Microtea paniculata*, *Mollugo verticillata*, *Oxypetalum appendiculatum*, *Panicum aquaticum*, *Paspalum maritimum*, *Paspalum scutatum*, *Paspalum vaginatum*, *Piper corcovadensis*, *Plumbago scandens*, *Portulaca oleracea*, *Remirea maritima*, *Ruellia asperula*, *Sauvagesia sprengelii*, *Scoparia dulcis*, *Sebastiania glandulosa*, *Senna uniflora*, *Sophora tomentosa*, *Sporobolus virginicus*, *Stenotaphrum secundatum*, *Stylosanthes viscosa*, *Tarenaya spinosa*, *Tephrosia cinerea*, *Thelypteris serrata*, *Tilesia baccata*, *Utricularia foliosa*, *Utricularia subulata*, *Vigna halophila*, *Zornia latifolia*.

II – Beach shrub vegetation: a) Primary stage

Aechmea nudicaulis, *Allamanda blanchetii*, *Allamanda cathartica*, *Andira nitida*, *Bernardia axillaris*, *Borreria verticillata*, *Byrsonima sericea*, *Chaetocarpus myrsinites*, *Chiococca alba*, *Chrysobalanus icaco*, *Conocarpus erectus*, *Cordia exaltata*, *Couepia rufa*, *Cyrtopodium holstii*, *Dalbergia ecastaphyllum*, *Diospyros inconstans*, *Dodonaea viscosa*, *Duguetia gardneriana*, *Eragrostis ciliaris*, *Erythroxylum andrei*, *Eugenia punicifolia*, *Eugenia umbelliflora*, *Eugenia uniflora*, *Euphorbia heterophylla*, *Gaylussacia brasiliensis*, *Guapira pernambucensis*, *Hirtella ciliata*, *Indigofera suffruticosa*, *Jacquinia armillaris* Jacq., *Licania littoralis*, *Mandevilla scabra*, *Marcetia taxifolia*, *Maytenus erythroxyla*, *Maytenus obtusifolia*, *Maytenus opaca*, *Mimosa invisa*, *Myrcia sylvatica*, *Oeceoclades maculata*, *Passiflora jileki*, *Passiflora kermesina*, *Passiflora mucronata*, *Passiflora subrotunda*, *Pilosocereus hapalacanthus*, *Prescottia plantaginifolia*, *Serjania salzmanniana*, *Solanum avurana*, *Solanum paludosum*, *Solanum paniculatum*, *Solanum rhytidoandrum*, *Sophora tomentosa*, *Stigmaphyllon blanchetii*, *Swartzia simplex*, *Syagrus schizophylla*, *Talipariti tiliaceum*, *Thelypteris serrata*, *Thyrsodium spruceanum*, *Tillandsia gardneri*, *Tillandsia stricta*, *Tillandsia tenuifolia*, *Tocoyena sellowiana*, *Tournefortia rubicunda*, *Urena lobata*, *Vriesea procera*.

b) Initial regeneration stage

Acanthospermum hispidum, *Astrea lobata*, *Bidens pilosa*, *Canavalia ensiformis*, *Cayaponia angustiloba*, *Cenchrus ciliaris*, *Cenchrus echinatus*, *Chamaecrista hispidula*, *Chloris barbata*, *Chromolaena laevigata*, *Citrullus vulgaris*, *Crotalaria retusa*, *Crotalaria vitellina*, *Cyperus odoratus*, *Dactyloctenium aegyptium*, *Dalechampia micromeria*, *Dalechampia scandens*, *Desmodium adscendens*, *Desmodium barbatum*, *Desmodium glabrum*, *Desmodium incanum*, *Desmodium triflorum*, *Digitaria horizontalis*, *Digitaria insularis*, *Diodella teres*, *Emilia fosbergii*, *Emilia sonchifolia*, *Eupatorium ballotifolium*, *Euphorbia hyssopifolia*, *Galactia striata*, *Hemiscola aculeata*, *Hybanthus calceolaria*, *Hyparrhenia rufa*, *Indigofera hirsuta*, *Indigofera suffruticosa*, *Laportea aestuans*, *Merremia aegyptia*, *Momordica charantia*, *Petiveria alliacea*, *Phytolacca thyrsoflora*, *Piper corcovadensis*, *Polygala hebeclada*, *Portulaca oleracea*, *Pycneus lanceolatus*, *Richeria grandis*, *Sida paniculata*, *Solanum americanum*, *Stylosanthes scabra*, *Stylosanthes viscosa*, *Tarenaya spinosa*, *Tephrosia cinerea*, *Tilesia baccata*, *Zornia reticulata*.

c) Medium regeneration stage

Acrostichum aureum, *Astrea lobata*, *Cassytha filiformis*, *Centrosema virginianum*, *Chamaecrista*

hispidula, *Dalechampia micromeria*, *Dalechampia scandens*, *Richeria grandis*, *Stigmaphyllon paralias*, *Talipariti tiliaceum*, *Tillandsia stricta*.

d) Advanced regeneration stage

Acrostichum aureum, *Aechmea nudicaulis*, *Andira nitida*, *Astrea lobata*, *Borreria verticillata*, *Chiococca alba*, *Dodonaea viscosa*, *Eugenia puniceifolia*, *Eugenia uniflora*, *Gaylussacia brasiliensis*, *Guapira pernambucensis*, *Jacquinia armillaris*, *Marcetia taxifolia*, *Myrcia sylvatica*, *Oeceoclades maculata*, *Passiflora jileki*, *Passiflora kermesina*, *Passiflora mucronata*, *Passiflora subrotunda*, *Prescottia plantaginifolia*, *Rudgea sessilis*, *Serjania salzmanniana*, *Solanum caavurana*, *Solanum paludosum*, *Solanum paniculatum*, *Solanum rhytidoandrum*, *Stigmaphyllon blanchetii*, *Stigmaphyllon paralias*, *Talipariti tiliaceum*, *Thelypteris serrata*, *Tillandsia gardneri*, *Tillandsia stricta*, *Tillandsia tenuifolia*, *Tocoyena sellowiana*, *Tournefortia rubicunda*, *Vriesea procera*.

III - Beach arboreal vegetation:

a) Primary stage

Abrus precatorius, *Allophylus puberulus*, *Amphilophium crucigerum*, *Amphilophium vauthieri*, *Anacardium occidentale*, *Andira fraxinifolia*, *Andira vermifuga*, *Annona glabra*, *Anthurium affine*, *Anthurium harrisii*, *Aspidosperma cuspa*, *Asterostigma luschnathianum*, *Astronium graveolens*, *Bactris acanthocarpa*, *Buchenavia Tetraphylla*, *Caesalpinia echinata**, *Calophyllum brasiliense*, *Campomanesia dichotoma*, *Capparis flexuosa*, *Cereus fernambucensis*, *Cissus verticillata*, *Coccoloba cordifolia*, *Copaifera duckei*, *Couepia rufa*, *Curatella americana*, *Cyrtopodium gigas*, *Duguetia gardneriana*, *Enterolobium contortisiliquum*, *Eugenia brasiliensis*, *Ficus gomelleira*, *Hancornia speciosa*, *Handroanthus chrysotrichus*, *Handroanthus impetiginosus*, *Heliconia angustifolia*, *Hippocratea volubilis*, *Hohenbergia ridleyi*, *Humiria balsamifera*, *Inga capitata*, *Inga laurina*, *Inga thibaudiana*, *Licania littoralis*, *Manilkara salzmannii*, *Matayba elaeagnoides*, *Maytenus distichophylla*, *Montrichardia linifera*, *Myrsine guianensis*, *Ocotea gardneri*, *Oeceoclades maculata*, *Passiflora jileki*, *Peltogyne recifensis*, *Pera glabrata*, *Phoradendron affine*, *Phoradendron chrysocladon*, *Phoradendron falcifrons*, *Pilosocereus hapalacanthus*, *Poecilanthe falcata*, *Pouteria venosa*, *Prescottia plantaginifolia*, *Prestonia coalita*, *Protium heptaphyllum*, *Sacoglottis mattogrossensis*, *Serjania salzmanniana*, *Simaba ferruginea*, *Sorocea bonplandii*, *Stigmaphyllon blanchetii*, *Swartzia simplex*, *Syagrus oleracea*, *Syagrus schizophylla*, *Symphonia globulifera*, *Tabebuia roseoalba*, *Tapirira guianensis*, *Tetracera breyniana*, *Tetracera oblongata*, *Thyrsodium spruceanum*, *Tillandsia gardneri*, *Tillandsia recurvata*, *Tillandsia stricta*, *Tillandsia tenuifolia*, *Tillandsia usneoides*, *Vismia guianensis*, *Voyria obconica*, *Vriesea procera*, *Zollernia ilicifolia*.

b) Initial regeneration stage

Acanthospermum hispidum, *Astrea lobata*, *Bidens pilosa*, *Canavalia ensiformis*, *Cayaponia angustiloba*, *Cecropia pachystachya*, *Cenchrus ciliaris*, *Cenchrus echinatus*, *Centrosema pascuorum*, *Chamaecrista hispidula*, *Chloris barbata*, *Chromolaena laevigata*, *Citrullus vulgaris*, *Crotalaria retusa*, *Crotalaria vitellina*, *Cyperus odoratus*, *Dactyloctenium aegyptium*, *Dalechampia micromeria*, *Dalechampia scandens*, *Desmodium adscendens*, *Desmodium barbatum*, *Desmodium glabrum*, *Desmodium incanum*, *Desmodium triflorum*, *Digitaria ciliaris*, *Digitaria horizontalis*, *Digitaria insularis*, *Dodonaea viscosa*, *Emilia fosbergii*, *Emilia sonchifolia*, *Eugenia vattimoana*, *Eupatorium ballotifolium*, *Euphorbia hyssopifolia*, *Galactia striata*, *Hemiscola aculeata*, *Hybanthus calceolaria*, *Hyparrhenia rufa*, *Indigofera hirsuta*, *Indigofera suffruticosa*, *Jacquemontia montana*, *Laportea aestuans*, *Merremia aegyptia*, *Mimosa caesalpiniiifolia*, *Momordica charantia*, *Oplismenus hirtellus*, *Petiveria alliacea*, *Phytolacca thyrsoiflora*, *Piper corcovadensis*, *Polygala hebeclada*, *Pycreus lanceolatus*, *Sida ciliaris*, *Sida paniculata*, *Solanum americanum*, *Stylosanthes scabra*, *Stylosanthes viscosa*, *Tephrosia cinerea*, *Tilesia baccata*, *Urena lobata*, *Waltheria viscosissima*, *Zornia reticulata*.

c) Medium regeneration stage

Allophylus puberulus, *Andira fraxinifolia*, *Astrea lobata*, *Calypttranthes lucida*, *Casearia sylvestris*, *Cassytha filiformis*, *Cecropia pachystachya*, *Centrosema pascuorum*, *Centrosema virginianum*, *Cestrum axillare*, *Chamaecrista hispidula*, *Cordia exaltata*, *Dalechampia micromeria*, *Dalechampia scandens*, *Dodonaea viscosa*, *Duguetia gardneriana*, *Erythroxylum andrei*, *Eugenia vattimoana*, *Euphorbia heterophylla*, *Inga blanchetiana*, *Jacquinia armillaris* Jacq., *Mimosa caesalpiniiifolia*, *Momordica charantia*, *Myrcia sylvatica*, *Passiflora cincinnata*, *Passiflora foetida*, *Passiflora kermesina*, *Pera glabrata*, *Psidium salutare*, *Samanea saman*, *Serjania salzmanniana*, *Sideroxylon obtusifolium*, *Solanum paludosum*, *Solanum paniculatum*, *Stigmaphyllon paralias*, *Thyrsodium spruceanum*, *Tillandsia gardneri*, *Tillandsia stricta*, *Tillandsia tenuifolia*, *Trema micrantha*, *Vriesea procera*, *Ximenia americana*, *Xylosma prockia*.

d) Advanced regeneration stage

Allophylus puberulus, *Amphilophium crucigerum*, *Amphilophium vauthieri*, *Anacardium occidentale*, *Andira fraxinifolia*, *Annona glabra*, *Anthurium affine*, *Anthurium harrisii*, *Astronium graveolens*, *Caesalpinia echinata**, *Calophyllum brasiliense*, *Calypttranthes lucida*, *Campomanesia dichotoma*, *Casearia sylvestris*, *Cecropia pachystachya*, *Cestrum axillare*, *Cissus verticillata*, *Coccoloba cordifolia*, *Copaifera duckei*, *Cordia exaltata*, *Couepia rufa*, *Coussapoa microcarpa*, *Cyrtopodium gigas*, *Duguetia gardneriana*, *Eugenia brasiliensis*, *Eugenia vattimoana*, *Ficus gomelleira*,

Hippocratea volubilis, *Humiria balsamifera*, *Inga blanchetiana*, *Inga capitata*, *Inga laurina*, *Inga thibaudiana*, *Manilkara salzmannii*, *Matayba elaeagnoides*, *Montrichardia linifera*, *Myrsine guianensis*, *Ocotea gardneri*, *Ocotea maculata*, *Passiflora cincinnata*, *Passiflora foetida*, *Passiflora jileki*, *Passiflora kermesina*, *Pera glabrata*, *Phoradendron affine*, *Phoradendron chrysocladon*, *Phoradendron falcifrons*, *Pilosocereus hapalacanthus*, *Pouteria venosa*, *Prescottia plantaginifolia*, *Protium heptaphyllum*, *Psidium salutare*, *Sacoglottis mattogrossensis*, *Samanea saman*, *Serjania salzmanniana*, *Sideroxylon obtusifolium*, *Simaba ferruginea*, *Stigmaphyllon blanchetii*, *Stigmaphyllon paralias*, *Swartzia simplex*, *Syagrus schizophylla*, *Tapirira guianensis*, *Thyrsodium spruceanum*, *Tillandsia gardneri*, *Tillandsia stricta*, *Tillandsia tenuifolia*, *Tillandsia usneoides*, *Voyria obconica*, *Vriesea procera*, *Ximenia americana*, *Xylosma prockia*, *Zollernia ilicifolia*.

IV – Beach Transitional Forest – Another vegetation typology: Primary stage;

Acrocomia aculeata, *Abarema filamentosa*, *Aegiphila pernambucensis*, *Amphilophium crucigerum*, *Amphilophium vauthieri*, *Andira fraxinifolia*, *Andira vermifuga*, *Annona glabra*, *Anthurium affine*, *Anthurium harrisii*, *Apuleia leiocarpa*, *Aspidosperma cuspa*, *Aspidosperma pyricollum*, *Aspidosperma pyriformis*, *Bauhinia guianensis*, *Bowdichia virgilioides*, *Buchenavia Tetraphylla*, *Calophyllum brasiliense*, *Capparis flexuosa*, *Cedrela odorata*, *Cereus fernambucensis*, *Coccoloba cordifolia*, *Copaifera langsdorffii*, *Curatella americana*, *Emmeorrhiza umbellata*, *Enterolobium contortisiliquum*, *Eschweilera ovata*, *Hancornia speciosa*, *Handroanthus chrysotrichus*, *Handroanthus impetiginosus*, *Heliconia angustifolia*, *Hippocratea volubilis*, *Hirtella racemosa*, *Humiria balsamifera*, *Hymenaea courbaril*, *Hymenaea rubriflora*, *Inga capitata*, *Inga laurina*, *Inga thibaudiana*, *Licania littoralis*, *Montrichardia linifera*, *Ocotea gardneri*, *Parkia pendula*, *Passiflora jileki*, *Pera glabrata*, *Phoradendron affine*, *Phoradendron chrysocladon*, *Phoradendron falcifrons*, *Platymiscium floribundum*, *Pouteria venosa*, *Pradosia lactescens*, *Prestonia coalita*, *Protium heptaphyllum*, *Ruprechtia laxiflora*, *Sacoglottis mattogrossensis*, *Schefflera morototoni*, *Serjania caracasana*, *Syagrus oleracea*, *Tabebuia roseoalba*, *Talisia esculenta*, *Tetracera breyniana*, *Tetracera oblongata*, *Tillandsia geminiflora*, *Tillandsia recurvata*, *Tillandsia tenuifolia*, *Tillandsia usneoides*, *Tournefortia rubicunda*, *Voyria obconica*, *Zanthoxylum rhoifolium*, *Zollernia ilicifolia*.

a) Initial regeneration stage

Acanthospermum hispidum, *Bidens pilosa*, *Bulbostylis paradoxa*, *Cenchrus ciliaris*, *Centrosema pascuorum*, *Chamaecrista flexuosa*, *Chamaecrista hispidula*, *Chamaecrista rotundifolia*, *Chiococca alba*, *Chloris barbata*, *Chromolaena laevigata*, *Cissus erosa*, *Cnidocolus urens*, *Coutarea hexandra*, *Crotalaria retusa*, *Crotalaria vitellina*, *Cyperus odoratus*, *Dalechampia scandens*, *Desmodium adscendens*, *Desmodium barbatum*, *Desmodium glabrum*, *Desmodium incanum*, *Desmodium triflorum*, *Dichantherium sciuroti*, *Digitaria ciliaris*, *Digitaria insularis*, *Emilia fosbergii*, *Emilia sonchifolia*, *Eragrostis secundiflora*, *Eupatorium ballotifolium*, *Euphorbia hyssopifolia*, *Galactia striata*, *Hemiscola aculeata*, *Hybanthus calceolaria*, *Hyparrhenia rufa*, *Ichnanthus nemoralis*, *Indigofera hirsuta*, *Indigofera suffruticosa*, *Jacquemontia montana*, *Lantana camara*, *Laportea aestuans*, *Merremia aegyptia*, *Mimosa caesalpiniiifolia*, *Mimosa quadrivalvis*, *Mimosa somnians*, *Mimosa velloziana*, *Momordica charantia*, *Oplismenus hirtellus*, *Pavonia cancellata*, *Petiveria alliacea*, *Phytolacca thyriflora*, *Piper corcovadensis*, *Polygala hebeclada*, *Pycreus lanceolatus*, *Richardia brasiliensis*, *Senna pendula*, *Setaria parviflora*, *Setaria vulpiseta*, *Sida ciliaris*, *Sida paniculata*, *Solanum americanum*, *Solanum rhytidoandrum*, *Stylosanthes angustifolia*, *Stylosanthes scabra*, *Stylosanthes viscosa*, *Tephrosia cinerea*, *Tilesia baccata*, *Vigna peduncularis*, *Vismia guianensis*, *Waltheria americana*, *Waltheria viscosissima*, *Zornia reticulata*, *Zornia sericea*.

b) Medium regeneration stage;

Abrus precatorius, *Abarema cochliacarpos*, *Albizia pedicellaris*, *Andira fraxinifolia*, *Apeiba tibourbou*, *Bauhinia cheilantha*, *Brosimum gaudichaudii*, *Byrsonima cydoniifolia*, *Byrsonima gardneriana*, *Byrsonima sericea*, *Campomanesia aromatica*, *Casearia javitensis*, *Casearia sylvestris*, *Cassytha filiformis*, *Cecropia pachystachya*, *Centrosema pascuorum*, *Chamaecrista bahiae*, *Chamaecrista hispidula*, *Chamaecrista rotundifolia*, *Chloroleucon foliolosum*, *Chrysophyllum rufum*, *Cissus erosa*, *Cissus simsiana*, *Cissus verticillata*, *Coussapoa microcarpa*, *Coutarea hexandra*, *Cupania impressinervia*, *Cupania racemosa*, *Diplopterys lutea*, *Dorstenia brasiliensis*, *Eugenia crenata*, *Eugenia pluriflora*, *Eugenia puniceifolia*, *Eugenia pyriformis*, *Euphorbia heterophylla*, *Guapira noxia*, *Guazuma ulmifolia*, *Guettarda platypoda*, *Inga barbata*, *Jacquinia armillaris*, *Lantana camara*, *Luehea paniculata*, *Machaerium aculeatum*, *Matayba elaeagnoides*, *Miconia stenostachya*, *Mimosa caesalpiniiifolia*, *Mimosa tenuiflora*, *Momordica charantia*, *Myrcia tomentosa*, *Ouratea cearensis*, *Ouratea fieldingiana*, *Ouratea hexasperma*, *Passiflora*

oetida, *Passiflora kermesina*, *Pera glabrata* ., *Pilocarpus spicatus*, *Piptadenia stipulacea*, *Pityrocarpa obliqua*, *Pogonophora schomburgkiana*, *Poincianella pyramidalis*, *Prockia crucis*, *Rhynchosia phaseoloides*, *Rudgea sessilis*, *Senna alata*, *Senna macranthera*, *Senna pendula*, *Senna splendida*, *Senna trachypus*, *Serjania caracasana*, *Sideroxylon obtusifolium*, *Solanum asperum*, *Solanum caavurana*, *Solanum crinitum*, *Solanum mauritanum*, *Solanum palinacanthum*, *Solanum paludosum*, *Solanum paniculatum*, *Solanum swartzianum*, *Sorocea bonplandii*, *Sorocea guilleminiana*, *Stigmaphyllon auriculatum*, *Strychnos parvifolia*, *Tabebuia aurea*, *Tapirira guianensis*, *Tillandsia gardneri*, *Tillandsia tenuifolia*, *Tragia volubilis*, *Trema micrantha*, *Ziziphus joazeiro*.

d) Advanced regeneration stage

Abrus precatorius, *Abarema cochliacarpus*, *Abarema filamentosa*, *Aegiphila pernambucensis*, *Albizia pedicellaris*, *Amphilophium crucigerum*, *Amphilophium vauthieri*, *Andira fraxinifolia*, *Andira vermifuga*, *Annona glabra*, *Anthurium affine*, *Anthurium harrisii*, *Apeiba tibourbou*, *Apuleia leiocarpa*, *Bauhinia cheilantha*, *Bauhinia guianensis*, *Bowdichia virgilioides*, *Brosimum gaudichaudii*, *Buchenavia Tetraphylla*, *Byrsonima gardneriana*, *Byrsonima sericea*, *Casearia javitensis*, *Casearia sylvestris*, *Cedrela odorata*, *Chamaecrista bahiae*, *Chloroleucon foliolosum*, *Chrysophyllum rufum*, *Cissus simsiana*, *Cissus verticillata*, *Coccoloba cordifolia*, *Copaifera langsdorffii*, *Cupania impressinervia*, *Cupania racemosa*, *Diplopterys lutea*, *Emmeorrhiza umbellata*, *Eschweilera ovata*, *Eugenia puniceifolia*, *Eugenia pyriformis*, *Guapira noxia*, *Guazuma ulmifolia*, *Guettarda platypoda*, *Heliconia angustifolia*, *Hippocratea volubilis*, *Hirtella racemosa*, *Humiria balsamifera*, *Hymenaea courbaril*, *Hymenaea rubriflora*, *Inga barbata*, *Inga capitata*, *Inga laurina*, *Inga thibaudiana*, *Licania littoralis*, *Luehea paniculata*, *Matayba elaeagnoides*, *Miconia stenostachya*, *Montrichardia linifera*, *Ocotea gardneri*, *Ouratea cearensis*, *Ouratea fieldingiana*, *Ouratea hexasperma*, *Parkia pendula*, *Passiflora cincinnata*, *Passiflora foetida*, *Passiflora jileki*, *Passiflora kermesina*, *Pera glabrata*, *Phoradendron affine*, *Phoradendron chrysocladon*, *Phoradendron falcifrons*, *Pilocarpus spicatus*, *Piptadenia stipulacea*, *Piptadenia viridiflora*, *Pityrocarpa obliqua*, *Platymiscium floribundum*, *Pogonophora schomburgkiana*, *Poincianella pyramidalis*, *Pouteria venosa*, *Pradosia lactescens*, *Prestonia coalita*, *Prockia crucis*, *Protium heptaphyllum*, *Rhynchosia phaseoloides*, *Rudgea sessilis*, *Ruprechtia laxiflora*, *Sacoglottis mattogrossensis*, *Schefflera morototoni*, *Serjania caracasana*, *Sideroxylon obtusifolium*, *Solanum asperum*, *Solanum crinitum*, *Solanum mauritianum*, *Solanum swartzianum*, *Sorocea bonplandii*, *Sorocea guilleminiana*, *Stigmaphyllon auriculatum*, *Strychnos parvifolia*, *Syagrus oleracea*, *Tabebuia aurea*, *Talisia esculenta*, *Tapirira guianensis*, *Tetracera breyniana*, *Tetracera oblongata*, *Tillandsia gardneri*, *Tillandsia geminiflora*, *Tillandsia recurvata*, *Tillandsia tenuifolia*, *Tillandsia usneoides*, *Tournefortia rubicunda*, *Tragia volubilis*, *Voyria obconica*, *Zanthoxylum rhoifolium*, *Ziziphus joazeiro*, *Zollernia ilicifolia*.

Art. 2 This Resolution shall enter into effect on the date of its publication.

FRANCISCO GAETANI – Acting Council `President

(*) endemic and rare species and species threatened with extinction.

This text does not substitute the text published in the Official Gazette on Jan. 3, 2012

RESOLUTION 440, December 30, 2011
Pushed in Official Gazette 2 on Jan. 3, 2012

Approves the list of successional stages indicator species of the Beach vegetation in the State of Pernambuco, according to Resolution 417 from Nov. 23, 2009

THE NATIONAL ENVIRONMENT COUNCIL – CONAMA, in accordance with the power bestowed upon the Council by art. 8, item I of Law 6.938 from August 31, 1981, and considering the provisions of art. 4, § 1 of Law 11.428 from December 22, 2006 and CONAMA Resolution 417 from December 23, 2009, decides:

Art. 1 The indicator species of primary vegetation and of the different successional secondary stages of the Atlantic Forest vegetation, which are the subject of art. 4 of Law 11.428 from Dec. 22, 2009 and § 1 of art. 3 of CONAMA Resolution 417 from Nov. 23, 2009, in the State of Pernambuco, are:

I – Beach Herbaceous and Sub-Shrubby Vegetation:

a) Climax vegetation

Abarema cochliacarpus, Abarema filamentosa, Abildgaardia baeothryon, Abrus precatorius, Abutilon esculentum, Acanthospermum hispidum, Acrocomia aculeata, Adenocalymma assum, Aechmea muricata, Aechmea nudicaulis, Albizia pedicellaris, Allamanda blanchetii, Ambrosia microcephala, Amphiphilium crucigerum, Anacardium occidentale, Anadenanthera colubrina, Anaxagorea dolichocarpa, Andira anthelmia, Andira fraxinifolia, Andira humilis, Andira nitida, Andropogon bicornis, Andropogon leucostachyus, Andropogon selloanus, Angelonia campestris, Aniba firmula, Annona glabra, Annona montana, Annona pickelii, Antheophora hermaphrodita, Anthurium affine, Aparisthmium cordatum, Apuleia leiocarpa, Aristida setifolia, Asclepias curassavica, Aspidosperma olivaceum, Aspidosperma pyriformis, Aspilia martii, Astrea lobata, Aureliana fasciculata, Axonopus compressus, Axonopus polydactylus, Bactris acanthocarpa, Bactris bahiensis, Bauhinia acuruana, Bernardia axillaris, Bidens pilosa, Bignonia corymbosa, Blechnum serrulatum, Borreria scabiosoides, Borreria verticillata, Bowdichia virgilioides, Buchenavia tetraphylla, Buchnera long ifolia, Burmannia capitata, Byrsonima gardnerana, Byrsonima sericea, Caesalpinia echinata*, Callichlamys latifolia, Calyptanthus dardanoi, Campomanesia dichotoma, Campyloneurum repens, Canavalia brasiliensis, Canavalia rosea, Casearia javitensis, Casearia sylvestris, Cassytha filiformis, Cecropia pachystachya, Cenchrus echinatus, Cenchrus myosuroides, Centropogon cornutus, Centrosema arenarium, Centrosema pascuorum, Ceratosanthes trifoliata, Cereus fernambucensis, Cereus jamaecaru, Cestrum axillare, Cestrum parqui, Chamaecrista cytisoides, Chamaecrista desvauxii, Chamaecrista ensiformis, Chamaecrista flexuosa, Chamaecrista nictitans, Chamaecrista ramosa, Chiococca alba, Chloris barbata, Chrysobalanus icaco, Chrysophyllum rufum, Cissus erosa, Cissus simsiana, Cissus verticillata, Clidemia hirta, Clitoria laurifolia, Clusia nemorosa, Cnidocolus urens, Coccoloba laevis, Combretum laxum, Commelina obliqua, Conocarpus erectus, Conocliniopsis prasiifolia, Copaifera langsdorffii, Copaifera luetzelburgii, Cordia superba, Costus spiralis, Couepia rufa, Coussapoa microcarpa, Coutarea hexandra, Crotalaria incana, Crotalaria pallida, Crotalaria retusa, Crotalaria vitellina, Croton glandulosus, Croton hirtus, Croton sellowii, Cup hea flava, Curatella americana, Cynodon dactylon, Cyperus aggregatus, Cyperus chalaranthus, Cyperus ligularis, Cyperus meyenianus, Cyperus sphacelatus, Cyperus surinamensis, Cyrtopodium aliciae, Cyrtopodium gigas, Cyrtopodium holstii, Dactyloctenium aegyptium, Dalbergia ecastaphyllum, Davilla cearensis, Desmodium adscendens, Desmodium barbatum, Desmodium glabrum, Desmodium incanum, Desmodium triflorum, Desmoncus polyacanthos, Dicranopteris flexuosa, Digitaria ciliaris, Digitaria insularis, Diodella*

apiculata, Dodonaea viscosa, Doliocarpus dentatus, Dorstenia brasiliensis, Duguetia gardneriana, Eleocharis geniculata, Elephantopus hirtiflorus, Eleusine indica, Emilia sonchifolia, Emmeorhiza umbellata, Enterolobium contortisiliquum, Epidendrum cinnabarinum, Epidendrum pseudodiforme, Epidendrum rigidum, Era grostis cataclasta, Era grostis ciliaris, Eragrostis pilosa, Era grostis prolifera, Eragrostis secundiflora, Eriocaulon palustre, Erythroxylum columbinum, Erythroxylum passerinum, Erythroxylum suberosum, Erythroxylum vacciniifolium, Eugenia puniceifolia, Eugenia uniflora, Euphorbia hirta, Euphorbia hyssopifolia, Euphorbia prostrata, Fimbristylis cymosa, Forsteronia leptocarpa, Fuirena umbellata, Galactia striata, Genipa americana, Griffinia espiritensis, Guapira pernambucensis, Guarea guidonia, Guazuma ulmifolia, Guettarda angelica, Guettarda platypoda, Gustavia augusta, Hancornia speciosa, Handroanthus chrysotrichus, Heisteria perianthomega, Heliconia angustifolia, Hemiscola aculeata, Heterotaxis brasiliensis, Hibiscus bifurcatus, Himatanthus phagedaenicus, Hippeastrum stylosum, Hippocratea volubilis, Hirtella racemosa, Hohenbergia ridleyi, Hybanthus calceolaria, Hydrocotyle verticillata, Hymenaea courbaril, Hymenaea rubriflora, Hyptis suaveolens, Ichnanthus nemoralis, Indigofera campestris, Indigofera microcarpa, Inga blanchetiana, Inga capitata, Inga laurina, Inga subnuda, Inga thibaudiana, Inga vera, Ipomoea pes-caprae, Iris pseudacorus, Jacaranda jasminoides, Jacaranda puberula, Jacquinia armillaris, Jatropha mollissima, Krameria tomentosa, Lacistema robustum, Lantana camara, Lantana viscosa, Lasiacis ligulata, Leptochloa scabra, Libidibia ferrea, Licania tomentosa, Lippia alba, Ludwigia octovalvis, Machaerium aculeatum, Maclura tinctoria, Macroptilium

gracile, *Malvastrum coromandelianum*, *Mandevilla scabra*, *Manilkara salzmannii*, *Marlierea schottii*, *Marlierea strigipes*, *Marsypianthes chamaedrys*, *Maytenus distichophylla*, *Maytenus rigida*, *Melocactus bahiensis*, *Melocactus violaceus*, *Melocactus zehntneri*, *Metrodorea nigra*, *Miconia albicans*, *Miconia ciliata*, *Miconia mirabilis*, *Miconia prasina*, *Microgramma vacciniifolia*, *Microstachys corniculata*, *Microtea paniculata*, *Mikania obovata*, *Mimosa bimucronata*, *Mimosa caesalpiniiifolia*, *Mimosa ceratonia*, *Mimosa invisita*, *Mimosa ophthalmocentra*, *Mimosa pudica*, *Mimosa quadrivalvis*, *Mimosa somnians*, *Mitracarpus frigidus*, *Mollugo verticillata*, *Myrcia fallax*, *Myrcia guianensis*, *Myrcia hirtiflora*, *Myrcia laruotteana*, *Myrcia multiflora*, *Myrcia rotundifolia*, *Myrcia sylvatica*, *Myrcia tomentosa*, *Nectandra membranacea*, *Ocotea gardneri*, *Ocotea glomerata*, *Ocotea longifolia*, *Ocotea odorifera**, *Ocotea puberula*, *Oeceoclades maculata*, *Olyra latifolia*, *Orthomene schomburgkii*, *Ouratea crassa*, *Paepalanthus bifidus*, *Paepalanthus tortilis*, *Panicum aquaticum*, *Panicum dichotomiflorum*, *Panicum laxum*, *Panicum micranthum*, *Panicum pilosum*, *Panicum racemosum*, *Parkia pendula*, *ParodiParodiolyra micrantha*, *Paspalum conjugatum*, *Paspalum corcovadense*, *Paspalum distichum*, *Paspalum maritimum*, *Paspalum plicatulum*, *Paspalum pumilum*, *Paspalum urvillei*, *Paspalum vaginatum*, *Passiflora cincinnata*, *Passiflora edulis*, *Passiflora foetida*, *Passiflora galbana*, *Passiflora kermesina*, *Passiflora misera*, *Passiflora mucronata*, *Passiflora suberosa*, *Paullinia pinnata*, *Pavonia alnifolia**, *Pavonia cancellata*, *Pavonia fruticosa*, *Pavonia malacophylla*, *Peltastes peltatus*, *Peltogyne recifensis*, *Peperomia rotundifolia*, *Peperomia tetraphylla*, *Pera glabrata*, *Pereskia aculeata*, *Pharus lappulaceus*, *Philodendron imbe*, *Phoradendron affine*, *Phoradendron bathyoryctum*, *Phoradendron chrysocladon*, *Phoradendron crassifolium*, *Phoradendron obtusissimum*, *Phoradendron piperoides*, *Phoradendron quadrangulare*, *Phyllanthus niruri*, *Phyllostylon brasiliense*, *Phytolacca thyrsoflora*, *Pilocarpus riedelianus*, *Pilocarpus spicatus*, *Piper amalago*, *Piper arboreum*, *Piper corcovadense*, *Piper divaricatum*, *Piper mollicomum*, *Piptadenia stipulacea*, *Piptadenia viridiflora*, *Pisonia cordifolia*, *Pityrocarpa obliqua*, *Pityrogramma calomelanos*, *Platymiscium floribundum*, *Pogonophora schomburgkiana*, *Poincianella pyramidalis*, *Polygala cyparissias*, *Polygala glochidiata*, *Polygala paniculata*, *Polygala violacea*, *Polypodium decumanum*, *Portulaca oleracea*, *Pouteria caimito*, *Pouteria grandiflora*, *Pradosia lactescens*, *Prescottia stachyoides*, *Prockia crucis*, *Protium heptaphyllum*, *Pseudananas sagenarius*, *Pseudechinolaena polystachya*, *Psidium guineense*, *Psychotria alba*, *Psychotria bahiensis*, *Psychotria deflexa*, *Psychotria hoffmannseggiana*, *Pterocarpus rohrii*, *Pterolepis polygonoides*, *Pterygota brasiliensis*, *Pycneus polystachyos*, *Qualea cryptantha*, *Rauwolfia grandiflora*, *Remirea maritima*, *Rhipsalis baccifera*, *Rhynchosia phaseoloides*, *Rhynchospora riparia*, *Richardia grandiflora*, *Rolandra fruticosa*, *Ruellia asperula*, *Ruellia geminiflora*, *Ruprechtia laxiflora*, *Sabicea cinerea*, *Sabicea grisea*, *Sacoglottis mattogrossensis*, *Salacia elliptica*, *Samanea saman*, *Sauwagesia erecta*, *Schefflera morototoni*, *Schinus terebinthifolius*, *Schoepfia brasiliensis*, *Schultesia guianensis*, *Schwartzia brasiliensis*, *Schwenckia americana*, *Scoparia dulcis*, *Sebastiania corniculata*, *Senna alata*, *Senna gardneri*, *Senna macranthera*, *Senna obtusifolia*, *Senna pendula*, *Senna splendida*, *Senna trachypus*, *Serjania salzmanniana*, *Sesuvium portulacastrum*, *Setaria parviflora*, *Setaria scandens*, *Setaria vulpiseta*, *Sida ciliaris*, *Sida linifolia*, *Sida paniculata*, *Sida rhombifolia*, *Sideroxylon obtusifolium*, *Simaba floribunda*, *Smilax campestris*, *Solanum americanum*, *Solanum caavurana*, *Solanum paludosum*, *Solanum paniculatum*, *Sophora tomentosa*, *Sphagneticola trilobata*, *Spigelia anthelmia*, *Sporobolus tenacissimus*, *Sporobolus virginicus*, *Stachytarpheta cayennensis*, *Stemodia foliosa*, *Sterculia apetala*, *Stigmaphyllon auriculatum*, *Stigmaphyllon blanchetii*, *Stigmaphyllon ciliatum*, *Stigmaphyllon paralias*, *Strychnos parvifolia*, *Stylosanthes angustifolia*, *Stylosanthes guianensis*, *Stylosanthes scabra*, *Stylosanthes viscosa*, *Swartzia simplex*, *Syagrus oleracea*, *Syagrus schizophylla*, *Tabebuia aurea*, *Talipariti tiliaceum*, *Talisia esculenta*, *Tapirira guianensis*, *Tephrosia cinerea*, *Tetracera breyniana*, *Tillandsia gardneri*, *Tillandsia geminiflora*, *Tillandsia recurvata*, *Tillandsia stricta*, *Tillandsia tenuifolia*, *Tillandsia tricholepis*, *Tillandsia usneoides*, *Tocoyena brasiliensis*, *Tontelea miersii*, *Tournefortia candidula*, *Trema micrantha*, *Trigonía nivea*, *Turnera subulata*, *Utricularia foliosa*, *Utricularia gibba*, *Utricularia hydrocarpa*, *Utricularia juncea*, *Vanilla chamissonis*, *Varronia curassavica*, *Vigna candida*, *Vismia guianensis*, *Voyria flavescens*, *Vriesea gigantea*, *Vriesea procera*, *Vriesea rodigasiana*, *Vriesea scalaris*, *Waltheria americana*, *Waltheria aspera*, *Waltheria cinerescens*, *Waltheria maritima*, *Ximenia americana*, *Xylopia laevigata*, *Xyris jupicai*, *Zanthoxylum rhoifolium*, *Ziziphus joazeiro*, *Zollernia ilicifolia*, *Zornia curvata*, *Zornia latifolia*.

II – Beach shrub vegetation:

a) Primary stage

Abarema cochliacarpus, *Abutilon esculentum*, *Aechmea nudicaulis*, *Allamanda blanchetii*, *Andira nitida*, *Asclepias curassavica*, *Bernardia axillaris*, *Borreria verticillata*, *Byrsonima sericea*, *Centropogon cornutus*, *Cestrum parqui*, *Chamaecrista desvauxii*, *Chiococca alba*, *Chrysobalanus icaco*, *Clidemia hirta*, *Clitoria laurifolia*, *Coccoloba laevis*, *Conocarpus erectus*, *Costus spiralis*, *Couepia rufa*, *Cyrtopodium holstii*, *Dalbergia ecastaphyllum*, *Davilla cearensis*, *Digitaria insularis*, *Diodella apiculata*, *Dodonaea viscosa*, *Duguetia gardneriana*, *Epidendrum rigidum*, *Eragrostis cataclasta*, *Eragrostis ciliaris*, *Eragrostis prolifera*, *Eugenia uniflora*, *Guapira pernambucensis*, *Hibiscus bifurcatus*, *Iris pseudacorus*, *Jacaranda jasmínoides*, *Jacquinia armillaris*, *Jatropha mollissima*, *Lacistema robustum*, *Leptochloa scabra*, *Licania tomentosa*, *Lippia alba*, *Mandevilla scabra*, *Marlierea schottii*, *Miconia ciliata*, *Miconia prasina*, *Microgramma vacciniifolia*, *Microstachys corniculata*, *Mimosa ceratonia*, *Mimosa invisita*, *Mitracarpus frigidus*, *Myrcia guianensis*, *Myrcia sylvatica*, *Ocotea puberula*,

Oeceoclades maculata, *Ouratea crassa*, *Palicourea crocea*, *Passiflora galbana*, *Passiflora kermesina*, *Passiflora mucronata*, *Pavonia alnifolia**, *Pavonia malacophylla*, *Phoradendron crassifolium*, *Polypodium decumanum*, *Psychotria alba*, *Schoepfia brasiliensis*, *Scoparia dulcis*, *Serjania salzmanniana*, *Smilax campestris*, *Solanum caavurana*, *Solanum paludosum*, *Solanum paniculatum*, *Sop hora tomentosa*, *Sporobolus tenacissimus*, *Stemodia foliosa*, *Stigmaphyllon blanchetii*, *Swartzia simplex*, *Syagrus schizophylla*, *Talipariti tiliaceum*, *Tillandsia gardneri*, *Tillandsia stricta*, *Tillandsia tenuifolia*, *Turnera ulmifolia*, *Varronia curassavica*, *Vriesea gigantea*, *Vriesea procera*, *Waltheria aspera*, *Waltheria cinerescens*.b) Initial regeneration stage

Aspilia martii, *Abarema filamentosa*, *Albizia pedicellaris*, *Amphilophium crucigerum*, *Annona pickelii*, *Astrea lobata*, *Aureliana fasciculata*, *Axonopus compressus*, *Axonopus polydactylus*, *Bactris acanthocarpa*, *Bactris bahiensis*, *Bauhinia acuruana*, *Bernardia axillaris*, *Bidens pilosa*, *Bignonia corymbosa*, *Blechnum serrulatum*, *Borreria scabiosoides*, *Borreria verticillata*, *Bowdichia virgilioides*, *Buchenavia tetraphylla*, *Buchnera longifolia*, *Burmanniacapitata*, *Byrsonimagardnerana*, *Byrsonima sericea*, *Caesalpinia echinata**, *Callichlamys latifolia*, *Calyptanthes dardanoi*, *Campomanesia dichotoma*, *Campyloneurum repens*, *Canavalia brasiliensis*, *Canavalia rosea*, *Casearia javitensis*, *Casearia sylvestris*, *Cassytha filiformis*, *Cecropia pachystachya*, *Cenchrus echinatus*, *Cenchrus myosuroides*, *Centropogon cornutus*, *Centrosema arenarium*, *Centrosema pascuorum*, *Ceratodes trifoliata*, *Cereus fernambucensis*, *Cereus jamacaru*, *Cestrum axillare*, *Cestrum parqui*, *Chamaecrista cytisoides*, *Chamaecrista desvauxii*, *Chamaecrista ensiformis*, *Chamaecrista flexuosa*, *Chamaecrista nictitans*, *Chamaecrista ramosa*, *Chiococca alba*, *Chloris barbata*, *Chrysobalanus cacao*, *Chrysophyllum rufum*, *Clidemia hirta*, *Clitoria laurifolia*, *Clusia nemorosa*, *Cnidioscolus urens*, *Coccoloba laevis*, *Combretum laxum*, *Commelina obliqua*, *Conocarpus erectus*, *Conocliniopsis prasiifolia*, *Copaifera langsdorffii*, *Copaifera luetzelburgii*, *Cordia superba*, *Costus spiralis*, *Couepia rufa*, *Coussapoa microcarpa*, *Coutarea hexandra*, *Crotalaria incana*, *Crotalaria pallida*, *Crotalaria retusa*, *Crotalaria vitellina*, *Croton glandulosus*, *Croton hirtus*, *Croton sellowii*, *Cuphea flava*, *Curatella americana*, *Cynodon dactylon*, *Cyperus aggregatus*, *Cyperus chalaranthus*, *Cyperus ligularis*, *Cyperus meyenianus*, *Cyperus sphacelatus*, *Cyperus surinamensis*, *Cyrtopodium aliciae*, *Cyrtopodium gigas*, *Cyrtopodium holstii*, *Dactyloctenium aegyptium*, *Dalbergia ecastaphyllum*, *Davilla cearensis*, *Desmodium adscendens*, *Desmodium barbatum*, *Desmodium glabrum*, *Desmodium incanum*, *Desmodium triflorum*, *Desmoncus polyacanthos*, *Dicranopteris flexuosa*, *Digitaria ciliaris*, *Digitaria insularis*, *Diodella apiculata*, *Dodonaea viscosa*, *Doliocarpus dentatus*, *Dorstenia brasiliensis*, *Duguetia gardneriana*, *Eleocharis geniculata*, *Elephantopus hirtiflorus*, *Eleusine indica*, *Emilia sonchifolia*, *Emmeorrhiza umbellata*, *Enterolobium contortisiliquum*, *Epidendrum cinnabarinum*, *Epidendrum pseudodiforme*, *Epidendrum rigidum*, *Eragrostis cataclasta*, *Eragrostis ciliaris*, *Eragrostis pilosa*, *Eragrostis prolifera*, *Eragrostis secundiflora*, *Eriocaulon palustre*, *Erythroxylum columbinum*, *Erythroxylum passerinum*, *Erythroxylum suberosum*, *Erythroxylum vacciniifolium*, *Eugenia ferreiraeana*, *Eugenia puniceifolia*, *Eugenia uniflora*, *Euphorbia hirta*, *Euphorbia hyssopifolia*, *Euphorbia prostrata*, *Fimbristylis cymosa*, *Forsteronia leptocarpa*, *Fuirena umbellata*, *Galactia striata*, *Genipa americana*, *Gossypium hirsutum*, *Griffinia espiritensis*, *Guapira pernambucensis*, *Guarea guidonia*, *Guazuma ulmifolia*, *Guettarda angelica*, *Guettarda platypoda*, *Gustavia augusta*, *Hancornia speciosa*, *Handroanthus chrysotrichus*, *Heisteria perianthomega*, *Heliconia angustifolia*, *Hemiscola aculeata*, *Heterotaxis brasiliensis*, *Hibiscus bifurcatus*, *Himatanthus phagedaenicus*, *Hippeastrum stylosum*, *Hippocratea volubilis*, *Hirtella racemosa*, *Hohenbergia ridleyi*, *Hybanthus calceolaria*, *Hydrocotyle verticillata*, *Hymenaea courbaril*, *Hymenaea rubriflora*, *Hyptis suaveolens*, *Ichnanthus nemoralis*, *Indigofera campestris*, *Indigofera microcarpa*, *Inga blanchetiana*, *Inga capitata*, *Inga laurina*, *Inga subnuda*, *Inga thibaudiana*, *Inga vera*, *Ipomoea pes-caprae*, *Iris pseudacorus*, *Jacaranda jasminoides*, *Jacaranda puberula*, *Jacquinia armillaris*, *Jatropha mollissima*, *Krameria tomentosa*, *Lacistema robustum*, *Lantana camara*, *Lantana viscosa*, *Lasiacis ligulata*, *Libidibia ferrea*, *Licania tomentosa*, *Lippia alba*, *Ludwigia octovalvis*, *Machaerium aculeatum*, *Maclura tinctoria*, *Macroptilium gracile*, *Malvastrum coromandelianum*, *Mandevilla scabra*, *Manilkara salzmannii*, *Marlierea schottii*, *Marlierea strigipes*, *Marsypianthes chamaedrys*, *Maytenus distichophylla*, *Maytenus rigida*, *Melocactus bahiensis*, *Melocactus violaceus*, *Melocactus zehntneri*, *Metrodorea nigra*, *Miconia albicans*, *Miconia ciliata*, *Miconia mirabilis*, *Miconia prasina*, *Microgramma vacciniifolia*, *Microstachys corniculata*, *Microtea paniculata*, *Mikania obovata*, *Mimosa bimucronata*, *Mimosa caesalpinifolia*, *Mimosa ceratonia*, *Mimosa invisä*, *Mimosa ophthalmocentra*, *Mimosa pudica*, *Mimosa quadrivalvis*, *Mimosa somnians*, *Mitracarpus frigidus*, *Mollugo verticillata*, *Myrcia fallax*, *Myrcia guianensis*, *Myrcia hirtiflora*, *Myrcia laruotteana*, *Myrcia multiflora*, *Myrcia rotundifolia*, *Myrcia sylvatica*, *Myrcia tomentosa*, *Nectandra membranacea*, *Ocotea gardneri*, *Ocotea glomerata*, *Ocotea longifolia*, *Ocotea odorifera**, *Ocotea puberula*, *Oeceoclades maculata*, *Olyra latifolia*, *Orthomene schomburgkii*, *Ouratea crassa*, *Paepalanthus bifidus*, *Paepalanthus tortilis*, *Palicourea crocea*, *Panicum aquaticum*, *Panicum dichotomiflorum*, *Panicum laxum*, *Panicum micranthum*, *Panicum pilosum*, *Panicum racemosum*, *Parkia pendula*, *Parodiolyra micrantha*, *Paspalum conjugatum*, *Paspalum corcovadense*, *Paspalum distichum*, *Paspalum maritimum*, *Paspalum plicatulum*, *Paspalum pumilum*, *Paspalum urvillei*, *Paspalum vaginatum*, *Passiflora cincinnata*, *Passiflora edulis*, *Passiflora foetida*, *Passiflora galbana*, *Passiflora kermesina*, *Passiflora misera*, *Passiflora mucronata*, *Passiflora suberosa*, *Paullinia pinnata*, *Pavonia alnifolia**, *Pavonia cancellata*, *Pavonia fruticosa*, *Pavonia malacophylla*, *Peltastes peltatus*, *Peltogyne recifensis*, *Peperomia rotundifolia*, *Peperomia tetraphylla*, *Pera glabrata*, *Pereskia aculeata*, *Pharus lappulaceus*, *Philodendron imbe*, *Phoradendron affine*, *Phoradendron bathyoryctum*, *Phoradendron chrysocladon*, *Phoradendron crassifolium*, *Phoradendron obtusissimum*, *Phoradendron piperoides*, *Phoradendron quadrangulare*, *Phyllanthus niruri*, *Phyllostylon brasiliense*, *Phytolacca thyrsoflora*, *Pilocarpus riedelianus*, *Pilocarpus spicatus*, *Piper amalago*, *Piper arboreum*, *Piper corcovadense*, *Piper divaricatum*, *Piper mollicomum*, *Piptadenia stipulacea*, *Piptadenia viridiflora*, *Pisonia cordifolia*, *Pityrocarpa obliqua*, *Pityrogramma calomelanos*, *Platymiscium floribundum*, *Pogonophora schomburgkiana*,

Poincianella pyramidalis, *Polygala cyparissias*, *Polygala glochidiata*, *Polygala paniculata*, *Polygala violacea*, *Polypodium decumanum*, *Portulaca oleracea*, *Pouteria caimito*, *Pouteria grandiflora*, *Pradosia lactescens*, *Prescottia stachyoides*, *Prockia crucis*, *Protium heptaphyllum*, *Pseudananas sagenarius*, *Pseudechinolaena polystachya*, *Psidium guineense*, *Psychotria alba*, *Psychotria bahiensis*, *Psychotria deflexa*, *Psychotria hoffmannseggiana*, *Pterocarpus rohrii*, *Pterolepis polygonoides*, *Pterygota brasiliensis*, *Pycreus polystachyos*, *Rauwolfia grandiflora*, *Remirea maritima*, *Rhipsalis baccifera*, *Rhynchosia phaseoloides*, *Rhynchospora riparia*, *Richardia grandiflora*, *Rolandra fruticosa*, *Ruellia geminiflora*, *Ruprechtia laxiflora*, *Sabicea cinerea*, *Sabicea grisea*, *Sacoglottis mattogrossensis*, *Salacia elliptica*, *Samanea saman*, *Sauvagesia erecta*, *Schefflera morototoni*, *Schinus terebinthifolius*, *Schoepfia brasiliensis*, *Schultesia guianensis*, *Schwartzia brasiliensis*, *Schwenckia americana*, *Scoparia dulcis*, *Sebastiania corniculata*, *Senna alata*, *Senna gardneri*, *Senna macranthera*, *Senna obtusifolia*, *Senna pendula*, *Senna splendida*, *Senna trachypus*, *Serjania salzmanniana*, *Sesuvium portulacastrum*, *Setaria parviflora*, *Setaria scandens*, *Setaria vulpiseta*, *Sida ciliaris*, *Sida linifolia*, *Sida paniculata*, *Sida plumosa*, *Sida rhombifolia*, *Sideroxylon obtusifolium*, *Simaba floribunda*, *Smilax campestris*, *Solanum americanum*, *Solanum caavurana*, *Solanum paludosum*, *Solanum paniculatum*, *Sophora tomentosa*, *Sphagneticola trilobata*, *Spigelia anthelmia*, *Sporobolus tenacissimus*, *Sporobolus virginicus*, *Stachytarpheta angustifolia*, *Stachytarpheta cayennensis*, *Stemodia foliosa*, *Sterculia apetala*, *Stigmaphyllon auriculatum*, *Stigmaphyllon blanchetii*, *Stigmaphyllon ciliatum*, *Stigmaphyllon paralias*, *Strychnos parvifolia*, *Stylosanthes angustifolia*, *Stylosanthes guianensis*, *Stylosanthes scabra*, *Stylosanthes viscosa*, *Swartzia simplex*, *Syagrus oleracea*, *Syagrus schizophylla*, *Tabebuia aurea*, *Talipariti tiliaceum*, *Talisia esculenta*, *Tapirira guianensis*, *Tephrosia cinerea*, *Tetracera breyniana*, *Tillandsia gardneri*, *Tillandsia geminiflora*, *Tillandsia recurvata*, *Tillandsia stricta*, *Tillandsia tenuifolia*, *Tillandsia tricholepis*, *Tillandsia usneoides*, *Tocoyena brasiliensis*, *Tontelea miersii*, *Tournefortia candidula*, *Trema micrantha*, *Trigonía nivea*, *Turnera subulata*, *Turnera ulmifolia*, *Utricularia foliosa*, *Utricularia gibba*, *Utricularia hydrocarpa*, *Utricularia juncea*, *Vanilla chamissonis*, *Varronia curassavica*, *Vigna candida*, *Vismia guianensis*, *Vorronia verbenacea*, *Voyria flavescens*, *Vriesea gigantea*, *Vriesea procera*, *Vriesea rodigasiana*, *Vriesea scalaris*, *Waltheria americana*, *Waltheria aspera*, *Waltheria cinerescens*, *Waltheria maritima*, *Ximenia americana*, *Xylopia laevigata*, *Zanthoxylum rhoifolium*, *Ziziphus joazeiro*, *Zollernia ilicifolia*, *Zornia curvata*, *Zornia latifolia*.

c) Medium regeneration stage

Asclepias curassavica, *Astrea lobata*, *Blechnum serrulatum*, *Cassytha filiformis*, *Croton glandulosus*, *Croton hirtus*, *Croton sellowii*, *Epidendrum cinnabarinum*, *Eugenia ferreiraeana*, *Euphorbia hirta*, *Gossypium hirsutum*, *Guettarda angelica*, *Microstachys corniculata*, *Senna obtusifolia*, *Sida plumosa*, *Smilax campestris*, *Stachytarpheta cayennensis*, *Stemodia foliosa*, *Stigmaphyllon ciliatum*, *Stigmaphyllon paralias*, *Talipariti tiliaceum*, *Tillandsia stricta*, *Turnera ulmifolia*, *Vanilla chamissonis*.

d) Advanced stage of regeneration

Abutilon esculentum, *Aechmea nudicaulis*, *Andira nitida*, *Astrea lobata*, *Borreria verticillata*, *Chiococca alba*, *Clidemia hirta*, *Coccoloba laevis*, *Croton glandulosus*, *Croton hirtus*, *Croton sellowii*, *Dodonaea viscosa*, *Epidendrum cinnabarinum*, *Eugenia ferreiraeana*, *Eugenia uniflora*, *Fuirena umbellata*, *Gossypium hirsutum*, *Guapira pernambucensis*, *Guettarda angelica*, *Hibiscus bifurcatus*, *Jacaranda jasminoides*, *Jacquinia armillaris*, *Marlierea schottii*, *Miconia ciliata*, *Miconia prasina*, *Microgramma vacciniifolia*, *Microstachys corniculata*, *Mitracarpus frigidus*, *Myrcia guianensis*, *Myrcia sylvatica*, *Oeceoclades maculata*, *Ouratea crassa*, *Passiflora galbana*, *Passiflora kermesina*, *Passiflora mucronata*, *Pavonia malacophylla*, *Psychotria alba*, *Schoepfia brasiliensis*, *Scoparia dulcis*, *Serjania salzmanniana*, *Sida plumosa*, *Smilax campestris*, *Solanum caavurana*, *Solanum paludosum*, *Solanum paniculatum*, *Stemodia foliosa*, *Stigmaphyllon blanchetii*, *Stigmaphyllon ciliatum*, *Stigmaphyllon paralias*, *Talipariti tiliaceum*, *Tillandsia gardneri*, *Tillandsia stricta*, *Tillandsia tenuifolia*, *Vanilla chamissonis*, *Vriesea procera*, *Waltheria aspera*, *Waltheria cinerescens*.

III – Beach arboreal vegetation

a) Primary stage

Abrus precatorius, *Adenocalymma assum*, *Amphilophium crucigerum*, *Anacardium occidentale*, *Anaxagorea dolichocarpa*, *Andira fraxinifolia*, *Aniba firmula*, *Annona glabra*, *Annona montana*, *Annona pickelii*, *Anthurium affine*, *Aparisthium cordatum*, *Bactris acanthocarpa*, *Bactris bahiensis*, *Bigonia corymbosa*, *Blechnum serrulatum*, *Buchenavia tetraphylla*, *Caesalpinia echinata**, *Callichlamys latifolia*, *Calyptanthes dardanoi*, *Campomanesia dichotoma*, *Cereus fernambucensis*, *Cereus jamacaru*, *Cissus verticillata*, *Clusia nemorosa*, *Coccoloba laevis*, *Combretum laxum*, *Couepia rufa*, *Curatella americana*, *Cyrtopodium gigas*, *Desmoncus polyacanthos*, *Dolichocarpus dentatus*, *Duguetia gardneriana*, *Elaeis guineensis*, *Enterolobium contortisiliquum*, *Epidendrum cinnabarinum*, *Epidendrum rigidum*, *Erythroxylum columbinum*, *Erythroxylum passerinum*, *Erythroxylum suberosum*, *Erythroxylum vacciniifolium*, *Eugenia ferreiraeana*, *Forsteronia leptocarpa*, *Guazuma ulmifolia*, *Hancornia speciosa*, *Handroanthus chrysotrichus*, *Heliconia angustifolia*, *Heterotaxis brasiliensis*, *Himatanthus phagedaenicus*, *Hippocratea volubilis*, *Hohenbergia ridleyi*, *Inga capitata*, *Inga laurina*, *Inga subnuda*, *Inga thibaudiana*, *Inga vera*, *Jacaranda puberula*, *Lippia alba*, *Manilkara salzmannii*, *Maytenus distichophylla*, *Miconia albicans*, *Microgramma vacciniifolia*, *Mikania obovata*, *Myrcia fallax*, *Myrcia hirtiflora*, *Myrcia*

multiflora, *Myrcia rotundifolia*, *Ocotea gardneri*, *Ocotea puberula*, *Oeceoclades maculata*, *Peltastes peltatus*, *Peltogyne recifensis*, *Peperomia rotundifolia*, *Peperomia tetraphylla*, *Pera glabrata*, *Pereskia aculeata*, *Philodendron imbe*, *Phoradendron affine*, *Phoradendron bathyoryctum*, *Phoradendron chrysocladon*, *Phoradendron crassifolium*, *Phoradendron obtusissimum*, *Phoradendron piperoides*, *Phoradendron quadrangulare*, *Piper mollicomum*, *Pouteria caimito*, *Pouteria grandiflora*, *Prescottia stachyoides*, *Protium heptaphyllum*, *Pseudananas sagenarius*, *Pterygota brasiliensis*, *Qualea cryptantha*, *Rhipsalis baccifera*, *Sacoglottis mattogrossensis*, *Schinus terebinthifolius*, *Schwartzia brasiliensis*, *Serjania salzmanniana*, *Simaba floribunda*, *Stigmaphyllon blanchetii*, *Swartzia simplex*, *Syagrus oleracea*, *Syagrus schizophylla*, *Tapirira guianensis*, *Tetracera breyniana*, *Tillandsia gardneri*, *Tillandsia recurvata*, *Tillandsia stricta*, *Tillandsia tenuifolia*, *Tillandsia tricholepis*, *Tillandsia usneoides*, *Vanilla chamissonis*, *Vismia guianensis*, *Voyria flavescens*, *Vriesea gigantea*, *Vriesea procera*, *Vriesea rodigasiana*, *Vriesea scalaris*, *Xylopiopsis laevigata*, *Zollernia ilicifolia*. Initial regeneration stage

Acanthospermum hispidum, *Ambrosia microcephala*, *Andropogon bicornis*, *Andropogon leucostachyus*, *Andropogon seloanus*, *Antheophora hermaphrodita*, *Aspilia martii*, *Astrea lobata*, *Axonopus compressus*, *Axonopus polydactylus*, *Bidens pilosa*, *Cecropia pachystachya*, *Cenchrus echinatus*, *Cenchrus myosuroides*, *Centrosema pascuorum*, *Chloris barbata*, *Clidemia hirta*, *Conocliniopsis prasiifolia*, *Crotalaria incana*, *Crotalaria pallida*, *Crotalaria retusa*, *Crotalaria vitellina*, *Croton glandulosus*, *Croton hirtus*, *Croton sellowii*, *Cyperus chalaranthus*, *Dactyloctenium aegyptium*, *Desmodium adscendens*, *Desmodium barbatum*, *Desmodium glabrum*, *Desmodium incanum*, *Desmodium triflorum*, *Dicranopteris flexuosa*, *Digitaria ciliaris*, *Digitaria insularis*, *Dodonaea viscosa*, *Elaeis guineensis*, *Elephantopus hirtiflorus*, *Eleusine indica*, *Emilia sonchifolia*, *Eragrostis pilosa*, *Euphorbia hirta*, *Euphorbia hyssopifolia*, *Euphorbia prostrata*, *Galactia striata*, *Gossypium hirsutum*, *Guazuma ulmifolia*, *Hemiscola aculeata*, *Hybanthus calceolaria*, *Indigofera microcarpa*, *Lasiacis ligulata*, *Macroptilium gracile*, *Mikania obovata*, *Mimosa bimucronata*, *Mimosa caesalpinifolia*, *Mimosa pudica*, *Olyra latifolia*, *Pharus lappulaceus*, *Phyllanthus niruri*, *Phytolacca thyrsiflora*, *Piper corcovadensis*, *Pityrogramma calomelanos*, *Poly gala glochidiata*, *Poly gala paniculata*, *Pseudechinolaena polystachya*, *Rolandra fruticosa*, *Schultesia guianensis*, *Schwenckia americana*, *Scoparia dulcis*, *Senna obtusifolia*, *Sida ciliaris*, *Sida paniculata*, *Sida plumosa*, *Solanum americanum*, *Sphagneticola trilobata*, *Stachytarpheta angustifolia*, *Stemodia foliosa*, *Stylosanthes guianensis*, *Stylosanthes scabra*, *Stylosanthes viscosa*, *Tephrosia cinerea*, *Turnera subulata*, *Vorrionia verbenacea*, *Zornia curvata*.

b) Medium regeneration stage

Andira fraxinifolia, *Astrea lobata*, *Casearia sylvestris*, *Cassytha filiformis*, *Cecropia pachystachya*, *Centrosema pascuorum*, *Cestrum axillare*, *Clidemia hirta*, *Clusia nemorosa*, *Croton glandulosus*, *Croton hirtus*, *Croton sellowii*, *Dodonaea viscosa*, *Duguetia gardneriana*, *Elaeis guineensis*, *Euphorbia hirta*, *Guazuma ulmifolia*, *Inga blanchetiana*, *Inga edulis*, *Jacquinia armillaris*, *Jatropha mollissima*, *Licania tomentosa*, *Mimosa bimucronata*, *Mimosa caesalpinifolia*, *Myrcia sylvatica*, *Parodiolyra micrantha*, *Passiflora cincinnata*, *Passiflora edulis*, *Passiflora foetida*, *Passiflora galbana*, *Passiflora kermesina*, *Passiflora misera*, *Passiflora suberosa*, *Pera glabrata*, *Phyllostylon brasiliense*, *Psidium guineense*, *Rauwolfia grandiflora*, *Samanea saman*, *Schinus terebinthifolius*, *Scoparia dulcis*, *Senna obtusifolia*, *Serjania salzmanniana*, *Sideroxylon obtusifolium*, *Solanum paludosum*, *Solanum paniculatum*, *Stigmaphyllon ciliatum*, *Stigmaphyllon paralias*, *Tillandsia gardneri*, *Tillandsia stricta*, *Tillandsia tenuifolia*, *Tournefortia candidula*, *Trema micrantha*, *Vorrionia curassavica*, *Vismia guianensis*, *Vriesea procera*, *Ximenia americana*.

c) Advanced regeneration stage

Adenocalymma assum, *Amphilophium crucigerum*, *Anacardium occidentale*, *Andira fraxinifolia*, *Aniba firmula*, *Annona glabra*, *Annona montana*, *Annona pickelii*, *Anthurium affine*, *Bignonia corymbosa*, *Caesalpinia echinata**, *Callichlamys latifolia*, *Calypttranthes dardanoi*, *Campomanesia dichotoma*, *Casearia sylvestris*, *Cecropia pachystachya*, *Cestrum axillare*, *Cissus verticillata*, *Clusia nemorosa*, *Coccoloba laevis*, *Couepia rufa*, *Coussapoa microcarpa*, *Cyrtopodium gigas*, *Duguetia gardneriana*, *Elaeis guineensis*, *Epidendrum cinnabarinum*, *Epidendrum rigidum*, *Heterotaxis brasiliensis*, *Hippocratea volubilis*, *Inga blanchetiana*, *Inga capitata*, *Inga edulis*, *Inga laurina*, *Inga subnuda*, *Inga thibaudiana*, *Inga vera*, *Jacaranda puberula*, *Licania tomentosa*, *Manilkara salzmannii*, *Miconia albicans*, *Microgramma vacciniifolia*, *Myrcia fallax*, *Myrcia hirtiflora*, *Myrcia multiflora*, *Myrcia rotundifolia*, *Ocotea gardneri*, *Ocotea puberula*, *Oeceoclades maculata*, *Parodiolyra micrantha*, *Passiflora cincinnata*, *Passiflora edulis*, *Passiflora foetida*, *Passiflora galbana*, *Passiflora kermesina*, *Passiflora misera*, *Passiflora suberosa*, *Peperomia rotundifolia*, *Peperomia tetraphylla*, *Pera glabrata*, *Pereskia aculeata*, *Philodendron imbe*, *Phoradendron affine*, *Phoradendron bathyoryctum*, *Phoradendron chrysocladon*, *Phoradendron crassifolium*, *Phoradendron obtusissimum*, *Phoradendron piperoides*, *Phoradendron quadrangulare*, *Piper mollicomum*, *Pouteria caimito*, *Pouteria grandiflora*, *Prescottia stachyoides*, *Protium heptaphyllum*, *Psidium guineense*, *Pterygota brasiliensis*, *Qualea cryptantha*, *Rhipsalis baccifera*, *Sacoglottis mattogrossensis*, *Samanea saman*, *Schinus terebinthifolius*, *Schwartzia brasiliensis*, *Serjania salzmanniana*, *Sideroxylon obtusifolium*, *Simaba floribunda*, *Stigmaphyllon blanchetii*, *Stigmaphyllon ciliatum*, *Stigmaphyllon paralias*, *Swartzia simplex*, *Syagrus schizophylla*.

Tapirira guianensis, *Tillandsia gardneri*, *Tillandsia stricta*, *Tillandsia tenuifolia*, *Tillandsia tricholepis*, *Tillandsia usneoides*, *Tournefortia candidula*, *Vanilla chamissonis*, *Varronia curassavica*, *Voyria flavescens*, *Vriesea gigantea*, *Vriesea procera*, *Ximenia americana*, *Xylopia laevigata*, *Zollernia ilicifolia*.

IV – Beach Transitional Forest – Another vegetation typology:

a) Primary stage

Acrocomia aculeata, *Abarema filamentosa*, *Adenocalymma assum*, *Amphilophium crucigerum*, *Anadenanthera colubrina*, *Anaxagorea dolichocarpa*, *Andira fraxinifolia*, *Aniba firmula*, *Annona glabra*, *Annona montana*, *Annona pickelii*, *Anthurium affine*, *Apuleia leiocarpa*, *Aspidosperma olivaceum*, *Aspidosperma pyriformis*, *Aureliana fasciculata*, *Bignonia corymbosa*, *Bowdichia virgilioides*, *Buchenavia tetraphylla*, *Callichlamys latifolia*, *Cereus fernambucensis*, *Cereus jamacaru*, *Combretum laxum*, *Copaifera langsdorffii*, *Cordia superba*, *Curatella americana*, *Davilla cearensis*, *Dolioscarpus dentatus*, *Emmeorhiza umbellata*, *Enterolobium contortisiliquum*, *Epidendrum pseudodiforme*, *Forsteronia leptocarpa*, *Genipa americana*, *Guazuma ulmifolia*, *Gustavia augusta*, *Hancornia speciosa*, *Handroanthus chrysotrichus*, *Heliconia angustifolia*, *Heterotaxis brasiliensis*, *Himatanthus phagedaenicus*, *Hippocratea volubilis*, *Hirtella racemosa*, *Hymenaea courbaril*, *Hymenaea rubriflora*, *Inga capitata*, *Inga laurina*, *Inga subnuda*, *Inga thibaudiana*, *Inga vera*, *Lacistema robustum*, *Libidibia ferrea*, *Marlierea strigipes*, *Maytenus rigida*, *Mikania obovata*, *Nectandra membranacea*, *Ocotea gardneri*, *Ocotea glomerata*, *Ocotea longifolia*, *Ocotea odorifera**, *Ocotea puberula*, *Orthomene schomburgkii*, *Parkia pendula*, *Paullinia pinnata*, *Peltastes peltatus*, *Pera glabrata*, *Philodendron imbe*, *Phoradendron affine*, *Phoradendron bathyoryctum*, *Phoradendron chrysocladon*, *Phoradendron crassifolium*, *Phoradendron obtusissimum*, *Phoradendron piperoides*, *Phoradendron quadrangulare*, *Piper mollicomum*, *Platymiscium floribundum*, *Pouteria caimito*, *Pradosia lactescens*, *Protium heptaphyllum*, *Pseudananas sagenarius*, *Pterocarpus rohrii*, *Rhipsalis baccifera*, *Ruprechtia laxiflora*, *Sabicea grisea*, *Sacoglottis mattogrossensis*, *Schefflera morototoni*, *Schwartzia brasiliensis*, *Sterculia apetala*, *Syagrus oleracea*, *Talisia esculenta*, *Tetracera breyniana*, *Tillandsia geminiflora*, *Tillandsia recurvata*, *Tillandsia tenuifolia*, *Tillandsia usneoides*, *Tocoyena brasiliensis*, *Voyria flavescens*, *Vriesea gigantea*, *Vriesea rodrigasiana*, *Vriesea scalaris*, *Xylopia laevigata*, *Zanthoxylum rhoifolium*, *Zollernia ilicifolia*.

b) Initial regeneration stage

Acanthospermum hispidum, *Ambrosia microcephala*, *Antheophora hermaphrodita*, *Aspilia martii*, *Axonopus compressus*, *Axonopus polydactylus*, *Bidens pilosa*, *Centrosema pascuorum*, *Chamaecrista flexuosa*, *Chiococca alba*, *Chloris barbata*, *Cissus erosa*, *Cnidoscolus urens*, *Conocliniopsis prasiifolia*, *Coutarea hexandra*, *Crotalaria incana*, *Crotalaria pallida*, *Crotalaria retusa*, *Crotalaria vitellina*, *Desmodium adscendens*, *Desmodium barbatum*, *Desmodium glabrum*, *Desmodium incanum*, *Desmodium triflorum*, *Dicranopteris flexuosa*, *Dig itaria ciliaris*, *Dig itaria insularis*, *Elaeis guineensis*, *Elephantopus hirtiflorus*, *Eleusine indica*, *Emilia sonchifolia*, *Eragrostis pilosa*, *Eragrostis secundiflora*, *Euphorbia hirta*, *Euphorbia hyssopifolia*, *Euphorbia prostrata*, *Galactia striata*, *Guazuma ulmifolia*, *Guettarda angelica*, *Hemiscola aculeata*, *Hyban thus calceolaria*, *Ichnanthus nemoralis*, *Indigofera campestris*, *Indigofera microcarpa*, *Inga edulis*, *Lantana camara*, *Lantana rugulosa*, *Lantana viscosa*, *Lasiacis ligulata*, *Macroptilium gracile*, *Malvastrum coromandelianum*, *Mikania obovata*, *Mimosa bimucronata*, *Mimosa caesalpiniiifolia*, *Mimosa pudica*, *Mimosa quadrivalvis*, *Mimosa somnians*, *Olyra latifolia*, *Pavonia cancellata*, *Pavonia fruticosa*, *Pharus lappulaceus*, *Phyllanthus niruri*, *Phytolacca thyrsiflora*, *Piper corcovadensis*, *Poly gala glochidiata*, *Poly gala paniculata*, *Poly gala violacea*, *Pseudechinolaena polystachya*, *Psychotria bahiensis*, *Psychotria deflexa*, *Psychotria hoffmannseggiana*, *Pterolepis polygonoides*, *Richardia grandiflora*, *Rolandra fruticosa*, *Schultesia guianensis*, *Schwenckia americana*, *Senna obtusifolia*, *Senna pendula*, *Setaria parviflora*, *Setaria scandens*, *Setaria vulpiseta*, *Sida ciliaris*, *Sida linifolia*, *Sida paniculata*, *Sida rhombifolia*, *Solanum americanum*, *Sphagneticola trilobata*, *Stachytarpheta angustifolia*, *Stylosanthes angustifolia*, *Stylosanthes guianensis*, *Stylosanthes scabra*, *Stylosanthes viscosa*, *Tephrosia cinerea*, *Turnera subulata*, *Vismia guianensis*, *Waltheria americana*, *Zornia curvata*.

c) Medium regeneration stage

Abrus precatorius, *Albizia pedicellaris*, *Andira anthelmia*, *Andira fraxinifolia*, *Aparisthium cordatum*, *Bauhinia acuruana*, *Byrsonima gardnerana*, *Byrsonima sericea*, *Campyloneurum repens*, *Casearia javitensis*, *Casearia sylvestris*, *Cassytha filiformis*, *Cecropia pachystachya*, *Centrosema pascuorum*, *Ceratosanthes trifoliata*, *Chamaecrista cytisoides*, *Chamaecrista ensiformis*, *Chrysophyllum rufum*, *Cissus erosa*, *Cissus simsiana*, *Cissus verticillata*, *Clusia nemorosa*, *Copaifera luetzelburgii*, *Coussapoa microcarpa*, *Coutarea hexandra*, *Dorstenia brasiliensis*, *Eugenia puniceifolia*, *Guarea guidonia*, *Guazuma ulmifolia*, *Guettarda angelica*, *Guettarda platypoda*, *Heisteria perianthomega*, *Inga edulis*, *Jacquinia armillaris*, *Lantana camara*, *Lantana rugulosa*, *Lantana viscosa*, *Machaerium aculeatum*, *Maclura tinctoria*, *Malvastrum coromandelianum*, *Metrodorea nigra*, *Miconia albicans*, *Miconia mirabilis*, *Mimosa bimucronata*, *Mimosa caesalpiniiifolia*, *Mimosa ophthalmocentra*, *Myrcia laruotteana*, *Myrcia tomentosa*, *Passiflora cincinnata*, *Passiflora edulis*, *Passiflora foetida*, *Passiflora galbana*, *Passiflora kermesina*, *Passiflora misera*, *Passiflora suberosa*, *Pera glabrata*, *Phyllostylon*

brasiliense, *Pilocarpus riedelianus*, *Pilocarpus spicatus*, *Piper amalago*, *Piper arboreum*, *Piper divaricatum*, *Piptadenia stipulacea*, *Pityrocarpa obliqua*, *Pogonophora schomburgkiana*, *Poincianella pyramidalis*, *Prockia crucis*, *Pseudananas sagenarius*, *Psidium guineense*, *Psychotria bahiensis*, *Psychotria deflexa*, *Psychotria hoffmannseggiana*, *Pterolepis polygonoides*, *Rhynchosia phaseoloides*, *Sabicea cinerea*, *Salacia elliptica*, *Schinus terebinthifolius*, *Senna alata*, *Senna gardneri*, *Senna macranthera*, *Senna obtusifolia*, *Senna pendula*, *Senna splendida*, *Senna trachypus*, *Sideroxylon obtusifolium*, *Solanum caavurana*, *Solanum paludosum*, *Solanum paniculatum*, *Stigmaphyllon auriculatum*, *Strychnos parvifolia*, *Tabebuia aurea*, *Tapirira guianensis*, *Tillandsia gardneri*, *Tillandsia tenuifolia*, *Tillandsia tricholepis*, *Tontelea miersii*, *Trema micrantha*, *Trigonía nivea*, *Vigna candida*, *Ziziphus joazeiro*.

d) Advanced regeneration stage

Abrus precatorius, *Abarema filamentosa*, *Adenocalymma assum*, *Albizia pedicellaris*, *Amphilophium crucigerum*, *Anadenanthera colubrina*, *Anaxagorea dolichocarpa*, *Andira anthelmia*, *Andira fraxinifolia*, *Aniba firmula*, *Annona glabra*, *Annona montana*, *Annona pickelii*, *Anthurium affine*, *Aparisthium cordatum*, *Apuleia leiocarpa*, *Aureliana fasciculata*, *Bignonia corymbosa*, *Bowdichia virgilioides*, *Buchenavia tetraphylla*, *Byrsonima gardnerana*, *Byrsonima sericea*, *Callichlamys latifolia*, *Campyloneurum repens*, *Casearia javitensis*, *Casearia sylvestris*, *Chamaecrista ensiformis*, *Chrysophyllum rufum*, *Cissus simsiana*, *Cissus verticillata*, *Clusia nemorosa*, *Combretum laxum*, *Copaifera langsdorffii*, *Davilla cearensis*, *Doliocarpus dentatus*, *Emmeorhiza umbellata*, *Epidendrum pseudodiforme*, *Eugenia puniceifolia*, *Genipa americana*, *Guarea guidonia*, *Guazuma ulmifolia*, *Guettarda platypoda*, *Gustavia augusta*, *Heisteria perianthomega*, *Heliconia angustifolia*, *Heterotaxis brasiliensis*, *Hippocratea volubilis*, *Hirtella racemosa*, *Hymenaea courbaril*, *Hymenaea rubriflora*, *Inga capitata*, *Inga laurina*, *Inga subnuda*, *Inga thibaudiana*, *Inga vera*, *Libidibia ferrea*, *Maclura tinctoria*, *Marlierea strigipes*, *Maytenus rigida*, *Metrodorea nigra*, *Miconia mirabilis*, *Myrcia laruotteana*, *Nectandra membranacea*, *Ocotea gardneri*, *Ocotea glomerata*, *Ocotea longifolia*, *Ocotea odorifera**, *Ocotea puberula*, *Orthomene schomburgkii*, *Parkia pendula*, *Passiflora cincinnata*, *Passiflora edulis*, *Passiflora foetida*, *Passiflora galbana*, *Passiflora kermesina*, *Passiflora misera*, *Passiflora suberosa*, *Paullinia pinnata*, *Pera glabrata*, *Philodendron imbe*, *Phoradendron affine*, *Phoradendron bathyoryctum*, *Phoradendron chrysocladon*, *Phoradendron crassifolium*, *Phoradendron obtusissimum*, *Phoradendron piperoides*, *Phoradendron quadrangulare*, *Pilocarpus riedelianus*, *Pilocarpus spicatus*, *Piper divaricatum*, *Piper mollicomum*, *Piptadenia stipulacea*, *Piptadenia viridiflora*, *Pityrocarpa obliqua*, *Platymiscium floribundum*, *Pogonophora schomburgkiana*, *Poincianella pyramidalis*, *Pouteria caimito*, *Pradosia lactescens*, *Prockia crucis*, *Protium heptaphyllum*, *Pseudananas sagenarius*, *Psidium guineense*, *Psychotria hoffmannseggiana*, *Pterocarpus rohrii*, *Rhipsalis baccifera*, *Rhynchosia phaseoloides*, *Ruprechtia laxiflora*, *Sabicea cinerea*, *Sabicea grisea*, *Sacoglottis mattogrossensis*, *Salacia elliptica*, *Schefflera morototoni*, *Schwartzia brasiliensis*, *Sideroxylon obtusifolium*, *Sterculia apetala*, *Stigmaphyllon auriculatum*, *Strychnos parvifolia*, *Syagrus oleracea*, *Tabebuia aurea*, *Talisia esculenta*, *Tapirira guianensis*, *Tetracera breyniana*, *Tillandsia gardneri*, *Tillandsia geminiflora*, *Tillandsia recurvata*, *Tillandsia tenuifolia*, *Tillandsia tricholepis*, *Tillandsia usneoides*, *Tocoyena brasiliensis*, *Tontelea miersii*, *Voyria flavescens*, *Vriesea gigantea*, *Vriesea rodigasiana*, *Xylopi laevigata*, *Zanthoxylum rhoifolium*, *Ziziphus joazeiro*, *Zollernia ilicifolia*.

Art. 2 This Resolution shall enter into effect on the date of its publication.

FRANCISCO GAETANI – Acting Council `President

(*) endemic and rare species and species threatened with extinction.

This text does not substitute the text published in the Official Gazette on Jan. 3, 2012

RESOLUTION 441, December 30, 2011
Published in Official Gazette 2 on Jan. 3, 2012

Approves the list of successional stages indicator species of the Beach vegetation in the State of Rio Grande do Sul, according to Resolution 417 from Nov. 23, 2009.

THE NATIONAL ENVIRONMENT COUNCIL – CONAMA, in accordance with the power bestowed upon the Council by art. 8, item I of Law 6.938 from August 31, 1981, and considering the provisions of art. 4, § 1 of Law 11.428 from December 22, 2006 and CONAMA Resolution 417 from December 23, 2009, decides:

Art. 1 The indicator species of primary vegetation and of the different successional secondary stages of the Atlantic Forest vegetation, which are the subject of art. 4 of Law 11.428 from Dec. 22, 2009 and § 1 of art. 3 of CONAMA Resolution 417 from Nov. 23, 2009, in the State of Rio Grande do Sul, are:

I – Beach Herbaceous and Sub-Shrubby Vegetation:

a) Climax vegetation

Acanthospermum australe, Acanthostyles buniifolius, Achyrocline satureioides, Acicarpa spathulata, Acicarpa tribuloides, Acrostichum danaeifolium, Actinocephalus polyanthus, Aechmea gamosepala, Aechmea lindenii, Aechmea recurvata*, Aeschynomene falcata, Aeschynomene sensitiva, Agalinis communis, Agarista nummularia, Ageratum conyzoides, Alternanthera philoxeroides, Ambrosia tenuifolia, Anagallis arvensis, Anagallis filiformis, Andropogon arenarius, Andropogon bicornis, Andropogon glaucophyllus, Andropogon leucostachyus, Andropogon selloanus, Andropogon virgatus, Androtrichum trig ynum, Apium prostratum*, Aristida circinalis, Aristida spegazzinii, Asclepias mellodora, Aspidia montevidensis, Asplenium gastonis, Asplenium mucronatum, Asplenium serra, Azolla filiculoides, Baccharis articulata, Baccharis conyzoides, Baccharis crispa, Baccharis dracunculifolia, Baccharis glaziovii, Baccharis helichrysoides, Baccharis lateralis, Baccharis leucopappa, Baccharis milleflora, Baccharis pseudomyriocephala, Baccharis retusa, Baccharis singularis, Baccharis spicata, Baccharis vulneraria, Bacopa monnieri, Becquerelia muricata, Begonia cucullata, Begonia fruticosa*, Bidens laevis, Bidens pilosa, Blutaparon portulacoides*, Bolboschoenus robustus, Borreria palustris, Briza erecta, Burmannia australis, Burmannia capitata, Calea pinnatifida, Calea uniflora, Calibrachoa heterophylla, Calycera crassifolia*, Campomanesia xanthocarpa, Campovassouria cruciata, Canna glauca, Canna indica, Cardionema ramosissima, Cayaponia martiana, Cenchrus ciliaris, Cenchrus echinatus, Cenchrus myosuroides, Centella asiatica, Centrosema virginianum, Chamaecrista repens, Chenopodium ambrosioides, Chloris pycnothrix, Chromolaena congesta, Chromolaena laevigata, Ciclospermum leptophyllum, Cladium jamaicense, Commelina difusa, Commelina erecta, Conyza bonariensis, Conyza pampeana, Cotula coronopifolia, Crinum americanum, Cuphea carthagenensis, Cuphea lindmaniana, Cynodon dactylon, Cynodon maritimus, Cyperus aggregatus, Cyperus esculentus, Cyperus giganteus, Cyperus haspan, Cyperus rigens, Dalechampia micromeria, Dalechampia scandens, Dasyphyllum spinescens, Davilla rugosa, Dichantheium sabulorum, Dichondra sericea, Digitaria connivens, Diodella apiculata, Disynaphia ligulifolia, Dodonaea viscosa, Drosera brevifolia, Drymaria cordata, Dyckia encholirioides, Dyckia maritima*, Echinodorus grandiflorus, Echinodorus tenellus, Eclipta elliptica, Eclipta prostrata, Eichhornia azurea, Eichhornia crassipes, Elaphoglossum luridum, Elaphoglossum macrophyllum, Eleocharis barrosii, Eleocharis geniculata, Eleocharis interstincta, Eleocharis maculosa, Eleocharis minima, Eleocharis obtusa, Eleocharis rabenii, Eleocharis sellowiana, Eleocharis viridans, Elephantopus mollis, Ephedra tweediana*, Epidendrum fulgens, Equisetum giganteum, Era grostis bahiensis, Eragrostis cataclasta, Era grostis ciliaris, Erechites hieracifolius, Erechites valerianifolius, Eriocaulon modestum, Eryngium eburneum, Eryngium elegans, Eryngium horridum, Eryngium nudicaule, Eryngium sanguisorba, Esterhazyia splendida, Eulophia alta, Eustachys retusa, Evolvulus pusillus, Facelis retusa, Fimbristylis autumnalis, Fimbristylis dichotoma, Fimbristylis spadicea, Fimbristylis squarrosa, Floscopa glabrata, Fuirena robusta, Fuirena umbellata, Gamocha eta americana, Gaylussacia brasiliensis, Gibasis geniculata, Glandularia aristigera, Gnaphalium cheiranthifolium, Gochnatia polymorpha*, Gomphrena perennis*, Gomphrena vaga*, Grazielia gaudichaudiana, Gunnera herteri*, Gymnopogon legrandii, Habenaria bractescens, Habenaria parviflora, Habenaria pleiophylla, Habenaria repens, Heteranthera reniformis, Heterothalamus psiadioides, Holocheilus brasiliensis, Hydrocotyle bonariensis, Hydrocotyle exigua, Hydrocotyle ranunculoides, Hydrolea spinosa, Hypericum connatum, Hypochaeris chillensis, Hypoxis decumbens, Hyptis fasciculata, Hyptis mutabilis, Imperata brasiliensis, Indigofera sabulicola, Ipomoea cairica, Ischaemum minus, Juncus acutus, Juncus capillaceus, Juncus dichotomus, Juncus marginatus, Juncus microcephalus, Kyllinga vaginata, Lantana camara, Laurembergia tetrandra*, Leandra australis, Leandra cardiophylla, Lepidium virginicum, Lilaeopsis attenuata, Limonium brasiliense, Liparis nervosa, Ludwigia peploides, Lycopodiella alopecuroides, Lycopodiella cernua, Lycopodium clavatum, Mandevilla pentlandiana, Margyricarpus pinnatus, Mayaca fluviatilis, Mecardonia procumbens, Megalastrum connexum, Micranthemum umbrosum, Microgramma vacciniifolia, Mikania campanulata, Mikania chlorolepis*, Mikania clematidifolia*, Mikania cordifolia, Mikania cynanchifolia, Mikania glomerata, Mikania hastato-cordata*, Mikania involucrata, Mikania laevigata, Mikania lindleyana, Mikania lundiana, Mikania micrantha, Mikania microptera*, Mikania pinnatiloba*,*

Mikania salviifolia, *Mikania ternata*, *Mikania trinervis**, *Mikania ulei**, *Mikania vitifolia*, *Mollugo verticillata*, *Mutisia speciosa*, *Myriophyllum aquaticum*, *Neocabreria serrulata*, *Neomarica caerulea*, *Nymphoides indica*, *Oenothera mollissima*, *Opuntia monacantha*, *Oxypetalum appendiculatum*, *Oxypetalum balansae*, *Oxypetalum macrolepis*, *Oxypetalum tomentosum*, *Panicum aquaticum*, *Panicum dichotomiflorum*, *Panicum gouinii*, *Panicum laxum*, *Panicum parvifolium*, *Panicum racemosum*, *Panicum schwackeanum*, *Panicum sellowii*, *Paspalum arenarium*, *Paspalum brunneum*, *Paspalum conjugatum*, *Paspalum corcovadense*, *Paspalum dilatatum*, *Paspalum distichum*, *Paspalum hyalinum*, *Paspalum mandiocanum*, *Paspalum maritimum*, *Paspalum notatum*, *Paspalum paniculatum*, *Paspalum plicatum*, *Paspalum pumilum*, *Paspalum ramboi*, *Paspalum urvillei*, *Paspalum vaginatum*, *Passiflora capsularis*, *Pecluma paradiseae*, *Pelexia bonariensis*, *Pelexia burgeri*, *Peplonia axillaris*, *Pharus lappulaceus*, *Piper corcovadensis*, *Piper solmsianum*, *Pistia stratiotes*, *Plantago australis*, *Pluchea sagittalis*, *Polybotrya cylindrica*, *Polycarpon tetraphyllum*, *Polygala cyparissias*, *Polygala leptocaulis*, *Polygala paniculata*, *Polygonum acuminatum*, *Polygonum hydropiperoides*, *Polygonum punctatum*, *Polystichum montevidense*, *Pontederia cordata*, *Portulaca oleracea*, *Potamogeton ferrugineus*, *Pseudognaphalium gaudichaudianum*, *Psidium cattleianum*, *Pterocaulon angustifolium*, *Pterocaulon lorentzii*, *Pterocaulon purpurascens*, *Pycreus lanceolatus*, *Pycreus polystachyos*, *Regnellidium diphyllum**, *Rhynchospora asperula*, *Rhynchospora brittonii*, *Rhynchospora corymbosa*, *Rhynchospora globularis*, *Rhynchospora holoschoenoides*, *Rhynchospora junciformis*, *Rhynchospora marisculus*, *Rhynchospora rugosa*, *Ruellia angustiflora*, *Ruellia geminiflora*, *Ruellia morongii*, *Rumohra adiantiformis*, *Sagittaria montevidensis*, *Salvinia auriculata*, *Salvinia biloba*, *Schizachyrium condensatum*, *Schoenoplectus americanus*, *Schoenoplectus californicus*, *Scirpus giganteus*, *Scleria hirtella*, *Scleria latifolia*, *Scleria secans*, *Scleria uleana*, *Scoparia dulcis*, *Senecio bonariensis*, *Senecio brasiliensis*, *Senecio ceratophylloides*, *Senecio crassiflorus*, *Senecio icoglossus*, *Sinningia sellowii*, *Smallanthus connatus*, *Smilax campestris*, *Smilax cognata*, *Smilax quinquenervia*, *Solanum reineckii*, *Sommerfeltia spinulosa*, *Spartina alterniflora*, *Spartina ciliata*, *Spartina densiflora*, *Sporobolus indicus*, *Sporobolus virginicus*, *Steinchisma decipiens*, *Stemodia hyptoides*, *Stenachaenium macrocephalum**, *Stenotaphrum secundatum*, *Stylosanthes guianensis*, *Stylosanthes viscosa*, *Symphyopappus casarettoi*, *Symphyotrichum squamatum*, *Syngonanthus caulescens*, *Syngonanthus gracilis*, *Tagetes minuta*, *Ternstroemia brasiliensis**, *Thelypteris serrata*, *Tibouchina asperior**, *Tradescantia crassula*, *Triglochin striata*, *Trixis praestans*, *Utricularia foliosa*, *Utricularia gibba*, *Utricularia subulata*, *Utricularia tricolor*, *Vernonia puberula*, *Vigna longifolia*, *Vigna luteola*, *Vriesea friburgensis**, *Wahlenbergia linarioides*, *Xanthium strumarium*, *Xyris jupicai*, *Zephyranthes tubispatha*, *Zornia glabra*.

II – Beach shrub vegetation:

a) Primary stage

Acacia longifolia, *Aechmea nudicaulis**, *Agarista nummularia*, *Asclepias curassavica*, *Asplenium gastonis*, *Asplenium mucronatum*, *Asplenium serra*, *Bactris setosa*, *Boehmeria cylindrica*, *Bromelia antiacantha*, *Byttneria australis*, *Calliandra tweedii*, *Chiococca alba*, *Clidemia hirta*, *Clusia criuva**, *Cordia ecalyculata*, *Davilla rugosa*, *Diospyros inconstans*, *Dodonaea viscosa*, *Edmundoa lindenbergii**, *Elaphoglossum luridum*, *Elaphoglossum macrophyllum*, *Endlicheria paniculata*, *Ephedra tweediana**, *Epidendrum rigidum*, *Era grostis bahiensis*, *Era grostis cataclasta*, *Era grostis ciliaris*, *Eryngium eburneum*, *Eryngium elegans*, *Erythroxylum amplifolium*, *Erythroxylum argentinum*, *Eugenia uniflora*, *Fridericia chica*, *Gaylussacia brasiliensis*, *Geonoma schottiana**, *Guapira opposita*, *Gymnopogon legrandii*, *Habenaria parviflora*, *Habenaria pleiophylla*, *Hibiscus diversifolius*, *Indigofera suffruticosa*, *Jobinia connivens*, *Liparis nervosa*, *Ludwigia leptocarpa*, *Ludwigia peruviana*, *Mandevilla pentlandiana*, *Matelea denticulata*, *Megalastrum connexum*, *Melothria cucumis*, *Melothria fluminensis*, *Microgramma vacciniifolia*, *Myrcia hartwegiana*, *Myrcia palustris*, *Myrcia seloi*, *Myrrhimum atropurpureum*, *Ocotea puberula*, *Ocotea pulchella*, *Oeceoclades maculata*, *Opuntia monacantha*, *Passiflora capsularis*, *Passiflora kermesina*, *Passiflora mucronata*, *Paullinia trigonia*, *Phoradendron crassifolium*, *Polybotrya cylindrica*, *Polygonum acuminatum*, *Polygonum hydropiperoides*, *Polygonum punctatum*, *Polystichum montevidense*, *Prescottia oligantha*, *Psidium cattleianum*, *Psilochilus modestus*, *Psychotria laciniata*, *Rhabdadenia madida*, *Rumohra adiantiformis*, *Saccharum asperum*, *Sacoila lanceolata*, *Senna corymbosa*, *Smilax campestris*, *Smilax cognata*, *Smilax quinquenervia*, *Solanum glaucophyllum*, *Struthanthus uraguensis*, *Swartzia simplex*, *Syagrus romanzoffiana*, *Tabernaemontana catharinensis*, *Ternstroemia brasiliensis**, *Thelypteris serrata*, *Tibouchina gracilis*, *Tibouchina urvilleana**, *Tillandsia aeranthos**, *Tillandsia gardneri**, *Tillandsia mallemonitii**, *Tillandsia stricta*, *Tillandsia tenuifolia**, *Tournefortia rubicunda*, *Tripodanthus acutifolius*, *Typha domingensis*, *Urvillea glabra*, *Varronia curassavica*, *Vitex megapotamica*, *Vriesea friburgensis**, *Vriesea gigantea**, *Vriesea procera**, *Vriesea vagans*, *Wittrockia superba*, *Zanthoxylum fagara*.

b) Initial regeneration stage

Acanthospermum australe, *Acanthostyles bunifolius*, *Achyrocline satureioides*, *Acicarpa spathulata*, *Acicarpa tribuloides*, *Acmella decumbens*, *Adenostemma brasilianum*, *Ageratum conyzoides*, *Ambrosia tenuifolia*, *Asclepias mellohora*, *Aspilia montevidensis*, *Baccharis articulata*, *Baccharis conyzoides*, *Baccharis crispa*, *Baccharis dracunculifolia*, *Baccharis glaziovii*, *Baccharis helichrysoides*, *Baccharis lateralis*, *Baccharis leucopappa*, *Baccharis milleflora*, *Baccharis pseudomyriocephala*, *Baccharis retusa*, *Baccharis singularis*, *Baccharis spicata*, *Baccharis vulneraria*, *Bidens laevis*, *Bidens pilosa*, *Borreria palustris*, *Calea pinnatifida*, *Calea uniflora*, *Campobassouria cruciata*, *Cenchrus ciliaris*, *Cenchrus echinatus*, *Cenchrus myosuroides*, *Chenopodium ambrosioides*, *Chromolaena congesta*, *Chromolaena laevigata*, *Clusia criuva**, *Conyza bonariensis*, *Conyza pampeana*, *Cotula coronopifolia*, *Croton splendidus*, *Cyperus intricatus*, *Cyperus odoratus*, *Cyperus reflexus*,

Dalechampia micromeria, *Dalechampia scandens*, *Dasyphyllum spinescens*, *Davilla rugosa*, *Desmodium adscendens*, *Desmodium barbatum*, *Desmodium incanum*, *Dicranopteris flexuosa*, *Digitaria insularis*, *Disynaphia ligulifolia*, *Drymaria cordata*, *Eclipta elliptica*, *Eclipta prostrata*, *Elephantopus mollis*, *Erechtites hieracifolius*, *Erechtites valerianifolius*, *Eryngium horridum*, *Eryngium sanguisorba*, *Facelis retusa*, *Gamochoa americana*, *Gnaphalium cheiranthifolium*, *Gochnatia polymorpha**, *Grazielia gaudichaudiana*, *Hedychium coronarium*, *Heterothalamus psiadioides*, *Holocheilus brasiliensis*, *Hypochaeris chillensis*, *Imperata brasiliensis*, *Indigofera suffruticosa*, *Ipomoea cairica*, *Ipomoea indivisa*, *Macroptilium atropurpureum*, *Margyricarpus pinnatus*, *Mikania campanulata*, *Mikania chlorolepis**, *Mikania clematidifolia**, *Mikania cordifolia*, *Mikania*

cynanchifolia, *Mikania glomerata*, *Mikania hastato-cordata**, *Mikania involucrata*, *Mikania laevigata*, *Mikania lindleyana*, *Mikania lundiana*, *Mikania micrantha*, *Mikania microptera**, *Mikania pinnatiloba**, *Mikania salviifolia*, *Mikania ternata*, *Mikania trinervis**, *Mikania ulei**, *Mikania vitifolia*, *Mimosa pudica*, *Mutisia speciosa*, *Neocabreria serrulata*, *Oxalis sarmentosa*, *Petiveria alliacea*, *Pharus lappulaceus*, *Phyllanthus niruri*, *Phyllanthus sellowianus*, *Phytolacca thyrsoiflora*, *Piper corcovadensis*, *Pluchea sagittalis*, *Polygala cyparissias*, *Polygala leptocaulis*, *Polygala paniculata*, *Portulaca oleracea*, *Pseudognaphalium gaudichaudianum*, *Pteridium aquilinum*, *Pterocaulon angustifolium*, *Pterocaulon lorentzii*, *Pterocaulon purpurascens*, *Schultesia australis*, *Senecio bonariensis*, *Senecio brasiliensis*, *Senecio ceratophylloides*, *Senecio crassiflorus*, *Senecio icoglossus*, *Smallanthus connatus*, *Solanum americanum*, *Sommerfeltia spinulosa*, *Spergularia grandis*, *Stachytarpheta cayennensis*, *Stenachaenium macrocephalum**, *Stylosanthes guianensis*, *Stylosanthes scabra*, *Stylosanthes viscosa*, *Symphopappus casarettoi*, *Symphotrichum squamatum*, *Tagetes minuta*, *Trixis praestans*, *Vernonia puberula*, *Xanthium strumarium*, *Zornia curvata*, *Zornia reticulata*.

c) Medium regeneration stage

Acrostichum danaeifolium, *Asclepias curassavica*, *Baccharis dracunculifolia*, *Blechnum binervatum*, *Blechnum brasiliense*, *Blechnum cordatum*, *Blechnum imperiale*, *Blechnum serrulatum*, *Centrosema virginianum*, *Clusia criuva**, *Croton splendidus*, *Dalechampia micromeria*, *Dalechampia scandens*, *Davilla rugosa*, *Epidendrum fulgens*, *Eryngium horridum*, *Eryngium sanguisorba*, *Eulophia alta*, *Ludwigia longifolia*, *Smilax campestris*, *Smilax cognata*, *Smilax quinquenervia*, *Stachytarpheta cayennensis*, *Stigmaphyllon ciliatum*, *Ternstroemia brasiliensis**, *Tillandsia striata*, *Vanilla chamissonis**.

d) Advanced regeneration stage

Acrostichum danaeifolium, *Aechmea nudicaulis**, *Agarista nummularia*, *Bactris setosa*, *Boehmeria cylindrica*, *Bromelia antiacantha*, *Byttneria australis*, *Chiococca alba*, *Cladium jamaicense*, *Clidemia hirta*, *Clusia criuva**, *Croton splendidus*, *Davilla rugosa*, *Dodonaea viscosa*, *Edmundoa lindenii**, *Epidendrum fulgens*, *Eugenia uniflora*, *Eulophia alta*, *Fuirena robusta*, *Fuirena umbellata*, *Gaylussacia brasiliensis*, *Geonoma schottiana**, *Guapira opposita*, *Habenaria parviflora*, *Habenaria pleiophylla*, *Hibiscus diversifolius*, *Liparis nervosa*, *Ludwigia leptocarpa*, *Ludwigia longifolia*, *Melothria cucumis*, *Microgramma vacciniifolia*, *Myrcia hartwegiana*, *Myrcia palustris*, *Myrcia seloi*, *Myrrhineum atropurpureum*, *Oeceoclades maculata*, *Passiflora capsularis*, *Passiflora kermesina*, *Passiflora mucronata*, *Paullinia trigonia*, *Prescottia oligantha*, *Psidium cattleianum*, *Psilochilus modestus*, *Psychotria laciniata*, *Smilax campestris*, *Smilax cognata*, *Smilax quinquenervia*, *Solanum glaucophyllum*, *Stigmaphyllon ciliatum*, *Syagrus romanzoffiana*, *Ternstroemia brasiliensis**, *Thelypteris serrata*, *Tibouchina gracilis*, *Tibouchina urvilleana**, *Tillandsia aeranthos**, *Tillandsia gardneri**, *Tillandsia mallemonii**, *Tillandsia striata*, *Tillandsia tenuifolia**, *Tournefortia rubicunda*, *Urvillea glabra*, *Vanilla chamissonis**, *Vriesea procera**, *Wittrockia superba*, *Zanthoxylum fagara*.

III – Beach arboreal vegetation:

a) Primary stage

Abarema langsdorffii, *Aechmea distichantha**, *Aiouea saligna*, *Alatiglossum ciliatum*, *Alatiglossum micropogon*, *Alchornea glandulosa*, *Alchornea triplinervia*, *Allophylus edulis*, *Amphilophium crucigerum*, *Anchietea pyriformis*, *Anemia phyllitidis*, *Annona glabra**, *Annona maritima**, *Annona montana*, *Annona sylvatica*, *Anredera tucumanensis*, *Anthurium scandens*, *Aparisthium cordatum*, *Bactris setosa*, *Bignonia callistegioides*, *Blechnum binervatum*, *Blechnum brasiliense*, *Blechnum cordatum*, *Blechnum imperiale*, *Blechnum serrulatum*, *Blepharocalyx salicifolius*, *Bomarea edulis*, *Brasiliorchis marginata*, *Brassavola tuberculata*, *Butia capitata**, *Campomanesia guaviroba*, *Cattleya intermedia**, *Cattleya tigrina**, *Cereus alacriportanus*, *Cereus hildmannianus*, *Christensonella ferdinandiana*, *Christensonella neuwiedii*, *Cissus verticillata*, *Clethrascabra**, *Clusia criuva**, *Codonanthe devosiana*, *Codonanthe gracilis*, *Colanthe liacunculata*, *Cordia americana*, *Cordia trichotoma*, *Cupania vernalis*, *Cyathea atrovirens*, *Cyrtopodium gigas*, *Daphnopsis racemosa*, *Davilla rugosa*, *Dendropanax cuneatus*, *Didymoglossum hymenoides*, *Dioscorea campestris*, *Ditassa burchellii*, *Dryadella zebrina*, *Edmundoa lindenii**, *Elaphoglossum luridum*, *Elaphoglossum macrophyllum*, *Endlicheria paniculata*, *Enterolobium contortisiliquum*, *Epidendrum densiflorum*, *Epidendrum fulgens*, *Epidendrum ramosum*, *Epidendrum rigidum*, *Epidendrum strobiliferum*, *Erythrina crista-galli*, *Erythroxylum cuspidifolium*, *Eugenia bacopari*, *Eugenia schuechiana*, *Eulophia alta*, *Euterpe edulis**, *Ficus adhatodifolia*, *Forsteronia leptocarpa*, *Garcinia gardneriana*, *Geonoma schottiana**, *Gomesa crispa*, *Heliconia farinosa*, *Hemionitis tomentosa*, *Heteropterys aenea*, *Heterotaxis brasiliensis*, *Huperzia mandiocana*, *Huperzia quadrifariata*, *Hymenophyllum caudiculatum*, *Hymenophyllum polyanthos*, *Ilex brevicuspis*, *Ilex dumosa*, *Ilex pseudobuxus*, *Ilex theezans*, *Inga sessilis*, *Inga vera*, *Jacaranda puberula**, *Jobinia connivens*, *Laplacea fructifera**, *Lepanthopsis*

floripecten, *Lepismium cruciforme*, *Lepismium warmingianum*, *Lithrea brasiliensis*, *Malaxis excavata*, *Malaxis histioanthera*, *Malaxis pubescens*, *Maranta divaricata*, *Marcgravia polyantha**, *Marlierea eugeniopsoides*, *Matayba elaeagnoides*, *Matayba guianensis*, *Matelea denticulata*, *Megalastrum connexum*, *Melothria cucumis*, *Melothria fluminensis*, *Mendoncia velloziana*, *Mesadenella cuspidata*, *Microgramma vacciniifolia*, *Mikania campanulata*, *Mikania chlorolepis**, *Mikania clematidifolia**, *Mikania cordifolia*, *Mikania cynanchifolia*, *Mikania glomerata*, *Mikania hastato-cordata**, *Mikania involucrata*, *Mikania laevigata*, *Mikania lindleyana*, *Mikania lundiana*, *Mikania micrantha*, *Mikania microptera**, *Mikania pinnatiloba**, *Mikania salviifolia*, *Mikania ternata*, *Mikania trinervis**, *Mikania ulei**, *Mikania vitifolia*, *Myrcia brasiliensis*, *Myrcia glabra*, *Myrcia hartwegiana*, *Myrcia ilheosensis*, *Myrcia multiflora*, *Myrcia pubipetala*, *Myrcia pulchra*, *Myrcia richardiana*, *Myrcia splendens*, *Myrciaria tenella*, *Myrsine guianensis*, *Myrsine parvifolia*, *Myrsine umbellata*, *Nectandra megapotamica*, *Nectandra oppositifolia*, *Neomitranthes cordifolia*, *Nidularium innocentii*, *Nidularium procerum*, *Ocotea puberula*, *Ocotea pulchella*, *Octomeria crassifolia*, *Octomeria gracilis*, *Oeceoclades maculata*, *Pachystroma longifolium*, *Paullinia trigonia*, *Pecluma recurvata*, *Pelexia burgeri*, *Pelexia novofriburgensis*, *Peltastes peltatus*, *Peperomia glabella*, *Peperomia pereskiaefolia*, *Peperomia rotundifolia*, *Peperomia tetraphylla*, *Peperomia urocarpa*, *Pera glabrata*, *Pereskia aculeata**, *Peritassa calypsoides*, *Philodendron appendiculatum*, *Philodendron bipinnatifidum*, *Phoradendron affine*, *Phoradendron bathyoryctum*, *Phoradendron crassifolium*, *Phoradendron falcifrons*, *Phoradendron piperoides*, *Phoradendron quadrangulare*, *Phymatidium myrtophilum*, *Pisonia aculeata*, *Pleopeltis angusta*, *Pleopeltis hirsutissima*, *Polybotrya cylindrica*, *Polyphlebiumpyxidiferum*, *Polypodium catharinae*, *Polystachyacaespitosa*, *Polystachyaconcreta*, *Polystichum montevidense*, *Posoqueria latifolia*, *Prescottia oligantha*, *Prescottia stachyoides*, *Prosthechea vespa*, *Psidium cattleianum*, *Psilochilus modestus*, *Rhipsalis baccifera*, *Rhipsalis floccosa*, *Rhipsalis paradoxa**, *Rhipsalis teres*, *Rodriguezia decora*, *Rumohra adiantiformis*, *Sacoila lanceolata*, *Sanderella discolor*, *Sapium glandulosum*, *Sauroglossum nitidum*, *Schinus polygamus*, *Schinus terebinthifolius*, *Solanum arenarium**, *Solanum pseudo quina*, *Solanum sanctae-catharinae*, *Sorocea bonplandii*, *Specklinia seriata*, *Stelis fraterna*, *Stelis papaquerensis*, *Struthanthus uraguensis*, *Swartzia simplex*, *Syagrus romanzoffiana*, *Taccarum peregrinum**, *Ternstroemia brasiliensis**, *Tibouchina trichopoda**, *Tillandsia gardneri**, *Tillandsia mallemonitii**, *Tillandsia recurvata*, *Tillandsia stricta*, *Tillandsia tenuifolia**, *Tillandsia tricholepis**, *Tillandsia usneoides**, *Trichomanes angustatum*, *Trichomanes radicans*, *Tripodanthus acutifolius*, *Trithrinax brasiliensis**, *Urvillea glabra*, *Vanilla chamissonis**, *Vriesea carinata**, *Vriesea gigantea**, *Vriesea incurvata**, *Vriesea pauperrima*, *Vriesea philippocoburgii**, *Vriesea procera**, *Vriesea vagans*, *Weinmannia paulliniifolia**, *Wittrockia superba*, *Wulfschlaegelia aphylla*, *Xylopiya brasiliensis**.

b) Initial regeneration stage

Acanthospermum australe, *Acanthostyles bunifolius*, *Achyrocline satureioides*, *Acicarpha spathulata*, *Acmella decumbens*, *Adenostemma brasilianum*, *Ageratum conyzoides*, *Ambrosia tenuifolia*, *Andropogon arenarius*, *Andropogon bicornis*, *Andropogon glaucophyllus*, *Andropogon leucostachyus*, *Andropogon selleanus*, *Andropogon virgatus*, *Araujia sericifera*, *Asclepias mellodora*, *Aspilia montevidensis*, *Asplenium gastonis*, *Asplenium mucronatum*, *Asplenium serra*, *Axonopus compressus*, *Axonopus eminens*, *Axonopus obtusifolius*, *Baccharis articulata*, *Baccharis conyzoides*, *Baccharis crispa*, *Baccharis dracunculifolia*, *Baccharis glaziovii*, *Baccharis helichrysoides*, *Baccharis lateralis*, *Baccharis leucopappa*, *Baccharis milleflora*, *Baccharis pseudomyriocephala*, *Baccharis retusa*, *Baccharis singularis*, *Baccharis spicata*, *Baccharis vulneraria*, *Bidens laevis*, *Bidens pilosa*, *Calamagrostis alba*, *Calea pinnatifida*, *Calea uniflora*, *Campovassouria cruciata*, *Campylopus savannarum*, *Cecropia pachystachya*, *Celosia grandifolia**, *Cenchrus ciliaris*, *Cenchrus echinatus*, *Cenchrus myosuroides*, *Centrosema pascuorum*, *Chenopodium ambrosioides*, *Chromolaena congesta*, *Chromolaena laevigata*, *Clidemia hirta*, *Conyza bonariensis*, *Conyza pampeana*, *Cotula coronopifolia*, *Croton splendidus*, *Cyperus intricatus*, *Cyperus odoratus*, *Cyperus reflexus*, *Dalechampia micromeria*, *Dalechampia scandens*, *Dasyphyllum spinescens*, *Desmodium adscendens*, *Desmodium barbatum*, *Desmodium incanum*, *Dicranopteris flexuosa*, *Digitaria ciliaris*, *Digitaria insularis*, *Disynaphia ligulifolia*, *Dodonaea viscosa*, *Drymaria cordata*, *Eclipta elliptica*, *Eclipta prostrata*, *Elephantopus mollis*, *Eleusine indica*, *Eragrostis pilosa*, *Erechtites hieracifolius*, *Erechtites valerianifolius*, *Euphorbia papillosa*, *Euphorbia prostrata*, *Facelis retusa*, *Gamochoeta americana*, *Gnaphalium cheiranthifolium*, *Gochonata polymorpha**, *Gomphrena perennis**, *Gomphrena vaga**, *Grazielia gaudichaudiana*, *Hedychium coronarium*, *Heterothalamus psiadioides*, *Holocheilus brasiliensis*, *Hypochoeris chillensis*, *Ichnanthus pallens*, *Imperata brasiliensis*, *Indigofera suffruticosa*, *Ipomoea cairica*, *Ipomoea indivisa*, *Lasiacis divaricata*, *Macroptilium atropurpureum*, *Mikania campanulata*, *Mikania chlorolepis**, *Mikania clematidifolia**, *Mikania cordifolia*, *Mikania cynanchifolia*, *Mikania glomerata*, *Mikania hastato-cordata**, *Mikania involucrata*, *Mikania laevigata*, *Mikania lindleyana*, *Mikania lundiana*, *Mikania micrantha*, *Mikania microptera**, *Mikania pinnatiloba**, *Mikania salviifolia*, *Mikania ternata*, *Mikania trinervis**, *Mikania ulei**, *Mikania vitifolia*, *Mimosa bimucronata*, *Mimosa pudica*, *Mommina cuneata*, *Mutisia speciosa*, *Neocabrera serrulata*, *Olyra latifolia*, *Oplismenus hirtellus*, *Oxalis sarmentosa*, *Petiveria alliacea*, *Pharus lappulaceus*, *Phyllanthus niruri*, *Phyllanthus sellowianus*, *Phytolacca thyrsoiflora*, *Piper corcovadense*, *Pluchea sagittalis*, *Polygala extraaxillaris*, *Polygala paniculata*, *Pseudechinolaena polystachya*, *Pseudognaphalium gaudichaudianum*, *Pteridium aquilinum*, *Pterocaulon angustifolium*, *Pterocaulon lorentzii*, *Pterocaulon purpurascens*, *Saccharum asperum*, *Schultesia australis*, *Senecio bonariensis*, *Senecio brasiliensis*, *Senecio ceratophylloides*, *Senecio crassiflorus*, *Senecio icoglossus*, *Sida acuta*, *Smallanthus connatus*, *Solanum americanum*, *Sommerfeltia spinulosa*, *Spergularia grandis*, *Stenachaenium macrocephalum**, *Streptochaeta spicata**, *Stylosanthes guianensis*, *Stylosanthes scabra*, *Stylosanthes viscosa*, *Symphopappus casarettoi*, *Symphotrichum squamatum*, *Tagetes minuta*, *Triumfetta rhomboidea*, *Trixis praestans*, *Vernonia puberula*, *Xanthium strumarium*, *Zornia curvata*, *Zornia reticulata*.

c) Medium regeneration stage

Allophylus edulis, *Araujia sericifera*, *Campylopus savannarum*, *Casearia sylvestris*, *Cecropia pachystachya*, *Celosia grandifolia**, *Celtis fluminensis*, *Celtis iguanaea*, *Celtis spinosa*, *Centrosema pascuorum*, *Centrosema virginianum*, *Clusia criuva**, *Croton splendidus*, *Cupania vernalis*, *Dalechampia micromeria*, *Dalechampia scandens*, *Davilla rugosa*, *Ditassa burchellii*, *Ilex brevicuspis*, *Ilex dumosa*, *Ilex pseudobuxus*, *Ilex theezans*, *Lithrea brasiliensis*, *Matayba guianensis*, *Mimosa bimucronata*, *Myrceugenia campestris*, *Myrsine coriacea*, *Passiflora alata*, *Passiflora amethystina**, *Passiflora edulis**, *Passiflora foetida*, *Passiflora misera*, *Passiflora suberosa*, *Pera glabrata*, *Psidium salutare*, *Psychotria alba*, *Schinus terebinthifolius*, *Sideroxylon obtusifolium*, *Stigmaphyllon ciliatum*, *Ternstroemia brasiliensis**, *Tillandsia stricta*, *Trema micrantha*.

d) Advanced regeneration stage

Acacia plumosa, *Actinostemon concolor*, *Aiouea saligna*, *Alatiglossum ciliatum*, *Alatiglossum micropogon*, *Alchornea glandulosa*, *Alchornea triplinervia*, *Allophylus edulis*, *Amphilophium crucigerum*, *Anchietea pyrifolia*, *Anemia phyllitidis*, *Annona glabra**, *Annona maritima**, *Annona montana*, *Annona sylvatica*, *Anthurium scandens*, *Bactris setosa*, *Bignonia callistegioides*, *Blepharocalyx salicifolius*, *Bomarea edulis*, *Brasiliorchis marginata*, *Campomanesia guaviroba*, *Casearia sylvestris*, *Cattleya intermedia**, *Cattleya tigrina**, *Clusia glaziovii*, *Cecropia pachystachya*, *Christensonella ferdinandiana*, *Christensonella neuwiedii*, *Cissus verticillata*, *Clethra scabra**, *Clusia criuva**, *Coccocypselum geophiloides*, *Codonanthe devosiana*, *Codonanthe gracilis*, *Colanthea cingulata*, *Coussapoa microcarpa*, *Cupania vernalis*, *Cyathea atrovirens*, *Cyrtopodium gigas*, *Daphnopsis racemosa*, *Davilla rugosa*, *Dendropanax cuneatus*, *Dioscorea campestris*, *Ditassa burchellii*, *Dryadella zebrina*, *Endlicheria paniculata*, *Epidendrum densiflorum*, *Epidendrum fulgens*, *Epidendrum ramosum*, *Epidendrum rigidum*, *Epidendrum strobiliferum*, *Eugenia bacopari*, *Eugenia schuechiana*, *Eulophia alta*, *Euterpe edulis**, *Ficus adhatodifolia*, *Geonoma schottiana**, *Gomesa crispa*, *Guapira opposita*, *Hemionitis tomentosa*, *Heterotaxis brasiliensis*, *Ilex brevicuspis*, *Ilex dumosa*, *Ilex pseudobuxus*, *Ilex theezans*, *Inga sessilis*, *Inga vera*, *Jacaranda puberula**, *Laplacea fructicosa**, *Lepanthopsis floripecten*, *Lithrea brasiliensis*, *Malaxis excavata*, *Malaxis histioanthes*, *Malaxis pubescens*, *Maranta divaricata*, *Maregravia polyantha**, *Marlierea eugeniopsoides*, *Matayba elaeagnoides*, *Matayba guianensis*, *Melothria cucumis*, *Melothria fluminensis*, *Mesadenella cuspidata*, *Microgramma vacciniifolia*, *Mikania cordifolia*, *Myrceugenia campestris*, *Myrcia brasiliensis*, *Myrcia glabra*, *Myrcia hartwegiana*, *Myrcia ilheosensis*, *Myrcia multiflora*, *Myrcia pubipetala*, *Myrcia pulchra*, *Myrcia richardiana*, *Myrcia splendens*, *Myrciaria tenella*, *Myrsine guianensis*, *Myrsine parvifolia*, *Myrsine umbellata*, *Nectandra megapotamica*, *Nectandra oppositifolia*, *Neomitranthes cordifolia*, *Nidularium innocentii*, *Nidularium procerum*, *Ocotea puberula*, *Ocotea pulchella*, *Octomeria crassifolia*, *Octomeria gracilis*, *Oeceoclades maculata*, *Passiflora amethystina**, *Passiflora edulis**, *Passiflora foetida*, *Passiflora kermesina*, *Passiflora misera*, *Passiflora suberosa*, *Paullinia trigonia*, *Pecluma recurvata*, *Pelexia burgeri*, *Pelexia novofriburgensis*, *Peperomia glabella*, *Peperomia pereskiaefolia*, *Peperomia rotundifolia*, *Peperomia tetraphylla*, *Peperomia urocarpa*, *Peplonia axillaris*, *Pera glabrata*, *Pereskia aculeata**, *Peritassa calypsoides*, *Philodendron appendiculatum*, *Philodendron bipinnatifidum*, *Phoradendron affine*, *Phoradendron bathyoryctum*, *Phoradendron crassifolium*, *Phoradendron falcifrons*, *Phoradendron piperoides*, *Phoradendron quadrangulare*, *Phymatidium myrtophilum*, *Pleopeltis angusta*, *Pleopeltis hirsutissima*, *Polypodium catharinae*, *Polystachya caespitosa*, *Polystachya concreta*, *Posoqueria latifolia*, *Prescottia oligantha*, *Prescottia stachyoides*, *Prosthechea vespa*, *Psidium cattleianum*, *Psidium salutare*, *Psilochilus modestus*, *Psychotria alba*, *Rhipsalis baccifera*, *Rhipsalis floccosa*, *Rhipsalis paradoxa**, *Rhipsalis teres*, *Rodriguezia decora*, *Sacoila lanceolata*, *Sanderella discolor*, *Sapium glandulosum*, *Sauroglossum nitidum*, *Schinus polygamus*, *Schinus terebinthifolius*, *Sideroxylon obtusifolium*, *Solanum arenarium**, *Solanum pseudo quina*, *Solanum sanctae-catharinae*, *Specklinia seriata*, *Stelis fraterna*, *Stelis papa querensis*, *Stigmaphyllon ciliatum*, *Struthanthus uraguensis*, *Swartzia simplex*, *Taccarum peregrinum**, *Ternstroemia brasiliensis**, *Tibouchina trichopoda**, *Tillandsia gardneri**, *Tillandsia mallemonitii**, *Tillandsia stricta*, *Tillandsia tenuifolia**, *Tillandsia tricholepis**, *Tillandsia usneoides**, *Tripodanthus acutifolius*, *Urvillea glabra*, *Vanilla chamissonis**, *Varronia curassavica*, *Vriesea gigantea**, *Vriesea incurvata**, *Vriesea procera**, *Vriesea vagans*, *Weinmannia paulliniifolia**, *Wulfschlaegelia aphylla*, *Xyloplegia brasiliensis**.

IV – Beach Transitional Forest – Another vegetation typology:

a) Primary stage

Abarema langsdorffii, *Abuta selleana*, *Adiantum raddianum*, *Aechmea distichantha**, *Aiouea saligna*, *Albizia edwallii*, *Amphilophium crucigerum*, *Anchietea pyrifolia*, *Anemia phyllitidis*, *Annona glabra**, *Annona maritima**, *Annona montana*, *Annona sylvatica*, *Anredera tucumanensis*, *Anthurium scandens*, *Aspidosperma olivaceum*, *Bactris setosa*, *Bignonia callistegioides*, *Billbergia zebrina**, *Bomarea edulis*, *Cabrera canjerana*, *Campomanesia xanthocarpa*, *Cedrela fissilis*, *Cereus alacriportanus*, *Cereus hildmannianus*, *Chrysophyllum gonocarpum*, *Chrysophyllum inornatum*, *Coccocypselum geophiloides*, *Cordia americana*, *Cordia trichotoma*, *Cyathea atrovirens*, *Dendropanax cuneatus*, *Dennstaedtia dissecta*, *Didymoglossum hymenoides*, *Dioscorea campestris*, *Disciphania contraversa*, *Ditassa burchellii*, *Dyssochroma longipes*, *Edmundoa lindenii**, *Endlicheria paniculata*, *Enterolobium contortisiliquum*, *Epidendrum henschenii*,

Epidendrum pseudodiforme, *Epidendrum ramosum*, *Erythrina crista-galli*, *Esenbeckia grandiflora*, *Eugenia multicostata*, *Eugenia rostrifolia*, *Eugenia subterminalis*, *Euterpe edulis**, *Ficus insipida*, *Ficus luschnathiana*, *Forsteronia leptocarpa*, *Geonoma schottiana**, *Gomesa crispa*, *Govenia utriculata*, *Grobya fascifera*, *Heliconia farinosa*, *Hennecartia omphalandra*, *Heterotaxis brasiliensis*, *Hirtella hebeclada*, *Huperzia mandiocana*, *Huperzia quadrifariata*, *Hymenophyllum caudiculatum*, *Hymenophyllum polyanthos*, *Hyperbaena domingensis*, *Inga sessilis*, *Inga vera*, *Jobinia connivens*, *Laplacea fructicosa**, *Libidibia ferrea*, *Magnolia ovata*, *Maranta divaricata*, *Marcgravia polyantha**, *Marlierea excoriata*, *Mikania campanulata*, *Mikania chlorolepis**, *Mikania clematidifolia**, *Mikania cordifolia*, *Mikania cynanchifolia*, *Mikania glomerata*, *Mikania hastato-cordata**, *Mikania involucrata*, *Mikania laevigata*, *Mikania lindleyana*, *Mikania lundiana*, *Mikania micrantha*, *Mikania microptera**, *Mikania pinnatiloba**, *Mikania salviifolia*, *Mikania ternata*, *Mikania trinervis**, *Mikania ulei**, *Mikania vitifolia*, *Myrcia dichrophylla*, *Myrsine laetevirens*, *Nectandra megapotamica*, *Nidularium innocentii*, *Niphidium rufosquamatum*, *Ocotea divaricata*, *Ocotea odorifera**, *Ocotea puberula*, *Ocotea pulchella*, *Ocotea silvestris**, *Ocotea tristis**, *Orthosia scoparia*, *Pachystroma longifolium*, *Pecluma recurvata*, *Peltastes peltatus*, *Peperomia catharinae*, *Peperomia caulibarbis*, *Peperomia corcovadensis*, *Pera glabrata*, *Peritassa calypsoides*, *Persea venosa*, *Persea willdenovii*, *Phanera microstachya*, *Philodendron appendiculatum*, *Philodendron bipinnatifidum*, *Phoradendron affine*, *Phoradendron bathyoryctum*, *Phoradendron crassifolium*, *Phoradendron falcifrons*, *Phoradendron piperoides*, *Phoradendron quadrangulare*, *Phytolacca dioica*, *Piper mikanianum*, *Piper miquelianum*, *Piper subcinereum*, *Piper xylosteoides*, *Pisonia aculeata*, *Polyphlebium pyxidiferum*, *Pouteria salicifolia*, *Psidium cattleianum*, *Pteris deflexa*, *Pteris denticulata*, *Randia armata*, *Rhipsalis baccifera*, *Rhipsalis floccosa*, *Rhipsalis paradoxa**, *Rhipsalis teres*, *Rumohra adiantiformis*, *Ruprechtia laxiflora*, *Sabicea grisea*, *Sauroglossum nitidum*, *Schefflera morototoni*, *Serjania communis*, *Sinningia douglasii*, *Solanum arenarium**, *Specklinia marginalis*, *Sterculia apetala*, *Syagrus romanzoffiana*, *Taccarum peregrinum**, *Tillandsia geminiflora**, *Tillandsia malmontii**, *Tillandsia recurvata*, *Tillandsia tenuifolia**, *Tillandsia usneoides**, *Tournefortia rubicunda*, *Trichomanes angustatum*, *Trichomanes radicans*, *Trithrinax brasiliensis**, *Vittaria lineata*, *Vriesea carinata**, *Vriesea flammea**, *Vriesea gigantea**, *Vriesea pauperrima*, *Vriesea philippocoburgii**, *Vriesea platynema**, *Weinmannia paulliniifolia**, *Wulfschlaegelia aphylla*, *Xylopia brasiliensis**, *Zanthoxylum caribaeum*, *Zanthoxylum rhoifolium*.

b) Initial regeneration stage

Acanthospermum australe, *Acanthostyles buniifolius*, *Achyrocline satureioides*, *Acmella decumbens*, *Adenostemma brasilianum*, *Ageratum conyzoides*, *Ambrosia tenuifolia*, *Araujia sericifera*, *Aspilia montevidensis*, *Axonopus compressus*, *Axonopus eminens*, *Axonopus obtusifolius*, *Baccharis articulata*, *Baccharis conyzoides*, *Baccharis crispa*, *Baccharis dracunculifolia*, *Baccharis glaziovii*, *Baccharis helichrysoides*, *Baccharis lateralis*, *Baccharis leucopappa*, *Baccharis milleflora*, *Baccharis pseudomyriocephala*, *Baccharis retusa*, *Baccharis singularis*, *Baccharis spicata*, *Baccharis vulneraria*, *Bidens laevis*, *Bidens pilosa*, *Boehmeria caudata*, *Boehmeria cylindrica*, *Calamagrostis alba*, *Calea pinnatifida*, *Calea uniflora*, *Campovassouria cruciata*, *Campylopus savannarum*, *Cayaponia martiana*, *Celosia grandifolia**, *Cenchrus ciliaris*, *Centrosema pascuorum*, *Chamaecrista flexuosa*, *Chiococca alba*, *Chromolaena congesta*, *Chromolaena laevigata*, *Coccocypselum condalia*, *Coccocypselum lanceolatum*, *Conyza bonariensis*, *Conyzapampeana*, *Cotula coronopifolia*, *Coutarea hexandra*, *Cyperus odoratus*, *Dalechampia scandens*, *Dasyphyllum spinescens*, *Deppea blumenaviensis*, *Desmodium adscendens*, *Desmodium barbatum*, *Desmodium incanum*, *Dicranopteris flexuosa*, *Digitaria ciliaris*, *Digitaria eriantha*, *Digitaria insularis*, *Disynaphia ligulifolia*, *Drymaria cordata*, *Eclipta elliptica*, *Eclipta prostrata*, *Elephantopus mollis*, *Eleusine indica*, *Eragrostis pilosa*, *Erechtites hieracifolius*, *Erechtites valerianifolius*, *Euphorbia papillosa*, *Euphorbia prostrata*, *Eustachys disticophylla*, *Facelis retusa*, *Gamochoa eta americana*, *Gnaphalium cheiranthifolium*, *Gochnatia polymorpha**, *Grazielia gaudichaudiana*, *Heterothalamus psiadioides*, *Holocheilus brasiliensis*, *Hypochaeris chillensis*, *Ichnanthus pallens*, *Imperata brasiliensis*, *Indigofera suffruticosa*, *Justicia brasiliana*, *Lantana camara*, *Lasiacis divaricata*, *udwigia caparosa*, *Macropodium atropurpureum*, *Malvastrum coromandelianum*, *Manettia pubescens*, *Mikania campanulata*, *Mikania chlorolepis**, *Mikania clematidifolia**, *Mikania cordifolia*, *Mikania cynanchifolia*, *Mikania glomerata*, *Mikania hastato-cordata**, *Mikania involucrata*, *Mikania laevigata*, *Mikania lindleyana*, *Mikania lundiana*, *Mikania micrantha*, *Mikania microptera**, *Mikania pinnatiloba**, *Mikania salviifolia*, *Mikania ternata*, *Mikania trinervis**, *Mikania ulei**, *Mikania vitifolia*, *Mimosa bimucronata*, *Mimosa pudica*, *Monnina cuneata*, *Mutisia speciosa*, *Myrsine coriacea*, *Neocabreria serrulata*, *Oldenlandia salzmannii*, *Olyra latifolia*, *Oplismenus hirtellus*, *Oxalis sarmentosa*, *Pavonia fruticosa*, *Petiveria alliacea*, *Pharus lappulaceus*, *Phyllanthus niruri*, *Phyllanthus sellowianus*, *Phytolacca thyrsiflora*, *Piper corcovadensis*, *Pluchea sagittalis*, *Polygala extraaxillaris*, *Polygala paniculata*, *Polygala timoutoides*, *Pseudechinolaena polystachya*, *Pseudognaphalium gaudichaudianum*, *Psychotria brachyceras*, *Psychotria leiocarpa*, *Psychotria tenerior*, *Pteridium aquilinum*, *Pterocaulon angustifolium*, *Pterocaulon lorentzii*, *Pterocaulon purpurascens*, *Rhynchanthera brachyrhyncha*, *Richardia humistrata*, *Saccharum asperum*, *Schultesia australis*, *Senecio bonariensis*, *Senecio brasiliensis*, *Senecio ceratophylloides*, *Senecio crassiflorus*, *Senecio icoglossus*, *Setaria parviflora*, *Setaria scandens*, *Setaria vulpiseta*, *Sida acuta*, *Sida potentilloides*, *Sida rhombifolia*, *Sinningia allagophylla*, *Smallanthus connatus*, *Solanum americanum*, *Solanum variabile*, *Solanum viarum*, *Sommerfeltia spinulosa*, *Spergularia grandis*, *Stenachaenium macrocephalum**, *Streptochaeta spicata**, *Stylosanthes guianensis*, *Stylosanthes scabra*, *Stylosanthes viscosa*, *Symphopappus casarettoi*, *Symphotrichum squamatum*, *Tagetes minuta*, *Triumfetta rhomboidea*, *Trixis praestans*, *Urera nitida**, *Vassobia breviflora*, *Vernonia puberula*, *Vigna peduncularis*, *Xanthium strumarium*, *Zornia curvata*, *Zornia reticulata*.

c) Medium regeneration stage

Actinostemon concolor, *Alchornea glandulosa*, *Alchornea triplinervia*, *Allophylus edulis*, *Aparisthmium cordatum*, *Araujia sericifera*, *Banara parviflora*, *Bauhinia forficata*, *Boehmeria caudata*, *Boehmeria cylindrica*, *Brosimum glaziovii*, *Byrsonima ligustrifolia*, *Campyloneurum nitidum*, *Campyloneurum repens*, *Campylopus savannarum*, *Casearia decandra*, *Casearia sylvestris*, *Cayaponia trifoliolata*, *Cecropia glaziovi*, *Cecropia pachystachya*, *Celosia grandifolia**, *Celtis fluminensis*, *Celtis iguanaea*, *Celtis spinosa*, *Centrosema pascuorum*, *Cestrum strigilatum*, *Chionanthus filiformis**, *Chrysophyllum marginatum*, *Cissus simsiana*, *Cissus sulcicaulis*, *Cissus verticillata*, *Citharexylum myrianthum*, *Clematis dioica*, *Clethra scabra**, *Clusia criuva**, *Coccocypselum capitatum*, *Coccocypselum condalia*, *Coccocypselum lanceolatum*, *Coccoloba cordata*, *Colanthea cingulata*, *Coussapoa microcarpa*, *Coutarea hexandra*, *Dalbergia frutescens*, *Daphnopsis fasciculata*, *Deppea blumenaviensis*, *Dichondra microcalyx*, *Ditassa burchellii*, *Dorstenia brasiliensis**, *Drimys brasiliensis**, *Eugenia florida*, *Eugenia hiemalis*, *Eugenia myrcianthes*, *Eugenia pluriflora*, *Eugenia sclerocalyx*, *Eugenia speciosa*, *Eugenia uruguayensis*, *Guarea macrophylla*, *Guazuma ulmifolia*, *Guettarda uruguayensis*, *Hieronyma alchorneoides*, *Justicia brasiliensis*, *Lantana camara*, *Leandra regnellii*, *Luehea divaricata*, *Luehea paniculata*, *Machaerium stipitatum*, *Maclura tinctoria*, *Malvastrum coromandelianum*, *Matayba elaeagnoides*, *Maytenus glaucescens**, *Merostachys multiramea*, *Miconia cinerascens*, *Miconia hyemalis*, *Miconia ligustroides*, *Miconia pusilliflora*, *Miconia sellowiana*, *Mimosa bimucronata*, *Mollinedia schottiana*, *Myrceugenia miersiana*, *Myrcia hartwegiana*, *Myrcia laruotteana*, *Myrciaria cuspidata*, *Myrciaria floribunda*, *Myrsine coriacea*, *Myrsine parvifolia*, *Orthosia scoparia*, *Osmunda regalis*, *Ouratea parviflora*, *Passiflora amethystina**, *Passiflora edulis**, *Passiflora foetida*, *Passiflora kermesina*, *Passiflora misera*, *Passiflora suberosa*, *Peplonia axillaris*, *Pera glabrata*, *Pilocarpus pennatifolius*, *Piper aduncum*, *Piper amalago*, *Piper arboreum*, *Prunus myrtifolia*, *Psychotria brachyceras*, *Psychotria carthagenensis*, *Psychotria leiocarpa*, *Psychotria tenerior*, *Rhynchanthera brachyrhyncha*, *Rubus brasiliensis*, *Rubus erythrocladus*, *Rumohra adiantiformis*, *Salix humboldtiana*, *Sapium glandulosum*, *Schinus terebinthifolius*, *Sebastiania brasiliensis*, *Sebastiania commersoniana*, *Sequiera aculeata*, *Senna macranthera*, *Serjania communis*, *Sesbania virgata*, *Sideroxylon obtusifolium*, *Solanum affine**, *Solanum glaucophyllum*, *Solanum granulosoleprosum*, *Solanum mauritianum*, *Solanum palinacanthum*, *Solanum pseudo quina*, *Solanum sanctae-catharinae*, *Solanum variable*, *Sorocea bonplandii*, *Stigmaphyllon bonariense*, *Strychnos brasiliensis*, *Styrax leprosus*, *Symplocos uniflora*, *Terminalia australis*, *Tetrorchidium rubrivenium*, *Tibouchina sellowiana*, *Tillandsia gardneri**, *Tillandsia mallemonitii**, *Tillandsia tenuifolia**, *Tillandsia tricholepis**, *Tragia volubilis*, *Trema micrantha*, *Trichilia clauseni*, *Trichilia lepidota**, *Trichilia pallens**, *Urera nitida**, *Valeriana scandens*, *Vassobia breviflora*, *Vochysia tucanorum*, *Vriesea flamma**, *Xylosma pseudosalzmannii*.

d) Advanced regeneration stage

Abarema langsdorffii, *Abuta selleana*, *Acacia plumosa*, *Adiantum raddianum*, *Aiouea saligna*, *Albizia edwallii*, *Alchornea glandulosa*, *Alchornea triplinervia*, *Allophylus edulis*, *Amphilophium crucigerum*, *Anchietea pyrifolia*, *Anemia phyllitidis*, *Annona glabra**, *Annona maritima**, *Annona montana*, *Annona sylvatica*, *Anthurium scandens*, *Aparisthmium cordatum*, *Bactris setosa*, *Banara parviflora*, *Bignonia callistegioides*, *Billbergia zebrina**, *Bomarea edulis*, *Byrsonima ligustrifolia*, *Cabralea canjerana*, *Campomanesia xanthocarpa*, *Campyloneurum nitidum*, *Campyloneurum repens*, *Casearia decandra*, *Casearia sylvestris*, *Cedrela fissilis*, *Chionanthus filiformis**, *Chrysophyllum gonocarpum*, *Chrysophyllum inornatum*, *Chrysophyllum marginatum*, *Cissus simsiana*, *Cissus sulcicaulis*, *Cissus verticillata*, *Citharexylum myrianthum*, *Clematis dioica*, *Clethra scabra**, *Clusia criuva**, *Coccocypselum capitatum*, *Coccocypselum geophiloides*, *Coccoloba cordata*, *Colanthea cingulata*, *Cordia trichotoma*, *Cyathea atrovirens*, *Dalbergia frutescens*, *Daphnopsis fasciculata*, *Dendropanax cuneatus*, *Dennstaedtia dissecta*, *Dichondra microcalyx*, *Dioscorea campestris*, *Disciphania contraversa*, *Ditassa burchellii*, *Drimys brasiliensis**, *Dysochroma longipes*, *Endlicheria paniculata*, *Epidendrum henschenii*, *Epidendrum pseudodifforme*, *Epidendrum ramosum*, *Esenbeckia grandiflora*, *Eugenia florida*, *Eugenia multicostata*, *Eugenia rostrifolia*, *Eugenia sclerocalyx*, *Eugenia speciosa*, *Eugenia subterminalis*, *Eugenia uruguayensis*, *Euterpe edulis**, *Ficus insipida*, *Ficus luschnathiana*, *Garcinia gardneriana*, *Gomesa crispa*, *Govenia utriculata*, *Grobya fascifera*, *Guarea macrophylla*, *Guazuma ulmifolia*, *Guettarda uruguayensis*, *Hennecartia omphalandra*, *Heterotaxis brasiliensis*, *Hieronyma alchorneoides*, *Hyperbaena domingensis*, *Inga sessilis*, *Inga vera*, *Laplacea fructicosa**, *Leandra regnellii*, *Libidibia ferrea*, *Luehea divaricata*, *Luehea paniculata*, *Machaerium stipitatum*, *Maclura tinctoria*, *Magnolia ovata*, *Maranta divaricata*, *Maregravia polyantha**, *Marlierea excoriata*, *Matayba elaeagnoides*, *Miconia cinerascens*, *Miconia pusilliflora*, *Miconia sellowiana*, *Mollinedia schottiana*, *Myrceugenia miersiana*, *Myrcia dichrophylla*, *Myrcia laruotteana*, *Myrsine laetevirens*, *Nectandra megapotamica*, *Nidularium innocentii*, *Niphidium rufosquamatum*, *Ocotea divaricata*, *Ocotea odorifera**, *Ocotea puberula*, *Ocotea pulchella*, *Ocotea silvestris**, *Ocotea tristis**, *Orthosia scoparia*, *Osmunda regalis*, *Pachystroma longifolium*, *Passiflora amethystina**, *Passiflora edulis**, *Passiflora foetida*, *Passiflora kermesina*, *Passiflora misera*, *Passiflora suberosa*, *Pechuma recurvata*, *Peperomia catharinae*, *Peperomia caulibarbis*, *Peperomia corcovadensis*, *Peplonia axillaris*, *Pera glabrata*, *Peritassa calypsoides*, *Persea venosa*, *Persea willdenovii*, *Phanera microstachya*, *Philodendron appendiculatum*, *Philodendron bipinnatifidum*, *Phoradendron affine*, *Phoradendron bathyoryctum*, *Phoradendron crassifolium*, *Phoradendron falcifrons*, *Phoradendron piperoides*, *Phoradendron quadrangulare*, *Phytolacca dioica*, *Pilocarpus pennatifolius*, *Piper aduncum*, *Piper mikanianum*, *Piper miquelianum*, *Piper subcinereum*, *Piper xylosteoides*, *Pisonia aculeata*, *Posoqueria latifolia*, *Pouteria salicifolia*, *Prunus myrtifolia*, *Psidium cattleianum*, *Psychotria carthagenensis*, *Pteris deflexa*, *Pteris denticulata*, *Randia armata*, *Rhipsalis baccifera*, *Rhipsalis floccosa*, *Rhipsalis paradoxa**, *Rhipsalis teres*, *Rubus brasiliensis*, *Rubus erythrocladus*, *Rumohra*

adiantiformis, *Ruprechtia laxiflora*, *Sabicea grisea*, *Salix humboldtiana*, *Sauroglossum nitidum*, *Schefflera morototoni*, *Sequoiaria aculeata*, *Serjania communis*, *Sideroxylon obtusifolium*, *Sinningia douglasii*, *Solanum arenarium**, *Solanum granuloseleprosum*, *Solanum mauritianum*, *Solanum pseudoquina*, *Solanum sanctaetharinae*, *Sorocea bonplandii*, *Specklinia marginalis*, *Sterculia apetala*, *Stigmaphyllon bonariense*, *Strychnos brasiliensis*, *Styrax leprosus*, *Syagrus romanzoffiana*, *Taccarum peregrinum**, *Tetrorchidium rubrivenium*, *Tibouchina sellowiana*, *Tillandsia gardneri**, *Tillandsia geminiflora**, *Tillandsia mallefontii**, *Tillandsia recurvata*, *Tillandsia tenuifolia**, *Tillandsia tricholepis**, *Tillandsia usneoides**, *Tournefortia rubicunda*, *Tragia volubilis*, *Trichilia clauseni*, *Trichilia lepidota**, *Trichilia pallens**, *Vittaria lineata*, *Vochysia tucanorum*, *Vriesea flammea**, *Vriesea gigantea**, *Vriesea philippocoburgii**, *Weinmannia paulliniifolia**, *Wulfschlaegelia aphylla*, *Xylopia brasiliensis**, *Xylosma pseudosalzmannii*, *Zanthoxylum caribaeum*, *Zanthoxylum rhoifolium*.

Art. 2 This Resolution shall enter into effect on the date of its publication.

FRANCISCO GAETANI – Acting Council `President

(*) endemic and rare species and species threatened with extinction.

This text does not substitute the text published in the Official Gazette on Jan. 3, 2012

RESOLUTION 442, December 30, 2011
Published in Official Gazette 2 on Jan. 3, 2012

Approves the list of successional stages indicator species of the Beach vegetation in the State of Ceará, according to Resolution 417 from Nov. 23, 2009

THE NATIONAL ENVIRONMENT COUNCIL – CONAMA, in accordance with the power bestowed upon the Council by art. 8, item I of Law 6.938 from August 31, 1981, and considering the provisions of art. 4, § 1 of Law 11.428 from December 22, 2006 and CONAMA Resolution 417 from December 23, 2009, decides:

Art. 1 The indicator species of primary vegetation and of the different successional secondary stages of the Atlantic Forest vegetation, which are the subject of art. 4 of Law 11.428 from Dec. 22, 2009 and § 1 of art. 3 of CONAMA Resolution 417 from Nov. 23, 2009, in the State of Ceará, are:

I – Beach Herbaceous and Sub-Shrubby Vegetation:

a) Climax vegetation

Alternanthera brasiliana, Alternanthera littoralis, Amasonia campestris, Andropogon selloanus, Aristida setifolia, Bacopa monnieri, Batis maritima, Becquerelia cymosa, Blutaparon portulacoides, Bulbostylis capillaries, Burmannia capitata, Cenchrus ciliaris, Cenchrus echinatus, Centrosema arenarium, Ceratopteris thalictroides, Chamaecrista nictitans, Chamaecrista ramosa, Chamaecrista repens, Chamaesyce hyssopifolia, Chrysobalanus icaco, Cnidocolus loefgrenii, Cnidocolus urens, Commelina diffusa, Conyza bonariensis, Cucumis anguria, Cyperus aggregates, Cyperus amabilis, Cyperus ligularis, Cyperus maritimus, Cyrtopodium holstii, Dactyloctenium aegyptium, Dalechampia scandens, Davilla rugosa, Diodella teres, Diodia apiculata, Dodonaea viscosa, Echinodorus tenellus, Eclipta prostrata, Eleocharis atropurpurea, Eleocharis geniculata, Eleocharis mutata, Eleocharis sellowiana, Emilia sonchifolia, Era grostis bahiensis, Era grostis ciliaris, Era grostis prolifera, Eupatorium ballotifolium, Evolvulus ovatus, Fimbristylis cymosa, Fimbristylis spadicea, Froelichia humboldtiana, Fuirena umbellata, Heliotropium lanceolatum, Hippeastrum stylosum, Hybanthus calceolaria, Indigofera hirsuta, Indigofera microcarpa, Ipomoea asaralifolia, Krameria tomentosa, Kyllinga vaginata, Lantana camara, Ludwigia octovalvis, Marsypianthes chamaedrys, Melocactus zehntneri, Mollugo verticillata, Nymphaea lasiophylla, Nymphoides indica, Panicum aquaticum, Panicum dichotomiflorum, Panicum gouinii, Panicum laxum, Panicum micranthum, Panicum pilosum, Panicum racemosum, Paspalum conjugatum, Paspalum plicatum, Paspalum scutatum, Paspalum vaginatum, Passiflora capsularis, Piper corcovadensis, Piriqueta viscosa, Polygonum ferrugineum, Polygonum punctatum, Porophyllum ruderalis, Potamogeton ferrugineus, Pterolepis glomerata, Pycnopus polystachyos, Remirea maritima, Rhynchospora holoschoenoides, Rhynchospora riparia, Scleria hirtella, Scleria latifolia, Scoparia dulcis, Senna uniflora, Sesuvium portulacastrum, Smilax campestris, Spigelia anthelmia, Sporobolus virginicus, Stachytarpheta angustifolia, Stilpnopappus trichospiroides, Stylosanthes guianensis, Stylosanthes viscosa, Tarenaya spinosa, Thalia geniculata, Thelypteris serrata, Utricularia erectiflora, Utricularia foliosa, Utricularia gibba, Utricularia juncea, Utricularia myriocista, Utricularia subulata, Xyris laxifolia, Zornia latifolia.*

II – Beach shrub vegetation:

a) Primary stage

Aechmea aquilega, Allamanda blanchetii, Andira legalis, Asclepias curassavica, Bauhinia pentandra, Borreria verticillata, Byrsonima sericea, Byrsonima verbascifolia, Capparis cynophallophora, Chamaecrista desvauxii, Chiococca nitida, Chrysobalanus icaco, Conocarpus erectus, Costus spiralis, Cyrtopodium holstii, Davilla cearensis, Davilla rugosa, Dodonaea viscosa, Epidendrum rigidum, Eragrostis bahiensis, Eragrostis ciliaris, Era grostis prolifera, Hirtella ciliata, Jacaranda jasminoides, Jatropha mollissima, Licania tomentosa, Ludwigia leptocarpa, Manilkara triflora, Maytenus impressa, Mimosa invisa, Mimosa misera, Oeceoclades maculata, Passiflora capsularis, Passiflora galbana, Passiflora subrotunda, Phoradendron crassifolium, Polygonum ferrugineum, Polygonum punctatum, Schoepfia brasiliensis, Smilax campestris, Solanum caavurana, Solanum paludosum, Solanum rhytidandrum, Sparattosperma leucanthum, Swartzia simplex, Tabernaemontana catharinensis, Thelypteris serrata, Tillandsia gardneri, Tillandsia striata, Tillandsia tenuifolia, Tripodanthus acutifolius, Typha domingensis, Vriesea procera.

b) Initial regeneration stage

Aechmea aquilega, Allamanda blanchetii, Andira legalis, Asclepias curassavica, Bauhinia pentandra, Borreria verticillata, Byrsonima sericea, Byrsonima verbascifolia, Capparis cynophallophora, Cenchrus ciliaris, Cenchrus echinatus, Chamaecrista desvauxii, Chamaesyce hyssopifolia, Chiococca nitida, Cleome spinosa, Conocarpus erectus, Conyza bonariensis, Costus spiralis, Dactyloctenium aegyptium, Dalechampia scandens, Davilla cearensis, Davilla rugosa, Diodella teres, Eclipta prostrata, Emilia sonchifolia, Epidendrum rigidum, Eupatorium ballotifolium, Hirtella ciliata, Hybanthus calceolaria, Indigofera hirsuta, Indigofera microcarpa, Ipomoea asaralifolia, Jacaranda jasminoides, Jatropha mollissima, Licania tomentosa, Ludwigia leptocarpa, Manilkara triflora, Maytenus impressa, Mimosa invisa, Mimosa misera, Oeceoclades maculata, Passiflora galbana, Passiflora subrotunda, Phoradendron crassifolium, Piper corcovadensis, Porophyllum

runderale, *Schoepfia brasiliensis*, *Solanum caavurana*, *Solanum paludosum*, *Solanum rhytidoandrum*, *Sparattosperma leucanthum*, *Stachytarpheta angustifolia*, *Stilpnopappus trichospiroides*, *Stylosanthes guianensis*, *Stylosanthes viscosa*, *Swartzia simplex*, *Tabernaemontana catharinensis*, *Tillandsia gardneri*, *Tillandsia stricta*, *Tillandsia tenuifolia*, *Tripodanthus acutifolius*, *Typha domingensis*, *Vriesea procera*.

c) Medium regeneration stage

Asclepias curassavica, *Cassytha filiformis*, *Chamaecrista hispidula*, *Dalechampia scandens*, *Davilla rugosa*, *Smilax campestris*, *Stigmaphyllon paralias*, *Tillandsia stricta*.

d) Advanced regeneration stage

Bauhinia pentandra, *Borreria verticillata*, *Capparis cynophallophora*, *Chiococca nitida*, *Davilla rugosa*, *Dodonaea viscosa*, *Fuirena umbellata*, *Jacaranda jasminoides*, *Ludwigia leptocarpa*, *Manilkara triflora*, *Oeceoclades maculata*, *Passiflora capsularis*, *Passiflora galbana*, *Passiflora subrotunda*, *Schoepfia brasiliensis*, *Smilax campestris*, *Solanum caavurana*, *Solanum paludosum*, *Solanum rhytidoandrum*, *Sparattosperma leucanthum*, *Stigmaphyllon paralias*, *Thelypteris serrata*, *Tillandsia gardneri*, *Tillandsia stricta*, *Tillandsia tenuifolia*, *Vriesea procera*.

III – Beach arboreal vegetation:

a) Primary stage

Abrus precatorius, *Alatiglossum ciliatum*, *Amphilophium crucigerum*, *Anacardium occidentale*, *Annona glabra*, *Aspidosperma cuspa*, *Avicennia germinans*, *Bignonia corymbosa*, *Blepharodon pictum*, *Casearia commersoniana*, *Cereus jamacaru*, *Cissus verticillata*, *Combretum laxum*, *Copaifera cearensis*, *Cordia trichotoma*, *Daphnopsis racemosa*, *Davilla rugosa*, *Dolioscarpus dentatus*, *Enterolobium contortisiliquum*, *Epidendrum rigidum*, *Eugenia brasiliensis*, *Funastrum clausum*, *Heliconia psittacorum*, *Hippocratea volubilis*, *Jacaranda puberula*, *Lundia virginialis*, *Miconia albicans*, *Nectandra oppositifolia*, *Oeceoclades maculata*, *Peperomia tetraphylla*, *Phoradendron bathyoryctum*, *Phoradendron crassifolium*, *Phoradendron piperoides*, *Piper mollicomum*, *Prestonia coalita*, *Pseudananas sagenarius*, *Swartzia simplex*, *Tetracera breyniana*, *Tillandsia gardneri*, *Tillandsia recurvata*, *Tillandsia stricta*, *Tillandsia tenuifolia*, *Tillandsia tricholepis*, *Tillandsia usneoides*, *Tripodanthus acutifolius*, *Vriesea procera*, *Vriesea rodigasiana*.

b) Initial regeneration stage

Andropogon selleanus, *Antheophora hermaphrodita*, *Axonopus polydactylus*, *Cecropia pachystachya*, *Cenchrus ciliaris*, *Cenchrus echinatus*, *Centrosema pascuorum*, *Chamaecrista hispidula*, *Chamaesyce hyssopifolia*, *Conyza bonariensis*, *Crotalaria vitellina*, *Cyperus odoratus*, *Dactyloctenium aegyptium*, *Dalechampia scandens*, *Desmodium glabrum*, *Digitaria ciliaris*, *Dodonaea viscosa*, *Eclipta prostrata*, *Emilia sonchifolia*, *Eupatorium ballotifolium*, *Froelichia humboldtiana*, *Hybanthus calceolaria*, *Indigofera hirsuta*, *Indigofera microcarpa*, *Ipomoea asaralifolia*, *Lasiacis ligulata*, *Macroptilium panduratum*, *Merremia aegyptia*, *Mimosa caesalpiniiifolia*, *Olyra ciliatifolia*, *Olyra latifolia*, *Phytolacca thyrsiflora*, *Piper corcovadensis*, *Pityrogramma calomelanos*, *Porophyllum ruderale*, *Pteridium aquilinum*, *Schultesia guianensis*, *Sida ciliaris*, *Stachytarpheta angustifolia*, *Stilpnopappus trichospiroides*, *Stylosanthes guianensis*, *Stylosanthes scabra*, *Stylosanthes viscosa*, *Turnera subulata*.

c) Medium regeneration stage

Capparis cynophallophora, *Casearia sylvestris*, *Cassytha filiformis*, *Cecropia pachystachya*, *Centrosema pascuorum*, *Chamaecrista hispidula*, *Dalechampia scandens*, *Davilla rugosa*, *Dodonaea viscosa*, *Jatropha mollissima*, *Licania tomentosa*, *Mimosa caesalpiniiifolia*, *Parodiolyra micrantha*, *Passiflora cincinnata*, *Passiflora edulis*, *Passiflora foetida*, *Passiflora galbana*, *Passiflora misera*, *Psidium salutare*, *Samanea saman*, *Sideroxylon obtusifolium*, *Solanum paludosum*, *Stigmaphyllon paralias*, *Tillandsia gardneri*, *Tillandsia stricta*, *Tillandsia tenuifolia*, *Vismia martiana*, *Vriesea procera*, *Ximenia americana*.

d) Advanced regeneration stage

Anacardium occidentale, *Alatiglossum ciliatum*, *Amphilophium crucigerum*, *Annona glabra*, *Bignonia corymbosa*, *Casearia commersoniana*, *Casearia sylvestris*, *Cecropia pachystachya*, *Cissus verticillata*, *Copaifera cearensis*, *Daphnopsis racemosa*, *Davilla rugosa*, *Epidendrum rigidum*, *Eugenia brasiliensis*, *Hippocratea volubilis*, *Jacaranda puberula*, *Licania tomentosa*, *Lundia virginialis*, *Miconia albicans*, *Nectandra oppositifolia*, *Oeceoclades maculata*, *Parodiolyra micrantha*, *Passiflora cincinnata*, *Passiflora edulis*, *Passiflora foetida*, *Passiflora galbana*, *Passiflora misera*, *Peperomia tetraphylla*, *Phoradendron bathyoryctum*, *Phoradendron crassifolium*, *Phoradendron piperoides*, *Piper mollicomum*, *Psidium salutare*, *Samanea saman*, *Sideroxylon obtusifolium*, *Stigmaphyllon paralias*, *Swartzia simplex*, *Tillandsia gardneri*, *Tillandsia stricta*, *Tillandsia tenuifolia*, *Tillandsia tricholepis*, *Tillandsia usneoides*, *Tripodanthus acutifolius*, *Vriesea procera*, *Ximenia americana*.

IV – Beach Transitional Forest – Another vegetation typology

a) Primary stage

Abuta selloana, *Aechmea aquilega*, *Amphilophium crucigerum*, *Anadenanthera colubrina*, *Andira surinamensis*, *Annona glabra*, *Aspidosperma cuspa*, *Aspidosperma pyriformis*, *Bignonia corymbosa*, *Blepharodon pictum*, *Cassia ferruginea*, *Cedrela odorata*, *Cereus jamacaru*, *Chondrodendron platyphyllum*, *Chrysophyllum gonocarpum*, *Combretum laxum*, *Copaifera langsdorffii*, *Cordia trichotoma*, *Davilla cearensis*, *Doliocarpus dentatus*, *Enterolobium contortisiliquum*, *Esenbeckia grandiflora*, *Funastrum clausum*, *Genipa americana*, *Gustavia augusta*, *Heliconia psittacorum*, *Hillia parasitica*, *Hippocratea volubilis*, *Hirtella racemosa*, *Hymenaea courbaril*, *Libidibia ferrea*, *Lundia virginalis*, *Orthomene schomburgkii*, *Phoradendron bathyoryctum*, *Phoradendron crassifolium*, *Phoradendron piperoides*, *Piper mollicomum*, *Platymiscium floribundum*, *Poincianella bracteosa*, *Prestonia coalita*, *Pseudananas sagenarius*, *Schefflera morototoni*, *Schubertia grandiflora*, *Siparuna guianensis*, *Sterculia striata*, *Talisia esculenta*, *Tetracera breyniana*, *Tillandsia recurvata*, *Tillandsia tenuifolia*, *Tillandsia usneoides*, *Vriesea rodigasiana*.

b) tial regeneration stage

Antheophora hermaphrodita, *Axonopus polydactylus*, *Cenchrus ciliaris*, *Centrosema pascuorum*, *Centrosema rotundifolium*, *Chamaecrista hispidula*, *Chamaesyce hyssopifolia*, *Chiococca nitida*, *Cissus erosa*, *Cnidoscopus loefgrenii*, *Cnidoscopus urens*, *Conyza bonariensis*, *Crotalaria vitellina*, *Cyperus odoratus*, *Dalechampia scandens*, *Desmodium glabrum*, *Dichantherium sciuroti*, *Digitaria ciliaris*, *Eclipta prostrata*, *Emilia sonchifolia*, *Eupatorium ballotifolium*, *Hybanthus calceolaria*, *Indigofera hirsuta*, *Indigofera microcarpa*, *Jacquemontia sphaerostigma*, *Lantana camara*, *Lasiacis ligulata*, *Macroptilium panduratum*, *Merremia aegyptia*, *Mimosa caesalpiniiifolia*, *Olyra ciliatifolia*, *Olyra latifolia*, *Pavonia cancellata*, *Phytolacca thyrsiflora*, *Piper corcovadensis*, *Porophyllum ruderale*, *Psychotria deflexa*, *Psychotria hoffmannseggiana*, *Pteridium aquilinum*, *Pterolepis polygonoides*, *Renealmia alpinia*, *Richardia grandiflora*, *Schultesia guianensis*, *Setaria scandens*, *Sida ciliaris*, *Sida linifolia*, *Solanum rhytidandrum*, *Stachytarpheta angustifolia*, *Stilpnopappus trichospiroides*, *Stylosanthes angustifolia*, *Stylosanthes guianensis*, *Stylosanthes scabra*, *Stylosanthes viscosa*, *Turnera subulata*, *Waltheria americana*.

c) Medium regeneration stage

Abrus precatorius, *Apeiba tibourbou*, *Bauhinia pentandra*, *Byrsonima crassifolia*, *Byrsonima gardnerana*, *Byrsonima sericea*, *Byrsonima verbascifolia*, *Canavalia dictyota*, *Casearia javitensis*, *Casearia sylvestris*, *Cassytha filiformis*, *Cecropia pachystachya*, *Centrosema pascuorum*, *Ceratosanthes trifoliata*, *Chamaecrista ensiformis*, *Chrysophyllum rufum*, *Cissus erosa*, *Cissus simsiana*, *Cissus verticillata*, *Combretum leprosum*, *Copaifera coriacea*, *Copaifera luetzelburgii*, *Diplopterys pubipetala*, *Dorstenia brasiliensis*, *Eugenia puniceifolia*, *Guazuma ulmifolia*, *Lantana camara*, *Machaerium hirtum*, *Maclura tinctoria*, *Miconia albicans*, *Mimosa caesalpiniiifolia*, *Mimosa tenuiflora*, *Mouriri pusa*, *Passiflora cincinnata*, *Passiflora edulis*, *Passiflora foetida*, *Passiflora misera*, *Pilocarpus spicatus*, *Piper aduncum*, *Piper amalago*, *Piper arboreum*, *Piper divaricatum*, *Pityrocarpa obliqua*, *Poincianella pyramidalis*, *Prockia crucis*, *Pseudananas sagenarius*, *Psychotria carthagenensis*, *Psychotria deflexa*, *Psychotria hoffmannseggiana*, *Psychotria stachyoides*, *Pterolepis polygonoides*, *Salacia arborea**, *Salacia elliptica*, *Schubertia grandiflora*, *Sequiaria americana*, *Senna alata*, *Senna macranthera*, *Senna splendida*, *Senna trachypus*, *Sideroxylon obtusifolium*, *Solanum caavurana*, *Solanum paludosum*, *Stigmaphyllon auriculatum*, *Strychnos parvifolia*, *Tabebuia aurea*, *Tillandsia gardneri*, *Tillandsia tenuifolia*, *Tillandsia tricholepis*, *Vismia martiana*, *Ziziphus joazeiro*.

d) Advanced regeneration stage

Abrus precatorius, *Abuta selloana*, *Amp hilophium crucigerum*, *Anadenanthera colubrina*, *Andira*

surinamensis, Annona glabra, Apeiba tibourbou, Bignonia corymbosa, Byrsonima crassifolia, Byrsonima gardnerana, Byrsonima sericea, Byrsonima verbascifolia, Casearia javitensis, Casearia sylvestris, Cassia ferruginea, Cedrela odorata, Chamaecrista ensiformis, Chondrodendron platiphyllum, Chrysophyllum gonocarpum, Chrysophyllum rufum, Cissus simsiana, Cissus verticillata, Combretum laxum, Combretum leprosum, Copaifera langsdorffii, Cordia trichotoma, Davilla cearensis, Diplopterys pubipetala, Doliocarpus dentatus, Esenbeckia grandiflora, Eugenia puniceifolia, Genipa americana, Guazuma ulmifolia, Gustavia augusta, Hillia parasitica, Hippocratea volubilis, Hirtella racemosa, Hymenaea courbaril, Libidibia ferrea, Lundia virginialis, Machaerium hirtum, Maclura tinctoria, Mouriri pusa, Orthomene schomburgkii, Passiflora cincinnata, Passiflora edulis, Passiflora foetida, Passiflora galbana, Passiflora misera, Phoradendron bathyoryctum, Phoradendron crassifolium, Phoradendron piperoides, Pilocarpus spicatus, Piper aduncum, Piper divaricatum, Piper mollicomum, Piptadenia viridiflora, Pityrocarpa obliqua, Platymiscium floribundum, Poincianella bracteosa, Poincianella pyramidalis, Prestonia coalita, Prockia crucis, Pseudananas sagenarius, Psychotria carthagenensis, Psychotria stachyoides, Salacia arborea, Salacia elliptica, Schefflera morototoni, Schubertia grandiflora, Sequiera americana, Sideroxylon obtusifolium, Siparuna guianensis, Sterculia striata, Stigmaphyllon auriculatum, Strychnos parvifolia, Tabebuia aurea, Talisia esculenta, Tetracera breyniana, Tillandsia gardneri, Tillandsia recurvata, Tillandsia tenuifolia, Tillandsia tricholepis, Tillandsia usneoides, Vriesea rodigasiana, Ziziphus joazeiro.*

Art. 2 This Resolution shall enter into effect on the date of its publication.

FRANCISCO GAETANI – Acting Council President

(*) endemic and rare vegetation species or species threatened with extinction.

This text does not substitute the text published in the Official Gazette on Jan. 3, 2012.

RESOLUTION 443, December 30, 2011
Published in Official Gazette 2 on Jan. 3, 2012

Approves the list of successional stages indicator species of the Beach vegetation in the State of Sergipe, according to Resolution 417 from Nov. 23, 2009.

THE NATIONAL ENVIRONMENT COUNCIL – CONAMA, in accordance with the power bestowed upon the Council by art. 8, item I of Law 6.938 from August 31, 1981, and considering the provisions of art. 4, § 1 of Law 11.428 from December 22, 2006 and CONAMA Resolution 417 from December 23, 2009, decides:

Art. 1 The indicator species of primary vegetation and of the different successional secondary stages of the Atlantic Forest vegetation, which are the subject of art. 4 of Law 11.428 from Dec. 22, 2009 and § 1 of art. 3 of CONAMA Resolution 417 from Nov. 23, 2009, in the State of Sergipe, are:

I – Beach Herbaceous and Sub-Shrubby Vegetation:

a) Climax vegetation

Andira humilis, Blutaparon portulacoides, Bulbostylis capillaris, Bulbostylis junciformis, Canavalia rosea, Cenchrus echinatus, Chrysobalanus icaco, Cnidoscolus urens, Cyperus aggregatus, Cyperus giganteus, Cyperus prolixus, Digitaria long iflora, Eragrostis bahiensis, Fimbristylis cymosa, Griffinia espiritensis, Hippeastrum stylosum, Ipomoea pes-caprae, Marsypianthes chamaedrys, Melocactus violaceus, Melocactus zehntneri, Paspalum distichum, Paspalum maritimum, Spartina ciliata, Sporobolus virginicus, Stenotaphrum secundatum, Stylosanthes viscosa, Vellozia dasypus.

II – Beach shrub vegetation:

a) Primary stage

Byrsonima sericea, Chiococca nitida, Chrysobalanus icaco, Clidemia bullosa, Conocarpus erectus, Davilla flexuosa, Duguetia gardneriana, Era grostis bahiensis, Licania tomentosa, Ouratea crassa, Passiflora galbana, Psychotria mapourioides, Serjania salzmanniana, Stigmaphyllon blanchetii, Swartzia apetala, Swartzia simplex, Syagrus schizophylla, Tillandsia gardneri, Tillandsia stricta, Tillandsia tenuifolia, Typha domingensis, Vriesea procera.

b) Initial regeneration stage

Cenchrus echinatus, Digitaria long iflora, Solanum americanum, Stylosanthes viscosa.

c) Medium regeneration stage *Stigmaphyllon paralias,*

Tillandsia stricta.

d) Advanced regeneration stage

Chiococca nitida, Clidemia bullosa, Davilla flexuosa, Ouratea crassa, Passiflora galbana, Psychotria mapourioides, Serjania salzmanniana, Stigmaphyllon blanchetii, Stigmaphyllon paralias, Tillandsia gardneri, Tillandsia stricta, Tillandsia tenuifolia, Vriesea procera.

III – Beach arboreal vegetation: a) Primary stage

Anacardium occidentale, Andira fraxinifolia, Annona glabra, Annona pickelii, Campomanesia dichotoma, Cereus fernambucensis, Curatella americana, Denscandia cymosa, Desmoncus polyacanthos, Duguetia gardneriana, Forsteronia leptocarpa, Hancornia speciosa, Hippocratea volubilis, Inga vera, Jacaranda obovata, Manilkara salzmannii, Myrcia

irtiflora, Myrcia multiflora, Ocotea notata, Pera glabrata, Polyandrococos caudescens, Pouteria grandiflora, Protium heptaphyllum, Schinus terebinthifolius, Serjania salzmanniana, Simarouba amara, Stigmaphyllon blanchetii, Swartzia simplex, Syagrus coronata, Syagrus schizophylla, Tapirira guianensis, Tillandsia gardneri, Tillandsia recurvata, Tillandsia stri cta, Tillandsia tenuifolia, Trichocentrum fuscum, Vriesea jonghei, Vriesea procera, Xylopia brasiliensis.

b) Initial regeneration stage

Allagoptera arenaria, Cecropia pachystachya, Cenchrus echinatus, Digitaria long iflora, Ichnanthus pallens, Solanum americanum, Stylosanthes viscosa.

c) Medium regeneration stage

Andira fraxinifolia, Casearia sylvestris, Cecropia pachystachya, Duguetia gardneriana, Licania tomentosa, Passiflora foetida, Passiflora galbana, Pera glabrata, Schinus terebinthifolius, Serjania salzmanniana, Stigmaphyllon paralias, Tillandsia gardneri, Tillandsia stricta, Tillandsia tenuifolia, Vriesea procera.

d) Advanced regeneration stage

Anacardium occidentale, *Andira fraxinifolia*, *Annona glabra*, *Annona pickelii*, *Calycolpus legrandii*, *Calyptanthus brasiliensis*, *Calyptanthus clusiifolia*, *Calyptanthus beache*, *Campomanesia dichotoma*, *Casearia sylvestris*, *Cecropia pachystachya*, *Clusia nemorosa*, *Clusia sellowiana*, *Denscandia cymosa*, *Duguetia gardneriana*, *Eugenia cerasiflora*, *Eugenia costatifructa*, *Eugenia hirta*, *Eugenia ligustrina*, *Eugenia puniceifolia*, *Hippocratea volubilis*, *Inga vera*, *Jacaranda obovata*, *Kielmeyera rugosa*, *Licania tomentosa*, *Manilkara salzmannii*, *Myrcia decorticans*, *Myrcia hirtiflora*, *Myrcia inaequiloba*, *Myrcia multiflora*, *Myrcia rotundifolia*, *Myrcia splendens*, *Myrcia tomentosa*, *Neomitranthes obtusa*, *Ocotea notata*, *Passiflora foetida*, *Passiflora galbana*, *Pera glabrata*, *Polyandrocos caudescens*, *Pouteria grandiflora*, *Protium heptaphyllum*, *Psidium amplexicaule*, *Psidium cattleianum*, *Psidium guajava*, *Psidium guineense*, *Psidium oligospermum*, *Schinus terebinthifolius*, *Serjania salzmanniana*, *Simarouba amara*, *Stigmaphyllon blanchetii*, *Stigmaphyllon paralias*, *Swartzia simplex*, *Syagrus schizophylla*, *Symphonia globulifera*, *Tapirira guianensis*, *Tillandsia gardneri*, *Tillandsia stricta*, *Tillandsia tenuifolia*, *Trichocentrum fuscum*, *Vriesea jonghei*, *Vriesea procera*, *Xylopia brasiliensis*.

IV – Beach Transitional Forest – Another vegetation typology:

a) Primary stage

Abarema jupunba, *Andira fraxinifolia*, *Annona glabra*, *Bowdichia virgilioides*, *Campomanesia xanthocarpa*, *Cereus fernambucensis*, *Curatella americana*, *Eschweilera ovata*, *Esenbeckia grandiflora*, *Forsteronia leptocarpa*, *Genipa americana*, *Gustavia augusta*, *Hancornia speciosa*, *Hippocratea volubilis*, *Inga vera*, *Jacaranda obovata*, *Ocotea notata*, *Ocotea glomerata*, *Paullinia pinnata*, *Pera glabrata*, *Polyandrocos caudescens*, *Protium heptaphyllum*, *Annona pickelii*, *Sabicea grisea*, *Salzmannia nitida*, *Schefflera morototoni*, *Simarouba amara*, *Syagrus coronata*, *Talisia esculenta*, *Tillandsia recurvata*, *Tillandsia tenuifolia*, *Xylopia brasiliensis*.

b) Initial regeneration stage

Abaremajupunba, *Chiococca nitida*, *Cissus erosa*, *Cnidioscolus urens*, *Ichnanthus nemoralis*, *Ichnanthus pallens*, *Solanum americanum*, *Stylosanthes viscosa*, *Syagrus coronata*.

c) Medium regeneration stage

Andira fraxinifolia, *Byrsonima sericea*, *Casearia sylvestris*, *Cecropia pachystachya*, *Chamaecrista cytisoides*, *Chrysophyllum marginatum*, *Cissus erosa*, *Cissus paulliniifolia*, *Cupania racemosa*, *Cupania impressinervia*, *Davilla flexuosa*, *Guazuma ulmifolia*, *Heisteria perianthomega*, *Machaerium aculeatum*, *Passiflora foetida*, *Passiflora galbana*, *Pera labrata*, *Piper arboreum*, *Schinus terebinthifolius*, *Senna splendida*, *Solanum palinacanthum*, *Tabebuia aurea*, *Tapirira guianensis*, *Tillandsia gardneri*, *Tillandsia tenuifolia*, *Trichilia lepidota*, *Ziziphus joazeiro*.

d) Advanced regeneration stage

Andira fraxinifolia, *Annona glabra*, *Annona pickelii*, *Bowdichia virgilioides*, *Byrsonima sericea*, *Campomanesia xanthocarpa*, *Casearia sylvestris*, *Chrysophyllum marginatum*, *Cissus paulliniifolia*, *Cupania racemosa*, *Cupania impressinervia*, *Davilla flexuosa*, *Eschweilera ovata*, *Esenbeckia grandiflora*, *Genipa americana*, *Guazuma ulmifolia*, *Gustavia augusta*, *Heisteria perianthomega*, *Hippocratea volubilis*, *Inga vera*, *Jacaranda obovata*, *Ocotea notata*, *Ocotea glomerata*, *Passiflora foetida*, *Passiflora galbana*, *Paullinia pinnata*, *Pera glabrata*, *Polyandrocos caudescens*, *Protium heptaphyllum*, *Sabicea grisea*, *Salzmannia nitida*, *Schefflera morototoni*, *Simarouba amara*, *Tabebuia aurea*, *Talisia esculenta*, *Tapirira guianensis*, *Tillandsia gardneri*, *Tillandsia recurvata*, *Tillandsia tenuifolia*, *Trichilia lepidota*, *Xylopia brasiliensis*, *Ziziphus joazeiro*.

Art. 2 This Resolution shall enter into effect on the date of its publication.

FRANCISCO GAETANI – Acting Council President

(*) endemic and rare species and species threatened with extinction.

This text does not substitute the text published in the Official Gazette on Jan. 3, 2012

RESOLUTION 444, December 30, 2011
Published in Official Gazette 2 on Jan. 3, 2012

Approves the list of successional stages indicator species of the Beach vegetation in the State of Alagoas, according to Resolution 417 from Nov. 23, 2009

THE NATIONAL ENVIRONMENT COUNCIL – CONAMA, in accordance with the power bestowed upon the Council by art. 8, item I of Law 6.938 from August 31, 1981, and considering the provisions of art. 4, § 1 of Law 11.428 from December 22, 2006 and CONAMA Resolution 417 from December 23, 2009, decides:

Art. 1 The indicator species of primary vegetation and of the different successional secondary stages of the Atlantic Forest vegetation, which are the subject of art. 4 of Law 11.428 from Dec. 22, 2009 and § 1 of art. 3 of CONAMA Resolution 417 from Nov. 23, 2009, in the State of Alagoas, are:

I – Beach Herbaceous and Sub-Shrubby Vegetation:

a) Climax vegetation

*Acanthospermum hispidum, Aechmea muricata**, *Ageratum conyzoides*, *Alternanthera littoralis*, *Alternanthera ramosissima*, *Amaranthus spinosus*, *Andropogon bicornis*, *Blutaparon portulacoides*, *Bredemeyera kunthiana*, *Cenchrus echinatus*, *Chenopodium ambrosioides*, *Chrysobalanus icaco*, *Cnidoscopus urens*, *Commelina diffusa*, *Cynodon dactylon*, *Cyperus ligularis*, *Cyrtopodium holstii*, *Dalbergia ecastaphyllum*, *Euphorbia hirta*, *Hippeastrum stylosum*, *Hybanthus calceolaria*, *Hydrocotyle bonariensis*, *Indigofera hirsuta*, *Ipomoea pescaprae*, *Laportea aestuans*, *Melocactus violaceus*, *Melocactus zehntneri*, *Microtea paniculata*, *Mollugo verticillata*, *Nymphaea lasiophylla*, *Panicum dichotomiflorum*, *Panicum parvifolium*, *Panicum pilosum*, *Paspalum conjugatum*, *Paspalum maritimum*, *Pluchea sagittalis*, *Portulaca oleracea*, *Remirea maritima*, *Scoparia dulcis*, *Securidaca diversifolia*, *Sphagneticola trilobata*., *Spigelia antheimia*, *Sporobolus virginicus*, *Stenotaphrum secundatum*, *Stylosanthes viscosa*, *Tarenaya spinosa*, *Utricularia foliosa*.

II – Beach shrub vegetation:

a) Primary stage

Allamanda blanchetii, *Borreria verticillata*, *Bredemeyera kunthiana*, *Byrsonima sericea*, *Centropogon cornutus*, *Chiococca alba*, *Chrysobalanus icaco*, *Cyrtopodium holstii*, *Dalbergia ecastaphyllum*, *Davilla kunthii*, *Erythroxylum andrei*, *Eugenia uniflora*, *Euphorbia heterophylla*, *Heteropterys coleoptera*, *Hirtella ciliata*, *Jatropha gossypifolia*, *Licania tomentosa*, *Manilkara triflora*, *Myrcia guianensis*, *Ocotea puberula*, *Oeceoclades maculata*, *Paullinia trigonia*, *Securidaca diversifolia*, *Serjania salzmanniana*, *Solanum paludosum*, *Solanum paniculatum*, *Stigmaphyllon blanchetii*, *Swartzia apetala*, *Swartzia simplex*, *Syagrus schizophylla*, *Talipariti pernambucense*, *Tillandsia gardneri*, *Tillandsia stricta*, *Tillandsia tenuifolia*, *Tocoyena sellowiana*, *Typha domingensis*, *Urena lobata*, *Vriesea gigantea*, *Vriesea procera*.

b) Initial regeneration stage

Acanthospermum hispidum, *Ageratum conyzoides*, *Cenchrus echinatus*, *Chamaecrista hispidula*, *Chenopodium ambrosioides*, *Crotalaria retusa*, *Cynodon dactylon*, *Euphorbia hirta*, *Hybanthus calceolaria*, *Indigofera hirsuta*, *Laportea aestuans*, *Mimosa pudica*, *Momordica charantia*, *Phyllanthus niruri*, *Phytolacca thyrsoiflora*, *Pluchea sagittalis*, *Portulaca oleracea*, *Sphagneticola trilobata*, *Stylosanthes viscosa*, *Tarenaya spinosa*.

c) Medium regeneration stage

Cassytha filiformis, *Senna obtusifolia*, *Stigmaphyllon paralias*.

d) Advanced regeneration stage

Borreria verticillata, *Chiococca alba*, *Davilla kunthii*, *Eugenia uniflora*, *Manilkara triflora*, *Myrcia guianensis*, *Oeceoclades maculata*, *Paullinia trigonia*, *Serjania salzmanniana*, *Solanum paludosum*, *Solanum paniculatum*, *Stigmaphyllon blanchetii*, *Stigmaphyllon paralias*, *Talipariti pernambucense*, *Tillandsia gardneri*, *Tillandsia stricta*, *Tillandsia tenuifolia*, *Tocoyena sellowiana*, *Vriesea procera*.

III – Beach arboreal vegetation

a) Primary stage

Abrus precatorius, *Anacardium occidentale*, *Anaxagorea dolichocarpa*, *Annona glabra*, *Bignoniacorymbosa*, *Caesalpiniaechinata**, *Cordiatrichotoma*, *Cyrtopodiumgigas*, *Desmoncus polyacanthos*, *Enterolobium contortisiliquum*, *Forsteronia leptocarpa*, *Hippocratea volubilis*, *Jacaranda obovata*, *Matayba guianensis*, *Myrcia fallax*, *Myrcia splendens*, *Nectandra oppositifolia*, *Ocotea gardneri*, *Ocotea puberula*, *Oeceoclades maculata*, *Paullinia trigonia*, *Peltogyne recifensis*, *Philodendron fragrantissimum*, *Philodendron pedatum*, *Phoradendron affine*, *Polyandrococos caudescens*, *Protium heptaphyllum*, *Pseudananas sagenarius*, *Schinus terebinthifolius*, *Serjania salzmanniana*, *Simarouba amara*, *Stigmaphyllon blanchetii*, *Swartzia simplex*, *Syagrus schizophylla*, *Tapirira guianensis*, *Tillandsia gardneri*, *Tillandsia recurvata*, *Tillandsia stricta*, *Tillandsia*

tenuifolia, *Vriesea gigantea*, *Vriesea procera*.

b) Initial regeneration stage

Acanthospermum hispidum, *Ageratum conyzoides*, *Andropogon bicornis*, *Bredemeyera kunthiana*, *Cenchrus echinatus*, *Chamaecrista hispidula*, *Chenopodium ambrosioides*, *Crotalaria retusa*, *Cynodon dactylon*, *Euphorbia hirta*, *Hybanthus calceolaria*, *Indigofera hirsuta*, *Laportea aestuans*, *Lasiacis ligulata*, *Luffa cylindrica*, *Mimosa pudica*, *Momordica charantia*, *Phyllanthus niruri*, *Phytolacca thyrsiflora*, *Pluchea sagittalis*, *Securidaca diversifolia*, *Senna obtusifolia*, *Sphagneticola trilobata*, *Stylosanthes viscosa*, *Turnera subulata*, *Urena lobata*.

c) Medium regeneration stage

Casearia sylvestris, *Cassytha filiformis*, *Cestrum axillare*, *Chamaecrista hispidula*, *Erythroxylum andrei*, *Euphorbia heterophylla*, *Euphorbia hirta*, *Jatropha gossypifolia*, *Licania tomentosa*, *Matayba guianensis*, *Momordica charantia*, *Passiflora cincinnata*, *Passiflora edulis*, *Paullinia trigonia*, *Psidium guineense*, *Schinus terebinthifolius*, *Senna obtusifolia*, *Serjania salzmanniana*, *Solanum paludosum*, *Solanum paniculatum*, *Stigmaphyllon paralias*, *Tillandsia gardneri*, *Tillandsia stricta*, *Tillandsia tenuifolia*, *Trema micrantha*, *Vriesea procera*.

d) Advanced regeneration stage

Actinostemon concolor, *Anacardium occidentale*, *Annona glabra*, *Bignonia corymbosa*, *Caesalpinia echinata**, *Casearia sylvestris*, *Cestrum axillare*, *Cyrtopodium gigas*, *Hippocratea volubilis*, *Jacaranda obovata*, *Licania tomentosa*, *Matayba guianensis*, *Myrcia fallax*, *Myrcia splendens*, *Nectandra oppositifolia*, *Ocotea gardneri*, *Ocotea puberula*, *Ocoteoclades maculata*, *Passiflora cincinnata*, *Passiflora edulis*, *Paullinia trigonia*, *Philodendron fragrantissimum*, *Philodendron pedatum*, *Phoradendron affine*, *Polyandrococos caudescens*, *Protium heptaphyllum*, *Psidium guineense*, *Schinus terebinthifolius*, *Serjania salzmanniana*, *Simarouba amara*, *Stigmaphyllon blanchetii*, *Stigmaphyllon paralias*, *Swartzia simplex*, *Syagrus schizophylla*, *Tapirira guianensis*, *Tillandsia gardneri*, *Tillandsia stricta*, *Tillandsia tenuifolia*, *Vriesea gigantea*, *Vriesea procera*.

IV – Beach Transitional Forest – Another vegetation typology:

a) Primary stage

Amphirrhox longifolia, *Anaxagorea dolichocarpa*, *Annona glabra*, *Aspidosperma pyriformis*, *Banara brasiliensis*, *Bignonia corymbosa*, *Bowdichia virgilioides*, *Cedrela fissilis*, *Cestrum intermedium*, *Cordia trichotoma*, *Diploon cuspidatum*, *Enterolobium contortisiliquum*, *Eschweilera ovata*, *Forsteronia leptocarpa*, *Genipa americana*, *Heisteria blanchetiana*, *Hippocratea volubilis*, *Hirtella racemosa*, *Hirtella triandra*, *Hymenaea rubriflora*, *Jacaranda obovata*, *Libidibia ferrea*, *Melanoxylon brauna**, *Nectandra membranacea*, *Ocotea gardneri*, *Ocotea glomerata*, *Ocotea puberula*, *Parkia pendula*, *Philodendron fragrantissimum*, *Philodendron pedatum*, *Phoradendron affine*, *Polyandrococos caudescens*, *Protium heptaphyllum*, *Pseudananas sagenarius*, *Schefflera morototoni*, *Simarouba amara*, *Strychnos trinervis*, *Talisia esculenta*, *Tillandsia recurvata*, *Tillandsia tenuifolia*, *Vriesea gigantea*.

b) Initial regeneration stage

Acanthospermum hispidum, *Ageratum conyzoides*, *Bredemeyera kunthiana*, *Chamaecrista hispidula*, *Chiococca alba*, *Cnidioscolus urens*, *Crotalaria retusa*, *Cynodon dactylon*, *Euphorbia hirta*, *Hybanthus calceolaria*, *Indigofera hirsuta*, *Laportea aestuans*, *Lasiacis ligulata*, *Luffa cylindrica*, *Margaritopsis cephalantha*, *Mimosa pudica*, *Momordica charantia*, *Pavonia cancellata*, *Phyllanthus niruri*, *Phytolacca thyrsiflora*, *Pluchea sagittalis*, *Psychotria bahiensis*, *Richardia grandiflora*, *Securidaca diversifolia*, *Senna obtusifolia*, *Setaria parviflora*, *Sphagneticola trilobata*, *Stylosanthes viscosa*, *Turnera subulata*.

c) Medium regeneration stage

Abrus precatorius, *Actinostemon concolor*, *Albizia pedicellaris*, *Brunfelsia uniflora*, *Byrsonima sericea*, *Casearia javitensis*, *Casearia sylvestris*, *Cassytha filiformis*, *Chamaecrista cytisoides*, *Chamaecrista hispidula*, *Chrysophyllum rufum*, *Cissus paulliniifolia*, *Cissus simsiana*, *Cupania impressinervia*, *Cupania oblongifolia*, *Eugenia puniceifolia*, *Euphorbia heterophylla*, *Guarea guidonia*, *Guazuma ulmifolia*, *Machaerium stipitatum*, *Margaritopsis cephalantha*, *Momordica charantia*, *Myrcia tomentosa*, *Ouratea fieldingiana*, *Passiflora cincinnata*, *Passiflora edulis*, *Prockia crucis*, *Pseudananas sagenarius*, *Psidium guineense*, *Psychotria bahiensis*, *Rauia nodosa*, *Schinus terebinthifolius*, *Senna macranthera*, *Senna obtusifolia*, *Solanum paludosum*, *Solanum paniculatum*, *Tapirira guianensis*, *Tillandsia gardneri*, *Tillandsia tenuifolia*, *Trema micrantha*, *Trichilia silvatica*, *Ziziphus joazeiro*.

d) Advanced regeneration stage

Abrus precatorius, *Albizia pedicellaris*, *Amphirrhox longifolia*, *Anaxagorea dolichocarpa*, *Annona glabra*, *Banara brasiliensis*, *Bignonia corymbosa*, *Bowdichia virgilioides*, *Byrsonima sericea*, *Casearia*

javitensis, Casearia sylvestris, Cedrela fissilis, Cestrum intermedium, Chrysophyllum rufum, Cissus paulliniifolia, Cissus simsiana, Cordia trichotoma, Cupania impressinervia, Cupania oblongifolia, Diploon cuspidatum, Eschweilera ovata, Eugenia puniceifolia, Genipa americana, Guarea guidonia, Guazuma ulmifolia, Heisteria blanchetiana, Hippocratea volubilis, Hirtella racemosa, Hymenaea rubriflora, Jacaranda obovata, Libidibia ferrea, Machaerium stipitatum, Nectandra membranacea, Ocotea gardneri, Ocotea glomerata, Ocotea puberula, Ouratea fieldingiana, Parkia pendula, Passiflora cincinnata, Passiflora edulis, Philodendron fragrantissimum, Philodendron pedatum, Phoradendron affine, Polyandrococos caudescens, Prockia crucis, Protium heptaphyllum, Pseudananas sagenarius, Psidium guineense, Rauia nodosa, Schefflera morototoni, Simarouba amara, Strychnos trinervis, Talisia esculenta, Tapirira guianensis, Tillandsia gardneri, Tillandsia recurvata, Tillandsia tenuifolia, Trichilia silvatica, Vriesea gigantea, Ziziphus joazeiro.

Art. 2 This Resolution shall enter into effect on the date of its publication.

FRANCISCO GAETANI – Acting Council President

(*) endemic and rare species and species threatened with extinction.

This text does not substitute the text published in the Official Gazette on Jan. 3, 2012



RESOLUTION 445, December 30, 2011

Published in the Official Gazette 2 on Jan. 3, 2012

Approves the list of successional stages indicator species of the Beach vegetation in the State of Piauí, according to Resolution 417 from Nov. 23, 2009.

THE NATIONAL ENVIRONMENT COUNCIL – CONAMA, in accordance with the power bestowed upon the Council by art. 8, item I of Law 6.938 from August 31, 1981, and considering the provisions of art. 4, § 1 of Law 11.428 from December 22, 2006 and CONAMA Resolution 417 from December 23, 2009, decides:

Art. 1 The indicator species of primary vegetation and of the different successional secondary stages of the Atlantic Forest vegetation, which are the subject of art. 4 of Law 11.428 from Dec. 22, 2009 and § 1 of art. 3 of CONAMA Resolution 417 from Nov. 23, 2009, in the State of Piauí, are:

I – Beach Herbaceous and Sub-Shrubby Vegetation:

a) Climax vegetation

Aeschynomene brasiliiana, *Aeschynomene histrix*, *Aeschynomene paniculata*, *Alternanthera brasiliiana*, *Alternanthera littoralis*, *Alternanthera sessilis*, *Alternanthera tenella*, *Alysicarpus vaginalis*, *Aristida setifolia*, *Blutaparonportulacoides*, *Borreria verticillata*, *Bulbostylis scabra*, *Cassytha filiformis*, *Cenchrus ciliaris*, *Centrosema brasilianum*, *Ceratosanthes trifoliata*, *Chamaecrista ramosa*, *Cyperus aggregatus*, *Cyperus articulatus*, *Cyperus maritimus*, *Dalechampia pernambucensis*, *Diodella apiculata*, *Echinodorus grandiflorus*, *Echinodorus tenellus*, *Eleocharis interstincta*, *Elephantopus hirtiflorus*, *Froelichia humboldtiana*, *Galactia striata*, *Heliotropium polyphyllum*, *Hybanthus calceolaria*, *Hyptis suaveolens*, *Indigofera microcarpa*, *Ipomoea asaralifolia*, *Lantana camara*, *Marsypianthes chamaedrys*, *Melocactus zehntneri*, *Panicum dichotomiflorum*, *Panicum laxum*, *Paspalum conjugatum*, *Paspalum maritimum*, *Paspalum scutatum*, *Passiflora capsularis*, *Pectis oligocephala*, *Piriqueta viscosa*, *Plumbago scandens*, *Polygala variabilis*, *Remirea maritima*, *Rhynchospora riparia*, *Ruellia geminiflora*, *Sesuvium portulacastrum*, *Spigelia anthelmia*, *Sporobolus virginicus*, *Stylosanthes scabra*, *Tephrosia cinerea*, *Urochloa fusca*, *Utricularia foliosa*, *Utricularia gibba*, *Utricularia juncea*, *Utricularia subulata*, *Wedelia alagoensis*, *Zornia sericea*.

II – Beach shrub vegetation

a) Primary stage

Allamanda blanchetii, *Anacardium occidentale*, *Andira legalis*, *Bauhinia acuruana*, *Bauhinia dubia*, *Boehmeria cylindrica*, *Byrsonima gardnerana*, *Byrsonima intermedia*, *Byrsonima verbascifolia*, *Canavalia brasiliensis*, *Centrosema brasilianum*, *Chamaecrista desvauxii*, *Chiococca alba*, *Coccoloba ramosissima*, *Commelina erecta*, *Commelina obliqua*, *Cordia rufescens*, *Cordia taguahyensis*, *Crotalaria pallida*, *Davilla cearensis*, *Eugenia excelsa*, *Evolvulus ovatus*, *Evolvulus pterocaulon*, *Fridericia platyphylla*, *Helicteres heptandra*, *Licania tomentosa*, *Manihot dichotoma*, *Manihot pseudoglaziovii*, *Manihot tristis*, *Manilkara cavalcantei**, *Manilkara triflora*, *Maytenus robusta*, *Mouriri pusa*, *Myrcia guianensis*, *Myrcia splendens*, *Ouratea fieldingiana*, *Passiflora capsularis*, *Passiflora kermesina*, *Passiflora mucronata*, *Plumbago scandens*, *Poincianella pyramidallis*, *Psittacanthus robustus*, *Solanum paludosum*, *Solanum rhytidoandrum*, *Struthanthus flexicaulis*, *Swartzia simplex*, *Tabernaemontana laeta*, *Tillandsia gardneri*, *Tillandsia mallemonii*, *Tocoyena sellowiana*, *Tournefortia rubicunda*, *Urvillea stipitata*, *Vriesea procera*.

b) Initial regeneration stage

Borreria verticillata, *Calopogonium mucunoides*, *Canavalia brasiliensis*, *Cassytha filiformis*, *Cenchrus ciliaris*, *Chamaecrista hispidula*, *Croton blanchetianus*, *Dalechampia pernambucensis*, *Desmodium glabrum*, *Elephantopus hirtiflorus*, *Galactia striata*, *Hybanthus calceolaria*, *Indigofera microcarpa*, *Ipomoea asaralifolia*, *Ipomoea procumbens*, *Jatropha mollissima*, *Macroptilium atropurpureum*, *Merremia aegyptia*, *Pectis oligocephala*, *Polygala variabilis*, *Spigelia anthelmia*, *Stylosanthes scabra*, *Tephrosia cinerea*, *Tephrosia purpurea*, *Wedelia alagoensis*.

c) Medium regeneration stage

Borreria verticillata, *Cassytha filiformis*, *Chamaecrista hispidula*, *Cordia rufescens*, *Crotalaria pallida*, *Croton blanchetianus*, *Dalechampia pernambucensis*, *Jatropha mollissima*, *Ouratea fieldingiana*, *Senna splendida*, *Spigelia anthelmia*, *Stigmaphyllon paralias*.

d) Advanced regeneration stage

Anacardium occidentale, *Boehmeria cylindrica*, *Byrsonima gardnerana*, *Byrsonima intermedia*, *Chiococca*

alba, *Coccoloba ramosissima*, *Cordia taguahyensis*, *Crotalaria pallida*, *Croton blanchetianus*, *Eugenia excelsa*, *Helicteres heptandra*, *Manihot dichotoma*, *Manihot pseudoglaziovii*, *Manihot tristis*, *Manilkara triflora*, *Mouri ri pusa*, *Myrcia guianensis*, *Myrcia splendens*, *Ouratea fieldingiana*, *Passiflora capsularis*, *Passiflora kermesina*, *Passiflora mucronata*, *Poincianella pyramidallis*, *Solanum paludosum*, *Solanum rhytidoandrum*, *Stigmaphyllon paralias*, *Tillandsia gardneri*, *Tillandsia mallemonitii*, *Tocoyena sellowiana*, *Tournefortia rubicunda*, *Urvillea stipitata*, *Vriesea procera*.

III – Beach arboreal vegetation:

a) Primary stage

Abrus precatorius, *Adenocalymma subsessilifolium*, *Amp hilophium crucigerum*, *Anacardium occidentale*, *Anemopaegma ataidei*, *Annona glabra*, *Aspidosperma cuspa*, *Bauhinia acuruana*, *Bauhinia dubia*, *Canavalia brasiliensis*, *Centrosema brasilianum*, *Cissus verticillata*, *Coccoloba ramosissima*, *Combretum glaucocarpum*, *Combretum laxum*, *Crotalaria pallida*, *Dioscorea ovata*, *Dolioscarpus major*, *Eugenia excelsa*, *Ficus gomelleira*, *Hippocratea volubilis*, *Ladenbergia hexandra*, *Maclura tinctoria*, *Manilkara cavalcantei**, *Manilkara salzmannii*, *Maytenus distichophylla*, *Maytenus robusta*, *Myrcia multiflora*, *Phoradendron affine*, *Phoradendron bathyoryctum*, *Phoradendron quadrangulare*, *Pleotoma jasminifolia*, *Poincianella pyramidallis*, *Psittacanthus robustus*, *Struthanthus flexicaulis*, *Swartzia simplex*, *Tillandsia gardneri*, *Tillandsia mallemonitii*, *Urvillea stipitata*, *Vriesea procera*.

b) Initial regeneration stage

Axonopus polydactylus, *Calopogonium mucunoides*, *Canavalia brasiliensis*, *Cassytha filiformis*, *Cecropia pachystachya*, *Cenchrus ciliaris*, *Centrosema pascuorum*, *Chamaecrista hispidula*, *Dalechampia pernambucensis*, *Desmodium glabrum*, *Elephantopus hirtiflorus*, *Euphorbia hyssopifolia*, *Froelichia humboldtiana*, *Galactia striata*, *Hybanthus calceolaria*, *Indigofera microcarpa*, *Ipomoea asaralifolia*, *Ipomoea procumbens*, *Jatropha mollissima*, *Macroptilium atropurpureum*, *Merremia aegyptia*, *Mimosa caesalpinifolia*, *Olyra ciliatifolia*, *Pectis oligocephala*, *Polygala variabilis*, *Spigelia anthelmia*, *Stylosanthes scabra*, *Tephrosia cinerea*, *Tephrosia purpurea*, *Turnera subulata*, *Waltheria viscosissima*, *Wedelia alagoensis*.

c) Medium regeneration stage

Andira fraxinifolia, *Boehmeria cylindrica*, *Casearia sylvestris*, *Cassytha filiformis*, *Cecropia pachystachya*, *Centrosema pascuorum*, *Chamaecrista hispidula*, *Crotalaria pallida*, *Croton blanchetianus*, *Dalechampia pernambucensis*, *Jatropha mollissima*, *Licania tomentosa*, *Mimosa caesalpinifolia*, *Myrcia splendens*, *Passiflora cincinnata*, *Passiflora foetida*, *Passiflora kermesina*, *Senna obtusifolia*, *Senna splendida*, *Solanum paludosum*, *Spigelia anthelmia*, *Stigmaphyllon paralias*, *Tabernaemontana laeta*, *Tillandsia gardneri*, *Tillandsia mallemonitii*, *Tournefortia candidula*, *Urvillea stipitata*, *Vriesea procera*, *Ximena americana*.

d) Advanced regeneration stage

Adenocalymma subsessilifolium, *Amphilophium crucigerum*, *Anacardium occidentale*, *Andira fraxinifolia*, *Anemopaegma ataidei*, *Casearia sylvestris*, *Cecropia pachystachya*, *Cissus verticillata*, *Coccoloba ramosissima*, *Crotalaria pallida*, *Dioscorea ovata*, *Eugenia excelsa*, *Ficus gomelleira*, *Hippocratea volubilis*, *Ladenbergia hexandra*, *Licania tomentosa*, *Maclura tinctoria*, *Manilkara salzmannii*, *Myrcia multiflora*, *Passiflora cincinnata*, *Passiflora foetida*, *Passiflora kermesina*, *Phoradendron affine*, *Phoradendron bathyoryctum*, *Phoradendron quadrangulare*, *Pleotoma jasminifolia*, *Poincianella pyramidallis*, *Psittacanthus robustus*, *Stigmaphyllon paralias*, *Struthanthus flexicaulis*, *Swartzia simplex*, *Tillandsia gardneri*, *Tillandsia mallemonitii*, *Tournefortia candidula*, *Urvillea stipitata*, *Vriesea procera*, *Ximena americana*.

IV – Beach Transitional Forest – Another vegetation typology:

a) Primary stage

Amasonia campestris, *Anadenanthera colubrina*, *Amphilophium crucigerum*, *Andira fraxinifolia*, *Andira surinamensis*, *Anemopaegma ataidei*, *Aspidosperma cuspa*, *Aspidosperma pyriformis*, *Combretum glaucocarpum*, *Combretum laxum*, *Copaifera luetzelburgii*, *Davilla cearensis*, *Dioscorea ovata*, *Dolioscarpus major*, *Hippocratea volubilis*, *Hymenaea courbaril*, *Jacaranda jasminoides*, *Libidibia ferrea*, *Ocotea elegans*, *Phoradendron affine*, *Phoradendron bathyoryctum*, *Phoradendron quadrangulare*, *Schubertia grandiflora*, *Solanum depauperatum*, *Sterculia striata*, *Taccarum peregrinum**, *Talisia esculenta*, *Tillandsia mallemonitii*, *Tournefortia rubicunda*, *Triplaris gardneriana*.

b) Initial regeneration stage

Amasonia campestris, *Axonopus polydactylus*, *Boehmeria cylindrica*, *Calopogonium mucunoides*, *Cenchrus ciliaris*, *Centrosema pascuorum*, *Centrosema rotundifolium*, *Chamaecrista flexuosa*, *Chamaecrista hispidula*, *Chiococca alba*, *Cissus erosa*, *Coutarea hexandra*, *Desmodium glabrum*, *Elephantopus hirtiflorus*, *Euphorbia hyssopifolia*, *Galactia striata*, *Hybanthus calceolaria*, *Indigofera microcarpa*, *Ipomoea procumbens*, *Jacquemontia Montana*, *Lantana camara*, *Macroptilium atropurpureum*, *Merremia aegyptia*, *Mimosa caesalpinifolia*, *Mimosa hirsutissima*, *Mimosa invisa*, *Olyra ciliatifolia*, *Pavonia cancellata*, *Pectis oligocephala*, *Piptadenia stipulacea*, *Polygala variabilis*, *Polygala violacea*, *Pterolepis polygonoides*, *Richardia grandiflora*,

Setaria parviflora, *Setaria vulpiseta*, *Solanum rhytidoandrum*, *Spigelia anthelmia*, *Stylosanthes angustifolia*, *Stylosanthes scabra*, *Tephrosia cinerea*, *Tephrosia purpurea*, *Turnera serrata*, *Turnera subulata*, *Vigna peduncularis*, *Waltheria americana*, *Waltheria viscosissima*, *Wedelia alagoensis*, *Zornia sericea*.

c) Medium regeneration stage

Abrus precatorius, *Amasonia campestris*, *Andira fraxinifolia*, *Bauhinia acuruana*, *Bauhinia dubia*, *Boehmeria cylindrica*, *Brosimum gaudichaudii*, *Byrsonima cydoniifolia*, *Byrsonima gardnerana*, *Byrsonima intermedia*, *Byrsonima verbascifolia*, *Campomanesia aromatica*, *Canavalia dictyota*, *Casearia javitensis*, *Casearia sylvestris*, *Cassytha filiformis*, *Cecropia pachystachya*, *Centrosema pascuorum*, *Chamaecrista hispidula*, *Cissus erosa*, *Cissus sulcicaulis*, *Cissus verticillata*, *Combretum mellifluum*, *Copaifera coriacea*, *Copaifera langsdorffii*, *Copaifera martii*, *Coutarea hexandra*, *Diplopterys lutea*, *Diplopterys pubipetala*, *Dorstenia brasiliensis*, *Eugenia puniceifolia*, *Eugenia stictopetala*, *Guettarda platypoda*, *Lantana camara*, *Maclura tinctoria*, *Metrodorea nigra*, *Mimosa caesalpinifolia*, *Mimosa invisita*, *Mimosa ophthalmocentra*, *Mimosa tenuiflora*, *Mouriri pusa*, *Myrciaria cuspidata*, *Ouratea cearensis*, *Ouratea fieldingiana*, *Passiflora cincinnata*, *Passiflora foetida*, *Passiflora kermesina*, *Peltogyne confertiflora*, *Piptadenia obliqua*, *Piptadenia stipulacea*, *Poincianella pyramidalis*, *Pterolepis polygonoides*, *Salacia elliptica*, *Senna gardneri*, *Senna macranthera*, *Senna obtusifolia*, *Senna splendida*, *Senna trachypus*, *Solanum crinitum*, *Solanum paludosum*, *Spigelia anthelmia*, *Strychnos parvifolia*, *Tabebuia aurea*, *Tillandsia gardneri*, *Tillandsia mallemonitii*, *Turnera serrata*, *Ziziphus joazeiro*.

d) Advanced regeneration stage

Abrus precatorius, *Amasonia campestris*, *Amphilophium crucigerum*, *Anadenanthera colubrina*, *Andira fraxinifolia*, *Andira surinamensis*, *Anemopaegma ataidei*, *Brosimum gaudichaudii*, *Byrsonima gardnerana*, *Byrsonima intermedia*, *Byrsonima verbascifolia*, *Casearia javitensis*, *Casearia sylvestris*, *Cissus sulcicaulis*, *Cissus verticillata*, *Combretum glaucocarpum*, *Combretum laxum*, *Copaifera luetzelburgii*, *Davilla cearensis*, *Dioscorea ovata*, *Diplopterys lutea*, *Diplopterys pubipetala*, *Doliocarpus major*, *Eugenia puniceifolia*, *Eugenia stictopetala*, *Guettarda platypoda*, *Hippocratea volubilis*, *Hymenaea courbaril*, *Jacaranda jasminoides*, *Libidibia ferrea*, *Maclura tinctoria*, *Metrodorea nigra*, *Mouriri pusa*, *Ocotea elegans*, *Ouratea cearensis*, *Ouratea fieldingiana*, *Passiflora cincinnata*, *Passiflora foetida*, *Passiflora kermesina*, *Peltogyne confertiflora*, *Phoradendron affine*, *Phoradendron bathyoryctum*, *Phoradendron quadrangulare*, *Piptadenia obliqua*, *Piptadenia stipulacea*, *Piptadenia viridiflora*, *Poincianella pyramidalis*, *Salacia elliptica*, *Solanum crinitum*, *Solanum depauperatum*, *Sterculia striata*, *Strychnos parvifolia*, *Tabebuia aurea*, *Taccarum peregrinum**, *Talisia esculenta*, *Tillandsia gardneri*, *Tillandsia mallemonitii*, *Tournefortia rubicunda*, *Triplaris gardneriana*, *Ziziphus joazeiro*.

Art. 2 This Resolution shall enter into effect on the date of its publication.

FRANCISCO GAETANI – Acting Council President

(*) endemic and rare species and species threatened with extinction.

This text does not substitute the text published in the Official Gazette on Jan. 3, 2012

RESOLUTION 446, December 30, 2011
Published in Official Gazette 2 on Jan. 3, 2012

Approves the list of indicator species of the successional stages of Beach vegetation in the state of Rio Grande do Norte, according to the provisions of Resolution 417 from November 23, 2009

THE NATIONAL ENVIRONMENT COUNCIL – CONAMA, in accordance with the power bestowed upon the Council by art. 8, item I of Law 6.938 from August 31, 1981, and considering the provisions of art. 4, § 1 of Law 11.428 from December 22, 2006 and CONAMA Resolution 417 from December 23, 2009, decides:

Art. 1 The indicator species of primary vegetation and of the different successional secondary stages of the Atlantic Forest vegetation, which are the subject of art. 4 of Law 11.428 from Dec. 22, 2009 and § 1 of art. 3 of CONAMA Resolution 417 from Nov. 23, 2009, in the State of Rio Grande do Norte, are:

I – Beach Herbaceous and Sub-Shrubby Vegetation:

a) Climax vegetation

Acanthospermum hispidum, Aeschynomene brasiliana, Ageratum conyzoides, Alternanthera littoralis, Alternanthera philoxeroides, Andira humilis, Angelonia campestris, Aristida setifolia, Aspilia martii, Aspilia procumbens, Blainvillea acmella, Bluta paron portulacoides, Bluta paron vermiculare, Bulbostylis scabra, Canavalia bonariensis, Cenchrus echinatus, Centrosema brasilianum, Chamaecrista ramosa, Chrysobalanus icaco, Commelina erecta, Commelina obliqua, Cuphea flava, Cynodon dactylon, Cyperus aggregatus, Cyperus maritimus, Cyperus meyenianus, Cyperus rigens, Cyrtopodium aliciae, Dactyloctenium aegyptium, Dalechampia brasiliensis, Dalechampia scandens, Digitaria horizontalis, Digitaria long iflora, Diodella teres, Emilia sonchifolia, Epidendrum cinnabarinum, Era grostis bahiensis, Eragrostis ciliaris, Eugenia puniceifolia, Eupatorium ballotifolium, Euphorbia hyssopifolia, Evolvulus sericeus, Fimbristylis cymosa, Gomphrena demissa, Heliotropium polyphyllum, Hippeastrum stylosum, Hybanthus poaya, Hyptis suaveolens, Indigofera hirsuta, Ipomoea asaralifolia, Ipomoea imperati, Ipomoea pes-caprae, Krameria tomentosa, Marsypianthes chamaedrys, Matelea ganclinosa, Melampodium divaricatum, Melocactus bahiensis, Melocactus violaceus, Melocactus zehntneri, Microtea paniculata, Mikania obovata, Mitracarpus eichleri, Mollugo verticillata, Paepalanthus myocephalus, Panicum aquaticum, Panicum dichotomiflorum, Paspalum arenarium, Paspalum maritimum, Paspalum pumilum, Paspalum scutatum, Paspalum vaginatum, Pharus lappulaceus, Phytostemon rotundifolium, Piriqueta viscosa, Plumbago scandens, Polycarpha corymbosa, Polygala variabilis, Porophyllum ruderales, Portulaca oleracea, Psidium brownianum, Remirea maritima, Scaevola plumieri, Scoparia dulcis, Sebastiania corniculata, Sesuvium portulacastrum, Spilanthes urens, Sporobolus virginicus, Stachytarpheta angustifolia, Stilpnopappus cearensis, Stylosanthes guianensis, Stylosanthes viscosa, Tarenaya spinosa, Tlesia baccata, Utricularia erectiflora, Utricularia subulata, Wedelia villosa.

II - Beach shrub vegetation:

a) Primary stage

Aechmea aquilega, Allamanda blanchetii, Borreria verticillata, Byrsonima verbascifolia, Chiococca alba, Chrysobalanus icaco, Cnidoscolus urens, Coccoloba alnifolia, Coccoloba laevis, Conocarpus erectus, Eragrostis bahiensis, Eragrostis ciliaris, Eugenia hirta, Eugenia uniflora, Guapira pernambucensis, Helicteres heptandra, Hirtella ciliata, Manilkara triflora, Matelea maritima, Maytenus impressa, Mimosa misera, Oeceoclades maculata, Ouratea cuspidata, Passiflora galbana, Passiflora subrotunda, Psittacanthus dichroos, Schoepfia brasiliensis, Serjania corrugata, Solanum paniculatum, Struthanthus marginatus, Swartzia simplex, Tillandsia mallemonitii, Tocoyena sellowiana, Tournefortia salzmännii, Vitex polygama, Vriesea procera, Waltheria martiana.

b) Initial regeneration stage

Acanthospermum hispidum, Ageratum conyzoides, Aspilia martii, Aspilia procumbens, Blainvillea acmella, Cenchrus echinatus, Chamaecrista hispidula, Crotalaria pallida Aiton, Crotalaria vitellina, Croton campestris, Croton glandulosus, Dactyloctenium aegyptium, Dalechampia brasiliensis, Dalechampia scandens, Desmodium glabrum, Desmodium triflorum, Digitaria horizontalis, Digitaria long iflora, Diodella teres, Emilia sonchifolia, Eupatorium ballotifolium, Euphorbia hyssopifolia, Hybanthus poaya, Indigofera hirsuta, Ipomoea asaralifolia, Macroptilium gracile, Macroptilium panduratum, Melampodium divaricatum, Merremia aegyptia, Mikania obovata, Mitracarpus eichleri, Momordica charantia, Oxalis sepium, Pharus lappulaceus, Polygala variabilis, Porophyllum ruderales, Portulaca oleracea, Spilanthes urens, Stachytarpheta angustifolia, Stilpnopappus cearensis, Stylosanthes guianensis, Stylosanthes scabra, Stylosanthes viscosa, Tarenaya spinosa, Tlesia baccata, Wedelia villosa, Zornia reticulata.

c) Medium regeneration stage

Cassytha filiformis, Chamaecrista hispidula, Croton campestris, Croton glandulosus, Dalechampia

brasiliensis, *Dalechampia scandens*, *Epidendrum cinnabarinum*, *Guettarda angelica*, *Senna obtusifolia*, *Stigmaphyllon ciliatum*, *Stigmaphyllon paralias*.

d) Advanced regeneration stage

Borreria verticillata, *Chiococca alba*, *Coccoloba alnifolia*, *Coccoloba laevis*, *Croton campestri*, *Croton glandulosus*, *Epidendrum cinnabarinum*, *Eugenia hirta*, *Eugenia uniflora*, *Guapira pernambucensis*, *Guettarda angelica*, *Helicteres heptandra*, *Manilkara triflora*, *Oeceoclades maculata*, *Ouratea cuspidata*, *Passiflora galbana*, *Passiflora subrotunda*, *Schoepfia brasiliensis*, *Serjania corrugata*, *Solanum paniculatum*, *Stigmaphyllon ciliatum*, *Stigmaphyllon paralias*, *Tillandsia mallemonitii*, *Tocoyena sellowiana*, *Vriesea procera*, *Waltheria martiana*.

III – Beach arboreal vegetation:

a) Primary stage

Abrus precatorius, *Aechmea lingulata*, *Allophylus puberulus*, *Anacardium occidentale*, *Annona glabra*, *Anthurium affine*, *Aristolochia trulliformis*, *Caesalpinia echinata**, *Campomanesia dichotoma*, *Cereus fernambucensis*, *Cereus jamacaru*, *Coccoloba alnifolia*, *Coccoloba laevis*, *Crateva tapia*, *Curatella americana*, *Epidendrum cinnabarinum*, *Erythroxylum passerinum*, *Ficus nymphaeifolia*, *Ficus organensis*, *Fridericia rego*, *Guatteria oligocarpa*, *Hancornia speciosa*, *Handroanthus impetiginosus*, *Hippocratea volubilis*, *Hohenbergia utriculosa*, *Inga laurina*, *Lundia cordata*, *Maytenus distichophylla*, *Miconia albicans*, *Mikania obovata*, *Myrcia multiflora*, *Myrciaria tenella*, *Myrsine umbellata*, *Oeceoclades maculata*, *Philodendron imbe*, *Phoradendron affine*, *Polystachya concreta*, *Protium brasiliense*, *Psittacanthus dichroos*, *Serjania corrugata*, *Simaba ferruginea*, *Stigmaphyllon gayanum*, *Struthanthus marginatus*, *Swartzia simplex*, *Syagrus coronata*, *Tabebuia roseoalba*, *Tetracera breyniana*, *Tillandsia mallemonitii*, *Tillandsia recurvata*, *Vriesea procera*.

b) Initial regeneration stage

Acanthospermum hispidum, *Ageratum conyzoides*, *Aspilia martii*, *Aspilia procumbens*, *Axonopus polydactylus*, *Blainvillea acmella*, *Blutaparion vermiculare*, *Cenchrus echinatus*, *Centrosema pascuorum*, *Chamaecrista hispidula*, *Crotalaria pallida*, *Crotalaria vitellina*, *Croton campestri*, *Croton glandulosus*, *Dactyloctenium aegyptium*, *Dalechampia brasiliensis*, *Dalechampia scandens*, *Desmodium glabrum*, *Desmodium triflorum*, *Digitaria horizontalis*, *Digitaria longiflora*, *Eleusine indica*, *Emilia sonchifolia*, *Eupatorium ballotifolium*, *Euphorbia hyssopifolia*, *Gomphrena demissa*, *Hybanthuspoaya*, *Indigofera hirsuta*, *Ipomoea asaralifolia*, *Lasiacis ligulata*, *Macroptilium gracile*, *Macroptilium panduratum*, *Melampodium divaricatum*, *Merremia aegyptia*, *Mikania obovata*, *Momordica charantia*, *Oxalis sepium*, *Pharus lappulaceus*, *Polygala variabilis*, *Porophyllum ruderale*, *Senna obtusifolia*, *Sida acuta*, *Sida ciliaris*, *Spilanthus urens*, *Stachytarpheta angustifolia*, *Stilpnopappus cearensis*, *Stylosanthes guianensis*, *Stylosanthes scabra*, *Stylosanthes viscosa*, *Tilesia baccata*, *Wedelia villosa*, *Zornia reticulata*.

c) Medium regeneration stage

Allophylus puberulus, *Casearia sylvestris*, *Cassipourea filiformis*, *Centrosema pascuorum*, *Chamaecrista hispidula*, *Cnidocolum urens*, *Croton campestri*, *Croton glandulosus*, *Dalechampia brasiliensis*, *Dalechampia scandens*, *Momordica charantia*, *Passiflora cincinnata*, *Passiflora foetida*, *Passiflora galbana*, *Senna obtusifolia*, *Serjania corrugata*, *Solanum paniculatum*, *Stigmaphyllon ciliatum*, *Stigmaphyllon paralias*, *Tillandsia mallemonitii*, *Tournefortia candidula*, *Trema micrantha*, *Vriesea procera*, *Ximenia americana*.

d) Advanced regeneration stage

Allophylus puberulus, *Anacardium occidentale*, *Annona glabra*, *Anthurium affine*, *Caesalpinia echinata**, *Campomanesia dichotoma*, *Casearia sylvestris*, *Coccoloba alnifolia*, *Coccoloba laevis*, *Epidendrum cinnabarinum*, *Ficus nymphaeifolia*, *Ficus organensis*, *Ficus pertusa*, *Fridericia rego*, *Guatteria oligocarpa*, *Hippocratea volubilis*, *Inga laurina*, *Lundia cordata*, *Miconia albicans*, *Myrcia multiflora*, *Myrciaria tenella*, *Myrsine umbellata*, *Oeceoclades maculata*, *Passiflora cincinnata*, *Passiflora foetida*, *Passiflora galbana*, *Philodendron imbe*, *Phoradendron affine*, *Polystachya concreta*, *Protium brasiliense*, *Psittacanthus dichroos*, *Serjania corrugata*, *Simaba ferruginea*, *Stigmaphyllon ciliatum*, *Stigmaphyllon gayanum*, *Stigmaphyllon paralias*, *Struthanthus marginatus*, *Swartzia simplex*, *Tillandsia mallemonitii*, *Tournefortia candidula*, *Vriesea procera*, *Ximenia americana*.

IV – Beach Transitional Forest – Another vegetation typology:

a) Primary stage

Aechmea aquilega, *Abarema filamentosa*, *Aechmea lingulata*, *Andira surinamensis*, *Annona glabra*, *Anthurium affine*, *Apuleia leiocarpa*, *Aristolochia trulliformis*, *Aspidosperma pyricollum*, *Bowdichia virgilioides*, *Brosimum guianense*, *Cereus fernambucensis*, *Cereus jamacaru*, *Chondrodendron microphyllum*, *Chondrodendron platyphyllum*, *Cordia superba*, *Crateva tapia*, *Curatella americana*, *Ficus catappifolia*, *Guatteria oligocarpa*, *Hancornia speciosa*, *Handroanthus impetiginosus*, *Hippocratea volubilis*, *Hirtella racemosa*, *Hymenaea courbaril*, *Hymenaea rubriflora*, *Inga laurina*, *Maranta noctiflora*, *Maytenus rigida*, *Mikania obovata*,

Phanera microstachya, *Philodendron imbe*, *Phoradendron affine*, *Pterocarpus rohrii*, *Syagrus coronata*, *Tabebuia roseoalba*, *Talisia esculenta*, *Tetracera breyniana*, *Tillandsia mallemonitii*, *Tillandsia recurvata*, *Tocoyena brasiliensis*.

b) Initial regeneration stage

Acanthospermum hispidum, *Ageratum conyzoides*, *Aspilia martii*, *Aspilia procumbens*, *Axonopus polydactylus*, *Blainvillea acmella*, *Bredemeyera laurifolia*, *Centrosema pascuorum*, *Chamaecrista flexuosa*, *Chamaecrista hispidula*, *Chamaecrista rotundifolia*, *Chiococca alba*, *Crotalaria pallida*, *Crotalaria vitellina*, *Dalechampia scandens*, *Desmodium glabrum*, *Desmodium triflorum*, *Eleusine indica*, *Emilia sonchifolia*, *Eupatorium ballotifolium*, *Euphorbia hyssopifolia*, *Guettarda angelica*, *Hybanthus poaya*, *Indigofera hirsuta*, *Lasiacis ligulata*, *Macroptilium gracile*, *Macroptilium panduratum*, *Melampodium divaricatum*, *Merremia aegyptia*, *Mikania obovata*, *Mimosa quadrivalvis*, *Mimosa somnians*, *Momordica charantia*, *Oxalis sepium*, *Pavonia cancellata*, *Pharus lappulaceus*, *Poly gala variabilis*, *Porophyllum ruderale*, *Richardia grandiflora*, *Senna obtusifolia*, *Setaria parviflora*, *Setaria scandens*, *Sida acuta*, *Sida ciliaris*, *Sida linifolia*, *Sida potentilloides*, *Solanum americanum*,

Spilanthes urens, *Stachytarpheta angustifolia*, *Stilpnopappus cearensis*, *Stylosanthes angustifolia*, *Stylosanthes guianensis*, *Stylosanthes scabra*, *Stylosanthes viscosa*, *Tilesia baccata*, *Turnera diffusa*, *Waltheria americana*, *Wedelia villosa*, *Zornia reticulata*.

c) Medium regeneration stage

Abrus precatorius, *Bauhinia cheilantha*, *Bredemeyera laurifolia*, *Brunfelsia uniflora*, *Byrsonima crassifolia*, *Byrsonima gardneriana*, *Byrsonima vacciniifolia*, *Byrsonima verbascifolia*, *Casearia sylvestris*, *Cassytha filiformis*, *Cayaponia tayuya*, *Centrosema pascuorum*, *Chamaecrista hispidula*, *Chamaecrista rotundifolia*, *Diplopterys pubipetala*, *Eugenia ilhensis*, *Eugenia puniceifolia*, *Eugenia speciosa*, *Ficus pertusa*, *Guazuma ulmifolia*, *Guettarda angelica*, *Guettarda platypoda*, *Luehea ochrophylla*, *Maclura tinctoria*, *Miconia albicans*, *Mimosa tenuiflora*, *Momordica charantia*, *Passiflora cincinnata*, *Passiflora foetida*, *Passiflora galbana*, *Piptadenia stipulacea*, *Pityrocarpa obliqua*, *Prockia crucis*, *Psidium oligospermum*, *Senna macranthera*, *Senna obtusifolia*, *Senna splendida*, *Solanum paniculatum*, *Strychnos parvifolia*, *Tabebuia aurea*, *Tillandsia mallemonitii*, *Trema micrantha*, *Trigonina nivea*, *Turnera diffusa*, *Ziziphus joazeiro*.

d) Advanced regeneration stage

Abrus precatorius, *Abarema filamentosa*, *Aechmea lingulata*, *Andira surinamensis*, *Annona glabra*, *Anthurium affine*, *Apuleia leiocarpa*, *Bauhinia cheilantha*, *Bowdichia virgilioides*, *Brosimum guianense*, *Byrsonima crassifolia*, *Byrsonima gardneriana*, *Byrsonima vacciniifolia*, *Byrsonima verbascifolia*, *Casearia sylvestris*, *Chondrodendron microphyllum*, *Chondrodendron platiphyllum*, *Diplopterys pubipetala*, *Eugenia ilhensis*, *Eugenia puniceifolia*, *Eugenia speciosa*, *Ficus catappifolia*, *Guatteria oligocarpa*, *Guazuma ulmifolia*, *Guettarda platypoda*, *Hippocratea volubilis*, *Hirtella racemosa*, *Hymenaea courbaril*, *Hymenaea rubriflora*, *Inga laurina*, *Luehea ochrophylla*, *Maclura tinctoria*, *Maranta noctiflora*, *Maytenus rigida*, *Neomitranthes langsdorffii*, *Passiflora cincinnata*, *Passiflora foetida*, *Passiflora galbana*, *Phanera microstachya*, *Philodendron imbe*, *Phoradendron affine*, *Piptadenia oblique*, *Piptadenia stipulacea*, *Piptadenia viridiflora*, *Prockia crucis*, *Pterocarpus rohrii*, *Strychnos parvifolia*, *Tabebuia aurea*, *Talisia esculenta*, *Tetracera breyniana*, *Tillandsia mallemonitii*, *Tillandsia recurvata*, *Tocoyena brasiliensis*, *Ziziphus joazeiro*.

Art. 2 This Resolution shall enter into effect on the date of its publication.

FRANCISCO GAETANI – Acting Council President

(*) endemic and rare species and species threatened with extinction.

This text does not substitute the text published in the Official Gazette on Jan. 3, 2012

RESOLUTION 447, December 30, 2011
Published in Official Gazette 2 on Jan. 3, 2012

*Approves the list of indicator species and the successional stages of
Beach vegetation in the State of Paraná, according to Resolution 417
from Nov. 23, 2009*

THE NATIONAL ENVIRONMENT COUNCIL – CONAMA, in accordance with the power bestowed upon the Council by art. 8, item I of Law 6.938 from August 31, 1981, and considering the provisions of art. 4, § 1 of Law 11.428 from December 22, 2006 and CONAMA Resolution 417 from December 23, 2009, decides:

Art. 1 The indicator species of primary vegetation and of the different successional secondary stages of the Atlantic Forest vegetation, which are the subject of art. 4 of Law 11.428 from Dec. 22, 2009 and § 1 of art. 3 of CONAMA Resolution 417 from Nov. 23, 2009, in the State of Paraná, are:

I – Beach Herbaceous and Sub-Shrubby Vegetation:

a) Climax vegetation

Achetaria ocymoides, Achyrocline satureioides, Acicarpa spathulata, Acicarpa tribuloides, Acrostichum danaeifolium, Aechmea gamosepala, Aechmea recurvata, Agalinis communis, Alternanthera brasiliensis, Alternanthera littoralis, Alternanthera philoxeroides, Amaranthus viridis, Ambrosia elatior, Anagallis arvensis, Anagallis filiformis, Andropogon bicornis, Andropogon leucostachyus, Andropogon seloanus, Andropogon virgatus, Aphelandra ornata, Apium sellowianum, Aristida circinalis, Aristida spagazzinii, Asclepias mellodora, Asplenium serra, Austro eupatorium inulaefolium, Baccharis singularis, Becquerelia cymosa, Becquerelia muricata, Billbergia amoena, Blutaparon portulacoides, Borreria palustris, Buchnera longifolia, Bulbostylis paradoxa, Burmannia capitata, Canavalia rosea, Caperonia buettneriacea, Catasetum socco, Cayaponia martiana, Cenchrus echinatus, Centrosema virginianum, Chamaecrista nictitans, Chenopodium ambrosioides, Chloris pycnothrix, Chromolaena laevigata, Chrysolaena flexuosa, Ciclospermum leptophyllum, Cladium mariscus, Cleistes libonii, Cnidioscolus urens, Commelina erecta, Conyza bonariensis, Coppensia flexuosa, Ctenitis falciculata, Cuphea carthagenensis, Cuphea flava, Cynodon dactylon, Cynodon maritimus, Cyperus eragrostis, Cyperus ligularis, Cyperus odoratus, Cyperus rigens, Cyrtocymura scorpioides, Cyrtopodium flavum, Dalbergia ecastaphyllum, Dalechampia scandens, Davilla rugosa, Dichanthelium sabulorum, Dichorisandra thrysiflora, Digitaria connivens, Digitaria longiflora, Diodella apiculata, Diodella radula, Dodonaea viscosa, Drosera villosa, Drymaria cordata, Dyckia encholirioides, Dyckia maritima, Dyckia pseudococcinea, Echinodorus grandiflorus, Eichhornia crassipes, Elaphoglossum crassinerve, Elaphoglossum lingua, Elaphoglossum luridum, Elaphoglossum subarborescens, Eleocharis nana, Elephantopus mollis, Epidendrum fulgens, Epidendrum secundum, Eragrostis bahiensis, Eragrostis cataclasta, Erechites hieracifolius, Eriocaulon modestum, Eryngium eburneum, Eryngium elegans, Eryngium sanguisorba, Eulophia alta, Euphorbia hyssopifolia, Evolvulus pusillus, Fimbristylis autumnalis, Fimbristylis spadicea, Floscopa glabrata, Fuirena robusta, Fuirena umbellata, Galactia striata, Gaylussacia brasiliensis, Gibasis geniculata, Gomphrena vaga, Habenaria bractescens, Habenaria longicauda, Habenaria pleiophylla, Habenaria repens, Heteranthera reniformis, Hydrocotyle bonariensis, Hydrolea spinosa, Hypericum connatum, Hypoxis decumbens, Hyptis mutabilis, Imperata brasiliensis, Ipomoea imperati, Ipomoea pes-caprae, Ischaemum minus, Ischnosiphon ovatus, Juncus marginatus, Juncus microcephalus, Kyllinga vaginata, Lagenocarpus rigidus, Laportea aestuans, Laurebergia tetrandra, Leandra australis, Leandra cardiophylla, Lepidium virginicum, Limonium brasiliense, Linum littorale, Liparis nervosa, Ludwigia nervosa, Ludwigia octovalvis, Lupinus multiflorus, Lycopodiella alopecuroides, Lycopodiella caroliniana, Lycopodiella cernua, Lycopodium clavatum, Mandevilla coccinea, Margyricarpus pinnatus, rypianthes chamaedrys, Microgramma vacciniifolia, Mikania trinervis, Mollugo verticillata, Myriophyllum aquaticum, Neomarica caerulea, Neomarica candida, Neomarica northiana, Nymphoides indica, Oeceoclades maculata, Oxypetalum appendiculatum, Oxypetalum banksii, Oxypetalum tomentosum, Panicum aquaticum, Panicum cyanescens, Panicum dichotomiflorum, Panicum gouinii, Panicum laxum, Panicum parvifolium, Panicum pilosum, Panicum schwackeanum, Panicum sellowii, Paradisanthus micranthus, Paspalum arenarium, Paspalum conjugatum, Paspalum corcovadense, Paspalum dilatatum, Paspalum distichum, Paspalum hyalinum, Paspalum mandiocanum, Paspalum notatum, Paspalum paniculatum, Paspalum plicatulum, Paspalum pumilum, Paspalum ramboi, Paspalum urvillei, Paspalum vaginatum, Passiflora capsularis, Pecluma paradiseae, Peplonia axillaris, Pharus lappulaceus, Piper gaudichaudianum, Piper miqelianum, Piper solmsianum, Plantago catharinae, Polycarpaea corymbosa, Polycarpon tetraphyllum, Polygala cyparissias, Polygala glochidiata, Polygala leptocaulis, Polygala paniculata, Polygonum acuminatum, Polygonum hydropiperoides, Polygonum punctatum, Psidium cattleianum, Pterocaulon lorentzii, Pterolepis glomerata, Pycneus lanceolatus, Pycneus polystachyos, Quesnelia arvensis, Ruellia angustiflora, Ruellia solitaria, Rumohra adiantiformis, Sauvagesia erecta, Scaevola plumieri, Schizachyrium condensatum, Scleria latifolia, Scleria secans, Sebastiania corniculata, Sebastiania glandulosa, Securidaca lanceolata, Senecio crassiflorus, Sinningia sellovii, Smilax campestris, Smilax cognata, Smilax elastica, Solanum sisymbriifolium, Solidago chilensis, Sophora tomentosa, Spartina alterniflora, Spartina ciliata, Spartina densiflora, Sphagneticola trilobata, Sporobolus indicus, Sporobolus*

virginicus, *Steinchisma decipiens*, *Stenotaphrum secundatum*, *Stylosanthes guianensis*, *Stylosanthes viscosa*, *Symphypappus casarettoi*, *Tarenaya spinosa*, *Ternstroemia brasiliensis*, *Thalia geniculata*, *Thelypteris serrata*, *Tibouchina clavata*, *Tradescantia crassula*, *Triglochin striata*, *Utricularia foliosa*, *Utricularia gibba*, *Utricularia subulata*, *Utricularia tricolor*, *Utricularia triloba*, *Vernonanthura beyrichii*, *Vernonanthura westiniana*, *Vigna longifolia*, *Vigna luteola*, *Vriesea friburgensis*, *Wahlenbergia linarioides*, *Zornia latifolia*.

II – Beach shrub vegetation:

a) Primary stage

Abarema brachystachya, *Acacia longifolia*, *Acianthera saundersiana*, *Actinostachys pennula*, *Aechmea nudicaulis*, *Aechmea pectinata*, *Allamanda cathartica*, *Asclepias curassavica*, *Asplenium serra*, *Astrocaryum aculeatissimum*, *Bactris setosa*, *Boehmeria cylindrica*, *Borreria verticillata*, *Bromelia antiacantha*, *Byrsonima verbascifolia*, *Byttneria australis*, *Campomanesia guazumifolia*, *Canistropsis billbergioides*, *Capparis brasiliensis*, *Chamaecrista desvauxii*, *Chiococca alba*, *Chiococca nitida*, *Clidemia biserrata*, *Clidemia hirta*, *Clusia criuva*, *Coccoloba declinata*, *Costus arabicus*, *Costus spiralis*, *Ctenitis falciculata*, *Cyrtopodium flavum*, *Dalbergia ecastaphyllum*, *Davilla rugosa*, *Dioclea wilsonii*, *Diodella radula*, *Dodonaea viscosa*, *Edmundoa lindenii*, *Elaphoglossum crassinerve*, *Elaphoglossum lingua*, *Elaphoglossum luridum*, *Elaphoglossum subarborescens*, *Endlicheria paniculata*, *Epidendrum rigidum*, *Eragrostis bahiensis*, *Eragrostis cataclasta*, *Eryngium eburneum*, *Eryngium elegans*, *Erythroxylum amplifolium*, *Eugenia neosilvestris*, *Eugenia umbelliflora*, *Eugenia uniflora*, *Euphorbia heterophylla*, *Gaylussacia brasiliensis*, *Geonoma schottiana*, *Guapira opposita*, *Habenaria pleiophylla*, *Heteropterys coleoptera*, *Hohenbergia augusta*, *Indigofera suffruticosa*, *Jobinia connivens*, *Leandra ionopogon*, *Liparis nervosa*, *Ludwigia leptocarpa*, *Ludwigia peruviana*, *Marcetia taxifolia*, *Matelea denticulata*, *May tenus robusta*, *Miconia prasina*, *Microgramma vacciniifolia*, *Myrcia guianensis*, *Myrcia hartwegiana*, *Myrcia palustris*, *Myrcia pubiflora*, *Myrcia selloi*, *Myrcia splendens*, *Nephrolepis biserrata*, *Nephrolepis rivularis*, *Ocotea puberula*, *Ocotea pulchella*, *Oeceoclades maculata*, *Paradisanthus micranthus*, *Passiflora capsularis*, *Passiflora jileki*, *Paullinia cristata*, *Paullinia meliifolia*, *Paullinia trigonia*, *Phoradendron crassifolium*, *Polygonum acuminatum*, *Polygonum hydropiperoides*, *Polygonum punctatum*, *Prescottia oligantha*, *Psidium cattleianum*, *Psilochilus modestus*, *Psittacanthus dichrous*, *Psychotria laciniata*, *Psychotria mapourioides*, *Quesnelia arvensis*, *Quesnelia quesneliana*, *Rhabdadenia madida*, *Rhynchanthera cordata*, *Rumohra adiantiformis*, *Saccharum asperum*, *Schoepfia brasiliensis*, *Scutia arenicola*, *Securidaca lanceolata*, *Senna pendula*, *Serjania clematidifolia*, *Smilax campestris*, *Smilax cognata*, *Smilax elastica*, *Solanum caavurana*, *Solanum paniculatum*, *Solanum pseudodaphnopsis*, *Sophora tomentosa*, *Struthanthus polyrrhizus*, *Struthanthus uraguensis*, *Struthanthus vulgaris*, *Swartzia simplex*, *Syagrus romanzoffiana*, *Tabernaemontana catharinensis*, *Talipariti pernambucense*, *Ternstroemia brasiliensis*, *Thelypteris serrata*, *Tibouchina clavata*, *Tibouchina gracilis*, *Tibouchina pulchra*, *Tibouchina urvilleana*, *Tillandsia gardneri*, *Tillandsia mallemonii*, *Tillandsia stricta*, *Tillandsia tenuifolia*, *Tocoyena sellowiana*, *Tournefortia rubicunda*, *Tripodanthus acutifolius*, *Typha domingensis*, *Urena lobata*, *Varronia curassavica*, *Vitex megapotamica*, *Vitex polygama*, *Vriesea friburgensis*, *Vriesea gigantea*, *Vriesea neoglutinosa*, *Vriesea pinottii**, *Vriesea procera*, *Vriesea vagans*, *Zanthoxylum fagara*.

b) Initial regeneration stage

Achyrocline satureioides, *Acicarpa spathulata*, *Acicarpa tribuloides*, *Ambrosia elatior*, *Asclepias mellodora*, *Austroeuatorium inulaefolium*, *Baccharis sinularis*, *Borreria palustris*, *Cenchrus echinatus*, *Chenopodium ambrosioides*, *Chromolaena laevigata*, *Chrysolaena flexuosa*, *Clusia criuva*, *Conyza bonariensis*, *Crotalaria pallida*, *Crotalaria vitellina*, *Cyperus luzulae*, *Cyperus odoratus*, *Cyrtocymura scorpioides*, *Dalechampia scandens*, *Davilla rugosa*, *Desmodium adscendens*, *Desmodium barbatum*, *Desmodium incanum*, *Dicranopteris pectinata*, *Digitaria insularis*, *Digitaria longiflora*, *Diodella radula*, *Doryopteris collina*, *Drymaria cordata*, *Elephantopus mollis*, *Erechtites hieracifolius*, *Eryngium sanguisorba*, *Euphorbia hyssopifolia*, *Galactia striata*, *Hedychium coronarium*, *Hyparrhenia rufa*, *Imperata brasiliensis*, *Indigofera suffruticosa*, *Ipomoea indivisa*, *Ipomoea phyllomega*, *Ipomoea procumbens*, *Laportea aestuans*, *Margyricarpus pinnatus*, *Mikania trinervis*, *Mimosa pudica*, *Oxalis sarmentosa*, *Petiveria alliacea*, *Pharus lappulaceus*, *Phyllanthus niruri*, *Phyllanthus riedelianus*, *Phyllanthus tenellus*, *Phytolacca thyrsoiflora*, *Pityrogramma calomelanos*, *Pityrogramma trifoliata*, *Polygala cyparissias*, *Polygala hebeclada*, *Polygala leptocaulis*, *Polygala paniculata*, *Pteridium aquilinum*, *Pterocaulon lorentzii*, *Schultesia australis*, *Senecio crassiflorus*, *Solanum americanum*, *Solanum sisymbriifolium*, *Solidago chilensis*, *Sphagneticola trilobata*, *Stylosanthes guianensis*, *Stylosanthes scabra*, *Stylosanthes viscosa*, *Symphypappus casarettoi*, *Tarenaya spinosa*, *Tibouchina clavata*, *Vernonanthura beyrichii*, *Vernonanthura westiniana*, *Zornia curvata*, *Zornia reticulata*.

c) Medium regeneration stage

Acrostichum aureum, *Acrostichum danaeifolium*, *Asclepias curassavica*, *Blechnum brasiliense*, *Blechnum serrulatum*, *Centrosema virginianum*, *Clusia criuva*, *Dalechampia scandens*, *Davilla rugosa*, *Diodella radula*, *Epidendrum fulgens*, *Epidendrum secundum*, *Eryngium sanguisorba*, *Eulophia alta*, *Ludwigia larutoteana*, *Ludwigia longifolia*, *Pityrogramma trifoliata*, *Senna obtusifolia*, *Smilax campestris*, *Smilax cognata*, *Smilax elastica*, *Stigmaphyllon ciliatum*, *Talipariti pernambucense*, *Ternstroemia brasiliensis*, *Tillandsia stricta*,

d) Advanced regeneration stage

Acrostichum aureum, *Acianthera saundersiana*, *Acrostichum danaeifolium*, *Actinostachys pennula*, *Aechmea nudicaulis*, *Aechmea pectinata*, *Astrocaryum aculeatissimum*, *Bactris setosa*, *Boehmeria cylindrica*, *Borreria verticillata*, *Bromelia antiacantha*, *Byttneria australis*, *Campomanesia guazumifolia*, *Capparis brasiliensis*, *Chiococca alba*, *Chiococca nitida*, *Cladium mariscus*, *Clidemia biserrata*, *Clidemia hirta*, *Clusia criuva*, *Coccoloba declinata*, *Cyrtopodium flavum*, *Davilla rugosa*, *Diodella radula*, *Dodonaea viscosa*, *Edmundoa lindenii*, *Epidendrum fulgens*, *Epidendrum secundum*, *Eugenia neosilvestris*, *Eugenia umbelliflora*, *Eugenia uniflora*, *Eulophia alta*, *Fuirena robusta*, *Fuirena umbellata*, *Gaylussacia brasiliensis*, *Geonoma schottiana*, *Guapira opposita*, *Habenaria pleiophylla*, *Leandra ionopogon*, *Liparis nervosa*, *Ludwigia laruotteana*, *Ludwigia leptocarpa*, *Ludwigia longifolia*, *Marcetia taxifolia*, *Miconia prasina*, *Microgramma vacciniifolia*, *Myrcia guianensis*, *Myrcia hartwegiana*, *Myrcia palustris*, *Myrcia pubiflora*, *Myrcia selloi*, *Myrcia splendens*, *Oeceoclades maculata*, *Paradisanthus micranthus*, *Passiflora capsularis*, *Passiflora jileki*, *Paullinia cristata*, *Paullinia meliifolia*, *Paullinia trigonia*, *Prescottia oligantha*, *Psidium cattleianum*, *Psilochilus modestus*, *Psychotria laciniata*, *Psychotria mapourioides*, *Quesnelia arvensis*, *Rhynchanthera cordata*, *Schoepfia brasiliensis*, *Scutia arenicola*, *Serjania clematidifolia*, *Smilax campestris*, *Smilax cognata*, *Smilax elastica*, *Solanum caavurana*, *Solanum paniculatum*, *Solanum pseudodaphnopsis*, *Stigmaphyllon ciliatum*, *Syagrus romanzoffiana*, *Talipariti pernambucense*, *Ternstroemia brasiliensis*, *Thelypteris serrata*, *Tibouchina clavata*, *Tibouchina gracilis*, *Tibouchina pulchra*, *Tibouchina urvilleana*, *Tillandsia gardneri*, *Tillandsia mallemonii*, *Tillandsia stricta*, *Tillandsia tenuifolia*, *Tocoyena sellowiana*, *Tournefortia rubicunda*, *Vanilla chamissonis*, *Vriesea procera*, *Zanthoxylum fagara*.

III – Beach arboreal vegetation:

a) Primary stage

Abarema brachystachya, *Abarema langsdorffii*, *Acanthostachys strobilacea*, *Acianthera saundersiana*, *Adenocalymma assum*, *Adenocalymma marginatum*, *Adiantum latifolium*, *Aechmea bromeliifolia*, *Aechmea coelestis*, *Aechmea distichantha*, *Aechmea organensis*, *Aechmea ornata*, *Aiouea saligna*, *Alatiglossum longipes*, *Alatiglossum uniflorum*, *Albizia polycephala*, *Alchornea triplinervia*, *Allophylus edulis*, *Allophylus puberulus*, *Amaioua intermedia*, *Anathallis obovata*, *Anchietea pyriformis*, *Andira fraxinifolia*, *Anemia phyllitidis*, *Aniba firmula*, *Annona glabra*, *Annona montana*, *Annona sericea*, *Annona sylvatica*, *Anredera tucumanensis*, *Anthurium pentaphyllum*, *Anthurium scandens*, *Asterostigma lividum*, *Astrocaryum aculeatissimum*, *Astronium graveolens*, *Attalea dubia*, *Avicennia germinans*, *Bactris setosa*, *Blechnum brasiliense*, *Blechnum serrulatum*, *Blepharocalyx salicifolius*, *Blepharodon pictum*, *Brasiliorchis marginata*, *Brassavola tuberculata*, *Calophyllum brasiliense*, *Calyptrocalyx brasiliensis*, *Calyptrocalyx rubella*, *Campomanesia guaviroba*, *Canistropsis billbergioides*, *Catopsis berteroniana*, *Catopsis sessiliflora*, *Cattleya forbesii*, *Cattleya guttata*, *Cheilochloium serratum*, *Christensonella ferdinandiana*, *Christensonella neuwiedii*, *Cissus verticillata*, *Cleistes paranaensis*, *Clethra scabra*, *Clusia criuva*, *Clusia minor*, *Coccoloba declinata*, *Codonanthe devosiana*, *Codonanthe gracilis*, *Colanthea cingulata*, *Combretum laxum*, *Connarus rostratus*, *Coppensia flexuosa*, *Cordia trichotoma*, *Ctenitis falciculata*, *Cupania vernalis*, *Cyathea atrovirens*, *Cyathea axillaris*, *Cyathea corcovadensis*, *Cyathea delgadii*, *Cyrtopodium gigas*, *Daphnopsis racemosa*, *Davilla rugosa*, *Dendropanax cuneatus*, *Dendropanax monogynus*, *Didymoglossum hymenoides*, *Didymoglossum krausii*, *Dioclea wilsonii*, *Dioscorea altissima*, *Dioscorea campestris*, *Dioscorea laxiflora*, *Ditassa burchellii*, *Doliocarpus schottianus*, *Dryadella aviceps*, *Edmundoa lindenii*, *Elaphoglossum crassinerve*, *Elaphoglossum lingua*, *Elaphoglossum luridum*, *Elaphoglossum subarborescens*, *Endlicheria paniculata*, *Enterolobium contortisiliquum*, *Epidendrum fulgens*, *Epidendrum ramosum*, *Epidendrum rigidum*, *Epidendrumsecundum*, *Epidendrumstrobiliferum*, *Erythrina crista-galli*, *Erythroxylum cuspidifolium*, *Erythroxylum vacciniifolium*, *Eugenia bacopari*, *Eugenia brasiliensis*, *Eugenia catharinae*, *Eugenia neoglomerata*, *Eugenia schuechiana*, *Eugenia subavenia*, *Eugenia sulcata*, *Eulophia alta*, *Ficus adhatodifolia*, *Ficus elliotiana*, *Ficus enormis*, *Ficus gomelleira*, *Ficus organensis*, *Forsteronia leptocarpa*, *Garcinia gardneriana*, *Geonoma schottiana*, *Guatteria australis*, *Handroanthus chrysotrichus*, *Handroanthus umbellatus*, *Handroanthus vellosii*, *Hedyosmum brasiliense*, *Heliconia farinosa*, *Hemionitis tomentosa*, *Heteropsis salicifolia*, *Heteropterys aenea*, *Heterotaxis brasiliensis*, *Hippocratea volubilis*, *Hohenbergia augusta*, *Huberia semiserrata*, *Humiriastrum dentatum*, *Huperzia flexibilis*, *Huperzia mandiocana*, *Huperzia quadrifariata*, *Hymenophyllum caudiculatum*, *Hymenophyllum polyanthos*, *Ilex dumosa*, *Ilex integerrima*, *Ilex pseudobuxus*, *Ilex theezans*, *Inga laurina*, *Inga sellowiana*, *Inga sessilis*, *Inga subnuda*, *Inga vera*, *Jacaranda puberula*, *Jobinia connivens*, *Laplacea fructicosa*, *Leandra melastomoides*, *Lepanthopsis floripecten*, *Lepismium cruciforme*, *Lepismium houlettianum*, *Lepismium warmingianum*, *Lithrea brasiliensis*, *Lockhartia lunifera*, *Lophiaris pumila*, *Manilkara salzmannii*, *Manilkara subsericea*, *Maranta divaricata*, *Maregravia polyantha*, *Marlierea eugeniopsoides*, *Marlierea tomentosa*, *Marsdenia macrophylla*, *Matayba elaeagnoides*, *Matayba guianensis*, *Matelea denticulata*, *Maxillaria chlorantha*, *Maxillaria rodriguesii*, *Mendoncia coccinea*, *Mendoncia puberula*, *Mendoncia velloziana*, *Miconia albicans*, *Microgramma percussa*, *Microgramma vacciniifolia*, *Mikania trinervis*, *Monstera adansonii*, *Mormolyca rufescens*, *Mucuna urens*, *Myrceogenia kleinii*, *Myrceogenia reitzii*, *Myrcia brasiliensis*, *Myrcia flagellaris*, *Myrcia glabra*, *Myrcia hartwegiana*, *Myrcia hebeptala*, *Myrcia ilheosensis*, *Myrcia insularis*, *Myrcia multiflora*, *Myrcia pubipetala*, *Myrcia pulchra*, *Myrcia racemosa*, *Myrcia richardiana*, *Myrcia splendens*, *Myrciaria tenella*, *Myrsine intermedia*, *Myrsine parvifolia*, *Myrsine rubra*, *Myrsine umbellata*, *Myrsine venosa*, *Nectandra megapotamica*, *Nectandra oppositifolia*, *Nectandra puberula*, *Nectandra*

reticulata, *Nematanthus fissus*, *Neomitranthes cordifolia*, *Nidularium innocentii*, *Nidularium procerum*, *Nidularium rosulatum*, *Ocotea lobbii*, *Ocotea puberula*, *Ocotea pulchella*, *Octomeria fibrifera*, *Octomeria gracilis*, *Oeceoclades maculata*, *Pachystroma long ifolium*, *Passiflora jileki*, *Paullinia cristata*, *Paullinia meliifolia*, *Paullinia trigonia*, *Pecluma recurvata*, *Pelexia novofriburgensis*, *Peperomia emarginella*, *Peperomia glabella*, *Peperomia pereskifolia*, *Peperomia rotundifolia*, *Peperomia tetraphylla*, *Peperomia urocarpa*, *Peplonia axillaris*, *Pera glabrata*, *Pereskia aculeata*, *Peritassa calypsoides*, *Philodendron appendiculatum*, *Philodendron bipinnatifidum*, *Philodendron corcovadense*, *Philodendron crassinervium*, *Philodendron ochrostemon*, *Phoradendron affine*, *Phoradendron bathyoryctum*, *Phoradendron crassifolium*, *Phoradendron falcifrons*, *Phoradendron piperoides*, *Phoradendron quadrangulare*, *Phymatidium myrtophilum*, *Physosiphon spiralis*, *Piper fluminense*, *Piper mollicomum*, *Piptadenia gonoacantha*, *Pisonia aculeata*, *Pithecoctenium crucigerum*, *Pleiochiton blepharodes*, *Pleopeltis angusta*, *Pleopeltis astrolepis*, *Pleopeltis hirsutissima*, *Pleurothallis auriculata*, *Podocarpus sellowii*, *Polyphegium pyxidiferum*, *Polypodium catharinae*, *Polypodium chnoophorum*, *Polystachya caespitosa*, *Polystachya concreta*, *Posoqueria latifolia*, *Pouteria beaurepairei*, *Pouteria venosa*, *Prescottia oligantha*, *Prescottia stachyoides*, *Prestonia coalita*, *Protium heptaphyllum*, *Pseudananas sagenarius*, *Pseudobombax grandiflorum*, *Psidium cattleianum*, *Psilochilus modestus*, *Psittacanthus dichrous*, *Qualea cryptantha*, *Rhipsalis baccifera*, *Rhipsalis crispata*, *Rhipsalis elliptica*, *Rhipsalis floccosa*, *Rhipsalis pachyptera*, *Rhipsalis teres*, *Rodriguezia decora*, *Rourea gracilis*, *Rudgea coriacea*, *Rumohra adiantiformis*, *Sapium gladulosum*, *Scaphyglottis modesta*, *Scaphyglottis reflexa*, *Schinus terebinthifolius*, *Schizaea elegans*, *Schwartzia brasiliensis*, *Selaginella sulcata*, *Senna angulata*, *Serjania clematidifolia*, *Sloanea guianensis*, *Solanum pseudo quina*, *Solanum sanctae-catharinae*, *Sorocea bonplandii*, *Specklinia martinensis*, *Specklinia seriata*, *Stelis fraterna*, *Stelis pauciflora*, *Stigmaphyllon arenicola*, *Struthanthus polyrrhizos*, *Struthanthus uraguensis*, *Struthanthus vulgaris*, *Swartzia simplex*, *Syagrus romanzoffiana*, *Tabebuia cassinoides*, *Tapirira guianensis*, *Temnadenia odorifera*, *Temstroemia brasiliensis*, *Tetracera oblongata*, *Tibouchina trichopoda*, *Tillandsia gardneri*, *Tillandsia mallemonitii*, *Tillandsia polystachya*, *Tillandsia recurvata*, *Tillandsia stricta*, *Tillandsia tenuifolia*, *Tillandsia tricholepis*, *Trichomanes angustatum*, *Trichomanes cristatum*, *Trichomanes radicans*, *Trichosalpinx bradei*, *Trigonidium latifolium*, *Tripodanthus acutifolius*, *Vanilla chamissonis*, *Voyria aphylla*, *Vriesea atra*, *Vriesea carinata*, *Vriesea erythrodactylon*, *Vriesea gigantea*, *Vriesea incurvata*, *Vriesea jonghei*, *Vriesea pauperrima*, *Vriesea philippocoburgii*, *Vriesea procera*, *Vriesea rodigasiana*, *Vriesea scalaris*, *Vriesea vagans*, *Weinmannia discolor*, *Weinmannia paulliniifolia*, *Wulfschlaegelia aphylla*, *Xylopia brasiliensis*, *Zollernia ilicifolia*.

b) Initial regeneration stage

Achyrocline satureioides, *Acicarpa spathulata*, *Ambrosia elatior*, *Andropogon bicornis*, *Andropogon leucostachyus*, *Andropogon seloanus*, *Andropogon virgatus*, *Araujia sericifera*, *Asclepias mellodora*, *Asplenium serra*, *Austro eupatorium inulaefolium*, *Axonopus canescens*, *Axonopus compressus*, *Axonopus eminens*, *Axonopus obtusifolius*, *Axonopus pressus*, *Baccharis singularis*, *Cecropia pachystachya*, *Celosia grandifolia*, *Cenchrus echinatus*, *Chenopodium ambrosioides*, *Chromolaena laevigata*, *Chrysolaena flexuosa*, *Clidemia hirta*, *Conyza bonariensis*, *Crotalaria pallida*, *Crotalaria vitellina*, *Cyperus luzulae*, *Cyperus odoratus*, *Cyrtocymura scorpioides*, *Dalechampia scandens*, *Desmodium adscendens*, *Desmodium barbatum*, *Desmodium incanum*, *Dicranopteris pectinata*, *Digitaria ciliaris*, *Digitaria insularis*, *Digitaria long iflora*, *Dodonaea viscosa*, *Doryopteris collina*, *Drymaria cordata*, *Elephantopus mollis*, *Eleusine indica*, *Eragrostis pilosa*, *Erechtites hieracifolius*, *Eugenia vattimoana*, *Euphorbia hyssopifolia*, *Euphorbia papillosa*, *Galactia striata*, *Gomphrena vaga*, *Hedychium coronarium*, *Hyparrhenia rufa*, *Ichnanthus pallens*, *Imperata brasiliensis*, *Indigofera suffruticosa*, *Ipomoea holosericea*, *Ipomoea indivisa*, *Ipomoea phyllomega*, *Ipomoea procumbens*, *Laportea aestuans*, *Lasiacis divaricata*, *Lasiacis ligulata*, *Luffa cylindrica*, *Mikania trinervis*, *Mimosa bimucronata*, *Mimosa pudic*, *Olyra ciliatifolia*, *Olyra latifolia*, *Oplismenus hirtellus*, *Oxalis sarmentosa*, *Petiveria alliacea*, *Pharus lappulaceus*, *Phyllanthus niruri*, *Phyllanthus riedelianus*, *Phyllanthus tenellus*, *Phytolacca thyrsoflora*, *Pityrogramma calomelanos*, *Polygala glochidiata*, *Polygala hebeclada*, *Polygala paniculata*, *Pteridium aquilinum*, *Pterocaulon lorentzii*, *Saccharum asperum*, *Schultesia australis*, *Securidaca lanceolata*, *Senecio crassiflorus*, *Senna obtusifolia*, *Solanum americanum*, *Solanum sisymbriifolium*, *Solidago chilensis*, *Sphagneticola trilobata*, *Streptochaeta spicata*, *Stylosanthes guianensis*, *Stylosanthes scabra*, *Stylosanthes viscosa*, *Symphopappus casarettoi*, *Urena lobata*, *Vernonanthura beyrichii*, *Vernonanthura westiniana*, *Zornia curvata*, *Zornia reticulata*.

c) Medium regeneration stage

Allophylus edulis, *Allophylus puberulus*, *Andira fraxinifolia*, *Araujia sericifera*, *Boehmeria cylindrica*, *Calyptanthes lucida*, *Casearia sylvestris*, *Cecropia pachystachya*, *Celosia grandifolia*, *Celtis fluminensis*, *Centrosema virginianum*, *Clidemia hirta*, *Clusia criuva*, *Clusia minor*, *Cupania vernalis*, *Dalechampia scandens*, *Davilla rugosa*, *Ditassa burchellii*, *Dodonaea viscosa*, *Eugenia vattimoana*, *Euphorbia heterophylla*, *Guapira opposita*, *Ilex dumosa*, *Ilex integerrima*, *Ilex pseudobuxus*, *Ilex the ezans*, *Lindsaea quadrangularis* Raddi, *Lithrea brasiliensis*, *Lygodium volubile*, *Marlierea tomentosa*, *Matayba guianensis*, *Mimosa bimucronata*, *Myrceugenia campestris*, *Myrcia racemosa*, *Myrcia selloi*, *Myrcia splendens*, *Ocotea nutans*, *Parodiolyra micrantha*, *Passiflora alata*, *Passiflora amethystina*, *Passiflora edulis*, *Passiflora haematostigma*, *Passiflora misera*, *Passiflora organensis*, *Passiflora suberosa*, *Paullinia cristata*, *Paullinia meliifolia*, *Paullinia trigonia*, *Peplonia axillaris*, *Pera glabrata*, *Psidium salutare*, *Rhabdadenia madida*, *Schinus terebinthifolius*, *Senna obtusifolia*, *Serjania clematidifolia*, *Serpocaulon latipes*, *Solanum paniculatum*, *Stigmaphyllon ciliatum*, *Temstroemia brasiliensis*, *Tetrapterys acutifolia*, *Tillandsia gardneri*, *Tillandsia mallemonitii*, *Tillandsia stricta*, *Tillandsia tenuifolia*, *Tournefortia bicolor*, *Tournefortia breviflora*, *Tournefortia gardneri*, *Trema micrantha*,

d) Advanced regeneration stage

Abarema brachystachya, *Acacia plumosa*, *Acanthostachys strobilacea*, *Acianthera saundersiana*, *Actinostemon concolor*, *Adenocalymma assum*, *Adenocalymma marginatum*, *Adiantum latifolium*, *Aechmea ornata*, *Aiouea saligna*, *Alatiglossum longipes*, *Alatiglossum uniflorum*, *Alchornea triplinervia*, *Allophylus edulis*, *Allophylus puberulus*, *Amaioua intermedia*, *Anathallis obovata*, *Anchietea pyriformis*, *anctaeatharinae*, *Andira fraxinifolia*, *Anemia phyllitidis*, *Aniba firmula*, *Annona glabra*, *Annona montana*, *Annona sericea*, *Annona sylvatica*, *Anthurium pentaphyllum*, *Anthurium scandens*, *Asterostigma lividum*, *Astronium graveolens*, *Attalea dubia*, *Bactris setosa*, *Blepharocalyx salicifolius*, *Brasiliorchis marginata*, *Calophyllum brasiliense*, *Calyptranthes brasiliensis*, *Calyptranthes lucida*, *Campomanesia guaviroba*, *Canistropsis billbergioides*, *Casearia sylvestris*, *Cattleya forbesii*, *Cattleya guttata*, *Cecropia glaziovii*, *Cecropia pachystachya*, *Cheiloclinium serratum*, *Christensonella ferdinandiana*, *Christensonella neuwiedii*, *Cissus verticillata*, *Cleistes paranaensis*, *Clethra scabra*, *Clusia criuva*, *Clusia minor*, *Coccoloba declinata*, *Codonanthe devosiana*, *Codonanthe gracilis*, *Colanthe cingulata*, *Coppensia flexuosa*, *Coussapoa microcarpa*, *Cupania vernalis*, *Cyathea atrovirens*, *Cyrtopodium gigas*, *Daphnopsis racemosa*, *Davilla rugosa*, *Dendropanax cuneatus*, *Dioclea wilsonii*, *Dioscorea altissima*, *Dioscorea campestris*, *Dioscorea laxiflora*, *Ditassa burchellii*, *Dryadella aviceps*, *Endlicheria paniculata*, *Epidendrum fulgens*, *Epidendrum ramosum*, *Epidendrum rigidum*, *Epidendrum secundum*, *Epidendrum strobiliferum*, *Eugenia bacopari*, *Eugenia brasiliensis*, *Eugenia catharinae*, *Eugenia neoglomerata*, *Eugenia schuechiana*, *Eugenia subavenia*, *Eugenia sulcata*, *Eugenia vattimoana*, *Eulophia alta*, *Ficus adhatodifolia*, *Ficus elliotiana*, *Ficus enormis*, *Ficus gomelleira*, *Ficus organensis*, *Ficus pertusa*, *Geonoma schottiana*, *Guapira opposita*, *Guatteria australis*, *Hemionitis tomentosa*, *Heteropsis salicifolia*, *Heterotaxis brasiliensis*, *Hippocratea volubilis*, *Huberia semiserrata*, *Humiriastrum dentatum*, *Ilex dumosa*, *Ilex integerrima*, *Ilex pseudobuxus*, *Ilex theezans*, *Inga laurina*, *Inga sellowiana*, *Inga sessilis*, *Inga subnuda*, *Inga vera*, *Jacaranda puberula*, *Laplacea fructicosa*, *Leandra melastomoides*, *Lepanthopsis floripecten*, *Lindsaea quadrangularis*, *Lithrea brasiliensis*, *Lockhartia lunifera*, *Lop hiaris punila*, *Lygodium volubile*, *Manilkara salzmannii*, *Manilkara subsericea*, *Maranta divaricata*, *Marcgravia polyantha*, *Marlierea eugeniopsoides*, *Marlierea tomentosa*, *Matayba elaeagnoides*, *Matayba guianensis*, *Maxillaria chlorantha*, *Maxillaria rodriguesii*, *Miconia albicans*, *Microgramma percussa*, *Microgramma vacciniifolia*, *Monstera adansonii*, *Mormolyca rufescens*, *Mucuna urens*, *Myrceugenia campestris*, *Myrceugenia kleinii*, *Myrceugenia reitzii*, *Myrcia brasiliensis*, *Myrcia flagellaris*, *Myrcia glabra*, *Myrcia hartwegiana*, *Myrcia hebeptala*, *Myrcia ilheosensis*, *Myrcia insularis*, *Myrcia multiflora*, *Myrcia pubipetala*, *Myrcia pulchra*, *Myrcia racemosa*, *Myrcia richardiana*, *Myrcia splendens*, *Myrciaria tenella*, *Myrsine intermedia*, *Myrsine parvifolia*, *Myrsine rubra*, *Myrsine umbellata*, *Myrsine venosa*, *Nectandra megapotamica*, *Nectandra oppositifolia*, *Nectandra puberula*, *Nectandra reticulata*, *Nematanthus fissus*, *Neomitranthes cordifolia*, *Nidularium innocentii*, *Nidularium procerum*, *Norantea rasilensis*, *Ocotea lobbii*, *Ocotea nutans*, *Ocotea puberula*, *Ocotea pulchella*, *Octomeria fibrifera*, *Octomeria gracilis*, *Oeceoclades maculata*, *Parodiolyra micrantha*, *Passiflora amethystina*, *Passiflora edulis*, *Passiflora haematostigma*, *Passiflora jileki*, *Passiflora misera*, *Passiflora organensis*, *Passiflora suberosa*, *Paullinia cristata*, *Paullinia meliifolia*, *Paullinia trigonata*, *Pecluma recurvata*, *Pelexia novofriburgensis*, *Peperomia emarginata*, *Peperomia glabella*, *Peperomia pereskiiifolia*, *Peperomia rotundifolia*, *Peperomia tetraphylla*, *Peperomia urocarpa*, *Peplonia axillaris*, *Pera glabrata*, *Pereskia aculeata*, *Peritassa calypsoides*, *Philodendron appendiculatum*, *Philodendron bipinnatifidum*, *Philodendron corcovadense*, *Philodendron crassinervium*, *Philodendron ochrostemon*, *Phoradendron affine*, *Phoradendron bathyoryctum*, *Phoradendron crassifolium*, *Phoradendron falcifrons*, *Phoradendron piperoides*, *Phoradendron quadrangulare*, *Phymatidium myrtophilum*, *Physosiphon spiralis*, *Piper mollicomum*, *Piptadenia gonoacantha*, *Pithecoctenium crucigerum*, *Pleiochiton blepharodes*, *Pleopeltis angusta*, *Pleopeltis astrolepis*, *Pleopeltis hirsutissima*, *Podocarpus sellowii*, *Polypodium catharinae*, *Polypodium chnoophorum*, *Polystachya caespitosa*, *Polystachya concreta*, *Posoqueria latifolia*, *Pouteria beaurepairei*, *Pouteria venosa*, *Prescottia oligantha*, *Prescottia stachyoides*, *Protium heptaphyllum*, *Psidium cattleianum*, *Psidium salutare*, *Psilochilus modestus*, *Qualea cryptantha*, *Rhipsalis baccifera*, *Rhipsalis crispata*, *Rhipsalis elliptica*, *Rhipsalis floccosa*, *Rhipsalis pachyptera*, *Rhipsalis teres*, *Rodriguezia decora*, *Rudgea coriacea*, *Sapium gladulosum*, *Scaphy glottis modesta*, *Scaphyglottis reflexa*, *Schinus terebinthifolius*, *Schizaea elegans*, *Selaginella sulcata*, *Serjania clematidifolia*, *Serpocaulon latipes*, *Solanum*, *Solanum pseudo quina*, *Specklinia matinhensis*, *Specklinia seriata*, *Stelis fraterna*, *Stelis pauciflora*, *Stigmaphyllon arenicola*, *Stigmaphyllon ciliatum*, *Struthanthus polyrrhizos*, *Struthanthus uraguensis*, *Struthanthus vulgaris*, *Swartzia simplex*, *Tabebuia cassinoides*, *Tapirira guianensis*, *Temnadenia odorifera*, *Ternstroemia brasiliensis*, *Tetrapterys acutifolia*, *Tibouchina trichopoda*, *Tillandsia gardneri*, *Tillandsia mallefontii*, *Tillandsia stricta*, *Tillandsia tenuifolia*, *Tillandsia tricholepis*, *Tournefortia bicolor*, *Tournefortia breviflora*, *Tournefortia gardneri*, *Trichosalpinx bradei*, *Trigonidium atifolium*, *Tripodanthus acutifolius*, *Vanilla chamissonis*, *Varronia curassavica*, *Voyria aphylla*, *Vriesea gigantea*, *Vriesea incurvata*, *Vriesea jonghei*, *Vriesea procera*, *Vriesea vagans*, *Weinmannia paulliniifolia*, *Wulfschlaegelia aphylla*, *Ximenia americana*, *Xylopia brasiliensis*, *Xylosma prockia*, *Zollernia ilicifolia*.

a) Primary stage

Abarema langsdorffii, *Abuta selleana*, *Acanthostachys strobilacea*, *Adenocalymma assum*, *Adenocalymma marginatum*, *Adiantum raddianum*, *Aechmea bromeliifolia*, *Aechmea candida*, *Aechmea coelestis*, *Aechmea cylindrata*, *Aechmea distichantha*, *Aechmea gracilis*, *Aechmea pectinata*, *Aiouea saligna*, *Albizia edwallii*, *Albizia polycephala*, *Amaioua guianensis*, *Amaioua intermedia*, *Anadenanthera colubrina*, *Anchietea pyriformis*, *Andira fraxinifolia*, *Anemia phyllitidis*, *Aniba firmula*, *Annona glabra*, *Annona montana*, *Annona sericea*, *Annona sylvatica*, *Anredera tucumanensis*, *Anthurium pentaphyllum*, *Anthurium scandens*, *Aspidosperma olivaceum*, *Aspidosperma parvifolium*, *Aspidosperma pyricollum*, *Asterostigma lividum*, *Attalea dubia*, *Aureliana fasciculata*, *Bactris setosa*, *Bauhinia platycalyx*, *Billbergia zebrina*, *Blepharodon pictum*, *Cabrera canjerana*, *Calophyllum brasiliense*, *Campomanesia xanthocarpa*, *Canistropsis billbergioides*, *Cariniana estrellensis*, *Cassia ferruginea*, *Catopsis sessiliflora*, *Cedrela fissilis*, *Cedrela odorata*, *Cestrum intermedium*, *Cheiloclinium serratum*, *Chrysophyllum gonocarpum*, *Chrysophyllum inornatum*, *Coccocypselum geophiloides*, *Combretum laxum*, *Connarus rostratus*, *Copaifera langsdorffii*, *Cordia trichotoma*, *Cordia concolor*, *Cyathea atrovirens*, *Cyathea axillaris*, *Cyathea corcovadensis*, *Cyathea delgadii*, *Dahlstedtia pinnata*, *Dendropanax cuneatus*, *Dendropanax monogynus*, *Dennstaedtia dissecta*, *Didymoglossum hymenoides*, *Didymoglossum krausii*, *Dioclea wilsonii*, *Dioscorea altissima*, *Dioscorea campestris*, *Dioscorea laxiflora*, *Diplon cuspidatum*, *Ditassa burchellii*, *Doliocarpus schottianus*, *Edmundoa lindenii*, *Emmeorrhiza umbellata*, *Emmotum nitens*, *Endlicheria paniculata*, *Enterolobium contortisiliquum*, *Epidendrum henschenii*, *Epidendrum pseudodifforme*, *Epidendrum ramosum*, *Erythrina crista-galli*, *Esenbeckia grandiflora*, *Eugenia multicostata*, *Eugenia subterminalis*, *Ficus insipida*, *Ficus luschnathiana*, *Forsteronia leptocarpa*, *Gallsia integrifolia*, *Genipa americana*, *Geonoma schottiana*, *Guatteria australis*, *Handroanthus chrysotrichus*, *Handroanthus umbellatus*, *Handroanthus vellosii*, *Hedyosmum brasiliense*, *Heliconia farinosa*, *Henecartia omphalandra*, *Heteropsis salicifolia*, *Heterotaxis brasiliensis*, *Hillia illustris*, *Hillia parasitica*, *Hippocratea volubilis*, *Hirtella hebeclada*, *Hohenbergia augusta*, *Humiriastrum dentatum*, *Huperzia flexibilis*, *Huperzia mandiocana*, *Huperzia quadrifariata*, *Hymenaea courbaril*, *Hymenophyllum caudiculatum*, *Hymenophyllum polyanthos*, *Hyperbaena domingensis*, *Inga laurina*, *Inga sellowiana*, *Inga sessilis*, *Inga subnuda*, *Inga vera*, *Jobinia connivens*, *Laplacea fructicosa*, *Libidibia ferrea*, *Magnolia ovata*, *Maprounea guianensis*, *Maranta divaricata*, *Maranta noctiflora*, *Marcgravia polyantha*, *Marlierea excoriata*, *Marlierea reitzii*, *Marsdenia macrophylla*, *Microgramma percussa*, *Microgramma tecta*, *Mikania trinervis*, *Monstera adansonii*, *Myrcia cymosopaniculata*, *Myrcia dichrophylla*, *Myrsine laetevirens*, *Nectandra megapotamica*, *Nectandra membranacea*, *Nectandra puberula*, *Nidularium innocentii*, *Niphidium rufosquamatum*, *Ocotea aciphylla*, *Ocotea bicolor*, *Ocotea catharinensis**, *Ocotea corymbosa*, *Ocotea diospyrifolia*, *Ocotea elegans*, *Ocotea lobbii*, *Ocotea odorifera**, *Ocotea puberula*, *Ocotea pulchella*, *Ocotea silvestris*, *Ocotea tristis*, *Orthosia scoparia*, *Pachystroma long ifolium*, *Passiflora jileki*, *Paullinia carpopoda*, *Paullinia pinnata*, *Pecluma recurvata*, *Peperomia catharinae*, *Peperomia corcovadensis*, *Peperomia nitida*, *Peperomia pseudoestrellensis*, *Peperomia psilostachya*, *Peplonia axillaris*, *Pera glabrata*, *Peritassa calypsoides*, *Persea venosa*, *Persea willdenovii*, *Phanera microstachya*, *Philodendron appendiculatum*, *Philodendron bipinnatifidum*, *Philodendron corcovadense*, *Philodendron crassinervium*, *Philodendron ochrostemon*, *Phoradendron affine*, *Phoradendron bathyoryctum*, *Phoradendron crassifolium*, *Phoradendron falcifrons*, *Phoradendron piperoides*, *Phoradendron quadrangulare*, *Phytolacca dioica*, *Piper mikanianum*, *Piper mollicomum*, *Piper subcinereum*, *Piper xylosteum*, *Pisonia aculeata*, *Pithecoctenium crucigerum*, *Platymiscium floribundum*, *Polyphlebium pyxidiferum*, *Pouteria bullata*, *Pouteria salicifolia*, *Pouteria venosa*, *Pradosia lactescens*, *Prestonia coalita*, *Protium heptaphyllum*, *Pseudananas sagenarius*, *Pseudobombax grandiflorum*, *Psidium cattleianum*, *Psychotria nuda*, *Pteris deflexa*, *Pterocarpus rohrii*, *Quesnelia arvensis*, *Quesnelia quesneliana*, *Radiovittaria stipitata*, *Randia armata*, *Rhipsalis baccifera*, *Rhipsalis crispata*, *Rhipsalis elliptica*, *Rhipsalis floccosa*, *Rhipsalis pachyptera*, *Rhipsalis teres*, *Rourea gracilis*, *Rudgea jasminoides*, *Rumohra adiantiformis*, *Ruprechtia laxiflora*, *Sabicea grisea*, *Schefflera angustissima*, *Schizaea elegans*, *Schwartzia brasiliensis*, *Selaginella sulcata*, *Senna angulata*, *Serjania caracasana*, *Serjania communis*, *Sinningia douglasii*, *Sloanea guianensis*, *Specklinia marginalis*, *Sterculia apetala*, *Stigmaphyllon tomentosum*, *Strychnos trinervis*, *Syagrus romanzoffiana*, *Tetracera oblongata*, *Tetrapterys phlomoides*, *Thelypteris interrupta*, *Thelypteris opposita*, *Tillandsia geminiflora*, *Tillandsia mallemontii*, *Tillandsia recurvata*, *Tillandsia tenuifolia*, *Tournefortia rubicunda*, *Trichomanes angustatum*, *Trichomanes cristatum*, *Trichomanes radicans*, *Vittaria lineata*, *Voyria aphylla*, *Vriesea atra*, *Vriesea carinata*, *Vriesea erythrodactylon*, *Vriesea flammea*, *Vriesea gigantea*, *Vriesea pauperrima*, *Vriesea philippocoburgii*, *Vriesea platynema*, *Vriesea rodigasiana*, *Vriesea scalaris*, *Weinmannia discolor*, *Weinmannia paulliniifolia*, *Wulfschlaegelia aphylla*, *Xylopia brasiliensis*, *Zanthoxylum caribaeum*, *Zanthoxylum rho ifolium*, *Zollernia ilicifolia*.

b) Initial regeneration stage

Achyrocline satureioides, *Ambrosia elatior*, *Araujia sericifera*, *Austroeupatorium inulaefolium*, *Axonopus canescens*, *Axonopus compressus*, *Axonopus eminens*, *Axonopus obtusifolius*, *Axonopus pressus*, *Baccharis singularis*, *Boehmeria caudata*, *Boehmeria cylindrica*, *Bredemeyera laurifolia*, *Bulbostylis paradoxa*, *Caperonia buettneriacea*, *Cayaponia martiana*, *Celosia grandifolia*, *Chamaecrista flexuosa*, *Chamaecrista rotundifolia*, *Chiococca alba*, *Chiococca nitida*, *Chromolaena laevigata*, *Chrysolea flexuosa*, *Cnidioscolus urens*, *Coccocypselum condalia*, *Coccocypselum cordifolium*, *Coccocypselum lanceolatum*, *Conyza bonariensis*, *Coutarea hexandra*, *Crotalaria pallida*, *Crotalaria vitellina*, *Cyperus odoratus*, *Cyrtocymura scorpioides*, *Dalechampia scandens*, *Deppea blumenaviensis*, *Desmodium adscendens*, *Desmodium barbatum*, *Desmodium incanum*, *Dicranopteris pectinata*, *Digitaria ciliaris*, *Digitaria insularis*, *Drymaria cordata*, *Elephantopus mollis*, *Eleusine indica*, *Eragrostis pilosa*, *Eragrostis secundiflora*, *Erechtites hieracifolius*, *Euphorbia hyssopifolia*, *Euphorbia papillosa*, *Eustachys distichophylla*, *Galactia striata*, *Geophila repens*, *Hyparrhenia*

rufa, *Ichnanthus nemoralis*, *Ichnanthus pallens*, *Imperata brasiliensis*, *Indigofera campestris*, *Indigofera suffruticosa*, *Ipomoea holosericea*, *Ipomoea phyllomega*, *Ipomoea procumbens*, *Jacquemontia sphaerostigma*, *Laportea aestuans*, *Lasiacis divaricata*, *Lasiacis ligulata*, *Ludwigia caparosa*, *Luffa cylindrica*, *Manettia pubescens*, *Margaritopsis chaenotricha*, *Mikania trinervis*, *Mimosa bimucronata*, *Mimosa debilis*, *Mimosa pudica*, *Mimosa somnians*, *Oldenlandia salzmannii*, *Olyra ciliatifolia*, *Olyra latifolia*, *Oplismenus hirtellus*, *Ossaea amygdaloides*, *Ossaea confertiflora*, *Oxalis sarmentosa*, *Pavonia fruticosa*, *Petiveria alliancea*, *Pharus lappulaceus*, *Phyllanthus niruri*, *Phyllanthus riedelianus*, *Phyllanthus tenellus*, *Phytolacca thyrsiflora*, *Polygala glochidiata*, *Polygala hebeclada*, *Polygala laureola*, *Polygala paniculata*, *Polygala timoutoides*, *Pseudechinolaena polystachya*, *Psychotria deflexa*, *Psychotria leiocarpa*, *Psychotria stachyoides*, *Pteridium aquilinum*, *Pterocaulon lorentzii*, *Rhynchanthera brachyrhyncha*, *Richardia brasiliensis*, *Richardia humistrata*, *Saccharum asperum*, *Schultesia australis*, *Securidaca lanceolata*, *Senecio crassiflorus*, *Senna obtusifolia*, *Senna occidentalis*, *Senna pendula*, *Setaria parviflora*, *Setaria scandens*, *Setaria vulpiseta*, *Sida linifolia*, *Sida pentilloides*, *Sida rhombifolia*, *Sinningia allagophylla*, *Smilax staminea*, *Solanum americanum*, *Solanum pseudocapsicum*, *Solanum sisymbriifolium*, *Solanum variabile*, *Solanum viarum*, *Solidago chilensis*, *Sphagneticola trilobata*, *Streptochaeta spicata*, *Stylosanthes guianensis*, *Stylosanthes scabra*, *Stylosanthes viscosa*, *Symphypappus casarettoi*, *Tibouchina herinquiniana*, *Turnera serrata*, *Vassobia breviflora*, *Vernonanthura beyrichii*, *Vernonanthura westiniana*, *Waltheria americana*, *Zornia curvata*, *Zornia reticulata*.

c) Medium regeneration stage

Actinostemon concolor, *Alchornea triplinervia*, *Allophylus edulis*, *Alseis floribunda*, *Andira anthelmia*, *Andira fraxinifolia*, *Araujia sericifera*, *Banara parviflora*, *Bauhinia cheilantha*, *Bauhinia forficata*, *Boehmeria caudata*, *Boehmeria cylindrica*, *Bredemeyera laurifolia*, *Brunfelsia uniflora*, *Byrsonima coccolobifolia*, *Byrsonima crassifolia*, *Byrsonima intermedia*, *Byrsonima ligustrifolia*, *Byrsonima verbascifolia*, *Calyptranthes strigipes*, *Campyloneurum acrocarpon*, *Campyloneurum nitidum*, *Campyloneurum rigidum*, *Casearia decandra*, *Casearia sylvestris*, *Cayaponia trifoliolata*, *Cecropia glaziovii*, *Cecropia pachystachya*, *Celosia grandifolia*, *Celtis fluminensis*, *Cestrum bracteatum*, *Cestrum strigilatum*, *Chamaecrista rotundifolia*, *Chionanthus filiformis*, *Chrysophyllum marginatum*, *Cissus paulliniifolia*, *Cissus simsiana*, *Cissus sulcicaulis*, *Cissus verticillata*, *Citharexylum myrianthum*, *Clematis dioica*, *Clethra scabra*, *Clusia criuva*, *Clusia minor*, *Coccocypselum capitatum*, *Coccocypselum condalia*, *Coccocypselum cordifolium*, *Coccocypselum lanceolatum*, *Coccoloba cordata*, *Colanthea cingulata*, *Coussapoa microcarpa*, *Coutarea hexandra*, *Cupania oblongifolia*, *Dalbergia frutescens*, *Daphnopsis coriacea*, *Daphnopsis fasciculata*, *Depeea blumenaviensis*, *Dichondra microcalyx*, *Diplopterys pubipetala*, *Ditassa burchellii*, *Dorstenia brasiliensis*, *Drimys brasiliensis*, *Eugenia bimarginata*, *Eugenia florida*, *Eugenia hiemalis*, *Eugenia joenssonii*, *Eugenia myrcianthes*, *Eugenia oblongata*, *Eugenia obovata*, *Eugenia paracatuana*, *Eugenia pluriflora*, *Eugenia prasina*, *Eugenia puniceifolia*, *Eugenia pyriformis*, *Eugenia sclerocalyx*, *Eugenia speciosa*, *Eugenia subavenia*, *Eugenia uruguayensis*, *Euphorbia heterophylla*, *Ficus pertusa*, *Guapira hirsuta*, *Guarea guidonia*, *Guarea macrophylla*, *Guatteria australis*, *Guazuma ulmifolia*, *Guettarda uruguensis*, *Guettarda viburnoides*, *Hedyosmum brasiliense*, *Heteropterys nitida*, *Hieronyma alchorneoides*, *Hiraea cuneata*, *Inga barbata*, *Leandra regnellii*, *Lindsaea lancea*, *Luehea divaricata*, *Machaerium brasiliense*, *Machaerium hirtum*, *Machaerium stipitatum*, *Machaerium uncinatum*, *Maclura tinctoria*, *Margaritopsis chaenotricha*, *Marlierea obscura*, *Matayba elaeagnoides*, *Maytenus glaucescens*, *Maytenus schumanniana*, *Merostachys multiramea*, *Miconia albicans*, *Miconia cinerascens*, *Miconia cinnamomifolia*, *Miconia hiemalis*, *Miconia ibaguensis*, *Miconia ligustroides*, *Miconia pusilliflora*, *Miconia sellowiana*, *Miconia stenostachya*, *Mimosa bimucronata*, *Mollinedia schottiana*, *Myrceugenia miersiana*, *Myrcia hartwegiana*, *Myrcia laruotteana*, *Myrcia spectabilis*, *Myrcia tomentosa*, *Myrciaria cuspidata*, *Myrciaria floribunda*, *Myrsine coriacea*, *Myrsine parvifolia*, *Ormosia arborea*, *Orthosia scoparia*, *Osmunda regalis*, *Ossaea amygdaloides*, *Ossaea confertiflora*, *Ouratea parviflora*, *Ouratea salicifolia*, *Passiflora amethystina*, *Passiflora edulis*, *Passiflora haematostigma*, *Passiflora misera*, *Passiflora organensis*, *Passiflora suberosa*, *Peplonia axillaris*, *Pera glabrata*, *Pilocarpus pennatifolius*, *Piper aduncum*, *Piper amalago*, *Piper arboreum*, *Piptadenia gonoacantha*, *Piptadenia paniculata*, *Prockia crucis*, *Prunus myrtifolia*, *Pseudananas sagenarius*, *Psychotria carthagensis*, *Psychotria deflexa*, *Psychotria hoffmannseggiana*, *Psychotria leiocarpa*, *Psychotria stachyoides*, *Qualea multiflora*, *Rhynchanthera brachyrhyncha*, *Rhynchosia phaseoloides*, *Rumohra adiantiformis*, *Sapium gladulosum*, *Schinus terebinthifolius*, *Sebastiania brasiliensis*, *Sequiaria aculeata*, *Sequiaria americana*, *Sequiaria langsdorffii*, *Senna alata*, *Senna obtusifolia*, *Senna pendula*, *Senna silvestris*, *Senna splendida*, *Serjania caracasana*, *Serjania communis*, *Smilax staminea*, *Solanum argenteum*, *Solanum caavurana*, *Solanum mauritanum*, *Solanum paniculatum*, *Solanum pseudocapsicum*, *Solanum pseudoquina*, *Solanum sanctae-catharinae*, *Solanum swartzianum*, *Solanum variabile*, *Sorocea bonplandii*, *Stigmaphyllon auriculatum*, *Stigmaphyllon bonariense*, *Strychnos brasiliensis*, *Styrax glabratus*, *Styrax leprosus*, *Symplocos arbutifolia*, *Symplocos uniflora*, *Tabebuia aurea*, *Tapirira guianensis*, *Terminalia australis*, *Terminalia glabrescens*, *Tetrapterys acutifolia*, *Tetrorchidium rubrivenium*, *Thryallis brachystachys*, *Tibouchina herinquiniana*, *Tibouchina sellowiana*, *Tillandsia gardneri*, *Tillandsia mallemontii*, *Tillandsia tenuifolia*, *Tillandsia tricholepis*, *Tontelea miersii*, *Tournefortia bicolor*, *Tournefortia breviflora*, *Tragia volubilis*, *Trema micrantha*, *Trichilia casaretti*, *Trichilia clauseni*, *Trichilia elegans*, *Trichilia pallens*, *Trichilia silvatica*, *Trigonia nivea*, *Trigonia rotundifolia*, *Turnera serrata*, *Valeriana scandens*, *Vassobia breviflora*, *Vigna candida*, *Virola oleifera*, *Vochysia tucanorum*, *Vriesea flammea*, *Xylosma pseudosalzmannii*.

d) Advanced regeneration stage

Abarema langsdorffii, *Abuta selleana*, *Acacia plumosa*, *Acanthostachys strobilacea*, *Adenocalymma assum*, *Adenocalymma marginatum*, *Adiantum raddianum*, *Aechmea cylindrata*, *Aechmea gracilis*, *Aiouea saligna*, *Albizia edwallii*, *Albizia polycephala*, *Alchornea triplinervia*, *Allophylus edulis*, *Alseis floribunda*, *Amaioua guianensis*, *Amaioua intermedia*, *Anadenanthera colubrina*, *Anchieta pyrifolia*, *Andira anthelmia*, *Andira fraxinifolia*, *Anemia phyllitidis*, *Aniba firmula*, *Annona glabra*, *Annona montana*, *Annona sericea*, *Annona sylvatica*, *Anthurium pentaphyllum*, *Anthurium scandens*, *Asterostigma lividum*, *Aureliana fasciculata*, *Bactris setosa*, *Banara parviflora*, *Bauhinia cheilantha*, *Bauhinia platycalyx*, *Billbergia zebrina*, *Byrsonima coccolobifolia*, *Byrsonima crassifolia*, *Byrsonima intermedia*, *Byrsonima ligustrifolia*, *Byrsonima verbascifolia*, *Cabralea canjerana*, *Calyptranthes strigipes*, *Campomanesia xanthocarpa*, *Campyloneurum acrocarpon*, *Campyloneurum nitidum*, *Campyloneurum rigidum*, *Canistropsis billbergioides*, *Cariniana estrellensis*, *Casearia decandra*, *Casearia sylvestris*, *Cassia ferruginea*, *Cedrela fissilis*, *Cedrela odorata*, *Cestrum bracteatum*, *Cestrum intermedium*, *Cheiloclinium serratum*, *Chionanthus filiformis*, *Chrysophyllum gonocarpum*, *Chrysophyllum inornatum*, *Chrysophyllum marginatum*, *Cissus paulliniifolia*, *Cissus simsiana*, *Cissus sulcicaulis*, *Cissus verticillata*, *Citharexylum myrianthum*, *Clematis dioica*, *Clethra scabra*, *Clusia criuva*, *Clusia minor*, *Coccocypselum capitatum*, *Coccocypselum geophiloides*, *Coccoloba cordata*, *Colanthea cingulata*, *Combretum laxum*, *Connarus rostratus*, *Copaifera langsdorffii*, *Cordia trichotoma*, *Cordia concolor*, *Cupania oblongifolia*, *Cyathea atrovirens*, *Cyathea axillaris*, *Cyathea corcovadensis*, *Cyathea delgadii*, *Dahlstedtia pinnata*, *Dalbergia frutescens*, *Daphnopsis coriacea*, *Daphnopsis fasciculata*, *Dendropanax cuneatus*, *Dendropanax monogynus*, *Dennstaedtia dissecta*, *Dichondra microcalyx*, *Dioclea wilsonii*, *Dioscorea altissima*, *Dioscorea campestris*, *Dioscorea laxiflora*, *Diplazium cuspidatum*, *Diplopterys pubipetala*, *Ditassa burchellii*, *Dolioscarpus schottianus*, *Drimys brasiliensis*, *Emmeorrhiza umbellata*, *Emmotum nitens*, *Endlicheria paniculata*, *Epidendrum henschenii*, *Epidendrum pseudodiforme*, *Epidendrum ramosum*, *Esenbeckia grandiflora*, *Eugenia florida*, *Eugenia joenssonii*, *Eugenia multicostata*, *Eugenia oblongata*, *Eugenia obovata*, *Eugenia paracatuana*, *Eugenia puniceifolia*, *Eugenia pyriformis*, *Eugenia sclerocalyx*, *Eugenia speciosa*, *Eugenia subavenia*, *Eugenia subterminalis*, *Eugenia uruguayensis*, *Ficus insipida*, *Ficus luschnathiana*, *Gallesia integrifolia*, *Garcinia gardneriana*, *Genipa americana*, *Guarea guidonia*, *Guarea macrophylla*, *Guatteria australis*, *Guazuma ulmifolia*, *Guettarda uruguayensis*, *Guettarda viburnoides*, *Hennecartia omphalandra*, *Heteropsis salicifolia*, *Heteropterys nitida*, *Heterotaxis brasiliensis*, *Hieronyma alchorneoides*, *Hillia illustris*, *Hillia parasitica*, *Hippocratea volubilis*, *Hiraea cuneata*, *Humiriastrum dentatum*, *Hymenaea courbaril*, *Hyperbaena domingensis*, *Inga barbata*, *Inga laurina*, *Inga sellowiana*, *Inga sessilis*, *Inga subnuda*, *Inga vera*, *Laplacea fructicosa*, *Leandra regnellii*, *Libidibia ferrea*, *Lindsaea lancea*, *Luehea divaricata*, *Machaerium hirtum*, *Machaerium stipitatum*, *Machaerium uncinatum*, *Maclura tinctoria*, *Magnolia ovata*, *Maprounea guianensis*, *Maranta divaricata*, *Maranta noctiflora*, *Marcgravia polyantha*, *Marlierea excoriata*, *Marlierea obscura*, *Marlierea reitzii*, *Matayba elaeagnoides*, *Maytenus schumanniana*, *Miconia cinerascens*, *Miconia pusilliflora*, *Miconia sellowiana*, *Miconia stenostachya*, *Microgramma percussa*, *Microgramma tecta*, *Mollinedia schottiana*, *Monstera adansonii*, *Myrcogenia miersiana*, *Myrcia dichrophylla*, *Myrcia laruotteana*, *Myrsine laetevirens*, *Nectandra megapotaamica*, *Nectandra membranacea*, *Nectandra puberula*, *Nidularium innocenti*, *Niphidium rufosquamatum*, *Ocotea aciphylla*, *Ocotea bicolor*, *Ocotea corymbosa*, *Ocotea diospyrifolia*, *Ocotea elegans*, *Ocotea lobbii*, *Ocotea odorifera**, *Ocotea puberula*, *Ocotea pulchella*, *Ocotea silvestris*, *Ocotea tristis*, *Ormosia arborea*, *Orthosia scoparia*, *Osmunda regalis*, *Pachystroma longifolium*, *Passiflora amethystina*, *Passiflora edulis*, *Passiflora haematostigma*, *Passiflora jileki*, *Passiflora misera*, *Passiflora organensis*, *Passiflora suberosa*, *Paullinia carpopoda*, *Paullinia pinnata*, *Pecluma recurvata*, *Peperomia catharinae*, *Peperomia corcovadensis*, *Peperomia nitida*, *Peperomia pseudoestrellensis*, *Peperomia psilostachya*, *Peplonia axillaris*, *Pera glabrata*, *Peritassa calypsoidea*, *Persea venosa*, *Persea willdenovii*, *Phanera microstachya*, *Philodendron appendiculatum*, *Philodendron bipinnatifidum*, *Philodendron corcovadense*, *Philodendron crassinervium*, *Philodendron ochrostemon*, *Phoradendron affine*, *Phoradendron bathyoryctum*, *Phoradendron crassifolium*, *Phoradendron falcifrons*, *Phoradendron piperoides*, *Phoradendron quadrangulare*, *Phytolacca dioica*, *Pilocarpus pennatifolius*, *Piper aduncum*, *Piper mikanianum*, *Piper mollicomum*, *Piper subcinereum*, *Piper xylosteoides*, *Piptadenia gonoacantha*, *Piptadenia paniculata*, *Pisonia aculeata*, *Pithecoctenium crucigerum*, *Platymiscium floribundum*, *Plinia rivularis*, *Posoqueria latifolia*, *Pouteria bullata*, *Pouteria salicifolia*, *Pouteria venosa*, *Pradosia lactescens*, *Prestonia coalita*, *Prockia crucis*, *Protium heptaphyllum*, *Prunus myrtifolia*, *Pseudananas sagenarius*, *Psidium cattleianum*, *Psychotria carthagenensis*, *Psychotria hoffmannseggiana*, *Psychotria nuda*, *Pteris deflexa*, *Pterocarpus rohrii*, *Qualea multiflora*, *Radiovittaria stipitata*, *Randia armata*, *Rhipsalis baccifera*, *Rhipsalis crispata*, *Rhipsalis elliptica*, *Rhipsalis floccosa*, *Rhipsalis pachyptera*, *Rhipsalis teres*, *Rhynchosia phaseoloides*, *Rourea gracilis*, *Rudgea jasminoides*, *Rumohra adiantiformis*, *Ruprechtia laxiflora*, *Sabicea grisea*, *Schefflera angustissima*, *Schizaea elegans*, *Schwartzia brasiliensis*, *Sequoiaria aculeata*, *Sequoiaria americana*, *Sequoiaria langsdorffii*, *Selaginella sulcata*, *Senna angulata*, *Serjania caracasana*, *Serjania communis*, *Sinningia douglasii*, *Sloanea guianensis*, *Solanum argenteum*, *Solanum mauritianum*, *Solanum pseudo quina*, *Solanum sanctae-catharinae*, *Solanum swartzianum*, *Sorocea bonplandii*, *Specklinia marginalis*, *Sterculia apetala*, *Stigmaphyllon auriculatum*, *Stigmaphyllon bonariense*, *Stigmaphyllon tomentosum*, *Strychnos brasiliensis*, *Strychnos trinervis*, *Styrax leprosus*, *Syagrus romanzoffiana*, *Symplocos arbutifolia*, *Tabebuia aurea*, *Tapirira guianensis*, *Terminalia glabrescens*, *Tetracera oblongata*, *Tetrapterys acutifolia*, *Tetrapterys phlomoides*, *Tetrorchidium rubrivenium*, *Thelypteris interrupta*, *Thelypteris opposita*, *Thryallis brachystachys*, *Tibouchina sellowiana*, *Tillandsia gardneri*, *Tillandsia geminiflora*, *Tillandsia mallemontii*, *Tillandsia recurvata*, *Tillandsia tenuifolia*, *Tillandsia tricholepis*, *Tontelea miersii*, *Tournefortia bicolor*, *Tournefortia breviflora*, *Tournefortia rubicunda*, *Tragia volubilis*, *Trichilia casaretti*, *Trichilia clauseni*, *Trichilia pallens*, *Trichilia silvatica*, *Viola oleifera*, *Vittaria lineata*, *Vochysia tucanorum*, *Voyria aphylla*, *Vriesea flammaea*, *Vriesea gigantea*, *Vriesea philippocoburgii*, *Vriesea rodigasiana*, *Weinmannia discolor*, *Weinmannia paulliniifolia*, *Wulfschlaegelia aphylla*, *Xylopia brasiliensis*,

Xylosma pseudosalzmannii, Zanthoxylum caribaeum, Zanthoxylum rho ifolium, Zollernia ilicifolia.

Art. 2 This Resolution shall enter into effect on the date of its publication.

FRANCISCO GAETANI – Acting Council President

(*) endemic and rare species and species threatened with extinction.

This text does not substitute the text published in the Official Gazette on Jan. 3, 2012

RESOLUTION 448, January 18, 2012
Published in Official Gazette 14 on Thursday, Jan. 19, 2012

Changes articles, 2, 4, 5, 6, 8, 9, 10 and 11 of Resolution 307 issued on July 5, 2002.

THE NATIONAL ENVIRONMENT COUNCIL – CONAMA, in accordance with the power bestowed upon the Council by art. 8, of Law 6.938 from August 31, 1981, regulated by Decree 99.274 from June 6, 1990, and in accordance with its Internal Regulations, annex to Administrative order 452 from Nov. 17, 2011 and considering the need to adapt Resolution 307 from July 5, 2002 in order to fulfill the provisions of Law 12.305 from Aug. 2, 2010, decides:

Art. 1 Articles 2, 4, 5, 6, 8, 9, 10 and 11 of Resolution 307 from July 5, 2002, issued by the National Environment Council – CONAMA and published in the Official Gazette on July 17, 2002, Section 1, pages 95 and 96, will be enforced according to the following texts:

“Art. 2º

IX – Class A material embankment for future usage: is the proper and adequate location that has been constructed through the use of soil storage techniques for class A building construction wastes, aimed at the storage of segregated materials which will allow for their future use of the area, using engineering technologies in order to store them with the smallest possible volume, without hazards to the environment and public health and duly licensed by the competent environmental organ;

X – Transshipment and screening/separation areas for civil construction wastes and voluminous wastes (ATT): is an area that will be the recipient of wastes from building construction and voluminous wastes for screening/separation, temporary storage of segregated materials and their possible transformation and posterior removal to an adequate location, while following specific operational standards and practices in order to avoid damages or risks to public health and safety, and minimize adverse environmental impacts;

XI – Solid residual management: group of direct or indirect actions undertaken during the stages of collection, transportation, transshipment, treatment, and final and environmentally adequate storage of solid wastes, and their final and environmentally adequate storage according to municipal plans for the integrated management of solid wastes or the solid residual management plan, as demanded by Law 12.305 from Aug. 2, 2010;

XII – Solid residual integrated management: group of actions aimed at finding solutions for solid wastes that take into consideration political, economic, environmental, cultural and social aspects and in harmony with the concept of sustainable development.

.....” (NR)

“Art. 4 Managers must give priority to practices that do not produce wastes and, secondarily, the decrease, re-usage, recycling and the treatment of solid wastes and their final environmentally adequate storage.

“§ 1 Building construction wastes cannot be disposed of in embankments for urban solid wastes, in “throw away” areas, slopes, water bodies, vacant allotments and other areas protected by specific legislation.

.....” (NR)

“Art. 5 The Municipal Plan for the Management of Building Construction Wastes is a tool for the implementation of building construction solid residual management and will be created by Municipalities and the Federal Government in harmony with the Municipal Plan for the Integrated Management of Solid Wastes.” (NR) “Art. 6 The Municipal Plan for the Management of Solid Wastes from Building Construction must include:

I – technical and procedure directives related to the responsibilities of small residual producers, according to the technical criteria for local urban cleaning and the Management Plans for Building Construction Wastes which will be created by the large residual producers thereby allowing for the exercising of responsibilities by all producers;”

.....

III – the creation of licensing processes for benefited areas and residual storage and for the final storage of disposed materials.”

.....” (NR)

“Art. 8 The Management Plans for Wastes from Building Construction will be created and implemented by the large producers and objectivize the establishment of necessary procedures for the management and environmentally adequate storage of wastes.

§ 1 The Management Plans for Wastes from Building Construction for activities that are not included in any legislation related to environmental licensing processes must present their enterprise plans to the competent municipal public organ for an analysis according to the guidelines provided by the Municipal Plan for the Management of Building Construction Wastes.

§ 2 The Management Plans for Wastes from Building Construction related to enterprises and activities that are subjected to environmental licensing must be analyzed during the licensing process by the competent environmental

organs.” (NR)

“Art. 9 The Management Plans for Wastes from Building Construction must include the following stages:
..... ” (NR)

“Art. 10. Building construction wastes must, after screening/separation, be stored according to the following:
I - Class A: must be re-used or recycled as aggregates or forwarded to an embankment for class A wastes and future usage;

.....

IV - class D: must be stored, transported and used according to specific technical standards.
..... ” (NR)

“Art. 11. A maximum deadline of twelve months, starting from the date of publication of this Resolution, is hereby established for the creation of Municipal Plans for the Management of Building Construction Wastes by municipalities and the Federal District and they must be implemented within six months after their publication.

Single paragraph. The Municipal Plans for the Management of Building Construction Wastes may be created with other municipalities in accordance with the provisions of art. 14 of Law 12.305 from Aug. 2, 2010.” (NR)

Art. 2 This Resolution shall enter into effect on the date of its publication.

Art. 3 Articles 7, 12 and 13 of CONAMA Resolution 307 are hereby revoked.

IZABELLA TEIXEIRA – Council President

This text does not substitute the text published in the Official Gazette on Jan. 19, 2012

SUCCESSIONAL STAGES OF HIGH-ELEVATION FIELDS

RESOLUTION 423, April 12, 2010
Published in Official Gazette 69 on April 13, 2010, pages 55-57

Establishes provisions and basic parameters for the identification and analysis of primary vegetation and the successional stages of secondary vegetation in Elevation Fields associated to or part of the Atlantic Forest.

THE NATIONAL ENVIRONMENTAL COUNCIL – CONAMA, in accordance with the power bestowed upon the Council by art. 4 of Law 11.428 from December 22, 2006 and its Internal Regulations, Annex to Administrative Order 168 from June 13, 2005 and

Considering the need to define parameters for the identification and analysis of High-Elevation Fields primary and secondary vegetation in initial, medium and advanced stages of regeneration, within the mountainous and high-mountainous Atlantic Forest environments;

Considering the biological importance and the high level of endemism's, including rare species and species threatened with extinction that grows within Elevation Fields;

Considering that the single paragraph of art. 2 of Law 11.428 from December 22, 2006, defined that only native vegetation remains exploitation and conservation will be regulated by the above mentioned Law and will not apply to areas that are already being used for agriculture, cities, pastures and planted forests or other areas deprived of native vegetation;

Considering the importance of the remains of Elevation Fields for ecological corridors and aquifer supply areas, decides:

Art. 1 The following basic parameters are hereby established for the identification and analysis of High-Elevation Fields primary and secondary vegetation in initial, medium and advanced stages of regeneration, within the mountainous and high-mountainous Atlantic Forest environments;

I – Previous use;

II – living vegetation cover;

III – species diversity and dominance;

IV – vegetal indicator species; and

V – presence of characteristic phyto-physiognomies.

§ 1 The analysis and identification of the vegetation must be preceded by the employment of joint and different parameters established by the items included in this paragraph.

§ 2 The single absence of one or more indicator species, or the occurrence of species that are not mentioned in this Resolution, does not mischaracterize the respective vegetation successional stage.

Art. 2 The delimitations and concepts established by the map that is the subject of art. 2 of Law 11.428 from Dec. 22, 2006 apply to all purposes of this Resolution as well as the following concepts:

I – Anthropogenic Field: field vegetation formed in original forest areas through human intervention and production improvement actions using foreign species, mainly through the introduction of native or exotic species that are not considered as part of the remains of Elevation Fields.

II – Primary Vegetation: dominating local vegetation with a high level of biological diversity and subjected to minimal anthropic influences which have not significantly changed its natural structural and species characteristics.

III – Secondary or Regeneration Vegetation: vegetation that is the product of natural successional processes after the total or partial suppression of primary vegetation through anthropic actions or natural causes and may include species from the remains of primary vegetation.

§ 1 It is also considered primary Elevation Field vegetation the dominating local vegetation even if it is not associated to high biological diversity due to local relief, climate, soil and adjacent vegetation characteristics.

§ 2 Elevation Fields that have been subjected to partial and recurrent cutting through pastoral processes are not considered as primary vegetation areas.

Art. 3 According to the provisions of art. 4 of Law 11.428 from 2006 the primary vegetation and the initial, medium and advanced vegetation regeneration stages of Elevation Fields are defined as:

I – initial stage:

a) remains of bucolic vegetation with incipient or absent subterranean areas;

b) open herbaceous physiognomy, with vegetation coverage index under 50% or more, measured from soil level;

c) representation of exotic or ruderal species corresponding to 50% or more of the living vegetation cover;

d) indicator species according to the Annex I of this Resolution;

II – medium stage:

a) areas subjected to anthropic actions that have not compromised the subterranean part of the vegetation or are in the process of being regenerated after subjection to anthropic actions that have removed both the aerial and subterranean parts of the vegetation;

b) herbaceous or herbaceous-shrubby physiognomy, with a living vegetation cover index superior to 50%,

measured from soil level;

- c) representation of exotic or ruderal species corresponding to 50% or less of the living vegetation cover;
- d) sporadic presence of rare and endemic species;
- e) indicator species according to the Annex I of this Resolution;

III – advanced stage:

a) areas that have been subjected to moderate anthropic actions that have not compromised the physiognomy and structure of the vegetation or which are the product of medium regeneration stage processes;

b) herbaceous or herbaceous-shrubby physiognomy, with a living vegetation cover index superior to 50%, measured from soil level;

c) occurrence of exotic or ruderal species corresponding to a maximum of 30% of the vegetation cover measured from soil level;

- d) presence of rare and endemic species;
- e) possible presence of ligneous species;
- f) indicator species according to the Annex I of this Resolution;

IV – primary vegetation:

a) local dominating vegetation exposed to minimal anthropic actions;

b) herbaceous or herbaceous-shrubby physiognomy, with a living vegetation cover index superior to 80%, measured from soil level;

c) exotic or ruderal species of less than 10% of the living vegetation coverage;

- d) presence of rare or endemic species;
- e) possible occurrence of ligneous species; and

f) indicator species according to the Annex I of this Resolution.

Art. 4 Elevation Field vegetal species threatened with extinction are included in the Official List of Brazilian Flora Species Threatened with Extinction or those included in State lists.

Art. 5 The existence of ruderal native or exotic species in areas already occupied by agriculture, cities, pastures and planted forests or areas deprived of native vegetation are not considered as part of the remains of Elevation Field vegetation, unless they fall under the provisions of art. 5 of Law 11.428 from 2006.

Art. 6 If the classification of the successional stage is considered incompatible it should be re-classified through the undertaking of scientific/professional studies and submitted to the competent environmental organ which will reach a decision, in writing, after a professional inspection of the field in accordance with the provisions set by this Resolution.

Art. 7 It is the duty of the States, through State Environment Councils, to define procedures and criteria adopted for the joint analysis of the parameters defined in art. 1 of this Resolution.

Single paragraph. States may, through State Environment Councils and after consultations with municipal environmental organs, the scientific community and civil society, approve a complementing list of indicator species for the respective State of the Federation.

Art. 8 This Resolution shall enter into effect on the date of its publication.

IZABELLA TEIXEIRA – Council President

This text does not substitute the text published in the Official Gazette on April 13, 2012.

ANNEX I

LIST OF SPECIES ASSOCIATED TO ELEVATION FIELDS BY REGION

Southern Region

Initial Regeneration Stage Indicator Species:

Anthoxanthum odoratum (fluva), *Aster squamatus*, *Baccharis trimera* (carqueja), *Coniza bonariensis* (buva), *Eleusine tristachya* (capim-pé-de-galinha), *Eustachys distichophylla**, *Holcus lanatus* (capim-lanudo), *Melinis minutiflora* (capim-gordura), *Pteridium aquilinum* var. *arachnoideum* (samambaia-das-taperas), *Rhynchelytrum repens** (capim-natal), *Senecio brasiliensis* (maria-mole, flor-das-almas), *Solanum americanum* (erva-moura), *Solanum sisymbriifolium* (joá), *Solidago chilensis* (erva-lanceta), *Taraxacum officinale* (dente-de-leão), além de outras exóticas/ruderais.

Indicator Species of Primary Vegetation and of Medium and Advanced Regeneration Stages:

Achyrocline satureioides (macela), *Acisanthera variabilis*, *Adesmia araujoii*, *Adesmia arillata*, *Adesmia ciliata*, *Adesmia paranensis*, *Adesmia psoralaeoides*, *Adesmia punctata*, *Adesmia tristis*, *Adesmia vallsii*, *Adesmia reitziana*, *Aechmea recurvata* (bromélia), *Aspicarpa pulchella*, *Axonopus siccus*, *Agrostis alba*,

Agrostis lenis (pasto-de-sanga), *Agrostis longiberbis*, *Anagallis filiformis*, *Agrostis montevidensis*, *Agrostis ramboi*, *Allagoptera campestris*, *Amphibromus quadridentulus*, *Andropogon lateralis* (capimcaninha), *Andropogon leucostachyus*, *Andropogon macrothrix*, *Andropogon virgatus**, *Angelonia integerrima*, *Apoclada simplex*, *Aspilia setosa*, *Aulonemia ulei*, *Axonopus ramboi*, *Axonopus siccus*, *Baccharis aphylla*, *Baccharis deblei*, *Baccharis dracunculifolia*, *Baccharis hypericifolia*, *Baccharis nummularia*, *Baccharis pseudovillosa*, *Baccharis ramboi*, *Baccharis tridentata*, *Baccharis uncinella*, *Blechnum imperiale* (samambaia-dos-banhados), *Blechnum regnellianum* (samambaia), *Briza brachychaete*, *Briza calotheca*, *Briza poaemorpha*, *Briza scabra* (treme-treme), *Briza uniolae*, *Bromus auleticus* (cevadilha), *Bromus brachyanthera*, *Buchnera juncea*, *Bulbostylis capillaris*, *Bulbostylis juncoides*, *Bulbostylis sphaerocephala*, *Byttneria hatschbachii*, *Calea hispida*, *Calea phyllolepis*, *Calamagrostis viridiflavescens*, *Callibrachoa rupestris*, *Callibrachoa sellowiana* (petunia), *Campomanesia aurea* var. *hatschbachii*, *Cayaponia espelina*, *Carex albolutescens*, *Carex bonariensis*, *Cereus hildmannianus*, *Chaetostoma pungens*, *Chaptalia integerrima*, *Chaptalia graminiflora*, *Chaptalia mandonii* (língua-de-vaca), *Chloraea penicilata*, *Chrysolaena oligophilla*, *Chusquea windischii* (taquarinha), *Cleistes gert-hatschbachiana*, *Cleistes paranaensi*, *Coccocypselum reitzii*, *Colanthes lanciflora*, *Colletia spinosissima* (quina), *Cortadeira vaginata*, *Croton antissiphyliticus*, *Croton heterodoxus*, *Cunila platyphylla*, *Cuphea hatschbachii*, *Cyperus consanguineus*, *Cyperus esculentus*, *Cyperus haspan*, *Cyperus intricatus*, *Cyperus luzulae*, *Cyperus meyenianus*, *Cyperus niger* (tiriricas), *Cyrtopodium dusenii*, *Danthonia montana*, *Danthonia secundiflora*, *Deschampsia caespitosa*, *Deschampsia juergensii**, *Desmodium dutras*, *Deyeuxia reitzii**, *Dicranopteris pectinata*, *Ditassa edmundoii*, *Drosera rotundifolia*, *Drosera villosa*, *Dyckia cabrae*, *Dyckia dusenii*, *Dyckia maritima* (gravatás), *Dyckia monticola*, *Dyckia reitzii*, *Eleocharis barrosii*, *Eleocharis bonariensis*, *Eleocharis kleinii*, *Eleocharis nudipes*, *Eleocharis subarticulata* (junquinhos), *Elyonurus adustus*, *Epidendrum ellipticum*, *Epidendrum secundum* (orquídeas), *Eriocaulon gomphrenoides*, *Eriocaulon ligulatum* (caraguatá-manso), *Eriochrysis holcoides*, *Eriochrysis villosa*, *Eriosema heterophyllum*, *Eriosema punctata*, *Eryngium falcifolium*, *Eryngium floribundum*, *Eryngium horridum* (caraguatá), *Eryngium ombrophilum*, *Eryngium pandanifolium*, *Eryngium ramboanum* (caraguatá), *Eryngium smithii*, *Eryngium urbanianum*, *Eryngium zosterifolium* (caraguatás/gravatás), *Esterhazyia splendida*, *Eugenia reitziana* (uvaia-docampo), *Eupatorium ascendens*, *Eupatorium gaudichaudianum*, *Eupatorium multifidum*, *Eupatorium verbenaceum*, *Gaultheria organensis*, *Gerardia linarioides* (dedaleira), *Glechon discolor*, *Gleichenia brasiliensis*, *Gochnatia argyrea*, *Gochnatia orbiculata*, *Gomphrena graminea* (perpétua), *Gomphrena macrocephala*, *Gomphrena paranaensis*, *Gomphrena schlehtendaliana* (perpétua), *Gymnopogon burchellii*, *montevidensis* (orquídea), *Haylockia pusilla*, *Hesperozygis nitida*, *Heliotropium salicoides*, *Holocheilus monocephalus*, *Hydrocotyle ranunculoides*, *Hymenachne pernambucensis*, *Hyptis apertiflora*, *Hysterionica nebularis*, *Juncus densiflorus*, *Juncus effusus*, *Juncus microcephalus*, *Kyllinga odorata*, *Lantana megapotamica*, *Lathyrus hasslerianus*, *Lathyrus hookeri*, *Lathyrus linearifolius*, *Lathyrus paraguariensis*, *Lathyrus parodii*, *Lavoisiera phyllocalysina*, *Leandra dusenii*, *Leandra erostrata*, *Lepismium lumbricoides*, *Linum smithii* (linho-bravo), *Lippia lupulina*, *Lupinus magnistipulatus*, *Lupinus paranensis*, *Lupinus rubriflorus*, *Lupinus uleanus*, *Luzula ulei*, *Lycopodiella alopecuroides*, *Lycopodiella thyoides*, *Lycopodiella carolinianum*, *Machaerina austrobrasiliensis*, *Macroptilium prostratum*, *Mecardonia caespitosa*, *Melasma rhinanthoides* (alecrim-do-brejo), *Melica arzivencoi*, *Melica macra* var. *pilosa*, *Melica spartinooides*, *Microchloa indica*, *Mimosa cruenta* (juquiri), *Mimosa daleoides*, *Mimosa dolens*, *Mimosa dryandroides* var. *extratropica*, *Mimosa gracilis*, *Mimosa hatschbachii*, *Mimosa kuhniasteroides*, *Mimosa maracayuensis*, *Mimosa paranapiacabae*, *Mimosa ramosissima*, *Mimosa strobiliflora*, *Myrceugenia oxypetala*, *Nassella brasiliensis**, *Nassella planaltina* (flechilhas), *Nassella quinqueciliata**, *Nassella rhizomata* (flechilhas), *Nassella sellowiana**, *Nassella tenuiculmis**, *Nassella vallsii* (flechilhas), *Nematanthus australis*, *Nierembergia hatschbachii*, *Oxalis rupestris*, *Oxypetalum kleinii*, *Oxypetalum malmei*, *Oxypetalum sublanatum*, *Paepalanthus bellus*, *Panicum apricum*, *Panicum magnispicula*, *Panicum parvifolium*, *Panicum rude*, *Panicum superatum*, *Panicum surrectum*, *Pamphalea araucariophila* (margaridinha-dos-pinhais), *Pamphalea maxima*, *Pamphalea ramboi* (margaridinha), *Pamphalea smithii* (margaridinha-do-campo), *Parodia alacriportana*, *Parodia graessnerii*, *Parodia haselbergii*, *Parodia linkii* (tunas), *Parodia ottonis*, *Paspalum barretoi*, *Paspalum conduplicatum*, *Paspalum cordatum*, *Paspalum dasytrichum*, *Paspalum dedecae*, *Paspalum ellipticum*, *Paspalum equitans*, *Paspalum erianthoides*, *Paspalum falcatum*, *Paspalum flaccidum*, *Paspalum filifolium*, *Paspalum glaucescens*, *Paspalum jesuiticum*, *Paspalum maculosum*, *Paspalum nummularium*, *Paspalum pectinatum*, *Paspalum pumilum*, *Paspalum ramboi*, *Paspalum redondense*, *Paspalum rhodopedum*, *Passiflora lepidota*, *Pavonia sepia*, *Peperomia galioides*, *Perezia catharinensis*, *Periandra mediterranea*, *Petunia altiplana* (petunia), *Pfaffia jubata*, *Piptochaetium alpinum*, *Piptochaetium palustre*, *Piptochaetium stipoides*, *Piriqueta seloi*, *Plantago australis*, *Plantago commersoniana*, *Plantago guilleminiana* (tanchagem), *Plantago tomentosa*, *Pleurothallis gert-hatschbachii*, *Poa bradei*, *Poa reitzii* (capim-do-banhado), *Polygala altomontana*, *Polygala selaginoides*, *Polygala linoides*, *Polygonum meisnerianum*, *Polytrichum brasiliense*, *Polytrichum commune*, *Portulaca hatschbachii*, *Pradosia brevipes*, *Quesnelia imbricata*, *Rhynchospora brasiliensis*, *Rhynchospora legrandii*, *Rhynchospora polyantha* (capim-navalha), *Roldana jurgenseni*

*Saccharum villosum** (macega-estaladeira), *Sacciolepis vilvoidea*, *Salvia congestiflora*, *Schizachyrium spicatum*, *Schizachyrium tenerum*, *Schoenus lyman-smithii*, *Scleria distans*, *Scleria hirtella* (capim-estrela), *Selaginella microphylla*, *Senecio bonariensis*, *Senecio icoglossus*, *Senecio promatensis*, *Senecio pulcher*, *Senecio ramboanus*, *Sinningia allagophylla*, *Sinningia canescens*, *Sisyrinchium macrocephalum*, *Sisyrinchium palmifolium*, *Sisyrinchium vaginatum*, *Smallanthus araucariophila*, *Sorghastrum setosum*, *Sphagnum perichaetiale*, *Sphagnum recurvum* (musgos), *Sporobolus camporum*, *Stemodia hyptoides*, *Stevia clausenii*, *Stevia leptophylla*, *Syagrus hatschbachii*, *Syngonanthus caulescens*, *Syngonanthus chrysanthus* var. *castrensis*, *Tephrosia adunca*, *Thrasypopsis juergensii*, *Thrasypopsis repanda*, *Tillandsia gardneri*, *Tillandsia lorentziana*, *Tillandsia montana* (cravodo-mato), *Tillandsia streptocarpa*, *Tillandsia stricta*, *Tillandsia tenuifolia*, *Trachypogon canescens*, *Trembleya parviflora*, *Trichocline catharinensis* (cravo-do-campo), *Trichocline macrocephala* (cravodo-campo), *Trifolium riograndense*, *Utricularia oligosperma* (boca-de-leão), *Verbena hatschbachii*, *Verbena strigosa*, *Vernonia cataractarum*, *Vernonia cognata*, *Vernonia crassa*, *Vernonia grandiflora*, *Vernonia polyanthes*, *Viola cerasifolia*, *Vriesea platynema* (bromélia), *Wahlenbergia linearoides*, *Xyris capensis*, *Xyris jupicai*, *Xyris lucida* (botão-de-ouro), *Xyris neglecta*, *Xyris reitzii*, *Xyris rigida*.

Endemic or Rare Species: *Adesmia arillata*, *Adesmia reitziana* (babosa), *Adesmia vallsii*, *Agrostis longiberbis*, *Agrostis ramboi*, *Aulonemia ulei*, *Axonopus ramboi*, *Baccharis nummularia*, *Briza brachychaete*, *Briza brasiliensis*, *Briza scabra* (treme-treme), *Chaptalia Briza itatiaiae*, *Briza juergensii*, *Briza neesii*, *Briza uniola*, *Bromus brachyanthera*, *Bryum renauldii*, *Buddleja brasiliensis*, *Bulbostylis capillaris*, *Bulbostylis hirtella*, *Bulbostylis scabra*, *Burmannia bicolor*, *Byrsonima variabilis*, *Calamagrostis longearistata*, *Calamagrostis viridiflavescens*, *Calolisianthus pendulus*, *Calolisianthus pedunculatus*, *Calydorea campestris*, *Cambessedesia espora*, *Campuloclinum megacephalum*, *Campylopus densicoma*, *Campylopus jamesonii*, *Campylopus pilifer*, *Carex fuscua*, *Cerastium glomeratum*, *Chaptalia integerrima*, *Chaptalia runcinata*, *Chevreulia stolonifera*, *Bulbostylis scabra*, *Chionolaena capitata*, *Chionolaena isabellae*, *Chaetostoma glaziovii*, *Chusquea attenuata*, *Chusquea capitata*, *Chusquea heterophylla*, *Chusquea microphylla*, *Chusquea pinifolia*, *Cladium ensifolium*, *Cleistes gracilis*, *Clethra scabra*, *Coccocypselum capitatum*, *Coccocypselum condalia*, *Coccocypselum lyman-smithii*, *Cortaderia modesta*, *Cranichis candida*, *Critoniopsis quinqueflora*, *Crotalaria breviflora*, *Crotalaria miottae*, *Croton dichrous*, *Croton migrans*, *Croton palidus*, *Cunila galioides*, *Cuphea glutinosa*, *Cyperus hermaphroditus*, *Cyperus niger*, *Danthonia cirrata*, *Danthonia montana*, *Declieuxia cordigera*, *Deianira nervosa*, *Desmodium discolor*, *Dichantheium sabulorum*, *Dioscorea demourae*, *Dioscorea perdicum*, *Diplusodon orbicularis*, *Ditrichum itatiaiae*, *Doryopteris collina*, *Doryopteris crenulans*, *Doryopteris lomariaceae*, *Doryopteris itatiaensis*, *Doryopteris paradoxa**, *Ditassa gracilis*, *Ditassa leonii*, *Drosera communis*, *Drosera montana*, *Drosera villosa*, *Dyckia bracteata*, *Dyckia tuberosa*, *Elaphoglossum gayanum*, *Elaphoglossum viscidum*, *Elaphoglossum liaisianum*, *Emmeorhiza umbellata*, *Epidendrum dendroboides*, *Epidendrum secundum*, *Epidendrum xanthinum*, *Eragrostis articulata*, *Erechthites valerianaefolia*, *Eremanthus erythropappus*, *Erigeron maximus*, *Eriocaulon elichrysoideus*, *Eriosorus chaeilanthoides*, *Eriosorus insignis*, *Eryngium eurycephalum*, *Esterhazyia eitenorum*, *Esterhazyia macrodonta*, *Esterhazyia splendida*, *Eriosema heterophyllum*, *Eryngium pandanifolium*, *Erythroxyllum microphyllum*, *Escallonia bifida*, *Escallonia farinacea*, *Escallonia laevis*, *Esterhazyia macrodonta*, *Esterhazyia splendida*, *Eugenia kleinii*, *Eupatorium alpestre*, *Eupatorium intermedium*, *Fernseea itatiaiae*, *Festuca ampliflora*, *Festuca ulochaeta*, *Frullania dilatata*, *Fuchsia campos-portoi*, *Galianthe angustifolia*, *Galianthe brasiliensis*, *Galium hypocarpium*, *Galium sellowianum*, *Galium shepherdii*, *Gamochoeta pennsylvanica*, *Gaultheria serrata*, *Gaultheria itatiaiae*, *Gaylussacia amoena*, *Gaylussacia chamissonis*, *Gaylussacia jordanensis*, *Gaylussacia montana*, *Gaylussacia serrata*, *Genlisea aurea*, *Genlisea violaceae*, *Glandularia phlogiflora*, *Gochnatia paniculata*, *Gomidesia sellowiana*, *Goniantela hilariana*, *Grazielia alpestris*, *Grazielia gaudichaudiana*, *Grazielia intermedia*, *Habenaria fluminensis*, *Habenaria bradeana*, *Habenaria* aff. *hydrophila*, *Habenaria janeirensis*, *Habenaria macronectar*, *Habenaria parviflora*, *Habenaria rolfeana*, *Hedwigium integrifolium*, *Helia oblongifolia*, *Herbertus oblongifolius*, *Herbertia lahue* subsp. *Coerulea*, *Hesperozygis myrtoidea*, *Heterocondylus pumilus*, *Heteropterys brasiliensis*, *Hindsia glabra*, *Hippeastrum aulicum*, *Hippeastrum glaucescens*, *Hippeastrum morelianum*, *Hippeastrum psittacinum*, *Hockinia montana*, *Huberia semisserrata*, *Huperzia badiniana*, *Huperzia christii*, *Huperzia erythrocaulon*, *Huperzia nuda*, *Huperzia pungentifolia*, *Hybanthus parviflorus*, *Hymenachne pernambucensis*, *Hypericum brasiliense*, *Hypericum ternum*, *Hyptis lippoides*, *Hyptis plectranthoides*, *Hyptis propinqua*, *Hyptis umbrosa*, *Itatiella ulei*, *Ilex amara*, *Ilex pseudobuxus*, *Isoetes martii*, *Jamesonia brasiliensis*, *Juncus densiflorus*, *Juncus microcephalus*, *Koanophyllon thysanolepis*, *Kurzia flagellifera*, *Lagenocarpus comatus*, *Lagenocarpus polyphyllus*, *Lagenocarpus rigidus*, *Lagenocarpus triquetrus*, *Lavoisiera cordata*, *Lavoisiera imbricata*, *Leandra aurea*, *Leandra cordigera*, *Leandra erostrata*, *Leandra ribesiaeflora*, *Leandra sulfurea*, *Leiothrix argyroderma*, *Leiothrix beckii*, *Lellingeria tamandarei*, *Lepechinia speciosa*, *Lobelia camporum*, *Lophocolea mandonii*, *Lophocolea perissodonta*, *Lophocolea trapezoides*, *Luzula ulei*, *Leiothrix flavescens*, *Lepechinia speciosa*, *Lippia triplinervis*, *Lobelia exaltata*, *Lobelia* cf. *urancoma*, *Lucilia lycopodioides*, *Lupinus paranensis*, *Lupinus velutinus*, *Lycopodiella alopecuroidea*, *Lycopodiella camporum*, *Lycopodiella caroliniana*, *Lycopodium clavatum*, *Lycopodium thyoides*, *Machaerina ensifolia*, *Machaerina ficticia*, *Macromitrium*

altituberosum, *Mandevilla atrovioleacea*, *Mandevilla erecta*, *Mandevilla pendula*, *Malanea forsteronioides*, *Marcetia taxifolia*, *Maytenus dasyclados*, *Melpomene flabeliformis*, *Merostachys multiramea*, *Merostachys speciosa*, *Miconia lymanii*, *Miconia theaezans*, *Microlicia isophylla*, *Mikania lindbergii*, *Mikania oreophila*, *Myrceugenia alpigena*, *Myrceugenia bracteosa*, *Myrceugenia ovata*, *Myrcia breviramis*, *Myrcia dichrophylla*, *Myrcia guianensis*, *Myrcia montana*, *Myrcia obcordata*, *Myrcia tomentosa*, *Myrsine gardneriana*, *Nanuza plicata*, *Neomarica caerulea*, *Neomarica rigida*, *Oligotrichum riedelianum*, *Oncidium barbaciae*, *Oncidium blanchetii*, *Oncidium flexuosum*, *Oncidium paranapiacabense*, *Ouratea semisserrata*, *Oxalis rupestris*, *Oxypetalum appendiculatum*, *Oxypetalum insigne*, *Oxypetalum pachyglossum*, *Paepalanthus itatiaiensis*, *Paepalanthus manicatus*, *Paepalanthus macropodus*, *Paepalanthus multicostatus*, *Paepalanthus paulensis*, *Paepalanthus planifolius*, *Paepalanthus pseudotortilis*, *Paepalanthus polyanthus*, *Paepalanthus ruhlandi*, *Paepalanthus usteri*, *Panicum cyanescens*, *Panicum hebotes*, *Panicum parvifolium*, *Panicum superatum*, *Panicum surrectum*, *Paronychia chilensis*, *Paspalum lineare*, *Paspalum polyphyllum*, *Passiflora deidamioides*, *Passiflora marginata*, *Pelexia itatiayae*, *Peperomia galioides*, *Pitcairnia cf. carinata*, *Pitcairnia decidua*, *Pitcairnia flammea*, *Plagiochila adiantoides*, *Plagiochila exigua*, *Plagiochila flaccida*, *Plagiochila macrostachya*, *Plagiochila patula*, *Pleurostima gounelleana*, *Pleurothallis prolifera*, *Pleurothallis teres*, *Pelexia oestriifera*, *Peltodon radicans*, *Petunia mantiqueirensis*, *Piptochaetium montevidense*, *Plantago guilleminiana*, *Plantago tomentosa*, *Poly gala brasiliensis*, *Poly gala campestris*, *Polygala cneorum*, *Polygala pulchella*, *Polygala stricta*, *Polypodium catharinae*, *Polypodium hirsutissimum*, *Polypodium pleopeltidis*, *Pogonatum brasiliense*, *Pogonatum camp ylocarpum*, *Pogonatum pensilvanicum*, *Pogonatum tortile*, *Polypogon elongatus*, *Polytrichadelphus pseudopolytrichum*, *Polytrichum angustifolium*, *Polytrichum brasiliense*, *Polytrichum commune*, *Polytrichum juniperinum*, *Praxelis capillaris*, *Praxelis decumbens*, *Prepusa conata*, *Prescottia montana*, *Prescottia stachyodes*, *Prunella vulgaris*, *Pseudechinolaena polystachya*, *Psidium cattleyanum*, *Psidium spathulatum*, *Pycneus lanceolatus*, *Relbunium indecorum*, *Relbunium hypocarpium*, *Rhabdocaulon coccineus*, *Rhynchospora berterii*, *Rhynchospora emaciata*, *Rhynchospora cf. pallae*, *Rhynchospora splendens*, *Richterago radiata*, *Saccharum asperum*, *Saccharum villosum*, *Salvia arenaria*, *Salvia itatiaiensis*, *Schizachyrium tenerum*, *Schlumbergera microsphaerica*, *Schultesia gracilis*, *Selaginella tenuissima*, *Senecio erisithalifolius*, *Senecio icoglossus*, *Senecio argyrotichus*, *Senecio oleosus*, *Senecio oreophilus*, *Senecio pellucidinervis*, *Setaria scabrifolia*, *Sinningia allagophylla*, *Sinningia elatior*, *Sinningia gigantifolia*, *Sinningia magnifica*, *Sinningia pusilla*, *Siphocampylus longepedunculatus*, *Siphocampylus macropodus*, *Siphocampylus westinianus*, *Siphoneugenia reitzii*, *Sisyrinchium vaginatum*, *Sisyrinchium commutatum*, *Sisyrinchium micranthum*, *Sisyrinchium palm ifolium*, *Smilax campestris*, *Smilax elastica*, *Solanum itatiaiae*, *Solanum swartzianum*, *Sphagnum brevifolium*, *Sphagnum capillifolium*, *Sphagnum cuspidatum*, *Sphagnum exquisitum*, *Sphagnum globicephalum*, *Sphagnum gracilescens*, *Sphagnum longistolo*, *Sphagnum lindbergii*, *Sphagnum meridense*, *Sphagnum magellanicum*, *Sphagnum minutulum*, *Sphagnum oxyphyllum*, *Sphagnum palustre*, *Sphagnum papillosum*, *Sphagnum perforatum*, *Sphagnum perichaetiale*, *Sphagnum pseudoramulinum*, *Sphagnum recurvum*, *Sphagnum roseum*, *Sphagnum rotundatum*, *Sphagnum rotundifolium*, *Sphagnum sparsum*, *Sphagnum subovalifolium*, *Sphagnum subrufescens*, *Sphagnum subsecundum*, *Sphenostigma sellowiana*, *Spermacoce poaya*, *Sporobolus adustus*, *Sporobolus camporum*, *Sporobolus pseudodairoides*, *Sporobolus virginicus*, *Steinchisma decipiens*, *Stenocline chionae*, *Stevia camporum*, *Stevia clausenii*, *Stevia menthaefolia*, *Stevia myriadenia*, *Symphopappus itatiayensis*, *Symplocos itatiaiae*, *Styrax martii*, *Symplocos corymblocados*, *Symplocos falcata*, *Symplocos itatiaiae*, *Symplocos platiphylla*, *Syngonanthus caulescens*, *Syrrophodon helicophyllus*, *Tassadia subulata*, *Ternstroemia brasiliensis*, *Ternstroemia cuneifolia*, *Tibouchina frigidula*, *Tibouchina hospita*, *Tibouchina itatiaiae*, *Tibouchina cf. manicata*, *Tibouchina mosenii*, *Tibouchina martialis*, *Tibouchina minor*, *Tibouchina sellowiana*, *Tillandsia grazielae*, *Tillandsia reclinata*, *Trachypogon vestitus*, *Trembleya parviflora*, *Trembleya phlogiformis*, *Trichipteris atrovirens*, *Trilepis lhotzkiana*, *Trimezia spathata*, *Utricularia globulariaefolia*, *Utricularia hispida*, *Utricularia praelonga*, *Utricularia reniformes*, *Utricularia subulata*, *Utricularia tricolor*, *Valeriana glaziovii*, *Valeriana organensis*, *Vanhouttea leonii*, *Vellozia candida*, *Vellozia variegata*, *Verbena hirta*, *Verbena lobata*, *Verbesina glabrata*, *Vernonia decumbens*, *Vernonia discolor*, *Vernonia herbacea*, *Vernonia nitidula*, *Vernonia tragiaefolia*, *Viola uleana*, *Viola cerasifolia*, *Viviania rubriflora*, *Vriesea altodaserrae*, *Vriesea itatiaiae*, *Wahlenbergia brasiliensis*, *Weinmannia humilis*, *Weinmannia organensis*, *Weinmannia paulliniifolia*, *Worsleya rayneri*, *Xyris asperula*, *Xyris augusto-coburgii*, *Xyris filifolia*, *Xyris fusca*, *Xyris hymenachne*, *Xyris rigida*, *Xyris teres*, *Xyris tortilla*, *Xyris vacillans*, *Xyris waurae*, *Zygopetalum brachypetalum*, *Zygopetalum mackaii*, *Zygopetalum pedicellatum*, *Zygopetalum triste*, *Zygostigma australe*.

Endemic or Rare Species: *Alstroemeria foliosa*, *Baccharis glaziovii*, *Begonia lanstiaikii*, *Benevidesia organensis*, *Briza itatiaiae*, *Chaetostoma glaziovii*, *Chusquea heterophylla*, *Chusquea microphylla*, *Cladium ensifolium*, *Cortaderia modesta*, *Ditassa leonii*, *Doryopteris itatiaiensis*, *Doryopteris paradoxa*, *Elaphoglossum liaisianum*, *Eriosorus chaeilanthoides*, *Eriosorus insignis*, *Eryngium eurycephalum*, *Esterhazyia eitenorum*, *Fernseea itatiaiae*, *Fuchsia campos-portoi*, *Gaylussacia amoena*, *Habenaria parviflora*, *Habenaria rolfeana*, *Hindsia glabra*, *Hippeastrum morelianum*, *Huperzia badiniana*, *Huperzia erythrocaulon*, *Huperzia nuda*, *Jamensonia brasiliensis*, *Leandra sulfurea*, *Leiothrix argyroderma*, *Leiothrix*

beckii, *Lepechinea speciosa*, *Lellingeria tamandarei*, *Mandevilla pendula*, *Paepalanthus itatiaiensis*, *Pelexia itatiayae*, *Pleurostima gounelleana*, *Prepusa conata*, *Prescottia montana*, *Salvia itatiaensis*, *Schlumbergera microsphaerica*, *Senecio argyrotichus*, *Sinningia gigantifolia*, *Siphocampylus westinianus*, *Sphenostigma sellowiana*, *Stevia camporum*, *Tillandsia grazzielae*, *Tillandsia reclinata*, *Utricularia globulariaefolia*, *Viola uleana*, *Vriesea itatiaiae*, *Worsleya rayneri*, *Xyris fusca*, *Xyris wawrae*.

Northeastern Region

Initial Regeneration Stage Indicator Species:

Acianthera ochreatea, *Acritopappus confertus*, *Banisteriopsis malifolia*, *Begonia grisea*, *Borreria verticilata*, *Camptosema coriaceum*, *Coniza bonariensis* (buva), *Coniza sumatrensis*, *Eleusine tristachya* (capim-pé-degalinha), *Gomphrena rupestris*, *Holcus lanatus* (capimlanudo), *Hyptis suaveolens*, *Melinis minutiflora* (capim-gordura), *Melinis repens* (capimnatal), *Porophyllum ruderales*, *Pteridium aquilinum* var. *arachnoideum* (samambaia-dastaperas), *Senecio brasiliensis* (maria-mole, flor-das-almas), *Solanum americanum* (ervamoura), *Solanum sisymbriifolium* (joá), *Taraxacum officinale* (dente-de-leão), *Waltheria cinerescens*, além de outras exóticas/ruderais.

Indicator Species of Primary Vegetation and of Medium and Advanced Regeneration Stages:

Abildgaardia scirpoides, *Achyrocline satureioides* (macela), *Acianthera hamosa*, *Acianthera leurothalis*, *Acianthera ochreatea*, *Acritopappus catolesensis*, *Acritopappus hagei*, *Aechmea recurvata* (bromélia), *Agarista coriifolia*, *Allamanda blanchetii*, *Anagallis filiformis*, *Andropogon lateralis*, *Andropogon macrothrix*, *Andropogon microstachyus*, *Anthurium affine*, *Anthurium petrophyllum*, *Arrojadoa bahiensis*, *Axonopus aureus*, *Axonopus barretoii*, *Axonopus compressus*, *Axonopus siccus*, *Baccharis nummularia*, *Baccharis pseudovillosa*, *Baccharis tridentata*, *Baccharis* cf. *salzmannii*, *Baccharis uncinella*, *Bahianthus viscosus*, *Barbacenia blanchetti*, *Barbacenia contasana*, *Bazzania stolonifera*, *Bazzania nitida*, *Begonia grisea*, *Bifrenaria magnicalcarata*, *Borreria capitata*, *Blechnum imperiale* (samambaia-dosbanhados), *Blechnum regnellianum* (samambaia), *Blechnum schomburgkii*, *Bryohumbertia filifolia*, *Bryum argenteum*, *Bryum coronatum*, *Bryum paradoxum*, *Bulbostylis capillaris*, *Bulbostylis* aff. *jacobinae*, *Bulbostylis juncooides*, *Bulbostylis scabra*, *Bulbostylis sphaerocephala*, *Calea phyllolepis*, *Calliandra asplenoides*, *Calliandra* cf. *viscidula*, *Campylopus arctocarpus*, *Campylopus dichrostis*, *Campylopus introflexus*, *Campylopus julaceus*, *Campylopus pilifer*, *Campylopus savannarum*, *Campylopus surinamensis*, *Catolesia mentiens*, *Cattleya elongata*, *Cereus hildmannianus*, *Chamaecrista anamariae*, *Chamaecrista chapadae*, *Chamaecrista cytisoides*, *Chamaecrista depauperata*, *Chamaecrista diphylla*, *Chamaecrista multinervia*, *Chusquea pinifolia*, *Clusia melchiorii*, *Clusia nemorosa*, *Clusia obdeltifolia*, *Cnidioscolus urens*, *Cochlidium punctatum*, *Colobodontium vulpinum*, *Connarus cymosus*, *Cottendorfia florida*, *Crotalaria vitellina*, *Croton timandroides*, *Cuphea ericoides*, *Curtia verticilaris*, *Cyrtopodium aliciae*, *Cyrtopodium edmundoi*, *Cyrtopodium polyphyllum*, *Cyperus consanguineus*, *Cyperus meyenianus* (tiriricas), *Dalechampia ficifolia*, *Danthonia secundiflora*, *Declieuxia aspalathoides*, *Deschampsia caespitosa*, *Diodia apiculata*, *Dioscorea campestris*, *Dioscorea rumicoides*, *Dioscorea sincorensis*, *Doryopteris ornithopus*, *Dyckia dissitiflora* (gravatás), *Encholirium spectabile*, *Encyclia alboxanthina*, *Encyclia dichroma*, *Eleocharis bonariensis*, *Eleocharis subarticulata* (junquinhos), *Epidendrum cinnabarinum*, *Epidendrum orchidiflorum*, *Epidendrum saxatile*, *Epidendrum secundum*, *Epidendrum warasii* (orquídeas), *Eriocaulon ligulatum* (caraguatá-manso), *Eriochrysis holcooides*, *Eriope exaltata*, *Esterhazyia splendida*, *Eupatorium ballotaefolium*, *Euphorbia assa*, *Evolvulus jacobinus*, *Euphorbia gymnoclada*, *Frullania beyrichiana*, *Frullania griffithsiana*, *Gaylussacia brasiliensis*, *Gaylussacia harleyi*, *Gaylussacia incana*, *Glechon discolor*, *Habenaria entomantha*, *Habenaria graciliscapa*, *Habenaria hamata*, *Habenaria montevidensis*, *Habenaria pseudohamata* (orquídea), *Haylockia pusilla*, *Herbertus divergens*, *Heliconia psittacorum*, *Hesperozygis nitida*, *Hillia parasitica*, *Hippeastrum psitacinum*, *Hippeastrum puniceum*, *Hippeastrum solandriflorum*, *Holomitrium arboreum*, *Huperzia mooreana*, *Hymenophyllum polyanthus*, *Hyptis hagei*, *Hyptis halimifolia* var. *halimifolia*, *Hyptis nubicola*, *Hydrocotyle ranunculoides*, *Hymenachne pernambucensis*, *Ichnanthus inconstans*, *Ilex amara*, *Jacaranda irwinii*, *Kurzia brasiliensis*, *Lagenocarpus rigidus*, *Lantana megapotamica*, *Lasiolaena Duartei*, *Leiothrix angustifolia*, *Leiothrix distichoclada*, *Leiothrix schlechtendalii*, *Lejeunea cavifolia*, *Lejeunea flava*, *Leucobryum albidum*, *Leucobryum crispum*, *Leucobryum giganteum*, *Leucobryum martianum*, *Leucobryum sordidum*, *Lippia alnifolia*, *Lophocolea bidentula*, *Lundia cordata*, *Lychnophora triflora*, *Lycopodium alopecuroides*, *Lycopodium thyoides*, *Macroptilium prostratum*, *Macromitrium punctatum*, *Mandevilla bahiensis*, *Mandevilla moricandiana*, *Mandevilla scabra*, *Mandevilla tenuifolia*, *Manettia cordifolia*, *Marcetia vellutina*, *Marsdenia loniceroides*, *Melocactus oreas* var. *cremnophilus*, *Metastelma harleyi*, *Metastelma myrtifolium*, *Micranthocereus purpureus*, *Microchloa indica*, *Mikania glandulosissima*, *Micropterygium reimersianum*, *Micropterygium trachyphyllum*, *Myrcia myrtifolia*, *Nematanthus australis*, *Neoregelia bahiana*, *Neurolejeunea breutelii*, *Octoblepharum albidum*, *Octoblepharum cocuiense*, *Octomeria alexandrii*, *Olyra latifolia*, *Oncidium blanchetii*, *Oncidium ramosum*, *Orthophytum albopictum*, *Orthophytum amoenum*, *Orthophytum burle-marxii*, *Orthophytum disjunctum*, *Oxalis rupestris*, *Oxyptalum kleinii*, *Paepalanthus pulchellus*, *Paliavana tenuiflora*, *Panicum animarum*, *Panicum belmontae*, *Panicum cumbucana*, *Panicum cyanescens*, *Panicum trinii*, *Panicum parvifolium*, *Paralychnophora bicolor*, *Paralychnophora patriciana*, *Paspalum maculosum*, *Paspalum minarum*, *Paspalum*

polyphyllum, *Paspalum pumilum*, *Pelexia viridis*, *Peperomia blanda*, *Peperomia circinnata* var. *circinnata*, *Peperomia galioides*, *Peperomia sincorana*, *Peschiera affinis*, *Piptochaetium stipoides*, *Philodendron pachyphyllum*, *Phyllanthus klotzschianus*, *Pierrebraunia bahiensis*, *Pilosocereus glaucochrous*, *Pilosocereus pachycladus*, *Piriqueta abairana*, *Piriqueta sarae*, *Plagiochila hypnoides*, *Pleopeltis macrocarpa*, *Polygala glochidiata*, *Polygala guedesiana*, *Polygala tuberculata*, *Polygala sincorensis*, *Polypodium catharinae*, *Polypodium latipes*, *Polypodium triseriale*, *Polytrichum juniperinum*, *Portulaca werdermannii*, *Polytrichum brasiliense*, *Prescotia plantaginea*, *Prescotia pleioides*, *Pseudechinolaena polystachya*, *Pyrrhobryum spiniforme*, *Roldanajurgensenii*, *Rhynchospora ridleyi*, *Rumohra adiantiformis*, *Sacoila lanceolata*, *Schizachyrium sanguineum*, *Schizachyrium spicatum*, *Schizachyrium tenerum*, *Schlotheimia rugifolia*, *Schultesia pachyphylla*, *Selaginella marginata*, *Selaginella microphylla*, *Senecio bonariensis*, *Senecio icoglossus*, *Senecio pulcher*, *Sinningia allagophylla*, *Sinningia elatior*, *Sinningia nordestina*, *Skeptrostachys congestiflora*, *Smilax elastica*, *Sophronitis bahiensis*, *Sophronitis sincorana*, *Sorgha strum setosum*, *Sphagnum capillifolium*, *Sphagnum harleyi*, *Sphagnum longistolo*, *Sphagnum magellanicum*, *Sphagnum papillosum*, *Sphagnum recurvum*, *Spigelia cremnophila*, *Sporobolus camporum*, *Sporobolus virginicus*, *Squamidium brasiliensis*, *Stachytarpheta crassifolia*, *Stachytarpheta froesii*, *Staelia virgata*, *Stephanocereus luetzelburgii*, *Stillingia saxatilis*, *Stilpnopappus semirianus*, *Stylotrichum rotundifolium*, *Syngonanthus curralensis*, *Syngonanthus mucugensis*, *Syrrhopodon prolifer* (musgos), *Tephrosia adunca*, *Tibouchina oreophila*, *Tibouchina pereirae*, *Tillandsia gardneri*, *Tillandsia sprengeliana*, *Tillandsia tenuifolia*, *Trachypogon macroglossus*, *Trachypogon spicatus*, *Trilepis lhotzkiana*, *Tripogon spicatus*, *Trixis pruskii*, *Utricularia oligosperma* (boca-de-leão), *Vellozia dasypus*, *Vellozia furcata*, *Vellozia hemisphaerica*, *Vellozia jolyi*, *Vellozia punctulata*, *Vellozia sincorana*, *Verbesina baccharifolia*, *Vernonia cotoneaster*, *Vernonia ganevii*, *Vernonia scorpioides*, *Vigna peduncularis*, *Vriesea atra*, *Vriesea platynema* (bromélias), *Veyretia sincorensis*, *Wulffia stenoglossa*, *Xyris jupicai* (botão-de-ouro), *Xyris mello-barretoii*, *Xyris* cf. *obcordata*, *Zornia flemmingioides*, *Zygopetalum mackayi*, *Zygopetalum selowii*.

Endemic or Rare Species: *Acritopappus catolesensis*, *Barbacenia blanchetii*, *Barbacenia contasana*, *Catolesia mentiens*, *Cattleya elongata*, *Chamaecrista anamariae*, *Chamaecrista depauperata*, *Clusia obdeltifolia*, *Cottendorfia florida*, *Encyclia alboxanthina*, *Gaylussacia harleyi*, *Hippeastrum solandriiflorum*, *Hyptis halimifolia* var. *halimifolia*, *Hyptis nubicola*, *Leiothrix angustifolia*, *Leiothrix distichoclada*, *Melocactus oreas* var. *cremnophilus*, *Micranthocereus purpureus*, *Orthophytum burle-marxii*, *Paralychnophora patriciana*, *Pierrebraunia bahiensis*, *Pilosocereus glaucochrous*, *Piriqueta abairana*, *Piriqueta sarae*, *Portulaca werdermannii*, *Sophronitis sincorana*, *Syngonanthus curralensis*, *Syngonanthus mucugensis*, *Stephanocereus luetzelburgii*, *Trachypogon macroglossus*, *Trixis pruskii*, *Vellozia hemisphaerica*, *Vellozia punctulata*, *Vernonia ganevii*.

Actualized Nomenclature:

Species marked with * are actualized synonyms and the names that they have been given in previous literature are listed below.

Andropogon virgatus as *Hypogynium virgatum*; *Chrysolaena oligophylla* as *Vernonia hypochlora*; *Deschampsia juergensii* as *Trisetum juergensii*; *Deyeuxia reitzii* as *Calamagrostis reitzii*; *Doryopteris paradoxa* as *Doryopteris feei*; *Eustachys distichophylla* as *Chloris distichophylla*; *Nassella brasiliensis* as *Stipa brasiliensis*; *Nassella planaltina* as *Stipa planaltina*; *Nassella quinqueciliata* as *Stipa nutans* var. *quinqueciliata*; *Nassella rhizomata* as *Stipa rhizomata*; *Nassella sellowiana* as *Stipa sellowiana*; *Nassella tenuiculmis* as *Stipa tenuiculmis*; *Nassella vallsii* as *Stipa vallsii*; *Rhynchelytrum repens* as *Melinis repens*; *Roldana urgensenii* as *Senecio jurgensenii*; *Saccharum villosum* as *Erianthus trinii*.

MANAGEMENT OF FAUNA AND FLORA SPECIES

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FAUNA

CONAMA RESOLUTION 17, December 7, 1989
Published in the Official Gazette on Jan. 24, 1990, Section 1, page 1742

Establishes provisions for the destination of non-edible products and sub-products from animals seized by IBAMA.

THE NATIONAL ENVIRONMENT COUNCIL – CONAMA, in accordance with the power bestowed upon the council by item I of § 2, of art. 8 of its Internal Regulations, and

Considering that commercial activities in relation to this matter may jeopardize the livelihood of existing animal farmers;

Considering the non-existence of a whole system for the study, monitoring, management, educational and inspection system – to further public awareness;

Considering that it is not possible to assess potential of fauna stocks through studies on the dynamics and the monitoring of the respective environments and species, decides:

Art. 1 To order the incineration of Wild Fauna non-edible products and byproducts, apprehended and stored up to the present date by the Brazilian Institute of Environment and Renewable Natural Resources – IBAMA.

Art. 2 To order IBAMA to incinerate such products and byproducts within 30 (thirty) days after the date of apprehension according to legal procedures.

Art. 3° This Resolution shall enter into effect on the date of its publication.

JOÃO ALVES FILHO – Council President

FERNANDO CÉSAR DE MOREIRA MESQUITA – Executive Secretary

This text does not substitute the text published in the Official Gazette on Jan. 24, 1990.

CONAMA RESOLUTION 346, August 16, 2004
Published in Official Gazette 158 on August 17, 2004, Section 1, page 70

Regulates the use of wild native bees as well as the introduction of beehives.

THE NATIONAL ENVIRONMENT COUNCIL – CONAMA, in accordance with the power bestowed upon the Council by Law 6.938 from August 31, 1981, regulated by Decree 99.274 from June 6, 1990, and in accordance with its Internal Regulations,

Considering that native wild bees, in any phase of development, that live freely outside of the beehive, are part of the Brazilian wild fauna;

Considering that bees and their nests, shelters and natural beehives are a common good and a public property according to the provisions of art. 225 of the Federal Constitution;

Considering the value of meliponiculture for the local and regional economies and the importance of the pollination carried out by wild bees for the stability of ecosystems and the sustainability of agricultural practices; and

Considering that Brazil, as a signatory of the Convention on Biological Diversity (CBD) which proposed the “International Initiative for the Conservation and Sustainable Exploitation of Pollinators”, approved by Decision V/5 of the CBD Conference of Parties during 2000 and the Action Plan approved by DECISION v/15 of the Conference of the Parties during 2003, decides:

CHAPTER I
General Provisions

Art. 1 This Resolution establishes regulations for the protection and exploitation of wild native bees and for meliponiculture practices.

Art. 2 The following definitions are applicable to all purposes of this Resolution:

I –exploitation: the breeding of native wild bees, and the extraction of honey or any byproducts, for commercial purposes, scientific research, leisure activities and for home and family consumption, aimed at the conservation of the species and plant pollination;

II – meliponiculture: locations used for the rational breeding of native wild bees, composed of a group of colonies located in beehives specially designed for the management and maintenance of the species.

Art. 3 The exploitation and commerce of bees and meliponiculture products is allowed but conditioned to the authorization of the competent environmental organ, as well as the capture of colonies and specimen for meliponiculture purposes through the use of bait-hives.

Art. 4 The commercialization of colonies or parts of colonies is allowed as long as they are the product of artificial breeding and capture methods through the use of bait-hives.

CHAPTER II

Licenses

Art. 5 The sale, marketing, acquisition, guarding, captivity or storage, exportation and use of wild bees and their products, as well as the commerce of honeycombs or of adult bee species is allowed if they originate from breeding activities licensed by competent environmental organs.

§ 1 The licenses mentioned in the heading of this article will only be valid after the registration of the breeder in IBAMA’s Federal Professional Registry (CTF) and after the granting of a license for operations related to the breeding of wild native bees.

§ 2 Meliponiculture practices with less than fifty beehives and aimed at the production of artisanal products from natural local native bees within the producers geographical region is exempted from licenses

§ 3 The collection of natural colonies for the establishment or development of meliponiculture activities is allowed if it uses bait-hives or other non-destructive methods and conditioned to a license granted by the competent environmental organ.

Art. 6 The transportation of native wild bees between States is conditioned a license issued by IBAMA, without any prejudice to other possible public demands⁵², it is however forbidden to breed native bees outside of their natural geographical region, except for scientific purposes.

Art. 7 Deforestation and enterprises subjected to environmental licenses must facilitate the collection of colonies living within impacted areas or forward them to the nearest licensed meliponiculture.

⁵² Ratified in Official Gazette 165 from Aug. 26, 2004, page 90.

Art. 8 IBAMA or the respective competent environmental organ may authorize, through the presentation of professional justification, the control of the blooming of vegetation species, or animals, that pose a threat to native bee colonies, within the property that manages the meliponiculture activities.

CHAPTER III Final Provisions

Art. 9 IBAMA must, within six months from the date of publication of this Resolution, release the list of standards for the regulation of activities related to the breeding and commerce of wild native bees.

Art. 10. Noncompliance with the provisions of this Resolution will subject offenders to, among other, penalties and sanctions foreseen by Law 9.605 from Feb. 12, 1998 and its respective regulations.

Art. 11. This Resolution does not exempt the obligation to abide to legislation related to genetic patrimony, the protection and the access to associated artisanal knowhow and the distribution of information for scientific research, technological development and bio-prospection.

Art. 12. This Resolution shall enter into effect on the date of its publication.

MARINA SILVA – Council President

This text does not substitute the text published in the Official Gazette on Aug. 17, 2004

CONAMA RESOLUTION 384, December 27, 2006
Published in Official Gazette 249 on Dec. 29, 2006, Section 1, pages 663 - 664

Regulates the provisional concession of domestic storage of seized wild animals and makes other provisions.

THE NATIONAL ENVIRONMENT COUNCIL – CONAMA, in accordance with the power bestowed upon the Council by Law 6.938 from August 31, 1981, regulated by Decree 99.274 from June 6, 1990, and considering the provisions of Laws 5.197 from Jan. 3, 1967 and 9.605 from Feb. 12, 1998 and regulatory Decree 3.179 from Sept. 21, 1999;

Considering the need to regulate the temporary domestic housing of Brazilian wild fauna animals apprehended by environmental inspection organs of the National Environment System (SISNAMA) when it has been proven that it is not possible to follow the demands foreseen in art. 2, § 6, item II, lines “a” and “b” of Decree 3.179 from Sept. 21, 1999, decides:

Art. 1 Regulate the housing that is the subject of art. 2, § 6, item II, line “c” of Decree 3.179 from Sept. 21, 1999 through the concession of an Temporary Domestic Housing License, contained in Annex II of this Resolution, exclusively for amphibian animals, reptiles, birds and mammals from the Brazilian wild fauna that were apprehended during inspection activities undertaken by SISMAMA organs.

§ 1 The animal Temporary Domestic Housing License can only be granted according to the provisions of this article and only in cases when it has been proved that it is impossible to fulfill the conditions foreseen in lines “a” and “b”, item II, § 6, art. 2, of Decree 3.179 from 1999, and the respective environmental organ may entrust the animals to a keeper according to articles 627 to 652, of Law 10.406 from Jan. 10, 2002, until the implementation of the above mentioned conditions.

§ 2 The following species cannot be subjected to temporary domestic housing:

I – species that have the potential to invade ecosystems;

II – species that are included in Brazilian official lists of threatened species on a national, state, regional or local level and in Annex I of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) except when previously approved by the Brazilian Institute of Environment and Renewable Natural Resources (IBAMA) or by the competent state environmental organ after the presentation of a professional opinion.

Art. 2 IBAMA is under the obligation to, in cooperation with SISNAMA organs and the respective administrative act; create a nationally shared registry containing data on individuals that are empowered to house domestic animals on a temporary basis.

Art. 3 IBAMA and other competent environmental organs are entitled to create programs for the empowerment, furthering and maintenance of projects for the proper deposition and recuperation of apprehended wild animals.

Art. 4 The Temporary Domestic Housing License will be granted, preferentially, to individuals that have been previously registered by competent environmental organs.

Single paragraph. Individuals interest in the housing of wild animals cannot have committed any environmental offense or be the object of a fauna related penal investigation or legal process.

Art. 5 If the animal cannot be moved from domestic housing during inspection activities because of justifiable causes an emergency and temporary Apprehension and Housing License will be issued for a period that cannot surpass fifteen workdays, and the depositor will be responsible for the apprehended animal until the proper conditions for the destination of the animal are presented by the competent environmental organ.

§ 1 In exceptional cases the Temporary Housing License can be granted to individuals that present an official requirement to the competent environmental organs accompanied by the following information:

I – information on the animal according to Annex I of this Resolution;

II – report by a legally empowered professional stating the health conditions of the specimen as well as its popular and scientific name;

III – information on the location where the animal is housed such as cage and nursery, including the characteristics that will be analyzed in relation to specific legislation, further information and improvements may be requested;

IV – photographs of the enclosure where the animal is housed from a minimum of two angles and which allow for the individual identification of the animal through phenotypical characteristics which will be included in the process annex.

§ 2 The drafting of the Temporary Domestic Housing License, included in Annex II of this Resolution, by the competent environmental organ does not exempt the offender from penalties and sanctions respectively foreseen by articles 29 to 37 of Law 9.605 from 1998 and in articles 11 to 24 of Decree 3.179 from 1999.

§ 3 The drafting of the Temporary Domestic Housing License that is the subject § 1 of this article is conditioned to the previous assessment, undertaken by a legally empowered professional, on the housing conditions and the degree of independence/separation from human beings.

Art. 6 Whenever deemed as convenient by the environmental organ the animal can be withdrawn from temporary domestic housing for conservation purposes.

Art. 7 The Temporary Domestic Housing License, previously authorized by the competent environmental organ, may only be granted to an individual, capable, holder of a Social Security Number (CPF) by residence, if it is immediately impossible to:

I – withdraw or house the animal according to the conditions foreseen by article 2, § 6 item II, lines “a” and “b” of Decree 3.179 from 1999;

II – fulfill the other demands foreseen by this Resolution;

§ 1 The transfer of the previously authorized by the competent environmental organ. to another registered individual must be previously authorized by the competent environmental organ.

§ 2 The granting of a Temporary Domestic Housing License is limited to a maximum of two animals per individual.

Art. 8 Before the issuing of the Temporary Domestic Housing License the competent environmental organ must, through the use of professional methods, survey the location where the specimen will be housed in order to verify if the conditions are adequate for the survival of the animal.

Art. 9 The temporary housed specimen must, in all possible cases, be identified through a marking according to current specific standards and the costs for the marking will be at the expense of the interested party.

Single paragraph. Breeding of housed animals should be avoided but, if it does occur, it must be communicated to the competent environmental organ within thirty days in order to allow for application of adequate measures.

Art. 10. If the housing party changes his/her residence, he/she must obtain an Animal Transportation License issued by the competent environmental organ, from the original address to the final destination.

Single paragraph. Animal Transportation Licenses will not be granted for transportation to other countries.

Art. 11. The housing party is also bound by the provisions included in items I to XVIII of the Third Clause of Annex II of this Resolution:

I – house and provide all possible care in order to safeguard the wellbeing of the specimen;

II – deliver the housed wild fauna specimen to the competent environmental organ whenever requested;

III – not to change the housing location of the specimen, including in relation to the housing address, unless it has previously been granted a specific authorization from the competent environmental organ or if he/she has been legally ordered to do so, except in cases of duly proved force majeure and in these cases the housing party is obligated to inform the competent environmental organ within five workdays counting from the date of the occurrence;

IV – the escape of a housed animal must be communicated to the competent environmental organ within five workdays;

V – guarantee the safety and tranquility of neighbors and passerby's and take responsibility for any damages caused to a third party by the housed animal;

VI – bear all costs related to the animal, including and possible damages caused by the housing of the animal and forego the right to compensation from the competent environmental organ;

VII – provide information on the house animal to the competent environmental organ whenever requested as well as regularize, within the set deadline, any possible infractions registered during inspections or any other process;

VIII – allow and facilitate surveys and inspections undertaken by SISNAMA organs;

IX – if the housed animal is stolen the housing party must register the occurrence at the respective public safety organ and forward a copy, within five workdays, to the competent environmental organ;

X – forward the death certificate issued by a licensed veterinary doctor to the competent environmental organ within thirty workdays after the death of the housed specimen accompanied by the individual marking such as: nose or earring or any other marking;

XI – not make use of the animal for any activities that may cause any damage nor subject it to any kind of exposure without previous and specific authorization issued by the competent environmental organ;

XII – not to increase his/her stock with illegally acquired wild fauna specimens;

XIII – forward, annually, an actualized report issued by veterinary containing information on the life conditions of the housed animal to the competent environmental organ;

XIV – facilitate the transportation of dead animals to universities and other research centers;

XV – not breach, change, substitute or remove the individual marking without previous authorization by the competent environmental organ;

XVI – not erase or change the Temporary Domestic Housing License;

XVII – maintain the Temporary Domestic Housing License accessible and in good maintenance conditions;

XVIII – request a new “Temporary Domestic Housing License” from the competent environmental organ within five workdays if the document is lost or rendered unusable.

Art. 12. The housing party is not allowed to:

I – release wild native specimen or hybrids that were bred in captivity;

II – house animals that were not forwarded by SISNAMA control and inspection organs.

Art. 13. The housing party will retract, annually, the value of the Environmental Control and Inspection Tax (TFCA) foreseen in articles 17-B and 17-C of Law 6.938 from August 31, 1981.

Art. 14. Noncompliance with the demands provisioned in this Resolution will subject the offender to penalties and sanctions, respectively, foreseen by Law 9.605 from 1998, and in 3.179, from 1999, and other possible legal provisions related to the trustee. Art. 15. Administrative environmental infractions foreseen by Law 9.605 from 1998 and Decree 3.179 from 1999 may lead to the loss of the right to house the specimen and its removal.

Art. 16. The demands and duties foreseen by this Resolution are obligations of relevant environmental interest.

Art. 17. This Resolution shall enter into effect on the date of its publication

MARINA SILVA – Council President

This text does not substitute the text published in the Official Gazette on Dec. 29, 2006

ANNEX I
REQUEST FOR A TEMPORARY DOMESTIC HOUSING LICENSE
(to be filled by an organ of the National Environment System – SISNAMA)

APPLICANT INFORMATION

Name: _____

Profession: _____

RG/UF: _____ CPF: _____

Home Phone: _____ Additional Phone: _____

Address: _____

District: _____ City: _____ State: _____

ZIP Code: _____ Business Phone: _____

Business Address: _____

District: _____ City: _____ State: _____

ZIP Code: _____ E-mail: _____

ANIMAL INFORMATION

Popular Name: _____

Scientific Name (Family/Order): _____

Additional Information:

Sex: () Male () Female () Approximate age: _____

Original Specimen Location (City/State/Country): _____

Acquisition Means: () Donation () Purchase () Capture () Other:

Identification: () No () Yes/Which: _____

Date/period since the animal is under the responsibility of the applicant: _____

Food supplied to the animal: _____

Housing Location: () Nursery () Cage () Other: _____

Veterinary assistance: () No () Yes

Place and date

Applicant signature

ANNEX II
TEMPORARY DOMESTIC HOUSING LICENSE AGREEMENT Nr./ (State)

The competent environmental organ....., entity
....., through....., hereby named as
.....and Mr./Mrs/Miss.....(nationality, civil state,
profession, ID, Social Security Nr., full address) hereby named TEMPORARY HOST, sign the present
Temporary Domestic Housing License, according to the following clauses and conditions:

CLAUSE ONE – THE SUBJECT

The TEMPORARY HOST declares that he/she will house the following wild animals that are under his/her care, according to the provisions of CONAMA Resolution 384 from 2006:

Scientific name/family/order:

Popular name:

Marking (type and number):

Age:

Sex:

Distinguishing marks:

Paragraph One. The TEMPORARY HOST hereby accepts the obligation to house and care the above mentioned wild specimen(s), through adequate management, to minimize the captivity suffering and return it/them to the competent environmental whenever requested.

Paragraph Two. The TEMPORARY HOST is hereby bound to avoid the reproduction of the animal(s) under his/her care and to inform the competent environmental organ, within thirty days, on the eventual birth of offspring(s) in order to allow for applicable measures.

Paragraph Three. The TEMPORARY HOST is aware that he/she is not allowed to change the housing location, or destination, of the animal(s) that have been placed under his/her care.

Paragraph Four. The transportation of the above mentioned animal(s), due to a change of residence address of the TEMPORARY HOST, will only be allowed if it has been approved and licensed by the competent environmental organ.

Paragraph Five. The TEMPORARY HOST is committed to deliver the wild fauna specimen under his/her care whenever requested by the competent environmental organ, for conservation purposes.

CLAUSE TWO – ACKNOWLEDGEMENT OF THE TEMPORARY HOST

IBAMA acknowledges the TEMPORARY HOST(S) of the wild specimen(s) stated in Clause One in accordance with the National Registry number _____.

CLAUSE THREE – COMMITMENTS

The TEMPORARY HOST is committed to:

I – house and provide the necessary care for the wellbeing of the housed specimen;

II – deliver the wild fauna specimen placed under his/her care whenever requested by the competent environmental organ;

III – not change the housing location of the specimen, including the housing address, unless he/she has been specifically authorized by the competent environmental organ or if he/she has been ordered to do so through a legal judicial order, and excluding cases of duly proved theft and force majeure which must be communicated to the competent environmental organ within five workdays from the date of the occurrence;

IV – Inform the competent environmental organ, within five workdays, if the animal has eloped from the housing location;

V – guarantee the security and tranquility of his/her neighbors and passerby's and take responsibility for any damages caused by the animal to a third party;

VI – pay for all expenses related to the specimen including possible damages caused by the temporary housing of the animal and foregoes all rights to compensation from the competent environmental organ;

VII – Provide information on the condition(s) of the housed animal whenever requested by the competent environmental organ and to regularize any liabilities verified during inspections or any other procedure within the fixed deadline;

VIII – allow and facilitate surveys and inspections undertaken by SISNAMA organs;

IX – if the housed specimen is stolen he/she must report the occurrence to the respective public safety organ and forward a copy of the report to the competent environmental organ within five workdays;

X – forward a specimen death report, issued by a licensed veterinary doctor, to the competent environmental organ within thirty days after the death of the animal accompanied by the individual marking such as: nose ring, earing or any other type of marking;

XI – not to use the specimen under his/her care for any activity that may damage it, nor submit it to any exposure without the previous and specific authorization issued by the competent environmental organ;

XII – not to increase his/her animal stock with any illegally acquired wild fauna animal(s);

XIII – forward to the competent environmental organ yearly veterinary reports with actualized information on the specimen's life conditions;

XIV – allow the forwarding of dead animals to universities and other research centers;

XV - not breach, change, substitute or remove the individual marking without previous authorization by the competent environmental organ;

XVI - not erase or change the Temporary Domestic Housing License;

XVII - maintain the Temporary Domestic Housing License accessible and in good maintenance conditions;

XVIII - request a new "Temporary Domestic Housing License" from the competent environmental organ within five workdays if the document is lost or rendered unusable.

CLAUSE FOUR - DURATION

The duration of this Agreement is not determined but is conditioned to the demands set by CONAMA Resolution 384 from 2006. **CLAUSE FIVE – INSPECTION**

It is the duty of IBAMA and of other SISNAMA organs to inspect and monitor the compliance with the provisions set by this Temporary Domestic Housing License.

Single paragraph. The control and monitoring of the terms contained in this Temporary Domestic Housing License is the duty of the competent environmental organ which will append and register any occurrence related to the housing of the specimen(s) listed in Clause One to the administrative process records.

CLAUSE SIX - TERMINATION

The lack of compliance with any of the obligations of this License Agreement will lead to its termination and the apprehension of the specimen(s) without prejudice to any other penalties and sanctions foreseen by pertinent current legislation.

The agreeing parties will sign three equal copies of the legally binding present Agreement/License in the presence of witnesses who legitimize the Agreement with their signatures.

_____	Place and Date
_____	Signature/ TEMPORARY HOST
_____	Signature/Responsible SISNAMA
Official	WITNESSES:

Name:
CPF:
CI:

Name:
CPF:
CI:

CONAMA RESOLUTION 394, Nov. 6, 2007
Published in Official Gazette 214 on Nov. 7, 2007, Section 1, pages 78-79

Establishes the criteria for the determination of wild species that can be bred and commercialized as pet animals.

THE NATIONAL ENVIRONMENT COUNCIL – CONAMA, in accordance with the power bestowed upon the Council by art. 6, item II and art. 8, item VII of Law 6.938 from August 31, 1981, regulated by Decree 99.274 from June 6, 1990 and its alterations, and in accordance with its Internal Regulations and the contents of Process 02000.001100/2004-11, e

Considering that Brazil is a signatory of the Convention on Biological Diversity (CBD) that addresses biological diversity conservation objectives and the sustainable exploitation of its components;

Considering the importance to foresee, prevent and combat the original causes behind the decrease or loss of biological diversity; control or eradicate and hinder the introduction of exotic species that threaten ecosystems, habitats or species; and

Considering the need to standardize regulations related to the *ex situ* exploitation of wild and exotic fauna within the Brazilian territory aimed at the conservation, preservation, breeding and commercialization of animals and thereby decrease the hunting for wild natural species with economic value and the introduction of exotic species, decides:

Art. 1 This Resolution establishes criteria that will be considered in processes aimed at the identification of wild fauna species that may be bred and commercialized as pet animals.

Art. 2 The following concept definitions are used for all purposes of this Resolution:

I – pet animals: animals that originate in the wild fauna, born in a legally established commercial nursery, kept alive under domestic captivity and not for slaughter, reproduction, research or laboratory purposes;

II – wild fauna: all native, migratory and any other wild fauna specimen, aquatic or terrestrial, whose life cycle, entirely or partially, occurs within the limits of the Brazilian territory or waters under national jurisdiction;

III – domestic captivity: the fixed address of an individual or business that is appropriate for the upkeep and management of wild fauna pet animals; and

IV – fauna rescue: capture and collection of wild fauna animals, duly authorized by competent licensing organs, from areas that are subjected to habitat suppression or transformation due to activities or enterprises that exploit environmental resources or activities that are considered as effective or potential polluters.

Art. 3 The Brazilian Institute for the Environment and Renewable Natural Resources – IBAMA, will, within six months from the date of publication of this Resolution, publish a list of species that may be bred and commercialized as domestic pets, according to the provisions of Art. 5 of this Resolution.

§ 1 The creation of the list that is the subject of this article will be accomplished through public hearings with representatives from public and private organizations that are specialized in the subject matter as well as with states, municipalities and society in general.

§ 2 The list of species that is the subject of this Resolution will be reviewed periodically and at least every second year.

§ 3 When a species is excluded from the list the competent environmental organ will define the criteria and deadlines that will be used in order to stop the breeding of the particular species and the same will be valid even for cases that preceded the publication of this Resolution.

Art. 4 According to the provisions of art. 3 and its respective paragraphs the list of wild fauna species that may be bred and commercialized in order to meet pet market demand must take into account the minimum following criteria during its creation and the inclusion or exclusion of species:

I – potential threat of ecosystem invasion of species outside of their original geographical ecosystems;

II – previously recorded invasion or dispersion in ecosystems within Brazil or in other countries;

III – potential threats to human health;

IV – potential threats to animal health or to the balance of natural populations;

V – possible introduction of biological agents that have the potential to cause any kind of hazards;

VI – risks related to the escape or abandonment of the species;

VII – the capacity for individual and definitive identification;

VIII – existing knowledge on the biology, systematics, taxonomy and zoogeography of the species; and

IX – species wellbeing and adaptability in relation to factors such as captivity and domestic pet conditions. Single paragraph. Aquarium related activities will be the object of a specific CONAMA Resolution.

Art. 5 According to the provisions of art. 225, § 1, item VII, of the Federal Constitution that deals with the ban of practices that pose any possible threat to the ecological function of wild fauna, the capture of natural specimen for the creation of nurseries is conditioned to the non-existence of other sources for this purpose and is restricted to cases proved and authorized by the competent environmental organs and only in accordance with the list that is foreseen by this Resolution, which includes:

I – specimens that currently pose a threat to agro-pecuary activities, public health and ecosystems;

II – fauna specimen that have been rescued and cannot be returned to their natural habitat; and

III – the need, supported by professional studies undertaken or validated by competent environmental organs, to reinvigorate the genetics of captive populations.

Single paragraph. The exception foreseen in the heading can only be adopted if the capture does not compromise the viability of natural populations.

Art. 6 IBAMA will make available an information system on *ex situ* fauna in order to allow for the control, monitoring and localization of animals from nurseries, commercial establishments and buyers.

Art. 7 The reproduction of acquired specimen and held as domestic pets must be avoided and when it occurs it must be communicated to the competent environmental organs within thirty days in order to allow for applicable measures.

Art. 8 This Resolution shall enter into effect on the date of its publication.

MARINA SILVA – Council President

This text does not substitute the text published in the Official Gazette on Nov. 7, 2007

FLORA

CONAMA RESOLUTION 294, December 12, 2001
Published in Official Gazette 35 on Feb. 21, 2002, Section 1, pages 142-144

Establishes provisions for the Management Plan for the Euterpe edulis Palmito in the Santa Catarina State.

THE NATIONAL ENVIRONMENT COUNCIL – CONAMA, in accordance with the power bestowed upon the Council by art. 6, item II and art. 8, item VII of Law 6.938 from August 31, 1981, regulated by Decree 99.274 from June 6, 1990, and considering the provisions of Law 4.771 from Sept. 15, 1965 and Decree 750 from Feb. 10, 1993 and CONAMA Resolutions 1 from Jan. 23, 1986, 10 from Oct. 1, 1993, 4 from May 4, 1994 and 237 from Dec. 19, 1997 and the provisions of its Internal Regulations, and

Considering the need to regulate the exploitation of Santa Catarina State native vegetal species in areas covered with primary or secondary vegetation in advanced and medium stages of regeneration, decides:

Art. 1 The exploitation of the palmito *Euterpe edulis* within native forests of the Santa Catarina State will only be authorized as selective logging according to sustainable forestry management methods established by this Resolution.

Single paragraph. Sustainable forestry management is understood as the administration of the forest in order to obtain economic and social benefits while respecting management practices.

Art. 2 The sustainable forestry management operations that are the subject of the previous paragraph can be authorized through the presentation by the proprietor of a Sustainable Forestry Exploitation Plan (PMFS) to the Brazilian Institute of Environment and Renewable Natural Resources (IBAMA) according to the following general principles and technical elements:

I- general principles:

- a) natural resource conservation;
- b) conservation of forest structure and functions;
- c) upholding of biological diversity; and
- d) regional socio-economic development.

II- technical elements:

- a) solid survey of available resources in order to safeguard the reliability of pertinent information;
- b) characterization of the structure and forest location;
- c) identification, analysis and control of environmental impacts according to pertinent legislation;
- d) economic-technical viability and analysis of social consequences;
- e) forestry exploitation methods that minimize ecosystem damage;
- f) existent of stock resources from forest remains that can safeguard sustainable production;
- g) upholding of forestry resource population levels in order to safeguard the protecting function of the flora and fauna that are threatened with extinction;
- h) establishment of annual maximum harvest areas and upholding of the cutting cycle of managed species;
- i) adoption of adequate forestry exploitation systems; and
- j) use of proper planting techniques whenever necessary.

Art. 3 Apart from the general principles and technical elements established in art. 2 of this Resolution the Sustainable Forestry Exploitation Plan (PMFS) related to the exploitation of the Palmito *Euterpe edulis* must be undertaken according to the following criteria:

I – limited exploitation of individuals with medium DAP equal or above 9 centimeters;

II – provide a seedling bank containing a minimum of ten thousand individuals per hectare and implement the yearly plantation of seedlings or seeds if the natural regeneration process presents any kind of defects;

III – uphold a minimum of fifty fruit bearing Palmito per hectare identified and dispersedly distributed throughout the exploitation area in order to safeguard the stock of matrix plants or seed bearing plants and thereby uphold the forest's function as a protector of the fauna threatened with extinction.

Single paragraph. It is considered natural palmito regeneration, for all purposes of this Resolution, plants that have a height that exposes the stipe, less than one meter and thirty centimeters.

Art. 4 Sustainable forestry management in properties with an area of less than thirty hectare of forests may be allowed after a formal authorization request to IBAMA by the proprietor through the form Selective Logging Request (RCS) included in Annex I and will not require the presentation of a PMFS while abiding by the criteria established in art. 3 of this Resolution and its respective paragraphs.

Art. 5 In cases when the license request does not exceed two thousand individuals per year in an area of up to fifteen hectare of forests, by property, the authorization request may be made through a Simple Request

(SS) based on a survey and the authorization of the competent licensing organ that is forwarded to IBAMA, while abiding by the criteria of items I, II and III of art. 3 of this Resolution.

Single paragraph. The authorization that is the subject of this article will be granted for a maximum exploitation period of six months that can be extended by thirty days.

Art. 6 Cases related to the logging of planted palmito, duly proved through IBAMA registration and posterior inspection, must apply directly to IBAMA according to the application guide provided in Annex IV.

Single paragraph. The license that is the subject of this article is directly and specifically related to palmito and does not allow for the logging/cutting of other species, thinning or shepherding within the area.

Art. 7 The PMFS, RCS and SS will only be authorized within properties that comply with current environmental legislation and in particular with the conservation of permanent preservation areas (APP:s) and the registration and recuperation of Legal Reserves.

§ 1 Non-compliance with the conditions and obligations foreseen in this Resolution, as well as with license conditions, implies, with no exception, the suspension of all issued licenses for the same property or proprietor.

§ 2 Applicants may sign a Conduct Adjustment Agreement with the competent environmental organ aimed at proving compliance with environmental legislation obligations and in particular the conservation of Permanent Preservation Areas (APP:s) and the registration and recuperation of Legal Reserves, in this hypothesis the licenses will be linked to compliance with these conditions.

§ 3 The PMFS license is conditioned to the presentation by the applicant of a document issues by the competent organ attesting the protection and preservation of the Permanent Preservation Area within the given property.

Art. 8 In order to comply with the provisions of this Resolution the PMFS must abide by the Basic Guidelines included in Annex II.

Art. 9 The PMFS, RCS and the report for the SS must be created and executed by a legally registered, IBAMA certified professional and according to pertinent regulations.

Art. 10. The licenses for the undertaking of PMFS and RCS, as well as the deferment of the SS, are control tools that allow for the substantiation of the origin of the forestry raw-materials.

§ 1 The License for the Transportation of Forestry Products (ATPF) will be granted to holders of PMFS, RCS or SS when he/she is the recipient of the forestry raw-materials or to the buyer that is duly registered by IBAMA, through the presentation of a Forestry Products Sale Statement (DVPF) according to IBAMA's Administrative Order 125-N from Nov. 22, 1993.

§ 2 The ATPF will be issued after the delivery of the Exploitation License and is conditioned to the filling of fields 1 to 8 and 14 to 16 of the Statement that is mentioned in the heading of this article.

Art. 11. Both RCS and SS, or the information regarding planting, may be authorized by competent state or municipal organs as long as they possess an adequate professional structure that allows for the analysis of the subject matter and Municipal Environment Councils with decision powers and SISNAMA membership, according to pertinent regulations.

Single paragraph. State or municipal organs must inform IBAMA on the issuing of licenses that are the subject of the heading of this article and request the issuing of ATPF according to pertinent regulations.

Art. 12. The granting of PMFSs must take into consideration the forest production capacity.

§ 1 When the total exploitation area is above fifty hectare the same must be divided in dimensioned modules according to the logging/cutting cycle of the managed species, which must be a part of the physical execution schedule.

§ 2 The licenses will be granted on a module by module basis.

Art. 13. It is mandatory to undertake a pre-exploitation forestry continuous inventory, in permanent allotments demarcated through a systematic sample process, according to uniform magnetic orientation that identifies its borders and include access paths that will allow for professional inspections and those located in APP:s must be substituted, both in relation to PMFS and RCS.

§ 1 The establishment of permanent allotments of continuous forestry inventory for PMFS purposes or for RCS surveys must take into account the intensity, form and size of the objectives and the used methodology must be described and justified.

§ 2 Permanent allotments must be measured and assessed before and immediately after exploitation and within a period that does not surpass one year, and include yearly re-measuring.

§ 3 Sub-allotments must be established within the permanent allotments in order to allow for the surveying of natural regeneration, whose intensity, form and size must meet the objectives stated in the PMFS and the used methodology must be described and justified.

§ 4 Statistical surveys must take into account the error-rate of twenty percent and the failure rate of five percent.

Art. 14. The validity periods of licenses that are the subject of the Resolution will be set according to exploitation volumes, may be extended by equal periods and as often as necessary.

Single paragraph. The license renewal that is the subject of the heading of this article may be requested through the presentation of pertinent justifications and accompanied by the Professional Report on the respective exploitation.

Art. 15. Once a PMFS or RCS exploitation stage of a given area is finalized a new stage of exploitation can only be allowed after the presentation of proof that the entire initial stocks have been replaced and this option is not applicable to stocks that are still in the recuperation stage.

Single paragraph. The professional proof related to the full recuperation of stocks that is the subject of the heading of this article must be presented to IBAMA and include the results of the survey and assessment of allotments and sub-allotments during the PMFS or RCS periods.

Art. 16. IBAMA is responsible for PMFS or RCS inspections aimed at the fulfillment of the provisions contained in this Resolution.

Single paragraph. IBAMA must, in case of verified irregularities or illegal activities:

I – undertake due-diligence and applicable sanctions;

II - promote civil action and, when applicable, inform the Federal Public Ministry and request the introduction of a civil and penal inquiry; and

III – officially inform the competent professional inspection organ that employs the inspection professional, in order to assess his /her professional responsibility.

Art. 17. The IBAMA responsibilities stated in articles 15, 16 and 18 of this Resolution may be delegated to organs that are mentioned in art. 11 as long as they are SISNAMA members and possess adequate professional structures according to pertinent regulations.

Art. 18. Infringements related to the provisions set by this Resolution will subject the offender to applicable legislative sanctions independently of the obligation to compensate and repair for caused damages.

Art. 19. Omitted cases will be settled by IBAMA in consultation with the Technical Chamber that deals with the subject matter.

Art. 20. Operational questions related to the provisions set by this Resolution must be complemented through inter-institutional regulations that involve both IBAMA and competent state and municipal organs.

Art. 21. This Resolution shall enter into effect on the date of its publication and is applicable to registered license requests and to those already granted by IBAMA up to that date, which must be reformulated when necessary within a period set by the competent authority, in order to adapt them to the provisions set by this Resolution.

JOSÉ CARLOS CARVALHO – Acting Council President

ANNEX I
SELECTIVE LOGGING/CUTTING APPLICATION - RCS

His/Hers Excellence Mr./Mrs./Ms. State Superintendent of the Brazilian Institute for the Environment and Renewable Natural Resources – IBAMA/SC,, the undersigned, residing at _____

_____ District of _____, Municipality of _____, State _____, nationality _____, profession _____ civil state _____ CPF number _____ ID/Issued By/State _____ hereby requests from Your Excellence a License for the Selective Logging/Cutting that will be undertaken within his/her property, according to the specifications listed below:

- 1 – Property name;
- 2 - Location;
- 3 – Property area (ha);
- 4 – Selective logging/cutting area (ha);
- 5 – Legal Reserve area (ha);
- 6 – Stock in the seedling bank of ten thousand individuals per hectare, comprising natural regeneration;
- 7 – Required stock for selective logging/cutting, in number of individuals and corresponding diametric class;
- 8 – Preservation of a minimum of fifty fruit bearing palmito trees per hectare, identified and dispersedly distributed throughout the exploitation area and which compose the matrix plant or seed-bearing stock which allows for the re-composition of the population and the protection of fauna threatened with extinction;
- 9 – Natural regeneration induction and/or enrichment methodology;
- 10 – Undertaker/responsible professional (name, full address, CGC or CPF, profession, IBSAMA registration number, registration number in the competent professional council and visa number/region, if applicable);
- 11 - Executor/responsible professional (name, full address, CGC or CPF, profession, IBAMA registration number, registration number in the competent professional council and visa number/region, if applicable).

The following documentation has been added in order to complete the required information:

- a) Actualized property deed;
- b) Payment of Rural Territorial Tax (ITR) for the previous year;
- c) Property sketch;
- d) Sketch on property access in relation to the Municipality where it is located;
- e) Layout of natural regeneration allotments and sub-allotments.
- f) Under these terms, requests approval.

_____, _____ of _____ of 20____

Proprietor

ANNEX II
BASIC GUIDELINES FOR THE CREATION OF A SUSTAINABLE FORESTRY
EXPLOITATION PLAN- PMFS

1 General Information

- 1.1 Proprietor (applicant/undertaker/executor)
 - 1.1.1 Proprietor (applicant): name, full address, CGC or CPF, IBAMA registration number/category (consumer and industrial producer, if applicable).
 - 1.1.2 Undertaker/responsible professional: name, full address, CGC or CPF, IBAMA registration number, registration number in competent professional council and visa/region number (if applicable).
 - 1.1.3 Executor/responsible professional: name, full address, CGC or CPF, IBAMA registration number, registration number in competent professional council and visa/region number (if applicable).
- 1.2 Property identification
 - 1.2.1 Name.
 - 1.2.2 Registration number or registration/notary/book/sheet.
 - 1.2.3 Location.
 - 1.2.4 Municipality/State.
 - 1.2.5 INCRA enrollment registration number.

2 PMFS Objectives and Justification

- 2.1 Objectives
- 2.2 Professional and economic justifications

3 Characterization of Property Environment

- 3.1 Physiognomy
 - 3.1.1 Hydrography
 - 3.1.2 Topography
- 3.2 Biological Environment
 - 3.2.1 Vegetation
 - 3.2.2 Fauna
- 3.3 Socio-Economic Environment

4 Forestry Management

- 4.1 Description of property areas
 - 4.1.1 Total property area (ha);
 - 4.1.2 Legal Reserve area (ha);
 - 4.1.3 Permanent preservation area (ha)
 - 4.1.4 PMFS area (ha);
 - 4.1.5 Area of forest remains (ha);
 - 4.1.6 Pasture area (ha);
 - 4.1.7 Agriculture area (ha);
 - 4.1.8 Reforestation area;
 - 4.1.9 Wetland area (ha);
 - 4.1.10 Infra-structure;
 - 4.1.11 Hydrography;
 - 4.1.12 Road network.
- 4.2 Forestry Stock

The planning of the stock must meet the PMFS objectives defined in item 2.

- 4.2.1 Dendrometric data survey corresponding to individuals with DAP measures of stipe height at 1.3 meters, equal or superior to four centimeters, distributed in diametric classes that represent the exploited stock and the stock of forest remains.
- 4.2.2 Survey of the natural regeneration of stocks corresponding to a medium DAP that is inferior to that specified in item 4.2.1 as well as those with stipe height under 1.3 meters.
- 4.2.3 Inclusion in the field booklet of diameter data, phenological stage and measurement dates, establishing criteria and justifications.
- 4.2.4 Location and layout of forestry stock allotments and sub-allotments undergoing natural regeneration, numbering the measured plants and identifying those that will be exploited
- 4.2.5 Characterization of the area that is the object of forestry survey (sample population).
- 4.2.6 Definition of interest variables for forestry management and respective justifications.
- 4.2.8 Definition of the used methodology for the systematic sample survey.
- 4.2.9 Definition of sample intensity.
- 4.2.10 Definition of allotment size and form.
- 4.2.12 Statistical analysis.
 - 4.2.13 Summary of results containing diametric distribution tables with yield estimates by

exploited class and the number of seed-bearing individuals by diametric class which will remain unexploited in order to comply with the management system foreseen by this Resolution.

4.2.13.2 Number of trees by hectare and diametric class, both in the module and total area.

4.2.13.3 The samples of natural regeneration must include a survey of sampled population in three different classes of last leave height: zero to ten centimeters, ten centimeters and one millimeter to fifty centimeters and higher than fifty centimeters.

4.2.13.4 Include the relation between the basal palmito individual areas and those of populations of other arboreal species.

4.3 Exploitation system

4.3.1 Area characterization.

4.3.1.1 Number of individuals that will be exploited.

4.3.1.2 Presentation of survey of the specimen that will form the stock of matrix or seed-bearing plants with respective markings, which will compose the population that will protect the fauna threatened with extinction.

4.3.1.3 Issued survey containing the marked trees that will be logged/cut.

4.3.2 Road network structure, areas for the storage of exploited raw-materials (quantity, location, area) and transportation paths, minimizing the infrastructure construction area, dimensioning it and calculating the number of suppressed trees in total numbers, basal area and volume per species.

4.3.5 Specification of operational forestry exploitation methodology.

4.3.6 Schedule for the execution of exploitation operations.

4.3.7 Assessment of costs and profits related to the forestry exploitation operations.

4.4 Administration method and/or, when necessary, enrichment of natural regeneration method.

5 Assessment and Proposal for the Minimization of Environmental Impacts due to the Implementation of the PMFS in Management Areas Equal or Surpassing One Hundred Hectare.

.

5.1 Assessment of environmental impacts.

5.1.1 Physiognomy environment.

5.1.2 Biological environment.

5.1.3 Socio-economic environment.

5.2 Impact minimization proposal.

5.2.1 Physiognomy environment

5.2.2 Biological environment.

5.2.3 Socio-economic environment.

5.3 Environmental matrix.

5.3.1 Assessment methodology.

5.3.1.1 Capacity.

5.3.1.1.1 Activities versus components. 5.3.1.1.2 Measures and programs versus components.

5.3.1.2 Appreciation of environmental matrix.

6 Prognosis on environmental quality in areas subjected to the implementation of PMFS in an area equal to or surpassing one hundred hectare.

7 Physical-Financing Schedule.

7.1 Of stocks.

7.2 Of exploitation.

7.2.1 Compliance with the six-year logging cycle.

7.2.2 Forestry treatment.

8 Bibliography.

9 Required documentation.

9.1 Application by the proprietor addressed to the State IBAMA Superintendent.

9.2 Actualized property deed.

9.3 Legal Reserve registration - ARL.

9.4 Statement of Responsibility for the Preservation of an Exploited Forest-TRMFM.

9.5 Proof of payment of Rural Territorial Tax-ITR, for the previous year.

9.6 Sketch of property access in relation to the Municipality where it is located.

9.7 Topographical map of the property in a scale that is compatible with the equidistance and including: total property area, Legal Reserve area, permanent preservation area, PMFS area, area of forest remain, pasture area, agriculture area, re-forestation area, wetland area, infrastructure, hydrography, road network, allotment locations, boundaries, magnetic north, geographical coordinates or Mercator Transverse Projection- UTM, buildings, electric energy network, scale and map

conventions.

9.8 Copy of the field booklet.

9.9 Copy of the layout of natural regeneration allotments and sub-allotments.

ANNEX III
SIMPLIFIED APPLICATION FOR PALMITO (*EUTERPE EDULIS*) EXPLOITATION

His/hers Excellence Mr./Mrs./Ms. State Superintendent of the Brazilian Institute for the Environment and Renewable Natural Resources – IBAMA/SC, _____, the undersigned, residing at _____ District of _____ Municipality of _____, State _____ nationality _____, profession _____

Civil state _____ CPF number _____ ID/Issued _____ By/State _____

_____ hereby requests from Your Excellence a License for the Exploitation of the Palmito (*Euterpe edulis*), which will be carried out within his/her property in accordance with the provisions foreseen by Resolution 294/01, art. 5, single paragraph and with the specifications stated hereunder:

- 1 Property location;
- 2 Property area (ha);
- 3 Area covered by natural forest (ha);
- 4 Selective logging/cutting area (ha);
- 5 Area allocated for Legal Reserve (ha);
- 6 Volume (number of heads) of palmito that will be exploited;
- 7 Identification data on the Responsible professional (name, full address, CGC or CPF, profession, IBAMA registration number, registration number in the competent professional council and visa number/region, if applicable); and
- 8 Survey and authorization by the competent licensing organ, including assessment of criteria specified in articles 3 and 5 of this Resolution.

The following documentation has been added in order to complete the required information:

- a) actualized property deed;
- b) proof of payment of Rural Territorial Tax – ITR, for the previous year;
- c) sketch of the property;
- d) sketch of access roads to the property in relation to the municipality where the same is located;

Delimitation of the Legal Reserve area: _____

Signs the present Application in three equal content and form copies in the presence of the IBAMA Superintendent and of the witnesses named hereunder who also sign three copies of the topographic map.

IBAMA Superintendent

Proprietor

Witness:

Name: _____ ID/Number _____

Signature _____

ANNEX IV
NOTIFICATION RELATED TO THE EXPLOITATION OF PLANTED PALMITO (*EUTERPE EDULIS*)

His/Her Excellence Mr./Mrs./Ms. State Superintendent of the Brazilian Institute for the Environment and Renewable Natural Resources – IBAMA/SC, _____, the undersigned, residing at _____ District of _____ Municipality of _____, State _____ nationality _____, profession _____

Civil state _____ CPF number _____ ID/Issued _____ By/State _____

_____ hereby notifies from Your Excellence the Exploitation of planted Palmito (*Euterpe edulis*), which will be carried out within his/her property in accordance with the provisions foreseen by Resolution 294/01, art. 6, single paragraph and with the specifications stated hereunder:

- 1 Property location;
- 2 Property area (ha);
- 3 Logging area (ha);
- 4 Area allocated for Legal Reserve (ha);
- 5 Volume (number of heads) of palmito that will be exploited;
- 6 Identification data on the Responsible professional (name, full address, CGC or CPF, profession, IBAMA registration number, registration number in the competent professional council and visa number/region, if applicable); and
- 7 Report undertaken by the responsible professional including an assessment on the plantation and the conduction

of the population as well as the IBAMA registration of the population as specified by article 6 of Administrative Order XX.

The following documentation has been added in order to complete the required information:

- a) actualized property deed;
- b) proof of payment of Rural Territorial Tax – ITR, for the previous year;
- c) sketch of the property;
- d) sketch of access roads to the property in relation to the municipality where the same is located;
- e) proof of Legal Reserve registration; and
- d) document that vouches the protection of Permanent Preservation areas (APP:s).

Legal Reserve delimitation area: _____

Signs the present Agreement in three equal content and form copies in the presence of the IBAMA Superintendent and of the witnesses named hereunder who also sign three copies of the topographic map.

_____ IBAMA Superintendent	_____ Proprietor
Witness:	
Name: _____	ID/Number
Signature _____	

**ANNEX V
LETTER OF AGREEMENT FOR THE PRESERVATION OF EXPLOITED FOREST AREAS –
TRMFM**

On the _____ day of the month of _____ of the year _____,
Mr./Mrs./Ms. _____, son/daughter of _____
And of _____ residing at _____, District of _____ Municipality
of _____, State of _____

_____, civil state _____, nationality _____,
profession _____, CPF number _____, ID/
Issued by/State _____, the legal proprietor of the property
_____ Municipality of _____.

In this State, registration number _____, sheets _____ of
book _____ of _____ Property Registration Notary, with a total area of
_____ hectare, declares to the competent authority, in accordance with forestry and environmental
legislation, that the forest located in the area of _____ hectare, corresponding to _____ percent of
the area of the property, becomes hereby an area of limited exploitation which can be used
for forestry exploitation through the use of sustainable management methods and
conditioned to IBAMA approval. The current proprietor is hereby committed to the
present agreement and honor it, firmly and valid, as well as his/her heirs or
successors.

Property characteristics and boundaries (description in accordance with the area delimited in the
topographic map that is an integral part of the present Agreement).

Delimitation of Forest areas which will be exploited (according to the delimited are in the topographic map
which is an integral part of the present Agreement).

The proprietor is also committed to undertake
Signs the present Agreement in three equal content and form copies in the presence of the IBAMA
Superintendent and of the witnesses named hereunder who also sign three copies of the topographic map.

IBAMA Superintendent	Proprietor
Witnesses:	
Name: _____	ID Number
Signature _____	
Name: _____	ID Number
Signature _____	

This text does not substitute the text published in the Official Gazette on Feb. 21, 2002.

CONAMA RESOLUTION 310, July 5, 2002
Published in Official Gazette 144 on July 29, 2002, Section 1, pages 78-79

Establishes provisions for the sustainable forest management of the Bracatinga (Mimosa Scabrella) in Santa Catarina State.

THE NATIONAL ENVIRONMENT COUNCIL – CONAMA, in accordance with the power bestowed upon the Council by Law 6.938 from August 31, 1981, regulated by Decree 99.274 from June 6, 1990, and in accordance with its Internal Regulations, annex to Administrative Order 326 from Dec. 15, 1994⁵³, and

Considering that the provisions of Law 4.771 from Sept. 15, 1965, changed by Law 6.938 from Aug. 31, 1981, Decree 750 from Feb. 10, 1993, in particular art. 2, and CONAMA Resolutions 1 from Jan. 23, 1986, 10 from Oct. 1, 1993, 4 from May 4, 1994 and 237 from Dec. 19, 1997, and

Considering the need to regulate the exploitation of native forest species in the Santa Catarina State within areas covered by secondary vegetation in advanced and medium stages of regeneration, decides:

Art. 1 The forestry exploitation of the Bracatinga (*Mimosa scabrella*) in native forest areas covered by secondary vegetation in advanced and medium stages of regeneration will only be allowed according to the provisions set by this Resolution.

Art. 2 For the purpose of this Resolution, exclusively, we consider initial regeneration stages forest formations with a density of over two thousand five hundred Bracatinga individuals per hectare, with DAP equal or over five centimeters.

Single paragraph. The logging, for exploitation purposes, of other arboreal trees within the above area is hereby banned.

Art. 3 The undertaking of sustainable forestry exploitation that is the subject of this Resolution is conditioned to exploitation that upholds the community or, in exceptional cases, through plantation exploited through selective logging.

Art. 4 The following general principles, technical elements and criteria must be followed in order to achieve the sustainable exploitation through the upholding of the community, according to art. 3:

§ 1 General principles:

- a) conservation of natural resources;
- b) conservation of forest structure and function; and
- c) upholding of biological diversity.

§ 2 Technical elements:

- a) solid survey of available resources in order to safeguard the reliability of information included in the sustainable forest exploitation plan;
- b) characterization of forest structure and forest location area;
- c) identification, analysis and control of environmental impacts, according to pertinent legislation;
- d) adoption of forest exploitation processes that minimize ecosystem damage;
- e) existence of a seed propagation plan which safeguards sustainable production;
- f) uphold species population levels of the exploited species in order to safeguard protection for flora and fauna species threatened with extinction;
- g) establishment of areas with maximum yearly logging levels, according to the logging cycle of the exploited species;
- h) adoption of an adequate forestry system;
- i) use of adequate plantation techniques, whenever necessary.

§ 3 Criteria:

- a) exploitation limited to forty percent of the number of existing individuals of the species within the managed area; and
- b) conservation of at least fifty reproductive individuals of the species (matrix or seed-bearing) per hectare.

§ 4 The application for exploitation that is foreseen by this article must be made through the presentation of a Sustainable Forestry Exploitation Plan – PMFS, exclusively for the Bracatinga.

Art. 5 The exploitation of populations through selective logging will be allowed, in exceptional cases, within Bracatinga formations with a density of between one and three thousand trees per hectare and with a DAP equal or superior to five centimeters, according to the text of art. 3.

§ 1 Licenses for sustainable forestry exploitation up to seventy percent of the area is limited to rural properties of up to fifteen hectare or up to five percent of the total area in other properties.

§ 2 The application for a license that foreseen by this article must be made through a Simplified Logging Application (RSC) that is included in annex I, and presented to the Brazilian Institute for the

⁵³ Administrative Order revoked by MMA Administrative Order 499 from Dec. 18, 2002.

Environment and Renewable Natural Resources (IBAMA) by the land proprietor.

Art. 6 The selective logging or sleaze of forest formations in the initial stage with high Bracatinga density (*Mimosa scabrella*), may be allowed in order to maximize productivity and to hinder species density rates of over two thousand five hundred individuals per hectare.

Art. 7 The PMFS will be substituted by a Simplified Logging Application (RSC), included in annex I, for properties with an area that is inferior to thirty hectare.

Art. 8 Cases related to the exploitation of areas under five hectare, within properties with a total exploitation area that is equal or inferior to four fiscal modules of the respective region and not over thirty hectare, the license for the exploitation may be granted through a Simple Application (SS) addressed to IBAMA, based on a technical report issued by a competent professional and according to the terms of annex II.

Single paragraph. Exploitation areas of up to two annual hectare can also be used for subsistence agricultural practices, through intercropping and rotation practices

Art. 9 The authorization for cases related to the plantation of Bracatinga (*Mimosa scabrella*), either as a monoculture, mixed reforestation or agro-forestry systems, duly proved through IBAMA registration and posterior inspection by direct information sent to IBAMA through the use of the form contained in annex III.

Art. 10. PMFS, RSC and SS will only be approved for properties that can present proof of:

- I – registration, conservation and adequate recuperation of Legal Reserve areas; and
- II – conservation and recuperation of permanent preservation areas and other protected areas.

Art. 11. PMS, RSC and the report for the SS must be executed by a legally qualified professional and registered with IBAMA, who assumes responsibility for the data, according to pertinent regulations.

Art. 12. The licenses for PMFS, RSC or SS exploitation represent a proof control tool of the origin of forestry raw-materials.

§ 1 A license for the Transportation of Forestry Products (ATPF) will be granted to holders of approved PMFSs, RSCs or SSs when he/she is the recipient of the forestry raw-materials or to a buyer registered by IBAMA through the presentation of a Forestry Product Sales Statement (DVPF) according to Administrative Order 125-N from Nov. 22, 1993, issued by IBAMA.

§ 2 The ATPF will be supplied through the filling of fields one to eight and fourteen to sixteen after then issuing of the Exploitation Authorization.

Art. 13. The PMFS, foreseen by art. 4, and the RSC foreseen by art. 5 and the SS foreseen by art. 8 or the information of plantation foreseen by art. 9 may be forwarded to other state or municipal organs provided they present a technical structure that will allow for assessments according to pertinent regulations and as long as they are SISNAMA members.

Single paragraph. The organs that are the subject of the heading of this article must inform IBAMA and request the issuing of ATPFs, according to pertinent regulations.

Art. 14. The conversion of exploited areas for other uses is hereby banned.

Art. 15. IBAMA is responsible for the inspection of PMFS, RSC and SS compliance in order to fulfill the provisions set by this Resolution.

Single paragraph. In case of verified irregularities or illegal actions IBAMA must:

- I – undertake due diligence and apply the respective sanction;
- II – promote public civil action;
- III – provide official information to the Federal Public Ministry aimed at the introduction of civil or criminal processes; and
- IV – inform the respective competent professional council that has registered the responsible professional in order to assess his/her professional responsibility.

Art. 16. The IBAMA responsibilities that are the subject of the previous article may be delegated to organs that are mentioned in art. 13 provided they possess an adequate structure according to pertinent regulations and provided they are SISNAMA members.

Art. 17. Non-compliance with the provisions set by this Resolutions will subject offenders to criminal and administrative penalties foreseen by Law 9.605 from Feb. 12, 1998 and Decree 3.179 from Sept. 21, 1999 and in other applicable standards and without prejudice to the reparation of damages

according to § 1 of art. 14, of Law 6.938 from 1981.

Art. 18. Operational questions related to this Resolution should be complemented through inter-institutional regulations in cooperation with IBAMA and the respective state and/or municipal organs.

Art. 19. Licenses granted according to the provisions set by this Resolution will be valid for a period of up to five years.

Single paragraph. The extension of licenses is allowed if all provisions set by this Resolution and other applicable standards have been fulfilled and the entrepreneurs can present proof that he/she has fulfilled his/her obligations included in the previous license.

Art. 20. This Resolution shall enter into effect on the date of its publication.

MARCUS PESTANA – Acting Council President

ANNEX I

SIMPLIFIED LOGGING APPLICATION - RCS

His/Her Excellence Mr./Mrs./Ms. State Superintendent of the Brazilian Institute for the Environment and Renewable Natural Resources – IBAMA/SC,, the undersigned, residing at _____ District of _____, _____, _____ Municipality of _____, State _____ nationality _____, profession _____

Civil state _____ CPF number _____ ID/Issued By/State _____ requests from Your Excellence and Authorization for the logging of Bracatinga (*Mimosa Scabrella*), as foreseen by CONAMA Resolution 310, articles, 5, 6 and 7, which will be undertaken within his/her property according to the following specifications:

- 1 – Property name;
- 2 – Geographical location;
- 3 – Property area (ha);
- 4 – Exploitation area (ha);
- 5 – Legal Reserve areal (ha);
- 6 – Exploitation methodology including the definition of plot areas and logging periods;
- 7 – Estimated volume of exploited wood and/or firewood;
- 8 – Undertaken by a responsible professional (name, full address, CGC or CPF, profession, IBAMA registration number, registration number in the competent professional council and visa number/region, if applicable);
- 9 – Executed by a responsible technician (name, full address, CGC or CPF, profession, IBAMA registration number, registration number in the competent professional council and visa number/region, if applicable).

The following documentation has been added in order to complete the required information:

- a) actualized property deed;
- b) proof of payment of Rural Territorial Tax – ITR, for the previous year;
- c) sketch of the property;
- d) sketch of access roads to the property in relation to the municipality where the same is located;
- e) sketch of exploited plots and of the Legal Reserve area;
- f) document on the registration of the Legal Reserve;
- g) statement vouching for the conservation and recuperation of the Legal Reserve, permanent preservation areas and other protected areas.

In accordance with the above terms, requests the approval.

_____ , _____ of _____ of 20____

Proprietor _____

ANNEX II

SIMPLIFIED APPLICATION FOR BRACATINGA (*MIMOSA SCABRELLA*) EXPLOITATION

His/Her Excellence Mr./Mrs./Ms. State Superintendent of the Brazilian Institute for the Environment and Renewable Natural Resources – IBAMA/SC, _____, the undersigned, residing at _____ District of _____, _____ Municipality of _____, State _____ nationality _____, profession _____

Civil state _____ CPF number _____ ID/Issued By/State _____ requests from Your Excellence and Authorization for the logging of Bracatinga (*Mimosa Scabrella*), as foreseen by CONAMA Resolution 310, article 8, which will be undertaken within his/her property according to the following specifications:

- 1 – Property location including a sketch on property access in relation to the municipality where it is located;
- 2 – Proof of ownership or possession;
- 3 – Property area (ha);
- 4 – Area covered by natural forest (ha);
- 5 – Exploitation area (ha);
- 6 – Legal Reserve area (ha);
- 7 – Report from the responsible technician;
- 8 – Document proving the registration of the Legal Reserve; and
- 9 - statement vouching for the conservation and recuperation of the Legal Reserve, permanent preservation areas and other protected areas.

Legal Reserve delimitations: _____

In accordance with the above terms, requests the approval.

_____ of _____ of 20 _____

Proprietor _____

Witness:

Name: _____ ID Number _____

Signature

ANNEX III
INFORMATION RELATED TO THE EXPLOITATION OF PLANTED BRACATINGA (*MIMOSA SCABRELLA*)

His/Her Excellence Mr./Mrs./Ms. State Superintendent of the Brazilian Institute for the Environment and Renewable Natural Resources – IBAMA/SC, _____, the _____ undersigned, _____ residing _____ at _____ District of _____, _____ Municipality of _____, State _____ nationality _____, profession _____

Civil state _____ CPF number _____ ID/Issued By/State _____ requests from Your Excellence and Authorization for the logging of Bracatinga (*Mimosa Scabrella*), as foreseen by CONAMA Resolution 310, article 9, which will be undertaken within his/her property according to the following specifications:

- 1 – Geographical location;
- 2 – Property area (ha);
- 3 – Exploitation area (ha);
- 4 – Legal Reserve areal (ha);
- 5 – Identification of the Responsible technician (name, full address, CGC or CPF, profession, IBAMA registration number, registration number in the competent professional council and visa number/region, if applicable);
- 6 – Estimated volume of exploited wood and/or firewood;
- 7 - Report undertaken by the responsible technician including an assessment of the plantation and population conduction and well as IBAMA registration of the planted population.

The following documentation has been added in order to complete the required information:

- a) actualized property deed;
 - b) proof of payment of Rural Territorial Tax – ITR, for the previous year;
 - c) sketch of the property;
 - d) sketch of access roads to the property in relation to the municipality where the same is located;
- Legal Reserve delimitations: _____

In accordance with the above terms, requests the approval.

_____, _____ of _____ of 20 _____

Proprietor:

Witness: _____

Name:

ID Number:

Signature:

ANNEX IV
STATEMENT OF RESPONSIBILITY FOR THE CONSERVATION OF EXPLOITED FORESTS -
TRMFM

On _____ the day of the month of _____ of the year __, Mr./Mrs./Ms.
Son/daughter of _____ and of _____, residing at _____, District of _____,
Municipality of _____ State of, civil state _____, nationality _____
_____, profession, CPF number _____ - _____, ID/Number _____
Issued by/State _____ the legal owner of the propriety named _____
Municipality of _____, in this State, registration number
_____ sheets _____, book ___ of _____ Notary Property Registry of _____

With a total area of _____ hectare, states to the competent authority, in light of current forestry and environmental legislation that the property area is registered as a limited exploitation area and can only be exploited through sustainable forestry methods conditioned to IBAMA authorization. The current proprietor is hereby committed, as well as his/her heirs or successors, to honor, affirm and value the present statement.

Property Characteristics and Boundaries (description according to the area delimited in the topographical map which is an integral part of the present Agreement): _____

Delimitation of the Exploited Forest Area (description according to the area delimited in the topographical map which is an integral part of the present Agreement): _____

In accordance with the above terms, requests the approval.

Proprietor

Witness:

Name: _____ ID Number

Witness:

Name: _____ ID Number

This text does not substitute the text published in the Official Gazette on July 29, 2002.

RESOLUTION 406, Feb. 2, 2009
Published in Official Gazette 26 on Feb. 6, 2009, page 100

Establishes technical parameters to be adopted for the preparation, presentation, technical assessment and enforcement of Sustainable Forestry Exploitation Plans (PMFS) related to the logging of native forests and their successional stages, within the Amazon biome.

THE NATIONAL ENVIRONMENT COUNCIL – CONAMA, in accordance with the power bestowed upon the Council by article 8, item VII of Law 6.938 from August 31, 1981, regulated by Decree 99.274 from June 6, 1990 and according to the provisions of its Internal Regulations, annex to Administrative Order 168 from June 10, 2005, and

Considering the need to integrate the actions of the National Environment System (SISNAMA) in order to implement the Country's Forestry Policies;

Considering the need to regulate procedures and standardize criteria for the preparation and Amazon Biome;

Considering the provisions set by Laws 4.771 from Sept. 15, 1965; 6.938 from Aug. 31, 1981 and 11.284 from March 2, 2006, and Decree 5.975 from Nov. 30, 2006;

Considering the achievements reached by forest research in the Brazilian Amazon; Considering the provisions established by federal legislation in relation to exotic or native species forests, decides:

Art. 1 Establish technical parameters to be adopted for the preparation, presentation, technical assessment and enforcement of Sustainable Forestry Exploitation Plans (PMFS) related to the logging, of native forests and their successional stages, within the Amazon biome, which must be enforced by the organs that compose the National Environment System (SISNAMA), on any level of competence, according to the provisions set by this Resolution.

§ 1 This Resolution is not applicable to exotic or native planted forests.

§ 2 Other technical directives that may be adopted for the approval of PMFS will comply with the stipulations set by the competent environmental organ.

Art. 2 The following definitions are adopted for all purposes of this Resolution:

I – Forestry Exploitation Area (AMF): group of Forestry Exploitation Units that form the PMFS, contiguous or not, located in one single state;

II – Exploitation License (AUTEX): document issued by the competent organ which authorizes the start of the exploitation within the Annual Production Unit (UPA) and specifies the maximum volume, per species, that may be exploited;

III – Logging Cycle: period of time, in years, between successive harvests of forest products, lumber or non-lumber, within one given area;

IV – Diameter at sure of the diameter of a tree measured at 1.30 meters from the soil;

V – Minimum Log Diameter (DMC): minimum tree diameter that allows for its logging within one PMFS;

VI – Logging Intensity: commercial volume of fallen trees for exploitation purposes, calculated through volumetric equations foreseen in the PMFS and based on forestry stock data at 100%, indicated in cubic meters for each area unit (m³/ha) subjected to effective forestry exploitation and calculated for each work unit (UT);

VII – Forest Inventory Sample: collection of qualitative and quantitative information on a particular forest through the use of sample processes;

VIII – Continuous Forestry Inventory: system used for forest inventory purposes through the establishment of permanent plots which are periodically measured during the logging cycle in order to collect information on forest growth and production;

IX – Sustainable Forest Exploitation: forest administration in order to reach economic, social and environmental objectives while respecting the mechanisms that sustain the ecosystem that is subjected to exploitation and takes into consideration the cumulative or alternative use of multiple species;

X – Sustainable Forestry Exploitation Plan (PMFS): basic technical document that sets directives and procedures for forest management in accordance with sustainable forestry exploitation principles;

XI – Annual Operational Plan (POA): document delivered to the competent environmental organ containing information defined by its technical directives and specifying the activities that will be undertaken during a 12 month period;

XII – Forestry Exploitation Unit (UMF): area of the rural property that will be used for forestry exploitation;

XIII – Annual Production Unit (UPA): subdivision of the Forestry Exploitation Area which will be exploited during one year;

XIV – Work Unit (UT): operational subdivision of the Annual Production Unit; and

XV – Technical Survey: field assessment in order to subsidize the analysis, follow-up and control, regularly, the operations and activities within the Forestry Exploitation Area (AMF) undertaken by the competent environmental organ.

Art. 3 The classification of the PMFS's in relation to lumber extraction methods is divided in:

I – PMFS's that do not foresee the use of machines to drag logs; and

II PMFS's that foresee the use of machines to drag logs.

Art. 4 The logging intensity proposed in the PMFS will be defined in order to allow for the regulation of forest production and will consider the following aspects:

I – annual productivity estimates of the exploited forest related to commercial species, if studies are not available for the given area the rate 0.86 m³/ha/year will be used for the PMFS that uses machines for log dragging purposes;

II – initial logging cycle of a minimum of 25 years and a maximum of 35 years for PMFS's that foresee the usage of machines for log dragging purposes, and a minimum of 10 years for PMFS's that do not use machines for log dragging purposes;

III – forest production capacity estimation defined by the available commercial stock (m³/ha), and considering:

a) the results of the forest inventory in the Forestry Exploitation Unit (UMF); and

b) the criteria used for the selection of logging trees foreseen in the PMFS.

IV – The following maximum logging intensities that can be granted by competent environmental organs are:

a) 30 m³/ha for PMFS's that foresee the use of machines for log dragging purposes, with initial logging cycle of 35 years;

b) 10 m³/ha for PMFS's that do not use machines for log dragging purposes, with initial logging cycle of 10 years;

c) preservation of at least 105 of the number of trees per species, within the UPA effective exploitation area, which meet the criteria for logging selection set by the PMFS, respecting the minimum preservation levels of three trees per species in 100 hectare (one hundred hectare) in each Work Unit (UT);

d) preservation of all trees of all species whose abundance of individuals with a DAP higher than the DMC is equal or inferior to three trees per 100 hectare of effective UPA exploitation area, within each Work Unit (UT). Art. 5 The competent environmental organ may authorize, based on studies on the medium volume per tree, a logging intensity above 10 m³/ha, limited to three trees per hectare, for PMFS's that do not use machines for log dragging purposes.

Art. 6 It is hereby established a DMC of 50 centimeters for all species that have not been the object of specific DMC setting.

Art. 7 Any change to the PMFS parameters defined in articles 4, 5 and 6 is conditioned to the presentation of technical studies which includes justifications presented by the responsible technician and according to the following requirements:

I – characterization of the physical and biological environment;

II – determination of existing stocks;

III – exploitation intensity that is compatible with available commercial stocks and the growth rate of the forest;

IV – logging cycle that is compatible with the time for the re-establishment of the volume of forest exploitation product;

V – promotion of the natural forest regeneration process;

VI – adoption of adequate forestry systems;

VII – adoption of adequate exploitation methods;

VIII – monitoring of the development of forest remains; and

IX – adoption of measures that mitigate environmental and social impacts.

§ 1 The technical studies mentioned in the heading of this article must take into account local peculiarities and specifications and present the scientific principles upon which it is based.

§ 2 Reduction of logging cycles is conditioned to the presentation of proof of basal area recuperation for classes with a diameter that is equal or higher than the DMC, based on continuous forestry stock inventory data.

§ 3 the determination of the DMC for each commercialized species will be achieved through studies that follow available technical directives and consider, simultaneously, the following aspects:

I – diametric distribution of the number of trees with a DAP that is higher or equal to 10 centimeters, per area unit (n/ha) that is the product of a forestry inventory undertaken within the UMF;

II – other ecological characteristics which are relevant for its natural regeneration; and

III – final destination/usage.

Art. 8 It is allowed to collect wastes such as branches and buttresses from exploited trees.

§ 1 The methods and procedures that will be adopted for the extraction and measuring of wastes from forest exploitation must be described in the PMFS as well as their final destination/usage.

§ 2 The authorized collection of wastes from forest exploitation is limited to 1 cubic meter during the, first year, per cubic meter of authorized logs, or defined through cubage.

§ 3 From the second year of forest exploitation residual collection the authorization will only be granted based on dendrometric data for the specific exploitation area or through a residual stock inventory according to technical directives. a.

§ 4 The volume of wastes from forest exploitation will not be included in the logging intensity foreseen in the PMFS and in the POA for the production of lumber

Art. 9. The competent environmental organ will analyze any proposals related to the alteration of parameters foreseen by this Resolution based on technical directives and will forward them to the forestry Technical chamber for a final analysis and decision.

Art. 10. The competent environmental organ will only accept calculations of volume based on erect trees, for second year Annual Operational Plans (POAs) and only through the volume equations specifically developed for the PMFS.

Art. 11. The Forestry Inventory Sample must follow the directives defined by the forest Technical chamber of the competent environmental organ.

Art. 12. The Activity Report must include information related to the difference between the planned volume and the effective exploited volume, per species.

Art. 13. The adoption of processes that allow for the control of the origin of the production, through lumber tracking of exploited trees, is mandatory, from the forest location to the deployment location.

Single paragraph. The competent environmental organs will provide guidelines regarding the procedures mentioned in the heading of this article.

Art. 14. The competent environmental organ must set periods when logging activities are banned as well as the dragging of logs and transportation during the rainy season, PMFS's for firm-land areas will follow local seasonal aspects.

Art. 15. Reentry into exploited areas is allowed as long as they use the same structure that has been established and approved in the POA, during the validity period of the AUTEK, while considering local seasonal aspects.

Art. 16. The validity of the AUTEK is 12 months and may be extended by another 12 months if duly justified.

Art. 17. The introduction and the execution of PMFSs is conditioned to the presentation of a Notification of Technical Responsibility (ART) by a legally qualified professional.

Art. 18. Exploitation plans will be inspected through samples in intervals of a minimum of two tears per PMFS.

Art. 19. The characterization of the successional stages of the Amazon Biome will be the object of specific

standards issued by the competent environmental organ.

Art. 20. The adoption of scientific-technical procedures for the identification of the botany of exploited forests is mandatory, in order to safeguard the relation between scientific and popular names within the UMF.

Single paragraph. The issuing of the AUTEX is conditioned to the identification of exploited species by their respective scientific names.

Art. 21. This Resolution shall enter into effect on the date of its publication.

CARLOS MINC – CONAMA President

This text does not substitute the text published in the Official Gazette on Feb. 6, 2009

WATER QUALITY

CONAMA RESOLUTION 274, November 29, 2000
Published in Official Gazette 18 on Jan. 25, 2001, Section 1, pages 70-71

Correlations:

· Revokes articles 26 to 34 of CONAMA Resolution 20/86 (revoked by CONAMA Resolution 357/05)

Defines coastal bathing water criteria for Brazilian Waters.

THE NATIONAL ENVIRONMENT COUNCIL – CONAMA, in accordance with the power bestowed upon the Council by article 8, item VII of Law 6.938 from August 31, 1981, regulated by Decree 99.274 from June 6, 1990 and in light of the provisions of CONAMA Resolution 20 from June 18, 1986⁵⁴ and its Internal Regulations, and

Considering that human health and wellbeing may be affected by beach water quality;

Considering that the classification of fresh, brackish and salt waters is essential to the upholding of quality levels and indicators in order to safeguard water quality;

Considering the need to create tools in order to evaluate the evolution of water quality in relation to levels that have been established for swimming in Brazilian waters and thereby create the necessary conditions for primary contact leisure activities;

Considering that the National Environment Policy, the National Water Resources Policy and the National Plan for Coastal Management (PNGC) recommend the adoption of systematic evaluation of the environmental quality of water, decides:

Art. 1º The following definitions are adopted for all purposes of this Resolution:

- a) fresh water: water with salt quantities that are equal to or under 0.5%;
- b) brackish water: water with salt quantities between 5.50% and 30%;
- c) salt water: water with salt quantities above 30%;

d) fecal coliforms (thermotolerant): bacteria belonging to the coliform group characterized by the presence of enzyme β -galactosidase and by the capacity to ferment lactose and produce gases at temperatures of 44-45 Degrees Celsius in environments that contain biliary salts or other surface-active agents with similar inhibiting properties. They can be found in soils, plants or any effluent that contains organic matter apart from being present in human and animal feces;

e) *Escherichia coli*: bacteria belonging to the *Enterobacteriaceae* family characterized by the presence of β -galactosidase and β -glucuronidase. Breeds in complex environments at 44-45 degrees Celsius, ferments lactose and manitol and produces acid and gases and also produces indol through amino acid tryptophan. *Escherichia coli* is abundant in human and animal feces, natural water and soils that have recently been contaminated by feces;

f) Enterococci: bacteria belonging to the streptococci fecal group belonging to the *Enterococcus* genre (previously considered group B streptococci), characterized by high tolerance to adverse growth conditions such as: capacity to grow in the presence of 6.5% sodium Chloride, at pH 9,6 and at temperatures between 10 and 45 degrees Celsius. The majority of *Enterococcus* species are from human origin even if they also can be isolated in animal feces;

g) blooming: excessive proliferation of aquatic micro-organisms, mainly algae, predominated by one species and as the product of favorable environmental conditions and which can change the color of the water and/or form a thick layer on its surface;

h) isobaths: line that connects two points at equal depth;

i) primary contact leisure: when the human enters into direct contact with water bodies such as swimming, aquatic skiing and diving.

Art. 2 Fresh, brackish and salt waters that are used for bathing purposes (primary contact recreation) will be assessed as either proper or improper.

§ 1 Waters considered proper may be divided according to the following categories:

a) Excellent: when 80% or more of the taken samples obtained during the previous five weeks, collected at the same location, contain a maximum of 250 fecal coliforms (thermotolerant) or 200 *Escherichia coli* or 25 enterococci by 100 milliliters;

b) Very good: when 80% or more of the taken samples obtained during the previous five weeks, collected at the same location, contain a maximum of 500 fecal coliforms (thermotolerant) or 400 *Escherichia coli* or 50 enterococci per 100 milliliters;

c) Satisfactory: When 80% or more of the taken samples obtained during the previous five weeks, collected at the same location, contain a maximum of 1.000 fecal coliforms (thermotolerant) or 800 *Escherichia coli* or 100 enterococci by 100 milliliters

⁵⁴ Resolution revoked by Resolution 357/05

§ 2 When more than one microbiological indicator is used the condition of waters will be assessed according to the most restrictive indicator.

§ 3 Standards related to enterococci are only applicable to sea waters.

§ 4 Waters will be considered improper when one of the following occurrences has been found in the assessed body:

- a) non-compliance with the criteria established for proper water;
- b) the rate obtained in the last sample is superior to 2500 fecal coliforms (thermotolerant) or 2000 *Escherichia coli* or 400 enterococci per 100 milliliters;
 - c) elevated or abnormal incidence of regional illnesses transmitted by water bodies according to sanitation authorities;
 - d) presence of wastes or dumping, solid or liquid, greases and other substances that are capable of becoming a health hazard or to make recreation an unpleasant activity;
 - e) pH < 6,0 or pH > 9,0 (fresh water), except in natural conditions;
 - f) blooming of algae or other organisms until it is proved that they do not pose any risks to human health;
 - g) other factors that contraindicate, temporarily or permanently, primary contact leisure activities;

§ 5 Beaches and bathing locations that are deemed systematically improper should be the object of pathogenic organism research.

Art. 3 Beach stretches and bathing locations will be interdicted if the environmental control organ, in any of its instances (municipal, state or federal) verifies the improper quality of primary contact leisure waters and presents duly justification for the measure⁵⁵.

§ 1 Stretches are considered⁵⁶ the object of interdiction when they have been the location of serious or medium accidents such as: oil spills and sewer spilling, contain toxic elements or present creamy formations caused by the blooming of algae or other organisms and, in relation to fresh waters, contain the presence of mollusks that are potential contaminators of schistosomiasis and other illnesses transmitted by water.

§ 2 The interdiction and its respective signalization caused by any of the motives mentioned in the heading and in § 1 of this article must be carried out by the competent environmental control organ.

Art. 4 When the deterioration of beach or resort quality is caused by the washing of public roads by rain water or in consequence of any other cause, these circumstances must be mentioned in the bulletin on beach and resort conditions as well as any other cause deemed as relevant by the environmental control organ.

Art. 5 The collection of samples should, preferentially, be done during days of great affluence of people to beaches and bathing locations and at the criteria of the competent environmental control organ.

Single paragraph. Samples must be taken from locations of one meter isobaths and with the largest concentration of bathing humans. Art. 6 Sample results may comprise periods that are under five weeks as long as each of the periods has been specified and at least five samples have been collected and examined during that period and with a minimum interval of 24 hours between sample collections.

Art. 7 The sample methodology and sample analysis must be done according to the standards established and approved by the National Meteorology, Standardization and Industrial Quality Institute (INMETRO) or, in their absence according to Standard Methods for the Examination of Water and Wastewater-APHA-AWWA-WPCF, latest edition.

Art. 8 Environmental organs are hereby recommended to undertake an assessment of parasitological and microbiological condition of sand in order to establish future standards.

Art. 9 It is the duty of environmental control organs to implement the provisions set by this Resolution and to release information regarding the water quality of beaches and bathing locations and to inspect the enforcement of pertinent legislation.

Art. 10. In the absence or omission of an environmental control organ its duties will be passed on to the Brazilian Institute for the Environment and Renewable Natural Resources with will act as a substitute.

Art. 11. Environmental control organs will keep IBAMA informed on the water quality of water bodies.

Art. 12. The Union, States, Federal District and Municipalities will interact with each other and with society in general in order to define and implement the provisions set by this Resolution.

Art. 13. The lack of compliance with the provisions set by this Resolution will subject offenders to sanction foreseen by Laws 6.938 from Aug. 31, 1981; 9.605 from Feb. 12, 1998 and by Decree 3.179 from Sept. 21, 1999.

Art. 14. This Resolution shall enter into effect on the date of its publication.

⁵⁵ Ratified in Official Gazette 164-E on Aug. 27, 2001, page 172

⁵⁶ Ratified in Official Gazette 164-E on Aug. 27, 2001, page 172

Art. 15. Articles 26 to 34 of CONAMA Resolution 20 from June 18, 1986⁵⁷ are hereby revoked.

JOSÉ SARNEY FILHO – Conama President

JOSÉ CARLOS CARVALHO – Executive Secretary

NOTE: Re-published due to errors (original version published in Official Gazette 5 from Jan. 8, 2001, page 23).

This text does not substitute the text published in the Official Gazette on Jan. 25, 2001.

⁵⁷ Resolution revoked by Resolution 357/05.

RESOLUTION 357, March 17, 2005
Published in Official Gazette 053, on March 18, 2005, pages 58-63

Correlations:

· Changed by Resolutions 410/2009 and 430/2011

Establishes provisions for the classification of water bodies as well as environmental directives for their framework, establishes conditions and standards for effluent releases and makes other provisions

THE NATIONAL ENVIRONMENT COUNCIL – CONAMA, in accordance with the power bestowed upon the Council by articles 6, item II and 8, item VII of Law 6.938 from August 31, 1981, regulated by Decree 99.274 from June 6, 1990 and its alterations, and in light of the provisions of its Internal Regulations, and

Considering the enforcement of CONAMA Resolution 274 from Nov. 29, 2000 which Regulates bathing water quality;

Considering art. 9, item I of Law 9.433 from Jan. 8, 1997 which instituted the National Water Resource Policy and other subject related standards;

Considering that water is a component of sustainable development considerations based on the principles of the ecological function of property, prevention, care, polluter-compensator, user-payer and integration, as well as the acknowledgement of the intrinsic value of nature;

Considering that the Federal Constitution and Law 6.938 from August 31, 1981 have the objective of controlling the dumping of environmental pollutants and ban the disposal of products in levels that are considered as hazardous or dangerous to human beings and other life forms;

Considering that the framework sets the reaching of specific final goals, which may be reached through progressive and intermediary goals, compulsory and aimed at their implementation;

Considering the terms of the Stockholm Conference on Persistent Organic Polluters (POPs) which was ratified by Legislative Decree 204 from May 7, 2004;

Considering that the classification of fresh, brackish and salt waters is essential to the preservation of their quality level, assessed through specific procedures in order to safeguard their preponderant usage;

Considering that the framework of water bodies must be based not only on their current state but also in respect to the quality levels that they should present in order to fulfill the needs of the community;

Considering that human health and wellbeing, as well as the aquatic ecological balance, should not be affected by the deterioration of water quality;

Considering the need to create tools in order to assess the evolution of water quality in relation to the classification established by the framework in order to facilitate the setting of standards and the control of goals aimed at the attainment of proposed objectives;

Considering the need to reformulate existing classifications in order to improve the distribution of water usage and to specify required quality conditions and standards without prejudice to other future improvements; and

Considering that pollution control is directly related to the safeguarding of health conditions, an ecologically balanced environment and the improvement of life conditions, while considering the priorities and environmental classifications that are required for a particular water body; decides:

Art. 1 This Resolution Establishes provisions for the classification of environmental directives for the framing of superficial water bodies as well as for the establishment of conditions and standards related to releases into effluents.

CHAPTER I Definitions

Art. 2 The following definitions are adopted for all purposes of this Resolution:

I - fresh water: water with salt quantities that are equal to or under 0.5%;

II - brackish water: water with salt quantities between 5.50% and 30%;

III - salt water: water with salt quantities above 30%;

IV – lentic environment: environment with still waters, with slow or stagnated movement;

V – lotic environment: environment containing moving continental waters;

VI – aquaculture: the cultivation or breeding of animals whose life cycle occurs entirely or partially in aquatic environments;

VII – pollution load: quantity of a given pollutant transported by or discharged into a water body, expressed in mass/time units;

VIII - cyanobacteria: prokaryotic microorganisms autotrophic, also named cyanophytes (blue algae) which may live in any superficial swamp and in particular within those with high nutrient levels (nitrogen and phosphor) and may produce toxic substances that are hazardous to health conditions;

IX – quality class: group of conditions and standards necessary for current or future preponderant usage;

X - classification: qualification of fresh, brackish and salt waters in relation to their preponderant usage (quality class systems), current and future;

XI – thermotolerant coliforms: gram-negative bacteria in the form of bacilli, oxidase negative, characterized by enzymes β -galactosidase. May grow in environments containing surface-active agents and ferment lactose at temperatures of 44-45 degrees Celsius and produce acids, gases and aldehyde. They are present in human and homoeothermic animal feces. Are present in soils, plants and other environmental matrix that have not been contaminated by fecal materials;

XII – quality condition: quality of a certain stretch of a water body at a given moment and in relation to possible usage with adequate safety, in relation to Duality Classes;

XIII – release conditions: conditions and standards of emissions adopted for the control of releases into effluents;

XIV – water quality control: group of operational measures established for water bodies aimed at the improvement and conservation of water quality;

XV – receiving body: surface water body which receives the releases from an effluent;

XVI - disinfection: removal or deactivation of potentiality pathogenic organisms;

XVII – acute toxic effect: live organism poisoning caused by physical or chemical agents, usually lethal, or causing any other type of symptom that is preceded by a short exposition period;

XVIII – chronically toxic effects: poisonous effects on live organisms caused by physical or chemical agents which affect one or several biological functions such as reproduction, growth and behavior, during an exposure period which can comprise its total or partial life cycle;

XIX – framework effectivisation: reaching of the framework's final goal;

XX – framework: establishment of goals or objectives for water quality (class) which must, mandatorily, be reached or upheld within a segment of a water body, according to the pretended preponderant use throughout time;

XXI – ecotoxicological tests: tests undertaken in order to determine the poisonous effects of physical or chemical agents upon different aquatic organisms;

XXII – toxicological tests: tests undertaken in order to determine the poisonous effects of physical or chemical agents aimed at the evaluation of potential health hazards;

XXIII - *Escherichia coli* (*E. Coli*): bacteria belonging to the Enterobacteriaceae family characterized by the activity of the β -glucuronidase enzyme. Produces indol from the tryptophan amino acid. It is the sole species of the thermotolerant coliforms that only inhabits the human intestine and that of homoeothermic animals, where it is present in high densities;

XXIV – goals: it is the splitting of the objective into physical undertakings and management activities in accordance with pre-established measurement units and schedules, and is mandatory;

XXV – monitoring: measurement or verification of parameters related to water quality and quantity, may be periodical or continuous and is used in order to follow-up on the condition and control of water body quality;

XXVI – standard: limit rate adopted for the establishment of a parameter related to the water quality of a water body;

XXVII – water quality parameter: substantiates other representative water quality indicators;

XXVIII – amateur fishing: exploitation of fishing resources for leisure or sports purposes;

XXIX – program for framework effectivisation: group or progressive mandatory actions or measures that are needed in order to reach intermediary and final goals related to water quality and which are established for the

water body framework;

XXX – recreation or primary contact: direct and prolonged contact with water (such as swimming, diving and aquatic skiing) that increases the possibility of water swallowing by the bather;

XXXI – secondary contact recreation: related to activities when the contact with water is sporadic or accidental and the possibility of water swallowing is small, such as during fishing and sailing;

XXXII – advanced treatment: techniques for the removal and/or inactivation of refractory elements that are added to conventional treatment methods and which can provide water with some of the following characteristics: color, odor, taste, toxic or pathogenic properties;

XXXIII – conventional treatment: treatment through the use of coagulation or flocculation followed by disinfection and pH correction;

XXXIV – simplified treatment; treatment through filtration and disinfection and pH correction, when necessary;

XXXV – tributary (or effluent water course): water body that flows into a larger river or into a lake or reservoir;

XXXVI – reference output: output of the water body used as a base for management processes, considering the multiple use of waters and the necessary interaction between the instances that compose the National Environment System (SISNAMA) and the National System for the Management of Water Resources (SINGRH);

XXXVII – virtually absent: that which is not perceived through vision, smell or taste; and

~~XXXVIII mixing zone: region of the receptor body where the initial dilution of an affluent occurs (Revoked by Resolution 430/2011)~~

CHAPTER II **Classification of Water Bodies**

Art.3 Fresh, brackish and salt waters within the National Territory is classified in thirteen classes according to the qualities that are required for their preponderant use.

Single paragraph. High quality water can be used for less demanding usage, as long as it does not have a negative effect on water quality, while considering other pertinent requirements.

Section I **Fresh Water**

Art. 4 Fresh waters are classified as:

I - special class: water intended for:

- a) supply for human consumption, disinfected;
- b) preservation of the natural balance of aquatic communities; and
- c) preservation of aquatic environments in conservation and integral protection units/areas.

II - class 1: waters intended for:

- a) supply for human consumption after simplified treatment;
- b) the protection of aquatic communities;
- c) primary contact recreation such as swimming, water skiing and diving, according to CONAMA Resolution 274, 2000;
- d) irrigation of vegetables that are consumed raw and fruits that grow near the soil surface and which are eaten raw and without peeling; and
- e) the protection of aquatic communities within Indigenous Lands.

III - class 2: waters intended for:

- a) supply for human consumption after conventional treatment;
- b) protection of aquatic communities;
- c) primary contact recreation such as swimming, water skiing and diving, according to CONAMA Resolution 274, 2000;
- d) irrigation of vegetables, fruit plants and parks, gardens, sports and leisure fields, with possible direct contact by humans; and
- e) aquaculture and fishing activities.

IV - class 3: waters intended for:

- a) supply for human consumption after conventional or advanced treatment;
- b) irrigation or three cultivation, cereals and fodder; ;
- c) amateur fishing;
- d) secondary contact recreation;
- e) animal drinking.

V - class 4: waters intended for:

- a) sailing; and

b) landscape harmony.

Section II Salt Water

Art. 5 Salt waters are classified as:

I – special class: waters intended for:

- a) the preservation of aquatic environments in conservation and integral protection units/areas;
- b) the preservation and balance of aquatic communities.

II – class 1: waters intended for:

- a) primary contact recreation according to CONAMA Resolution 274 from 2000;
- b) protection of aquatic communities; and
- c) aquaculture and fishing activities.

III – class 2: waters intended for:

- a) amateur fishing; and
- b) secondary contact recreation.

IV - class 3: waters intended for:

- a) sailing; and
- b) landscape harmony.

Section II Brackish Water

Art. 6 Brackish waters are classified as:

I – special class; waters intended for:

- a) the preservation of aquatic environments in conservation and integral protection units/areas; and
- b) the preservation and the natural balance of aquatic communities.

II - class 1: waters intended for:

- a) primary contact recreation, according to CONAMA Resolution 274 from 2000;
- b) the protection of aquatic communities;
- c) aquaculture and fishing activities;
- d) vegetables that are consumed raw and fruits that grow near the soil surface for human consumption after conventional or advanced treatment; and
- e) irrigation of vegetables that are consumed raw and of fruits that grow near the soil surface and are consumed raw and without peeling and the irrigation of parks, gardens, sports and leisure fields, with possible direct human contact.

III - class 2: waters intended for:

- a) amateur fishing; and
- b) secondary contact recreation.

IV – class 3: waters intended for:

- a) sailing; and
- b) landscape harmony.

CHAPTER III WATER QUALITY CONDITION AND STANDARDS

Section I General Provisions

Art. 7 The quality standards set by this Resolution establish individual limits for each substance within a given class.

Single paragraph. Possible interaction between substances, specified or not by this Resolution, cannot confer water characteristics that can lead to lethal effects, affect reproduction of life physiognomy, as well as restrict the foreseen preponderant uses, except for the provisions contained in § 3 of art. 34 of this Resolution.

Art. 8 The selected group of water quality parameters aimed at the substantiation of the framework proposal must be regularly monitored by the Public Powers.

§ 1 Parameters that may be the object of suspicion or non-conformity with reality must also be monitored.

§ 2 Monitoring results must be statistically analyzed and measuring discrepancies must be considered.

§ 3 The quality of aquatic environments may be assessed through biological indicators, when appropriate, and through the usage of aquatic organisms and/or communities.

§ 4 Possible interactions between substances and the presence of contaminants that are not listed in this Resolution and which may cause damages to living being must be investigated through the use of ecotoxicological

and toxicological tests and through other scientifically acknowledged methods.

§ 5 If the study of cases that are mentioned in the previous paragraph is deemed as necessary due to the actuation of identified entrepreneurs the expenses for the studies are his/her responsibility.

§ 6 Brackish continental water bodies whose salinization is not a direct product of marine influence the rates of nitrogen and phosphor chemical groups will be established according to their correspondents in fresh waters.

Art. 9 The analysis and assessment of the rates of water quality parameters that are the subject of this Resolution will be undertaken by Public Powers which may use their own laboratories, associated or contracted, which will adopt the procedures for analytic quality in light of current demands.

§ 1 The laboratories of the competent organs must be structures in order to meet the demands placed by the provisions contained in this Resolution.

§ 2 In cases when the available analytical methodology is not sufficient for the quantification of the concentration of these substances in the water, the sediments and/or aquatic biome may be investigated regarding the possible presence of these substances.

Art. 10. The maximum rates established for the parameters listed in each of the framework classes must be followed according to reference flow.

§ 1 The rates of Biochemical Oxygen Demand (BOD) established for class 2 and 3 fresh waters may be increased if the case study related to the auto-depuration of the receptor body shows that the minimum concentrations of foreseen dissolved oxygen will not be transgressed, in reference flow conditions, except within mixing zones.

§ 2 The maximum admissible rates of the parameters related to the chemical compositions of nitrogen and phosphor, in the conditions of reference flow, may be altered due to natural occurrences, or when specific environmental studies that also take into account diffuse pollution, prove that these new rates will not prejudice the foreseen thin the framework of the water body.

§ 3 In cases when the nitrogen is a limiting factor for the eutrophication of class 1 and 2 waters, in the conditions established by the competent environmental organ, the total nitrogen rate (after oxidation) cannot surpass 1,27 mg/L in lentic environments and 2,18 mg/L in lotic environments, in the reference flow.

§ 4 The provisions of §§ 2 and 3 does not apply to salt or brackish water bays or to other water bodied when the reference flow is not applicable, these cases must become the object of specific studies on the dispersion and assimilation of polluting agents in water environments.

Art. 11. The Public Powers may, at any moment, add other conditions and quality standards for a specific water body or make them more restrictive due to local conditions and based on scientific foundations.

Art. 12. The Public Powers may establish additional restrictions and measures, exceptional or temporary, when the flow of the water body is below the reference flow rate. O

Art. 13. Natural conditions of water bodies should be upheld in relation to special class waters.

Section II Fresh Water

Art. 14. Class 1 fresh waters must possess the following specifications and standards:

I – water quality specifications:

a) non-existence of acute toxic effects on organisms, in accordance with the criteria set by the competent environmental organ, or, in its absence, by acknowledged national or international institutions through the undertaking of standardized ecotoxicological tests or another scientifically acknowledged method.

b) virtually absent: floating substances, including non-natural foam;

c) virtually absent: oils and greases;

d) virtually absent: substances that possess a taste or odor;

e) virtually absent: dying agents from anthropic sources;

f) virtually absent: solid wastes;

g) thermotolerant coliforms: for primary contact usage it must follow bathing standards foreseen by CONAMA Resolution 274/2000. For other uses, thermotolerant coliforms cannot surpass a 200 per 100 milliliters in 80% or more of at least 6 samples collected during a one year period and undertaken every other month. *E. Coli* may substitute the parameter of thermotolerant coliforms in accordance with the limits established by the competent environmental organ;

h) DBO 5 days at 20°C up to 3 mg/L O₂;

i) OD not inferior to, in any sample, 6 mg/L O₂;

j) turbidity of up to 40 nephelometric Turbidity units (UNT);

l) true color: natural color of the water body in mg Pt/L; and

m) pH: 6,0 to 9,0.

II – Water quality standards:

TABLE I – Class 1 – FRESH WATER STANDARDS	
Parameters	Max. rates
Chlorophyll <i>a</i>	10 µg/L
Density of cyanobacteria	20.000 cel/mL or 2 mm ³ /L
Dissolved solids totals	500 mg/L
INORGANIC PARAMETERS	Max. rate
Dissolved aluminum	0,1 mg/L Al
Antimony	0,005mg/L Sb
Arsenic total	0,01 mg/L As
Barium total	0,7 mg/L Ba
Beryllium total	0,04 mg/L Be
ORGANIC PARAMETERS	0,5 mg/L B
Cadmium total	0,001 mg/L Cd
Lead total	0,01mg/L Pb
Cyanide free	0,005 mg/L CN
Chloride total	250 mg/L Cl
Chlorine residual total (combined + free)	0,01 mg/L Cl
Cobalt total	0,05 mg/L Co
Copper dissolved	0,009 mg/L Cu
Chrome total	0,05 mg/L Cr
Iron dissolved	0,3 mg/L Fe
Fluoride total	1,4 mg/L F
Phosphor total (lentic environment)	0,020 mg/L P
Phosphor total (intermediary environment, residence period between 2 and 40 days, and direct tributary of lentic environments)	0,025 mg/L P
Phosphor total (lotic environment and tributaries of intermediary env.)	0,1 mg/L P
Lithium total	2,5 mg/L Li
Manganese total	0,1 mg/L Mn
Mercury total	0,0002 mg/L Hg
Nickel total	0,025 mg/L Ni
Nitrate	10,0 mg/L N
Nitrite	1,0 mg/L N
Ammoniacal nitrogen Total	3,7mg/L N, to pH ≤ 7,5 2,0 mg/L N, to 7,5 < pH ≤ 8,0 1,0 mg/L N, to 8,0 < pH ≤ 8,5 0,5 mg/L N, to pH > 8,5
Silver total	0,01 mg/L Ag
Selene total	0,01 mg/L Se
Sulfate total	250 mg/L SO ₄
Sulfite (H ₂ S non dissociated)	0,002 mg/L S
Uranium total	0,02 mg/L U
Vanadium total	0,1 mg/L V
Zinc total	0,18 mg/L Zn

Carbon tetrachloride	0,002 mg/L
Tetrachloroethene	0,01 mg/L
Toluene	2,0 µg/L

Toxaphene	0,01 µg/L
2,4,5-TP	10,0 µg/L
Tributyltin	0,063 µg/L TBT
Trichlorobenzene (1,2,3-TCB + 1,2,4-TCB)	0,02 mg/L
Trichloroethene	0,03 mg/L
2,4,6-trichlorophenol	0,01 mg/L
Trifluralin	0,2 µg/L
Xylene	300 µg/L

III – Fresh waters that are used for fishing or the cultivation of organisms for intensive consumption purposes must, apart from the standards established in item II, abide by the following standards, either through substitution or in addition to:

TABLE II - Class 1 – FRESH WATER STANDARDS FOR FISHING WATER BODIES OR ORGANISM CULTIVATION FOR INTENSIVE CONSUMPTION PURPOSES	
Inorganic parameters	Max. rates
Arsenic total	0,14 µg/L As
ORGANIC PARAMETERS	Max. rates
Benzidine	0,0002 µg/L
Benzo (a) anthracene	0,018 µg/L
Benzo (a) pyrene	0,018 µg/L
Benzo (b) fluoranthene	0,018 µg/L
Benzo (k) fluoranthene	0,018 µg/L
Chrysene	0,018 µg/L
Dibenzo (a, h) anthracene	0,018 µg/L
3,3-dichlorobenzidine	0,028 µg/L
Heptachlor + Heptachlor epoxide	0,000039 µg/L
Hexachlorobenzene	0,00029 µg/L
Indeno (1,2,3-cd) pyrene	0,018 µg/L
PCBs - polychlorinated biphenyls	0,000064 µg/L
Pentachlorophenol	3,0 µg/L
Carbon tetrachloride	1,6 µg/L
Tetrachloroethene	3,3 µg/L
Toxaphene	0,00028 µg/L
2,4,6-trichlorophenol	2,4 µg/L

Art 15. The same specifications and standards apply to class 2 fresh waters as those foreseen in the previous article, except for the following:

I – the presence of dyes from anthropic sources which cannot be removed through coagulation, sedimentation or conventional filtering processes;

II – thermotolerant coliforms: CONAMA Resolution 274/2000 must be followed for primary contact recreational purposes. For other uses they cannot exceed a limit of 1.000 thermotolerant coliforms per 100 milliliters in 80% or more of at least 6 (six) samples collected during a one year period, every two months. *E. coli* presence may be determined as a substitution of the thermotolerant coliform parameters in accordance with the limits established by the competent environmental organ;

III – true color: up to 75 mg Pt/L;

IV - turbidity: up to 100 UNT;

V - DBO 5 days at 20°C up to 5 mg/L O₂;

VI - OD, in any sample, nor inferior to 5 mg/L O₂;

VII – chlorophyll *a*: up to 30 µg/L;

VIII – cyanobacteria density: up to 50000 cel/mL or 5 mm³/L; and,

IX – total phosphor:

a) up to 0,030 mg/L, in lentic environments; and

b) up to 0,050 mg/L, in intermediary environments with residency time of between 2 and 40 days and direct tributaries from lentic environments.

Art. 16. Class 3 fresh waters must possess the following specifications and standards:

I – water quality specifications:

a) non-existence of acute toxic effects on organisms, in accordance with the criteria set by the competent

environmental organ, or, in its absence, by acknowledged national or international institutions through the undertaking of standardized ecotoxicological tests or another scientifically acknowledged method;

b) floating substances, including non-natural foam: virtually absent;

c) oils and greases: virtually absent;

d) substances that possess taste and odor: virtually absent;

e) the presence of anthropic dyes is not permitted unless they can be removed through coagulation, sedimentation and conventional filtering;

f) solid wastes: virtually absent;

g) thermotolerant coliforms: coliforms cannot surpass a 2500 per 100 milliliters in 80% or more of at least 6 samples collected during a one year period and undertaken every other month. For other bred confined animals it cannot exceed 1000 coliforms per 100 milliliters in 80% or more of at least 6 samples collected during a one year period and undertaken every other month. For other uses, it cannot exceed the limit of 4000 per 100 milliliters in 80% or more of at least 6 samples collected during a one year period and undertaken every other month. *E. coli* presence may be determined as a substitution of the thermotolerant coliform parameters in accordance with the limits established by the competent environmental organ;

h) cyanobacteria in animal drinking water: the cyanobacteria density rates cannot exceed 50.000 cel/ml, or 5mm³/L;

i) DBO 5 days at 20°C up to 10 mg/L O₂;

j) OD, in any sample, not inferior to 4 mg/L O₂;

l) turbidity of up to 100 UNT;

m) true color: up to 75 mg Pt/L; and,

n) pH: 6,0 to 9,0.

II – Water quality standards:

TABLE III - Class 3 – FRESH WATER STANDARDS

Parameters	Max. rates
Chlorophyll a	60 µg/L
Cyanobacterial Density	100.000 cel/mL or 10 mm ³ /L
Total Dissolved Solids	500 mg/L
INORGANIC PARAMETERS	MAX. RATES

Dissolved aluminum	0,2 mg/L Al
Total arsenic	0,033 mg/L As
Barium full	1,0 mg/L Ba
Total beryllium	0,1 mg/L Be
Total boron	0,75 mg/L B
Total cadmium	0,01 mg/L Cd
Total lead	0,033 mg/L Pb
Free cyanide	0,022 mg/L CN
Total chloride	250 mg/L Cl
Total cobalt	0,2 mg/L Co
Copper dissolved	0,013 mg/L Cu
Total chromium	0,05 mg/L Cr
Iron dissolved	5,0 mg/L Fe
Fluoride total	1,4 mg/L F
Phosphor total (lentic environment)	0,05 mg/L P
Phosphor total (intermediary environment, residence period between 2 and 40 days, and direct tributary of lentic environments)	0,075 mg/L P
Phosphor total (lotic environment and tributaries of intermediary env.)	0,15 mg/L P
Lithium total	2,5 mg/L Li
Manganese total	0,5 mg/L Mn
Mercury total	0,002 mg/L Hg
Nickel total	0,025 mg/L Ni
Nitrate	10,0 mg/L N
Nitrite	1,0 mg/L N

Total ammonia nitrogen	13,3 mg/L N, to pH ≤ 7,5 5,6 mg/L N, to 7,5 < pH ≤ 8,0 2,2 mg/L N, to 8,0 < pH ≤ 8,5 1,0 mg/L N, to pH > 8,5
Total silver	0,05 mg/L Ag
Total selenium	0,05 mg/L Se
Total sulfate	250 mg/L SO ₄
Sulfide (H ₂ S undissociated)	0,3 mg/L S
Total uranium	0,02 mg/L U
Total vanadium	0,1 mg/L V
Total zinc	5 mg/L Zn
ORGANIC PARAMETERS	MAXIMUM RATE
Aldrin + Dieldrin	0,03 µg/L
Atrazine	2 µg/L
Benzene	0,005 mg/L
Benzo (a) pyrene	0,7 µg/L
Carbaryl	70,0 µg/L
Chlordane (cis + trans)	0,3 µg/L
2,4-D	30,0 µg/L
DDT (p,p'-DDT + p,p'-DDE + p,p'-DDD)	1,0 µg/L

Demeton (Demeton-O + Demeton-S)	14,0 µg/L
1,2-Dichloroethane	0,01 mg/L
1,1-Dichloroethene	30 µg/L
Pentacyclodecane dodecachloride	0,001 µg/L
Endosulfan (α + β + sulfate)	0,22 µg/L
Endrin	0,2 µg/L
Phenolic compounds (substances that react with 4-aminoantipyrine)	0,01 mg/L C ₆ H ₅ OH
Glyphosate	280 µg/L
Gution	0,005 µg/L
Heptachlor epoxide +	0,03 µg/L
Lindane (γ-HCH)	2,0 µg/L
Malathion	100,0 µg/L
Methoxychlor	20,0 µg/L
Parathion	35,0 µg/L
PCBs - polychlorinated biphenyls	0,001 µg/L
Pentachlorophenol	0,009 mg/L
Surface-active substances which react with blue methylene	0,5 mg/L LAS
2,4,5-T	2,0 µg/L
Carbon tetrachloride	0,003 mg/L
Tetrachloroethene	0,01 mg/L
Toxaphene	0,21 µg/L
2,4,5-TP	10,0 µg/L
Tributyltin	2,0 µg/L TBT
Trichloroethene	0,03 mg/L
2,4,6-trichlorophenol	0,01 mg/L

Art. 17. Class 4 fresh waters must possess the following specifications and standards:

- I – floating substances, including non-natural foams: virtually absent;
- II – odor and aspect: non objectionable;
- III – oils and greases: iridescences are tolerated;
- IV – easily sedimentable substances that can contribute to the siltation of sailing channels: virtually absent;
- V – total phenols (substances that react with 4- aminoantipyrine) UP TO 1,0 mg/L of C₆H₅OH;
- VI - OD, above 2,0 mg/L O₂ in any sample; and,
- VII - pH: 6,0 to 9,0.

Section III Salt Water

Art. 18. Class 1 salt waters must possess the following specifications and standards:

I – water quality specifications:

a) non-existence of acute toxic effects on organisms, in accordance with the criteria set by the competent environmental organ, or, in its absence, by acknowledged national or international institutions through the undertaking of standardized ecotoxicological tests or another scientifically acknowledged method;

b) virtually absent floating substances;

c) oils and greases: virtually absent;

d) substances that possess odor and turbidity: virtually absent;

e) dyes from anthropic sources: virtually absent;

f) objectionable solid wastes: virtually absent;

g) thermotolerant coliforms: for primary contact usage must follow bathing standards foreseen by CONAMA Resolution 274/2000. For the cultivation of bivalve mollusks for human consumption the medium geometric density of thermotolerant coliforms, from a minimum of 15 samples collected at the same location, cannot exceed 43 per 100 milliliters, and 90% cannot contain more than 88 thermotolerant coliforms per 100 milliliters. These rates should hold during an annual period with a minimum of 5 samples. For other uses it cannot exceed 1.000 thermotolerant coliforms per 100 milliliters in 80% or more of at least 6 samples collected bimonthly during a one year period. *E. coli* presence may be determined as a substitution of the thermotolerant coliform parameters in accordance with the limits established by the competent environmental organ;

h) total organic carbon up to 3 mg/L, as C;

i) OD, not inferior to, in any sample, 6 mg/L O₂; and

j) pH: 6.5 to 8.5, it should not show a change to the natural pH above 0.2 per unit.

II – Water quality standards:

TABLE IV - CLASS 1 – SALT WATER STANDARDS	
Inorganic parameters	Max. rate
Dissolved aluminum	1,5 mg/L Al
Total arsenic	0,01 mg/L As
Barium full	1,0 mg/L Ba
Total beryllium	5,3 µg/L Be
Total boron	5,0 mg/L B
Total cadmium	0,005 mg/L Cd
Total lead	0,01 mg/L Pb
Free cyanide	0,001 mg/L CN
Total residual chlorine (free + combined)	0,01 mg/L Cl
Copper dissolved	0,005 mg/L Cu
Total chromium	0,05 mg/L Cr
Dissolved iron	0,3 mg/L Fe
Total fluoride	1,4 mg/L F
Total phosphorus	0,062 mg/L P
Total manganese	0,1 mg/L Mn
Total mercury	0,0002 mg/L Hg
Total nickel	0,025 mg/L Ni
Nitrate	0,40 mg/L N
Nitrite	0,07 mg/L N
Total ammonia nitrogen	0,40 mg/L N
Polyphosphates (determined by the difference between hydrolysable phosphorus acid and total reactive phosphorus)	0,031 mg/L P
Total silver	0,005 mg/L Ag
Total selenium	0,01 mg/L Se
Sulfide (H ₂ S undissociated)	0,002 mg/L S
Thallium Total	0,1 mg/L Tl
Total uranium	0,5 mg/L U
Zinc total	0,09 mg/L Zn
ORGANIC PARAMETERS	Max. rates
Aldrin + Dieldrin	0,0019 µg/L
Benzene	700 µg/L
Carbaryl	0,32 µg/L
Chlordane (cis + trans)	0,004 µg/L
2,4-D	30,0 µg/L
DDT (p, p'-DDT + p, p'-DDE + p, p'-DDD)	0,001 µg/L
Demeton (demeton, demeton-O + S)	0,1 µg/L
Dodecachlor Pentacyclodecane	0,001 µg/L
Endosulfan (α + β + sulfate)	0,01 µg/L
Endrin	0,004 µg/L
Ethyl benzene	25 µg/L
Phenolic compounds (substances That react with 4-aminoantipyrine)	60 µg/L C ₆ H ₅ OH
Gution	0,01 µg/L
Heptachlor + Heptachlor epoxide	0,001 µg/L
Lindane (γ-HCH)	0,004 µg/L
Malathion	0,1 µg/L
Methoxychlor	0,03 µg/L
Monochlorobenzene	25 µg/L

Pentachlorophenol	7,9 µg/L
PCBs - Polychlorinated Biphenyls	0,03 µg/L
Surface-active substances which react with blue methylene	0,2 mg/L LAS
2,4,5-T	10,0 µg/L
Toluene	215 µg/L
Toxaphene	0,0002 µg/L
2,4,5-TP	10,0 µg/L
Tributyltin	0,01 µg/L TBT
Trichlorobenzene (1,2,3-TCB + 1,2,4-TCB)	80 µg/L
Trichloroethene	30,0 µg/L

III – Salt waters that are used for the cultivation of organisms for intensive human consumption must comply the following standards, apart from those established by item II of this article, as substitutes or in addition to:

TABLE V - CLASS 1 – SALT WATER STANDARDS FOR FISHING WATER BODIES OR ORGANISM CULTIVATION FOR INTENSIVE CONSUMPTION PURPOSES	
Inorganic parameters	Max. rates
Arsenic total	0,14 µg/L As
Organic Parameters	Max. rates
Benzene	51 µg/L
Benzidine	0,0002 µg/L
Benzo (a) anthracene	0,018 µg/L
Benzo (a) pyrene	0,018 µg/L

Benzo (b) fluoranthene	0,018 µg/L
Benzo (k) fluoranthene	0,018 µg/L
2-Chlorophenol	150 µg/L
2,4-dichlorophenol	290 µg/L
Chrysene	0,018 µg/L
Dibenzo (a, h) anthracene	0,018 µg/L
1,2-Dichloroethane	37 µg/L
1,1-Dichloroethene	3 µg/L
3,3-dichlorobenzidine	0,028 µg/L
Heptachlor + Heptachlor epoxide	0,000039 µg/L
Hexachlorobenzene	0,00029 µg/L
Indeno (1,2,3-cd) pyrene	0,018 µg/L
PCBs - Polychlorinated Biphenyls	0,000064 µg/L
Pentachlorophenol	3,0 µg/L
Tetrachloroethene	3,3 µg/L
2,4,6-trichlorophenol	2,4 µg/L

Art 19. Class 2 salt waters are subjected to the same specifications and standards as Class 1, as foreseen by the previous article, with the exception of the following:

I – Water quality specifications:

a) non-existence of acute toxic effects on organisms, in accordance with the criteria set by the competent environmental organ, or, in its absence, by acknowledged national or international institutions through the undertaking of standardized ecotoxicological tests or another scientifically acknowledged method;

b) thermotolerant coliforms: may not exceed a limit of 2500 per 100 milliliters in 80%, or more, of at least 6 samples collected bimonthly during a one year period. *E. coli* presence may be determined as a substitution of the thermotolerant coliform parameters in accordance with the limits established by the competent environmental organ;

c) total organic carbon: up to 5.00 mg/L, as C; and

d) OD, in any sample, not under 5.0 mg/L O₂.

II – Water quality standards:

TABEL VI - CLASS 2 – SALT WATER STANDARDS	
Inorganic Parameters	Max. rates
Total arsenic	0,069 mg/L As
Total cadmium	0,04 mg/L Cd
Total lead	0,21 mg/L Pb
Free cyanide	0,001 mg/L CN
Total residual chlorine (free + combined)	19 µg/L Cl
Copper dissolved	7,8 µg/L Cu
Total chromium	1,1 mg/L Cr
Total phosphorus	0,093 mg/L P
Total mercury	1,8 µg/L Hg
Nickel	74 µg/L Ni
Nitrate	0,70 mg/L N
Nitrite	0,20 mg/L N
Total ammoniacal nitrogen	0,70 mg/L N
Polyphosphates (determined by the difference between hydrolysable phosphorus acid and total reactive phosphorus)	0,0465 mg/L P
Total selenium	0,29 mg/L Se
Total zinc	0,12 mg/L Zn
Organic parameters	Max. rates
Aldrin + Dieldrin	0,03 µg/L
Chlordane (cis + trans)	0,09 µg/L
DDT (p'DDT + p-p +p-p'DDE p'DDD)	0,13 µg/L
Endrin	0,037 µg/L
Heptachlor + Heptachlor epoxide	0,053 µg/L
Lindane (γ-HCH)	0,16 µg/L
Pentachlorophenol	13,0 µg/L
Toxaphene	0,210 µg/L
Tributyltin	0,37 µg/L TBT

Art. 20. Class 3 salt waters must possess the following specifications and standards:

I - floating substances, including non-natural foam: virtually absent;

II - oil and greases: iridescences are tolerated;

III - substances that possess odor and turbidity: virtually absent;

IV - dyes from anthropic sources: virtually absent;

V - objectionable solid wastes: virtually absent;

VI - thermotolerant coliforms: may not exceed a limit of 4000 per 100 milliliters in 80%, or more, of at least 6 samples collected bimonthly during a one year period. *E. coli* presence may be determined as a substitution of the thermotolerant coliform parameters in accordance with the limits established by the competent environmental organ;

VII – total organic carbon: up to 10 mg/L, as C;

VIII - OD, in any sample, not under 4 mg/ L O₂; and

IX - pH: 6,5 to 8,5 and natural pH should not change more than 0.2 units.

Section IV Brackish Waters

Art. 21. Class 1 brackish waters must possess the following specifications and standards:

I – water quality specifications:

a) non-existence of acute toxic effects on organisms, in accordance with the criteria set by the competent environmental organ, or, in its absence, by acknowledged national or international institutions through the undertaking of standardized ecotoxicological tests or another scientifically acknowledged method;

b) total organic carbon: up 3 mg/L, as C;

c) OD, in any sample, not under 5 mg/ L O₂;

d) pH: 6,5 to 8,5;

- e) oils and greases: virtually absent;
- f) floating substances: virtually absent;
- g) substances that produce color, odor and turbidity: virtually absent;
- h) objectionable solid wastes: virtually absent; and
- i) thermotolerant coliforms: for primary contact usage must follow bathing standards foreseen by CONAMA Resolution 274/2000. For the cultivation of bivalve mollusks for human consumption the medium geometric density of thermotolerant coliforms, from a minimum of 15 samples collected at the same location, cannot exceed 43 per 100 milliliters, and 90% cannot contain more than 88 thermotolerant coliforms per 100 milliliters. The above rates must hold and be monitored annually and with a minimum of 5 samples. The rate of 200 thermotolerant coliforms per milliliter should not be exceeded for the irrigation of vegetables that are consumed raw and the consumed raw or the cultivation of fruits that grow close to the soil and are eaten raw and without peeling, as well as the irrigation of parks, gardens and sports and leisure fields, occasions when humans may have a direct contact with the water. For other uses it should not exceed a limit of 1.000 thermotolerant coliforms per 100 milliliters in 80% or more of the at least 6 samples collected bimonthly during a one year period. *E. coli* presence may be determined as a substitution of the thermotolerant coliform parameters in accordance with the limits established by the competent environmental organ.

II – Water quality standards:

TABLE VII - Class 1 – BRACKISH WATERS	
STANDARDS	
Inorganic Parameters	Max. rates
Dissolved aluminum	0,1 mg/L Al
Total arsenic	0,01 mg/L As
Total beryllium	5,3 µg/L Be
Boron	0,5 mg/L B
Total cadmium	0,005 mg/L Cd
Total lead	0,01 mg/L Pb
Free cyanide	0,001 mg/L CN
Total residual chlorine (free + combined)	0,01 mg/L Cl
Copper dissolved	0,005 mg/L Cu
Total chromium	0,05 mg/L Cr
Dissolved iron	0,3 mg/L Fe
Total fluoride	1,4 mg/L F
Total phosphorus	0,124 mg/L P
Total manganese	0,1 mg/L Mn
Total mercury	0,0002 mg/L Hg
Total nickel	0,025 mg/L Ni
Nitrate	0,40 mg/L N
Nitrite	0,07 mg/L N
Total ammoniacal nitrogen	0,40 mg/L N
Polyphosphates (determined by the difference between hydrolysable phosphorus acid and total reactive phosphorus)	0,062 mg/L P
Total Silver	0,005 mg/L Ag
Total selenium	0,01 mg/L Se
Sulfide (H ₂ S the undissociated)	0,002 mg/L S
Total zinc	0,09 mg/L Zn

ORGANIC PARAMETERS	Max. rates
Aldrin + Dieldrin	0,0019 µg/L
benzene	700 µg/L
carbaryl	0,32 µg/L
Chlordane (cis + trans)	0,004 µg/L
2,4-D	10,0 µg/L
DDT (p, p + p'DDT, p'DDE + p, p'DDD)	0,001 µg/L
Demeton (demeton, demeton-O + S)	0,1 µg/L
Dodecachlor Pentacyclodecane	0,001 µg/L
Endrin	0,004 µg/L
Endosulfan (α + β + sulfate)	0,01 µg/L
ethyl benzene	25,0 µg/L
Phenolic compounds (substances that react with 4-aminoantipyrine)	0,003 mg/L C ₆ H ₅ OH
Gution	0,01 µg/L
Heptachlor + Heptachlor epoxide	0,001 µg/L
Lindane (γ-HCH)	0,004 µg/L
Malathion	0,1 µg/L
Methoxychlor	0,03 µg/L
Monochlorobenzene	25 µg/L
Parathion	0,04 µg/L
Pentachlorophenol	7,9 µg/L
PCBs - Polychlorinated Biphenyls	0,03 µg/L
Surface-active substances that react with blue methylene	0,2 LAS
2,4,5-T	10,0 µg/L
Toluene	215 µg/L
Toxaphene	0,0002 µg/L
2,4,5-TP	10,0 µg/L
Tributyltin	0,010 µg/L TBT
Trichlorobenzene (1,2,3-TCB + 1,2,4-TCB)	80,0 µg/L

III – Brackish waters that are used for fishing or for the cultivation of organisms for intensive human consumption the following standards apply, as substitutes or in addition to, apart from the standards established in item II of this article:

TABLE VIII - Class 1 – BRACKISH WATER STANDARDS FOR WATER BODIES USED FOR FISHING OR ORGANISM CULTIVATION FOR INTENSIVE CONSUMPTION PURPOSES	
Inorganic Parameters	Max. Rates
Total arsenic	0,14 µg/L As
ORGANIC PARAMETERS	Max. Rates
Benzene	51 µg/L

Benzidine	0,0002 µg/L
Benzo (a) anthracene	0,018 µg/L
Benzo (a) pyrene	0,018 µg/L
Benzo (b) fluoranthene	0,018 µg/L
Benzo (k) fluoranthene	0,018 µg/L
2-Chlorophenol	150 µg/L
Chrysene	0,018 µg/L
Dibenzo (a, h) anthracene	0,018 µg/L
2,4-dichlorophenol	290 µg/L
1,1-Dichloroethene	3,0 µg/L
1,2-Dichloroethane	37,0 µg/L
3,3-dichlorobenzidine	0,028 µg/L
Heptachlor + Heptachlor epoxide	0,000039 µg/L
Hexachlorobenzene	0,00029 µg/L
Indeno (1,2,3-cd) pyrene	0,018 µg/L
Pentachlorophenol	3,0 µg/L
PCBs - Polychlorinated Biphenyls	0,000064 µg/L
Tetrachloroethene	3,3 µg/L
Trichloroethene	30 µg/L
2,4,6-trichlorophenol	2,4 µg/L

Art. 22. Class 2 brackish waters must follow the same specifications and quality standards as class 1 waters, with the exception of:

I – water quality specifications:

a) non-existence of acute toxic effects on organisms, in accordance with the criteria set by the competent environmental organ, or, in its absence, by acknowledged national or international institutions through the undertaking of standardized ecotoxicological tests or another scientifically acknowledged method;

b) total organic carbon: up to 5,00 mg/L, as C;

c) OD, in any sample, not under 4 mg/L O₂; and

d) thermotolerant coliforms: may not exceed a limit of 2500 per 100 milliliters in 80%, or more, of at least 6 samples collected bimonthly during a one year period. *E. coli* presence may be determined as a substitution of the thermotolerant coliform parameters in accordance with the limits established by the competent environmental organ.

II – Water quality standards:

TABLE IX - CLASS 2 – BRACKISH WATER STANDARDS	
Inorganic Parameters	Max. Rates
Total arsenic	0,069 mg/L As
Total cadmium	0,04 mg/L Cd
Total lead	0,210 mg/L Pb
Total chromium	1,1 mg/L Cr
Free cyanide	0,001 mg/L CN
Total residual chlorine (free + combined)	19,0 µg/L Cl
Copper dissolved	7,8 µg/L Cu

Total phosphorus	0,186 mg/L P
Total mercury	1,8 µg/L Hg
Total nickel	74,0 µg/L Ni
Nitrate	0,70 mg/L N
Nitrite	0,20 mg/L N
Total ammonia nitrogen	0,70 mg/L N
Polyphosphates (determined by the difference between hydrolysable phosphorus acid and total reactive phosphorus)	0,093 mg/L P
Total selenium	0,29 mg/L Se
Total zinc	0,12 mg/L Zn
Organic parameters	Max. Rates
Aldrin + Dieldrin	0,03 µg/L
Chlordane (cis + trans)	0,09 µg/L
DDT (p'DDT + p-p + -p-p'DDE p'DDD)	0,13 µg/L
Endrin	0,037 µg/L
Heptachlor + Heptachlor epoxide	0,053 µg/L
Lindane (γ-HCH)	0,160 µg/L
Pentachlorophenol	13,0 µg/L
Toxaphene	0,210 µg/L
Tributyltin	0,37 µg/L TBT

Art. 23. Class 3 brackish waters must possess the following specifications and standards:

I - pH: 5 to 9;

II - OD, in any sample, not under 3 mg/L O₂;

III – oils greases: iridescences are tolerated;

IV – floating substances: virtually absent;

V – substances that produce taste, odor and turbidity: virtually absent;

VI - easily sedimentable substances that can contribute to the siltation of sailing channels: virtually absent;

VII - thermotolerant coliforms: may not exceed a limit of 4000 per 100 milliliters in 80%, or more, of at least 6 samples collected bimonthly during a one year period. E. coli presence may be determined as a substitution of the thermotolerant coliform parameters in accordance with the limits established by the competent environmental organ; and

VIII – total organic carbon of up to 10.0 mg/L, as C.

CHAPTER IV CONDITIONS AND STANDARDS FOR EFFLUENTS RELEASES

~~Art. 24. Wastes from any pollution source can only be released, directly or indirectly, into water bodies after their due treatment and as long as they abide by the specifications, standards and demands provisioned in this Resolution and in other applicable standards.~~

~~Single paragraph. The competent environmental organ may, at any moment:~~

~~Add other conditions and standards, or make them more restrictive, in light of local conditions and based on technical foundations; and~~

~~II demand improved technologies for the treatment of effluents that are compatible with the conditions of the respective surface water course, based on technical foundations.~~

(Revoked by Resolution 430/2011)

~~Art. 25. The release and issuing of authorizations that are not in harmony with the provisions of this Resolution are hereby banned.~~

~~Single paragraph. The competent environmental organ may, in certain exceptional cases, authorize the releases above the conditions and standards established by art. 34 of this Resolution, conditioned to compliance with the following requirements:~~

~~I – proof of relevant public interest, duly justified;~~

~~II – compliance with the intermediary and final framework goals, progressive and compulsory;~~

~~III—order an Environmental Impact Study at the expense of the entrepreneurs that is responsible for the release;~~
~~IV—establish demands related to the treatment of the release; and~~
~~V—set a maximum deadline for the exceptional release.~~
(Revoked by Resolution 430/2011)

~~Art. 26. Federal, state and municipal competent environmental organs must, through specific standards or during the licensing process for the activity or enterprise, establish the maximum polluting load for the release of substances that can be present or may be formed during productive processes, listed or not in art. 34 of this Resolution, in order not to compromise the progressive mandatory goals, intermediary and final, established by the framework for the respective water body.~~

~~§ 1 In cases when the enterprise causes a significant environmental impact, the competent environmental organ will demand, during the licensing process, the presentation of a capacity and support study related to the load released into the receptor water body.~~

~~§ 2 The capacity and support study must consider, at least, the difference between the standards established for the class and the concentration after the mixing zone. § 3 The entrepreneur must, or risk the cancellation of the license, provide the environmental organ with information, during the licensing process, regarding the substances, including those foreseen in this Resolution for water quality standards, which may be present in the respective effluent.~~

~~§ 4 The provisions of § 1 are also valid for substances that are not foreseen by this Resolution unless the entrepreneur could not possibly be aware of their existence in his/her effluent(s).~~

~~(Revoked by Resolution 430/2011)~~

~~Art. 27. The release of Persistent Organic Pollutants (POPs) into effluents is forbidden according to the Stockholm Convention which was ratified through Legislative Decree 204 from May 7, 2004.~~

~~Single paragraph. Processes that can imply the formation of dioxins and furans must employ be best available technology for their reduction and total elimination.~~

~~(Revoked by Resolution 430/2011)~~

~~Art. 28. Releases may not confer the water body with characteristics that are not in accordance with the progressive compulsory goals, intermediary and final, of its framework.~~

~~§ 1 The compulsory goals will be established through parameters.~~

~~§ 2 Parameters that are not included in the mandatory goals, the quality standards that must be complied with are the same as those that are included in the class that represents the respective water body.~~

~~(Revoked by Resolution 430/2011)~~

~~Art. 29. The release of effluents onto the soil, even if treated, cannot cause any pollution or water contamination.~~

~~(Revoked by Resolution 430/2011)~~

~~Art. 30. The control of release conditions and for the purposes related to dilution before the release, is banned, as is the mixing of releases with better quality waters such as water supply waters, sea water and waters from open refrigeration systems without re-circulation.~~

~~(Revoked by Resolution 430/2011)~~

~~Art. 31. In cases when the pollution source generates different effluents or individualized releases, the limits included in this Resolution apply for each of them or to the group after mixing, at the criteria of the competent environmental organ.~~

~~(Revoked by Resolution 430/2011)~~

~~Art. 32. Effluent releases or the disposal of domestic, agro pecuary, agricultural, industrial wastes or wastes from any other source, is banned even if they have been previously treated.~~

~~§ 1^o For other water classes, the release of effluents must, simultaneously:~~

~~I—comply with the conditions and standards for effluent releases;~~

~~I—not surpass any conditions or standards for water quality that have been established for the respective classes, in reference flow conditions; and~~

~~III—comply with other applicable demands.~~

~~§ 2 The release of effluents related to water bodies in the process of recuperation must follow the progressive, intermediary and final goals.~~

~~(Revoked by Resolution 430/2011)~~

~~Art. 33. The competent environmental organ may authorize, within the effluent mixing zone and considering the type of substances, rates that are not in harmony with those established for the respective framework class as long as it does not compromise the uses that have been foreseen for the water body.~~

~~Single paragraph. The extension and the concentration of substances within the mixing zone must be the object of studies by the competent environmental organ at the expense of the entrepreneur that is~~

responsible for the release.

(Revoked by Resolution 430/2011)

~~Art. 34 Effluents from any kind of polluting source can only be released into water bodies, directly or indirectly, as long as they comply with the conditions and standards foreseen in this article, apart from other applicable demands:~~

~~§ 1 An effluent may not cause or have the potential to cause toxic effects on aquatic organisms that live in the receptor body, in accordance with the toxic criteria that have been established by the competent environmental organ.~~

~~§ 2 The toxic criteria foreseen by § 1 must be based on results from standardized ecotoxicological tests that use aquatic organisms and undertaken within the effluent.~~

~~§ 3 Water bodies which are not comprised by the conditions and quality standards foreseen by this Resolution and are not subjected to toxic restrictions related to aquatic organisms are not subject to the provisions of the previous paragraphs.~~

~~§ 4 Conditions related to effluent releases:~~

~~I pH between 5 and 9;~~

~~II temperature: under 40°C, and temperature variations within the receptor body shall not exceed 3°C in the mixing zone;~~

~~III sedimentation substances: up to 1 mL/L in a one hour test using the Imhoff cone. For releases into lakes and lagoons with a circulation speed rate that is practically null, the sedimentation materials must be virtually absent;~~

~~IV release rate with maximum flow of up to 1.5 times the medium flow of daily activity of the polluting agent,, except in cases that have been authorized by the competent environmental organ;~~

~~V Oils and greases:~~

~~1 mineral oils: up to 20mg/L;~~

~~2 vegetable oils and animal fats: up to 50mg/L; and~~

~~VI absence of floating substances.~~

~~§ 5 Standards for effluent releases:~~

TABLE X –EFFLUENT RELEASES

STANDARDS

Inorganic Parameters	Max. Rates
Total arsenic	0,5 mg/L As
Total barium	5,0 mg/L Ba
Total boron	5,0 mg/L B
Total cadmium	0,2 mg/L Cd
Total lead	0,5 mg/L Pb
Total cyanide	0,2 mg/L CN
Copper dissolved	1,0 mg/L Cu
Total chromium	0,5 mg/L Cr
Total tin	4,0 mg/L Sn
Dissolved iron	15,0 mg/L Fe
Total fluoride	10,0 mg/L F
Manganese dissolved	1,0 mg/L Mn
Total mercury	0,01 mg/L Hg
Total nickel	2,0 mg/L Ni
Total ammonia nitrogen	20,0 mg/L N
Total silver	0,1 mg/L Ag
Total selenium	0,30 mg/L Se
Sulfide	1,0 mg/L S

Total zinc	5,0 mg/L Zn
Organic Parameters	Max. Rates
Chloroform	1,0 mg/L
Dichloroethene	1,0 mg/L
Phenolic compounds (substances that react with 4-aminoantipyrine)	0,5 mg/L C ₆ H ₅ OH
Carbon tetrachloride	1,0 mg/L
Trichloroethene	1,0 mg/L

~~voked by Resolution 430/2011 Art. 35. Without prejudice to the provisions of item I § 1 of art. 24 of this Resolution, the competent environmental organ may, when the flow of the water body is below the reference flow rate, establish restrictions and set additional measures, exceptional and temporary, related to the release of effluents which may cause, among other possible consequences:~~

~~I have acute toxic effects on aquatic organisms; or~~

~~II undermines supply to the population.~~

~~(Revoked by Resolution 430/2011)~~

~~Art. 36. Apart from the requirements set by this Resolution and other applicable standards, effluents originating from health services and establishments that produce pathogenically micro-organic infected releases, can only be released after special organic treatment.~~

~~(Revoked by Resolution 340/2011)~~

~~Art. 37. The release of effluents treated in the dry bed of intermittent water bodies are subjected to special conditions after the competent environmental organ has held consultations with the organ that manages water resources.~~

~~(Revoked by Resolution 430/2011)~~

CHAPTER V WATER ENVIRONMENT FRAMEWORK DIRECTIVES

Art. 38. The framework of water bodies follows the standards and procedures defined by the National Water Resources Council (CNHR) and the State Councils for Water Resources.

§ 1 The framework of a water body will be defined through the most restrictive preponderant water , current or intended.

§ 2 Water basins where the quality condition of the water bodies is not in harmony with intended preponderant uses will be subjected to compulsory goals, intermediary and final, aimed at the improvement of the water quality and the implementation of their respective frameworks, executed within the parameters that exceed limits due to natural conditions.

§ 3 Management actions related to the use of water resources such as the granting and charges for the use of water, or related to environmental management, the licensing, adjustment terms and the conduct and control of pollution must be based on the progressive, intermediary and final, goals approved by the competent organ for the respective hydrographic basin or specific water body.

§ 4 The progressive intermediary and final goals must be reached according to the reference flow, except in cases related to salt water or brackish basins or other water bodies where the reference flow is not applicable variable, which will be the object of specific studies on the dispersion and assimilation of pollutants in the water environment.

§ 5 The progressive mandatory goals may vary during the year for bodies with intermittent flow or a flow rate that significantly varies with seasons.

§ 6 Water bodies used for population water supply, their framework and the environmental licensing process for activities must preserve, mandatorily, the consumption conditions.

CHAPTER VI FINAL AND TRANSITIONAL PROVISIONS

~~Art. 39 It is the duty of competent environmental organs to, whenever necessary, define the rates of virtually absent polluting agents.
(Revoked by Resolution 430/2011)~~

Art. 40. The specific standards for water quality and potability standards must be observed if they are destined for human consumption, without prejudice to the Provisions set by this Resolution.

Art. 41. The methods for the collection of analysis are specified by scientifically acknowledged technical standards.

Art. 42. Awaiting the approval of their respective framework, fresh waters will be considered class 2 waters, salt and brackish waters as Class 1, unless the actual quality conditions are better, which will imply the application of the most rigorous corresponding class.

~~Art. 43. Enterprises and other polluting activities which possess an Installation or Operational License on the date of publication of this Resolution, issued and not annulled, have a period of up to three years counted from the date of enforcement and at the criteria of the competent environmental organ, to adapt to the new conditions and standards, or more rigorous, foreseen by this Resolution.~~

~~§ 1 The entrepreneurs must present the competent environmental organ a schedule for the necessary measures for the fulfillment of the provisions of the heading of this Resolution.~~

~~§ 2 The deadline foreseen in the heading of this article may, in exceptional and technically motivated cases, be extended by up to two years through the Conduct Adjustment Term, which will be published and a copy will be sent to the Public Ministry.~~

~~§ 3 The existing treatment installations must be operational, have the proper capacity, normal functions and any other characteristics for which they were approved in order to fulfill the provisions set by this Resolution.~~

~~§ 4 The contiguous release of process water or from production practices in oil platforms will be the object of a specific Resolution, except for the standard for the release of oils and greases which will be defined according to the provisions set by art. 34 of this Resolution, until a specific resolution is available.
(Revoked by Resolution 430/2011)~~

~~Art. 44. CONAMA will, within the maximum period of one year⁵⁸, complement, where applicable, the conditions and standards for the release of effluents foreseen by this Resolution.
(Revoked by Resolution 430/2011)~~

Art. 45. Non-compliance with the provisions set by this Resolution will subject offenders to environmental organ, until sanctions foreseen by current legislation.

§ 1 Environmental organs and water resource managers, within their respective areas of competence, will inspect compliance with the provisions set by this Resolution, and when pertinent, the application of administrative penalties, without prejudice to the application of penal sanctions and to the civil responsibilities of the polluter

§ 2 The demands and duties foreseen by this Resolution are characterized as obligations of relevant environmental interest.

~~Art. 46. The person responsible for sources, effective or potential, that pollute waters must present the respective competent environmental organ, until the 31st of March of every year, with a statement of the polluting charge of the previous year, signed by the enterprise's head administrator and by the duly empowered responsible technician accompanied by the respective Record of Professional Responsibility.~~

~~§ 1 The above statement, that is the subject of the heading of this article must contain, among other data, the quantitative and qualitative characterization of the effluents, based on representative samples of the same, the state of maintenance of hardware and pollution control tools.~~

~~§ 2 The competent environmental organ may establish criteria and forms for the presentation of the statement mentioned in the heading of this article, including the possibility to exempt it in cases related to enterprises with low pollution potential.
(Revoked by Resolution 430/2011)~~

Art. 47. The technical responsible that undertake studies and provide opinions presented to environmental organs are considered experts.

Art. 48. Non-compliance with the provisions set by this Resolution will subject offenders, among other, to sanctions foreseen by Law 9.605 from Feb. 12, 1998 and respective regulations.

Art. 49. This Resolution shall enter into effect on the date of its publication.

⁵⁸ CONAMA Resolution 410/09 extends this period with a further 6 months, counting from the date of its publication.

Art. 50. CONAMA Resolution 020 from June 18, 1986 is hereby revoked. MARINA SILVA –

CONAMA President

This text does not substitute the text published in the Official Gazette on March 18, 2005, Ratification published in Official Gazette 87 on May 9, 2005, page 44

CONAMA RESOLUTION 370, April 6, 2006
Published in Official Gazette 68 on April 7, 2006, Section 1, page 235

Correlations:

- Changes CONAMA Resolution 357/05 (extends the period foreseen by art. 44)

Extends the deadline for compliance with the conditions and standards for effluent releases foreseen in art. 44 of Resolution 357 from March 17, 2005

THE NATIONAL ENVIRONMENT COUNCIL – CONAMA, according to its area of competence and the provisions of its Internal Regulations, annex to Administrative Order 168 from June 13, 2005, and

Considering the provisions of art. 44 of the National Environment Council (CONAMA) Resolution 357 from March 17, 2005, decided:

Art. 1 To extend the period for compliance with conditions of standards related to effluent releases, foreseen by art. 44 of the National Environment Council Resolution 357 from March 17, 2005 until March 18, 2007.

Art. 2 This Resolution shall enter into effect on the date of its publication.

MARINA SILVA – Council President

This text does not substitute the text published in the Official Gazette on April 7, 2006.

CONAMA RESOLUTION 393⁵⁹, August 8, 2007
Published in Official Gazette 153 on August 9, 2007, Section 1, pages 72-73

Correlations:

· Complements CONAMA Resolution 357/05 (art. 43, § 4)

Establishes provisions for the continuous release of processed water or water produced on oil and natural gas sea platforms and makes other provisions.

THE NATIONAL ENVIRONMENT COUNCIL – CONAMA, in accordance with the power bestowed upon the Council by art. 6, item II and art. 8, item VII of Law 6.938 from August 31, 1981, regulated by Decree 99.274 from June 6, 1990 and its alterations, and in accordance with its Internal Regulations and the contents of Process 02000.000344/2004-86, e

Considering Law 9.966 from April 28, 2000 which Establishes provisions for the prevention, control and inspection of pollution caused by oil releases and other hazardous or dangerous substances into waters under national jurisdiction;

Considering that art. 17, § 1 of Law 9.966 from 2000 establishes specific environmental regulations for continuous process or production releases by platforms;

Considering CONAMA Resolution 357 from March 17, 2005, which Establishes provisions regarding the classification of water bodies and environmental directives for their framework, as well as establishing effluent release conditions and standards, and makes other provisions;

Considering that art. 43, § 4 of CONAMA Resolution 357 from March 17, 2005 establishes the continuous disposal of process or production waters by oil and natural gas maritime platforms will be the object of a specific Resolution;

Considering that the marine environment and its living organisms are of vital importance for humanity and that it is in everyone's interest to safeguard the quality and quantity of marine resources;

Considering that the sea's self-support capacity is not unlimited;

Considering that the health and wellbeing of human beings, as well as the balance of aquatic ecology, should not be affected by the deterioration of water quality;

Considering the pollution control is directly related to the safeguarding of health conditions and of an ecologically balance environment, and that we should take into account the priority usage and environmental quality classifications demanded for the care of a given water body;

Considering that oil and natural gas are responsible for a significant portion of the Brazilian energy matrix and that demand will be increased during the coming years;

Considering that about 80% of nationally produced oil is produced by maritime platforms located along the Brazilian coast; and

Considering the peculiarities and technical and technological limitations of platform oil and natural gas production processes and the treatment of their releases, decides:

Art. 1 This Resolution Regulates the continuous release of process or production water from maritime oil and natural gas platforms, establishes discharge standards for oil and greases, defined parameters for their monitoring and sets other relevant provisions.

Art. 2 The following definitions are adopted for all purposes of this Resolutions:

I – PROCESS OR PRODUCTION WATER OR PRODUCED WATER: is the water that is normally produced together with oil extraction and is, from now and onwards, denominated "produced water";

II – ECOLOGICALLY FRAGILE AREA: maritime water areas, or inland water areas, defined through a Public Power act, where the prevention and control of pollution and the upholding of the ecological balance places special demands for the protection and the preservation of the environment;

III – RELEASE CONDITIONS: conditions and standards for the release of waters produced in the ocean;

IV – CONTINUOUS RELEASE: releases into the sea of waters produced during a process or activity in a permanent or intermittent manner

V – ECOTOXICOLOGICAL TESTS: tests undertaken in order to determine the negative effects of physical or chemical agents upon different aquatic organisms;

VI - MONITORING: periodical measuring or verification of the parameters of produced water, in order to follow-up on the quality of the water of the receptor body;

VII – EMISSION STANDARD: maximum rate adopted as a normative requirement of a parameter related to the quality of water produced and released from platforms;

⁵⁹ Ratified in Official Gazete 157 from Aug. 15, 2007, page 104

VIII - PLATFORM: installation or structure, fixed or mobile, located within waters under national jurisdiction, destined for direct or indirectly related to the research and harvesting of mineral resources from the floors or surfaces of inland waters bodies or from the sea, by a continental platform or its subsoil; and

IX – MIXING ZONE: location within the receptor water body where the initial dilution of effluents occurs.

Art. 3 The salt waters where the platforms are located will, as long as there is not a specific framework, be considered Class 1 Salt Waters, according to the definition included in CONAMA Resolution 357 from March 17, 2005.

Art. 4 Produced water may only be released, directly or indirectly, into the sea as long as it follows the specifications, standards and demands provisioned by this Resolution and as long as it does not subject the sea, in the area surrounding the release, to characteristics that differ from the framework class of the defined area, except within the mixing zone.

Single paragraph. For all purposes of this Resolution the mixing zone is limited to a radius of 500 meters from the release point.

Art. 5 The release of produced waters must comply with the monthly medium arithmetic concentration of oils and greases of up to 29 mg/L, and a maximum daily rate of 42 mg/L.

§ 1 The oil production industry must present a proposal to the National Environment Council (CONAMA), within one year, containing goals for the reduction of the amount of oil and wax that is contained in releases of produced waters.

§ 2 If the monthly rate that is foreseen in the heading of this article is exceeded the licensing environmental organ must be informed immediately after the finding and provided with a report, within 30 days, that provides specifications on the non-conformity with limitation provisions.

§ 3 Whenever the maximum daily rate determined in the heading of this article is exceeded it must be immediately communicated to the environmental organ.

Art. 6 The concentration of oils and greases that is the subject of art. 5 of this Resolution must be reached through gravimetric analysis.

§ 1 The environmental organ may accept other measurement methods and long as they possess a statistically significant correlation with gravimetric analysis.

§ 2 The monthly rate must be determined from daily sample measurements composed of four samples taken during standardized time periods and analysis may be undertaken at a later time provided the samples are still within their validity period.

Art. 7 The Competent environmental organ may authorize the release of waters above the specifications and standards set by this Resolution due to temporary operational contingencies and after the approval of the program and schedule presented by the entrepreneur for the solution of the problem.

Art. 8 The specifications and the possible release of waters produced by platforms located within twelve nautical miles from the coast will be defined by the competent environmental organ and based on dispersion studies presented by the entrepreneur, preferential flow is zero.

Art. 9 The release of produced waters within a radius of less than 10 kilometers from conservation units, and five kilometers from ecologically fragile areas, is banned.

Art. 10 Enterprises that operate platforms must, every six months, undertake the monitoring of produced waters that is discharged by their respective platforms in order to allow for the identification of the presence and concentration of the following parameters:

I – inorganic compounds: arsenic, barium, cadmium, chrome, copper, iron, mercury, manganese, nickel, lead, vanadium, zinc;

II – radium isotopes: radium-226 and radium-228;

III – organic compounds: polycyclic aromatic hydrocarbons - PAHs, benzene, toluene, ethyl benzene and xylenes - BTEX, phenols and evaluation of total petroleum hydrocarbons - HTP through chromatographic profile;

IV – chronic toxicity of produced water determined through ecotoxicological standardized methods through the use of marine organisms;

V – complementing parameters: total of organic carbon (COT), pH, salinity, temperature and total ammoniacal nitrogen.

Single paragraph. At the time of the monitoring period that is the subject of the heading of this article samples should be taken, concomitantly, in order to determine the rates of oil and wax substances.

Art. 11 The methodology used for the collection of analysis is specified by scientifically acknowledged technical standards.

Art. 12 Enterprises that operate platforms must, until March 31st of each year, present a report of previous yearly activities including undertaken monitoring processes and the respective adopted methodologies in order to comply with the provisions set by articles 5 and 10.

Single paragraph. The report that is the subject of the heading of this article may contain information on one or several platforms, as the discretion of the competent environmental organ.

Art. 13 The reports presented by entrepreneurs mentioned in art. 12 will be archived and published by the licensing federal organ in the world wide web - *Internet*.

Art. 14 The standards for the release of compounds and radium isotopes mentioned in art. 10 will be the object of a specific resolution which will be forwarded to the CONAMA Plenary within one year from the date of publication of this Resolution.

Art. 15 Non-compliance with the provisions set by this Resolution will subject offenders to sanctions foreseen by current legislation.

Art. 16 This Resolution shall enter into effect on the date of its publication.

MARINA SILVA – Council President

This text does not substitute the text published in the Official Gazette on Aug. 9, 2007

CONAMA RESOLUTION 396, April 3, 2008
Published in Official Gazette 66 on April 7, 2008, Section 1, pages 64-68

Establishes provisions related to the classification and groundwater environmental directive framework and makes other provisions

THE NATIONAL ENVIRONMENT COUNCIL – CONAMA, in accordance with the power bestowed upon the Council by art. 8, item VII of Law 6.938 from August 31, 1981, and in accordance with its Internal Regulations and the contents of Process 02000.003671/2005- 71, and,

Considering that ground waters are considered by art. 26 of the Federal Constitution as a National public good;

Considering that Law 6.938 from Aug. 31, 1981 is aimed at the safeguarding, preservation, improvement and recuperation of environmental quality through the rationalization of its use, the control and zoning of potentially polluting activities and the establishment of national environmental standards;

Considering that Law 9.433 from Jan. 8, 1997, which instituted the National Water Resource Policy and in particular its articles 9 and 10 which set provisions for the classification framework of water bodies, ratifies that it is the duty of environmental legislation to establish water body classes in order to fulfill the framework of water resources according to their preponderant usage;

Considering that Resolution 12 from July 19, 2000 issued by the National Water Resources Council (CNRH) determines that it is the duty of the Water or Basin Agencies , within their area of competence, to propose the framework of water bodies divided into classes to the respective Hydrographic Basin Committees, according to their preponderant usage;

Considering that Resolution 15 from Jan. 11, 2001 issued by the CNRH, establishes that the division of water body framework into classes will follow the hydrogeological characteristics of aquifers and their preponderant usage and demands their specific definitions;

Considering the need to integrate the National Policies related to Environmental Management, Water Resource Management and the use and occupation of land in order to safeguard the social, economic and environmental function of groundwaters;

Considering that aquifers are present in different hydrogeological contexts which may surpass the limits of hydrographic basins and that groundwaters possess intrinsically different physical, chemical and biological characteristics and that is necessary to classify them according to their particularities;

Considering that the classification of groundwaters is essential for the establishment of quality references in order to allow their division into classes;

Considering that the framework sets the attainment of final goals, may set intermediary and progressive goals, mandatory, aimed at its effectivisation;

Considering that the prevention and control of pollution are directly connected to the usage and classification of water quality demanded for a given groundwater body;

Considering the need to promote the protection of groundwater quality and that, when polluted, their recuperation is slow and expensive, decides:

Art. 1 This resolution Regulates the classification and environmental directives for the framework, prevention and control of pollution of groundwaters.

CHAPTER I
DEFINITIONS

Art. 2 The following definitions are hereby adopted for all purposes of this Resolution

I - groundwaters: natural or artificial waters located in the subsoil;

II – toxicological analysis: chemical or biochemical analysis undertaken in order to determine toxic compounds, its biotransformation products or their effects upon biological substances of potentially exposed organisms;

III – aquifer: hydrogeological body with the capacity to accumulate and convey water through its pores, fissures or spaces that are the result of the dissolution and entrainment of rock materials;

IV – quality class: group of water conditions and standards that are needed for the fulfillment of preponderant usage, current and future;

V – classification: qualification of groundwaters according to quality standards which allow for the establishment of their framework;

VI – quality condition: the quality of groundwater, at a given moment, in relation to the requirements related to its usage;

VII – framework effectivisation: attainment of the final framework;

VIII - framework: setting of a water quality goal or objective, reached or upheld in one aquifer, group or parts of aquifers in accordance with their intended preponderant use, current and future;

IX – Method Detection Limit (MDL): the smallest amount of concentration of a substance that can be

detected, but not necessarily quantified, through the used method;

X - Practical Quantitation Limit (PQL): smallest concentration of a substance whose quantity can be determined with precision and exactness through the used method;

XI - Sample Quantitation Limit (SQL): PQL adjusted to the specific sample characteristics;

XII - goals: physical undertakings and management activities in accordance with the measuring units and pre-established schedules, mandatory;

XIII - monitoring: measuring or verification of quality or quantity parameters of groundwaters, through a defined frequency;

XIV – quality standard: limit rate adopted as a normative requirement for water quality parameters, based on quality reference rates and maximum rates allowed for each of the preponderant uses;

XV – water quality parameter: substances or other indicators that represent water quality;

XVI – remediation: technique or group of techniques present in groundwaters;

XVII – toxic tests: tests undertaken with specific organisms (animals, plants, microorganisms or cell cultures) under standardized conditions which allow for the establishment of possible adverse effects of the assessed sample

XVIII – preponderant uses: main uses for underground waters which include human consumption, animal drinking irrigation and recreation;

XIX – Quality Reference Value (QRV): concentration or value of a parameter unit that defines the natural quality of groundwater; and

XX – Maximum Allowable Value (MAV): maximum rate allowed for one parameter, specific for each of the uses of groundwaters.

CHAPTER II GROUNDWATER CLASSIFICATION

Art. 3 Groundwaters are classified as:

I – Special Class: aquifers, group of aquifers or part of these destined for the preservation of ecosystems in integral protection conservation units and which contribute directly to surface water stretches categorized as special class water bodies;

II – Class 1: aquifer water, group of aquifers or part of these, with no anthropic related changes, and which do not demand any kind of treatment for any of its preponderant uses due to natural hydro-geochemical properties;

III – Class 2: aquifer water, group of aquifers or part of these, with no anthropic related changes, but may demand adequate treatment depending on its preponderant use and due to its natural hydro-geochemical properties;

IV – Class 3: aquifer water, group of aquifers or part of these, with anthropic related changes, do not require any kind of treatment due to these changes but may demand adequate treatment depending on its preponderant use and due to its natural hydro-geochemical properties;

V – Class 4: aquifer water, group of aquifers or part of these, changed through anthropic activities and can only be used, without treatment, for less restrictive preponderant uses; and

VI – Class 5: aquifer water, group of aquifers or part of these which may have been changed through anthropic activities and can only be used for uses that do not depend on water quality.

CHAPTER III WATER QUALITY CONDITION AND STANDARDS

Art. 4 The Maximum Allowable Values (MAVs) for the respective use of groundwaters must be followed when the water is used, with or without treatment, independently of class framework.

Art. 5 Special class groundwaters must keep their natural quality specifications.

Art. 6 The establishment of standards for Classes 1 to 4 must be based on Quality Reference Values determined by competent organs and on the Maximum Allowable Values for each preponderant usage, in compliance with the Practical Quantification Limits listed in Annex I.

Single paragraph. Parameters that present Practical Maximum Values for one sole use will be valid for other uses, when specific PMVs have not been established by the competent organ.

Art. 7 Class 1 groundwaters present, for all parameters, Quality Reference Values under or equal to the Maximum Allowable Values which are more restrictive for preponderant uses.

Art. 8 Class 2 groundwaters present at least one of the parameters, Quality Reference Value that is superior to the Maximum Allowable Value more Restrictive -MAVr+ preponderant uses.

Art. 9 Class 3 groundwaters must follow the Maximum Allowable Value more Restrictive -MAVr+ among its preponderant uses, except when it is the natural condition of the water.

Art. 10. Class 4 groundwaters must follow the Maximum Allowable Value less Restrictive -MAVr- among its preponderant uses, for each of the parameters, except when it is the natural condition of the water.

Art. 11. Class 5 groundwaters do not possess conditions and quality standards according to the criteria used by this Resolution.

Art. 12. The parameters that will be selected in order to substantiate a proposal for the division of groundwaters into classes must be chosen in function of their preponderant uses, hydrogeological hydro-geochemical characteristics, pollution sources and other technical criteria defined by the competent organ.

Single paragraph. Among the selected parameters the following should, as a minimum, be considered, Total Dissolved Solids, nitrate and thermotolerant coliforms

Art. 13. The competent organs must monitor the necessary parameters in order to follow-up on the condition of groundwater quality, based on parameter selection according to art. 12, as well as pH, turbidity, electrical conductivity and water level measurement

§1 The initial monitoring frequency must be at least every six months and defined according to the hydrogeological and hydro-geochemical characteristics of the aquifers, pollution sources and intended usage and may be reassessed after a representative period.

§2 The competent organs must undertake, every five years, a characterization of the water quality that takes into account all parameters listed in annex I as well as other that may deemed necessary.

§3 Monitoring results must be statistically analyzed and measurement uncertainties must be taken into account.

§4 The assessment of groundwater quality must be complemented, when professionally justified, through toxic tests on appropriate organisms for each of the uses or through toxicological adequate analysis.

§5 Should the undertaking of the studies mentioned in the previous paragraph become necessary due to the activities of identifiable entrepreneurs, the expenses for the same will be carried by the entrepreneurs.

Art. 14. Independently of any of the maximum rates allowed for Class 3 and 4, any increase in the concentration of contaminants must be monitored, their origin identified and adequate prevention and control measures implemented by the competent organs.

Art. 15. The samples and analysis of groundwaters and their interpretation for the assessment of quality conditions will be undertaken by the competent organ through the use of their own laboratory or associated or contracted laboratories.

Art. 16. The samples and analysis of groundwaters must be undertaken by laboratories or institutions that possess quality criteria and procedures that have been approved by the organs responsible for the monitoring activities.

Art. 17. In order to comply with the provisions set by this Resolution, samples, analysis and quality control aimed at the characterization and monitoring of groundwaters must adopt the following minimum procedures:

I – groundwater samples must be collected through the use of standardized methods and taken from sample locations that are representative of the area of interest;

II – if samples are taken from tubular and monitoring wells these must be constructed according to current accepted standards and techniques;

III – analysis must be undertaken through the use of integral samples, without filtration or any other type of alteration, except for preservatives which, when necessary, must follow current technical standards;

IV – the analysis mentioned in item III, when technically justified, must also be taken from the dissolved fraction;

V – physiochemical analysis must be undertaken through the use of standardized methods and in laboratories that meet the practical quantification limits listed in Annex I of this Resolution;

VI – if a substance appears in concentration levels that are below the limits of practical quantification they will be considered as absent for all purposes of this Resolution.

VII – if the sample quantification limit is above the practical quantification limit this will also be accepted for all purposes of this Resolution as long as it can be technically justified; and

VIII – if the substance has been identified in the sample as being between the LDM and the LGA the fact must be reported through the analytical report including the note that the concentration cannot be determined with reliability and does not present, in this case, non-conformity in relation to the MAVs defined for each class

Art. 18. Analysis results should be reported through analytical reports that include, at least:

I – identification of the sample location, date and time of sample collection entry in the laboratory, and the chain of sample custody;

II – information regarding the analysis method that has been used for each analyzed parameter;

III – quantification limits practiced by the laboratory, when applicable, for each of the analyzed parameters;

IV – results of method blanks and surrogate results;

V - measurement uncertainties for each parameter; and

VI – additional tests and recovery of matrix analyses (spike).

Single paragraph. Other documentation such as control charts, chromatograms and results obtained by proficiency tests may be requested at any time by the competent environmental organ.

Art. 19. Competent organs may impose additional quality conditions and standards for aquifer waters, group of aquifers or part of these or make them more restrictive, conditioned to local conditions, through professional foundations as well as establish restrictions and additional measures of exceptional or temporary character.

CHAPTER IV ENVIRONMENTAL DIRECTIVES FOR GROUNDWATER POLLUTION PREVENTION AND CONTROL

Art. 20. The environmental organs in cooperation with water resource management organs must promote the implementation of Aquifer Protection Areas and Perimeters for the Protection of Supply Wells aimed at the protection of groundwater quality.

Art. 21. Environmental organs, in cooperation with health and water resource managers must promote the implementation of Groundwater Usage Restriction and Control Areas, as exceptional and temporary measures undertaken due to quality and quantity conditions of groundwater resources and when they are required in order to restrict the use or the collection of water in order to protect aquifers, human health and ecosystems.

Single paragraph. The water resource, health and environment management organs must cooperate in order to define restrictions and measures for the control of the use of groundwaters.

Art. 22. The class restrictions and demands related to the framework of groundwaters, approved by the

competent water resource council, must be observed during environmental licensing processes, economic-geological zoning processes and in relation to the implementation of other environmental management tools.

Art. 23. Artificial refilling and injection in order to contain the salt rates of Class 1, 2, 3 and 4 aquifers, group of aquifers or part of the same, cannot lead to alterations in the quality of groundwaters that may restrict their preponderant usage.

Art. 24. Injections into aquifers, group of aquifers or parts of the same aimed at remediation must be controlled by competent organs in order to uphold intended objectives and reach and uphold the quality standards for their preponderant usage and in order to prevent any risks to the environment.

Single paragraph. The injection that is the subject of the heading of this article cannot be undertaken in order change the water quality in aquifers, groups of aquifers or parts of the same, adjacent or sub adjacent unless it is aimed at quality improvement.

Art. 25. Aquifers, group of aquifers or parts of the same that are subjected to refilling or injection, according to the specifications of articles 21 and 22, should be the object of the implementation of a specific groundwater quality monitoring program.

Art. 26. Aquifers, group of aquifers or parts of the same that hold Class 5 waters can be subjected to direct injection under the control of competent organs and based on hydrogeological studies presented by the interested party which prove, through monitoring practices, that the injection will not affect the quality conditions in relation to the adjacent and sub adjacent groundwater framework.

Art. 27. The affectation and release of effluents and wastes onto the soil must follow the criteria and demands defined by the competent organs and may not add any type of characteristics to groundwaters that are not in harmony with their framework.

§1 The affectation and releases mentioned in the heading will not be allowed in cases when the waters of aquifers, groups of aquifers or parts of the same are characterized as Special Class waters.

§2 Affectation and release procedures must be preceded by specific plans and programs for the monitoring of groundwater quality conditions and approved by the competent organ.

CHAPTER V ENVIRONMENTAL DIRECTIVES FOR GROUNDWATER FRAMEWORK

Art. 28. The framework of groundwaters must follow the standards and procedures defined by the National Water Resource Council (CNHR) and State Water Resource Councils as well as the directives that will be presented in this chapter.

Single paragraph. According to the provisions set by this Resolution the framework for groundwaters into classes will be undertaken based on its most restrictive, actual or intended, preponderant uses with the exception of Class 4 groundwaters which will be classified according to its less restrictive usage.

Art. 29. The framework for groundwaters will be undertaken by aquifer, groups of aquifers or parts of the same, at the same depth point of extraction for its preponderant uses, and must follow these minimum demands:

- I – hydrogeological and hydro-geochemical characterization;
- II – vulnerability assessments and pollution risks;
- III – registration of existing and operational wells;
- IV – current and previous soil use and occupation;
- V – technical and economic framework viabilization;
- VI – identification of potentially polluting sources; and
- VII – natural quality and the quality condition of groundwaters.

Art. 30. Aquifers, groups of aquifers and parts of the same which show that the quality of water is not in harmony with the standards demanded for class framework must be subjected to environmental control actions in order to improve the quality of the waters to their respective class, with the exception of substances that exceed the established limits due to their natural properties.

§1 The environmental control actions mentioned in the heading of this article must be undertaken in function of the framework goals, intermediary goals can be established.

§2 The gradual improvement of water quality and harmonization with the standards demanded for the respective class must be defined considering the available remediation technologies, economic viability and current and future soil and groundwater usage and must be approved by the competent environmental organ.

§3 If it is not possible to undertake the harmonization foreseen in the previous paragraph the re-classification framework of groundwaters must be undertaken through specific studies.

§4 Measures aimed at the containment of groundwaters must be enforced by the competent organ whenever technically justifiable.

Art. 31. Studies related to the framework of groundwaters must observe the hydraulic interconnection with surface waters in order to allow for the harmonization of the respective framework proposals.

Art. 32. Groundwaters that possess Total Dissolved Solid rates that surpass 15.000 mg/L, in aquifers, groups of aquifers or parts of the same, are constrained to Class 5 framework classification.

CHAPTER VI FINAL AND TRANSITORY PROVISIONS

Art. 33. The framework class of groundwaters, as well as their quality properties, must be published periodically by the competent organs through quality reports and signs placed at monitoring locations.

Art. 34. The Maximum Allowed Values and the Practical Quantitation Values, included in Annex I, must be re-evaluated every five years or less when technically justified .

Single paragraph. The competent management organs may, at any given time, include other uses for groundwaters or add non-listed substances and define their Maximum Allowed Values and Practical Quantification Values, whenever technically justified.

Art. 35. Studies should be promoted in order to define Maximum Allowable Values that are in harmony with national conditions, in particular in respect to animal drinking and irrigation waters.

Art. 36. Competent organs must undertake radiochemical characterization of groundwaters in regions that are not subjected to radioactive effects.

Art. 37. This Resolution shall enter into effect on the date of its publication.

MARINA SILVA – Council President

This text does not substitute the text published in the Official Gazette on April 7, 2008.

ANNEX I

Annex I lists the most probable groundwater parameters and their Maximum Allowed Values (MAV) for each of the intended and preponderant uses and the practical quantitation limits (PQL), considers acceptable by this Resolution.

Parameters	CAS No.	Preponderant Water Use				Practicable PQL - PQL	
		Human Consumption	Animal Drinking	Irrigation	Leisure		
Inorganic				µg.L-1			
	7429-90-5	200 (1)		5.000	5.000	200	50
Antimony	7440-36-0	5					5
Arsenic	7440-38-2	10		200		50	8
Barium	7440-39-3	700				1.000	20
Beryllium	7440-41-7	4		100	100		4
Boron	7440-42-8	500 (2)		5.000	500 (4)	1.000	200
Cadmium	7440-43-9	5		50	10	5	5
Lead	7439-92-1	10		100	5.000	50	10
Cyanide	57-12-5	70				100	50
Chloride	16887-00-6	250.000 (1)			100.000 - 700.000	400.000	2000
Cobalt	7440-48-4			1.000	50		10
Copper	7440-50-8	2.000		500	200	1.000	50
Chromium (+ Cr III to Cr VI)	Cr III (16065831) Cr VI (18540299)	50		1.000	100	50	10
Iron	7439-89-6	300 (1)			5.000	300	100
Fluoride	7782-41-4	1.500		2.000	1.000		500
Lithium	7439-93-2				2.500		100
Manganese	7439-96-5	100 (1)		50	200	100	25
Mercury	7439-97-6	1		10	2	1	1
Molybdenum	7439-98-7	70		150	10		10
Nickel	7440-02-0	20 (3)		1.000	200	100	10
Nitrate (as N)	14797-55-8	10.000		90.000		10.000	300
Nitrite (as N)	14797-65-0	1.000		10.000	1.000	1.000	20
Silver	7440-22-4	100				50	10
Selenium	7782-49-2	10		50	20	10	10
Sodium	7440-23-5	200.000 (1)				300.000	1000
Total Dissolved Solids (TDS)		1.000.000 (1)					2000
Sulfate		250.000 (1)		1.000.000		400.000	5000
Uranium	7440-61-1	15 (2,3)		200	10 (4)		
100 (5)		50					
Vanadium	7440-62-2	50		100	100		20
Zinc	7440-66-6	5.000 (1)		24.000	2.000	5.000	100
Organic				µg.L-1			
Acrylamide	79-06-1	0,5				0,15	
Benzene	71-43-2	5			10	2	
Benzo anthracene	56-55-3	0,05				0,15	
Benzo fluoranthene	205-99-2	0,05				0,15	
Benzo (k) fluoranthene	207-08-9	0,05				0,15	
Benzo pyrene	50-32-8	0,05			0,01	0,15	
Vinyl chloride	75-01-4	5				2	
Chloroform	67-66-3	200	100			5	
Chrysene	218-01-9	0,05				0,15	
1,2-Dichlorobenzene	95-50-1	1.000 (1)				5	

1,4-Dichlorobenzene	106-46-7	300 (1)				5
1,2-Dichloroethane	107-06-2	10	5		10	5
Organic		µg.L-1				
1,1-Dichloroethene	75-35-4	30			0,3	5
1,2-Dichloroethene						
(cis + trans)	cis (156-59-2)					
trans (156-60-5)	50				5 for each	
Dibenzo Anthracene	53-70-3	0,05				0,15
Dichloromethane	75-09-2	20	50			10
Styrene	100-42-5	20				5
Ethyl benzene	100-41-4	200 (1)				5
Phenols (10)		3	2		2	10
Indeno (1,2,3) pyrene	193-39-005	0,05				0,15
PCBs (sum of 7) (9)	(9)	0,5			0,1	0,01 for each
Carbon tetrachloride	56-23-5	2	5		3	2
Trichlorobenzene (1,2,4-TCB + 1,3,5-TCB + 1,2,3)	1,2,4-TCB(120-82-1); 1,3,5-TCB(108-70-3) 1,2,3-TCB(87-61-6)	20				5 for each
Trichloroethene	127-18-4	40			10	5
1,1,2 Trichloroethene	79-01-6	70	50		30	5
Toluene	108-88-3	170 (*)	24			5
Total Xylene (o+m+p)	m (108-38-3); o (95-47-6); p (106-42-3)	300 (*)				5 for each
Agro-toxics		µg.L-1				
Alachlor	15972-60-8	20			3	0,1
Aldicarb + ald. sulfone + ald. sulfoxide	Aldicarb (116-06-3), ald. sulfone (1646-88-4) and ald. sulfoxide (1646-87-2)	10	11	54,9		3 for each
Aldrin + Dieldrin	Aldrin (309-00-2) Dieldrin (60-57-1)	0,03			1	0,005 for each
Atrazine	1912-24-9	2	5	10		0,5
Bentazone	25057-89-0	300			400	30
Carbofuran	1563-66-2	7	45		30	5

Chlordane (cis + trans)	cis (5103-71-9) and trans (5103-74-2)	0,2			6	0,01 for each
Chlorothalonil	1897-45-6	30	170	5,8		0,1
Chlorpyrifos	2921-88-2	30	24		2	2
2,4-D	94-75-7	30			100	2
DDT (p,p'- DDT + p,p'-DDE + p,p'-DDD)	p,p'-DDT (50-29-3) p,p'-DDE (72-55-9) p,p'-DDD (72-54-8)	2			3	0,01 for each
Endosulfan (I + II + sulfate)	I (959-98-8)					
II (33213-65-9) sulfate (1031-07-8)	20			40	0,02 for each	
Endrin	72-20-8	0,6			1	0,01
Glyphosate + Ampa	1071-83-6	500	280	0,13 (6); 0,06 (7); 0,04 (8)	200	30
Heptachlor epoxide + Heptachlor epoxide (1024-57-3)	Heptachlor (76-44-8); 0,03				3	0,01 for each
Hexachlorobenzene	118-74-1	1	0,52			0,01
Lindane (gamma-HCH)	58-89-9	2	4		10	0,01
Agro-toxics					µg.L-1	
Malathion	121-75-5	190				2
Metolachlor	51218-45-2	10	50	28	800	0,1
Methoxychlor	72-43-5	20				0,1
Molinate	2212-67-1	6			1	5
Pendimethalin	40487-42-1	20			600	0,1
Pentachlorophenol	87-86-5	9			10	2
Permethrin	52645-53-1	20			300	10
Propanil	709-98-8	20			1.000	10
Simazine	122-34-9	2	10	0,5		1
Trifluralin	1582-09-8	20	45		500	0,1
Micro-organisms						
E. coli	-	Absent in 100ml	200/100 ml		800/100mL	--
Enterococci	-	-	-	-	100/100mL	--
Thermo-tolerant coliform	-	Absent in 100ml	200/100 ml		1000/100mL	--

Legends:

1. Organoleptic effect.
2. Maximum substance concentration in irrigation waters during a 100 year period (protection of plants and other organisms).
3. Maximum substance concentration in irrigation waters during a 20 year period (protection of plants and other organisms).
4. Irrigation Rate ≤ 3500 m³/ha
5. $3500 < \text{Irrigation Rate} \leq 7000$ m³/ha
6. $00 < \text{Irrigation Rate} \leq 12000$ m³/ha
7. PCBs = PCB sum 28 (2,4,4'- trichlorobiphenyl - n^oCAS 7012-37-5), PCB 52 (2,2',5,5'- tetrachlorobipheny – CAS number 35693-99-3), PCB 101(2,2',4,5,5'-Pentachlorobiphenyl - CAS number 37680-73-2), PCB 118 (2,3',4,4',5- pentachlorobiphenyl - n^oCAS 31508-00-6), PCB 138 (2,2',3,4,4',5'- hexachlorobiphenyl - CAS number 35056-28-2), PCB 153 (2,2',4,4',5,5'- hexachlorobiphenyl - n^oCAS 3505-27-1) and PCB 180 (2,2',3,4,4',5,5'- pentachlorobiphenyl – CAS number 35065-29-3).
8. Phenols which react with aminoantipyrine, effectual only when there is coloration, Maximum Allowed values for phenols prevent the formation undesirable tastes and odors in colored waters. Cases when the

Quantification Limits are higher than the concern analysis value for the profiling of taste must be undertaken in accordance with standardized analytical methods both before and after water coloration. Non-objectionable results will indicate the required quality standard.

ANNEX II

Annex II presents examples of standard setting per class for parameters selected in accordance with art. 12, considering the concomitant human consumption, drinking, irrigation and recreation.

Inclusion Motivation	Selected Parameters of likely natural origin	Standard per Class – concentration ($\mu\text{g L}^{-1}$)		
		Classes 1 and 2 (VRQ)	Class 3*	Class 4**
Hydrogeological characteristics	Arsenic	If QRV <10 Class 1	10	200
		If QRV > 10 Class 2		
	Iron	If QRV <300 Class 1	300	5000
		If QRV > 300 Class 2		
	Lead	If QRV <10 Class 1	10	5000
		If QRV > 10 Class 2		
Chromium	If QRV <50 Class 1	50	1000	
	If QRV > 50 Class 2			
Inclusion Motivation	Anthropic origin parameters	Classes 1 and 2 (QRV)	Class 3	Class 4
Intensive regional use	Aldicarb	ABSENT	10	54,9
	Carbofuran	ABSENT	7	45
	Pentachlorophenol	ABSENT	9	10
Possible influence from Petrol Station	Benzene	ABSENT	5	10
	Ethyl benzene	ABSENT	200	200
	Toluene	ABSENT	24	24
	Xylene	ANSENT	300	300
Minimum Compulsive Parameters	Total of Dissolved Solids	Se QRV<1.000.000 Class 1	1.000.000	1.000.000
		Se QRV>1.000.000 Class 2		
	Thermotolerant Coliforms	Absent in 100 ml	Absent in 100 ml	4000 in 100ml
	Nitrate (expressed as N)	If QRV<10.000 Class 1	10.000	90.000

Legend:

QRV – quality reference value, defined by competent organs in accordance with art. 60 of this Resolution.

* For Class 3, when QRV is higher MAVr+ the first shall be adopted as class standard.

** For Class 4 when QRV is higher than MAVr-the first shall be adopted as class standard.

CONAMA RESOLUTION 397, April 3, 2008
Published in Official Gazette 66 on April 7, 2008, Section 1, pages 68-69

Correlation:

- Changes item II of § 4 and Table X of § 5 of art. 34 of CONAMA Resolution 357/05 and adds §6 and §7
- Changed by Resolution 410/09.

Changes item II of § 4 and Table X of § 5 both part of art. 34 of the National Environment Council (CONAMA) Resolution 357 from 2005 which Establishes provisions for the classification of water bodies and environmental framework directives as well as establishing the conditions and standards for effluent releases.

THE NATIONAL ENVIRONMENT COUNCIL - CONAMA, in accordance with the power bestowed upon the Council by articles 6, item II, and 8, item VII of Law 6.938 from August 31, 1981, and in accordance with its Internal Regulations;

Considering that National Environment Council (CONAMA) Resolution 357 from March 17, 2005, establishes in its art. 44 that CONAMA must, within one year, complement, where applicable, the conditions and standards for the release of effluents foreseen by that Resolution, and Considering that CONAMA Resolution 370 from April 6, 2006, has extended the deadline for the complementation of conditions and standards for effluent releases, foreseen by art. 44 of CONAMA Resolution 357 from 2005, until March 18, 2007, decides:

Art. 1 Item II of § 4 and Table X § 5, both part of art. 34 of the National Environment Council (CONAMA) Resolution 357 from March 17, 2005, will be enforced according to the following text.

“Art.34.

§4°

II -temperature: under 40 degrees Celsius, and the temperature variation of the receptor body must not exceed 3 degrees Celsius within the limits of the mixing zone, as long as it does not compromise the uses that are foreseen for the respective water body;

§ 5 Effluent release standards:

STANDARDS	
Inorganic parameters	Maximum value
Arsenic total	0,5 mg/L As
Barium total	5,0 mg/L Ba
Boron total	5,0 mg/L B
Cadmium total	0,2 mg/L Cd
Lead total	0,5 mg/L Pb
Cyanide total	1,0 mg/L CN
Cyanide free (distillable through weak acids)	0,2 mg/L CN
Copper dissolved	1,0 mg/L Cu

Hexavalent Chromium	0,1 mg/L Cr6+
Trivalent chromium	1,0 mg/L3+
Tin total	4,0 mg/L Sn
Iron dissolved	15,0 mg/L Fe
Fluoride total	10,0 mg/L F
Manganese dissolved	1,0 mg/L Mn
Mercury total	0,01 mg/L Hg
Nickel total	2,0 mg/L Ni
Total ammonia nitrogen	20,0 mg/L N
Silver total	0,1 mg/L Ag
Selenium total	0,30 mg/L Se
Sulfide	1,0 mg/L S
Zinc total	5,0 mg/L Zn
Organic parameters	Maximum Value
Chloroform	1,0 mg/L
Dichloroethene (sum of cis 1.1 + 1.2 1.2 + trans)	1,0 mg/L
Phenolic compounds (substances that react with 4-aminoantipyrine)	0,5 mg/L C6H5OH
Carbon tetrachloride	1,0 mg/L
Trichloroethene	1,0 mg/L

§ 6 The Boron total parameters will not be applicable to salt waters, CONAMA will establish specific regulations, within six months counting from the date of publication of this Resolution.

§ 7 The parameter total ammoniacal nitrogen will not be applicable for the treatment of sewer sanitation systems.
 ” (NR)

Art. 2 CONAMA will institute a working group in order to, within 180 (one hundred and eighty) days present a complementing proposal on the conditions and standards for effluent releases related to the sanitation sector.

Art. 3 CONAMA will, within a maximum period of 180 (one hundred and eighty) days⁶⁰, evaluate the proposal, undertaken by a specially created working group, for new parameters for inorganic and organic substances that are not included in Table X of CONAMA Resolution 357 from 2005.

Single paragraph. The working group will, among other studied parameters, assess the establishment of limits for the sum of parameter concentrations related to heavy metals.

Art. 4 This Resolution shall enter into effect on the date of its publication.

MARINA SILVA – Council President

This text does not substitute the text published in the Official Gazette on April 7, 2008

⁶⁰ CONAMA Resolution 410/09 extends this period by 6 months, counting from its date of publication.

RESOLUTION 410, May 4, 2009
Published in Official Gazette 83 on May 5, 2009, page 106

Correlations:

Changes art. 44 of Resolution 357/2005 and art. 3 of Resolution 397/2008.

Extends the deadline for the fulfillment of the conditions and standards related to effluent releases, foreseen in art. 44 of Resolution 357 issued on March 17, 2005 and in art. 3 of Resolution 397 issued on April 3, 2008.

THE NATIONAL ENVIRONMENT COUNCIL - CONAMA, in accordance with the power bestowed upon the Council by articles 8 , item VII of Law 6.938 from August 31, 1981, and in accordance with its Internal Regulation, decides:

Art. 1 To extend the deadline for the delivery of complementing conditions and parameters for effluent release, foreseen by art. 44 of the National Environment Council (CONAMA) Resolution 357 from March 17, 2005 and art. 3 of Resolution 397 from April 3, 2008, by six months counting from the date of publication of this Resolution.

Art. 2 This Resolution shall enter into effect on the date of its publication.

CARLOS MINC – Council President

This text does not substitute the text published in the Official Gazette on May 5, 2009.

RESOLUTION 430, May 13, 2011

Published in Official Gazette 92 on May 16, 2011, page 89

Correlations:

- Complements and changes Resolution 357/2005.

Provisions the conditions and standards of effluents and complements and changes Resolution 357 from March 17, 2005 issued by the National Environment Council (CONAMA).

THE NATIONAL ENVIRONMENT COUNCIL – CONAMA, in accordance with the power bestowed upon the Council by art. 8, item VII of Law 6.938 from August 31, 1981, regulated by Decree 99.274 from June 6, 1990 and its alterations and in light of the provisions of its Internal Regulations, Annex of Administrative Order 168 from June 13, 2005, decides:

Art. 1 This Resolution Regulates the conditions, parameters, standards and directives for the management of effluent releases into receptor water bodies, partially changing and complementing Resolution 357 from March 17, 2005 issued by the National Environment Council (CONAMA).

Single paragraph. The indirect release of effluents into the receptor body must follow the provisions set by this Resolution in the absence of specific standards and legislation, provisions set by the competent environmental organ as well as directives set by the system operator for the collection and treatment of sanitary sewer systems.

Art. 2 The release of effluents onto the soil, even when treated, is not subjected to the parameters and standards related to effluent releases set by this Resolution, but may not, however, cause the pollution or contamination of surface and groundwaters.

Art. 3 Effluents from any type of polluting source will only be allowed to be directly released into receptor bodies after their duly treatment and as long as they comply with the conditions, standards and demands set by this Resolution and by other applicable standards.

Single paragraph. The competent environmental organ may, at any given time and based on professional foundations:

I – add other conditions and standards for the release of effluents, or make them more restrictive, considering the conditions of the receptor body; or

II – demand the use of adequate environmental technology and economically viable for the treatment of effluents, compatible with the conditions of the receptor body.

CHAPTER I DEFINITIONS

Art. 4 The following definitions are adopted for all purposes of this Resolution and as a complement to those set by art. 2 of CONAMA Resolution 357 from 2005:

I – Receptor body capacity: Maximum rate of a certain polluter that can be received by a water body without compromising the quality of the waters and its preponderant uses according to the respective framework class;

II – No Observed Effect Concentration (NOEC); largest effluent concentration that does not cause any statistically significant hazards to the organism survival and reproduction, during a certain exposure period and under test conditions;

III – Receptor Body Effluent Concentration (BREC): NOEC expressed in percentage points:

- a) For receptor bodies confined by gutters (rivers, streams, etc.):
 1. $CECR = [(effluent\ flow) / (effluent\ flow + receptor\ body\ reference\ flow)] \times 100$.
 b) In marine areas, estuaries and lakes the BREC is established based on physical dispersion studies of the effluent in the receptor water body, and the BREC is limited by the mixing zone defined by the environmental organ;

IV – Median Lethal Dose – LC 50 or Median Effective Dose -ED50: is the effluent concentration that has acute effects (death or immobility) on 50% of the organisms during a certain exposure period and under test conditions;

V - Effluent: is the term used for the characterization of liquid releases from different activities or processes;

VI – Underground emission: tubing provided with diffusor systems aimed at the release of effluents into the sea, the stretch between the base line and the limits of waters under national jurisdiction;

VII – Sanitary sewer: generic denomination for residential liquid releases, commercial, waters that have infiltrated the collection network which may contain parts of industrial effluents and non-domestic effluents;

VIII – Toxicity Factor –TF: dimensionless number that expresses the smallest effluent dilution which does not cause any acute hazards to organisms during a certain period of exposure, under test conditions;

IX – Direct release: when the effluent is directly connected with the receptor body;

X – Indirect release: when the effluent is conducted, submitted, or not, to treatment, through a collection network which also receives other releases before reaching the receptor body;

XI – Trophic level: position of an organism in the trophic chain;

XII – Effluent quality parameters: substances or other indicators that represent the toxicologically and environmentally relevant effluent contaminants;

XIII – Eco-toxicity tests: methods used for the detection and assessment of the capacity of a toxic agent to cause hazardous effects through the use of bio-indicators of large groups within the ecological chain; and

XIV – Mixing zone: region of the receptor body, estimated through theoretical methods approved by the competent environmental organ, that stretches from the effluent release point and is limited by the surface where the balance of the mixture between the physical and chemical parameters is attained, as well as the biological balance of the effluent and the receptor body, is specific for every parameter.

CHAPTER II EFFLUENT RELEASE CONDITIONS AND STANDARDS

Section 1

General provisions

Art. 5 Effluents may not confer the receptor body qualities that are not in harmony with the intermediary and final framework goals.

§ 1 The compulsory goals for receptor bodies will be established through specific parameters.

§ 2 Parameters that are not included in compulsory goals, and in the absence of progressive intermediary goals, the quality standards that must be present in the receptor body are the same as those of the receptor body framework class.

Art. 6 In exceptional cases, and temporarily, the competent environmental organ may authorize the release of effluents, after well-founded analysis, which are not in accordance with the provisions set by this Resolution as long as the release complies with the following requirements:

- I –duly motivated proof that the release is of public interest;
- II – compliance with the framework of the receptor body and the intermediary and final goals, progressive and mandatory;

III – undertake an adequate environmental study at the expense of the entrepreneur that is responsible for the release;

IV – establish demands related to the treatment of the particular release;

V – set a maximum release period, extendable at the criteria of the competent environmental organ during the exceptional situation that justified non-compliance with the limitations set by this Resolution;

VI – establish measures aimed at the neutralization of the possible effects caused by the exceptional release.

Art. 7 The competent environmental organ must, through a specific norm or during the activity or enterprise licensing process, establish the maximum pollution charge for the release of substances that may be present or be formed during productive processes, listed in art. 16 of this Resolution, in order not to compromise the progressive mandatory goals, intermediary and final, established for the framework of the receptor body.

§ 1 During licensing processes the competent environmental organ may demand the undertaking of studies on the carrying capacity of the receptor body.

§ 2 The carrying capacity study must consider, as a minimum requirement, the difference between the standards established by the classification and the concentrations present in the stretch from the start, and estimate the concentration after the mixing zone.

§ 3 During the licensing process the entrepreneur must provide the environmental organ with information regarding the substances that may be present in the generated effluent, listed or not by CONAMA Resolution 357 from 2005 regarding water quality standards, or risk the suspension or annulment of the granted license.

§ 4 The provisions of § 3 are not applicable to cases when the entrepreneur can present proof that he/she did not have any possibility of knowing of the existence of one or more substances contained in the effluent generated by the enterprises or activities.

Art. 8 The release of Persistent Organic Polluters (POP:s) into effluents is banned according to current legislation.

Single paragraph. Appropriate technology must be used in processes that may form dioxins and furans, in order to reduce them and aimed at their total elimination.

Art. 9 The mixing of effluents, aimed at the dilution of the effluent during the release control process, with better quality waters such as supply water, sea water and water from open refrigeration systems without circulation is banned.

Art. 10 In cases when the pollution source generates different or individualized effluents the limits established by this Resolution are applicable to each of them or to the group after mixing, at the criteria of the competent environmental organ.

Art. 11 It is banned to dispose effluent into special class waters including the release of domestic, aquaculture, industrial wastes or wastes from any other source, even if treated.

Art. 12 The release of effluents into water bodies, except those related to special class waters, may not exceed the water quality conditions and standards established for the respective classes, in reference flow conditions or available volume, apart from other applicable demands.

Single paragraph. Effluent release into water bodies in recuperation must follow the progressive, intermediary and final, compulsory goals.

Art. 13 Substances that are not in harmony with the quality standards that have been established for the water body are allowed within the mixing zone as long as they do not compromise the usage of the water body.

Single paragraph. The amount and concentration of substances in the mixing zone must be studied, whenever determined by the competent environmental organ, at the expense of the entrepreneur that is responsible for the release.

Art. 14 The competent environmental body may, without any prejudice to item I of the single paragraph of art. 3 of this Resolution, establish additional exceptional and temporary restrictions and measures when the flow of the receptor body is below the reference rate, for the following types of effluents that may cause one of the following consequences, among other:

- I – result in acute or chronic toxic effects for aquatic organisms; or
- II – hampers water supplies to the population.

Art. 15 The release of effluents treated in dry waterbeds of intermittent water bodies may be subjected to special conditions by the competent environmental organ in cooperation with the water resources management organ.

Section II Effluent Release Conditions and Standards

Art. 16 The effluents from any pollution source may only be released directly into receptor bodies according to the conditions and standards foreseen by this article, apart from other possible demands:

- I – effluent release conditions:
 - a) pH between 5 and 9;
 - b) temperature: under 40 degrees Celsius and the temperature variation of the receptor body cannot exceed 3 degrees Celsius at the mixing zone limit area;
 - c) sedimentable materials: up to 1 mL/L during a one hour test in the *Imhoff* cone. Sedimentable materials must be virtually non-existent in releases into lakes and lagoons with practically non existing circulation speed;
 - d) release regimen of maximum flow of up to 1.5 times the flow measured during the daily activity period of the polluting agent, except in cases allowed by the competent authority;
 - e) oils and greases;
 - 1. mineral oils: up to 20 mg/L;
 - 2. vegetable oils and animal fats: up to 50 mg/L;
 - f) absence of floating substances; e
 - g) Biochemical Oxygen Demand (BOD 5 days at 20°C): minimum removal of 60% of BOD and this limit may only be reduced through auto depuration studies of the water body that prove harmony with receptor body framework goals;
- II – Effluent release standards:

TABLE I	
Inorganic parameters	Max. rates
Arsenic total	0,5 mg/L As
Barium total	5,0 mg/L Ba
Boron total (does not apply to salt water surveys)	5,0 mg/L B
Cadmium total	0,2 mg/L Cd
Lead total	0,5 mg/L Pb
Cyanide total	1,0 mg/L CN
Cyanide free (distillable by weak acids)	0,2 mg/L CN
Copper dissolved	1,0 mg/L Cu
Chromium hexavalent	0,1 mg/L Cr+6
Chromium trivalent	1,0 mg/L Cr+3
Tin total	4,0 mg/L Sn
Iron dissolved	15,0 mg/L Fe
Fluoride total	10,0 mg/L F
Manganese dissolved	1,0 mg/L Mn
Mercury total	0,01 mg/L Hg

Nickel total	2,0 mg/L Ni
Ammoniacal Nitrogen total	20,0 mg/L N
Silver total	0,1 mg/L Ag
Selenium total	0,30 mg/L Se
Sulfide	1,0 mg/L S
Zinc total	5,0 mg/L Zn
Organic parameters	Max. rates
Benzene	1,2 mg/L
Chloroformium	1,0 mg/L
Dichloroethene (sum of 1,1 + 1,2cis + 1,2 trans)	1,0 mg/L
Styrene	0,07 mg/L
Ethyl benzene	0,84 mg/L
Phenols totals (substances that react with 4- aminoantipyrine)	0,5 mg/L C ₆ H ₅ OH
Carbon tetrachloride	1,0 mg/L
Trichloroethene	1,0 mg/L
Toluene	1,2 mg/L
Xylene	1,6 mg/L

§ 1 Effluents originating from final solid residual disposal systems, of any kind of origin, must comply with the conditions and standards established by this article.

§ 2 Effluents originating from sanitary sewer treatment systems must comply with the specific standards defined in Section II of this Resolution.

§ 3 Effluents originating from health services are subjected to the demands established in Section III of this Resolution and conditioned to current sanitary specific standards, and may:

I – be released into a sanitary sewage collection network connected to a sanitary sewer treatment plant, according to the standards and directives set by the operator of the sanitary sewage collection system; and

II – be directly released after special treatment.

Art. 17 The competent environmental organ may define specific standards for phosphor parameters in relation to the release of effluents into water bodies that have previously contained cyanobacteria blooms within stretches that are used for public supply.

Art. 18 Effluents may not cause, or have the potential to cause, and toxic effects to receptor body aquatic organisms and must follow toxicity criteria established by the competent environmental organs.

§ 1 Eco-toxicity criteria that are foreseen in the heading of this article must be based on eco-toxicological tests approved by the environmental organ, undertaken in the effluent and use aquatic organisms from at least two different trophic levels.

§ 2 It is the duty of the competent environmental organ to set specifications related to the reference flow of the effluent and of the water body which will be included in the calculation of Receptor Body Effluent Concentration apart from the used organisms and test methods as well as monitoring frequency.

§ 3 In cases when the environmental organ has not provided any eco-toxicity criteria for the evaluation of effluent toxic effects on the water body, the following directives must be implemented:

I – for effluent releases into Class 1 and 2 receptor bodies, and Class 1 salt and brackish waters, the Receptor Body Effluent Concentration must be inferior or equal to the Non-Observed Concentration Effect in at least two trophic levels, such as:

a) Receptor Body Effluent Concentration must be equal or inferior to Non-Observed Concentration Effect at the time of the ecotoxicity test undertaken to measure the chronically toxic effect; or

b) Receptor Body Effluent Concentration must be equal to the Median Lethal Dose (CL₅₀) divided by 10; or less or equal to 30 divided by the Toxicity Factor when at the time of the test to measure the acute toxic effect;

II – effluents released into Class 3 receptor water bodies, and Class 2 salt and brackish waters, the Receptor Body Effluent Concentration must be equal or inferior to the concentration that does not cause and acute effects to aquatic organisms belonging to at least two trophic levels, such as:

a) Receptor Body Effluent Concentration must be inferior or equal to the Median Lethal Dose (CL₅₀) divided by 3 or inferior or equal to 100 divided by the Toxicity Factor at the time of the acute ecotoxicity test.

§ 4 The number of used trophic levels may be reduced by the competent environmental organ based on the assessment of historical serial results used for the ecotoxicity tests for monitoring purposes.

§ 5 Water bodies that are not subjected to toxicity aquatic organism restrictions and quality conditions and standards foreseen by Resolution 357 from 2005 are not conditioned to the previous paragraphs.

Art. 19 Competent environmental organs must determine which enterprises and activities must undertake ecotoxicity tests in relation to the generated effluent characteristics and to the receptor body.

Art. 20 The release of effluents through underwater emissaries must follow, after treatment, the release conditions and standards foreseen by this Resolution, according to the respective receptor body class standards, after the mixing zone limit, and according to bathing standards and to current standards and legislation.

Single paragraph. The release of effluents through underwater emissaries that are not in harmony with the release conditions and standards established by this Resolution may be authorized by competent environmental organs, according to the provisions foreseen in items III and IV of art 6, and the environmental study specifies in item II must contain, at least:

I – The specific emissary entry conditions and standards;

II – Study on the dispersion within the mixing zone, two scenarios:

a) scenario one: compliance with the rates established by Table I of this Resolution;

b) scenario two: conditions and standards proposed by the entrepreneur; and

III – Environmental monitoring program.

Section III Conditions and Standards for Effluents from Sanitary Sewer Treatment Plants

Art. 21 The direct release of effluents from sanitary sewer treatment plants must comply with the following specific conditions and standards:

I – Effluent release conditions:

a) pH between 5 and 9;

b) temperature: under 40 degrees Celsius and the temperature variation of the receptor body cannot exceed 3 degrees Celsius at the mixing zone limit area;

c) sedimentable materials: up to 1 mL/L during a one hour test in the Imhoff cone. Sedimentable materials must be virtually non-existent in releases into lakes and lagoons with practically non existing circulation speed;

d) Biochemical Oxygen Demand (BOD 5 days at 20°C): maximum of 120 mg/L, this limit may only be surpassed if it is an effluent from a treatment plant with 60% BOD removal capacity or through auto deperation studies of the water body that prove harmony with receptor body framework goals.

e) hexane-soluble substances (oils and greases) up to 100 mg / L, and

f) absence of floating substances.

§1 The release conditions and standards listed in Section II, art. 16, items I and II of this Resolution are also applicable to sanitary sewer treatment plants, at the criteria of competent

environmental organs, depending on local conditions, and are not subjected to total ammoniacal nitrogen standard demands.

§2 The competent environmental organ must define the Table I parameters of art. 6, item II of this Resolution that apply to, and must be monitored, sanitary sewer treatment plants that receive bleaches from sanitary embankments, and are not subjected to total ammoniacal nitrogen standard demands..

§3 The effluent sample must be filtered in order to determine the efficiency of the removal of the polluting charge in terms of Biochemical Oxygen Demand (BOD 5 days at 20°C) for treatment plants with stabilization lagoons.

Art. 22 The release of effluents through underwater emissaries must follow, after treatment, the release conditions and standards foreseen by this Resolution, according to the respective receptor body class standards, after the mixing zone limit, and according to bathing standards and to current standards and legislation.

Single paragraph. This type of effluent release must be preceded by treatment that allows for compliance with the following specific conditions and standards, without prejudice to other applicable demands:

I - pH between 5 and 9;

II - temperature: under 40 degrees Celsius and the temperature variation of the receptor body cannot exceed 3 degrees Celsius at the mixing zone limit area;

III – after desanding;

IV – coarse solids and floating substances: virtually absent; and

V – total solids in suspension: minimum removal efficiency of 20% after desanding.

Art. 23 The effluents from sanitary sewer treatment plants may be subjected to ecotoxicity tests in cases when effluents interfere with characteristics that are potentially toxic for the receptor body, at the criteria of the competent environmental organ.

§1 Ecotoxicity tests performed on effluents from sanitary sewer treatment systems provide valuable data for the management of basins that contribute to the plants as they show the need to control the sources that generate effluents that possess characteristics that are potentially toxic for the receptor body.

§2 The management actions will be shared by sanitation enterprises, the generating sources and the competent environmental organ and must be based on the solid assessment of monitoring results.

CHAPTER III EFFLUENT MANAGEMENT DIRECTIVES

Art. 24 The responsible parties for water resource polluting sources must undertake the required monitoring for the periodic control and attendance of effluents released into receptor bodies, based on representative samples.

§1 The competent environmental organ may establish the criteria and procedures for the execution and verification of self-monitoring practices related to effluents and for assessments of receptor body quality.

§2 Sources of low pollution potential may be exempted from self-monitoring practices, at the criteria of the competent environmental organ.

Art. 25 The collection of samples and the analysis of liquid effluents and water bodies must be performed in accordance with specific standards and under the responsibility of a legally empowered professional.

Art. 26 The tests must be performed by laboratories accredited by the National Institute of Metrology, Standardization and Industrial Quality (INMETRO) or by another organ that is a signatory of the same mutual cooperation agreement that integrates INMETRO or by laboratories approved by the competent environmental organ.

§1 The laboratories must possess implemented analytical quality control systems.

§2 The analytical reports containing laboratory tests on effluents and receptor bodies must be

signed by legally empowered professionals.

Art. 27 Water resource potential or effective polluters must implement effluent management practices aimed at efficient water usage, the application of techniques for the reduction of effluent generation and the improvement of generated effluent quality and, whenever possible, practice recycling.

Single paragraph. Effluents whose original release has been reduced through recycling and thereby increased the concentration of substances that are present in effluents and which are not in harmony with the release conditions and standards established by Table I of art. 16 of this Resolution may be subjected to specific release conditions and standards established by the competent environmental organ, according to the provisions foreseen by items II, III and IV of art. 6 of this Resolution

Art. 28 The party that is responsible for the potential or effective polluting of water resources must present a Pollution Charge Statement to the respective competent environmental organ until March 31 of every year containing previous year data

§1 The statement that is the subject of the heading of this article must contain, among other data, the qualitative and quantitative characterization of effluents, based upon representative effluent samples.

§2 The competent environmental organ may define additional and complementing criteria and information that must be included in the above mentioned statement and may also exempt it, if the source is a low pollution producer

§3 The reports, appraisals and studies upon which the Pollution Charge Statement is based must be archived by the enterprise or activity as well as a copy of the annual declaration signed by the head administrator and by the legally empowered professional, accompanied by the respective Technical Responsibility Agreement and all of these documents must be available to environmental inspection authorities.

CHAPTER IV FINAL PROVISIONS

Art. 29 The enterprises and other polluting activities that hold issued environmental licenses on the date of publication of this Resolution may be granted, at the discretion of the competent environmental organ, a deadline of up to three years in order to allow them to adapt to the new or more restrictive conditions and standards established by this norm.

§1 Entrepreneurs must provide the competent environmental organs with a schedule for the implementation of the measures that are necessary in order to comply with the provisions mentioned in the heading of this article.

§2 The period foreseen in the heading of this article may be extended by an equal period in cases that are technically justified.

§3 Existing effluent treatment plants must operate with the capacity, conditions and fulfill any other conditions that were established for their operation and abide by the provisions set by this Resolution.

Art. 30 Non-compliance with the provisions established by this Resolution will subject offenders to, among other, sanctions foreseen by Law 9.605 from Feb. 12, 1998 and in its regulations.

Art. 31 This Resolution shall enter into effect on the date of its publication.

Art. 32 Item XXXVIII of art. 2, and articles 24 to 37 and articles 39, 43, 44 and 46 of CONAMA Resolution 357 from 2005 are hereby revoked.

IZABELLA TEIXEIRA – Council President

This text does not substitute the text published in the Official Gazette on May 16, 2011

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NOISE POLLUTION CONTROL

CONAMA RESOLUTION 1, March 8, 1990
Published in Official Gazette 63 on April 2, 1990, Section 1, page 6408

Establishes criteria and standards for the emission of noise from any industrial, commercial, social or leisure activity, including political propaganda.

The NATIONAL ENVIRONMENT COUNCIL – CONAMA, in the use of the power bestowed upon the Council by Item I, § 2 of art. 8 of its Internal Regulations, art. 10 of Law 7.804 from July 15, 1989 and

Considering that problems related to excessive noise levels are part of Environmental Pollution Control;

Considering that the deterioration of life quality, caused by pollution, is under constant threat in large urban centers;

Considering that criteria and standards should be broad in order to allow for their application within the entire National Territory, decides:

I – The emission of noise, related to any industrial, commercial, social or recreational activity, including political propaganda, must, in the interests of public health and peace follow standards, criteria and directives established by this Resolution.

II – For the purposes of the previous item, sounds with levels above those considered acceptable according to Norm NBR-10.151⁶¹ - *Assessment of Noise in Inhabited Areas aimed at community wellbeing*, by the Brazilian Technical Standards Association (ABNT), are considered as a threat to public health and peace.

III – The execution of building construction projects or building reforms for heterogeneous activities, the sound level produced by one of them may not surpass the levels established by NBR – 10.152 – *Comfortable acoustic Noise Levels*⁶² issued by the Brazilian Technical Standards Association (ABNT).

IV – The emission of noises produced by motor vehicles and produced within work location environments must comply with the standards issued, respectively, by the National Traffic Council (CONTRAN) and by the competent Labor Ministry organ.

V – Competent organs (federal, state and municipal) will, through their respective police forces, abide by the provisions established by this Resolution on the emission, or banning of the emission, of noises produced by any environment or of any kind, while taking into consideration the location, hours and the nature of the noise emitting activities, aimed at harmonizing the exercise of activities with the preservation of public health and peace.

VI – The measurements should, for all purposes of this Resolution, follow the specifications set by NBR – 10.151 - *Assessment of Noise in Inhabited Areas aimed at community wellbeing*, by the Brazilian Technical Standards Association (ABNT).

VII – All regulatory standards related to sound pollution issued after the present date must be harmonized with the contents of this Resolution.

VIII – This Resolution shall enter into effect on the date of its publication.

FERNANDO CÉSAR DE MOREIRA MESQUITA – Acting Council President

JOSÉ CARLOS CARVALHO – Acting Executive Secretary

This text does not substitute the text published in the Official Gazette on April 2, 1990

⁶¹ Ratified in the Official Gazette on Aug. 16, 1990, page 15520

⁶² Ratified in the Official Gazette on Aug. 16, 1990, page 15520

CONAMA RESOLUTION 2, March 8, 1990
Published in Official Gazette 63 on April 2, 1990, Section 1, page 6408

Establishes provisions for the National Program for the Education and Control of Sound Pollution <<SILÊNCIO>>.

The NATIONAL ENVIRONMENT COUNCIL – CONAMA, in the use of the power bestowed upon the Council by Item I, § 2 of art. 8 of its Internal Regulations and item I of art. 8 of Law 6.938 from Aug. 31, 1981, and

Considering that sound pollution related problems have worsened throughout time within urban areas and that excessive sound is a threat to health, public wellbeing and to the quality of life;

Considering that human beings are increasingly subjected to environmentally aggressive sound conditions and that they have the safeguarded right to environmental comfort;

Considering that the uncontrolled demographic growth of urban centers implies the increase of different sound pollution sources;

Considering that it is of paramount importance to introduce standards, methods and actions aimed at the control of excessive noise which may pose a threat to the health and wellbeing of the population, decides:

Art 1 To institute, on a national level, the National Program for the Education and Control of Sound Pollution – SILÊNCIO for the following objectives:

a) Promote professional courses in states and municipalities throughout the Country in order to empower personnel and control the problems related to sound pollution ;

b) Inform the population, through available existing means of communication, educational materials and promote awareness related to the prejudicial effects caused by excessive noises;

c) Introduce the concept “sound pollution” into the curriculums of secondary level courses of the private and public educational networks through a National Education Plan;

d) Provide incentives for the manufacturing and use of machines, engines, equipment’s and devices that produce lower levels of sound when used by the industry, vehicles in general, civil construction, domestic utilities, etc.

e) Provide incentives for the empowerment of human resources and technical and logistic support within the civil and military police forces in order to allow for the reception of complaints and take action in order to combat sound pollution with the entire National Territory;

f) Sign agreements, contracts and undertake joint activities with the organs and entities that, directly or indirectly, may contribute to the development of the SILÊNCIO Program.

Art. 2 The SILÊNCIO Program will be coordinated by the Brazilian Institute for the Environment and Renewable Natural Resources (IBAMA) and will include the participation of Executive Power Ministries, state and municipal environmental organs and other interested entities.

Art. 3 General Provisions:

· It is the duty of IBAMA to coordinate the SILÊNCIO Program;

· It is the duty of states and municipalities to establish and implement state programs on education and control of sound pollution, in harmony with the contents of the SILÊNCIO Program;

· It is the duty of states and municipalities to define sub-regions and implementation areas foreseen by the SILÊNCIO Program;

· Whenever necessary, the maximum levels of emission may be more rigorous, both on State and Municipal levels.

· This Program may be subjected to revisions at any given time in order to address the needs for environmental quality.

Art. 4 This Resolution shall enter into effect on the date of its publication.

FERNANDO CÉSAR DE MOREIRA MESQUITA – Acting Council President

JOSÉ CARLOS CARVALHO – Acting Executive Secretary

CONAMA RESOLUTION 1, February 11, 1993
Published in Official Gazette 31 on Feb. 15, 1993, Section 1, pages 2037-2040

Correlations:

- Changed by CONAMA Resolution 8/93 (changes art. 1 and §§ and table 1)
- Changed by CONAMA Resolution 17/95 (changes annex 1) in cases related to vehicles that are produced from a bus chassis or bus platform undercarriage, supplied by a third party
- Complemented by CONAMA Resolution 242/98 related to vehicles with special characteristics for use outside of roads (table 1)
- Changed by CONAMA Resolution 272/00 (changes art. 2 and §§ 2 and 3 of art. 7) and establishes new limits for vehicles produced from January 2001 (table 1)

Establishes maximum limit levels for noises created by vehicles while running but still or in acceleration, national or imported, with the exception of motorcycles, scooters, mopeds, tricycles and bicycles with auxiliary engines or similar vehicles..

The NATIONAL ENVIRONMENT COUNCIL – CONAMA, in the use of the power bestowed upon the Council by Laws 6.938 from Aug. 31, 1981, 8.028, from April 12, 1990, 8.490 from November 19, 1992⁶³, Decree 99.274 from June 6, 1990 and in light of its Internal Regulations, and

Considering that excessive noise is hazardous to physical and mental health and has a particular effect on hearing;

Considering the need to reduce Sound pollution within urban centers;

Considering that roadway motor vehicles are the main environmental noise sources;

Considering that the use of known adequate technologies allows for the control of sound pollution;

Considering the objectives of the National Program for Education and Control of Sound Pollution “SILÊNCIO”, decides:

Art. 1 To establish maximum noise limits for national and imported vehicles, except motorcycles, scooters, tricycles, mopeds and bicycles with auxiliary engines and similar vehicles, both while running but still and during acceleration.

~~§ 1 Nationally produced vehicles for national market purposes the noise limits will enter into effect for accelerating vehicles as defined by table 1 and according to the below schedule by brand:~~

~~a) cycle Otto motor vehicles except for those in the <<c>> and <<d>> categories;~~

~~a.1) a minimum of 20% of all produced vehicles from Jan. 1st 1994;~~

~~a.2) a minimum of 50% of all vehicles produced from Jan. 1st, 1995;~~

~~a.3) 100 % of all produced vehicles form Jan. 1st, 1997;~~

~~b) Diesel vehicles and vehicles possessing Otto Cycle engines of “c” and “d” categories:~~

~~b.1) A minimum of 40% of all produced vehicles from Jan. 1st 1995;~~

~~b.2) 100% of all vehicles produced from Jan. 1st, 1997;~~

§ 1 The noise limits for nationally produced vehicles for national market purposes will enter into effect for accelerating vehicles according to the below schedule and brand, as defined by table 1 of this Resolution:

a) cycle Otto motor vehicles except for those in the <<c>> and <<d>> categories;

a.1) a minimum of 20% of all produced vehicles from March. 1st 1994;;

a.2) a minimum of 50% of all vehicles produced from Jan. 1st, 1995

a.3) 100 % of all produced vehicles form Jan. 1st, 1997;

b) all Diesel motor vehicles and auto motor vehicles possessing Otto cycle engines of “c” and “d” categories:

b.1) minimum of 40% for vehicles produced from Jan. 1st, 1996;

b.2) 100% of cycle OTTO engines produced from Jan. 1st, 1997;

b.3) 100% of all vehicles produced from Jan. 1st, 1998 .

(new text provided by Resolution 8/93)

⁶³ Law revoked by Law 9.649 from May 27, 1998

Table 1A – Maximum noise limits for acceleration vehicles, according to NBR–8433

Category'		Noise Level / Level dB(A)			
Description		Otto	Diesel		
			Direct Injection	Indirect Injection	
A	Passenger cars of up to nine places and mixed-use vehicle derived from a car	77	78	77	
B	Passenger vehicle with more than nine seats, cargo or traction vehicle mixed purpose vehicle not derived from a car	PTB up to 2.000 kg	78	79	78
		PTB above 2000 kg and up to 3.500 kg	79	80	79
C	Passenger or mixed use vehicle with PTB greater than 3500 kg	Maximum power below 150 kW (204 CV)	80	80	80
		Maximum power equal or above 150 kW (204 CV)	83	83	83
D	Cargo vehicle or with a PTB traction above 3.500 kg	Maximum power below 75kW (102 CV)	81	81	81
		Maximum power between 75 and 150 kW (102 to 204 CV)	83	83	83
		Maximum power equal or above 150 kW (204 CV)	84	84	84

Observations:

- 1) Vehicle designation according to NBR-6067
- 2) PTB: Total Gross Weight
- 3) Power: Maximum effective fluid power (NBR-5484)

4) This Table, published in Resolution 8 from Aug. 31, 1993, cancels and substitutes Table 1 of CONAMA Resolution 1 from December 11, 1993.

- 5) Complement provided by Resolution 242/98.

Vehicles with special characteristics and for use outside of roadways will have their limits increased by:

I – 1dbA for engines with power under 150kW.

II – 2dbA for engines with power equal or above 150kW.

~~§ 2 For all imported vehicles the maximum noise limits for vehicles in acceleration, established by this article, will be enforced from July 1st, 1993, except for vehicles that fall under the Brazil/Argentine Bilateral Agreement (Protocol 21), and the maximum noise limits for these vehicles in acceleration established in this article will be enforced from January 1st, 1995.~~

§ 2 For all imported vehicles, the maximum noise limits for vehicles in acceleration established by this article will be enforced from March 1st, 1994, except for vehicles produced or assembled in Argentina, Paraguay and Uruguay, for these vehicles the maximum noise limits for vehicles in acceleration established by this article will be enforced from January 1st, 1995, for vehicles that are mentioned in item <<a>> of § 1 of this article from January 1st 1996 and for all vehicles mentioned in item <> of § 1 of this article.
(new text provided by Resolution 8/93)

§ 3 The maximum noise limits established by this article must be respected during the entire granted warranty period and subjected to the conditions specified by the producer and/or importer.

§ 4 Eventual impossibilities to comply with the established percentages (%) included in the schedule will be assessed by IBAMA.

§ 5 The noise levels of running but still vehicles is the value of reference of the new vehicle stated in by the verification process. This rate, added by 3 (three) dB(A), will be the inspection maximum noise limits for vehicles in circulation.

§ 6 IBAMA must be provided, from January 1st, 1994, two copies of the noise levels for running but still vehicles, measured near the exhaust pipes, in accordance with NBR-9714 for all produced models in order to allow for the inspection of vehicles in circulation.

§ 6º § 6 IBAMA must be provided, from March 1st, 1994, two copies of the noise levels for running but still vehicles, measured near the exhaust pipes, in accordance with NB R 9714 for all produced models in order to allow for the inspection of vehicles in circulation.

(new text provided by Resolution 8/93)

~~Art. 2. The tests for the measurement of noise levels for all purposes of this Resolution must be performed in accordance with Brazilian standards NBR 8433 – Noise produced by accelerating motor vehicles, Test Method and NBR 9714 – Noise produced by but still motor vehicles, Test method for the measurement of noise near the exhaust pipes.~~

Art. 2 The tests for the measurement of noise levels for all purposes of this Resolution must be performed in accordance with Brazilian standards NBR 8433 (1995) – Road motor vehicles in acceleration- ascertainment of noise level; and NBR-9714 (1999) – Road motor vehicles – Noise produced by running but still motor vehicles, in relation to the measurement collected near the exhaust pipes. The hardware used for the undertaking of noise level tests must be calibrated by IN METRO or an accredited laboratory that is part of the Brazilian Calibration Network (RBC) and the test locations must be inspected by IBAMA in order to obtain a Conformity Verification Statement.

(new text provided by Resolution 272/00)

Single paragraph. The positioning of the microphone for the measurement of noise in the proximities of the exhaust pipes, according to NBR-9714, must be performed through the use of a meter according to the specifications described in annex D.

Art. 3 The exhaust system must be projected, produced and installed in the vehicle in a manner that will allow it to resist the normal vibrations and corrosion to which the vehicle is exposed and to allow for full compliance with the provisions set by this Resolution in normal use conditions. In cases when fibrous materials are used in exhaust systems that may not contain asbestos. The following measures must also be adopted in order to safeguard full compliance with the maximum noise levels established by this Resolution:

a) conditioning of fibrous materials in order to avoid direct contact between exhaust gases and these material;
or

b) in cases when there is direct contact between exhaust gases and fibrous materials the exhaust system must be submitted to a conditioning before the inspection test, through a simulation of normal usage conditions, according to annex C, or by the simple removal of the fibrous materials from the silencer. Art. 4 The main components of the exhaust system must contain non-delectable markings that identify the producer through its commercial brand.

Art. 5 The vehicle producer or its legal representative or the importer(s) must undertake the inspection of representative production prototypes before the start of production or the importation of vehicles

§ 1 The individual responsible for the inspection of the prototype must have a certified and specialized team at his/her disposal who must keep a permanently actualized archive containing all documentation related to inspections undertaken during the pre-production/importation phase. IBAMA must be informed regarding the name and full address of the individual responsible for prototype inspections and his/her substitutes must be registered by IBAMA as well as any possible alterations to the standards.

§ 2 The establishment of noise levels for vehicles belonging to one and the same brand model may be performed through the testing of one single vehicle, considering the family master configuration and in accordance with the technical criteria specified in annex A.

§ 3 The inspection test reports related to prototype vehicle of all brand models and their respective master configurations must contain annex A of this Resolution and be forwarded to IBAMA before the production start date and/or enforcement dates for the respective maximum noise limits.

§ 4 Reports and tests undertaken outside of Brazil may be accepted at the discretion of IBAMA if it is not possible to perform prototype inspection tests within Brazil.

Art. 6 The inspection of prototypes is only valid for the respective model and year of production. However, vehicles that contain the same configuration as those previously verified/inspected, characterized by the respective annexes and under the same demands, it is allowed to use the same results and data and the manufacturer of the vehicle, or his/her legal representative or the importer(s) will assume full responsibility for the continuity of previously approved vehicle specifications.

Art. 7 In order to verify vehicle production conformity with the provisions set by this Resolution, the responsible for this verification may select random production line vehicle samples in order to perform tests, or vehicles from commercialization stocks.

§ 1 It is considered a sample a vehicle tested according to the standards established by article 2 of this Resolution.

~~§ 2 If the initially tested vehicle does not meet the required noise emission limits tests must be performed in a larger sample of vehicles through mutual agreement between the manufacturer and IBAMA, limited to between five~~

and thirty vehicles with the same configuration and including the vehicle that was initially tested.

§ 2 If the tested vehicle's sound level does not exceed more than 1 dB(A) of established rates the vehicle model will be considered as meeting the specifications set by the present Resolution. *(new text provided by Resolution 272/00)*

§ 3 Production will be considered as adequate if it is performed according to the following conditions:

§ 3 If the tested vehicle does not fulfill the provisions set by the previous paragraph a further two vehicles of the same model will be tested. If the sound levels of the second and third tested vehicles exceed the limit by more than 1 dB(A) the vehicle model will be considered as lacking harmony with the provisions set by the current Resolution and the manufacturer must take the necessary measures in order to re-establish its conformity. *new text provided by Resolution 272/00*

$$\bar{X} + kS_i \leq L_i$$

$$S_i = \sqrt{\frac{\sum (x_i - \bar{X})^2}{n-1}}$$

where:

\bar{X} = arithmetical medium of obtained results, in all vehicles;

k = statistical factor established in Table 2;

n = number of sample vehicles;

X_i = each and every result reached according to NBR-8433;

L_i = Maximum established noise level limits.

n

Table 2 – Statistical Factors

n	5	6	7	8	9	10
k	0,421	0,376	0,342	0,317	0,296	0,279

n	11	12	13	14	15	16	17	18	19
k	0,265	0,253	0,242	0,233	0,224	0,216	0,210	0,203	0,198

Note : If $n \geq 20$, $K = \frac{0,860}{\sqrt{n}}$

Art. 8 The vehicle manufacturer or his/her legal representative or importer(s) must provide a model master configuration and a statistical procession production report. The report must be issued up to the fifth month after the start of commercialization or importation and thereafter annually, containing noise levels according to NBR-8433 and/or NBR-9714, at the discretion of the manufacturer, for vehicles randomly chosen and produced during the period of the corresponding report. This data must be archived during a two year period and provided to IBAMA whenever requested.

Single paragraph. The manufacturer may choose to use another quality production alternative method as long as it has been approved by IBAMA and with proved correlation with the noise levels emitted by the vehicle.

Art. 9 The vehicle manufacturer or his/her legal representative or importer(s) that find and spontaneously correct any non-conformity in the production of commercialized vehicles must inform IBAMA and forward a report on the adopted corrective measures.

Art. 10. IBAMA may request clarifications or the revision of reports at any given time and at its discretion, as long as duly justifiable, and request the performance of tests that confirm prototype inspections and production conformity and select, randomly, samples of vehicles from the assembly line or from commercialization stocks for the performance of tests.

Single paragraph. IBAMA must be provided with the means necessary for the performance of tests according to the provisions set by article 2 of this Resolution including calibrated measurement tools and their accessories, test fields and vehicles for testing purposes.

Art. 11. IBAMA may, in cases where irregularities have been verified during prototype testing processes or related to production conformity by the responsible enterprise, issue a Commercialization Suspension Order for

the respective vehicle configurations.

§ 1 The Commercialization Suspension Order implies immediate compliance with its provisions until the irregularities that originated it have been clarified and corrected.

§ 2 The re-initiation of vehicle commercialization can only start after full compliance with the provisions set by this Resolution.

Art. 12. In cases related to product non-conformity the vehicle produce, his/her legal representative(s) or the importer(s) must, within 180 days counting from the date of verification, remedy all problems that have caused production non-conformity and recall and repair all vehicles with belonging to the same series and with the same configuration.

§ 1 The repairs must be undertaken by technical assistance services accredited by the manufacturer, his/her legal representative or by the importer, under their guidelines and responsibility.

§ 2 Production corrections and the repair of vehicles must be approved by IBAMA through the presentation of documentation that clearly describes adopted measures, the efficacy of the same and the number of involved vehicles.

§ 3º Non-compliance with the provisions set by this article will imply the hindrance of the commercialization of the configuration(s) of the vehicle(s) in question or, when it has already been suspended, the responsible party will be subjected to administrative and legal sanctions.

Art. 13. From January 1 of 1994 all non-original parts and components of models that have proved conformity with the provisions set by this Resolution, which are integral parts of the exhaust system and produced for the replacement, may only be commercialized after meeting the same verification IBAMA demands by the manufacturer or importer of exhaust systems related to compliance with the provisions of this Resolution for products used in new vehicles. The maximum noise level of replacement exhaust systems in running but still vehicles must be the same as the one declared during the testing process of the prototype of the corresponding original model.

§ 1 The collected backpressure rate, according to annex E, cannot be above the one specifies in annex A, for original parts and components.

§ 2 IBAMA may select, for purposes related to product conformity with the demands placed by this Resolution, samples of exhaust systems randomly chosen from the assembly line and/or producer stocks for the performance of tests. The process must follow the same procedures as those prescribed for the verification of conformity for new vehicles and in compliance with other paragraphs included in this article.

§ 3 Non-compliance with the provisions set by this article implies that the producer or his/her legal representative or the importers will not be allowed to commercialize the exhaust systems until they have been subjected to modifications according to the demands set by this Resolution.

Art. 14. The manuals of vehicles that have proved conformity with this Resolution must, from January 1, 1994, include the following information:

- a) this vehicle is in conformity with current legislation related to the control of sound pollution for motor vehicles;
- b) folder containing the maximum allowed noise limits for vehicles in circulation;
- c) procedure specifications for the maintenance of the exhaust system (if applicable).

Art. 15. Expenses directly related to tests, verifications, product corrections, recalls for repairs and actual repair costs, including the cost of substituted components, are the responsibility of the producers and/or importers of vehicles and exhaust systems.

Art. 16 Producers, their legal representatives or importers must provide IBAMA with monthly sale reports, from January 1st 1994 and onwards, on the sale of all vehicle configurations commercialized within the National Territory.

Art. 17. The definitions provided by annex E are hereby established for all purposes of this Resolution.

Art. 18. IBAMA may enter into agreements, contracts and activities with organs and entities that may provide direct or indirect contribution for the development of this program as well as delegate competence foreseen by this Resolution to other organs.

Art. 19. Non-compliance with the provisions of this Resolution will subject offenders to penalties foreseen by Law 6.938 from Aug. 31, 1981 and the text provided by Law 7.804 from July 18, 1989 without prejudice to other possible penalties foreseen by federal legislation as well as penal and civil sanctions.

Art. 20. It is IBAMA's duty to reach decisions on cases omitted by this resolution..

Art. 21. This Resolution shall enter into effect on the date of its publication and other pertinent standards will be enforced until time for the implementation of each of the stages of the schedule established by art. 1.

ANNEX A

Note: Cases related to the production of vehicles through the use of bus chassis or rolling bus platform undercarriages, supplied by a third party, are covered by Annex 1 of Resolution 17/95.

Vehicle brand:

1. Vehicle Model/production year/ model:

- 2.1 – List of represented configurations:
- 2.2 – Total Gross Weight:(kg) - (except for cars and mixed usage derived vehicles derived from cars)
- 2.3 – Technical criteria for the definition of master configuration and presented configuration.

Name and address of chassis manufacturer:

2. Name and address of Legal Representative:

3. Name and address of the importer(s), if applicable:

4. Engine;

- 6.1 - Manufacturer:
- 6.2 - Type:
 - 6.2.1 -Otto/ Diesel:
 - 6.2.2 -Cycles: 2/3 Cycles
- 6.3 - Model:
- 6.4 – Maximum power: _____,(kW) to _____ (l/min) (rpm)
- 6.5 - Cylindrage: _____ (cm³)_____ (l)

5. Transmission:

- 7.1 – Gear box: manual/automatic
- 7.2 – Total number of gears (except back gear) including transmission ratios

6. Hardware/Materials:

- 8.1 – Exhaust system (sketch).
- 8.1.1 – Fibrous material in contact with gases: Yes/No
- 8.2 – Air intake silencer:
 - 8.2.1 - Manufacturer:
 - 8.3 – Catalytic converter (if applicable)
 - 8.3.1 - Manufacturer:
 - 8.4 – Tire designation (ABPA –Brazilian Tire and Hoops Association):
 - 8.5 – Additional specifications deemed as necessary by the manufacturer in order to safeguard compliance with the provisions of this Resolution.

7. Measurements:

8. 9.1 – Noise levels in acceleration according to NBR -8433

Vehicle Identification		Model:	Production year: _____			
		N.VIN: _____	Max. Power: _____ (kW)		PBT _____ (kg)	
Background Noise Level dB(A)						
1st Measurement		2nd Measurement		3rd Measurement		
	Approximate speed (km/h)	Angular speed (rpm)	N.R. Right side dB(A)		N.R. Left side dB(A)	
			1st Meas.	2nd Meas.	1st Meas.	2nd Meas.
	2nd gear					
	3rd gear					
	4th gear					
	5th gear					
	6 th gear					

Result _____ dB(A)

Obs.: The rates registered for noise levels are the rates provided by the measurement minus 1 dB(A).
 9.2 – Noise levels while running but still according to NBR-9714.

Vehicle Identification		Model _____ Production year _____ N. VIN/Series _____		
Background noise level dB (A)				
1 st measurement		2 nd measurement	3 rd measurement	
Rotation (rpm)	Exhaust noise level dB(A)			
	1 st measurement	2 nd measurement	3 rd measurement	Arithmetic Medium
Result: _____ dB(A)				

9.3 – Maximum allowable level of exhaust system backpressure (according to annex E): (_____ kPa) (_____ mmHg).

9.4 – Measured exhaust system backpressure: (_____ kPa) (_____ mmHg) (only applicable for manufacturers of non-original replacement parts and components)

10. Data on tested vehicle:

11. Test report data:

12. Test report number:

13. Location:

14. Date:

15. Name and signature of test manager:

ANNEX B DEFINITIONS:

- 1. Vehicle category:** definitions according to NBR-6067;
- 2. Engine cylinders:** amount of engine cylinders between the neutral superior and inferior points of the pistons measured in cubic centimeters or in liters;
- 3. Components and original parts:** are those that form the production vehicle and those defined by the manufacturer as replacement parts;
- 4. Configuration:** vehicles characterized by engines with the same amount of cylinders', supply system, transmission type and ratio and equivalent exhaust systems;
- 5. Master configuration:** configuration that represents the assembly and operational characteristics of the model/series of vehicles in production, in such a manner that no other vehicle of the same model/series will emit noises that differ from one vehicle to another;
- 6. HP(horse power):** potency unit;
- 7. dB (A):** unit of the pressure level in decibel, weighed by the frequency response curve in A, for the quantification of noise levels;
- 8. Models/series:** group of configurations of similar vehicles in such a manner that the master configuration of the model/series shows results that prove compliance with maximum established noise levels for other configurations that compose the same;
- 9. kW (kilowatts):** power unit;
- 10. Maximum noise level for the inspection of vehicles in circulation:** noise level while the vehicle is standing still, added by 3.0 (three) dB (A);
- 11. Fibrous materials:** Materials composed of metal, ceramic or mineral fibers used for the fabrication of silencers;
- 12. Parts market:** market for systems, parts and components for vehicles in use;
- 13. Two-stroke engine:** engine with a two phase cycle (combustion-exhaust and intake-compression);
- 14. Four-stroke engine:** engine with a four phase cycle (intake, compression, combustion and exhaust);
- 15. Total Gross Weight (TGW):** weight stated by the manufacturer for specific operation conditions, based on material resistance assessments, tire load capacity, etc., according to NBR-6070;
- 16. Maximum power:** maximum liquid effective potential according to NBR-5484;
- 17. Repair:** system repairs, parts or components with defects or worn, with or without their substitution;
- 18. Silencer:** vehicle component that reduces the noise produced by gas shocks with the environment, whose speed and intensity are gradually reduced by the flow of gases in its interior, may be included in more than one of the components of a vehicle;
- 19. Exhaust system:** group of components that comprise the exhaust collector, exhaust pipe, discharge pipe, expansion chamber(s), silencer(s) and catalytic converter(s), when applicable
- 20. Similar vehicles:** are vehicles of two, three or more wheels whose assembly and propulsion characteristics originate in motorcycles, scooters, mopeds or bicycles with auxiliary engines or are similar to these. They are examples of vehicles similar to motorized scooters, mopeds with a lateral car or load carts, etc.;
- 21. Production conformity verification:** confirmation that the vehicles, or exhaust systems in the parts supply market, serially produced or not, are in harmony with the maximum established noise limits and other demands set by this Resolution;
- 22. Prototype Verification:** testing of a pre-production commercial vehicle, characterized by the manufacturer as being the master configuration, which complies with the maximum noise levels, and other demands, established by this Resolution.

ANNEX C

Simulations of normal usage conditions may be performed through one of the three tests that are described hereunder or by the simple removal of the fibrous materials from the silencer;

a) Field drill by 10.000 km;

a. 1) half of the tests must be performed in urban areas and the other half on high speed roads: continuous drills may be substituted by a test program on new lanes;

a.2) the two types of traffic should be alternated several times;

a.3) the full test program must also include a minimum of ten stops under a minimum period of three hours in order to allow for the reproduction of cooling effects and possible condensation effects;

b) Bench drill:

b. 1) the engines must be connected to a dynamometer and the exhaust system of the original vehicle installed according to manufacturer instructions;

b.2) the test must be performed in six periods during six hours with intervals of a minimum of twelve hours between periods in order to allow for the reproduction of cooling effects and possible condensations;

b.3) during each six hour period the engines should be running according to the following specifications:

1) five minutes in low gear;

2) one hour at 1/4 of the charge at 3/4 of total maximum power;

3) one hour at 1/2 of the charge at 3/4 of total maximum power;

4) ten minutes at full charge at 3/4 of total maximum power;

5) fifteen minutes at 1/2 of the charge of total maximum power;

6) Thirty minutes at 1/4 of the charge at maximum power rotation;

The total sequence duration from 1 to 6 is three hours which must be repeated in order to fulfill the total six hour period;

b.4) the silencer should not be refrigerated through forced air currents. However, if necessary, the silencer may be refrigerated in order not to exceed the maximum temperature, when the vehicle engines is running at maximum speed during the simulation;

c) pulse simulation:

c.1) the exhaust system should be installed in the vehicle or connected to the test engine. In the first case the vehicle must be tested in a roll dynamometer and in the second the motor it should be assembled on a dynamometer test bench. The test hardware, according to the presented sketch, must be connected to the exhaust gas exit pipe extremity. Other hardware combinations may be used as long as they reach equivalent results;

c.2) the tools must be adjusted in order to interrupt and re-establish the flow of gases, alternatively through a rapid action valve and during 2.500 cycles;

c.3) the valve must open when the backpressure measured at a minimum of 100mm at the beginning of the inlet flange reaches a rate of between 0.35 and 0.40 bar. It should close when the backpressure does not differ more than 10% of the stabilized rate with opened valve;

c.4) the retardation dispositive must be adjusted to the period that is the result of the conditions described in item c.3;

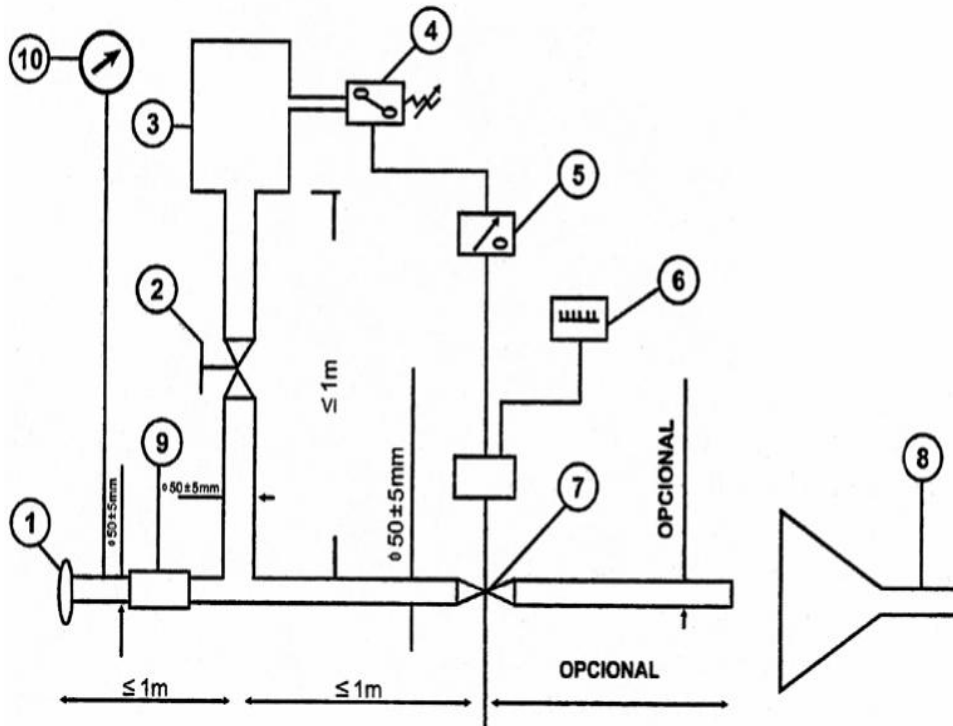
c.5) engine rotation rate must be 75% of the maximum rotation potential;

c.6) the power shown by the dynamometer must be 50% of the full charge potential measured at 75% of the maximum rotation potential;

c.7) all drains must be closed during tests;

c.8) the full test must be completed in a 48 hour period. If needed, a cooling period could be implemented every hour.

PULSE TEST INSTALLATION SKETCH

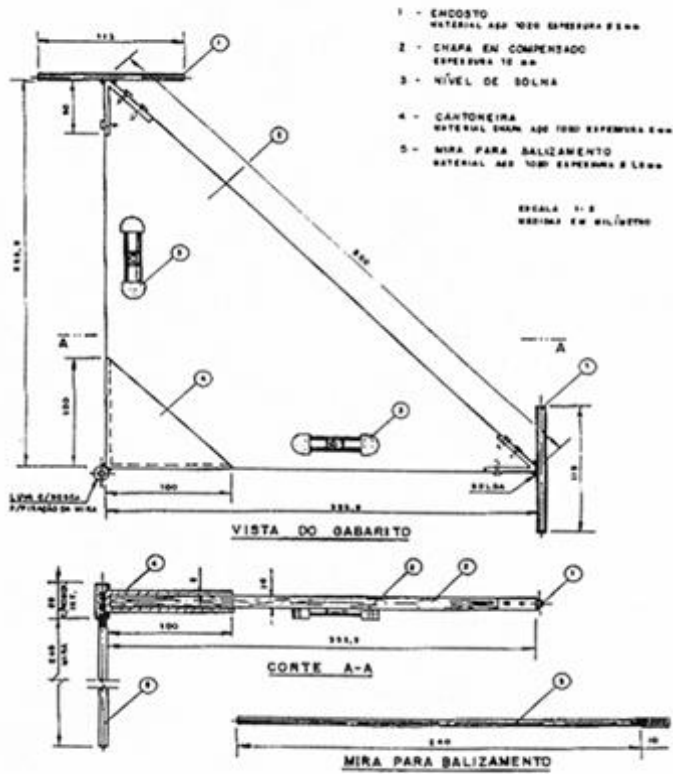
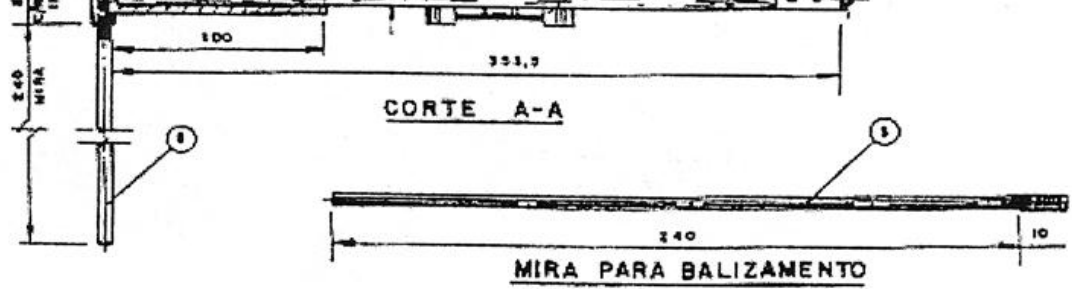


(LEGENDA – Opcional = Optional)

- 1 – Flange or entry glove for the connection of the exhaust pipe.
- 2 – Manual valve.
- 3 – Pressure compensator with a capacity of 35 to 40 liters.
- 4 – Pressure regulator with operation spectrum of 0.05 to 2.5 bar.
- 5 – Retardation device.
- 6 – Pulse meter.
- 7 – Rapid action valve operated through a pneumatic cylinder of 120 N to 4 bar. The feedback time, opening or closing, should not exceed 0.5 seconds.
- 8 - Exhauster.
- 9- Flexible hose.
- 10-Pressure meter.

ANNEX D GAUGE INSTRUCTIONS

1. The gauge for the measurement of noise is an auxiliary device that allows for the precise positioning of the microphone, according to MBR-9714. It is composed of a triangle with two supports (1), one for the positioning near the exhaust pipe and another for the positioning of the microphone. The third vertex possesses a limit aim (5). The device also possesses double bubble level(3).
2. Depending on the positioning of the exhaust system (left or right sides) one of the supports (1) must be positioned near the exhaust gas exit hole. The correct leveling of the hardware must be verified through the levels. The aim (5) is used in order to achieve the correct visual alignment of the support (1) with the flow of gases.
3. The microphone is positioned on the other support (1).
4. In the case of vertical exhaust systems the support (1) must be equal to the diameter of the hole.
5. Depending on the exhaust diameter the supports may be larger than those shown in the sketch.
6. The device must be always used at a height, from the floor, equal or over 0.2 meters.



Legendas: 1. Encosto= Support /Steel material...thickness 2. Chapa de Compensado = Plywood Sheet/thickness 3. Nivel de bolha = Bubble level 4. Cantoneira = Corner/Steel sheet material...thickness 5. Mira para Balizamento = Limit Aim/Steel material...thickness

Fixação da Mira= Aim setting

Escala=Scale

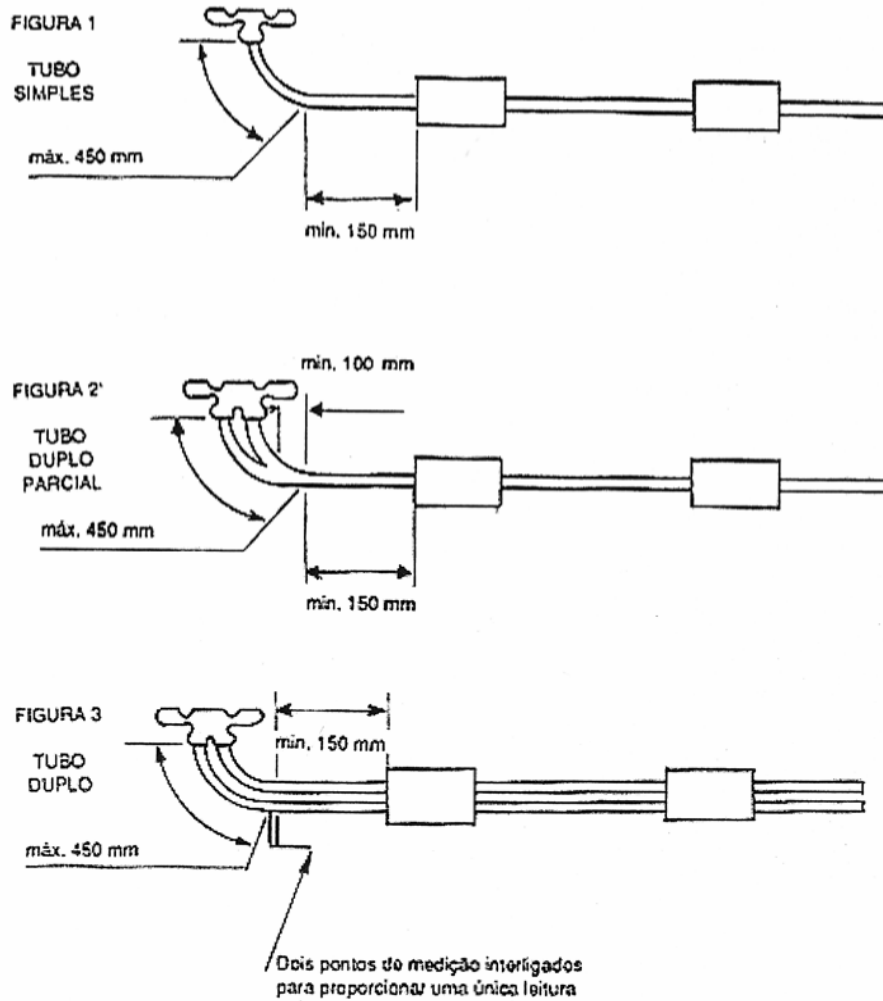
Medida em milímetros = measured in millimeters

VISTA DO GABARITO = GAUGE SKETCH

CORTE A-A = SECTION A-A

MIRA PARA BALIZAMENTO = LIMIT AIM

**ANNEX E
BACKPRESSURE MEASURING POINTS**



LEL

(LEGENDAS)

FIGURA 1 = SKETCH 1
TUBO SIMPLES = SINGLE PIPE
máx = max. min=min. (PARA TOTAIS AS FIGURAS)

FIGURA 2 = SKETCH 2
TUBO DUPLO PARCIAL = PARTIAL DOUBLE PIPE

FIGURA 3 = SKETCH 3
TUBO DUPLO = DOUBLE PIPE
Dois pontos de medição interligados para proporcionar uma única leitura =
Two interconnected measuring points in order to allow for a single reading

(1) If it is not possible, use Sketch 3

Note: Table 1 ratified by Official Gazette 201 on October 21, 1993, and was soon changed by the re-publishing of Resolution 8/93.

This text does not substitute the text published in the Official Gazette on Feb. 15, 1993.

CONAMA RESOLUTION 2, February 11, 1993
Published in Official gazette 31 on Feb. 15, 1993, Section 1, pages 2041-2044

Correlations:

· Changed by CONAMA Resolution 268/00 (art. 2 §1 changed)

Establishes maximum limit levels for noises created by vehicles while running but still or in acceleration such as motorcycles, scooters, motorized tricycles, mopeds, bicycles with auxiliary engines and similar vehicles, national or imported.

The NATIONAL ENVIRONMENT COUNCIL – CONAMA, in the use of the power bestowed upon the Council by Laws 6.938 from Aug. 31, 1981, 8.028, from April 12, 1990, 8.490 from November 19, 1992⁶⁴, Decree 99.274 from June 6, 1990 and in light of its Internal Regulations, and

Considering that excessive noise is a physical and mental health hazard and in particular in relation to hearing;
 Considering the need to reduce sound pollution within urban centers;
 Considering that street/roadway motor vehicles are the main sources of noise in the environment;
 Considering that the implementation of acknowledged technologies can help to control sound pollution;
 Considering the objectives of the National Program for the Education and Control of Sound Pollution – “SILÊNCIO”, decides:

Art.1 To establish maximum noise limits for national and imported vehicles, except motorcycles, scooters, tricycles, mopeds and bicycles with auxiliary engines and similar vehicles, both while running but still and during acceleration.

§ 1 The noise limits for nationally produced vehicles for national market purposes will enter into effect for accelerating vehicles according to the below schedule and brand:

- a) 1st Phase (except mopeds and motorized scooters):
 - a.1) all new releases from July 10, 1994;
 - a.2) a minimum 60 % of vehicles produced from Jan. 1st, 1996;
 - a.3) a minimum 80 % of vehicles produced from Jan. 1st, 1997;
 - a.4) 100% of vehicles produced from Jan. 1st, 1998.
- b) 1st Phase – only valid for mopeds:
 - b.1) all new releases from July 1st, 1994;
 - b.2) 100% of vehicles produced from Jan. 1st, 1996;
- c) 1st Phase – only valid for motorized scooters;
 - all vehicles produced from July 1st, 1993.
- d) 2nd Phase:
 - all vehicles produced from Jan. 1st, 2001.

Max. noise levels Category	with vehicle in acceleration Noise level 1 st phase dB(A)	measured according to NBR-8433 Noise level 2 nd phase dB(A)
Up to 80 cm ³	77	75
81 cm ³ to 125 cm ³	80	77
126 cm ³ to 175 cm ³	81	77
176 cm ³ to 350 cm ³	82	80
Above 350 cm ³	83	80

§ 2 The first phase for all imported vehicles will be enforced from July 1st, 1993 according to the maximum noise limits for vehicles in acceleration established by this article. The maximum noise levels for the second phase will be enforced from January 1st, 1998.

§ 3 The maximum noise levels established by this article must be respected during the entire warranty period according to the conditions specified and granted by the manufacturer and/or the importer.

§ 4 The eventual impossibility to comply with the percentages established by the schedule will be subjected to specific IBAMA assessment.

§ 5 The level of noise while running but still, is the rate of reference of the new vehicle collected during the verification process. This rate, added by 3 (three) dB A, is the maximum limit for inspections related to vehicles in circulation.

§ 6 IBAMA must be provided with, from July 1, 1993, two copies stating the level of noise of vehicles running but still measured near the exhaust, according to NBR-9714, for all produced vehicles in order to allow for the inspection of vehicles in circulation.

Art. 2 The noise measurement testes performed for all purposes of this Resolution must be made in accordance with the Brazilian standards NBR-8433 – Noise Produced by Accelerating Motor Vehicles – Test Method and

⁶⁴ Law revoked by Law 9.649 from May 27, 1998.

NBR-9714 – Noise Produced by Running but Still Motor Vehicles – Test Method, and according to measurements performed near the exhaust.

~~§ 1. Noise levels in accelerating vehicles, measured according to NBR 8433 must also take into consideration all changes established by Directive CEE 87/56 from December 18, 1985, issued by the European Economic Community.~~

§ 1º For mopeds, the test and monitoring practices may be made according to Chapter 9 of Directive 97/24/EC issued by the European Economic Community as an alternative method to that established by this Resolution. *(new text provided by Resolution 268/00)*

§ 2 Vehicles equipped with a variable ratio transmission system must be tested through the same method as vehicles equipped with automatic gear boxes that cannot be changed into manual.

§ 3 The positioning of the microphone for the measurement of noise near the exhaust, according to NBR-9714, must be performed through the use of the gauge described in annex D.

Art. 3º The exhaust system must be projected, manufactured, assembled and installed in the vehicle in order to be able to adequately withstand vibration and corrosion to which the vehicle is normally exposed and allow for full compliance with provisions established by this Resolution under normal usage conditions. Exhaust systems that use fibrous materials cannot contain any asbestos and may only be used if equipped with appropriate devices that keep these materials in their location during the entire life of the silencer. The above mentioned exhaust systems must also comply with the following measures in order to uphold full compliance with the maximum noise levels established by this Resolution:

- a) preparation of fibrous material in order to avoid any direct contact with exhaust gases, or
- b) in the case of direct contact of exhaust gases with the fibrous materials, the exhaust system must be subjected to specific preparations before the performance of vehicle verification tests, through the simulation of normal usage conditions, according to annex C, or through the simple removal of fibrous materials from the silencer.

Art. 4 The main components of the exhaust system must possess non-delectable markings that identify the manufacturer through its commercial brand.

Art. 5 The vehicle manufacturer, his/her legal representative or the importer must undertake the testing of the representative production prototype before the start of production or before the importation of vehicles. § 1 The person responsible for the testing of the prototype must have a specialized and empowered team at his/her disposal and keep an actualized archive containing all documentation related to performed and ongoing tests. The Brazilian Institute for the Environment and Renewable Natural Resources (IBAMA) must be provided with the name and full address of the individual responsible for prototype test verifications and regarding any possible changes and actualizations.

§ 2 The establishment of noise levels for vehicles belonging to one and the same brand model may be performed through the testing of one single vehicle, considering the family master configuration and in accordance with the technical criteria specified in annex A..

§ 3 The inspection test reports related to prototype vehicle of all brand models and their respective master configurations must contain annex A of this Resolution and be forwarded to IBAMA before the production start date and/or enforcement dates for the respective maximum noise limits.

§ 4 Reports and tests undertaken outside of Brazil may be accepted at the discretion of IBAMA if it is not possible to perform prototype inspection tests within Brazil.

Art. 6 The inspection of prototypes is only valid for the respective model and year of production. However, vehicles that contain the same configuration as those previously verified/inspected, characterized by the respective annexes and under the same demands, it is allowed to use the same results and data and the manufacturer of the vehicle, or his/her legal representative or the importer(s) will assume full responsibility for the continuity of previously approved vehicle specifications.

Art. 7 In order to verify vehicle production conformity with the provisions set by this Resolution, the responsible for this verification may select random production line vehicle samples in order to perform tests, or vehicles from commercialization stocks.

§ 1 It is considered a sample a vehicle tested according to the standards established by article 2 of this Resolution;

§ 2 If the initially tested vehicle does not comply with sound emission limit tests must be performed on a larger number of vehicles agreed jointly by the manufacturer and IBAMA and limited to thirty five units with the same configuration and including the initially tested vehicle.

§ 3 Manufacturing will be considered in harmony with limits if it is performed according to:

$$\bar{X} + kS_i \leq L_i$$

$$S_i = \sqrt{\frac{\sum(x_i - \bar{X})^2}{n-1}}$$

where:

\bar{X} = arithmetical medium of obtained results, in all vehicles;

k = statistical factor established in Table 2;

n = number of sample vehicles;

X_i = each and every result reached according to NBR-8433;

L_i = Maximum established noise level limits.

Table 1 – Statistical Factors

n	5	6	7	8	9	10
k	0,421	0,376	0,342	0,317	0,296	0,279

n	11	12	13	14	15	16	17	18	19
k	0,265	0,253	0,242	0,233	0,224	0,216	0,210	0,203	0,198

$$K = \frac{0,860}{\sqrt{n}}$$

Note: If $n \geq 20$,

Art. 8 Vehicle manufacturers or their legal representative or importers must provide a statistical report on the production line for each model/series master configuration. The report must be issued up to the fifth month after the start of commercialization of importation, and thereafter annually, and must contain noise levels according to NBR-8433 and/or NBR-9714, at the discretion of the manufacturer, from vehicles randomly chosen and uniformly distributed during the corresponding report period. The reports must be archived during a two year period and kept at the disposal of IBAMA.

Single paragraph. The manufacturer may choose to use another quality production alternative method as long as it has been approved by IBAMA and with proved correlation with the noise levels emitted by the vehicle.

Art. 9 The vehicle manufacturer or his/her legal representative or importer(s) that find and spontaneously correct any non-conformity in the production of commercialized vehicles must inform IBAMA and forward a report on the adopted corrective measures.

Art. 10. IBAMA may request clarifications or the revision of reports at any given time and at its discretion, as long as duly justifiable, and request the performance of tests that confirm prototype inspections and production conformity and select, randomly, samples of vehicles from the assembly line or from commercialization stocks for the performance of tests.

Single paragraph. IBAMA must be provided with the means necessary for the performance of tests according to the provisions set by article 2 of this Resolution including calibrated measurement tools and their accessories, test fields and vehicles for testing purposes.

Art. 11. IBAMA may, in cases where irregularities have been verified during prototype testing processes or related to production conformity by the responsible enterprise, issue a Commercialization Suspension Order for the respective vehicle configurations.

§ 1 The Commercialization Suspension Order implies immediate compliance with its provisions until the irregularities that originated it have been clarified and corrected.

§ 2 The re-initiation of vehicle commercialization can only start after full compliance with the provisions set by this Resolution.

Art. 12. In cases related to product non-conformity the vehicle produce, his/her legal representative(s) or the importer(s) must, within 180 days counting from the date of verification, remedy all problems that have caused production non-conformity and recall and repair all vehicles with belonging to the same series and with the same configuration.

§ 1 The repairs must be undertaken by technical assistance services accredited by the manufacturer, his/her legal representative or by the importer, under their guidelines and responsibility.

§ 2 Production corrections and the repair of vehicles must be approved by IBAMA through the presentation of documentation that clearly describes adopted measures, the efficacy of the same and the number of involved vehicles.

§ 3 Non-compliance with the provisions set by this article will imply the hindrance of the commercialization of the configuration(s) of the vehicle(s) in question or, when it has already been suspended, the responsible party will be subjected to administrative and legal sanctions.

Art. 13. From January 1 of 1994 all non-original parts and components of models that have proved conformity with the provisions set by this Resolution, which are integral parts of the exhaust system and produced for the replacement, may only be commercialized after meeting the same verification IBAMA demands by the manufacturer or importer of exhaust systems related to compliance with the provisions of this Resolution for products used in new vehicles. The maximum noise level of replacement exhaust systems in running but still

vehicles must be the same as the one declared during the testing process of the prototype of the corresponding original model.

§ 1 The test exhaust system must provide the vehicle with conditions that are similar to those obtained with an original exhaust system. This verification shall be undertaken through the engine power curve. The maximum power and the maximum potential rotation rate with the replacement exhaust system should not exceed more than 5% of the maximum power and maximum power rotation rate of the original exhaust system measured in the same conditions.

§ 2 IBAMA may select, for purposes related to product conformity with the demands placed by this Resolution, samples of exhaust systems randomly chosen from the assembly line and/or producer stocks for the performance of tests. The process must follow the same procedures as those prescribed for the verification of conformity for new vehicles and in compliance with other paragraphs included in this article.

§ 3 Non-compliance with the provisions set by this article implies that the producer or his/her legal representative or the importers will not be allowed to commercialize the exhaust systems until they have been subjected to modifications according to the demands set by this Resolution.

Art. 14. Vehicles that are already in conformity with the provisions set by this Resolution must, as from July 1, 1993, include a proprietor manual that includes the following information:

- a) this vehicle is in conformity with current legislation related to the control of sound pollution for motor vehicles;
- b) exhaust system maintenance procedures (if applicable);
- c) Folder containing the maximum limit(s) allowed and inspected for vehicles in circulation;.....dB (A) at rpm, measured at 0.5 meters from the exhaust, according to NBR-9714.

Art. 15. Expenses directly related to tests, verifications, product corrections, recalls for repairs and actual repair costs, including the cost of substituted components, are the responsibility of the producers and/or importers of vehicles and exhaust systems.

Art. 16. Producers, their legal representatives or importers must provide IBAMA with monthly sale reports, from July 1st 1993 and onwards, on the sale of all vehicle configurations commercialized within the National Territory.

Art. 17. The definitions provided by annex B are hereby established for all purposes of this Resolution.

Art. 18. IBAMA may enter into agreements, contracts and activities with organs and entities that may provide direct or indirect contribution for the development of this program as well as delegate competence foreseen by this Resolution to other organs.

Art. 19. Non-compliance with the provisions of this Resolution will subject offenders to penalties foreseen by Law 6.938 from Aug. 31, 1981 and the text provided by Law 7.804 from July 18, 1989 without prejudice to other possible penalties foreseen by federal legislation as well as penal and civil sanctions.

Art. 20. . It is IBAMA's duty to reach decisions on cases omitted by this resolution..

Art. 21. This Resolution shall enter into effect on the date of its publication and other pertinent standards will be enforced until time for the implementation of each of the stages of the schedule established by art. 1.

FERNANDO COUTINHO JORGE – Council President

ANNEX A

1. Vehicle Brand:

2. Vehicle model/production year/model:

2.1 – List over representative configurations:

2.2 – Technical criteria for the definition of master configuration and representative configurations;

3. Manufacturer's name and address:

4. Name and address of legal representative:

5. Importer's name and address, if applicable:

6. Engine:

6.1 - Manufacturer:

6.2 - Type:

6.2.1 - Cycles: 2 Cycles/4 Cycles

6.3 - Model:

6.4 – Maximum power: _____ (kW) a _____ (1/min)(rpm)

6.5 - Cylinders _____(cm³)

6.6 – Maximum speed (if applicable): _____ (km/h)

7. Transmission: manual/automatic

7.1 – Total number of gears (except back gear), including transmission information.

8. Hardware/Materials:

8.1 – Exhaust system:

8.1.1 – Manufacturer

8.1.2 – Legal representative or importer

8.1.3 – Model

8.1.4 - Type ____ according to drawings number _____

8.1.5 – Fibrous materials in contact with gases: Yes/NO

8.1.6 – List of configurations in vehicles equipped with this exhaust system (only for the certification of replacement parts) :

8.2 – Air intake silencer:

8.2.1 - Manufacturer:

8.2.2 – Legal representative or importer *:

8.2.3 - Model:

8.2.4 –Type in accordance with sketches number_____ (*)

Not applicable if same as 8.1.2.

8.3 – Catalytic converser (if applicable) 8.3.1 - Manufacturer:

8.3.2 – Legal representative or importer *:

(*) Exempted if the same as 8.1.2.

8.3.3 - Model:

8.3.4 - Type , according to drawings number

8.4 – Acoustic isolation for the reduction of outside noise inside of the vehicle:

8.4.1 – Type and installation location:

8.4.2 – Commercial specification on used materials, model and manufacturer:

8.5 - Tyres:

ABPA Denomination- Brazilian Tire and Hoops Association

9. Measurements:

9.1 – Acceleration noise levels according to NBR 8433, considering all changes introduced by EU Directive 87/56 issued by the European Community.

Vehicle Identification		Model: _____ Production year _____ N.VIN/Series _____ Max. Power: _____ (kW) to _____ (rpm)				
Background noise level dB(A)						
1st Measurement		2nd Measurement		3rd Measurement		
	Approx. Speed (km/h)	Angular Speed (rpm)	N.R. Right Side dB(A)		N.R. Left Side dB(A)	
			1st Meas.	2nd Meas.	1st Meas.	2nd Meas.
2nd gear						
3rd gear						
Result _____ dB(A)						

Obs.: The registered noise level rates are the rates obtained through the measurement minus 1 dB (A).

9.2. – Noise levels of running but still vehicle according to NBR-9714.

Vehicle Identification		Model _____ Production year _____ N. VIN/Series _____	
Background noise level dB(A)			
1st Measurement		3rd Measurement	
Rotation (rpm)	Exhaust noise level dB (A)		
	1st Measurement	2nd Measurement	3rd Measurement
			Arithmetic Medium

Result: _____ dB(A)

- 10. Engine number:**
- 11. Test report date:**
- 12. Test report number:**
- 13. Location:**
- 14. Date:**
- 15. The following documentation is part of this Vehicle Characterization Agreement:**
- 16. Observations:**
- 17. Name and signature of individual responsible for the test:**

ANNEX B DEFINITIONS:

- 1. Engine cylinders:** amount of engine cylinders between the neutral superior and inferior points of the pistons measured in cubic centimeters or in liters;
- 2. Components and original parts:** are those that form the production vehicle and those defined by the manufacturer as replacement parts;
- 3. External configuration:** unique combination of parts and components that provide the vehicle with characteristics of style, volume and aerodynamics;
- 4. Engine configuration:** unique engine combination, emission control system, cylinders and combustion supply system;
- 5. Vehicle configuration:** unique engine and transmission configuration and the transmission characteristics from the gear box to the wheels, exhaust system, tyres and external configuration;
- 6. Master configuration:** configuration that represents the assembly and operational characteristics of the model/series of vehicles in production, in such a manner that no other vehicle of the same model/series will emit noises that differ from one vehicle to another;
- 7. Production conformity verification:** confirmation that the vehicles are in harmony with the maximum established noise limits and other demands set by this Resolution;
- 8. HP(horse power):** power unit;
- 9. dB (A):** unit of the pressure level in decibel, weighed by the frequency response curve in A, for the quantification of noise levels;
- 10. Model/series:** basic assembly line specifications from one and the same manufacturer that shows that any vehicle of the same model/series possesses that same characteristics related to exhaust systems, basic engine, engine configuration, transmission and relationship between the transmission and external configuration components that do not have any influence on noise emissions;
- 11. kW (kilowatts):** power unit;
- 12. Maximum noise level for the inspection of vehicles in circulation:** noise level while the vehicle is standing still, added by 3.0 (three) dB (A);
- 13. Fibrous materials:** Materials composed of metal, ceramic or mineral fibers used for the fabrication of silencers;
- 14. Parts market:** market for systems, parts and components for vehicles in use;
- 15. Two-stroke engine:** engine with a two phase cycle (combustion-exhaust and intake-compression);
- 16. Four-stroke engine:** engine with a four phase cycle (intake, compression, combustion and exhaust);
- 17. New launch:** Consumer market introduction of a vehicle configuration that has not existed containing totally new engine concepts and external configurations that do not derive from existing models;
- 18. Maximum engine power:** maximum power created by the engine, stated by the manufacturer, with all the necessary hardware and accessories needed for its functionality and its particular usage;
- 19. Repair:** system repairs, parts or components with defects or worn, with or without their substitution;
- 20. Silencer:** vehicle component that reduces the noise produced by gas shocks with the environment, whose speed and intensity are gradually reduced by the flow of gases in its interior, may be included in more than one of the components of a vehicle;
- 21. Exhaust system:** group of components that comprise the exhaust collector, exhaust pipe, discharge pipe, expansion chamber(s), silencer(s) and catalytic converter(s), when applicable;
- 22. Similar vehicles:** are vehicles of two, three or more wheels whose assembly and propulsion characteristics originate in motorcycles, scooters, mopeds or bicycles with auxiliary engines or are similar to these. They are examples of vehicles similar to motorized scooters, mopeds with a lateral car or load carts, etc.
- 23. Production conformity test:** confirmation test that verifies that original vehicle exhaust systems, or systems available from the parts market, manufactured as a series or not, comply with the maximum noise limits and other demands established by this Resolution;
- 24. Prototype Verification:** testing of a pre-production commercial vehicle, characterized by the manufacturer as being the master configuration, which complies with the maximum noise levels, and other demands, established by this Resolution.

ANNEX C

C1, C1 and C3 tests must be performed before normal condition simulation tests:

- C1) Fibrous materials must be conditioned in an oven at 650 ± 5 degrees Celsius during a four hour period without any reduction in the medium length, diameter or density of the fibers;
- C2) After conditioning in an oven at 650 ± 5 degrees Celsius during one hour, at least 98% of the material must

be remain in a sieve with a nominal dimension of 250 um that complies with ISO-3310/1 norm if the test is performed according to ISO-2599 norm;

C3) The loss of material weight cannot exceed 10.5% after emersion during 24 hours at the temperature of 90 ± 5 degrees Celsius in a condensed synthetic with the following composition:

- 1N hydro bromic acid (HBr) : 10 ml
- 1N sulfuric acid (H₂SO₄) : 10 ml
- up to 1000 ml of distilled water

Note: the material must be dry washed with distilled at 105 degrees Celsius during one hour before weighting.

Normal simulation conditions can be achieved through one of following three tests C4, C5 or C6:

C4) Conditioning through continuous road driving.

C.4.1) According to vehicle category, the minimum distances that must be covered during the conditioning cycle are:

CYLINDER CAPACITY in cm ³		DISTANCE (km)
1.	80	4000
2.	80 175	6000
3.	175	8000

C.4.2) 50% \pm 10% of the conditioning cycle must consist of urban circulation and the rest of long distance driving stretches at high speeds: the continuous road driving cycle may be substituted by a corresponding conditioning in a test circuit.

C.4.3) The above mentioned conditioning at two speeds must be alternated at least six times.

C.4.4) The complete test program must include a minimum of tem stops of at least three hours each, in order to allow for the reproduction of cooling and condensation effects.

C.5) Pulse conditioning.

C.5.1) The exhaust system must be installed on the vehicle or connected to the engine.

In the first option the vehicle must be placed on dynamometer rollers. In the second option the engine must be installed on a dynamometer test bench.

The test hardware illustrated by the figure is connected to the exhaust system exit. The use of other hardware is acceptable as long as it reaches comparable results.

C.5.2) The test hardware must be tuned in order to allow for the alternatively interrupted gas flow and re-established 2500 times, through a rapid action valve.

C.5.3) The valve must open through the backpressure of exhaust gases, measured at a distance of at least 100 mm from the throttle input and reach a rate between 0.35 and 0.40 bar. If, due to engine characteristics, this rate cannot be attained the valve must open when the backpressure reaches a rate equal to 90% of the maximum rate, which can be measured before the engine stops. The valve must close when that pressure is not more that 10% of its stabilized rate, with an open valve.

C.5.4) The delay command must be tuned to exhaust gas production that is the product of the prescriptions of point C.5.3.

C.5.5) Engine rotation should be 75% of the maximum rotation potential.

C.5.6) The potency shown by the dynamometer must be equal to 50% of the full charge potential, measured at 75% of the maximum rotation power.

C.5.7) All system drain holes must be covered during the test.

C.5.8) The test must be performed during 48 hours. A cooling period every each hour is permitted if the manufacturer finds it necessary.

C.6) Conditioning on a test bench.

C.6.1) The exhaust system must be connected to an engine that is representative for the vehicle type for which the system was conceived. The engine is then mounted onto a test bench.

C.6.2) The conditioning consists in a determined series of specific test cycles for the vehicle category for which the exhaust system was conceived. The number of cycles for each category are:

CYLINDER CAPACITY in cm ³		DISTANCE (km)
1.	80	6
2.	80 175	9
3.	175	12

C.6.3) Each bench cycle test must be followed by a stop of at least six hours in order to reproduce cooling and condensation effects.

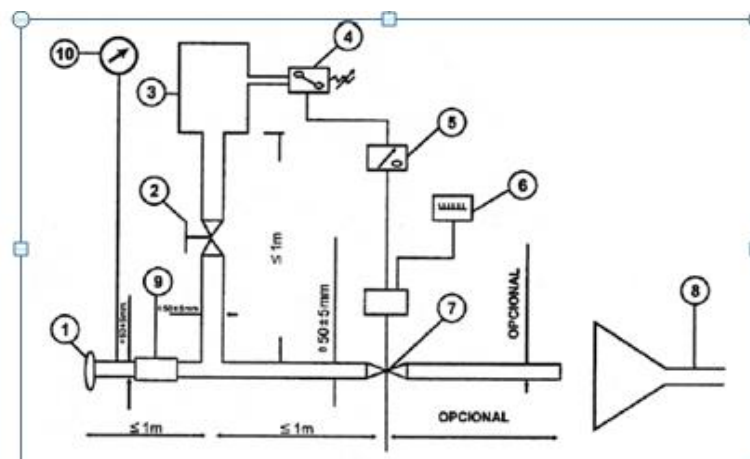
C.6.4) Each bench cycle test is performed in six phases. The engine operation conditions of each phase, and

their duration, are:

Dynamometer driving cycle			
P H A S E	Conditions	Phase duration	
		Motor of less than 175 cm ³ (min)	Motor of 175 cm ³ or more (min)
1	Low gear without load	6	6
2	25% of load to 75% of max. power rotation	40	50
3	50% of load to 75% of max. power rotation	40	59
4	100% of load to 75% of max. power rotation	30	10
5	50% of load to 100% of max. power rotation	12	12
6	25% of load to 100% of max. power rotation	22	22
Total duration		2.5h	2.5h

C.6.5) During this conditioning process, at the request of the manufacturer, the engine and the silencer may be cooled so that the temperature registered at one point, at a distance from the gas exhaust exit that is not over 100 mm, does not surpass that which is registered when the vehicle runs at 110 km/hour or 75% of the maximum power rotation of the highest gear. The vehicle speed and/or rotation must achieve a 3% precision rate.

PULSE TEST INSTALLATION SKETCH PULSE TEST INSTALLATION SKETCH



(Legenda: Opcional = Optional)

- 1 – Flange or entry glove for the connection of the exhaust pipe.
- 2 – Manual valve.
- 3 – Pressure compensator with a capacity of 35 to 40 liters.
- 4 - Pressure regulator with operation spectrum of 0.05 to 2.5 bar.
- 5 – Retardation device.
- 6– Pulse meter.
- 7 - Rapid action valve operated through a pneumatic cylinder of 120 N to 4 bar. The feedback time, opening or closing, should not exceed 0.5 seconds.
- 8 - Exhauster.
- 9 – Flexible hose.
- 10 – Pressure meter.

ANNEX D GAUGE INSTRUCTIONS

1. The gauge for the measurement of noise is an auxiliary device that allows for the precise positioning of the microphone, according to MBR-9714. It is composed of a triangle with two supports (1), one for the positioning near the exhaust pipe and another for the positioning of the microphone. The third vertex possesses a limit aim (5). The device also possesses double bubble levels (3).

2. Depending on the positioning of the exhaust system (left or right sides) one of the supports (1) must be positioned near the exhaust gas exit hole. The correct leveling of the hardware must be verified through the levels (3).

3. The aim (5) is used in order to achieve the correct visual alignment of the support (1) with the flow of gases.

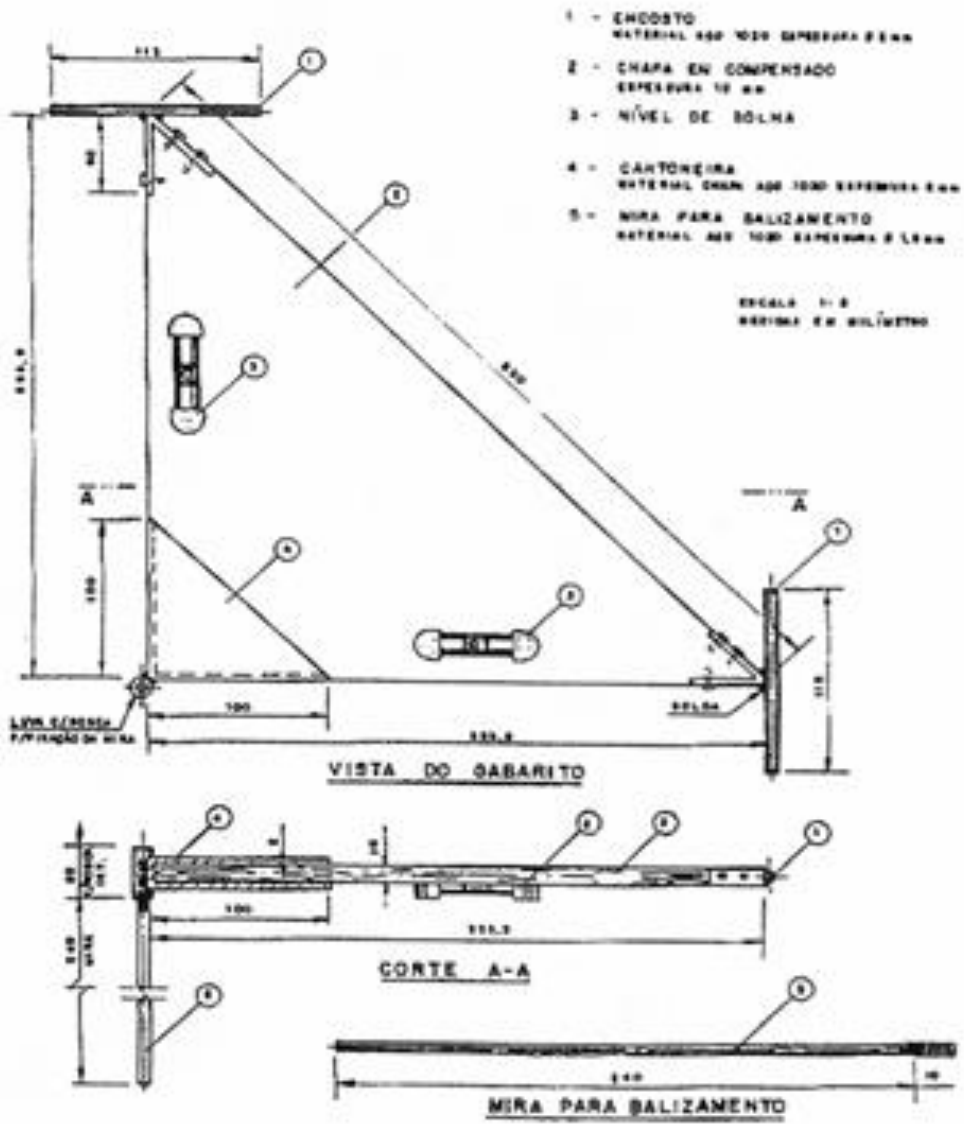
4. The microphone is positioned on the other support (1).

5. In the case of vertical exhaust systems the support (1) must be equal to the diameter of the hole.

6. Depending on the exhaust diameter the supports may be larger than those shown in the sketch.

7. The device must be always used at a height, from the floor, equal or over 0.2 meters.





Resolução Convea nº 1/93

NOISE MEASUREMENT GAUGE

Legendas: 1. Encosto= Support /Steel material...thickness 2. Chapa de Compensado = Plywood Sheet/thickness 3. Nivel de bolha = Bubble level 4. Cantoneira = Corner/Steel sheet material...thickness 5. Mira para Balizamento = Limit Aim/Steel material...thickness

Fixação da Mira= Aim setting

Escala=Scale

Medida em milímetros = measured in millimeters

VISTA DO GABARITO = GAUGE SKETCH

CORTE A-A = SECTION A-A

MIRA PARA BALIZAMENTO = LIMIT AIM

Resolução CONAMA 1/93 = CONAMA Resolution 1/93

ANNEX E

Changes related to external noise measurement methods for motorcycles under acceleration introduced through EC directive 87/56 from December 18, 1986, issued by the European Community.

E.1 – Motorcycles with manual gear box – Gear box usage.

E.1.1 – The test should be performed in third gear for motorcycles with more than four gears and Cylindrage that is not superior to 175 cubic centimeters.

E.1.2 – The test should be performed in 2nd and 3rd gears for motorcycles with more than four gears and Cylindrage that is superior to 175 cubic centimeters and the result must be achieved through the arithmetic medium of the two measured rates.

Obs.: if under the above mentioned second gear tests, E.1.1 and E.1.2, the engine rotation surpasses the maximum power rotation rate by 10% before reaching the BB line, the test should be performed in the third gear, and the measured rate will be the sole registered test rate.

E.2 – Motorcycles with Automatic Gear Box.

E.2.1 – Motorcycles without manual gear option selection.

The test must be performed in different approximation stabilized speeds at the entry of line AA at 30, 40 and 50 km/hour or at 75% of maximum road speed, if this rate is the lesser one. The highest measured rate is registered

E.2.2 - Motorcycles with manual gear option selection.

E.2.2.1 – Approximation to line AA must be performed at a stabilized speed that is under 50 km/h at 75% of the maximum rotation power rate, or at 50 km/hour with a rotation that is under 75% of the maximum rotation power.

Obs.: in the occurrence of a demultiplication of the first speed, during a 50 km/hour test, the motorcycle approximation speed may be increased up to 60 km/hour in order to avoid the reduction.

E.2.2.2 – Manual selector positioning. If the motorcycle is equipped with a manual speed selection dispositive the test must be performed at the highest speed. The non-automatic dispositive for speed reduction (i.e. “kick-down”) cannot be used. If after the AA line there is an automatic speed reduction the test must be re-started using the highest first speed, or the second if necessary, in order to find the highest selector position that will allow for the performance of the test without automatic speed reductions (without using the “kick-down”).

This text does not substitute the text published in the Official Gazette on Feb. 15, 1993.

CONAMA RESOLUTION 20, December 7, 1994
Published in Official Gazette 248 on Dec. 30, 1994, Section 1, page 21344

Establishes the creation of the Noise Stamp, a mandatory requirement for any electric appliance that generates noise.

The NATIONAL ENVIRONMENT COUNCIL – CONAMA, in the use of the power bestowed upon the Council by Laws 6.938 from Aug. 31, 1981, regulated by Decree 99.274 from June 6, 1990, changed by Decree 1.205 from Aug. 1st, 1994⁶⁵ and its annex I, and in light of its Internal Regulations, and

Considering that excessive noise is hazardous to physical and mental health and affects, particularly, the hearing function;

Considering that human beings and their environment are increasingly subjected to adverse sound conditions;

Considering that electro-domestic machines are widely used by the population, as other machines, engines, tools and dispositive;

Considering that the use of adequate technologies can meet the need for noise reduction solutions; and

Considering the objectives of the National Program for Education and Sound Pollution Control – SILÊNCIO, decides:

Art. 1 To establish the Noise Seal as a tool to indicate sound power levels, measure in decibel – dB (A), as a mandatory measure for electro-domestic apparatus that are manufactured or imported and which produce noises during their functioning, from the date of publication of this Resolution

Single paragraph. For all purposes of this Resolution an electro-domestic apparatus is an apparatus for residential usage, or similar, according to the definition provided by NBR-6514.

Art. 2 The tests aimed at the measurement of sound power levels, for all purposes of this Resolution, must be performed exclusively by duly accredited laboratories and according to international ISSO 4871 standards and their references or in accordance with national standards that may be adopted in the future.

Art. 3 Electro-domestic apparatus manufacturers or their legal representatives must request the Noise Seals from the Brazilian Institute for the Environment and Renewable Natural Resources (IBAMA) for their entire production line and the application must include a complete list of all models.

Art. 4 Electro-domestic manufacturers, their legal representatives and importers are responsible for the undertaking of the required tests and must keep an actualized and permanent archive containing all measurements related to commercialized apparatus and models, original or modified.

Art. 5 The Ministry of the Environment and Legal Amazon – MMA⁶⁶, assisted by the Brazilian Institute for the Environment and Renewable Natural Resources (IBAMA) will present regulations within 90 (ninety) days counting from the date of publication of this Resolution, and it is the duty of the National Metrology, Standardization and Industrial Quality (INMETRO) to promote the organization and implementation of the Noise Seal according to the provisions set by this Resolution. Art. 6 Non-compliance with the provisions set by this Resolution will subject offenders to penalties foreseen by Law 6.938 from Aug. 31, 1981 according to the text provided by Law 7.804, from July 18, 1989.

Art. 7 This Resolution shall enter into effect on the date of its publication.

HENRIQUE BRANDÃO CAVALCANTI – Council President

ROBERTO SÉRGIO STUDART WIENER – Substitute Executive Secretary

This text does not substitute the text published in the Official Gazette on Dec. 30, 1994.

⁶⁵ Decree revoked by Decree 2.619 from July 5, 1998.

⁶⁶ The Ministry of the Environment and Legal Amazon has changed its name to Ministry of the Environment, Water Resources and Legal Amazon through MPV 813 issued on Jan. 1, 1995, changed by Law 9.649 from May 26, 1998 and is today named Ministry of the Environment through Provisional Measure 1.795 from Jan. 1, 1999, re-edited by MP 2.216, from Aug. 31, 2001.

CONAMA RESOLUTION 17, December 13, 1995

Published in Official Gazette 249 on Dec. 29, 1995, Section 1, pages 22878-22879

Correlations:

- Changes CONAMA Resolution 1/93 (changes the annex I), for cases when the vehicle is manufactured from a bus chassis or bus platform undercarriage, supplied by a third party.
- Ratifies art. 20 of CONAMA Resolution 8/93 except for the demands established for the date of January 1, 1996.

Establishes the maximum emission limit rates for regular or modified passenger vehicles.

The NATIONAL ENVIRONMENT COUNCIL – CONAMA, in the use of the power bestowed upon the Council by Laws 6.938 from Aug. 31, 1981, regulated by Decree 99.274 from June 6, 1990 and alterations and in light of its Internal Regulations, and,

Considering the provisions of CONAMA Resolutions 1, 2 and 8 (art. 20) from 1993 which establish requirements related to noise level emission limits for motorized vehicles;

Considering that all commercialized vehicles within the national territory must comply with maximum noise emission limits;

Considering that the undertaking of modifications in vehicles can change noise emission levels;

Considering the difficulties related to the provisions of annual manufacturing volumes for the assembling of changed passenger vehicles in relation to the requirements set by CONAMA Resolutions 1 and 8 (art. 20) from 1993, decides:

Art. 1 To ratify the maximum noise levels and the schedule for their implementation according to article 20 of CONAMA Resolution 8/93, except for the demand established for the date of Jan. 1, 1996.

Art. 2 All vehicles subjected to modifications or completions in relation to their original project must uphold compliance with CONAMA noise emission requirements.

Art. 3 For all purposes of this Resolution, the parties responsible for changed, complemented or modified vehicles or modifications of parts that have a direct relationship with noise emissions, are considered as the final manufacturers of the respective vehicles and are responsible for the fulfillment of requirements set by CONAMA.

§1 IBAMA may, at its own discretion, in cases where changes have been made to systems that are directly related to noise emissions, but according to methods that do not alter noise emission levels and in cases related to modifications made because of other legal demands, exempt the manufacturer from the presentation of prototype verification reports and production follow-up reports.

§ 2 If the vehicle is manufactured from a bus chassis or a rolling bus platform undercarriage, supplied by a third party, the vehicle is subjected, for all possible purposes, to the provisions set by CONAMA Resolutions 1 and 8 (art. 20) from 1993, and the adoption of provisions set by annex A1 of this Resolutions which substitutes annex A of CONAMA Resolutions 1 from 1993.

Art. 4 The definitions established in annex B1, art. 5, apply to all purposes of this Resolution.

Art. 5 It is the duty of IBAMA to deliberate on cases that have been omitted by this Resolution.

Art. 6 Non-compliance with the provisions set by this Resolution will import penalties that are foreseen by current federal, state and municipal legislation.

Art. 7 This Resolution shall enter into effect on the date of its publication and all provisions to the contrary are hereby revoked.

ANNEX A1

- 1. Chassis Brand/ Platform Undercarriage:**
- 2. Chassis Model/ Platform Undercarriage/ production year/chassis type/ Platform Undercarriage:**
 - 2.1. List of represented configurations:
 - 2.2. Total Gross Weight: (kg)
 - 2.3. Technical criteria for the definition of the master configuration and represented configuration
- 3. Chassis/ platform undercarriage manufacturer's name and address;**
- 4. Name and address of the Legal Representative of the manufacturer of the Chassis/ Platform Undercarriage;**
- 5. Name and address(s) of importer(s) of the chassis/platform undercarriage;**
- 6. Brand of body;**
- 7. Name and address of the body manufacturer;**
- 8. Name and address of the body's manufacturer legal representative;**
- 9. Name and address of the body's importer(s), if applicable;**
- 10. Engine**
 - 10.1 Manufacturer:
 - 10.2 Type:
 - 10.2.1 Otto/Diesel;
 - 10.2.2 Cycle: 2/4 cycles;
 - 10.3 Model:
 - 10.4 maximum power:(kW) to (1/min) (rpm)
 - 10.5 Cylindrage: (cm³) (l)
- 11. Transmission**
 - 11.1 Gear Box: manual/automatic
 - 11.2 Total number of gears (except back gear), including the transmission association
- 12. Hardware/Materials**
 - 12.1 Exhaust system (sketch)
 - 12.1.1 Fibrous materials in Contact with Gases: YES/No
 - 12.2 Air intake silencer
 - 12.2.1 Manufacturer
 - 12.3 Catalytic converter (if applicable)
 - 12.3.1 Manufacturer
 - 12.4 Tire designation (ABPA – Brazilian Tire and Hoops Association)
 - 12.5 Additional specifications deemed as important by the manufacturer in order to safeguard compliance with this Resolution.
- 13. Measurements**
 - 13.1 Acceleration noise levels according to NBR-8433



MODEL IDENTIFICATION: PRODUCTION YEAR						
N. VIN.: _____ MAX. POT.: _____ (kW) PBT: _____ (kg)						
BACKGROUND NOISE LEVEL dB (A)						
1 ST measurement		2 ⁿ		3 rd measurement		
	Approx. Speed (km/h)	Angular Speed (km/h)	N.R. right side dB (A)		N.R. left side dB (A)	
			1 st meas.	2 nd meas.	1 st meas.	2 nd meas.
2 nd GEAR						
3 rd GEAR						
4 th GEAR						
5 th GEAR						
6 th GEAR						
RESULT: _____			dB (A)			

Obs.: The registered noise level rates are the rated provided by the measurement minus 1 dB(A)
 13.2 Noise levels while running but still according to NBR-9714

VEHICLE IDENTIFICATION		MODEL: _____ PRODUCTION YEAR _____		
N. VIN.: _____				
BACKGROUND NOISE LEVEL dB (A)				
1 ST Measurement	2 nd measurement		3 rd measurement	
BACKGROUND NOISE LEVEL dB (A)				
ANGULAR SPEED (rpm)	1 st measurement	2 nd measurement	3 rd measurement	Arithmetical Medium
RESULT: _____			dB(A)	

13.3 Maximum exhaust system backpressure allowable rate (according to annex E of CONAMA Resolution 1, 1993):

_____ (kpa)(_____ mHg).

13.4 Exhaust system measured backpressure rate:

14. Tested vehicle data:

15. Test report data:

16. Test report number:

17. Location:

18. Date:

19. Name and signature of test Manager: _____

20. _____

ANNEX B1 DEFINITIONS

Alteration of parts directly related to noise emissions: the following are considered alteration of parts:

- exhaust system;
- noise reduction system;
- powertrain;
- chassis;
- adaptation of the auxiliary axis;

Body: part of the vehicle that houses the driver, passengers and/or load;

Buss Chassis: part of a bus that is composed of the parts needed for its⁶⁷ movement and which supports the body;

Vehicle complementing: addition of vehicle equipment (dispositive incorporated to a vehicle in order to allow it to fulfill its purpose or increase its transportation capacity);

dB(A): sound level pressure unit in decibel, weighted by the frequency response curve A, for the quantification of noise levels;

Auxiliary vehicle axle: vehicle axle adapted to a road motor vehicle with two axles through the reinforcement of the chassis and aimed at allowing an increase of its load capacity, commonly named the third axle;

Coach building: production of a passenger or mixed use vehicle through the use of a platform undercarriage or chassis for buses supplied by a third party;

Vehicle modification: joint operations performed on a vehicle that changes any of the following parts:

- body;
- chassis;
- powertrain;
- exhaust or noise reduction systems.

Total Gross Weight (PBT): Weight stated by the manufacturer for specific operational conditions, based on material resistance considerations, tire load capacity, etc., according to NBR-6070.

Platform Undercarriage for buses: part of a bus that contains a platform and/or inferior body structure (monoblock) and composed by the parts that are necessary for its movement;

Maximum Power: maximum effective liquid power according to NBR-5484, expressed in kW (kilowatts).

Exhaust System: group of parts including the exhaust collector, exhaust pipe, discharge pipe, expansion chamber(s), silencer(s) and convensor(S), when applicable;

Noise reduction system: dispositive used for noise reduction purposes of the noises emitted by the vehicle, can be composed of barriers or acoustic isolations as well as encapsulations of power train components;

Power train: groups of parts that include the engine (including the fuel injection system, cooling, air intake and, if applicable, supercharging) and transmission system;

Production conformity verification: verification and confirmation that the vehicles, or the exhausts systems available within the car parts market, produced in series or not, comply with the maximum noise limits and other demands set by this Resolution;

Prototype testing: testing of a vehicle prior to its production and commercialization as characterized by the manufacturer according to its master configuration, in order to verify compliance with the maximum noise levels, and other demands, established by this Resolution.

GUSTAVO KRAUSE – Council President

RAUL JUNGMAN – Executive Secretary

This text does not substitute the text published in the Official Gazette on Dec. 29, 1995.

⁶⁷ Ratified In Official gazette 65 from April 3, 1966, page 5538

CONAMA RESOLUTION 268, September 14, 2000
Published in Official Gazette 237 on Dec. 11, 2000, Section 1, page 29

Correlations:

- Changes CONAMA Resolution 2/93 (changes art. 2 § 1)

Establishes alternative methods for the monitoring of motorcycle noise.

The NATIONAL ENVIRONMENT COUNCIL – CONAMA, in the use of the power bestowed upon the Council by Laws 6.938 from Aug. 31, 1981, regulated by Decree 99.274 from June 6, 1990 and alterations and in light of its Internal Regulations, and

Considering the objectives set by the National Program for the Education and Control of Sound Pollution – “SILÊNCIO”, instituted through CONAMA Resolution 2 from March 8, 1990 and the provisions of CONAMA Resolution 2 from Feb. 11, 1993, related to noise emissions by motorcycles, scooters, motorized tricycles, mopeds, bicycles with auxiliary engines and similar vehicles;

Considering that chapter 9 of European Directive 97/24 substitutes Directive 87/56/EC actualized by 89/235/EC which is cited as a complementing reference to CONAMA Resolution 2 from 1993;

Considering that the evolution of technologies for the monitoring of noise levels emitted by vehicles provides more precision data, contributes to manufacturing stability and allows for improved compliance with established limits;

Considering that the harmonization of regulatory requirements is a global tendency and allow for the assimilation of progresses reached on an international basis for the benefit of the global population and allows for the harmonization of demands placed on nationally manufactured vehicles with those enforced by the international community; and

Considering that the implementation of harmonized requirements improves the level of acceptance of nationally produced vehicles abroad, improves competitiveness and develops the Brazilian industry and economy, decides:

Art. 1 § 1 of art. 2 of CONAMA Resolution 2 from Feb. 11, 1993 will be enforced according to the following text:

“Art. 2.....

§ 1 Test practices for motorcycles and the monitoring of noise levels may be performed according to chapter 9 of Directive 97/24/EC issued by the European Economic Community as an alternative method to that established by this Resolution.”

Art. 2 This Resolution shall enter into effect on the date of its publication.

JOSÉ SARNEY FILHO – Council President

JOSÉ CARLOS CARVALHO – Executive Secretary

This text does not substitute the text published in the Official Gazette on Dec. 11, 2000.

CONAMA RESOLUTION 272, September 14, 2000
Published in Official Gazette 7 on January 7, 2001, Section 1, page 24

Correlations:

· Changes CONAMA Resolution 1/93 (changes art. 2 and §§ 2 and 3 of art. 7) and establishes new limits for vehicles manufactures from January 2001 (table 1 of CONAMA Resolution 1/93)

Establishes limits for noises caused by the acceleration process in national and imported vehicles, except motorcycles, scooters, mopeds and similar vehicles.

The NATIONAL ENVIRONMENT COUNCIL – CONAMA, in the use of the power bestowed upon the Council by Laws 6.938 from Aug. 31, 1981, regulated by Decree 99.274 from June 6, 1990 and alterations and in light of its Internal Regulations, and,

Considering that excessive noise is hazardous to physical and mental health and has a particularly negative effect on hearing;

Considering the need to reduce sound pollution within urban centers according to the provisions set by CONAMA Resolutions 1 from Feb. 11, 1993; 8 from Aug. 31, 1993; 17 from Dec. 13, 1995 and 252 from Jan. 7, 1999;

Considering that roadway motor vehicles are the main source of environmental noise;

Considering that the use of adequate and acknowledged technologies allows for the control of sound pollution;

Considering the objectives set by the National program for the Education and Control of Sound Pollution – “SILÊNCIO”, decides:

Art. 1 To establish maximum noise limits for vehicles in acceleration, both national and imported, manufactured from the date of enforcement of this Resolution, except for motorcycles, scooters, mopeds, bicycles with auxiliary engines and similar vehicles.

§ 1 The maximum noise levels emitted by accelerating vehicles as defined by the Table contained in this Resolution, for both national and imported vehicles, will be enforced according to the following schedule.

I – Class “a” motor vehicles:

- a) a minimum of 40% of all national and imported vehicles manufactured from January 1, 2002;
- b) a minimum of 80% of all national and imported vehicles manufactured from January 1, 2004; and
- c) 100% of all national and imported vehicles manufactured from January 1, 2006.

II – Class “b”, “c” and “d” motor vehicles:

- a) a minimum of 40% of all national and imported vehicles manufactured from January 1, 2005; e
- b) 100% of all national and imported vehicles manufactured from January 1, 2006.

§ 2 Cases when it impossible to comply with the percentages established by items I and II of the previous paragraph will be assessed by the Brazilian Institute for the Environment and Renewable Natural Resources (IBAMA).

§ 3 The percentages mentioned in items I and II of § 1 refer to production volumes by manufacturer or importer.

Table – Maximum noise emission levels for motor vehicles

CATEGORY		NOISE LEVEL - dB(A)			
DESCRIPTION		OTTO	DIESEL		
			Injection		
			Direct	Indirect	
a	Passenger vehicle of up to nine seats		74	75	74
b	Passenger vehicle with more than nine seats	TGW up to 2.000 kg	76	77	76
	Mixed use cargo or traction vehicle	TGW between 2.000 kg and 3.500 kg	77	78	77
c	Passenger or mixed use vehicle with TGW above 3.500 kg	Max. power under 150kW (204 cv)	78	78	78
		Max. Power equal or above 150 kW (204 cv)	80	80	80
d	Mixed use cargo or traction vehicle with TGW above 3.500 kg	Max. power under 75 kW (102 cv)	77	77	77
		Max. power between 75 kW (102 cv) and 150 kW (204 cv)	78	78	78
		Max. power equal or above 150 kW (204 cv)	80	80	80

Vehicle designation according to NBR-6 067

TGW: Total Gross Weight

Power: Maximum effective fluid power (NBR/ISO 1585)

§ 4 Vehicles equipped with more than one traction axle, in permanent operation or not, the maximum rates will be increased by 1 dB(A) for vehicles provided with engines with power under 150 kW and; 2 dB(A) for vehicles provided with engines with power equal to or above 15 kW (204 hp).

Art. 2 Manufacturers, their legal representatives or importers must request a Statement of Compliance with the noise limits from IBAMA, according to the provisions contained in the annex of this Resolution, after forwarding the noise tests for each master configuration to IBAMA accompanied by a copy of the Revenue Collection document (DR) - Environmental Control fees.

Art. 3 The tyres used during the tests will be selected by the vehicle manufacturer and must be available in the open market; correspond to one of the measure designations according to NBR-6087 and NBR-6088, assigned to the vehicle by its manufacturer through annex A, item 8.4 of CONAMA Resolution 1 from Feb. 11, 1993, and comply with the requirements related to the depth of tire threads according to CONTRAN Resolution 558 or its substitutions. The tyres must be calibrated with the pressures that have been foreseen for the vehicle mass during the test period.

Art. 4 Vehicles manufactured exclusively for the military sector, competition, agricultural machines, roadway machines and other special uses, as well as those that are not used for urban and/or roadway transportation, are exempted from the demands established by this Resolution.

Art. 5 Art. 2 and §§ 2 and 3 of art. 7 of Resolution 1 from Feb. 11, 1993, will be enforced according to the following text:

“Art. 2 Noise measurement tests undertaken for all purposes of this Resolution must be performed according to Brazilian standards NBR-8433 (1995) – Roadway vehicles in acceleration; and NBR-9714 (1999) – Roadway motor vehicles – noise emitted while running but still, in relation to the measurement of noise in near the exhaust. The hardware used for the noise measurement test levels must be calibrated by INMETRO or another laboratory accredited by the Brazilian Calibration Network (RBC) and the test location must be inspected by IBAMA in before a Conformity Verification Declaration can be issued.

Art. 7

§ 2 If the sound level of a tested vehicle does not exceed more than 1 dB(A) of the established limits the vehicle model will be considered as meeting the provisions of this Resolution.

§ 3 If the tested vehicle does not meet the requirements of the previous paragraph a further two vehicles of

the same model must be tested. If the sound levels of the second or third tested vehicles exceeds the limit rated by more than 1 dB(A) he vehicle model will be considered as lacking compliance with the provisions set by the present Resolution and the manufacturer must undertake the necessary measure in order to re-establish conformity.”

Art. 6 Omitted cases in this Resolution will be deliberated by IBAMA.

Art. 7 This Resolution shall enter into effect on the date of its publication.

JOSÉ SARNEY FILHO – Council President

JOSÉ CARLOS CARVALHO – Executive Secretary

AIR POLLUTION CONTROL

PRONAR.....388

PROCONVE/PROMOT458

PCPV and I/M559

National Program for Air Quality Control - PRONAR

CONAMA RESOLUTION 5, June 15, 1989
Published in Official Gazette on Aug. 25, 1989, Section 1, pages 14713-14714

Correlations:

- Complemented by CONAMA Resolutions 3 and 8/90

Establishes provisions for the National Program for the Control of Air Pollution (PONAR).

The NATIONAL ENVIRONMENT COUNCIL – CONAMA, in the use of the power bestowed upon the Council by Law 6.938 from Aug. 31, 1981 and art. 48 of Decree 88.351 from June 1, 1983⁶⁸,

Considering the growth acceleration of Brazilian industrial production, urban centers and vehicle circulation;
Considering the consequent progressive increase of atmospheric pollution, mainly in metropolitan regions;
Considering the negative effects of pollution on society, the economy and the environment; Considering the perspectives for the continuity of the above conditions; and,

Considering the need to establish strategies for the control, preservation and recuperation of air quality, throughout the entire National Territory and according to the provisions of Law 6.938 from August 31, 1981 which created the National Environment Policy, decides:

I – To institute the National Program for Air Quality Control (PRONAR) as one of the basic tools for environmental management and in order to the safeguard population health and wellbeing and to improve the quality of life and aimed at the promotion of social and economic development of the Country according to environmental safety guidelines and through the setting of limits for pollution emissions by atmospheric pollution sources and thereby achieve the following objectives:

- a) air quality improvement;
- b) compliance with established standards;
- c) uphold air quality in non-degraded areas.

2 - STRATEGIES

The basic PRONAR strategy is to limit, on a national level, emissions by source typology and priority pollutants and use air quality standards as a complementing control action.

2.1 MAXIMUM EMISSION LIMITS

It is considered a maximum emission limit the quantity of allowable pollutants that can be released by atmospheric pollution sources.

The maximum emission limits will be differentiated according to their classification related to their preponderant purposes for the different areas and will be more stringent when related to new pollution sources.

2.1.1 – New pollution sources are enterprises that have not previously been granted a license issued by the environmental licensing organ on the date of publication of this Resolution.

The above mentioned maximum emission limits will be defined through specific CONAMA Resolutions.

2.2 – ADOPTION OF NATIONAL AIR STANDARDS

Considering the need for the continuous assessment of control actions established by PRONAR, the adoption of air quality standards is seen as a complementing referential action directly related to established maximum emission limits.

2.2.1 – Two air quality standards are hereby established: primary and secondary.

a) Primary air quality standards are those related to pollutant concentrations which if surpassed may be hazardous to human health and may be seen as maximum tolerable atmospheric pollution levels and are grouped into short and medium term standards.

b) Secondary air quality standards are those related to air pollution concentrations that are not considering as being below the point when they can be hazardous to human health and wellbeing as well as subjecting fauna and flora to minimal hazards and the environment in general, may be seen as desired levels of pollutant concentrations and are grouped into long term standards.

The above mentioned air quality standards will be defined through a specific CONAMA Resolution.

2.3 – PREVENTION OF SIGNIFICANT AIR QUALITY DETERIORATION

In order to allow for the implementation of policies that will hinder the continued deterioration of air quality throughout the entire National Territory its areas will be divided according to the following classification related to intended uses:

Class I: Preservation areas, leisure and tourism such as National and State Parks, Ecological Stations and Reserves and Hydro-mineral and Hydrothermal Resorts. The air quality in these areas shall be upheld in levels that

⁶⁸ Decree revoked by Decree 99.274 from June 6, 1990.

are very close to verified ones and must not be subjected to further anthropogenic intervention.

Class II: Areas where the level of air quality deterioration is limited by the standards that apply to secondary air quality standards.

Class III: Development areas where the level of air quality deterioration is limited by primary air quality standards.

CONAMA will, through specific Resolution, define Class I and Class III areas and any other area will be considered as a Class II area.

2.4 – AIR QUALITY MONITORING

A National Network for the monitoring of Air Quality will be created as a strategy based on the need to measure and monitor the levels of air quality throughout the Country in order to assess the control actions established by PRONAR.

Therefore, a Basic Monitoring Network will be established in order to monitor air quality levels and compare them to the respective established standards.

2.5 – MANAGEMENT OF LICENSING PROCESSES FOR AIR POLLUTION SOURCES

It is of strategic importance to establish a disciplinary system related to land occupation based on the previous licensing of pollution sources and polluting activities, considering that urban and industrial growth, not properly planned, aggravates air pollution conditions. This will allow for the previous assessment of impacts caused by polluting activities and prevent the uncontrolled deterioration of air quality conditions.

2.6 – NATIONAL AIR POLLUTION AND POLLUTANT SOURCE REGISTRY

In order to assist PRONAR, in relation to polluting loads and locations, it is of strategic importance to create a National Air Pollution and Pollutant Source Registry aimed at the development of methodologies which will allow for the registration and the estimation of pollution emissions as well as the processing of air pollution related data.

2.7 – POLITICAL MANAGEMENT

In light of the existence of interfaces created through the establishment and implementation of air pollution control actions with the different sectors of society, it is of strategic importance that PRONAR and the Brazilian Institute for the Environment and Renewable Natural Resources (IBAMA) coordinate their actions with the Direct or Indirect Federal, State and Municipal Public Administration organs in order to uphold permanent information and communication channels aimed at finding solutions to pertinent questions.

2.8 – NATIONAL ADVANCES IN AIR POLLUTION CONTROL

The effective implementation of PRONAR is directly conditioned to the professional capacity of environmental organs and technological developments in the area of air pollution.

It is therefore a PRONAR strategy to provide incentives to environmental organs aimed at the empowerment of human and laboratory resources in order to achieve the creation of regional programs aimed at the fulfillment of established objectives.

Likewise, it is important to develop scientific and technological knowhow on subjects related to atmospheric pollution within environmental organs, universities, the productive sector and other institutions directly related to the subject matter and PRONAR must provide incentives for the creation of new scientific advancements that may be useful for the Program.

2.9 – SHORT, MEDIUM AND LONG TERM ACTIONS

Considering that the resources available for the implementation of PRONAR are limited it is of strategic importance to define short, medium and long term goals in order to prioritize resource allocations. The sequences of actions are defined as:

a) Short Term:

- Definition of emission limits for priority pollution sources;
- Definition of air quality standards;
- Framework of areas according to their preponderant uses;
- Assistance for the formulation of State Programs for the Control of Air Pollution;
- Laboratorial empowerment;
- Human Resource empowerment.

b) Medium Term:

- Definition of other limits for pollution emission sources;
- Implementation of the National Network for the Monitoring of Air Quality;
- Creation of the National Pollution Source and Emissions Registry;
- Laboratorial empowerment (continuity);
- Human Resource empowerment (continuity).

c) Long Term:

- Laboratorial empowerment (continuity):

- Human Resource Empowerment (continuity);
- Current and past PRONAR assessment.

3 - TOOLS

The following support and operational tools are hereby established in order to allow for the concretization of PRONAR defined actions on a national level.

3.1 – PRONAR tools:

- Maximum emission limits;
- Air Quality Standards;
- PROCONVE – Program for the Control of Air Pollution Caused by Motor Vehicles, created through CONAMA Resolution 018/86;
- PRONACOP – National Program for the Control of Industrial Pollution;
- National Air Quality Assessment Program;
- National Air Pollution Source Registration Program;
- State Programs for the Control of Air Pollution.

4 – GENERAL PROVISIONS

- It is the duty of IBAMA to manage PRONAR.
- It is the duty of IBAMA to provide assistance for the formulation of control, assessment and registration programs that are PRONAR tools.
 - It is the duty of States to establish and implement State Air Pollution Control Programs according to PRONAR established guidelines. Whenever necessary the maximum emission levels can be lowered at the discretion of state authorities.
 - Complementing control actions can be adopted whenever necessary.

The strategies for the control of air pollution established by PRONAR will be subjected to revision processes at any given time in order to comply with national air quality standards.

5 – This Resolution shall enter into effect on the date of its publication.

JOÃO ALVES FILHO – Council President

FERNANDO CÉSAR DE MOREIRA MESQUITA – Executive Secretary

This text does not substitute the text published in the Official Gazette on Aug. 25, 1989.

CONAMA Resolution 3, June 28, 1990
Published in the Official Gazette on Aug. 22, 1990, Section 1, pages 15937-15939

Correlations:

· Complements CONAMA Resolution 5/89

Establishes provisions related to air quality standards, as foreseen by PRONAR.

The NATIONAL ENVIRONMENT COUNCIL – CONAMA, in the use of the power bestowed upon the Council by item II of art. 6 of Law 7.804 from July 18, 1989 and in light of the provisions set by Law 8.028 from April 12, 1990 and Decree 99.274 from June 6, 1990 and,

Considering the need to broaden the number of atmospheric pollutants that are monitored and controlled throughout the Country;

Considering that Administrative Order GM 0231 from April 27, 1976 foresaw the establishment of new standards for air quality whenever demanded by new scientific acknowledgements on the subject matter;

Considering the provisions foreseen by CONAMA Resolution 5 from June 15, 1989 which creates the National Air Quality Control Program “PRONAR”, decides:

Art. 1 Air quality standards are the concentrations of atmospheric pollutants which, if surpassed, can be hazardous to human health, safety and the wellbeing of the population as well as possibly causes of damages to the fauna and flora, material goods and the environment in general.

Single paragraph. Na atmospheric pollutant is understood as any form of substance or energy with an intensity and quantity, concentration, timing or characteristics that are not in harmony with established levels and which render, or can render the air:

- I – unfit, hazardous or injurious to human health;
- II – undesirable for public wellbeing;
- III – hazardous to goods, fauna and flora;
- IV – detrimental to safety, the use and enjoyment of property and normal community activities.

Art. 2 The following concepts are hereby established for all purposes of this Resolution:

I – Primary Air Quality Standards are pollutant concentrations that if surpassed may be hazardous to the health of the population.

II – Secondary Air Quality Standards are pollutant concentrations below those that can have any adverse effects on the wellbeing of the population as well as having minimal effects of the fauna, flora, goods and the environment in general

Single paragraph. Air standard quality standards are objectives that should be reached through control strategies set by emission standards and must serve as guidelines for the creation of Regional Air Pollution Control Plans.

Art. 3 The following Air Quality Standards are hereby established:

I – Total of Particles in Suspension

a) Primary Standard

1 – medium annual geometric concentration of 80 (eighty) micrograms per cubic meter of air.

2 – medium concentration during 24 (twenty four) hours of 240 (two hundred and forty) micrograms per cubic meter of air which cannot be exceeded more than once per year.

b) Secondary Standard

1 - medium annual geometric concentration of 60 (sixty) micrograms per cubic meter of air.

2 - medium concentration during 24 (twenty four) hours of 150 (one hundred and fifty) micrograms per cubic meter of air which cannot be exceeded more than once per year.

II - Smoke

a) Primary Standard

1 – medium annual arithmetic concentration of 60 (sixty) micrograms per cubic meter of air.

2 – medium concentration during 24 (twenty four) hours of 150 (one hundred and fifty) micrograms per cubic meter of air which cannot be exceeded more than one per year.

b) Secondary Standard

1 - medium annual arithmetic concentration of 40 (forty) micrograms per cubic meter of air.

2 - medium concentration during 24 (twenty four) hours of 100 (one hundred) micrograms per cubic meter of air which cannot be exceeded more than one per year.

III – Non-inhalable particles

a) Primary and Secondary Standards

1 - medium annual arithmetic concentration of 50 (fifty) micrograms per cubic meter of air.

2 - medium concentration during 24 (twenty four) hours of 150 (one hundred and fifty) micrograms per cubic meter of air which cannot be exceeded more than one per year.

IV – Sulfur Dioxide

- a) Primary Standard
 - 1- medium annual arithmetic concentration of 80 (eighty) micrograms per cubic meter of air.
 - 2- medium concentration during 24 (twenty four) hours of 365 (three hundred and sixty five) micrograms per cubic meter of air which cannot be exceeded more than one per year.
- b) Secondary Standard
 - 1 - medium annual arithmetic concentration of 40 (forty) micrograms per cubic meter of air.
 - 2 - medium concentration during 24 (twenty four) hours of 100 (one hundred) micrograms per cubic meter of air which cannot be exceeded more than one per year.
- V - Carbon monoxide
 - a) Primary and Secondary Standards
 - 1- medium concentration during 8 (eight) hours of 10.000 (ten thousand) micrograms per cubic meter of air (9 ppm) which cannot be exceeded more than once per year.
 - 2 – medium concentration during 1 (one) hour of 40.000 (forty thousand) micrograms per cubic meter of air (35 ppm) which cannot be exceeded more than once per year.
- VI - Ozone
 - a) Primary and Secondary Standards
 - 1 – medium concentration during 1 (one) hour of 160 (one hundred and sixty) micrograms per cubic meter of air which cannot be exceeded more than once per year.
- VII - Nitrogen Dioxide
 - a) Primary Standard
 - 1 - medium annual arithmetic concentration of 100 (one hundred) micrograms per cubic meter of air.
 - 2 - medium concentration during 1 (one) hour of 320 (three hundred and twenty) micrograms per cubic meter of air.
 - b) Secondary Standard
 - 1- medium annual arithmetic concentration of 100 (one hundred) micrograms per cubic meter of air.
 - 2 - medium concentration during 1 (one) hour of 190 (one hundred and ninety) micrograms per cubic meter of air.

Art. 4 The following sample methods are hereby established for the analysis of atmospheric pollutants which will be defined by the respective Normative Guidelines:

- a) Total of Suspension Particles – Large-Volume Sampling Technique or Equivalent Method.
- b) Smoke – Reflectance Technique or Equivalent Method.
- c) Non-Inhalable Particles – Inertial Particle Separation/Filtration Technique or Equivalent Method.
- d) Sulfur Dioxide - Pararosaniline method or Equivalent Method.
- e) Carbon Monoxide – Non-dispersive Infrared Sensor or Equivalent Method.
- f) Ozone - Chemiluminescence or Equivalent Method.
- g) Nitrogen Dioxide - Chemiluminescence or Equivalent Method.

§ 1 Reference Methods are methods approved by the National Institute of Metrology, Standardization and Industrial Quality (INMETRO) and, in their absence, those recommended by IBAMA and the more adequate ones and those that should be preferentially used.

§ 2 Methods that are equivalent to the reference methods may be adopted as long as they have been approved by IBAMA.

§ 3 Reference conditions are set at 25 degrees Celsius and pressure at 760 millimeters of mercury (1013.2 millibars).

Art. 5 The monitoring of air quality is the responsibility of the respective States.

Art. 6 The established Air Quality Standards are also valid for the creation of Emergency Plans for Critical Air Pollution Events, for measures undertaken by states and municipalities as well as by private entities and the general community and serve as a reference for the prevention of serious and eminent risks to health of the population.

§ 1 Critical Air Pollution Events are characterized by high pollutant concentrations in the atmosphere during a short period of time caused by meteorological conditions that are not favorable for the dispersion of the same.

§ 2 The Plan should also establish Attention, Alarm and Emergency Levels.

§ 3 The definition of any of the above mentioned levels must consider the concentrations of sulfur dioxide, total of suspension particles, reaction between total particles in suspension and sulfur dioxide, carbon monoxide, ozone, non-inhalable particles, smoke, nitrogen dioxide as well as meteorological forecasts and foreseen and awaited intervening factors.

§ 4 Measures undertaken due to the occurrence of Attention and Alarm Levels are undertaken in order not to reach the Emergency Level.

§ 5 The Attention Level must be declared by the upholding of foreseen emissions, the prevention of the same and the meteorological conditions that are not favorable for the dispersion of the pollutants and the occurrence, during the 24 (twenty four) subsequent hours, of one or several of the following conditions:

- a) medium sulfur dioxide concentration (SO₂) during 24 (twenty four) hours of 800 (eight hundred) micrograms per cubic meter;

b) medium concentration of total particles in suspension during 24 (twenty four) hours of 375 (three hundred and seventy five) micrograms per cubic meter;

c) medium production/reaction equal to 65×10^3 , between the concentration of sulfur dioxide (SO₂) and the concentration of total particles in suspension – both in micrograms per cubic meter, during a 24 (twenty four) hour period;

d) medium concentration of carbon monoxide (CO) during a 8 (eight) hour period of 17.000 (seventeen thousand) micrograms per cubic meter (15 ppm);

e) medium concentration of ozone during a 1 (one) hour period of 400 (four hundred) micrograms per cubic meter;

f) medium concentration of non-inhalable particles during a 24 (twenty four) hour period of 250 (two hundred and fifty) micrograms per cubic meter;

g) medium smoke concentration during a 24 (twenty four) hour period of 250 (two hundred and fifty) micrograms per cubic meter;

h) medium concentration of nitrogen dioxide (NO₂) during a 1 (one) hour period of 1130 (one thousand one hundred and thirty) micrograms per cubic meter.

§ 6 The Alarm Level will be declared when the upholding of emissions forecasted as well as the non-favorable meteorological conditions for the dispersion of pollutants during the subsequent 24 (twenty four) hours and during the occurrence of one or more of the following conditions:

a) medium sulfur dioxide concentration (SO₂) during 24 (twenty four) hours of 1600 (one thousand six hundred) micrograms per cubic meter;

b) medium concentration of total particles in suspension during 24 (twenty four) hours of 625 (six hundred and twenty five) micrograms per cubic meter;

c) production equal to 261×10^3 , between the concentration of sulfur dioxide (SO₂) and the concentration of total of particles in suspension – both in micrograms per cubic meter and the medium rate measured during a 24 (twenty four) hour period;

d) medium concentration of carbon monoxide (CO) during a 8 (eight) hour period of 34.000 (thirty four thousand) micrograms per cubic meter (30 ppm);

e) medium concentration of ozone during a 1 (one) hour period of 800 (eight hundred) micrograms per cubic meter;

f) medium concentration of non-inhalable particles during a 24 (twenty four) hour period of 420 (four hundred and twenty) micrograms per cubic meter;

g) medium smoke concentration during a 24 (twenty four) hour period of 420 (four hundred and twenty) micrograms per cubic meter;

h) medium concentration of nitrogen dioxide (NO₂) during a 1 (one) hour period of 2260 (two thousand two hundred and sixty) micrograms per cubic meter;

§ 7^o The Emergency Level will be declared when the upholding of emissions forecasted as well as the non-favorable meteorological conditions for the dispersion of pollutants during the subsequent 24 (twenty four) hours and during the occurrence of one or more of the following conditions:

a) medium sulfur dioxide concentration (SO₂) during 24 (twenty four) hours of 1600 (two thousand one hundred) micrograms per cubic meter;

b) medium concentration of total particles in suspension during 24 (twenty four) hours of 875 (eight hundred and twenty five) micrograms per cubic meter;

c) production equal to 393×10^3 , between the concentration of sulfur dioxide (SO₂) and the concentration of total of particles in suspension – both in micrograms per cubic meter and the medium rate measured during a 24 (twenty four) hour period;

d) medium concentration of carbon monoxide (CO) during a 8 (eight) hour period of 46.000 (forty six thousand) micrograms per cubic meter (40 ppm);;

e) medium concentration of ozone during a 1 (one) hour period of 1000 (one thousand) micrograms per cubic meter;

f) medium concentration of non-inhalable particles during a 24 (twenty four) hour period of 500 (five hundred) micrograms per cubic meter;

g) medium smoke concentration during a 24 (twenty four) hour period of 500 (five hundred) micrograms per cubic meter;

h) medium concentration of nitrogen dioxide (NO₂) during a 1 (one) hour period of 3000 (three thousand) micrograms per cubic meter.

§ 8 It is the duty of the States to acquire the necessary competence and to appoint the authorities responsible for the declaration of the different levels and these shall be made through any of the regular available means of mass communication.

§ 9 During the implementation of the above mentioned levels the pollution sources within the hit area will be subjected to the restrictions that have been previously established by the environmental organ.

Art. 7 CONAMA may establish other Air Quality Standards, apart from those stated here, if it deemed as necessary.

Art. 8 The primary air quality standards established by this Resolution will be implemented awaiting the decision by each state regarding the Class I, II and III classification mentioned in item 2, sub-item 2.3 of CONAMA Resolutions 5/89.

Art. 9 This Resolution shall enter into effect on the date of its publication and all provisions to the contrary are hereby revoked.

JOSÉ A. LUTZENBERGER – Council President

TÂNIA MARIA TONELLI MUNHOZ – Executive Secretary

NOTE: Republished due to errors in article numbers (original version published in the Official Gazette 158 on Aug. 16, 1990, pages 15518-15519)

This text does not substitute the text published in the Official Gazette on Aug. 22, 1990.

CONAMA RESOLUTION 8, December 6, 1990
Published in the Official Gazette on Dec. 28, 1990, Section 1, 25539

Correlations:

- Complements CONAMA Resolution 5/89

Establishes provisions for the establishment of maximum levels of emissions of air pollutants caused by external combustion processes by fixed pollution sources.

The NATIONAL ENVIRONMENT COUNCIL – CONAMA, in the use of the power bestowed upon the Council by Law 6.938 from Aug. 31, 1981 changed Law 8.028 from April 12, 1990 regulated by Decree 99.274 from June 6, 1990 and in light of the provision of its Internal Regulations, and

Considering the provisions foreseen by CONAMA Resolution 5 from June 15, 1989 which instituted the National Program for Air Quality Control (PRONAR);

Considering the need to establish maximum pollution limits (emission standards) produced by fixed pollution sources;

Considering that the establishment of the above tool, on a national level, is the most effective tool for the control of atmospheric pollution coupled with the already existing maximum limits established by PROCONVE for vehicle emissions; and

Considering that external combustion processes compose the large majority of fixed pollution sources within the industrial complex and should therefore be the first emission activities that are regulated on a national level, decides:

Art. 1 Establish national maximum limits for the emission of pollutants into the air (emission standards) by new fixed external combustion sources with nominal power of up to 70 MW (seventy megawatts) and above.

§ 1 The definition of maximum pollution emissions is that provided by CONAMA Resolution 5 from June 15, 1989 which created PRONAR.

§ 2 For all purposes of this Resolution new pollution sources are those belonging to enterprises that will apply for licenses from the competent environmental organs after the date of publication of this Resolution.

§ 3 A external combustion process in point sources comprehends all burning of combustible substances through the following machines: boilers, vapor generators, plants for the generation of electric energy, ovens, furnaces, greenhouses and dryers for the generation and use of thermic energy, incinerators and gasifiers.

Art 2 The following maximum emission limits for total amounts of particles and sulfur dioxide(SO₂) are established for all purposes of this Resolution, expressed in pollutant weight by highest colorific combustible power and colorimetric density, according to the classification related to pretended uses defined by PRONAR.

2.1 For new point sources with nominal power equal or under 70 MW (seventy megawatts):

2.1.1 Class 1 Areas

2.1.1.1 Areas whose atmosphere must be preserved (Conservation Units, except APAs).

All air polluting activities are banned within these areas.

2.1.1.2 Areas whose atmosphere should be preserved (leisure, tourism, climate resorts, hydro-mineral and hydrothermal areas and resorts)

a) Total of Particles – 120 (one hundred and twenty) grams per million of kilocalories.

b) Colorimetric Density – Maximum of 20% (twenty percent) of the equivalent of the Ringlemann 1 scale, except in relation chimney cleaning operations and during the start of the hardware.

c) Sulfur Dioxide (SO₂) - 2.000 (two thousand) grams per million kilocalories.

d) The combustible oil consumption limit by a point source, (corresponding to the nominal capacity of all tools) is 3.000 tons per year. Consumption of oils that surpasses this limit must be previously approved by the state environmental organ and through the issuing of environmental licenses.

2.1.2 Class II and III Areas

a) Total of Particles

- 350 (three hundred and fifty) grams per million kilocalories (for combustion oils).

- 1.500 (one thousand five hundred) grams per million kilocalories (for mineral coal).

b) Colorimetric Density

- Maximum of 20% (twenty percent) of the equivalent of the Ringlemann 1 scale, except in relation chimney cleaning operations and during the start of the hardware.

c) Sulfur Dioxide (SO₂)

- 5.000 (five thousand) grams per million kilocalories (for combustion oils and mineral coal).

2.2 For new point sources with nominal power above 70 MW (seventy megawatts):

2.2.1 Class I Areas

The installation of new polluting point sources in these areas is banned.

2.2.2 Class II and III Areas

a) Total of Particles

- 120 (one hundred and twenty) grams per million kilocalories (for combustion oils).

- 800 (eight hundred) grams per million kilocalories (for mineral coal).

b) Colorimetric Density

- Maximum of 20% (twenty percent) of the equivalent of the Ringlemann 1 scale, except in relation chimney cleaning operations and during the start of the hardware.

c) Sulfur Dioxide (SO₂)

- 2.000 (two thousand) grams per million kilocalories for both combustion oils and mineral coal).

Art 3 It is the duty of state organs to establish maximum total emission limits for other particles, apart from combustion oil and mineral coal, sulfur dioxide and, when applicable, other polluting agents, at the time when environmental licenses are processed for different enterprises.

Art 4 It is the duty of environmental state organs to present proposals to their respective governments regarding the framework of their Class I and III areas, as foreseen by CONAMA Resolution 5/89 and CONAMA Resolution 3/90.

Art. 5 Compliance with the established maximum emission limits does not exempt enterprises from compliance with other possible complementing control requirements, according to current legislation.

Art 6 The verification of compliance with the maximum emission limits established by this Resolution, after the granting of the Operational License, may be performed by the licensing environmental organ or by the licensed enterprise, provided that it monitored by the licensing environmental organ.

Art 7 The hereby fixed maximum emission limits will be subjected to a first revision within two years and thereafter every 5 (five) years and other pollutants generated by external combustion processes from point sources may be added to those established by this Resolution.

Art 8 This Resolution shall enter into effect on the date of its publication.

JOSÉ A. LUTZENBERGER – Council President

TÂNIA MARIA TONELLI MUNHOZ – Executive Secretary

This text does not substitute the text published in the Official Gazette on Dec. 28, 1990.

CONAMA RESOLUTION 382, December 26, 2006
Published in Official Gazette 1 on January 2, 2007, Section 1, pages 131-137

Establishes the maximum levels of pollution emissions by stationary sources.

The NATIONAL ENVIRONMENT COUNCIL – CONAMA, in the use of the power bestowed upon the Council by Law 6.938 from Aug. 31, 1981, regulated by Decree 99.274, from June 6, 1990 and in light of its Internal Regulations, annex to Administrative Order 168 from June 10, 2005, and

Considering the provisions established by CONAMA Resolution 5 from June 15, 1989 which creates the National Program for Air Pollution Control (PRONAR);

Considering the current high levels of atmospheric pollution, mainly within metropolitan areas, and their negative effects on public health, the environment and the economy;

Considering the increased industrialization within different regions of the country and the consequent increases in the levels of atmospheric emissions and the degradation of air quality;

Considering the need to harmonize economic-social development with the preservation of environmental quality and ecological balance;

Considering the need to establish national references related to pollutant emission levels aimed at the containment of excesses that are not compatible with the environmental preservation;

Considering the need to establish strategies for the control and recuperation of air quality and prevent its continued degradation;

Considering the need to establish criteria and guidelines for the definition of atmospheric pollutant emission levels and provide environmental organs with adequate tools for the analysis of processes and enterprise licensing procedures;

Considering that pollution must be controlled at the source, either by control hardware such as “end-of-pipe” or through less polluting processes in harmony with Pollution Prevention Concepts;

Considering the existence of available technologies for the reduction of pollutant emissions for different productive processes;

Considering that Brazilian states are on different levels of industrialization and air pollution conditions and that it is the duty of local environmental organs to establish more stringent emission limits;

Considering that compliance with atmospheric pollutant emission limits are aimed at minimizing their effects on air quality and thereby safeguard the health and wellbeing of the population;

Considering that the establishment of national atmospheric emission levels must also take into account the costs and impacts upon regional economies, decides:

Art. 1 To establish maximum atmospheric pollution emission limits for point sources.

Single paragraph. The limits are set by polluting agent and type of source according to the contents of the annexes of this Resolution.

Art. 2 The following minimum criteria are established for the emission of atmospheric pollutants:

I – the implementation of emission limits is one of the tools for environmental control and their application must be connected to capacity criteria and environmental support systems, in other words, the degree of saturation of the region where the enterprise is located;

II – the establishment of emission limits must be based on adequate environmental technologies, comprising all phases including unit conception, installation, operation and maintenance as well as the use of prime-resources and financial investments;

III – the adoption of viable and accessible atmospheric emission control technologies on a scale that allows for their practical application;

IV – allow for the differentiation of emission limits according to size, location and emission source specifications, as well as the characteristics, load and effects of emitted pollutants; and

V – technical data and measurements of emissions performed throughout the country, as well as the bibliographic survey of practices both in Brazil and abroad regarding the manufacturing and use of hardware and the corresponding demands placed by the licensing organs.

Art. 3 The following definitions are established for all purposes of this Resolution:

I – definitions related to the emission source:

a) tolerance capacity: the capacity held by the atmosphere of a certain region to receive the remains from emission sources in order to comply with environmental standards and the differentiated usage of natural resources

b) emission control: processes aimed at the reduction or prevention of released pollutants into the atmosphere;

c) emission: release of any type of solid, liquid or gaseous substance into the atmosphere;

d) fugitive emissions: diffuse release into the atmosphere of any solid, liquid or gaseous substance by a source

lacking the hardware to direct or control their outflow;

e) punctual emissions: release into the atmosphere of any type of solid, liquid or gaseous substance by a source provided with the hardware to direct or control its outflow, such as ducts and chimneys;

f) air pollution control hardware: hardware that reduces atmospheric emissions;

g) fixed emission source: any fixed location installation, hardware or process which releases or emits substances into the atmosphere, either punctual or fugitive;

h) maximum emission limits (MEL): maximum allowable release of pollutants into the atmosphere by point sources; and

i) pollution-generating prevention: production process concept that minimizes the generation of pollution and eliminates or reduces the usage of control hardware, also known as Pollution Prevention and Clean Production.

II – definitions related to pollutants that do not possess a defined chemical characteristics:

a) volatile organic compounds: organic compounds that reach atmospheric pressure cooking point at up to 130 degrees and may contribute to the formation of photochemical oxidants;

b) total reduced sulfur (TRS): reduced sulfur compounds, measured as a whole, and mainly hydrogen sulfide and methyl mercaptan, expressed as sulfur dioxide (SO₂);

c) particle substances (PS): all and any solid substance/material in a gaseous mixture which can be held in this state at the temperature of the filtering environment, established by an adopted method;

d) NO_x: is the sum of nitrogen monoxide (NO) and nitrogen dioxide(NO₂) concentrations, and is expressed as (NO₂); and

e) SO_x: is the sum of sulfur dioxide (SO₂) and sulfur trioxide (SO₃) concentrations and is expressed as (SO₂).

III – definitions related to units and the compulsory definition of results:

a) concentration: relationship between the mass of a pollutant and the volume that houses it ($C = m/V$), must always be stated in milligrams per normal cubic meter (Nm³), in other words, related to normal temperature and pressure conditions (CNTP) on a dry basis and, when applicable, in the established oxygen referential condition and through the compulsory use of the notation- mg/Nm³, CNTP – Normal Temperature and Pressure Conditions:

Pressure = 1013 mBar (corresponding to 1 atmosphere or 760 mmHg);

Temperature = 273 K (corresponding to 0°C).

b) conversion to oxygen referential conditions: the conversion of the concentration measured for the oxygen referential conditions is shown below but is not applicable when pure oxygen is injected into the process:

$$C_R = \frac{21 - O_R}{21 - O_M} * C_M$$

being:

C_R – Pollutant concentration corrected for the condition established by this Resolution; O_R – Percentage of reference oxygen, according to this Resolution; established for each fixed emission source;

O_M – Percentage of oxygen measured during the sampling process;

C_M – Determined pollutant concentration in the sample;

c) Emission factor: the representative rate that shows the mass of a specific pollutant released into the atmosphere with a specific processed material or energy, consumed or produced (mass/production unit); and

d) Emission rate: the representative rate that relates the mass of a specific pollutant released into the atmosphere and the time unit (mass/time) in kg/h, g/s.

Single paragraph. It is recommended to avoid the expression “Heavy Metals” in processes related to the implementation of this Resolution as they do not have a scientific definition and should be substituted by specific interest metals.

Art. 4 Verification of compliance with emission limits must be performed according to sample and analysis methodologies specified by scientifically acknowledged technical procedures and approved by the licensing environmental organ.

§ 1 Specific cases related to particle substances must adopt emission measurement methods for punctual source particles according to norm NBR 12019 or NBR 12827, or any other equivalent method that has been approved by the licensing environmental organ.

§ 2 The analytical determination of other pollutants may be performed according to other automated sample and analysis methods as long as they have been previously approved by the licensing environmental organ.

§ 3 The measurement results must be compiled into a report, with a periodicity set by the licensing environmental organ, containing all measurement results, the used sample and analysis methodologies, the process operational conditions including combustible types and quantities and/or operational costs, apart from any other data demanded by the licensing environmental organ.

Art. 5 The monitoring of emissions may be made through continuous or discontinuous methodologies according to the specifications set by the environmental organ and compulsory compliance with the following criteria:

§ 1 Discontinuous atmospheric emission monitoring must be performed in the specific operational conditions listed in the annexes for each pollution source.

I – samples must be representative and take into account typical process operation variations; and

II – emission limits are considered as fulfilled if the results of three discontinuous measurements performed during a single period comply with the medium arithmetic measurement and one of the results may be discarded if it is considered as discrepant.

§ 2 Continuous monitoring may be used for the verification of compliance with emission limits if they are performed according to the following conditions:

I – monitoring is considered continuous when the pollution source is monitored during at least 67% of its operational time by a continuous monitor during a one year period;

II – the medium daily rate will be accepted as valid if monitoring has been effected during at least 75% of the day's operational time;

III – data collected during transitional situations such as stops and starts, energy breaks, chimney cleaning, new combustible tests and prime-resources will not be accepted as valid for conformity related assessments, provided they do not surpass 2% of the monitored time during a full day (24 hours). Higher percentages than those mentioned above may be accepted for special processes that require longer stops and starts and provided they have been previously approved by the licensing organ;

IV – emission limits collected through continuous monitoring is accepted when at least 90% of the daily measurements are related to 100% of the limit and the rest of the daily medium rates 130% of the limit.

§ 3 The licensing organ may establish additional criteria for the validation of test data.

Art. 6 This Resolution applies to point source atmospheric polluting activities whose Installation License has been granted by the licensing organs after the publication of this Resolution.

§ 1 The licensing environmental organ may, for well-motivated reasons, apply more restrictive emission limits than those established by this Resolution in areas where air quality management demands such action.

§ 2 The licensing environmental organ may, for well-motivated reasons, and at its discretion, establish less stringent emission limits than those established by this Resolution for fixed atmospheric emission sources, for modifications that require licenses in sources already under operation and with valid licenses, which show proved environmental gains, such as the conversion to gas boilers, which minimize the environmental impacts of sources that were originally projected with other emission rates based on combustible oil and mineral coal.

Art. 7 Existing and operational point sources and which hold installation licenses that were granted before the issuing of this Resolution must be subjected to emission limits by the licensing environmental organ through well founded decision methods and at any moment or during the license renewal period.

§ 1 The licensing environmental organ may establish less restrictive rates than the maximum emission rates established by this Resolution due to technological limitations and the impact on local conditions, according to CONAMA Resolution 5 from June 15, 1989.

§ 2 The licensing environmental organ may establish mandatory goals for emission limits due to considerations related to the local impact of existing pollution sources and through a specific documentation process.

Art. 8 Criteria and emission limits established by CONAMA Resolution 8 from Dec. 6, 1990 apply, from the date of publication of this Resolution until the establishment of specific limits, for heat generating processes that are not included in this Resolution.

Art. 9 This Resolution shall enter into effect on the date of its publication.

MARINA SILVA – Council President

ANNEX I
ATMOSPHERIC POLLUTION EMISSION LIMITS FOR HEAT GENERATING PROCESSES
THROUGH THE EXTERNAL COMBUSTION OF COMBUSTIBLE OILS

1. This annex defines the maximum emission limits for heat generation processes through the external combustion of combustible oils.

2. The following definitions are hereby established for all enforcement purposes:

a) nominal capacity: maximum operational capacity of a heat generation unit by its projected hardware, determined in thermic power rates based on the Inferior Calorific Power (ICP) calculated through the multiplication of the combustible IPC by the maximum quantity of burned combustible per time unit;

b) typical operational conditions: the typical operational conditions of the heat generation unit during the majority of operating hours;

c) combustible oil: liquid derivate from fossil materials;

d) full power: operation conditions that use at least 90% of the nominal capacity;

e) heat generation process through external combustion: combustible oil burning process undertaken in any furnace or boiler where combustion products do not have direct contact with the processed material or product.

3. The following maximum emission limits for atmospheric pollutants are hereby established for heat generation processes through the external combustion of combustible oils:

Nominal Thermic Power (MW)	MP _(t)	NO _x ^ω (as NO ₂)	SO _x ^ω (as SO ₂)
Less than 10	300	1600	2700
Between 10 and 70	250	1000	2700
Higher than 70	100	1000	1800

^ω the results must be expressed in concentration unit's mg/Nm³, dry basis and 3% of oxygen excess.

3.1. New hardware performance tests must be carried out at full power in order to determine compliance with established limits.

3.2. During periodic assessments, compliance with established limits can be performed under normal operational conditions at the criteria of the environmental licensing organ.

3.3. Systems with potency of up to 10 MW may be eligible to the simple periodical assessment of carbon monoxide emissions at the criteria of the environmental licensing organ and, for this cases, the maximum emission limit for this pollutant is 80mg/Nm³.

3.4. Pollutant emissions generated by heat generation processes located outside of waters under national jurisdiction and whose emissions do not significantly reach any communities will only be subjected to efficiency combustible burning controls and must comply with the maximum emission limit of 80 mg/Nm³ of carbon monoxide (CO), independently of their potency or used combustible.

4. Pollutant emission sources must, at the time of sample collection, include the structure and/or direct determination of pollutants in ducts and chimneys in accordance with standardized methodologies or their equivalent provided they have been accepted by the environmental licensing organ.

5. When two or more pollutant release sources use a common duct or chimney the measurements must be done on an individual basis.

5.1. In cases when individual measurements cannot be performed according to the standardized methodologies or their equivalent accepted by the licensing environmental organ, they may be carried out in the common duct or chimney and the maximum emission limits must be set individually and according to the respective nominal thermic potencies of the separate sources in order to calculate the new emission limit, according to the following example:

$$LE_{res} = \frac{\sum_1^n PN_n * LE_n}{\sum_1^n PN_n}, \text{ sendo:}$$

LE_{res} = resulting emission limit;
 PN = nominal thermic power;
 LE = individual emission limit.

Example:

Boiler 1 – nominal thermic power = 5 MW and LE = 300 mg/Nm³ for MP

Boiler 2 - nominal thermic power = 35 MW and LE = 250 mg/Nm³ to MP

$$LE_{res} = \frac{5 * 300 + 35 * 250}{5 + 35} = 256,3 \text{ mg} / \text{Nm}^3$$

6. The release of gaseous effluents into the atmosphere must be carried out through ducts and chimneys whose projection must take into consideration the buildings that surround the pollution source and the established air quality standards.

7. The environmental licensing organ may establish more restrictive emission limits due to considerations related to local characteristics of the area where the pollution source is located and may even demand the use of combustibles with lower pollution potential.

ANNEX II ATMOSPHERIC POLLUTION EMISSION LIMITS FOR HEAT GENERATING PROCESSES THROUGH THE EXTERNAL COMBUSTION OF NATURAL GAS

1. This annex defines the maximum emission limits for heat generation processes through the external combustion of combustion of natural gas.

2. The following definitions are hereby established for all enforcement purposes:

a) nominal capacity: maximum operational capacity of a heat generation unit by its projected hardware, determined in thermic power rates based on the Inferior Calorific Power (ICP) calculated through the multiplication of the combustible IPC by the maximum quantity of burned combustible per nominal time unit:

b) typical operational conditions: the typical operational conditions of the heat generation unit during the majority of operating hours;

c) natural gas: gaseous fossil combustible according to the specifications provided by the National Petroleum Agency (ANP);

d) full power: operation conditions that use at least 90% of the nominal capacity; and

e) heat generation process through external combustion: natural gas burning process undertaken in any furnace or boiler where combustion products do not have direct contact with the processed material or product.

3. The following maximum emission limits for atmospheric pollutants are hereby established for heat generation processes through the external combustion of natural gas:

Nominal Thermic Power (MW) (as NO ₂) NO _x (1)	
Less than 70	320
Higher or equal to 70	200

the results must be expressed in concentration unit's mg/Nm³, dry basis and 3% of oxygen excess.

3.1. New hardware performance tests must be carried out at full power in order to determine compliance with established limits.

3.2. During periodic assessments, compliance with established limits can be performed under normal operational conditions at the criteria of the environmental licensing organ.

4. Pollutant emission sources must, at the time of sample collection, include the structure and/or direct determination of pollutants in ducts and chimneys in accordance with standardized methodologies or their equivalent provided they have been accepted by the environmental licensing organ.

5. When two or more pollutant release sources use a common duct or chimney the measurements must be done on an individual basis.

5.1. In cases when individual measurements cannot be performed according to the standardized methodologies or their equivalent accepted by the licensing environmental organ, they may be carried out in the common duct or chimney and the maximum emission limits must be set individually and according to the respective nominal thermic potencies of the separate sources in order to calculate the new emission limit, according to the following example:

$$LE_{res} = \frac{\sum_{n=1}^n PN_n * LE_n}{\sum_{n=1}^n PN_n}$$

being:

LE_{res} = resulting emission limit;

PN = nominal thermic power;

LE = individual emission limit.

Example:

Boiler 1 – nominal thermic power = 30 MW and $LE = 320 \text{ mg/Nm}^3$ for NO_x

Boiler 2 – nominal thermic power = 70 MW and $LE = 200 \text{ mg/Nm}^3$ for NO_x

$$LE_{res} = \frac{5 * 300 + 35 * 250}{5 + 35} = 256,3 \text{ mg / Nm}^3$$

6. The release of gaseous effluents into the atmosphere must be carried out through ducts and chimneys whose projection must take into consideration the buildings that surround the pollution source and the established air quality standards.

7. The environmental licensing organ may establish more restrictive emission limits due to considerations related to local characteristics of the area where the pollution source is located.

ANNEX III
ATMOSPHERIC POLLUTION EMISSION LIMITS FOR HEAT GENERATING PROCESSES
THROUGH THE EXTERNAL COMBUSTION OF SUGARCANE BAGASSE

1. This annex defines the maximum emission limits for heat generation processes through the external combustion of combustion of sugarcane bagasse.
2. The following definitions are hereby established for all enforcement purposes:
 - a) sugarcane bagasse: sub-product from sugarcane grinding processes;
 - b) nominal capacity: maximum operational capacity of a heat generation unit by its projected hardware, determined in thermic power rates based on the Inferior Calorific Power (ICP) calculated through the multiplication of the combustible IPC by the maximum quantity of burned combustible per nominal time unit;
 - c) typical operational conditions: the typical operational conditions of the heat generation unit during the majority of operating hours;
 - d) full power: operation conditions that use at least 90% of the nominal capacity;
 - e) heat generation process through external combustion: sugarcane bagasse burning process undertaken in any furnace or boiler where combustion products do not have direct contact with the processed material or product.
3. The following maximum emission limits for atmospheric pollutants are hereby established for heat generation processes through the external combustion of sugarcane bagasse:

Nominal Thermic Power (MW)	MP ⁽¹⁾	NO _x ⁽¹⁾ (as NO ₂)
Less than 10	280	N.A.
Between 10 and 75	230	350
Higher than 75	200	350

⁽¹⁾ the results must be expressed in concentration unit's mg/Nm³, dry basis and 8% of oxygen excess.
 N.A. – Not applicable.

- 3.1. New hardware performance tests must be carried out at full power in order to determine compliance with established limits.
- 3.2. During periodic assessments, compliance with established limits can be performed under normal operational conditions at the criteria of the environmental licensing organ.
- 3.3. The licensing environmental system may, for systems with power up to 10 MW, accept the periodic monitoring of carbon monoxide alone, and in these cases the maximum emission limits for this pollutant are established according to the following table.

Nominal Thermic Power (MW)	CO ⁽¹⁾
Up to 0,05	6500
Between > 0,05 e = 0,15	3250
Between > 0,15 e = 1,0	1700
Between > 1,0 e = 10	1300

⁽¹⁾ the results must be expressed in concentration unit's mg/Nm³, dry basis and 8% of oxygen excess. Pollutant emission sources and activities must, at the time of sample collection, include the structure and/or direct determination of pollutants in ducts and chimneys in accordance with standardized methodologies or their equivalent provided they have been accepted by the environmental licensing organ.

4. When two or more pollutant release sources use a common duct or chimney the measurements must be done on an individual basis.
- 5.1. In cases when individual measurements cannot be performed according to the standardized methodologies or their equivalent accepted by the licensing environmental organ, they may be carried out in the common duct or chimney and the maximum emission limits must be set individually and according to the respective nominal thermic potencies of the separate sources in order to calculate the new emission limit, according to the following example:

$$LE_{res} = \frac{\sum_{1}^n PN_n * LE_n}{\sum_{1}^n PN_n}$$

being:

LE_{res} = resulting emission limit;

PN = nominal thermic power;

LE = individual emission limit.

Example:

Boiler 1 – nominal thermic power = 5 MW and LE = 280 mg/Nm³ for MP

Boiler 2 – nominal thermic power = 35 MW and LE = 230 mg/Nm³ for MP

$$LE_{res} = \frac{(5 \times 280 + 35 \times 230)}{(5 + 35)} = 236 \text{ mg} / \text{Nm}^3$$

6. The release of gaseous effluents into the atmosphere must be carried out through ducts and chimneys whose projection must take into consideration the buildings that surround the pollution source and the established air quality standards.

7. The environmental licensing organ may establish more restrictive emission limits due to considerations related to local characteristics of the area where the pollution source is located and may even demand the use of combustibles with lower pollution potential.

ANNEX IV ATMOSPHERIC POLLUTION EMISSION LIMITS FOR HEAT GENERATING PROCESSES THROUGH THE EXTERNAL COMBUSTION OF WOOD DERIVATIVES

1. This annex defines the emission limits for atmospheric pollutants produced by heat generating combustion processes through the combustion of wood derivatives by fixed electric energy generating sources.

2. The following definitions are hereby established for all enforcement purposes:

a) nominal capacity: maximum operational capacity of a heat generation unit by its projected hardware, determined in thermic power rates based on the Inferior Calorific Power (ICP) calculated through the multiplication of the combustible IPC by the maximum quantity of burned combustible per nominal time unit;

b) typical operational conditions: the typical operational conditions of the heat generation unit during the majority of operating hours; wood derivatives: wood in the form of firewood, sawdust, sanding dust, bark, chipboard, plywood or MDF and similar products which have not been treated with halogenated products or coated with polymerized products, paint and other types of coating;

c) full power: operation conditions that use at least 90% of the nominal capacity;

d) heat generation process through external combustion: wood derivatives burning process undertaken in any furnace or boiler where combustion products do not have direct contact with the processed material or product;

3. The following maximum emission limits for atmospheric pollutants are hereby established for heat generation processes through the external combustion of wood derivatives:

Nominal Thermic Power (MW)	MP ^(a)	(as NO ₂)
Less than 10	730	N.A.
Between 10 and 30	520	650
Between 30 and 70	260	650
Higher than 70	130	650

^(a) the results must be expressed in concentration unit's mg/Nm³, dry basis and 8% of oxygen excess correction.
N.A. – Not Applicable.

3.1. New hardware performance tests must be carried out at full power in order to determine compliance with established limits.

3.2. During periodic assessments, compliance with established limits can be performed under

normal operational conditions at the criteria of the environmental licensing organ.

3.3. Systems with power of up to 10 MW, as an alternative to the above stated limits, may choose the following methods after approval by the licensing environmental organ:

3.3.1. Periodic monitoring of carbon monoxide. In this case the maximum limit for this pollutant is subjected to the rates stated in the following table:

Nominal Thermic Power (MW)	CO ^(a)
Up to 0,05	6500
Between >0,05 e = 0,15	3250
Between >0,15 e = 1,0	1700
Between >1,0 e = 10	1300

^(a) the results must be expressed in concentration unit's mg/Nm³, dry basis and 8% of oxygen excess correction.

3.3.2. Periodic assessment of particle substance concentration through the opacity method and in this case the maximum allowable level for the emission of this pollutant cannot exceed the Ringlemann Scale standard 1.

4. Pollutant emission sources and activities must, at the time of sample collection, include the structure and/or direct determination of pollutants in ducts and chimneys in accordance with standardized methodologies or their equivalent provided they have been accepted by the environmental licensing organ.

5. When two or more pollutant release sources use a common duct or chimney the measurements must be done on an individual basis.

5.1.1. In cases when individual measurements cannot be performed according to the standardized methodologies or their equivalent accepted by the licensing environmental organ, they may be carried out in the common duct or chimney and the maximum emission limits must be set individually and according to the respective nominal thermic potencies of the separate sources in order to calculate the new emission limit, according to the following example:

$$LE_{res} = \frac{\sum_1^n PN_n * LE_n}{\sum_1^n PN_n}$$

being:

LE_{res} = resulting emission limit;

PN = nominal thermic power;

LE = individual emission limit.

Example:

Boiler 1 – nominal thermic power = 5 MW and LE = 730 mg/Nm³ for MP

Boiler 2 – nominal thermic power = 35 MW and LE = 260 mg/Nm³ for MP

$$LE_{res} = \frac{5 * 730 + 35 * 260}{5 + 35} = 318 \text{ mg} / \text{Nm}^3$$

6. The release of gaseous effluents into the atmosphere must be carried out through ducts and chimneys whose projection must take into consideration the buildings that surround the pollution source and the established air quality standards.

7. The environmental licensing organ may establish more restrictive emission limits due to considerations related to local characteristics of the area where the pollution source is located and may even demand the use of combustibles with lower pollution potential.

ANNEX V

ATMOSPHERIC POLLUTION EMISSION LIMITS FROM GAS TURBINES FOR THE GENERATION OF ELECTRIC ENERGY

1. The pollution atmospheric emission limits produced by gas turbine for the generation of electric energy s, propulsion by natural gas or liquid combustibles, simple or combined cycles, without additional burning and with power above 100 MW are established hereunder.

1.1. When the total sum of electric generation by enterprise surpasses 100 MW the limits established hereunder apply for each individual turbine, independently of their production capacity.

2. The following definition is valid for all purposes of this Resolution the following definition:

a) gas turbines: hardware for the conversion of a part of the energy contained in the combustible into electric energy, through axial rotation of an axis that drives an electric generator.

3. The following limits apply to atmospheric pollutants generated through energy generating processes by gas turbines.

Turbine by combustible type (as NO _x) (as SO ₂)	NO _{x(α)}	CO _(α)	SO _{x(α)}	MP _(α)
Natural gas	50	65	N.A.	N.A.
Liquid combustibles	135	N.A.	200	50

α the results must be expressed in concentration unit's mg/Nm³, dry basis and 15% of oxygen excess correction.
N.A. – Not applicable

3.1. The limits established for turbines propulsion by liquid combustibles are also valid for natural gas turbines, if these use liquid combustion processes during emergency situations or shortages.

3.2. New hardware performance tests must be carried out at full power in order to determine compliance with established limits.

3.3. During periodic assessments compliance with established limits may be verified during typical operational conditions and at the discretion of the environmental licensing organ.

4. Pollutant emission sources and activities must, at the time of sample collection, include the structure and/or direct determination of pollutants in ducts and chimneys in accordance with standardized methodologies or their equivalent provided they have been accepted by the environmental licensing organ.

5. When two or more pollutant release sources use a common duct or chimney the measurements must be done on an individual basis.

5.1. In cases when individual measurements cannot be performed according to the standardized methodologies or their equivalent accepted by the licensing environmental organ, they may be carried out in the common duct or chimney and the maximum emission limits must be set individually and according to the respective nominal thermic potencies of the separate sources in order to calculate the new emission limit, according to the following example:

$$LE_{res} = \frac{\sum_1^n PN_n * LE_n}{\sum_1^n PN_n}$$

being:

- LE_{res} = resulting emission limit;
- PN = nominal electric power;
- LE = individual emission limit.

Example:

Boiler 1 – using natural gas = 100 MW and LE= 50 mg/Nm³ for NO_x

Boiler 1 – using liquid combustibles= 150 MW and LE= 135 mg/Nm³ for NO_x

$$LE_{res} = \frac{100 * 50 + 150 * 135}{100 + 150} = 101 \text{ mg} / \text{Nm}^3$$

6. The release of gaseous effluents into the atmosphere must be carried out through ducts and chimneys whose projection must take into consideration the buildings that surround the pollution source and the established air quality standards.

7. The environmental licensing organ may establish more restrictive emission limits due to considerations related to local characteristics of the area where the pollution source is located and may even demand the use of combustibles with lower pollution potential.

ANNEX VI
POLLUTION EMISSION LIMITS FOR ATMOSPHERIC POLLUTANTS PRODUCED BY
PETROLEUM REFINERY PROCESSES

1. The emission limits for the emission of atmospheric pollutants generated by the following oil refining processes are hereby defined:

- a) Ovens and boilers that burn refinery gas;
- b) catalytic cracking units;
- c) sulfur recovery units;
- d) ammonia nitrogen conversion.

2. For the purposes of this annex the following definitions are hereby established:

a) refinery gas: flow of combustible gas generated by petroleum refining processes and used as a combustible in ovens and boilers;

b) ammonia converter: combustion hardware that treats the flow of ammoniacal gas produced by the acid water treatment unit and converts ammonia into nitrogen;

c) acid water units: unit for the treatment of waters that are a residual of the refining process aimed at the removal of sulfites and ammonia within the flow;

d) sulfur recovery units (URE) : unit that treats the flow of residual acid gases produced by the refining process and converts sulfur compounds that are present within the sulfur current;

e) fluid catalytic cracking units: refining processing units that use heat, pressure and catalyzers in order to convert high hydrocarbon streams into lower and lighter hydrocarbon streams.

3. The following pollutant emission limits are hereby established for atmospheric pollutants produced by petroleum refining process, according to source type:

I – Ovens and boilers that burn refinery gases.

Nominal Thermic Power (MW)	MP ⁽¹⁾	NO _x ⁽¹⁾ (as NO ₂)	SO _x ⁽¹⁾ (as SO ₂)
Less than 10	150	320	70
Between 10 and 70	125	320	70
Higher than 70	50	200	70

⁽¹⁾ the results must be expressed in mg/Nm³, dry basis and 3% of oxygen.

II - Catalytic cracking units – Carbon monoxide boilers or regenerating gas recovery units.

MP ⁽¹⁾ to 8% O ₂	SO _x ⁽¹⁾ (como SO ₂) to 3% O ₂	NO ⁽¹⁾ (as NO ₂) to 3% O ₂
75 ⁽²⁾	1.200	600

(1) The results must be expressed in mg/Nm³, dry basis and in the oxygen concentration specified for each pollutant.

(2) Sulfate mass is not measured. III - Sulfur recovery units (URE).

The sulfur recovery units must provide, during their entire life cycle, a minimum recuperation rate of 96% of the sulfur, controlled by the rate of emission according to the following expression and example:

$$TE\ SO_x = 2SP * [(100 - Ef) / Ef]$$

Being:

TE SO_x = maximum unit emission rate (SO_x mass expressed as SO₂/time period);

SP = sulfur production rate (S) fixed for the unit (produced sulfur mass/ time period);

Ef = 96% - required sulfur recuperation rate² = conversion factor from S to SO₂ obtained from [PM SO₂/ PM S]

Example: Sulfur recovery unite licensed to produce 50 t/day of S

The emission limit expressed in SO₂ is:

$$\text{Maximum Emission Rate} = 2 \times 50 \text{ (t/day)} \times [(100 - 96) / 96] = 4,17 \text{ t/day of SO}_x.$$

The units must be provided with hardware and procedures that will allow to follow-up the efficiency of the unit.

IV – Ammonia converter.

Ammonia destruction efficiency	NO _x (expressed as NO ₂) Dry base - 1% of O ₂
98%.	720 mg/Nm ³

a) SO_x emission limit by ammonia converters

The SO_x emission limit must be defined by each separate licensing environmental organ through the following considerations:

- the SO_x emission is a function of the quantity of H₂S present in the acid water that is treated in the second sewage tower;

- the maximum emission rate must be calculated in function of the H₂S load in the acid water unit that feeds the unit;

- acid water units with two sewage towers must be projected in order to allow for the sewage of at least 90% of the H₂S that enters the unit into the first tower and led into the Sulfur Recovery Unit.

V – Mixed combustion.

Mixed combustion plants that use two or more combustibles must comply with differentiated emission limits reached through the comparison of the medium maximum emission limits and the thermic power, calculated according to:

$$LEt = \frac{\sum_{i=1}^n LE_x C_x PCI}{\sum_{i=1}^n C_x PCI}$$

being:

LE: is the emission limit of each used combustible;

LEt: is the emission limit for the mixed plant;

C: is the consumption of each used combustible;

PCI: is the Lower Calorific Value of each used combustible.

3.5.1. New hardware performance tests must be carried out at full power in order to determine compliance with established limits.

3.5.2. During periodic assessments, compliance with established limits can be performed under normal operational conditions at the criteria of the environmental licensing organ.

4. Pollutant emission sources and activities must, at the time of sample collection, include the structure and/or direct determination of pollutants in ducts and chimneys in accordance with standardized methodologies or their equivalent provided they have been accepted by the environmental licensing organ.

5. When two or more pollutant release sources use a common duct or chimney the measurements must be done on an individual basis.

5.1. In cases when individual measurements cannot be performed according to the standardized methodologies or their equivalent accepted by the licensing environmental organ, they may be carried out in the common duct or chimney and the maximum emission limits must be set individually and according to the respective nominal thermic potencies of the separate sources in order to calculate the new emission limit, according to the following example:

$$LE_{res} = \frac{\sum_1^n PN_n * LE_n}{\sum_1^n PN_n}$$

being:

LE_{res} = resulting emission limit;

PN = nominal thermic power;

LE = individual emission limit.

Example

Boiler 1 - nominal thermic power = 5 MW and LE = 300 mg/Nm³ for MP

Boiler 2 - nominal thermic power = 35 MW and LE = 250 mg/Nm³ for MP

$$LE_{res} = \frac{5 * 300 + 35 * 250}{5 + 35} = 256,3 \text{ mg} / \text{Nm}^3$$

6. The release of gaseous effluents into the atmosphere must be carried out through ducts and chimneys whose projection must take into consideration the buildings that surround the pollution source and the established air quality standards.

7. The environmental licensing organ may establish more restrictive emission limits due to considerations related to local characteristics of the area where the pollution source is located and may even demand the use of combustibles with lower pollution potential.

ANNEX VII POLLUTION EMISSION LIMITS FOR ATMOSPHERIC POLLUTANTS PRODUCED BY PULP MANUFACTURING PROCESSES

1. The emission limits of atmospheric pollutants produced by pulp manufacturing processes are established as follows.

2. The following definitions have been adopted for all purposes of this Annex:

a) low odor recovery boiler: recovery boilers that does not use a direct contact evaporator and where there is no significant black liquor exposure to the gas flow and maintains, therefore, Total Reduced Sulfurs emissions at low levels;

b) recovery boiler: aqua-tubular boiler that mainly uses black liquor as its main combustible or another chemical liquid consumed during the wood pulping process;

c) nominal capacity: maximum operational power of the heat generating unit for which the hardware was projected

d) typical operational conditions: operational levels of the emission production source which prevails during most of its operational time;

e) kiln furnace: hardware used to produce kiln (CaO) through the calcination of kiln mud or through another form of calcium carbonate (CaCO₃);

f) weak white liquor: solution that is the result of the washing of the kiln mud with water or a condensate;

g) concentrated black liquor: concentration of weak black liquor;

h) weak black liquor or bleach: general denomination of the exit liquor from the digester that contains wood organic substances and other inorganic reactive substances housed in the digester;

i) green liquor: solution that is the product of the dissolution of the melt from recovery boiler with the white weak liquor;

j) full power: operational conditions that use at least 95% of the nominal capacity; and

l) melt dissolving tank: tank in which the melt from the recovery boiler furnace is dissolved into white weak liquor and forms green liquor.

3. The following limits for pollutant atmospheric emissions produced by pulp manufacturing processes are hereby established:

Equipment	MP ⁽¹⁾	ERT ⁰ (as SO ₂)	SO _x ⁽¹⁾ (as SO ₂)	NO _x ⁽¹⁾ (as NO ₂)
Recovery boiler	100	15	100	470
Dissolving tank	0,1 kg/tSS ⁽²⁾	0,008 kg/tSS	N.A.	N.A.
Kiln oven	100	30	N.A.	470

(1) The results must be expressed in concentration units mg/Nm³, dry base and corrected at 8% of oxygen, with the exception of the limits established for dissolution tanks

(2) tSS – dry solid tons.

N.A. – not applicable

3.1. Non-condensable gas (NCG) ,concentrated and diluted, produced by manufacturing units during the production process must be collected and forwarded to the kiln oven, recovery boiler or another system for specific treatment and comply with the emission limits established by the licensing environmental organ.

3.2. New hardware performance tests must be carried out at full power in order to determine compliance with established limits.

3.3. During periodic assessments, compliance with established limits can be performed under normal operational conditions at the criteria of the environmental licensing organ.

4. Pollutant emission sources and activities must, at the time of sample collection, include the structure and/or direct determination of pollutants in ducts and chimneys in accordance with standardized methodologies or their equivalent provided they have been accepted by the environmental licensing organ.

5. When two or more pollutant release sources use a common duct or chimney the measurements must be done on an individual basis.

6. The release of gaseous effluents into the atmosphere must be carried out through ducts and chimneys whose projection must take into consideration the buildings that surround the pollution source and the established air quality standards.

7. The environmental licensing organ may establish more restrictive emission limits due to considerations related to local characteristics of the area where the pollution source is located and take into consideration the nuisance caused by the odor far beyond enterprise's location.

ANNEX VIII

EMISSION LIMITS FOR ATMOSPHERIC POLLUTANTS PRODUCED BY SECONDARY LEAD SMELTING PROCESSES

1. The emission limits of atmospheric pollutants produced secondary lead smelting processes are established as follows.

2. The following definitions have been adopted for all purposes of this Annex:

a) lead bathing: surface treatment of any a material containing smelted lead;

b) impasto: paste application upon lead grids;

c) secondary lead smelting; any industrial process that smelts lead from waste metals or lead alloys;

d) battery grids: dispositive used for the assembling of batteries, produced through the casting of smelted lead or the stamping of lead plaques;

e) battery assembly and production line: includes the processes of plaque bloc assembling, solder terminals, casting of poles or small parts, impasto and paste preparation;

f) oxide mill: mill used solely for adjustment of the granulometry of lead oxide;

g) lead oxide: Lead monoxide or litharge (PbO);

h) paste preparation: mixing of lead oxide, in a vase or reactor, with water and sulfuric acid which produces a paste that is used for lead grids;

i) production of lead oxide or red lead: process which directly oxides lead through air or pure oxygen;

j) lead recovery: collection of metallic lead from waste lead metals though the use of ovens;

l) lead refining: alloy process aimed at increasing the contents of a certain element, usually antimony, arsenic and / or tin, as an alloy component. This process is basically the re-smelting of lead in crucible type furnaces or pot and adding the desired alloy component;

- m) lead salts: lead combined with an organic or inorganic substance;
- n) lead solder: solder containing lead and/or lead alloys;
- o) lead waste metal: materials that contain lead in such quantities that justifies their recycling;
- p) red lead: lead or red lead tetroxide (Pb₃O₄).

3. The following limits for pollutant atmospheric emissions produced by secondary lead smelting processes are hereby established.

Process	concentration		
	MP ⁽¹⁾	SO _{x(6)} (as SO ₂)	Pb ⁽¹⁾
Lead recovery	50	500	5
Lead Refining	N.A.	N.A.	0,2
Production of red lead or lead oxide	N.A.	N.A.	5 ⁽²⁾
Production of grids for batteries	N.A.	N.A.	0,4
Line production and assembly of batteries	N.A.	N.A.	1,0
Paste preparation	N.A.	N.A.	1,0
Pasting	N.A.	N.A.	1,0
Oxide mill	N.A.	N.A.	1,0
Production of lead salts	N.A.	N.A.	1,0
Lead solder	N.A.	N.A.	1,0
Lead baths	N.A.	N.A.	0,2

(1) results must be expressed in concentration units' mg/Nm³, dry base and non-diluted.

(2) For the "production of red lead or lead oxide", the emission limit must be expressed in lead mg emitted by the chimney by lead kg fed into the reactor.

N.A. – Not applicable

3.1. When processes are not continuous the samples must be taken from the process phases with the highest emission rates, such as furnace loading or discharging.

3.2. New hardware performance tests must be carried out at full power in order to determine compliance with established limits.

3.3. During periodic assessments, compliance with established limits can be performed under normal operational conditions at the criteria of the environmental licensing organ.

3.4. Secondary emissions that are the product of furnace loading and leaking procedures must be collected and forwarded to the atmospheric pollution control hardware through a local ventilation exhaust system, including emissions produced by lead recovery processes.

4. Pollutant emission sources and activities must, at the time of sample collection, include the structure and/or direct determination of pollutants in ducts and chimneys in accordance with standardized methodologies or their equivalent provided they have been accepted by the environmental licensing organ.

5. The release of gaseous effluents into the atmosphere must be carried out through ducts and chimneys whose projection must take into consideration the buildings that surround the pollution source and the established air quality standards.

6. Emissions produced by two or more operations (except those related to the production of lead oxides) must be collected and forwarded to a single control system and the emission limit must be determined according to the following equation:

$$Le = \frac{\sum_1^n Q_n * Ln}{\sum_1^n Q_n}$$

being:

Le = equivalent lead limit in total of exhaust gases (mg/Nm³, dry base);

L = lead emission limit from each gaseous flow directed to the control hardware (mg/Nm³, dry base);

N = total number of flows directed to the control hardware;

Q = leaking rate of each gaseous effluent (normal condition, dry base) directed to the control hardware.

7. Lead pollutant dispersion studies must be undertaken according to methods approved by the licensing environmental organ. The pollution rates from enterprise sources cannot surpass 50% of the air quality standards.

7.1. Due to the complexity of the processes involved in secondary lead smelting it is recommended, at the discretion of the licensing environmental organ, to assess the percentage of this metal both in the air and in samples collected from the soil surface.

7.2. The environmental licensing organ may establish more restrictive emission limits due to considerations related to local characteristics of the area where the pollution source is located if the collected environmental pollution rates are not considered as adequate for the area and new emission limits must be established for each specific source.

ANNEX IX ATMOSPHERIC POLLUTANT EMISSION LIMITS PRODUCED BY PRIMARY ALUMINUM INDUSTRIAL PROCESSES

1. The emission limits of atmospheric pollutants produced by primary aluminum industrial processes are established as follows.

2. The following definitions have been adopted for all purposes of this Annex:

a) louver: top ventilation opening, along the extension of the furnace room, through which emissions that have not been collected by the furnace exhaust system, escape;

b) vat room: is the group of electrolytic cells (pots or furnaces) used for the production of primary aluminum installed in one building;

c) vat: is a furnace (or electrolytic cell) for the production of primary aluminum through electrolysis of alumina diluted in a liquid salt bath;

d) anode baking furnace: hardware where the petroleum coke and tar is warmed and compacted into an anode bloc, in order to stimulate the baking of the anode, resulting in a material with properties that allow for its use in the vat;

e) hydrate calcination furnace: hardware used to eliminate water from hydrate crystallization - Al(OH)₃ - Al₂O₃.3H₂O and produce stable alumina and reaches temperatures between 1000 - 1350° Celsius. Rotation or vertical furnaces are used for this process, moved by combustible oil or gas.

f) aluminum equivalent production: is the quantity of aluminum produced with a ton of anode. The rate of 1.7 tons of aluminum per ton of anode should be adopted or a more restrictive rate, at the criteria of the licensing environmental organ. This rate must be used in order to calculate the emissions produced by the anode baking furnace. This rate must also be used for the establishment of the emission rate per ton of metal produced by separate plants that only produce anode, or produce other materials apart from the associated reduction lines.

3. The following limits for pollutant atmospheric emissions produced by aluminum manufacturing processes are hereby established.

Emission source/measurement unit	Emission limit	
	MP	Total Fluoride
Hydrate calcination oven/kg/t of alumina production	20	N.A.
Pot room ⁽¹⁾ / kg/t of alumina production	4,8	1,10
Anode baking furnace / kg/t equivalent of aluminum	0,2	0,15

⁽¹⁾ sum of emissions from the exit of the primary control system and lower.
N.A. – Not applicable.

3.1. New hardware performance tests must be carried out at full power in order to determine compliance with established limits.

3.2. During periodic assessments, compliance with established limits can be performed under normal operational conditions at the criteria of the environmental licensing organ.

4. Pollutant emission sources and activities must, at the time of sample collection, include the structure and/or direct determination of pollutants in ducts and chimneys in accordance with standardized methodologies or their equivalent provided they have been accepted by the environmental licensing organ.

5. When two or more pollutant release sources use a common duct or chimney the measurements must be done on an individual basis.

6. The release of gaseous effluents into the atmosphere must be carried out through ducts and chimneys whose projection must take into consideration the buildings that surround the pollution source and the established air quality standards.

7. The environmental licensing organ may establish more restrictive emission limits due to considerations related to local characteristics of the area where the pollution source is located.

ANNEX X

ATMOSPHERIC POLLUTANT EMISSION LIMITS PRODUCED BY GLASS MELTING OVENS

1. The emission limits of atmospheric pollutants produced glass melting ovens are established as follows.

1.1. These provisions are not applicable to glass melting furnaces where the melted glass is removed manually and to those with nominal production capacity is less than 8 t/d (tones per day) which must adopt, in cooperation with the licensing environmental organ, the best available processing, operation and maintenance practices in order to minimize atmospheric emissions.

2. The following definitions are adopted for all enforcement purposes of this annex:

a) composition of produced glass: weight proportion of the different glass component substances which may fit into the following traditional classification:

a.1) soda-lime recipe: produces two types of glassware products, woven glass-fiber and other glass goods, blown and/or pressed and flat glass. It contains the following weight proportions: from 60 to 75% of SiO₂, from 10 to 17% of R₂O total (i.e. Na₂O, K₂O), from 8 to 20% of RO total (i.e. CaO, MgO) that does not include PbO, from 0 to 8% of R₂O₃ total (i.e. Al₂O₃), and from 1 to 5% of other oxides;

a.2) borosilicate recipe: produces glassware, blown and/or pressed. It contains the following weight proportions: from 60 to 80% de SiO₂, from 4 to 10% of R₂O total (i.e. Na₂O, K₂O), from 5 to 35% of boron oxides, and from 0 to 13% of other oxides;

a.3) lead recipe: produces glassware, blown and/or pressed. It contains the following weight proportions: from 50 to 60% of SiO₂, from 18 to 35% of lead oxides, from 5 to 20% of R₂O total (i.e. NaO, K₂O), from 0 to 8% of R₂O₃ total (i.e. Al₂O₃), from 0 to 15% of RO total (i.e. CaO, MgO), which does not include PbO and from 5 to 10% of other oxides;

a.4) other recipes: produce glassware, blown and/or pressed, includes recipes for opal and fluorides;

b) glass melting furnace: includes a refractory recipient which is loaded with prime-resources that are melted at high temperatures, refined and conditioned in order to produce melted glass. The unit includes foundations, superstructure and retaining walls, systems for the loading of prime-resources, heat exchangers, cooling system, exhaust system, refractory masonry, fuel supply system

and electric heating reinforcement, integrated instrument control systems and appendices for the conditioning and distribution of melted glass and form it into commercial products;

c) container glassware: includes bottles for beverages, glass pots for the food industry and flasks for cosmetic and pharmaceutical products;

d) domestic glass: includes home table utensils, kitchen, decoration and accessories (i.e. glasses, cups, bowls, forms, pots, vases and ornaments

e) flat glass: includes flat float glass and printed, enriched or not, for use in the manufacturing of: vehicles, civil construction, electro-domestics and furniture;

f) special glass: includes glass tubes for cathode rays for televisions and monitors, lamps and illumination tubes, optical glass, laboratory glassware and technical devices, glass for the electronic industry and boron silicate glass and ceramics.

3. The following limits for pollutant atmospheric emissions produced by glass manufacturing processes are hereby established.

Pollutant	Classification	Emission (kg / t.v.f.) (1)
Particulate Matter	Soda-lime recipes	0,4
NO _x	Clear Glass (colorless)	
	Colored Glass	
SO _x		

^ω (kg / t.v.f.) = kilograms per ton of molten glass

3.1. In performance testing of new equipment, the compliance with the limits must be verified under the conditions of full load.

3.2. In periodic assessment, the compliance with the limits can be found in typical conditions of operation, at the discretion of the environmental agency.

4. The constant emissions monitoring in the table of article 3 should be done both in existing and in new sources on the date of publication of this resolution, with a quarterly frequency and during three years, from the year 2007, to file and sending of results and the report on measurements to the environmental body licensor.

5. The release of waste gases in the atmosphere should be carried out through ducts or chimneys, whose design must take into account the surrounding buildings to the polluting source and the established air quality standards.

6. Depending on the local characteristics of the area of influence of polluting sources on air quality, the environmental licensing body may establish tougher emission limits.

**ANNEX XI
LIMITS FOR EMISSION OF AIR POLLUTANTS FROM THE PORTLAND CEMENT
INDUSTRY**

1. The emission limits of air pollutants generated in the Portland cement industry are herein defined.

1.1. The emission limits of pollutants arising from the co-processing of waste into clinker oven will be object of a specific resolution.

2. For the purposes of this ANNEX the following definitions of terms should be considered:

a) Portland cement: hydraulic agglomerate obtained from the grinding of clinker to which it is added, during the operation, the necessary quantity of one or more forms of calcium sulphate, while still allowing additions of limestone, slag of or blast furnace or pozzolans, according to the type to be produced;

b) Portland clinker: cement basic component consisting largely of calcium silicates with hydraulic properties;

c) packers: equipment used for packaging of cement in bags;

d) blast furnace slag: by-product resulting from the production of pig iron. When granulated, it has binding properties. Chemically it consists of minerals composed of calcium, silica and aluminum, i.e. the same oxides that form the Portland cement, but not in the same proportions. It is used as an additive in the manufacture of cement;

e) flour: finely ground raw material for the production of cement clinker, composed primarily of calcium carbonate (CaCO₃), silica (SiO₂), alumina (Al₂O₃) and iron oxide (Fe₂O₃) obtained from minerals and other materials rich in these components such as limestone, clay and iron ore;

f) clinker furnace: equipment internally coated with refractory material, with internal flame, used for sintering of flour and production of Portland clinker;

g) cement mills: equipment for the grinding and mixing of clinker, gypsum, slag and any additions for obtaining cement;

h) clinker coolers: equipment integrated to clinker furnaces that have the main objective of recovering as much heat as possible, returning it to the process;

i) dryers: equipment that use thermal energy to reduce the moisture content of materials such as slag and sand.

3. The following emission limits are established for air pollutants from cement production processes

Equipment	MP*	Nitrogen Oxides (Expresses as NO₂)
Ovens	50 ⁽¹⁾	650 ⁽³⁾
Coolers	50	N.A.
Cement mills	50 ⁽²⁾	N.A.
Refuse and sand dryers	50 ^(a)	N.A.
Bagging machines	50	N.A.

**the results shall be expressed in the unit of mgNm concentration, on a MG/Nm³ dry basis and with the oxygen content defined for each source.*

⁽¹⁾ oxygen content-11%

⁽²⁾-oxygen content – 18%

⁽³⁾-oxygen content-10%

N.A.-not applicable

3.1. When carrying out performance testing of new equipment, the compliance with are standards established should be checked at full-load conditions, defined in accordance with the environmental licensing body .

3.2. In the periodic assessment, the compliance with the limits can be found in typical conditions of operation, at the discretion of the environmental licensing body .

4. The activities or sources of pollutants shall, when carrying out the sampling, count with the necessary structure or direct determination of pollutants in ducts and chimneys in accordance with standardized methodology or equivalent accepted by the environmental licensing body.

5. In the event of any emission of two or more different equipment in the common duct or chimney and when it is not possible to verify the compliance with the individual limits, it is up to the competent environmental licensing body to set the limit of the set, on the basis of individual limits.

5.1. In the event of an equipment with more than one duct or chimney, its emissions must be weighted by the respective flow rates for comparison with the emission limits proposed.

6. The release of gaseous waste into the atmosphere should be carried out through ducts or chimneys, whose design must take into account the surrounding buildings to the polluting source and the established air quality standards.

7. Depending on the local characteristics of the area of influence of polluting sources on air quality, the environmental licensing body may establish more restrictive limits on the emission, including considering the use of alternative fuels with less polluting potential.

ANNEX XII

EMISSION LIMITS FOR AIR POLLUTANTS GENERATED IN THE PRODUCTION OF FERTILIZERS, PHOSPHORIC ACID, SULFURIC ACID AND NITRIC ACID

1. The emission limits of pollutants generated in the production of fertilizers, phosphoric acid, sulfuric acid and nitric acid are herein defined.

2. For the purposes of this ANNEX the following definitions of terms should be taken into account:

a) acidulation: reaction between phosphate concentrate and sulfuric acid, usually one or phosphoric acid, which aims to solubilize the phosphorus contained in the concentrate to make it assimilated by the plants. The main product of this reaction is monocalcium phosphate: $\text{Ca}(\text{H}_2\text{PO}_4)_2$;

b) ammoniation/granulation: stage in the production process of ammonium phosphates when occurs at the same time, the additional introduction of ammonia and phosphate granulation of ammonium in a rotating drum or ammoniator;

c) processing of phosphate concentrate: set of operations or steps in the production process, from the processing of phosphate rock and phosphate concentrate to dry-transfers, comminutions, drying and classifications;

d) rating: operation designed to physically separate, by sizes, the pellets discharged from the cooler;

e) concentration: process used to increase the P_2O_5 content present in phosphoric acid;

f) phosphate concentrate: the product resulting from the processing of phosphate rock containing, in respect to it, a higher content of P_2O_5 and lower content of impurities. It is also called apatitic concentrate;

g) DAP: granulated fertilizer, resulting from the reaction between ammonia and phosphoric acid, producing $(\text{NH}_4)_2\text{HPO}_4$ (diammonium phosphate or DAP);

h) phosphate fertilizer: product resulting from chemical treatment of concentrated phosphate, which features part of P_2O_5 soluble available to plants and may have even other constituent nutrients or micronutrients aggregates, as well as with the form and size suitable for its use in agriculture. These include, among them: MAP or monoammonium phosphate; DAP or diammonium phosphate; TSP or triple superphosphate; SSP or single superphosphate; ammoniated superphosphate; mixed nitrogen and phosphate fertilizer; partially acidulated phosphate; triphosphates;; hexametaphosphates; calcium phosphate; concentrate superphosphates; triammonium phosphates; defluorized phosphate; phosphoplaster and thermophosphates;

i) nitrogen fertilizer: by-product of ammonia containing nitrogen as the main nutrient for use in agriculture. These include, among the nitrogen fertilizers: ammonium nitrate; ammonium sulphate; urea; ammonium chloride; magnesium ammonium chloride; sodium nitrate; ammonium dinitrate and itro calcium;

j) filtration: the process used to separate the hydrated calcium sulfate or phosphoplaster of phosphoric acid obtained by means of the wet process;

l) granulation: process of agglomeration of particles which, through the action of rolling in drums or rotating dishes, fertilizers are produced as beads which, in sequence, are subjected to drying, sorting and cooling;

m) granulator: integral equipment of the granulation process, consisting of drum or turntable where granulated fertilizers are produced;

n) MAP: granulated fertilizer, resulting from the reaction between anhydrous ammonia and phosphoric acid, producing $\text{NH}_4\text{H}_2\text{PO}_4$ (mono ammonium phosphate or MAP);

o) mixer: equipment for the production of mixed fertilizers, where occurs the physical mixture of fertilizers or concentrates, dosed according to the formulation specified, without any chemical reaction or addition on the particle size;

p) phosphate concentrate milling: processing step consisting on reducing the granulometry of particles, with consequent increase of the area of contact, to favor concentrated phosphate reactions with acids;

q) neutralization: stage of the production process of ammonium phosphates, which consists in the neutralization reaction between the phosphoric acid and the anhydrous ammonia, gaseous or liquid, with the formation of a slush of ammonium phosphates;

r) screening: operation to promote the segregation of impurities and coarse material from fertilizers and concentrates, which are fed into the mixer;

s) pearlation: process of formation of solid particles which, through the action of falling droplets in air flow counter-current, fertilizers are produced in the form of beads that, in sequence, are subjected to cooling, drying and sorting;

t) phosphoric acid formation reaction: reaction of wet phosphoric acid, between the phosphate concentrate and sulfuric acid, in special conditions of concentration and temperature, which results in the formation of hydrated calcium sulfate or phosphoplastic;

u) cooler: an integral granulation process equipment, designed to promote cooling of pellets from the dryer;

v) or ferric phosphate mineral: chipboard and other substances, which contains one or more phosphorus, minerals that can be exploited either directly as fertilizer material, either as basic industry input of phosphorus and its compounds;

x) dryer: an integral granulation process equipment designed to remove moisture contained in the pellets from the pellet machines;

z) phosphate concentrate drying: stage of processing intended to remove moisture contained within the concentrate;

a. 1) t acid at 100%: the amount of acid produced based on a concentration of 100% of acid in terms of weight. The value is obtained by multiplying the mass of solution (in tons) by the acid content and dividing by 100.

b. 1) t of P₂O₅ powered: amount of P₂O₅, in tons, fed in each unit of production of fertilizers. They are sources of P₂O₅: apatitic concentrate; MAP; Super Simple; TSP and Phosphoric Acid;

c. 1) absorption tower of nitric acid production: plant unit for manufacturing nitric acid where, with continuous water cooling, successive oxidations occur and moisturizing of nitrogen oxide (NO) that result in the formation of nitric acid;

d. 1) absorption tower of sulphuric acid production: equipment of sulfuric acid manufacturing plant, located above the fireplace, where occurs the absorption of SO₃ (sulfur trioxide) in concentrated sulphuric acid;

e. 1) pearlation tower: equipment part of the pearlation process, consisting of a tower with showers or baskets, where pearled fertilizer are produced; and

f. 1) transfer: product transportation, supplies or raw materials, by any means, in industrial development, including loading, unloading, reception, transport intermediaries (including by conveyer belt and pneumatic transport) and shipping.

3. The following tables establish the following emission limits for air pollutants generated in the production of fertilizers, sulphuric acid, nitric acid and phosphoric acid:

TABLE 1 – Emission limits for units manufacturing fertilizers

Production Unit	Emission sources	Ammonia ⁽¹⁾	Total fluorides (1)	MP ⁽¹⁾
Blenders	Blenders/Screening/Transfer	N.A.	N.A.	75
Processing of Concentrate Phosphate	Drying	N.A.	N.A.	150
	Grinding Transfers	N.A.	N.A.	75
Phosphate fertilizers; except MAP and DAP	Acidulation / Granulation (Granulators; Dryers; Coolers)	N.A.	0.1kg/t P ₂ O ₅ , fed	75
	Classification Transfers	N.A.	N.A.	
Phosphate fertilizers: MAP and DAP	Neutralization; Ammoniation /Granulation	0.02 Kg/t/product	0.03 kg/t 5 P ₂ O ₅ fed	75
	Dryers Coolers	N.A.		
Nitrogen Fertilizers	Evaporation	60	N.A.	

	Granulation Perolation			75
	Dryers Coolers Classification Transfers	N.A.	N.A.	

(1) results expressed on a dry base and mg/Nm³ unit, except if explained otherwise.

N.A. – Non applicable

Table 2 – Emission limits for the manufacturing of sulphur acid

Production Unit	Emission sources	SO ₂ ⁽¹⁾	SO ₃ ⁽¹⁾
Sulphuric acid (H ₂ SO ₄)	Absorption tower of H ₂ SO ₄	2.0 k/t of H ₂ SO ₄ at 100%	0.15 kg/t of H ₂ SO ₄ at 100%

(1) – Results expressed on a dry base.

Table 3 – Emission limits for the manufacturing of nitric acid

Production Unit	Emission Source	NO ₂ ⁽¹⁾
Nitric acid (HNO ₃)	Absorption tower of HNO ₃	1.6 kg/t of HNO ₃ at 100%

(1) results expressed as NO₂ on a dry base

Table 4 – Emission limits for the manufacturing of phosphoric acid

Production unit	Emission source	Total fluorides ⁽¹⁾	MP ⁽¹⁾
Phosphoric acid (H ₃ PO ₄)	Reaction formed of H ₃ PO ₄ ; filtering and concentration	0.04 kg/t P ₂ O ₅ fed	75mg/Nm ³

(1) Results expressed on a dry base.

3.1. in the case of fertilizer production and the production of acids, the sum of the rates of emission (expressed in kilograms of pollutant per ton of product or per ton of P₂O₅ powered) from the chimneys and ducts from each production unit must meet together, the respective emission limit established.

4. The emission limits for ammonia-producing units shall be established by the environmental organ licensor.

5. The activities or sources of pollutants shall count with the required structure for the realization of sampling and/or direct determination of pollutants in ducts and chimneys in accordance with standardized methodology or equivalent accepted by the environmental organ licensor.

6. The release of waste gases into the atmosphere should be carried out through ducts or chimneys, whose project must take into account the buildings surrounding the issuing source and the established quality standards.

7. Depending on the local characteristics of the area of influence of issuing source on air quality, the licensed environmental agency may establish more restrictive emission limits than those set forth herein.

ANNEX XIII

EMISSION LIMITS FOR AIR POLLUTANTS GENERATED AT THE INTEGRATED AND SEMI-INTEGRATED IRON AND STEEL INDUSTRIES AND IRON ORE PELLETIZING PLANTS

1. The emission limits for air pollutants generated in the integrated and semi-integrated iron and steel industries and pelletizing plants of iron ore are herein defined.

2. For the purposes of this ANNEX the following definitions of terms shall be taken into account:

a) electric steelworks): melting and refining unit with the use of electric oven where heat needed to melt the metal cargo (mainly steel scrap) is produced by the action of an electric arc formed between electrodes. This metallic cargo, which subsequently is refined through reactions between its impurities and additions – melting, deoxidizing, ferroalloy - employed in obtaining common and special steels;

b) LD steelmaking: refining unit of pig iron with the use of a converter, which gets a load consisting of this molten metal and small amounts of scrap, where oxygen is blown into metal bath with the goal of reducing carbon content and impurities to values specified for the various types of steel produced;

c) blast furnace: steel furnace in which pig iron is produced from the reduction and melting of a load of iron ore, melting, fuel and reducer (coke or charcoal) getting as by-products: slag, gaseous and particulate matter;

d) charcoal blast furnace: blast furnace using charcoal as fuel and reducer in the production of pig iron;

e) blast furnace coke): blast furnace using coke as a fuel and reducer in the production of pig iron;

f) combustion chambers coke ovens: where is burning steel gas, used for heating of coke ovens and for distillation of coal used in the production of coke;

g) steel thermal electric central: facility producing electric power from the burning of gaseous fuels generated in the steel itself;

h) complete cycle of production of steel: comprises all stages of steel production in LD or electric Steelmaking, from the loading of raw materials to the steel casting;

i) coke plant: production unit where occurs the distillation of coal for the production of metallurgical coke-reducer and fuel needed to blast furnace operations;

j) pig desulphurization process used for partial removal of sulphur in pig iron by adding a common desulfurizing agent (lime, calcium carbide and others) to molten metal;

l) exhaustion of thermal power plants boiler: for the collection and directing of combustion gases from power generation process;

m) lime ovens: oven used for collecting lime (CaO) used in steel processes, from the calcination of limestone (CaCO₃);

n) lamination reheating furnaces: furnaces for heating of hot rolled products whose thermal demands are met primarily by the burning of steel gas;

o) steel gases: gases generated) in the units of coke (coke oven gas), blast furnace (blast furnace gas) and steelmaking (steelmaking gas) used as fuel;

p) lamination: mechanical transformation process that consists in passing from a metallic material between two rotating cylinders, with progressive reduction of thickness or transformation of material at the desired profile by effect of compression effort exercised by cylinders;

p) lamination: mechanical transformation process that consists in passing a metallic material between two rotating cylinders, with progressive reduction of thickness or transformation of material at the desired profile by effect of compression effort exercised by cylinders;

q) pelletizing: agglomeration process which consists in the use of iron ore fines and a binder to form raw pellets through the action of rolling in drums, discs or cones, followed by drying and burning in furnaces for hardening of pellets;

r) synthesizing: hot agglomeration process which consists in the formation of a porous block, called sinter, formed from the incipient melting of a load consisting of iron fines with coke or charcoal fines and flux agents;

s) House dedusting system of coke blast furnace storage: system intended to capture and treatment for removal of particulate material generated in the process of transfer, loading and unloading of silos for raw materials;

t) dedusting system of the house or racing wing of the coke or charcoal blast furnace: system designed to capture and treatment for removal of particulate material generated during the leak of pig iron from furnaces and loading of a torpedo cars;

u) desulphurization dedusting system of pig iron: system intended to capture and treatment for removal of particulate material generated in the process of desulphurization of pig iron;

v) stocking dedusting system of coal blast furnace: carbon capture and treatment process for removal of particulate material generated in steps of processing and feeding, loading and unloading of silos for raw materials;

x) dedusting system of remolding of coke plant: system for the collection and treatment for the removal of particulate material generated in the process of coke remolding;

z) dedusting system of lime ovens: system designed to capture and treatment for removal of particulate material generated in the process of obtaining lime;

a.1) primary dedusting system of electric steelworks: system for the collection and treatment for the removal of particulate material generated in the process of smelting and refining of scrap steel in electric furnace steelmaking;

b.1) primary dedusting system of LD steelmaking: system for exhaust and treatment of gases generated during blowing in LD converter;

c.1) secondary dedusting system of electric steelworks: system designed to capture and treatment for removal of particulate material, both that generated in scrap loading operation, as contained in fugitive emissions from the processes of scrap melting, refining and casting of steel;

d.1) secondary dedusting system of LD steel: system intended to the collection and treatment for removal of particulate material generated in tipping operations and weighing of the pig iron, slag removal, loading of scrap and pig iron in the converter and steel casting;

e.1) system of pelletizing exhaustion furnace: primary and secondary system of collecting gases and particles resulting from the burning of fuels to meet the thermal demands of pelletizing furnace and the burning and hardening of iron ore pellets;

f.1) primary dedusting system of sintering: system for the exhaustion and collection of particulate material generated in sinter production machine;

g.1) secondary dedusting system of winterization: system intended to capture and treatment for removal of particulate material generated in the processes of crushing, screening and transfers of sinter and raw materials from the sintering process;

h.1) integrated steel mills: steel mills that use the reduction process of iron ore, from a load consisting of granular iron ore and/or agglomerated iron ore fines, sinter and pellet shaped and a reducing agent-coke or charcoal-for liquid pig iron, along with small amounts of scrap, shall be subjected to the process of refining for the production of steel in steel mill;

i.1) Semi-integrated steel mills: steel mills that use for obtaining the steel the refining process, in electric arc furnaces, of a load of scrap and/or sponge iron and/or cast iron.

3. The following emission upper limits are established for atmospheric pollutants generated in integrated steel mills and industries semi-integrated mills:

Table – Ceilings of air pollutants emission generated at integrated and semi-integrated steel industries

Production Unit	Punctual emission sources	MP⁽¹⁾	SO₂⁽¹⁾	NO_x⁽¹⁾ (as NO₂)	% O₂⁽¹⁾
Coke oven	Dust removal system of oven drawing	40	N.A.	N.A.	N.A.
	Coke oven combustion chamber	50	800	700	7%
Sintering	Dust removal primary system	70	600	700	N.A.+
	Dust removal Secondary system	70	N.A.	N.A.	
Coke blast furnace	Stocking house dust removal system	40	N.A.	N.A.	
	Dust removal system of run wing	40	N.A.	N.A.	
Charcoal blast furnace	Dust removal system of storage house	50	N.A.	N.A.	
	Dust removal system of run house or wing	50	N.A.	N.A.	
LD Steel plant	Dust removal primary system	80	N.A.	N.A.	
	Dust removal Secondary system	40	N.A.	N.A.	
	Dust removal system of pig iron desulphurization	40	N.A.	N.A.	
	Dust removal system of lime ovens	100	N.A.	470	
Electrical steel plant	Dust removal primary and secondary systems (2)	≤50t/c.50 >50t/c. 40	N.A.	N.A.	N.A.
Lamination	Reheating ovens of plates with siderurgical gases burning	50	800	700	7%
Pelletizing	Exhaustion system of pelletizing oven	70	700	700	N.A.
Thermoelectric power plant	Boilers with siderurgical gases burning	50	600	350	5%

⁽¹⁾ Results should be expressed in the mg/Nm³ concentration unit, on a dry base and on the explicit

O₂ content. ⁽²⁾ t/c = steel tons/lot
N.A. – Not applicable

3.1. In performance testing of new equipment the compliance with the limits must be verified under the conditions of full load, defined according to the environmental licensing body .

3.2. In the periodic assessment, the compliance with the limits can be verified under typical conditions of operation, at the discretion of the environmental licensing body .

4. Measurements of emissions sources from the LD Steelworks and the Electrical Steelworks must be done taking into account the complete cycle of steel production, according to standardized methodology or equivalent accepted by the environmental organ licensor.

5. The monitoring of emissions from Combustion Chambers of Coke Ovens should be done both by new sources and by the existing ones at date of publication of this Resolution, with a quarterly frequency and for three years from the year 2007, with delivery of the results and the report on measurements to the environmental body licensor.

6. In the exhaust systems of emission stationary sources of air pollutants should be designed and operated so as to prevent fugitive emissions from the source to the chimney.

7. The environmental licensing body may or may not establish Maximum Limits of Emission for the steel industry sources that employ the Fuel Oil Derived from Tar-OCDA;

8. The industries should provide to all source of emission of air pollutants with requirements necessary for the execution of measurements, according to relevant technical standards accepted by the environmental licensing body ;

8.1. This includes the emission sources which have exhaust systems with positive pressure.

9. The release of gaseous waste into the atmosphere should be carried out through ducts or chimneys, whose design must take into account the surrounding buildings to the polluting source and the established air quality standards.

10. Depending on the local characteristics of the area of influence of the polluting source on the air quality, the environmental licensing body may establish more restrictive emission limits restrictive, including considering the alternative of using fuels with less polluting potential.

RESOLUTION 436, December 22, 2011

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Correlations:

· Complements Resolutions No. 05/1989 and No. 382/2006.

Establishes the maximum rates of atmospheric pollution emissions from point sources or sources with operational licenses granted before Jan. 2, 2007.

The NATIONAL ENVIRONMENT COUNCIL-CONAMA, pursuant to the powers vested on it by Law 6.938 dated August 31, 1981, regulated by Decree 99.274 from July 6, 1990, bearing in mind the provisions of its Internal Rules, and Considering the provisions of CONAMA Resolution No. 05, of June 15, 1989, that establishes the National Program for the Control of Air Pollution-PRONAR;

Considering the need of establishment of a national reference for the upper limits of air pollutant emission for the existing stationary sources or with license for installation required before January 2, 2007, date of entry into force of Resolution CONAMA No. 382, of 2006, resolves:

Art. 1 Establish maximum residue limits for air pollutants emission fixed sources installed before January 2, 2007 or which have requested Installation License-IL prior to that date.

§ 1. The limits are fixed by pollutant and source type as set out in Annexes I to XIII of this Resolution.

§ 2 The provisions to be observed for the achievement of the air emission monitoring and reporting can be found in ANNEX XIV to this Resolution.

Art. 2 For the establishment of the air pollutant emission limits the following assumptions were observed:

I - the use of emission limits as one of the instruments of environmental control, whose application must be linked to criteria for supportability of environment where the enterprise is located;

II - the establishment of emission limits shall be based on appropriate environmentally sound technologies, covering all phases from design, installation, operation and maintenance of the units as well as the use of raw materials and inputs;

III - adoption of emission control technologies of air pollutants technically and economically viable and accessible and already developed in scale to allow their practical application;

IV - possibility of differentiation of emission limits, depending on the size, location and characteristics of emission sources, as well as the characteristics, loading and effects of pollutants released; and

V - technical information and emission measurements performed in the country as well as the bibliographic survey of what is being practiced in Brazil and abroad in terms of manufacturing and use of equipment, as well as requirements by the environmental agencies licensors.

Art. 3 for the purposes of this resolution, the following definitions are adopted:

I - definitions relating to emission sources:

a) ability to support: the ability of the atmosphere of a region to receive the remnants of emission sources in order to meet environmental standards and the various uses of natural resources;

b) emissions control: procedures for reducing or preventing the release of pollutants into the atmosphere;

c) emission: release into the atmosphere of any form of solid, liquid or gaseous matter;

d) fugitive emission: diffused release into the air of any form of solid, liquid or gaseous matter, effected by a source devoid of device designed for directing or controlling its flow;

e) punctual emission: release into the atmosphere of any form of solid, liquid or gaseous matter, effected by a source with device for directing or controlling its flow, such as pipelines and chimneys;

f) equipment: for air pollution control: device that reduces air emissions;

g) stationary emission source: any facility, equipment or process, located in a fixed location, releasing or sending matter into the atmosphere, through punctual or fugitive emission;

h) maximum emission limit (MEL): maximum amount of pollutants permitted to be released into the atmosphere by stationary sources;

i) generation of pollution prevention: concept that focuses on acting on the production process, in order to minimize the generation of pollution, eliminating or reducing the need for the use of control equipment, also known as the designations of Prevention to Cleaner Pollution and Production;

II - definitions regarding pollutants that do not have a defined chemical characteristic:

a) total reduced sulphur (TRS): reduced sulphur compounds, measured as a whole, referring mostly to gas hydrogen sulphide and mercaptans, expressed as sulphur dioxide (SO₂);

b) particulate matter (PM): any solid or liquid material in gas mixture that remains in this state at the temperature of the filter medium, established by the method adopted;

c) NO_x: refers to the sum of the concentrations of nitrogen monoxide (NO) and nitrogen dioxide (NO₂), expressed as (NO₂);

d) SO_x: refers to the sum of the concentrations of sulphur dioxide (SO₂) and sulphur trioxide (SO₃), expressed as (SO₂);

III - definitions relating to units and mandatory form of expression of results:

a) concentration: relationship between the mass of a pollutant and the volume in which it is contained (C = m/V), and should always be reported as milligrams per normal cubic meter (Nm₃), i.e., referred to normal temperature and pressure conditions (STPC), on a dry basis and, where applicable, on the referential established condition of oxygen, always using the notation: mg/Nm³;

b) normal temperature and pressure conditions (STPC): the reference conditions of temperature and pressure, in which the pressure is 1013.25 mbar, corresponding to 1 atmosphere or 760 mmHg, and the temperature is 273 K, corresponding to 0° C;

c) referential conditions oxygen conversion: the conversion of the measured concentration shall be converted to a reference condition of oxygen is presented below, not being applicable when pure oxygen injection occurs in the process:

$$C_R = \frac{21 - O_R}{21 - O_M} * C_M$$

where:

1. CR - Pollutant Concentration corrected to the condition laid down in this resolution;

2. OR - Oxygen Percentage of reference, as this resolution; established for each fixed emission source;

3 OM - Percentage of oxygen measured during sampling;

4. CM - Pollutant Concentration determined in the sample;

d) emission factor: the representative value that relates the mass of a specific pollutant released into the atmosphere with a specific amount of processed, consumed or produced material or energy, (mass/production unit); and

e) emission rate: the representative value that relates the mass of a specific pollutant released into the atmosphere per unit of time (mass/time), for example: kgh, gs.

Art. 4 The release of gaseous waste into the atmosphere should be carried out through ducts or chimneys.

Sole paragraph. The exhaustion systems of stationary sources of emission of air pollutants shall be maintained and operated properly in order to prevent fugitive emissions from the source to the chimney.

Art. 5. The environmental licensing body may, by reasoned decision and taking into account the local conditions of the area of influence of the polluting source, determine more restrictive emission limits than those set out in this Resolution which, in its discretion, air quality management so requires.

Sole paragraph. For the suitable management of air quality, the environmental licensing body may, in setting tougher emission limits, consider the use of alternative fuels with less polluting potential

Art. 6 the sources that have established in their licenses, emission limits tougher than those on this Resolution shall meet the values specified in the permit.

Art. 7 The emission limits for non-specified sources in CONAMA Resolution shall be established by the environmental organ licensor.

Art. 8. Environmental agencies licensors shall prepare evaluation reports on the implementation of the resolution concerning the first 5 (five) years.

§ 1. The reports should be forwarded to the Ministry of the Environment for consolidation during the first half of the sixth year of the publication of this resolution.

§ 2 the Ministry of the Environment should complete the consolidation and present it to CONAMA until the end of the sixth year of the publication of this Resolution.

§ 3 The Ministry of the Environment shall establish the Terms of Reference for the state reports.

Art. 9. This Resolution shall enter into force on the date of its publication.

IZABELLA TEIXEIRA – Council President

ANNEX I
Emission limits for pollutants from processes of heat generation from external combustion of fuel oil

1. The upper limits for emission of air pollutants from processes of heat generation from the external combustion of fuel oil for installed sources or with installation license required before January 2, 2007 are herein defined.

2. For the purposes of this ANNEX the following definitions should be considered:

2.1. nominal capacity: maximum operating condition of heat-generating unit to which the equipment is designed, as determined in terms of thermal power, based on Lower Calorific Value (LCV), calculated from the multiplication of the fuel by the PCI maximum amount of fuel burnt per unit of time as per following example:

- a) For a boiler whose oil consumption is 2,752 kg/h; with oil of LCV =39.25 MJ/kg
- b) Thermal Power (MJ/h) 2,752 kg/h x 39.25 MJ/kg = 108,016 Mj/h;
- c) Thermal Power (MW) (108,016 MJ/h) (3,600 s/h) 30 = MW

2.2 fuel oil: derived liquid obtained from fossil material;

2.3 heat generation process by external combustion: fuel oil burning process performed in any furnace or boiler whose combustion products do not come into direct contact with the material or processed product.

3. The following emission ceilings are herein established for air pollutants from heat generation processes from external combustion of fuel oil:

Nominal thermal power (MW)	MP⁽¹⁾	NO_x⁽¹⁾ (as NO₂)	SO_x⁽¹⁾ (as SO₂)
MW < 10	300	1600	2700
10 ≤ MW ≤ 70	250	1000	2700
MV > 70	100	1000	1800

⁽¹⁾ the results shall be expressed in the unit of mg/Nm³ concentration, on a dry basis at 3% of oxygen.

3.1. For systems with a power of up to 10 MW, the need for monitoring the sources should be set by the environmental organ licensor;

3.2. For systems with a power of up to 10 MW, the environmental licensing body may accept the periodic assessment only of carbon monoxide, which in this case, the ceiling of issuance of this pollutant will be 80 mgNm³ in dry base with 3 oxygen;

3.3. The limits laid down in this resolution do not apply to oil combustion sources located beyond the territorial sea, whose emissions do not significantly affect communities.

4. In the event of two or more sources whose final release is done in the common duct or chimney, the measurements must be made individually.

4.1. Where there is impossibility of performing individual measurements, in accordance with the standardized methodology or equivalent accepted by the environmental licensing body, these can be made in the common duct or chimney and the emission ceilings should be adjusted individually with the respective nominal thermal power of the sources in question for the calculation of the new resulting emission limit, as per the following example:

$$LE_{res} = \frac{\sum_{1}^n PN_n * LE_n}{\sum_{1}^n PN_n}, \text{ where}$$

LE_{res} = resulting emission limit;
 PN = nominal thermal input;

LE = individual emission limit.

Example:

Boiler 1- nominal thermal power = 5 MW and LE 300 = mg/Nm³ for MP

Boiler 2 - nominal thermal power = 35 MW and LE 250 mg/Nm³ for MP

$$LE_{res} = \frac{5 * 300 + 35 * 250}{5 + 35} = 256,3 \text{ mg} / \text{Nm}^3$$

5. The emission limits established in this ANNEX should be complied with within five (5) years from the date of publication of this Resolution.

ANNEX II
Emission limits for pollutants from processes of
heat generation from external combustion of natural gas

1. The emission limits for air pollutants from heat-generating processes originally designed for external combustion of natural gas for fonts installed or with installation license required before January 2, 2007, are herein established.

1.1. The boilers converted to natural gas will have their limits defined by environmental licensing bodies.

2. For the purposes of this ANNEX, the following definitions should be considered:

2.1. nominal capacity: maximum operating condition of heat-generating unit to which the equipment is designed, as determined in terms of thermal power, based on Lower Calorific Value (LCV) calculated by multiplying fuel LCV by the maximum amount of fuel burnt per time unit, as per the following example:

a) For a boiler whose consumption of natural gas is 2,876 Nm³/h; with natural gas LCV = 37.53 MJ/Nm³ (1 atm, 273.15 K);

b) Thermal Power (MJh) 2,876 Nm³h x MJNm³ .28 107,936 37.53 MJh

c) Thermal Power (MW) (.28 107,936 MJh) (3,600 sh) = 30 MW

2.2. Natural gas: gaseous fossil fuel according to specification of the national petroleum Agency (ANP);

2.3. Procedure of heat generation by external combustion: natural gas-burning process performed in any furnace or boiler, whose combustion products do not come into direct contact with the material or processed product.

3. The following shall be established as emission limits for air pollutants from heat generation processes from external combustion of natural gas:

Nominal thermal power (MW)	NO _x (as NO ₂)
MW < 10	NA ⁽²⁾
10 ≤ MW ≤ 70	400
MW > 70	320

(1) the results shall be expressed in the unit of mg/Nm³ concentration, on a dry basis the 3% of oxygen.

(2) Not applicable.

3.1. For systems with a power of up to 10 MW, the environmental licensing body may agree to periodic assessment only of carbon monoxide, which in this case, the maximum issuance of this pollutant will be 80 mg/Nm³ in dry basis at 3% of oxygen.

3.2. The limits laid down in this resolution do not apply the natural gas combustion sources located beyond the territorial sea, whose emissions do not significantly affect the communities.

4. in the event of two or more sources whose final release is done in the common duct or chimney, the measurements must be made individually.

4.1. where there is impossibility of performing individual measurements, in accordance with the standardized methodology or equivalent accepted by the environmental licensing body, these can be made in the common duct or chimney and the emission limits shall be weighted individually with the respective nominal thermal power of the sources in question for the calculation of the new resulting emission limit, as per the following example:

$$LE_{res} = \frac{\sum_{1}^n PN_n * LE_n}{\sum_{1}^n PN_n}, \text{ sendo:}$$

where,

LE_{res} = resulting emission limit

PN = nominal thermal power;

LE = individual emission limit.

Example:

Boiler 1 – nominal thermal power = 30 MW and LE = 400 mg/Nm³ for NO_x

Boiler 2 – nominal thermal power = 70 MW and LE = 320 mg/Nm³ for NO_x

$$LE_{res} = \frac{30 * 400 + 70 * 320}{30 + 70} = 344 \text{ mg} / \text{Nm}^3$$

5. The emission limits established in this ANNEX should be complied with within (7) seven years from the date of publication of this Resolution.

ANNEX III
Emission limits for air pollutants from processes of
heat generation from external combustion of biomass from sugarcane.

1. The emission limits for air pollutants from heat-generating processes, from the combustion of biomass from sugarcane, for plants installed or with installation license required before January 2, 2007 are herein defined.

2. For the purposes of this ANNEX the following definitions should be considered:

2.1 Sugar cane biomass : by-products from the collection and industrial processing of sugar cane;

2.2 Nominal capacity: maximum operating condition of heat-generating unit to which the equipment is designed, as determined in terms of thermal power, based on the lower calorific value (LCV), calculated from the multiplication of the fuel by LCV fuel burned per time unit, for example:

a) For a boiler whose biomass consumption of sugar cane is 50 t/h; with LCV of biomass from sugarcane at 50% moisture = 1700 kcal/kg

(b) For the conversion of kcal/h to MW one must multiply it by $1,16 \times 10^{-6}$

c) Nominal capacity = $50,000 \times 1,700 \times 1,16 \times 10^{-6} = 98.6$ MW

2.3 Heat generation process by external combustion: process for the burning of sugar cane biomass in any furnace or boiler with combustion whose products do not come into direct contact with the material or processed product.

3. The table below established the following emission limits for air pollutants from heat-generating processes, from external combustion of biomass from sugarcane:

Nominal thermal power (MW)	MP ⁽¹⁾	NO _x ⁽¹⁾ (as NO ₂)
MW < 50	520	NA
50 ≤ MX ≤ 100	450	350
MW > 100	390	350

(1) the results shall be expressed in the unit of mg/Nm³ concentration, on a dry basis at 8% of oxygen

NA-not applicable.

3.1 The check of compliance with the limits established shall be performed, through sampling in the chimney at least once a season, under full-load conditions. For this check it should be admitted a tolerance of 10% because of the uncertainties inherent in the measurement process;

3.2 The environmental licensing body may, by reasoned decision, at its option, establish limits of emissions less restrictive than those of this ANNEX, in the sources which present changes in the biomass composition and variation in the amount of impurities, provided that there are environmental gains;

3.3 For systems with a power of up to 10 MW, the environmental licensing body may accepting only periodic monitoring of carbon monoxide, which, in this case, the maximum limit for this pollutant will be set out in the following table:

Nominal thermal power (MW)	CO ⁽¹⁾
MW ≤ 0.05	6500
0.05 < MW ≤ 0.15	3250
0.15 < MW ≤ 1.0	1700
1.0 < MW ≤ 10	1300

(1) the results shall be expressed in the concentration unit of mg/Nm³, on a dry basis at 8% of oxygen.

4. In the event of two or more sources whose final release is done in the common duct or chimney, measurements must be done individually;

4.1 When there is impossibility of performing individual measurements, in accordance with the standardized methodology or equivalent accepted by environmental licensing body, these can be made in the common duct or chimney and the emission limits shall be weighted individually with the respective nominal thermal power of the sources in question for the calculation of the new resulting emission limit as the following example:

$$LE_{res} = \frac{\sum_{n=1}^n PN_n * LE_n}{\sum_{n=1}^n PN_n} \quad \text{where}$$

LE_{res} = resulting emission limit;

PN = nominal thermal power;

LE = individual emission limit.

Example:

Boiler 1- nominal thermal power = 100 MW and LE = 450 mg/Nm³ for MP

Boiler 2- nominal thermal power = 180 MW and LE = 390 mg/Nm³ for MP

$$LE_{res} = \frac{100 * 450 + 180 * 390}{100 + 180} = 411,4 \text{ mg} / \text{Nm}^3$$

5. The emission limits established in this ANNEX should be complied with within five (5) years from the date of publication of this Resolution.

ANNEX IV
Emission limits for air pollutants from processes of
heat generation from external combustion derived from wood.

1. The emission limits for pollutants from heat-generating processes, from external combustion of wood for the fonts installed or with installation license, required before January 2, 2007 are herein defined.

2. For the purposes of this ANNEX the following definitions should be considered:

2.1 nominal capacity: maximum operating condition of heat-generating unit to which the equipment is designed, as determined in terms of thermal power, based on the lower calorific value (LVC), calculated from the multiplication of the fuel by the LVC maximum amount of fuel burnt per time unit;

2.2 derived from wood: wood in the form of firewood, wood chips, sawdust, bark, sanding dust, particle board, plywood or MDF and the like, which have not been treated with halogenated products, coated with polymerized products, paint or other coverings;

2.3 process heat generation by external combustion: burning process of wood held in any furnace or boiler, whose combustion products do not come into direct contact with the material or processed product.

3. The following limits shall be established for the emission of air pollutants from processes of heat generation from the combustion of wood derivatives:

Nominal thermal power (MW)	MP ⁽¹⁾	NOx ⁽¹⁾ (as NO ₂)
MW < 10	730	NA
10 ≤ MW ≤ 50	520	650
MW > 50	300	650

⁽¹⁾ the results shall be expressed in the concentration unit of mg/Nm³, on a dry basis at 8% of oxygen.

NA-not applicable.

3.1 At the discretion of the environmental licensing body, for systems with a power of up to 10 MW, alternatively the limits in the table above, may be accepted:

3.1.1 The periodic monitoring of carbon monoxide. In this case, the maximum limit for this pollutant will be set out in the following table:

Nominal thermal power (MW)	CO ⁽¹⁾
MW ≤ 0.5	7800
0.5 < MW ≤ 2	3900
2 < MW ≤ 10	3250

⁽¹⁾ the results shall be expressed in the concentration unit of mg/Nm³, on a dry basis at 8% of oxygen.

3.1.2 Periodic assessment of particulate matter through the opacity, and in this case, the maximum allowable value for this pollutant emissions should not exceed the pattern 1 of the Ringelmann scale .

4. In the event of two or more sources, whose final release is done in the common duct or chimney, the measurements must be made individually.

4.1 When there is impossibility of performing individual measurements, in accordance with the standardized methodology or equivalent accepted by environmental licensing body, these can be made in the common duct or chimney and the emission limits shall be weighted individually with the respective nominal thermal power of the sources in question for the calculation of the new resulting emission limit as the following example:

$$LE_{res} = \frac{\sum_{1}^n PN_n * LE_n}{\sum_{1}^n PN_n}$$

LE_{res}= resulting emission limit;

PN = nominal thermal power;

LE = individual emission limit.

Example:

Boiler 1-nominal thermal power = 5 MW and LE = 730 mg/Nm³ for MP
Boiler 2- nominal thermal power = 35 MW and LE = 520 mg/Nm³ for MP

$$LE_{res} = \frac{5 * 730 + 35 * 520}{5 + 35} = 546,3 \text{ mg / Nm}^3$$

5. The emission limits established in this ANNEX should be complied with within five (5) years from the date of publication of this Resolution.

ANNEX V
Emission limits for air pollutants coming from the gas turbines for electric power generation

1. The emission limits for air pollutants to turbines for electric power generation, natural gas or liquid fuels driven in simple or combined cycle, without supplemental burning with electric power up to 100 MWe, for fonts installed or with installation license required before January 2, 2007.

2. For the purposes of this ANNEX the following definitions should be considered:

2.1 gas turbines: equipment that converts the energy contained in the fuel into mechanical energy by means of the axial rotation of a shaft, which drives an electric generator;

2.2 natural gas: gaseous fossil fuel according to specification of the National Petroleum Agency (ANP), and

2.3 the total sum of electrical generation by undertaking: is the sum of the individual capacities of each machine needed to meet typical operating conditions, without considering any redundancies.

3. The following emission limits shall be established for air pollutants from power generation processes for gas turbines.

Table 1. Turbines with a power greater than 100 MWe.

Turbine by type of fuel	Emission limits			
	NO _x ⁽¹⁾ (as NO ₂)	CO ⁽¹⁾	Sox ⁽²⁾	MP ⁽¹⁾
Natural gas	50	65	NA	NA
Liquid auxiliary fuel	135	NA	200	50

⁽¹⁾ the results shall be expressed in the concentration unit of mg/Nm³ in a dry basis at 15% of oxygen. NA-not applicable

Table 2. Gas turbines with a capacity of less than 100 MWe which are in undertakings in which the total sum of electric generation is greater than 100 MWe.

Turbine by type of fuel	Emission limits			
	NO _x ⁽¹⁾ (as NO ₂)	CO ⁽¹⁾	Sox ⁽²⁾	MP ⁽¹⁾
Natural gas	90	65	NA	NA
Liquid auxiliary fuel	135	NA	200	50

⁽¹⁾ The results shall be expressed in the concentration unit of mg/Nm³ in a dry basis at 15% of oxygen. NA-not applicable

3.1 The limits for liquid fuel-fired turbines also apply to natural gas-fired turbines when these liquid fuel used in emergency situations or in case of shortages.

3.2 The limits established in this resolution do not apply to gas turbines located beyond the Brazilian territorial sea.

3.3 In case of operation of machines in a capacity below 70% of nominal power, the emission limits must, at a minimum, comply with those specified by the manufacturer for these conditions.

3.4 The turbines that use water for emission abatement will have their emission limits defined by the environmental licensing body.

4. In the event of two or more sources whose final release is done in the common duct or chimney, the measurements must be made individually.

4.1 When there is impossibility of performing individual measurements, in accordance with the standardized methodology or equivalent accepted by the environmental licensing body, these may be made in the common duct or chimney and the emission limits shall be weighted individually with the respective nominal thermal power of the sources in question for the calculation of the new resulting emission limit, as per the following example:

$$LE_{res} = \frac{\sum_1^n PN_n * LE_n}{\sum_1^n PN_n} \quad \text{where}$$

LE_{res} = resulting emission limit;

PN = nominal thermal power;

LE = individual emission limit.

Example:

Unit 1- using natural gas = 100 MW and LE = 50 mg/Nm³ for NO_x

Unit 2- using liquid fuel = 150 MW and LE = 135 mg/Nm³ for NO_x

$$LE_{res} = \frac{100 * 50 + 150 * 135}{100 + 150} = 101 \text{ mg / Nm}^3$$

5. The emission limits established in this ANNEX should become effective on the date of publication of this Resolution.

ANNEX VI
Emission limits for air pollutants from processes of oil refineries

1. The emission limits for air pollutants generated in the processes of oil refineries, to fonts installed or with installation license required before January 2, 2007, are herein defined, as listed below:

- a) Furnaces and boilers burning refinery gas;
- b) Fluid catalytic cracking units;
- c) Sulphur recovery units;
- d) Ammonia converters to nitrogen.

2. For the purposes of this ANNEX the following definitions should be considered:

2.1 ammonia converter: combustion equipment that handles the ammoniacal gas stream derived from the acidic water treatment unit, converting ammonia into nitrogen;

2.2 refinery gas: fuel gas stream generated in oil refining processes used as fuel in furnaces and boilers;

2.3 unit of acidic water: wastewater treatment plant from the refining process whose goal is the removal of sulfide and ammonia of these currents;

2.4 fluid catalytic cracking units (UFCC): refining process units that, using heat, pressure and catalysts, convert hydrocarbon chains larger in smaller and lighter hydrocarbons;

2.5 sulfur recovery unit (SRU) unit whose purpose is to treat residual acid gases flows refining processes, converting sulfur compounds present in these chains into sulfur.

3. The emission limits for pollutants generated in petroleum refineries as the following, broken down by type of source are herein established:

3.1 Ovens and boilers burning refinery gas.

Nominal thermal power (MW)	MP ⁽¹⁾	SO _x ⁽¹⁾ (as SO ₂)
MW < 10	150	70
10 ≤ MW ≤ 70	125	70
MW > 50	50	70

(1) Concentrations should be expressed as mg/Nm³, in dry basis at 3% of oxygen.

3.1.1 The NO_x emission limits are the same from the natural gas burning, as defined in ANNEX II of this resolution.

3.2 Fluid catalytic cracking unit carbon monoxide boilers or gas reclaimers of regenerators

MP ⁽¹⁾ at 8% O ₂	SO ₂ ⁽¹⁾ (as SO ₂) at 3% O ₂	NO _x ⁽¹⁾ (as NO ₂) at 3% O ₂
75 ⁽²⁾	1.200	600

(1) Concentrations should be expressed in mg/Nm³, on a dry basis and on the oxygen concentration specified for each pollutant.

(2) Not being counted the mass of sulphate.

3.3 Sulphur recovery unit-SRU

The SRUs must meet throughout their life cycle a minimum sulphur recovery efficiency, according to the following table.

	URE with 2 stages	URE with 3 stages
Minimum recovery efficiency of sulphur	94%	96%

3.3.1 SRUs with production capacity less than 15 t/day which are not installed in refineries, should be subject to limits established by the environmental licensing body.

3.3.2 For verification of compliance with the established efficiency, each unit must compute its maximum rate of Emission (TE SO_x), using the following formula, and should prove helpful to TE SO_x sampled in the chimney.

$$TE\ SO_x = 2SP^* [(100-E_f) E_f]$$

Where:

TE SO_x = maximum emission rate of SRU (SO_x mass, expressed as SO₂/period);
 SP = production rate of sulphur (S) provided to the unit (sulphur mass produced, period of time);
 Ef = 96 - Efficiency of sulphur recovery required for 3 stages SRU or 94% for 2 stages SRU;
 2 = conversion factor of S to SO₂ obtained from [PM SO₂/PM S];

Example: 3 stages SRU licensed to produce 50 t/day of S;

The emission limit expressed as SO₂ is:

Maximum Emission Rate = 2 x 50 (t/day) x [(100-96) /96] = 4.17 t/day of SO_x;

3.3.3 The units must be provided with equipment and procedures that enable the follow-up of the efficiency unit, and install within the time limit set in point 6 (six), H₂S/Sox ratio analyzers in waste gas.

3.4 Ammonia converter.

Efficiency of ammonia destruction	NO _x (expressed as NO ₂) Dry base – 1% of O ₂
98%	720 mg/Nm ³

3.4.1 The SO_x emission rate must be calculated on the basis of H₂S load of acidic water that feeds the converter, so the SO_x emission limit shall be set by the environmental licensing body.

4. Mixed combustion plants, i.e. using two or more fuels, simultaneously should have differentiated emission limits, obtained from the weighted average emission ceilings in relation to thermal inputs, calculated as follows:

$$LEt = \frac{\sum_1^n LE * C * PCI}{\sum_1^n C * PCI}$$

Where:

LE: is the emission limit of each fuel used;

LEt: is the emission limit for mixed facility;

C: is the consumption of each fuel used;

PCI: is the lower heating power of each fuel used.

5. In the event of two or more sources whose final release is done in the common duct or chimney, the measurements must be made individually.

5.1 When there is impossibility of performing individual measurements, in accordance with the standardized methodology or equivalent accepted by the environmental licensing body, these may be made in the common duct or chimney and the emission limits shall be weighted individually with the respective nominal thermal power of the sources in question for the calculation of the new resulting emission limit, as per the following example:

$$LE_{res} = \frac{\sum_1^n PN_n * LE_n}{\sum_1^n PN_n}$$

LE_{res}= resulting emission limit;

PN = nominal thermal power;

LE = individual emission limit.

Example:

Boiler 1- nominal thermal power = 5 MW and LE = 150 mg/Nm³ for MP

Boiler 2- nominal thermal power = 45 MW and LE = 125 mg/Nm³ for MP

$$LE_{res} = \frac{5 * 150 + 45 * 125}{5 + 45} = 127,5 \text{ mg} / \text{Nm}^3$$

6. The emission limits set out in this ANNEX must be met, as follows:

- 6.1 For refinery gas furnaces and boilers:
- 6.1.1 The MP emission limit shall enter into force on the date of publication of this Resolution.
- 6.1.2 The maximum time limit for compliance to SO_x emission limit is 10 (ten) years from the date of publication of this Resolution.
- 6.1.3 Time limits for NO_x emission limits are the same from burning of natural gas, as defined in ANNEX II of this Resolution.
- 6.2 For catalytic cracking units:
- 6.2.1 the SO_x emission limit shall enter into force on the date of publication of this Resolution.
- 6.2.2 The deadline for meeting the emission limits of MP and NO_x is 10 (ten) years from the date of publication of this Resolution.
- 6.3 For sulfur recovery units:
- 6.3.1 The maximum time limit for compliance to the values of sulphur recovery efficiency is 10 (ten) years from the date of publication of this Resolution.
- 6.4 To ammonia nitrogen converters
- 6.4.1 The acidic water units that contain two depletion towers should be adapted to send at least 90% of the incoming H₂S load for SRU in a maximum term of 10 (ten) years from the date of publication of this Resolution.
- 6.4.2 The NO_x emission limit and the rate of destruction of ammonia shall come into force on the date of publication of this Resolution.

ANNEX VII Emission limits for air pollutants from processes of manufacture of pulp

1. The emission limits for air pollutants from manufacturing processes of pulp for the fonts installed or with installation license required before January 2, 2007 are herein defined.
2. For the purposes of this ANNEX, the following definitions should be considered:
- 2.1 recovery boiler: water pipe boiler that uses as main fuel the concentrated black liquor or other chemical liquor consumed in wood pulping;
- 2.2 nominal capacity: maximum operating condition of heat-generating unit to which the unit was designed;
- 2.3 lime kiln: equipment used to produce lime (CaO₃) for the calcination of lime mud or other form of calcium carbonate (CaCO₃);
- 2.4 weak white liquor: solution resulting from lime mud washing with water or condensed;
- 2.5 concentrated black liquor: the product of the concentration of the weak black liquor;
- 2.6 weak black liquor, black liquor weak or bleach: general name of the digester output liquor, containing combustible organic substances from wood and other reactive inorganic substances that are aggregated in the digester;
- 2.7 green liquor: solution resulting from the dissolution of the melt from the recovery boiler with weak white liquor;
- 2.8 oven Broby (Smelter): equipment designed for black liquor alkali recovery, whose combustion chamber is separated from the steam generation; and
- 2.9 cast dissolution tank: tank in which the furnace cast from the recovery boiler is dissolved in weak white liquor to form green liquor.
3. The following limits are herein established for the emission limits for pollutants from manufacturing processes of pulp

Equipment	MP⁽¹⁾	ERT⁽¹⁾ (expressed as SO₂)	SO_x⁽¹⁾ (expressed as SO₂)	NO_x⁽¹⁾ (expressed as NO₂)
Recovery Boilers (≤2000 tSS ⁽²⁾ /d nominal capacity)	240	15	100	470
Recovery Boiler (>2000 tSS ⁽²⁾ /d of nominal capacity)	150	15	100	470
Dissolution Tank	0,5 kg/tSS ⁽²⁾	0,08 kg/tSS ⁽²⁾	NA ⁽³⁾	NA ⁽³⁾
Lime oven	180	30	NA ⁽³⁾	470

- (1) the results shall be expressed in the unit of mg/Nm³ concentration, on a dry basis at 8% of oxygen, with the exception of the limits for the dissolution tank;
- (2) tSS-tons of dry solids;

(3) N.A.-not applicable.

Formula for calculating the concentrations of SO_x in part per million, in volume (ppm_v)

ppm_v (C/ MM) x 22.4

where:

C = concentration in mg/Nm³

MM = molecular mass

Ppmv = part per million in volume

SO₂ MM = 64

1 ppm_v of SO₂ = 2.857 mg/Nm³

3.1. Non-Condensable gases (NCG), concentrated and diluted, generated in the production units of the manufacturing process should be collected and forwarded to the lime kiln, recovery boiler or other specific treatment system with emission limit established by the environmental licensing body.

4.I in the event of two or more sources whose final release is done in the common duct or chimney, the measurements must be made individually.

4.1. Where there is impossibility of performing individual measurements, in accordance with the standardized methodology or equivalent accepted by the environmental licensing body, these may be made in the common duct or chimney and the emission limits shall be weighted individually with their flows of the sources in question for the calculation of the new emission limit.

$$Le = \frac{\sum_{1}^n Qn * Ln}{\sum_{1}^n Qn},$$

Where:

Le = limit equivalent in the total exhaustion gases (mg/Nm³, dry basis);

L = Emission limit of lead from each gaseous current directed to the control equipment (mg/Nm³, dry basis);

N = total number of currents directed to the control equipment;

Q = output of each gaseous effluent (normal condition, dry basis) directed to the control equipment.

5. Depending on the local characteristics of the area of influence of the polluting source on the air quality, the environmental licensing body may establish tougher emission limits, including considering the hassle caused by odor beyond the limits of the undertaking.

6. The emission limits set out in that ANNEX must be met within a period of up to 5 (five) years from the date of publication of this Resolution, except for oven Broby (Smelter).

6.1. Broby (Smelter) ovens should be replaced by recovery boilers within 15 (fifteen) years from the date of publication of this Resolution and the steps in this replacement included in a schedule, agreed and monitored by the environmental licensing body.

ANNEX VIII

Emission limits for air pollutants from processes of secondary lead smelting

1. The emission limits for air pollutants coming from secondary lead smelting processes for the fonts installed or with installation license required before January 2, 2007 are herein defined.

2. For the purposes of this ANNEX the following definitions should be considered:

a) lead baths: surface treatment of any matter with cast lead;

b) crushing: application of the paste in the grids of lead;

c) filling plates: filling of tubular plates with lead oxide, used in industrial batteries.

d) secondary lead smelting: any industrial process that performs lead melting from scraps or lead alloys;

e) battery grids: devices used when installing batteries, produced through the molding of molten lead or lead plates stamping;

f) production and assembly line: include the assembly processes of plate blocks, terminals welding, pole or small parts casting;

g) oxide mill: mill used only to adjust granulometry of lead oxide;

h) lead oxide: lead monoxide or litharge (PbO);

- i) mass preparation: mixture of lead oxide, into a vessel or reactor, with water and sulfuric acid to produce a folder to be used in the grids of lead;
- j) production of lead or lead oxide: process in which the lead is directly oxidized with the air or pure oxygen;
- k) lead recovery: obtaining of metallic lead in ovens from scraps of lead;
- l) lead refining: process of reckoning with the purpose to increasing the content of a given element, usually arsenic or antimony, tin, as a component of the league.
This process is summarized in the reflow of lead in melting pot type or pot furnaces and adding the desired alloy component;
- m) lead salts: lead combined with any organic or inorganic substance;
- n) lead welding: welding with lead and/or lead alloys;
- o) lead scrap: materials containing lead in sufficient quantity for reuse;
- p) red lead oxide: lead tetroxide or red lead (Pb₃O₄);

3. The following shall be established as emission limits for air pollutants generated in secondary lead smelting processes.

Process	Emission Limits ⁽¹⁾		
	MP	SOx gas SO ₂)	Pb
Plumb recovery	50	500	5
Plumb refining	NA	NA	0.2
Production of plumb oxide or minium	NA	NA	5 ⁽²⁾
Production of grids for batteries	NA	NA	0.4
Production line and batteries assembling	NA	NA	1
Mass preparation	NA	NA	1
Tightness	NA	NA	1
Oxide mill	NA	NA	1
Plates filling	NA	NA	1
Lead salts production	NA	NA	1
Lead weldings	NA	NA	1
Lead baths	NA	NA	0.2

⁽¹⁾ The results shall be expressed in the unit of mg/Nm³ concentration, on a dry basis and undiluted.

⁽²⁾ for the "production of lead and lead oxide " the emission limit shall be expressed in mg of lead emitted into the chimney by kg of lead fed into the reactor.

NA - not applicable

3.1. When the processes are not continuous, the process stages with higher emission must be sampled, for example, furnace loading or unloading;

3.2. Secondary emissions from the loading operations and furnace leakage must be taken and forwarded to the air pollution control equipment, through a local exhaust ventilation system including the same as recovery of lead emissions.

4. Emissions from two or more operations (except for the production of lead oxides) are picked up and driven to a single control system, an emission limit equivalent shall be determined by the following equation:

$$Le = \frac{\sum_{i=1}^n Q_n * L_n}{\sum_{i=1}^n Q_n}, \quad \text{where:}$$

Le = limit equivalent for lead in the total exhaustion gases (mg/Nm³, dry basis);

L = Emission limit of lead from each gaseous current directed to the control equipment (mg/Nm³, dry basis);

N = total number of currents directed to the control equipment;

Q = output of each gaseous effluent (normal condition, dry basis) directed to the control equipment.

5. Periodic monitoring shall be carried out of lead, with periodicity and methodology agreed by the environmental licensing body:

a) on air quality in the vicinity of the company. The contribution of pollution sources of the undertaking shall not exceed 1.5 µg of Pb/m³ (quarterly arithmetic average), until the adoption of a standard of quality;

b) in surface water and in surface soil samples.

6. The emission limits shall be complied with as set out in this ANNEX within a period of up to 2 (two) years from the date of publication of this Resolution.

ANNEX IX
Emission limits for air pollutants from processes of
primary aluminum industry

1. The emission limits for air pollutants from primary aluminum industry processes, to fonts installed or with installation license required before January 2, 2007 are herein defined.

2. For the purposes of this ANNEX, the following definitions should be considered:

2.1 vat: it is an oven (or electrolytic cell) to obtain primary aluminum, through alumina electrolysis diluted in a salts liquid bath;

2.2 prebaked anode vats: vats using multiple anodes that are molded and baked in other facilities, ahead of their consumption in vats;

2.3 Soderberg anodes vats: are single-use vats using one single and continuous anode which is shaped and baked *in-situ*. They can be HSS or VSS type;

2.4 CWPB (Centre Worked Prebaked): prebaked anodes vats, for reduction of alumina, primary aluminum production, in which alumina feeding is done through the center of the vat;

2.5 primary emissions: emissions coming out of the primary control system;

2.6 secondary emissions: fugitive emissions that are not captured by the primary control system and that are emitted through the skylights of the vats' rooms;

2.7 calcination furnace: equipment used to hydrate the elimination of water of crystallization of hydrate- $Al(OH)_3 - Al_2O_3 \cdot 3H_2O$ and alumina production stable, reaching temperatures of the order of 1000 to 1350°C. Vertical or calciner furnace are used, fed with fuel oil or gas;

2.8 anode baking furnace: equipment which heats the mixture of petroleum coke and tar, compressed in form of anodic block to promote the anode baking, resulting in a material with appropriate properties to use in the vat;

2.9 HSS (Horizontal Stud Soderberg): horizontal pins vats for alumina reduction, using the Soderberg process for primary aluminum production, in which the electric current is introduced into the anode for steel bars (pins) located on the side of a monolithic anode;

2.10: skylight: vent opening at the top, along the length of the vats' rooms, where emissions not captured by the exhaust system of vats escape;

2.11 vats line: a set of one or more vats' rooms, where the vats are connected in series, forming an electrical circuit for primary aluminum production;

2.12 Equivalent production of aluminum: the aluminum quantity produced with a ton of anode. It should be adopted the value of 1.7 tons of aluminum per ton or anode, at the discretion of the environmental licensing body, a more restrictive value. This factor must be used for the calculation of emissions from anode baking furnace. For the case of independent or anode plant with production and consumption of associated reduction, this factor must be used to obtain the value of the weighted emission per ton of metal;

2.13 alumina reduction: means any facility for the production of primary aluminum by electrolytic reduction of alumina;

2.14: vats' room is the set of electrolytic cells (vats or furnaces) for primary aluminum, installed in a same building;

2.15 primary control system: set of equipment and pipelines, used to capture the gases and particles directly from the alumina vats, and the reduction and emission control devices used to remove air pollutants before discharging of clean gases into the atmosphere;

2.16 VSS (Vertical Stud Soderberg): vertical pins vats, for alumina reduction, using the Soderberg process, for primary aluminum production, in which electrical current is introduced into the anode by steel bars (pins) inserted at the top of the monolithic anode.

3. The following tables establish the emission limits for air pollutants from primary aluminum production processes.

Table 1. Emission limits for primary aluminum plants with production capacity up to 120,000 tons per year.

Sources of Emission (Units of measurement)	Emission limits	
	Particulates material	Total Fluoride
Calcination oven (kg/t Aluminum)	2.00	NA
Tanks room (kg/tAl) ⁽²⁾	4.80	1.15
Anodes cooking oven (kg/t equivalent Al)	0.50	0.20
Total reduction	5.00	1.25

(kt/t Al) ⁽¹⁾⁽²⁾⁽³⁾		
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⁽¹⁾ Emissions from sources of vats' rooms and anode baking oven are limited by the above values, provided that the sum of these emissions do not exceed the values laid down for the Total Reduction by means of measurements made in the same campaign;

⁽²⁾ The sum of the emissions of the primary control system output and skylight;

⁽³⁾ The Total Emission Reduction, comprises emissions from Vats' Rooms and Anode Baking Furnaces;

⁽⁴⁾ The emission limits for existing company with Soderberg anodes technology with a capacity of more than 120,000 t/year will be established by the environmental licensing body, and should be compatible with the limits set for the Total reduction of this table;

NA - Not Applicable.

Table 2. Emission limits for primary aluminum plants with a production capacity equal to or less than 120,000 tons per year.

Sources of Emission (Units of measurement)	Emission limits	
	Particulates material	Total Fluoride
Calcination oven (kg/t Aluminum)	2.00	NA
Tanks room (kg/tAl) ⁽²⁾	7.5	2.5

NA - Not Applicable.

(1) The sum of the emissions at the primary control system output and skylight;

4. Service to emission limits should be determined taking into account the production of the assessed sector.

5. The transitional situations that do not represent the typical condition of primary aluminum production process should be excluded from the program. For example, starting from a line or a group of vats and stopping and starting from a vat with the cathode rebuilt.

6. In the case of monitoring for skylights, because it is a linear source, a specific method should be adopted for measurement of emissions. For example: USEPA 14 or 14A methods, or another equivalent method, provided it is accepted by the environmental licensing body.

7. The emission limits laid down in this ANNEX must be met in terms of:

7.1 Up to 2 (two) years for plants with production capacity above 120 thousand t/year;

7.2 Up to 10 (ten) years for plants with a production capacity less than or equal to 120 thousand t/year.

ANNEX X
Emission limits for pollutants from kilns
glass fusion

1. The emission limits for air pollutants from glass melting furnaces, for fonts installed or with installation license required before January 2, 2007 are herein defined.

1.1 Except the Glass Melting Furnaces whose cast glass is removed manually, and those with nominal capacities of production below 8 t/day (eight tons per day), they should adopt, in accordance with the environmental licensing body the best practices available for processing, operation and maintenance to minimize air emissions.

2. For the purposes of this ANNEX, the following definitions should be considered:

2.1 lime-soda recipe: original products from the glass containers types, glass fiber fabric and other glass articles, blown and/or pressed and flat glass. It displays the following proportion by weight: 60 to 75% of SiO₂, from 10 to 17% of R₂O total (e.g. Na₂O, K₂O), from 8 to 20% of total RO (e.g. CaO, MgO) that does not include PbO, from 0 to 8% of total R₂O₃ (e.g. Al₂O₃), and from 1 to 5% other oxides;

2.2 borosilicate recipe: originates from products such as glass, blown or pressed. It displays the following proportion by weight: 60 to 80% of SiO₂, from 4 to 10% of R₂O total (e.g. Na₂O, K₂O), from 5 to 35% of oxides of boron, and from 0 to 13% other oxides;

2.3 lead recipe: it originates products such as glass articles, blown and/or pressed. It displays the following Proportion by weight: from 50 to 60% of SiO₂, from 18 to 35% lead oxides, from 5 to 20% of R₂O total (e.g. Na₂O, K₂O) from 0 to 8% of total R₂O₃ (e.g. Al₂O₃), from 0 to 15% of total RO (e.g. CaO, MgO), which does not include PbO and from 5 to 10% of other oxides;

2.4 other revenue: originate from products such as glass, blown or pressed, including opal and fluoride recipes;

2.5 melting glass furnace: comprises a refractory container into which raw materials are loaded, melted at high temperatures, refined and conditioned to produce cast glass. The unit includes foundations, superstructure and retaining walls, systems of loading of raw materials, heat exchangers, cooling system, exhaust system, refractory masonry, fuel supply equipment and reinforcement electric heating, integrated control systems and instrumentation and appendices to make and distribute the molten glass to manufacture products;

2.6 household glass: includes tableware, kitchenware, decor articles and accessories (e.g., glasses, cups, plates, bowls, vases, pots, shapes and ornaments);

2.7 glass: comprises float plan and printed glass, processed or not, for use in automotive industries, construction, household appliances and furniture;

2.8 packing glass: comprises beverage bottles, pots for food industry and flaks for cosmetic and pharmaceutical products;

2.9 special glasses (including technical ones): comprising lamps, insulating glass fibers and electrical insulators;

2.10 reconstruction of glass melting furnace: cold replacement, with the oven stoppage and exchange of damaged and/or worn parts, including replacement of refractory materials, side walls and ceiling of the melting pot; replacement of refractory materials in the heat exchanger; and replacement of refractory portions of conditioning and distribution system of melted glass, not including increased production capacity;

2.11 maintenance or hot or cold reform of glass melting furnace, respectively without interruption or stoppage of the oven: refractory repair damaged; modification or replacement of burners; repair of emissions control equipment including the replacement of devices or of parts thereof and other mechanical services, electronics and hydraulic, not including increased production capacity.

3. The table below establishes the following limits of atmospheric emissions from glass melting furnaces;

Type	Classification	(kg/tvf) ⁽¹⁾
Particulate	Sodium-lime recipe	0.4
	Borosilicate recipe	0.8
NO _x	Lead recipe and other	NA
	Clear glass (colorless)(2)	
	Domestic	4.5
	Flat	4.3
	Packaging	3.2
	Special: lamps	4.5
	Special: insulating glass fibers and electrical insulators	4.5

	Colored glass (3)	
	Domestic	7.5
	Flat	6.7
	Packaging	5.4
SO _x	Fuel: natural gas	1.4
	Fuel: fuel oil	5.0

(1) (kgtvf) = kg per ton of blown glass;

(2) does not include colorless glasses with recipes containing nitrate at concentrations equal to or greater than 1%;

(3) Includes colorless glasses with recipes containing nitrate at concentrations greater than or equal to 1%.

4. During preventive maintenance of air pollution control implemented in the glass melting furnaces, it will not be required to serve the maximum limits if said third party is duly authorized by the environmental licensing body.

4.1 Preventive maintenance on each half of the year must not exceed 10 (ten) calendar days;

4.2 Preventive maintenance should be conducted in a consistent manner adopting good practices of air pollution control to minimize emissions;

4.3 The licensing body shall be informed 30 (thirty) days prior to the start of biannual preventative maintenance.

5. In the case of colorless and colored glass production in the same oven, the compliance with the two situations should be proven;

6. In the case of concomitant use of gas and fuel oil in glass melting furnaces, in view of the maximum residue levels established or agreed for gas flaring, could be changed:

6.1 in the case of the issuance of MP by Formula 1 below:

Formula 1: $LE_f = LE_i + [1.3 (F_d) + (A)]$, where:

LE_f -final emission limit, in kgtvf

LE_i - Initial emission limit established or agreed to use gas only, in kg/tvf

F_d - decimal fraction between the liquid fuel heating value and the total amount of new heating fuel (liquid gas), blown glass fusion furnace, in Joule/Joule (J/J), calculated by the formula 2.

$A = (1 - F_d)$

Formula 2: $F_d = (H_{ll}) / (H_{ll} + H_g)$, where:

H_l -Higher calorific values of liquid fuel, J/kg

H_g -Higher Calorific gaseous fuel, J/kg

L -Amount of fuel burned, kg/h

G -Amount of gaseous fuel burned, kg/h

6.2. In the case of SO_x emissions, by means of the Formula 3 below:

Formula 3: $LE_f = \frac{100 - 3.5 P_g}{100} LE_i$, where:

100

LE_f -final emission limit, in kg/tvf

P_g -percentage of gas used (%)

7. The compliance with the emission ceilings laid down in this ANNEX, will occur with the reconstruction of the existing glass melting furnaces, within 10 (ten) years, after the publication of this resolution;

7.1 The prescribed maximum emission limits for SO_x, whose attendance will be on the date of publication of this Resolution are excepted.

ANNEX XI
Emission limits of air pollutant from the industry
of Portland cement

1. The emission limits for air pollutants generated in the manufacture of Portland cement, for plants installed or with installation license required before January 2, 2007 are herein defined.

2. For the purposes of this ANNEX, the following definitions should be considered:

2.1 Portland cement: hydraulic binder obtained from the grinding of clinker to which it is added, during the operation, the necessary quantity of one or more forms of calcium sulphate, while still allowing additions of limestone, slag of pozzolans or blast furnace, according to the type to be produced;

2.2 Portland clinker: cement, basic component largely consisting of calcium silicates with hydraulic properties;

2.3 waste co-processing in clinker production ovens: technique using waste from their processing as a partial replacement for raw material and/or fuel in the production oven system for the production of clinker in cement manufacturing;

2.4 packaging machine: equipment used for packaging of cement in bags;

2.5 blast furnace slag: by-product resulting from the production of pig iron. When granulated it has binding properties. Chemically it consists of minerals composed of calcium, silica and aluminum, i.e. the same oxides that form the Portland cement, but not in the same proportions. It is used as an additive in the manufacture of cement;

2.6 flour: finely ground raw material for the production of cement clinker, composed primarily of calcium carbonate (CaCO₃), silica (SiO₂), alumina (Al₂O₃) and iron oxides expressed as Fe₂O₃, obtained from minerals and other materials rich in these components such as limestone, clay and iron ore;

2.7 clinker kiln: equipment internally coated with refractory material, with internal heating which may be dry way horizontal, wet way horizontal or semi-wet way (vertical), used for the sinterization of the flour and the production of Portland cement clinker;

2.8 cement mills: equipment which processes the grinding and mixing of cement clinker, gypsum, slag and any additions for cement production;

2.9 clinker coolers: equipment integrated to clinker kilns which have the main objective of recovering as much heat as possible, returning it to the process;

2.10 dryers: equipment that use thermal energy to reduce the moisture content of materials such as slag and sand.

3. The following shall be established as emission limits for pollutants from cement production processes.

Equipment	MP*	Nitrogen oxides (as NO _x)
Clinker ovens without co-processing	59 ⁽¹⁾⁽⁴⁾	1000 ⁽³⁾⁽⁴⁾
Clinker ovens with co-processing	50 ⁽¹⁾⁽⁴⁾	800 ⁽³⁾⁽⁴⁾
Clinker coolers	50	NA
Cement mills	50	NA
Slag and sand dryers	50 ⁽²⁾	NA
Packing machines	50	NA

*the results shall be expressed in the concentration unit of mg/Nm³, on a dry basis, and with the oxygen content defined for each source.

(1) oxygen content – 11%

(2) oxygen content – 18%

(3) oxygen content – 10%

(4) For wet and semi wet way clinker kilns (vertical) emission values are defined by the environmental licensing body.

NA - not applicable

3.1 The emission limits for wet and semi wet way (vertical) clinker kilns will be defined by the environmental licensing body.

4. When there is emission from two or more different equipment in the duct or chimney and it is not possible to verify the compliance with the individual limits, it will be up to the environmental licensing body to fix the set threshold, on the basis of individual limits.

5. The emission limits set out in this ANNEX shall be complied with, in accordance with the following deadlines:

5.1 Up to 10 (ten) years for particulate matter;

5.2 Up to 5 (five) years for NO_x.

ANNEX XII

Emission limits for air pollutants generated in the production of fertilizers, sulphuric acid, nitric acid and phosphoric acid

1. The maximum emission limits for air pollutants generated in the production of fertilizers, phosphoric acid, sulfuric acid and nitric acid, for plants installed or with installation license required before January 2, 2007 are herein defined.

2. For the purposes of this ANNEX, the following definitions should be considered:

2.1 acidulation: reaction between phosphate concentrate and sulfuric or phosphoric acid, usually aimed to solubilize the phosphorus contained in the concentrate to make it assimilable by plants. The main product of this reaction is monocalcium phosphate: $\text{Ca}(\text{H}_2\text{PO}_4)_2$;

2.2 ammoniation/granulation: stage of the production process of ammonium phosphates when it occurs at the same time the additional introduction of ammonia and ammonium phosphate, granulation in rotating drum or ammoniator;

2.3 improvement of phosphate concentrate: set of operations or steps in the production process, from the processing of phosphate rock and phosphate concentrate until dry-transfers, comminutions, classifications and drying;

2.4 classification: operation designed to physically separate, by sizes, the pellets discharged from the cooler;

2.5 concentration: process used to increase the P_2O_5 content present in phosphoric acid;

2.6. phosphate concentrate: the product resulting from the processing of phosphate rock containing, in relation to it, a higher content of P_2O_5 and lower content of impurities. It is also called apatitic concentrate;

2.7 DAP: diamonic phosphate or phosphate diammonium $(\text{NH}_4)_2\text{HPO}_4$, granulated fertilizer, resulting from the reaction between ammonia and phosphoric acid;

2.8 phosphatic fertilizer: product resulting from chemical treatment of phosphate concentrate, which features part of P_2O_5 soluble available for plants and which may have even other constituent nutrients or micronutrients aggregates, as well as being in the shape and size appropriate to its use in agriculture. These include, among them: MAP or monoammonium phosphate; DAP or diammonium phosphate; TSP or triple superphosphate; SSP or superphosphate; ammoniated superphosphate; mixed nitrogen and phosphate fertilizer; partially acidulated phosphate; triphosphates; detergent chemicals; calcium phosphate; superphosphates concentrate; triammonium phosphates; defluorized phosphate; phosphoplaster and phosphates;

2.9: nitrogenated fertilizer: product derived from ammonia, containing the main nutrient nitrogen for use in agriculture. These include, among the nitrogen fertilizers: ammonium nitrate; ammonium sulphate; urea; ammonium chloride; ammonium sulphate; sodium nitrate; Isosorbide ammonium nitrocalcium;

2.10: filtering process used to separate the hydrated calcium sulfate or phosphoplaster phosphoric acid obtained by means of the wet process;

2.11 granulation: process of agglomeration of particles which, through the action of rolling in drums or rotating dishes, fertilizers are produced as beads which, in sequence, are subjected to drying, sorting and cooling;

2.12 granulator: integral granulation process equipment, consisting of drum or turntable where granular fertilizers are produced;

2.13 MAP: monoammonium phosphate or ammonium phosphate $\text{NH}_4\text{H}_2\text{PO}_4$, granulated fertilizer, resulting from the reaction between ammonia and phosphoric acid;

2.14 mixer: equipment for the production of mixed fertilizers, where the physical mixture of fertilizers or concentrates occurs, dosed according to specified formulation, without any chemical reaction or addition on the particle size;

2.15 grinding of phosphate concentrate: stage of processing which consists in reducing the granulometry of particles, with consequent increased contact area, to promote the reactions of phosphate concentrate with acids;

2.16 neutralization: stage of the production process of ammonium phosphates, which consists in the neutralization reaction between the phosphoric acid and the anhydrous ammonia, gaseous or liquid, with the formation of a slush of ammonium phosphates;

2.17 screening: operation to promote the segregation of impurities and coarse material from fertilizers and concentrates, which are fed into the mixer;

2.18 pearlitation: process of formation of solid particles which, through the action of falling droplets in air flow counter-current, fertilizers are produced in the form of beads which, in sequence, are subjected to cooling, drying and sorting;

2.19 formation reaction of phosphoric acid- H_3PO_4 : reaction of wet phosphoric acid, between the phosphate concentrate and sulfuric acid, in special conditions of concentration and temperature, which results in the formation of hydrated calcium sulfate or phosphoplaster;

2.20 cooler: an integral granulation process equipment, designed to promote cooling of pellets from the dryer;

2.21 phosphate rock: cluster of minerals and other substances, which contains one or more phosphorus, minerals that can be exploited either directly as fertilizer material, or as basic industry input of phosphorus and its compounds;

2.22 dryer: equipment composing the granulation process designed to remove moisture contained in the pellets from the pellet machines;

2.23 phosphate concentrate drying: stage of processing intended for removal of moisture contained within the concentrate;

2.24 t of acid at 100%: the amount of acid produced based on a concentration of 100% acid in terms of weight. The value is obtained by multiplying the mass of solution (in tons) by acid content and dividing by 100;

2.25 tons of P₂O₅ powered: amount of P₂O₅, in tons, powered on each unit of production of fertilizer. They are sources of P₂O₅: apatitic concentrate; MAP; Super Simple; TSP and Phosphoric Acid;

2.26 absorption tower of nitric acid production-HNO₃: plant unity for the manufacturing of nitric acid where, with continuous water cooling, successive oxidations and moisturizing of nitrogen oxide (NO) occur resulting in the formation of nitric acid;

2.27 absorption tower of sulphuric acid-H₂SO₄ production: plant equipment for the manufacturing of sulphuric acid, located above the chimney, where the absorption of SO₃ (sulfur trioxide) in dilute sulphuric acid occurs;

2.28 pearlation Ttwer: part of the pearlation process, consisting of a tower with showers or baskets, where are pearled fertilizer are produced ; and

2.29: transfer: transportation of product, supplies or raw materials, by any means, in industrial undertaking, including loading unloading, delivery, transportation intermediaries (including by conveyer belt and pneumatic transport) and shipping.

3. Tables 1, 2, 3 and 4 below establish the following emission ceilings for air pollutants for existing stationary sources in the production of fertilizers, sulphuric acid, nitric acid and phosphoric acid.

3.1 In the case of fertilizer production and the production of acids, the sum of emission rates (expressed in kg of pollutant per ton of product or per ton of powered P₂O₅) of chimneys and ducts from each production unit must meet jointly to the respective emission limit established;

Table 1- Maximum emission limits for existing stationary sources in fertilizer manufacturing units

Production Unit	Sources of emission	Ammonia ⁽¹⁾	Total Fluorides ⁽¹⁾	MP ⁽¹⁾
Mixers	Mixers/Screening/Transfers	NA	NA	75
Phosphate Concentrate Processing	Drying	NA	NA	150
	Grinding and Transfers	NA	NA	75
Phosphate fertilizers (except MAP and DAP)**	Acidulation/Granulation (Granulators / Dryers and Coolers)	NA	0.10 kg/t P ₂ O ₂ fed	75
	Classification and Transfers	NA	NA	75
Phosphate Fertilizers: MAP and DAP	Neutralization / Ammoniation / Granulation	0.02 kg/t product	0.03 kg/t P ₂ O ₂ fed	75
	Dryers and Coolers	NA	NA	75
	Classification and Transfers	60*	NA	75
Nitrogenated Fertilizers	Dryers, Coolers, Classification and Transfers	NA	NA	75

(1) Expressed in mg/Nm³ - dry basis, unless stated otherwise;

NA = Not applicable.

*Does not apply in existing urea units with pearlation technology.

**Does not apply to units of production of thermo phosphates.

Table 2 – Maximum emission limits for existing stationary sources in the manufacture of sulfuric acid.

Production Unit	Sources of emission	SO ₂ (²¹)	SO ₃ (¹)
Sulfuric Acid (H ₂ SO ₄)*	Absorption tower of H ₂ SO ₄ – Double absorption	2,0 kg/t de H ₂ SO ₄ at 100%	0,15 kg/t H ₂ SO ₄ at 100%

(1) results are expressed in dry basis.

*Do not apply to simple absorption plants converted to double absorption sulphuric acid plants and integrated ore roasting processes.

Table 3 – Maximum emission limits for existing stationary sources in the manufacture of nitric acid.

Production Unit	Emission sources	NO _x (as O ₂) ¹
Nitric Acid (HNO ₃)*	Absorption towers of HNO ₃	1,6 kg/t de HNO ₃ at 100%

(1) results are expressed in dry basis;

*Do not apply to plants of low pressure or low scale of production, less than 120 t/day.

Table 4 – Maximum emission limits for existing stationary sources in manufacturing phosphoric acid.

Production Unit	Emission sources	Total Fluoride (1)	MP(1)
Phosphoric acid (H ₃ PO ₄)	Formation reaction of (H ₃ PO ₄) filtering and concentration	0,04 kg/t of P ₂ O ₅ fed 75 mg/Nm ³	

(1) Results are expressed in dry basis.

4. The emission limits set out in this ANNEX should be met, as follows:

4.1 Up to 5 (five) years for total fluorides in the production of phosphoric acid.

4.2 Other emission limits enter into force on the date of publication of this Resolution.

ANNEX XIII

Emission limits for air pollutants generated in the integrated and semi-integrated steel industries and iron ore pelletizing mills

1. The maximum emission limits for air pollutants generated in integrated and semi-integrated steel industries and iron ore pelletizing mills, to fonts installed or with installation license required before January 2, 2007 are herein defined.

2. For the purposes of this ANNEX shall be deemed to include the following definitions:

2.1 electric steelworks: melting and refining unit using electric oven where heat needed to melt the metal load (mainly steel scrap) is produced by the action of an electric arc formed between electrodes. This metallic load, which is subsequently refined through reactions between its impurities and additions – fluxing agents, deoxidizing agents and ferro-alloy - employed in obtaining common and special steels;

2.2 LD steelmaking: refining of pig iron with the use of a converter, which receives a load consisting of this molten metal and small amounts of scrap, where oxygen is blown into metal bath with the goal of reducing carbon content and impurities to the specified values for the different types of steel produced;

2.3 the blast furnace: steel furnace in which pig iron is produced from the reduction and melting of a load of iron ore, fluxing agents, fuel and reducer (coke or charcoal) getting as by-products: slag, gaseous and particulate matter;

2.4 charcoal blast furnace: blast furnace using charcoal as fuel and reducer in the production of pig iron;

2.5 coke blast furnace: blast furnace using coke as a fuel and reducer in the production of pig iron;

2.6 combustion chambers of coke ovens: place where steel gas are burned, used to heat coke ovens and for the distillation of coal used in the production of coke;

2.7 thermoelectric steel center: facility that produces electrical energy from the burning of gaseous fuel generated in the steelworks itself;

2.8 full cycle of steel production: comprises all stages of steel production in LD or electric Steelworks, from the loading of raw materials to the steel casting;

2.9 coke plant: production unit where occurs the distillation of coal for the production of metallurgical coke - reducer and fuel needed to blast furnace operations;

2.10 desulphurization of pig iron: process used for partial removal of sulphur in pig iron by adding a common desulfurizing agent (lime, calcium carbide and others) to molten metal;

2.11 exhaustion of thermal power boilers : capture and routing system of combustion gases from power generation process;

2.12 lime kilns: kiln used to obtain lime (CaO_3) used in steel processes, from the calcination of limestone (CaCO_3);

2.13 lamination reheating furnaces: furnaces for heating of hot rolled products whose demands are met primarily by thermal burning steel gas;

2.14 steel gases: gases generated in coke (coke oven gas), blast furnace (blast furnace gas) and steelmaking (steelmaking gas) used as fuel;

2.15 lamination: mechanical transformation process that consists in passing a metallic material between two rotating cylinders, with progressive reduction of thickness or transformation of material in the desired profile by effect of compression effort exercised by cylinders;

2.16 pelletizing: agglomeration process which consists in the use of iron ore fines and a binder to form raw pellets through the action of rolling in drums, discs or cones, followed by drying and burning in furnaces for hardening of pellets;

2.17 sintering: hot agglomeration process which consists in the formation of a porous block, called sinter, formed from the incipient melting of a load consisting of fine iron ore with coke or charcoal fines and fluxing agents;

2.18 dedusting system of blast furnace coke storage house: system intended to capture and treat the removal of particulate material generated in the process of transfer, loading and unloading of silos for raw materials;

2.19 dedusting system of the racing wing or house of the blast furnace coke or charcoal: system designed to capture and treat the removal of particulate material generated during the leak of pig iron from furnaces and loading of a torpedo cars;

2.20 desulphurization dedusting system of pig iron: system intended to capture and treat the removal of particulate material generated in the process of desulphurization of pig iron;

2.21 stocking dedusting system of blast furnace coal: carbon capture and treatment process for removal of particulate material generated in steps of processing and feeding, loading and unloading of raw material silos.

- 2.22 dedusting system of coke system remolding: system for the collection and treatment for the removal of particulate material generated in the process of remolding of coke;
- 2.23 dedusting system of lime kilns: system designed to capture and treat the removal of particulate material generated in the process of obtaining lime;
- 2.24 furnace exhaustion system of pelletizing oven: primary and secondary intake system of gases and particles resulting from the burning of fuels to meet the thermal demands of the pelletizing furnace and burning and hardening of iron ore pellets;
- 2.25 primary dedusting system of electric steelworks: system designed to capture and treat the removal of particulate material generated in the process of smelting of scrap and refining of steel in electric furnace steelmaking;
- 2.26 primary dedusting system of LD steelmaking: system for exhaust and treatment of gases generated during blowing in LD converter;
- 2.27 primary dedusting system of sintering: system for exhaust and uptake of particulate material generated in sinter production machine;
- 2.28 secondary dedusting system of electric steelworks: system designed to capture and treat the removal of particulate material, both that generated in the operation of loading of scrap, as that contained in fugitive emissions from the processes of scrap melting, refining and casting of steel;
- 2.29 secondary dedusting system of LD steelworks: system for the extraction and treatment for removal of particulate material generated in tipping and weighing operations of pig iron, slag removal, shipment of scrap and pig iron in the converter and steel casting;
- 2.30 secondary dedusting system of sintering: system intended to capture and treat removal of particulate material generated in the processes of crushing, screening and transfers of sinter raw materials and sintering process;
- 2.31 integrated steel mills: steel mills that use the reduction process of iron ore, from a load consisting of granular iron ore or agglomerated iron ore fines, sinter and pellet shaped and a reducing agent-coke or charcoal-for liquid pig iron, along with small amounts of scrap, is subjected to the process of refining for the production of steel in steel mill;
- 2.32 steel semi-integrated mills: steel mills that use for getting the steel refining process, in electric arc furnaces, a load of scrap iron and/or pig iron or sponge.
3. The following maximum emission limits of air pollutants generated in steel industries and Semi Integrated-Integrated

Production Unit	Punctual Emission sources	MP ⁽¹⁾	SO ₂ ⁽¹⁾	NO _x ⁽¹⁾ (as NO ₂)	%O ₂
Coke oven	Dedusting System of Removal from oven	40	NA	NA	NA
	Combustion chamber of Coke ovens	50	800	700	7%
Sintering	Dedusting Primary system	70	NA	700	NA
	Dedusting Secondary system	70	NA	NA	
Coke blast furnace	Storage house dedusting system	40	NA	NA	
	Aisle or Run house dedusting system	40	NA	NA	
Charcoal blast furnace	Storage house dedusting system	50	NA	NA	
	Aisle or Run house dedusting system	50	NA	NA	
Steel plant LD	Dedusting primary system	80	NA	NA	
	Secondary dedusting system	40	NA	NA	

	Pig iron desulphurization dedusting system	40	NA	NA	
	Lime ovens dedusting system	100	NA	470	8%
Electrical steel plant	Primary and secondary Dedusting system (2)	≤ 50 t/c: 50 ≤ 50 t/c: 50	NA	NA	NA
Lamination	Reheating ovens of plates with siderurgical gases burning	60	1000	700	7%
Pelletizing	Pelletizing Exhaustion oven system	70	700	700	NA
Thermoelectric plant	Boilers with siderurgical gases burning	60	600	350	5%

⁽¹⁾ The results shall be expressed in the unit of mg/Nm³ concentration, on a dry basis and in O₂ content explained. ⁽²⁾ t/c = tons of steel/lot. NA = Not Applicable.

4. The measurements of emissions of LD Steelworks and Electric Steelworks sources must be done considering the complete cycle of production of steel, according to standardized methodology or equivalent accepted by the environmental licensing body.

5. The environmental licensing body, at its discretion, should establishment the maximum residue limits for emission sources of the steel industry that employ the oil derived from tar - OCDA;

6. The emission limits laid down in this ANNEX should be met for each parameter of steel supplies as deadlines (in years) defined below:

Production Unit	Punctual Emission sources	Parameters		
		MP	SO ₂	NO _x
Coke oven	Dedusting and Removal from oven system	5	NA	NA
	Combustion chamber of Coke Ovens	7	3	3
Sintering	Primary dedusting system	7	3	3
	Secondary dedusting system	7	NA	NA
Coke blast furnace	Storage House dedusting system	7	NA	NA
	Aisle or Run House dedusting system	5	NA	NA
Charcoal blast furnace	Storage house dedusting system	3	NA	NA
Steel Plant LD	Dedusting primary system	3	NA	NA
	Secondary dedusting system	5	NA	NA
	Pig iron desulphurization dedusting system	5	NA	NA
	Lime ovens dedusting system	3	NA	3
Electrical steel plant	Primary and secondary Dedusting system (2)	3	NA	NA
Lamination	Reheating ovens of plates with siderurgical gases burning	5	7	3
Pelletizing	Pelletizing Exhaustion oven system	3	3	3

Thermoelectric plant	Boilers with siderurgical gases burning	5	3	3
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NA = Not applicable

ANNEX XIV
**Requirements to be complied with to perform the monitoring of air emissions and
prepare monitoring reports**

1. This ANNEX lays down general rules, operational monitoring and content of the report to be observed in the process of checking availability of maximum residue levels atmospheric emissions laid down in this Resolution.

2. For the provisions contained in this ANNEX, the following definitions should be adopted:

2.1 nominal capacity: maximum operating condition of a device, as designed;

2.2 typical operating conditions: operating conditions of equipment, system or process that prevail in most operated hours;

2.3 full load: operating conditions using at least 90% of the nominal capacity or licensed capacity.

3. The sources of air pollutants should count with the necessary infrastructure for direct determination of pollutants in ducts and chimneys in accordance with standardized methodology or equivalent accepted by the environmental licensing body.

4. The monitoring of emissions can be accomplished by discontinuous methods (sampling in chimneys) or continuous (continuous monitors), in accordance with the environmental licensing body and necessarily meeting the criteria established in this ANNEX.

4.1 For monitoring by discontinuous methods, the accomplishment with the emission limits set out in this Resolution should be checked at full-load conditions;

4.2 In periodic evaluations, at the discretion of the environmental licensing body, the compliance with the emission limits set out in this Resolution can be checked in conditions typical of or full-load operation;

4.3 In sources that have seasonal character or non-continuous operation throughout the year, the compliance with the emission limits set out in this Resolution shall be checked in accordance with the conditions which are representative of the past 12 (twelve) months of operation of the unit under conditions which prevail in most hours operated, supported through operational records and duly justified and agreed with the environmental licensing body.

5. For the implementation of the discontinuous the requirements listed in this item should be met, noting that the non-fulfillment of one or more items listed will result in invalidation of the sampling

5.1 The industrial process must be stabilized to ensure a representative result and different situations should be agreed with the environmental licensing body according to specific technical criteria;

5.2 All operating and control instruments (including gas monitors) must be calibrated and the data made available, in full, to the environmental licensing body. In case of doubt, the environmental licensing body may require re-calibration of equipment;

5.3 All operation records, both of the process and other equipment involved, should be available to the licensor environmental licensing body;

5.4 Environmental control equipment, when available, should have meters of parameters that ensure verification of the correct operation of the same, as well as temperature, pressure, pH, according to requirements previously established by the environmental licensing body;

5.5 Combustion sources should have the measurement to obtain fuel consumption-related data;

5.6 To assess emissions from the source, this should present effectiveness in the exhaust system, avoiding leakage of gas in the ventilation system.

6. Laboratory testing shall be carried out by laboratories accredited by the National Institute of Metrology, Standardization and Industrial Quality - INMETRO or by other body signatory of the agreement of mutual cooperation which the INMETRO if part thereof or in laboratories supported by the environmental organ licensor.

6.1 The Labs should have analytical quality control system implemented.

6.2 The analytical reports should be signed by a legally qualified professional.

7. To carry out the sampling methods should be used for the sampling and analysis specified in scientifically technical standards recognized and accepted by environmental licensing body. Automated methods may be used for sampling and analysis, provided that prior approval by environmental licensing body.

7.1 In the case of particulate matter, the gravimetric method for measurement of particulate emissions at source should be adopted, as NBR or NBR 12827 12019, as amended, or another equivalent method provided it is accepted by the environmental licensing body;

7.2 The emission limit, except for measuring NO_x by colorimetry, shall be deemed to have been met if, of three results of measurements made on a single campaign, the arithmetic average of the

measurements meets said limits, admitting the disposal of one of the results when it is considered inconclusive due to the uncertainty of the method or the variability of the productive process.

7.3 When the NO_x is determined by colorimetry using the method of phenol disulfonic acid, should be collected 9 (nine) balloons, with the collection interval between each balloon of at least 15 (fifteen) minutes, except in instances in which the production process shall require different intervals, which will require communication to environmental licensing body;

7.4 The NO_x emission limit, when measured by colorimetry, shall be deemed to have been met if, of the nine results of measurements made, the arithmetic mean of the measurements meets said limits, admitting the disposal of three of the results when they are considered controversial due to the uncertainty of the method or the variability of the production process.

7.5 Sampling should be conducted within safety standards established by current legislation.

8. The continuous monitoring may be used for verification of compliance with the emission limits, subject to the following conditions:

8.1 The monitoring is assumed to be continuous when the font is being monitored on at least 67% of its operation time by a continuous monitor, considering the period of one year;

8.2 The daily average should be considered valid when there are valid monitoring during at least 75% of the time operated on this day;

8.3 For the purposes of verification of conformity of the standard< data generated in transitional situations of operation shall be disregarded, such as charts or departures of units, power failures, cleaning, testing of new fuels and raw materials, as long as they do not exceed 2% of the time monitored during one day (from 0 to 24 hours). Percentage larger than those set out above in the case of special processes may be accepted, where the stops and departures are not necessarily longer, since they are agreed with the environmental licensing body;

8.4 The emission limit, verified through continuous monitoring, will be granted when at least 90% of daily valid averages meet 100% of the limit and the rest of the valid daily average meet 130% of the limit, in a period to be established by the environmental licensing body.

8.5 Sharing of systems of continuous monitoring is possible and should meet the following conditions:

8.5.1 Existence of technical feasibility for sharing and agreement by the environmental body;

8.5.2 The availability of equipment is greater than 80% of time in the period of one year;

8.5.3 The monitoring period may be prorated respecting minimum sampling of 10 minutes per hour and by source;

8.5.4 For purposes of verification of conformity of the standard in cases of sharing of continuous monitoring of emissions systems, the considerations in item 8.3 should be met;

8.5.5 The daily average of each source shall be considered valid when there are valid records during at least 75% of the apportionment provided for in section 8.5.3;

8.5.6 The emission limit checked through shared monitoring will be met in accordance with the considerations of 8.4;

8.6 The determination of the need for continuous monitoring should consider the following aspects:

a) relevance of source emission in air quality in the region;

b) variability of source emission;

c) existence of monitoring equipment with reliable and proven technology available on the market to analyze the target pollutant;

9. The results of the measurements obtained by continuous or discontinuous methods should be presented in a report with periodicity defined by the environmental licensing body, containing all the measurement results, the methods of sampling and analysis, the operating conditions of the process including types and amounts of fuel or materials used, in addition to other determinations made by the licensing body.

9.1 The discontinuous monitoring report shall contain at least the following information concerning the sampled source:

9.1.1 Corporate Name;

9.1.2 CNPJ (National Record of Taxpayers No.);

9.1.3 Date of the campaign;

9.1.4 Registration number at the Federal Technical Register of Potentially Polluting Activities or Using Renewable Natural Resources - CTF and another register for identification by the environmental licensing body;

9.1.5 Identification of emission source and the respective operating conditions during each collection made, such as: raw material supply, production, rated thermal power installed, type of fuel, the energy consumed, temperatures and pressures;

9.1.6 Identification of emission control system and the respective operating conditions during each collection made, such as: load loss, washer fluid leaking, PpH, temperature, energy consumed;

9.1.7 Methodologies employed in sampling;

- 9.1.8 the instruments calibration certificates involved in sampling;
- 9.1.9 Instruments calibration certificates involved in laboratory tests, in the case of laboratories not accredited by INMETRO;
- 9.1.10 Analytical Reports duly signed by an authorized specialist;
- 9.1.11 Disclaimer about the measurement-related information;
- 9.1.12 Disclaimer about the information related to the operation of the sources;
- 9.1.13 Results and conclusion.
- 9.2 Continuous monitoring report shall contain at least the following information concerning the sampled source:
 - 9.2.1 Corporate Name;
 - 9.2.2 CNPJ (National Record of Taxpayers No.);
 - 9.2.3 The analysis period;
 - 9.2.4 Registration number at the Federal Technical Register of Potentially Polluting Activities or Using Renewable Natural Resources - CTF and another register for identification by the environmental licensing body;
 - 9.2.5 Identification of emission source and the typical operating conditions during the analysis period, such as: raw material supply, production, rated thermal power installed, type of fuel, the energy consumed, temperatures and pressures
 - 9.2.6 Identification of emission control system and its typical operating conditions during the analysis period, such as: load loss, washing fluid leaking, pH, temperatures, energy consumed;
 - 9.2.7 Methodologies used on monitors;
 - 9.2.8 Admeasurement report of continuous monitors against reference methods;
 - 9.2.9 Disclaimer about the information regarding the measurement;
 - 9.2.10 Disclaimer about the information regarding the operation of the sources;
 - 9.2.11 Results and conclusion.
- 9.3 The report containing the results of all surveys carried out should contain the laboratory reports signed by the responsible person, with the professional record and properly qualified.
- 9.4 For the samples in which the result is submitted less than or equal to the detection limit of the laboratory analysis, should be considered the value of this limit for the purpose of calculating the pollutant emission, signaling in the report this occurrence;
- 9.5 In the case of continuous monitoring, the entrepreneur must keep available all existing records for the period and in the manner required by the environmental licensing body;
- 9.6 Additional criteria for validation of data may be established by the environmental licensing body

Program for the Control of Air Pollution by Motorized Vehicles -
PROCONVE/PROMOT

CONAMA Resolution 18, May 6, 1986
Published in Official Gazette on June 17, 1986, Section 1, pp. 8792-8795

Correlations:

- Supplemented by Resolution No. 8/93 for pollutant emission limits for engines for new, domestic and imported heavy-duty vehicles;
- Demands contained in the Resolution, ratified by Resolution No. 16/93;
- Amended by Resolution No. 15/95 for pollutant emission limits for new automotive vehicles with Otto cycle engine;
- Supplemented by Resolution No. 282/01;
- Amended by Resolution No. 315/02 (revoked item 1.9 of subitem VI);
- Updated by Resolution No. 354/04;
- Amended by Resolution No. 414/09 (revoked items III and IV)

Establishes provisions for the creation of the Program for the Control of Air Pollution by Motor Vehicles (PRONCOVE).

The NATIONAL ENVIRONMENT COUNCIL-CONAMA, pursuant to the legal powers vested on it,

Considering that the automotive vehicles of Otto cycles and Diesel are relevant sources of carbon monoxide, hydrocarbons, nitrogen oxides, soot and aldehydes;

Considering that the Otto-cycle automotive vehicles are relevant sources of evaporative emission of fuel;

Considering that the emission of pollutants by automotive vehicles contributes to the continued deterioration of air quality, especially in urban centers;

Considering that the use of appropriate technologies, of proven usage, allows to meet the needs of pollution control, as well as fuel economy;

Considering the deadline needs, for the technological adequacy of new engines and automotive vehicles to the pollution control requirements, resolves:

I – To establish, in national character, the AIR POLLUTION CONTROL PROGRAM FOR AUTOMOTIVE VEHICLES-PROCONVE, with the goals of:

- reduce the emission levels of pollutants emitted from motor vehicles in order to meet the standards for air quality, especially in urban centers;
- promote national technological development, both in automotive engineering, and also in methods and equipment for testing and measurements of the emission of pollutants;
- create inspection and maintenance programs for motor vehicles in use;
- promote awareness by the population regarding the issue of air pollution by motor vehicles;
- establish policies for the evaluation of the results achieved;
- promote the improvement of the technical characteristics of liquid fuels, available to the national fleet of vehicles, aiming at the reduction of polluting emissions into the atmosphere;

II-the PROCONVE should count with the participation of:

Ministry of Urban development and Housing;

National Petroleum Council;

Ministry of Mines and Energy;

Ministry of Transport;

Ministry of Industry and Trade;

Ministry of Science and Technology;

Ministry of Justice;

State and municipal organs for the control of environmental pollution;

Associations legally constituted for protection of environmental resources;

Associations representative of manufacturers of engines, motor vehicles, emission control equipment and auto parts, as well as other agencies and entities related to the program.

~~III – To establish a Committee for Monitoring and Evaluation of the PROCONVECAP, coordinated by the Special Secretary of the Environment and integrated by:~~

~~Secretary General of the Ministry of Urban Development and Environment for Environmental Affairs;~~

Secretary of Industrial Technology;
President of the National Petroleum Council -CNP;
President of the Brazilian Company of Transport Planning -GEIPOT;
President of the National Institute of metrology, Normalization and Industrial Quality

INMETRO;

Executive Secretary of the Industrial Development Board -CDI;
President of National Traffic Council -CONTRAN;
President of the Environmental Sanitation Technology Company -CETESB;
President of the State Foundation of Environmental Engineering -FEEMA;
The leader of another state body for environmental pollution control;
General Director of the National Institute of Technology.
To support decisions of the CAP, the Special Secretariat of Environment -SEMA may invite representatives of other federal, state and municipal bodies, as well as associations and representative entities of the private sector and the community.

(Revoked by resolution 414/2009)

IV - To grant competence to the PROCONVE Commission monitoring and Evaluation Commission

to:

- identify and propose measures to optimize the program, based on its results and on studies conducted within the framework of PROCONVE;
- develop educational campaigns in relation to air pollution by motor vehicles;
- work with state and local governments, aiming at the development of mass transit systems, preferably electric, and traffic improvement;
- monitor the state of knowledge of the techniques and equipment for emission control;
- organize lectures, seminars and technical meetings related to air pollution by motor vehicles;
- make efforts to promote professional development, purchase of equipment and installation of laboratories;
- promote studies and researches relating to air pollution by motor vehicles, nationalization and development of emission control technologies, test equipment and emission analysis;
- decide on the application of penalties as well as other actions necessary for the monitoring of the program;
- oversee the supervision of customer set forth in this Resolution, without prejudice to the competence of the bodies involved;
- decide the unforeseen cases.

(Revoked by Resolution 4142009)

V-Assign to SEMA the competence to:

- issue for purposes of air pollution control the PERMIT FOR USE of the VEHICLE OR ENGINE CONFIGURATION-LCVM in the National Territory, based on the CERTIFICATE of APPROVAL of the VEHICLE or ENGINE CONFIGURATION- CAC, issued by STI and the documents submitted by the manufacturer;
- send the required notifications to the industrial companies, based on certification of compliance and tracking the production of vehicles, engines and spare parts, actions in the tasks of CONMETRO, through its Executive Secretariat;
 - establish agreements, contracts and related activities with agencies and entities that directly or indirectly contribute to the development of PROCONVE;
 - delegate assignments to other organs provided for in this Resolution.

VI-establishing MAXIMUM RESIDUE LIMITS FOR EMISSION OF air pollutants for new motor vehicles and engines:

1. Light vehicles with Otto cycle engines

1.1. For the new configurations of lightweight motor vehicles launched and marketed from June 19, 1988, the emission of gases from exhaust pipe shall not exceed the following values:

- carbon monoxide: 24.0 grams per kilometer;
- hydrocarbons: 2.1 grams per kilometer;
- nitrogen oxides: 2.0 grams per kilometer;
- carbon monoxide content at idle: 3.0 percent.

1.2. From January 1, 1989, the exhaust gas emission for light motor vehicles should not exceed, for models described in 1.2.1., the following values:

- carbon monoxide: 24.0 grams per kilometer;

- hydrocarbons: 2.1 grams per kilometer;
- nitrogen oxides: 2.0 grams per kilometer;
- carbon monoxide content at idle: 3.0 percent.

1.2.1. Vehicle Models subject to emission limits

UNO 1300 alcohol (except Sx);
 UNO 1050 gasoline;
 Prêmio 1300 alcohol;
 Corcel alcohol;
 Belina alcohol;
 Del Rey alcohol (except automatic shift) ;
 Scala alcohol(except automatic shift) ;
 Escort alcohol (except XR3);
 Monza 1600 alcohol and gasoline;
 Monza 1800 alcohol and gasoline;
 Gol 1600 alcohol and gasoline (water-cooled engine) ;
 Chevette 1600 alcohol and gasoline;
 Voyage 1600 alcohol and gasoline;
 Parati 1600 alcohol and gasoline;
 Saveiro 1600 alcohol and gasoline (water-cooled engine).

.3. From January 1, 1990, the exhaust emission by motor vehicles, with the exception of light vehicles not derived, shall not exceed the following values:

- carbon monoxide: 24.0 grams per kilometer;
- hydrocarbons: 2.1 grams per kilometer;
- nitrogen oxides: 2.0 grams per kilometer;
- carbon monoxide content at idle: 3.0 percent.

1.4. from January 1, 1992, the exhaust gas emission for light vehicles should not exceed the following values:

1.4.1. Light vehicles not derived from cars:

- carbon monoxide: 24.0 grams per kilometer;
- hydrocarbons: 2.1 grams per kilometer;
- nitrogen oxides: 2.0 grams per kilometer;
- carbon monoxide content at idle: 3.0 percent.

1.4.2. all vehicles except those described in 1.4.1:

- carbon monoxide: 12.0 grams per kilometer;
- hydrocarbons: 1, 2 grams per kilometer;
- nitrogen oxides: 1.4 grams per kilometer;
- carbon monoxide content at idle: 2.5 percent.

1.5. from January 1, 1997, the exhaust gas emission by light motor vehicles must not exceed the following values:

- carbon monoxide: 2.0 grams per kilometer;
- hydrocarbons: 0.3 grams per kilometer;
- nitrogen oxides: 0.6 grams per kilometer;
- carbon monoxide content at idle: 0.5 percent.

1.6. the SEMA, after hearing the STI, shall coordinate the studies and work required for the establishment and implementation of specific ceilings for emissions of aldehydes, and other organic compounds by light automotive exhaust tube, today included and expressed as hydrocarbons, as well as coordinate the review of the limits of the latter, summoning, at any time, the organ and entities related to problem and, after hearing the CAP, when necessary, must present to CONAMA the December 31, 1988, the final report with the proposal of the limits to be required for approval.

1.7. From January 1, 1988, crankcase gas emissions of light motor vehicles must be null under any system of engine work.

1.8. From January 1, 1990, the evaporative emission of fuel from light motor vehicles shall not exceed the maximum of 6.0 g/ test.

SEMA, after hearing the STI should coordinate the studies and work required for the review of the emission ceilings, summoning, at any time, the organs and entities related with the problem and after hearing the CAP when necessary, should present to CONAMA the final report with proposal on the limits to be required, for approval.

~~1.9. The manufacturer may request to SEMA the waiver of the compliance with the maximum ceilings of exhaust gas, for light motor vehicles, whose production is less than 2,000 units per year~~

and who are endowed with the same body configuration, regardless of its size and the type of finish available.

~~Those that even belonging to a vehicle configuration to which the maximum ceiling limits apply, constitute a series for specific use, can be waived, i.e. : military use, use in sporting events and special releases, thus considered at the discretion and judgment of the CAP.~~

~~The total maximum, by manufacturer, is 5,000 units per year.~~
(Revoked by Resolution No. 31502).

2. Heavy Vehicles with Otto cycle engines

2.1 SEMA, after hearing the STI, should coordinate the studies and work required for the establishment and implementation of the maximum ceilings of emission of carbon monoxide, hydrocarbons, oxides of nitrogen, aldehydes, and other organic compounds by the exhaust pipe from vehicles with Otto cycle engine, summoning, at any time, the organs and entities related with the problem and after hearing CAP when necessary, must present until the December 31, 1988, to CONAMA, the final report with the proposal of the limits to be required for approval

2.2. As from January 1, 1989, crankcase gas emissions from heavy-duty vehicles equipped with Otto cycle engine must be null in any system of engine work.

2.3. SEMA, after hearing the STI, should coordinate the studies and work required for the establishment and implementation of the emission ceilings for heavy vehicles, summoning, at any time, the organs and entities related with the problem and after hearing CAP when necessary, should present to CONAMA the final report with the proposal of the limits to be required for approval.

3. Engines and vehicles with Diesel cycle engines

3.1. The chimney soot emission of Diesel cycle engines exhaust and/or light or heavy vehicles equipped with them, shall not exceed the values calculated using of the equation:

$$C = \frac{k}{\sqrt{G}} \quad \text{according to item 4 of Chapter VII}$$

3.2. As from October 1, 1987, for urban buses and as from January 1, 1989, for the other Diesel vehicles, the maximum permissible value of k will be equal to 2.5 (two and a half), measuring as the item 4 of cap. VII, for angular velocities between 1200 revolutions per minute and the maximum engine rotation, inclusive.

3.3. SEMA, after hearing STI should, coordinate the work needed for the establishment of the schedule for the maximum permissible value of k equal to 2.0 (two) for the emission of soot at exhaust pipe for all vehicles equipped with Diesel engines, including urban buses, summoning, at any time, the organs and entities related with the problem and, after hearing CAP, when necessary, must present until December 31, 1988, to CONAMA, the final report with the proposed deadlines to be laid down, for approval.

3.4. SEMA, after hearing the STI, should coordinate the studies and work required for the establishment and implementation of emission ceilings for carbon monoxide, hydrocarbons, nitrogen oxides, aldehydes, and other organic compounds by the exhaust pipe from vehicles with Diesel cycle engine, summoning, at any time, the organs and entities related with the problem and, after hearing the CAP when necessary, must present until December 31, 1988, to CONAMA, the final report with the proposal of the limits to be required for approval

3.5. The emission of crankcase gases from motor vehicles, regardless of type or engine size, must be null in any system of engine work. For urban buses with naturally aspirated engine, this control will be deployed as from January 1, 1988. For other Diesel vehicles, SEMA, after hearing the STI, should coordinate the studies and work required for the implementation of this schedule definition control, and, after hearing CAP, when necessary, report to CONAMA, until December 31, 1987, the final report with the proposed deadlines to be laid down, for approval.

4. All vehicles or engines

4.1 The maximum limits for light motor vehicles, items 1.4.2., 1.5., 1.7. and 1.8 shall be assured in writing by the manufacturer at least 8 during 0,000 miles or five years of use, whichever occurs first. For this purpose, it should be established, by CONMETRO a test procedure, acting on a proposal from the STI, after hearing the SEMA.

4.2. The maximum limits established for heavy vehicles equipped with Diesel or Otto cycle engine, items 2.1, 2.2, 2.3., 3.2., 3.3., 3.4, and 3.5 shall be granted in writing by the manufacturer at least 160,000 kilometers or five years of use, or compliance with the dynamometer test procedures that should be established by CONMETRO upon the proposal of the STI, after hearing the SEMA.

4.3. Until the establishment, by CONMETRO, of testing methods and procedures applied, the manufacturer's warranties, items 4.1. and 4.2., may be replaced by the reduction of 10% on emission

ceilings established by this Resolution, except for the case of carbon monoxide at idling. The numerical factor, used to make this reduction, it is called Emission Deterioration Factor.

4.4. SEMA, after hearing the STI, should coordinate the studies and work on any review required emission ceilings provided for in this Resolution, summoning, at any time, the bodies related with the problem and, when necessary, after hearing the CAP, should present the final report to the CONAMA with the proposal for approval.

4.5. The heavy vehicle manufacturer may ask to SEMA the waiver of the compliance with the emission ceilings of this Resolution, for omissions, so considered the criteria and an exclusive discretion of CAP.

VII-Define the key terms and relate the methods of testing, measuring, checking, certification and additional documents needed to the accomplishment and for the purposes of this resolution, without prejudice to the other specific legislation, under the responsibility of the competent bodies.

1. The definitions necessary for the fulfilment of this Resolution are described in ANNEX 1.

2. The test and the measurement of carbon monoxide, hydrocarbons and nitrogen oxides in the exhaust gas of Otto cycle light motor vehicles, must follow the requirements of Technical Standard NBR-6601 - exhaust gas analysis of Motor gasoline Light Road Vehicles.

The fuels used in the tests shall be in accordance with the NBR-8689 - Light road vehicles – Gasoline for testing and Resolution No. 1/85, the National Petroleum Council, and alcohol-gasoline mixture should be prepared from the respective test fuels in ratio of 22.0 + or -1.0 percent of alcohol by volume.

3. The test and measurement method of carbon monoxide at idling in Otto cycle light vehicles should be established by CONMETRO, acting on a proposal from the STI, after hearing SEMA.

4. The engine test method for measurement of soot in the exhaust gas of Diesel cycle engines is prescribed for dynamometric bench, in Technical Standards NBR-5484-Alternatives of Ignition Internal Combustion by compression (Diesel) or Spark Ignition (Otto) of Variable Angular Velocity and NBR-7027 - Exhaust Gas Emitted by Diesel Engines - Determination of Soot Content in Steady Regime. Soot measurement must be performed in accordance with the prescribed Technical Standard NBR-702690 - Exhaust Gas Emitted by Diesel-Soot content Measurement with Sampler for Filter Element.

The soot content, corrected to reference atmospheric conditions, the transformations of units

and the concentration of soot limit defined by the equation, $c = \frac{k}{\sqrt{G}}$ should be calculated in accordance with the requirements of the Technical Standard NBR-5478 - Method for Measuring Soot in the Exhaust Gas Emitted by Diesel Engine - Correlation Units and Formula for the Construction of the Boundary Curve, except for the situations in which the nominal exhaust-gas flow - "G"- is less than or equal to 42 liters per second, or "G" is greater than or equal to 200 liters per second, when the "C" maximum permissible concentration of soot should be calculated for the values of "G" equal to 42 or 200 liters per second, respectively.

The fuel (s) used in the tests shall be in accordance with Resolutions CNP paragraphs No. 1/85 and 8/85, of the National Petroleum Council.

5. The test and measurement method of evaporative emission of motor vehicle fuel must be established by CONMETRO, acting on a proposal from the STI, after hearing the SEMA.

6. The test and measurement methods of aldehydes, and other organic compounds in the exhaust gas of engines and motor vehicles, shall be established by CONMETRO, acting on a proposal from the STI, after hearing the SEMA.

7. Test and measurement methods of carbon monoxide, hydrocarbons and nitrogen oxides in the exhaust gas of Diesel cycle engines and motor vehicles, must be established by CONMETRO, acting on a proposal from the STI, after hearing at SEMA.

8. Test methods and measurement of carbon monoxide, hydrocarbons and nitrogen oxides in the exhaust gas of Otto cycle engines for heavy vehicles, must be established by CONMETRO, acting on a proposal from the STI, after hearing the SEMA.

8. Test and measurement methods of carbon monoxide, hydrocarbons and nitrogen oxides in the exhaust gas of Otto cycle engines for heavy vehicles, must be established by CONMETRO, acting on a proposal from the STI, after hearing the SEMA.

9. The procedure for certification of conformity of production with the emission ceilings should be set by CONMETRO, acting on a proposal from the STI, after hearing the SEMA.

10. The procedure for Certification of Quality of spare parts must be established by CONMETRO, acting on a proposal from the STI, after hearing the SEMA.

11. The model of Term of Characterization of Vehicle or Engine needed to comply with this resolution is presented in ANNEX 2.

VIII - To establish the General conditions necessary to comply with this Resolution:

1. vehicles with Otto cycle engines

1.1. From the date of publication of this Resolution, the manufacturers of light motor vehicles must declare to the SEMA and the STI, until the last working day of each calendar semester, the typical values of carbon monoxide, hydrocarbons, nitrogen oxides and aldehyde in exhaust gas of all vehicles in production, and also present the criteria used for obtaining and completing the results.

The tests reports performed should be at the disposal of the SEMA and the STI for consultation.

1.2. As from July 1, 1987, light motor vehicles manufacturers must declare to SEMA and STI, until the last working day of the calendar semester, the typical values of the evaporative emission of fuel, vehicle settings being produced, to be determined by SEMA and STI, as well as present the criteria used for obtaining and completing the results. The tests reports should be at the disposal of the SEMA and the STI for consultation.

1.3. As from January 1, 1989, manufacturers of heavy vehicles, equipped with Otto cycle engine, should declare to SEMA and STI, until the last working day of the calendar semester, typical values of emission of carbon monoxide, nitrogen oxides, hydrocarbons and aldehyde in exhaust gas of the settings in production, to be determined by SEMA and STI, as well as presenting the criteria used for obtaining and the conclusion of the results. The tests reports performed should be at the disposal of SEMA and STI for consultation.

1.4. As from January 1, 1987, motor vehicle manufacturers must provide to the consumer through the Owner's Manual of the vehicle, as well as to the Authorized Service Network through the Service Manual, the following specifications:

- carbon monoxide emissions at idling, expressed as a percentage;
- angular velocity of the engine idling, expressed in revolutions per minute;
- the influence of altitude and temperature on the parameters specified, when relevant;
- other specifications that the manufacturer deems necessary to disclose, to indicate the correct maintenance and service emission control.

2. Vehicles equipped with Diesel cycle engines

2.1. As from the date of publication of this Resolution, the Diesel cycle engine and/or motor vehicles manufacturers must declare to SEMA and STI, until the last day of the semester, the typical values of soot emission of engine in production settings. The reports of tests should be at the disposal of the SEMA and the STI for consultation.

2.2. As from January 1, 1987, motor vehicle manufacturers must provide to the consumer and to the Authorized Services Network, through the Vehicle Owner's Manuals and Maintenance and Services, the maximum values specified in the emission of soot in the angular speed of an engine, also indicating the curve or issuing correction table for altitudes from 0 to 1000 m, at 200 m maximum intervals.

The emission of soot should be expressed both in the following units:

- degree of blackening of the filtering element;
- opacity.

2.3. As from January 1, 1988, manufacturers of motor vehicles equipped with Diesel cycle engine must declare to SEMA and STI, until the last working day of the semester, the typical values of carbon monoxide, hydrocarbons, nitrogen oxides and aldehydes in the exhaust gas of the settings being produced, to be determined by SEMA and STI, as well as present the criteria used for obtaining and completing the results. The reports of tests performed should be at the disposal of the SEMA and the STI for consultation.

3. All engines and motor vehicles

3.1. As from January 1, 1988, the authorization for the manufacture and marketing in national territory, of any model or vehicle configuration or engine, or any extension thereof, will only be granted by the Council of Industrial Development--CDI, after obtaining the LICENSE for USE of the VEHICLE or ENGINE-LCVM, issued by SEMA, in accordance with the terms, deadlines and limits of this Resolution.

3.2 - LCVM issuance will be made within 15 days, by SEMA, upon receipt of the CERTIFICATE of APPROVAL of the VEHICLE or ENGINE-CAC, issued by STI, with exception of the cases referred to in 1.9. and 4.5. of Ch. VI, where the CAC can be excused.

3.3. To obtain the CAC, the manufacturer must submit to the STI, in three copies, the necessary documents for the certification of conformity, in accordance with procedures to be established by CONMETRO, and one of the copies will be sent to SEMA.

3.4 The engine or vehicle configurations or its extensions that do not receive or that have cancelled the LCVM. cannot be marketed on the national territory.

3.5. For testing in an experimental fleet alternative of vehicles moved by alternate fuel (anhydrous ethyl alcohol gasoline, hydrated ethanol alcohol and diesel oil), it is obligatory to show

SEMA a theoretical and/or practical analysis or emission of pollutants, as well as a copy of the physical and chemical analyses of the fuel.

In the case these tests are made in areas where there is exposure of the general public, it will be required to obtain a special permit from SEMA.

3.6. It is compulsory the certification of conformity of production with the maximum residue levels established in this Resolution, in accordance with procedures to be established by CONMETRO.

3.7. If, through testing, the SEMA determines that a significant number of vehicles and/or engines in use, properly maintained, is not meeting the emission limits of this Resolution, SEMA must notify the manufacturer and the STI / INAMETRO to carry out an extraordinary verification of conformity of production, the results of which will determine the adoption of measures derived therefrom. All costs of this action will run on behalf of the manufacturer.

3.8. As from the dates of implementation of the requirements contained in this Resolution, the manufacturers of motor vehicles shall declare to SEMA and STI, until the last working day of each calendar semester, the values of the mean and standard deviation of issues pertaining to the respective limits required for all vehicles being produced. Such values must represent the results of the manufacturer's QUALITY CONTROL, and test reports should be available to SEMA and STI for consultation..

This item replaces and cancels partially or integrally the provisions in items 1.1., 1.2., 1.3., 2.1. and 2.3. of chapter VIII, to the extent that their emission limits are laid down and applied.

3.9. As from January 1, 1988, all vehicle manufacturer should clearly disclose, in Service and Owner's Manual of the vehicle, information about the importance of proper vehicle maintenance to reduce air pollution.

In addition, the compliance with this maintenance should be recommended in adhesives fixed on all domestic vehicles, in place (s) protected and visible.

3.10 – As from October 1, 1987, any advertising material relating to a vehicle in accordance with the emission ceilings, broadcasted in specialized press or not, you should clearly and objectively inform its conformity with the PROCONVE.

3.11. State and municipal administrations may put in place inspection and maintenance programs for motor vehicles in use, adopting specific emission limits already established in the existing legislation or that will be defined by CONAMA.

The maximum emission ceilings laid down in this Resolution do not apply to vehicles that exceed the warranty period or mileage issued by the manufacturer.

3.12. If a Inspection/Maintenance Program is recommended for vehicles in use, and if a non-approval occurs mainly due to faulty design or manufacture of the vehicle or engine, rather than for reasons of use or inadequate maintenance by the user, the vehicle manufacturer will be responsible for the necessary repairs and should afford all costs resulting from this action.

3.13. To meet the levels set in chapter VI item 1.5., the National Petroleum Council must specify and supervise the total exemption of tetraethyl lead in alcohol/gasoline mixture, by keeping the minimum of 80 octane by Motor Method. The total exemption of lead in fuel alcohol should also be inspected, since certain transport operations permit this type of contamination. For Diesel fuel, the NPC should define, until December 31, 1987, a program to reduce the total sulphur content (% by weight) of the current value of 1.3 maximum to 0.7 maximum. SEMA should be consulted with respect to the definition of specifications for the marketing of new fuels, with a view to the possible environmental impacts.

3.14. To the infringements to this Resolution, shall be applied the penalties provided for in Law 6.938, 31881, Decree 88.351 from 168391, and State and municipal legislation of environmental pollution control.

3.15. The manufacturers shall send monthly to SEMA, from the date of the beginning of marketing of models and/or vehicles and/or engine configurations, the sale data of these products.

3.16. The total light vehicles sold in 1989, complying with items 1.1. and 1.2.1. of chapter VI, must reach a minimum of 50% (fifty percent) of the sale.

If this percentage of sales is not reached due to government regulations, it can be redefined by the CAP.

3.17. The manufacturer should authorize the entry of the agent accredited by SEMA in its premises, whenever it deems necessary to comply with this resolution. Not doing so, will be subject to the penalties of the laws in force.

3.18. As from January 1, 1988, the screw that regulates the fuel-air mixture at idle and other adjustable items for the tuning of the engine, which can significantly affect the emission, must be sealed by the manufacturer or have inviolable limiters for the allowable range of tuning, and the vehicle must meet the emission limits laid down in this Regulation, in any point of these permissible ranges, as well as its manual controls (throttle, ignition point, choke etc.).

3.19. At the request of CAC or LCVM, the manufacturer of the vehicle and/or engine shall submit to the STI or to SEMA, respectively, a list of parts, assemblies and accessories carrying

significant influence on vehicle's emissions. Such parts, assemblies and accessories can only be approved by the competent body and marketed for replacement and maintenance in the National Territory, if they satisfy the same specifications of the vehicle and/or engine manufacturer for which they are intended and have their quality control approval. In the case of parts, assemblies, and any accessories that are marketed without the vehicle or engine manufacturer's approval, to which they are intended, it will be required to obtain the CERTIFICATE of CONFORMITY for ISSUANCE, granted by the competent body, in accordance with the procedures to be established by CONMETRO.

3.20. The data, documents and information regarded as confidential by the manufacturer, with access by SEMA and STI should be used strictly for compliance with the requirements of PROCONVE, and cannot come to the knowledge of the public or of other industries, without the express permission from the manufacturer.

Results of the testing of vehicles or engines being produced, are not considered as confidential and, provided it is statistically significant, may be used in the preparation of information to be disclosed.

IX - This resolution enters into force on the date of its publication, and revokes the provisions to the contrary.

DENI LINEU SCHWARTZ- Council President

This text does not replace the one published in the Official Gazette on June 17, 1986

ANNEX I DEFINITIONS

Aldehydes: total aldehydes present in the exhaust gas.

Setting of bodywork: unique combination of parts, spare parts and components that characterize the vehicle through its style, size and aerodynamics.

Engine's configuration: unique combination of engine family, emission control system, cylinder capacity, fuel system and ignition system.

Vehicle's configuration: unique combination of basic engine, engine and transmission configurations, the inertia of the vehicle and the gear shifts ratios after the gear box to the wheel.

Conformity of production: compliance of vehicles produced in series or not, with the prescribed emission limits and other requirements of this Resolution.

Evaporative emission from fuel: substances emitted into the atmosphere from fuel evaporation by vents, caps and fittings of the tank, carburetor or fuel injection system and emission control systems

Family of engines: basic classification for production line of the same manufacturer, determined in such a way that any engine from the same family has the same emission characteristics, over the periods granted in writing by the manufacturer, as provided for in NBR-6601.

Emission deterioration factor: numerical factor which limits the increase in emission of an engine or vehicle, in accordance with their use, to the emission ceiling.

Soot particles, including aerosols arising from incomplete combustion, present in exhaust gas of Diesel cycle engines and producing obscuration, reflection and/or refraction of light.

Gas in the crankcase: substances emitted into the atmosphere, from any part of the ventilation or lubrication systems of the engine's crankcase.

Exhaust gas substances emitted into the atmosphere from any opening from the exhaust system at the downstream of engine's exhaust valve.

Hydrocarbons: total organic substances, including fractions of unburned fuel and by-products resulting from combustion, present in the exhaust gas and that are detected by flame ionization detector.

Idle: working regime in which the angular velocity of the engine, as specified by the manufacturer, must be maintained within ± 50 RPM and the engine must be operating without load and with the controls on the fuel feed system, accelerator and throttle, in rest position.

Vehicle's model: name that characterizes a production line of vehicles of the same manufacturer with the same features, except ornamentals

Nitrogen oxides: the sum of nitric oxide and nitrogen dioxide present in the exhaust gas, as if nitric oxide is in the form of nitrogen dioxide.

Typical value of emission: pollutants emission value, obtained through statistical surveys and who should represent the configuration of vehicles and/or engines under consideration.

Light vehicle: self-propelled road vehicle for passengers, cargo or mixed use, with a capacity to carry up to 12 passengers or with a maximum total mass equal to or less than the 2800 kg.

Heavy vehicle: self-propelled road vehicle for passengers, cargo or mixed use, with a capacity to carry more than 12 passengers or with a maximum total mass exceeding 2800 kg.

ANNEX 2
TERM OF CHARACTERIZATION
OF THE VEHICLE OR ENGINE

All vehicles and/or engines marketed in the country shall have their characteristics described according to the following example:

A. Characteristics of the Engine

As per ANNEX A – FORM ON MOTOR CHARACTERISTICS IN NBR-8833 - DETERMINATION OF THE CONFORMITY OF VEHICLES WITH THE ESTABLISHED STANDARDS FOR EXHAUST EMISSIONS.

B. Characteristics of the Engine

According to ANNEX B- FORM ON VEHICLE CONFIGURATION FEATURES of NBR-8833- DETERMINATION OF THE CONFORMITY OF VEHICLES WITH THE ESTABLISHED STANDARDS FOR EXHAUST EMISSIONS.

C. Additional Data

- name, address and telephone number(s) of representative (s) constituted by the manufacturer, responsible person(s) and date;
- signature of the legal representative of the manufacturer;
- relationship of items, parts, sub-assemblies and assemblies exercising considerable influence on the emissions that should be the object of certification for trading as spare parts and services;
- recommendations and procedures for the maintenance of the engine or vehicle;
- estimate of the number of engines and/or vehicles to be marketed by year;
- option or not for the use of Emission Deterioration Factor;
- manufacturer's declaration that the vehicles produced from the date on which the Term of Characterization reflect the descriptions and specifications of that term.

This text does not replace the one published in the Official Gazette, of June 17, 1986.

CONAMA Resolution 8, August 31, 1993
Published in Official Gazette 250 on December 31, 1993, Section 1, pages 21536-21541

Correlations:

- It complements CONAMA Resolution n° 18/86 which establishes polluting emission limits for engines of new, imported and domestic heavy-duty vehicles.
- Changes CONAMA Resolution No.1/93 (changes art. 1 and table 1)
- Amended by CONAMA Resolution No.27/94 (amended articles 8 § 1 and article 17)
- Amended by CONAMA Resolution No.15/95 for the pollutant emission limits for new light passenger vehicles and light commercial, with Diesel cycle engine, imported and domestic
 - Supplemented by CONAMA Resolution No. 16/95, which establishes the homologation and certification of new Diesel cycle engines for applications in light or heavy vehicle, as to the content of smoke (opacity) under free acceleration.
 - Art. . 20 ratified by CONAMA Resolution No. 17/95, excepted the requirement established for the date of January 1, 1996.
- Complemented by CONAMA Resolution No.226/97 establishing maximum residue limits for emission of soot under full load and changed to vehicles or engines, domestic and imported, produced to meet stage IV (EURO II)
 - Amended by CONAMA Resolution No. 241/98, passing the time limits for compliance with the requirements concerning PROCONVE to be the same for imported and domestic vehicles
 - Revokes CONAMA Resolutions No. n 4/88 and 10/89.

Complements Resolution 18/86 which creates the national Program for Air Pollution Control by Motor Vehicles (PROCONVE) through the establishment of maximum limits for pollution emissions for new heavy engine, both national and imported

The NATIONAL ENVIRONMENT COUNCIL - CONAMA, pursuant to the powers vested on it provided for in Law 6.938 dated August 31, 1981, as amended by Laws 7.804, July 18, 1989, and 8.028, April 12, 1990, regulated by Decree 99.274, from June 6, 1990,

Considering that the provisions of Law 8.490, of 19 November 1992¹³⁷, amended by provisional measure No. 350, of September 14, 1993, and in internal rules approved by CONAMA Resolution No. 25, of December 3, 1986¹³⁸

Considering that the emission of carbon monoxide, hydrocarbons, nitrogen oxides, smoke and particulate matter, for vehicles, contribute to the continuous degradation of air quality;

Considering that there are already technical solutions, proven useful, that allow the improvement of emission control for heavy vehicles;

Considering the need of a deadline in order the technological adequacy of new engines to control requirements is economically viable;

Considering the characteristics of the fuel have influence on the emission level and durability of Diesel engines;

Considering the need of time for the quality improvement of Diesel oil;

Considering the need to adapt the transport matrix and prevent the widespread use of Diesel cycle light vehicles to compromise the goals of PROCONVE;

Considering the release of imports of engines and motor vehicles and the Brazilian tendency to international technological harmonization;

Considering the need of compatibilization of schedules for the implantation of the emission limits of exhaust gas with the noise of Diesel cycle heavy vehicles, established by CONAMA Resolution n° 1, of February 11, 1993;

Considering the provisions of the Code for Consumer's Protection and Defense , Law 8.078, of September 11, 1990, resolves:

Art. 1 In addition to the Resolution CONAMA No. 18, of May 6, 1986, to establish the maximum residue limits for pollutants emission engines for new heavy vehicles, domestic and imported, in accordance with Table 1.

§ 1. The engines and vehicles for special applications that cannot be used for urban and/or road transport, as well as those he powered by alternative fuels to Diesel, to gasoline and to alcohol may be partially or fully exempted from the requirements of this Resolution, at the sole discretion of the Brazilian Institute of the Environment and Natural Renewable Resources - IBAMA, in order to encourage the development of options low pollution potential.

¹³⁷Law revoked by Law 9649, of May 27, 1998.

¹³⁸Resolution implicitly revoked by the new Internal Rules

§ 2 Not included in this Resolution are the marine and industrial engines, as well as those intended for earthmoving and agriculture defined in accordance with standards NBR-6142 and TB-66, respectively.

Table 1- Emission limits for engines of heavy vehicles

	CO (g/kWh)	HC (g/kWh)	NO _x (g/kWh)	Smoke (k) (1)	Particles (g/kWh)(1)
Phase I	-	-	-	2.5	-
Phase II	11.2	2.45	14.4	2.5	-
Phase III	4.9	1.23	9.0	2.5	0.7/0.4(2)
Phase IV	4.0	1.1	7.0	-	0.15

(1) Only applicable to Diesel cycle engines

(2) 0.7 g/kWh, for engines up to 85 kW and 0.4 g/kWh for engines with more than 85 kW.

Art. 2 Engines for heavy vehicles, manufactured and marketed in Brazil, must meet the emission ceilings defined in Table 1, in accordance with the minimum production percentages and dates herein established, irrespective of the type of fuel they use.

§ 1. As from March 1, 1994, all Diesel engines produced, referring to models chosen by its manufacturer as being responsible for at least 80% of their production, must meet the Phase II limits, and the remaining models meet the limits of Phase I, as per Table 1.

§ 2 As from January 1, 1996, all engines produced for heavy vehicles, referring to models chosen by its manufacturer as being responsible for at least 80% of its production, must meet the limits of Phase III and the remaining models meet the Phase II limits, according to Table 1.

§ 3 The limits for Phase IV, as well as the dates of their implementation are prescribed in this resolution as goals and must be discussed and confirmed by CONAMA until 12/31/1994.

§ 4 As from January 1, 2000, all engines produced for heavy vehicles, referring to models chosen by its manufacturer as being responsible for at least 80% of its production, must meet the limits of Phase IV, and the remaining models meet the limits of Phase III, according to table I, taken into account § 3 of this article.

§ 5 As from January 1, 2002, all engines for heavy-duty vehicles must meet the limits of Phase IV, as per Table 1, taken into account § 6 of this article.

§ 6 For buses, the dates laid down in §§ 2 and 4 are anticipated for 01/03/1994 and 01/01/1998, respectively; however, the limits established for particulates emission, prescribed for Phase III, coming into force in 01/01/1996 shall not apply.

§ 7 Motor vehicles settings that meet in advance any phase of the program, will be entitled to a certificate from IBAMA to claim for preferential treatment in relation to tax benefits and credit lines.

§ 8 New emission limits additional to those established in Table 1 should be discussed and defined with at least four years of their entry into force.

§ 9 The vehicles and engines covered by § 1 of art. 1 are not included in the 80% of production that meet the most severe phase of each step of the program.

Art. 3 All engines and heavy-duty vehicles, imported and intended for the Brazilian market, must meet the emission limits defined in Table 1, according to the schedule established in this article.

§ 1. As from 1 January 1994, all vehicles must meet the limits of Phase III¹³⁹

§ 2 As from January 1, 1998, all vehicles must meet the limits of Phase IV¹⁴⁰, taking into account § 3 of art. 2 of this Resolution.

Art. 4 The emission of crankcase gases from heavy engines must be null in any system of engine operation and guaranteed by gas recirculation of these devices may be fitted only on turbocharged Diesel cycle engines manufactured until 12.31.95, provided they are technically justified by the manufacturer.

Sole paragraph. The application of this requirement to the turbocharged Diesel engines should be discussed and confirmed by CONAMA until 2/31/1994.

Art. 5th emission levels measured in heavy vehicle engines are expressed in gkWh, and refers to the mass of pollutant emitted per hour per unit of net effective power.

§ The emissions of carbon monoxide (CO), hydrocarbons (HC) and oxides of nitrogen (NO_x) shall be measured in accordance with NB-1192, of 1992 - Determination of the Emission of Exhaust Gas Emitted by Diesel Engine and MB-3295, of 1990 - Diesel Engine - Exhaust Gas Analysis.

¹³⁹ See Resolution 15, of December 13, 1995

¹⁴⁰ See Resolution 15, of December 13, 1995 and number 226, of August 20, 1997

§ 2 Until IBAMA adopts Brazilian standard(s) complementary to NB-1192 and specific to the definition and analysis equipment specification and test method for the measurement of the emission of particulate matter (PM), tests shall be accepted according to ANNEX V, item 2, of the directive of the Council of the European Economic Communities, n° 91/542/CEE of 10/01/1991, which will serve as a basis for those rules.

Art. 6 The maximum limit of smoke index (K) for any vehicle equipped with a Diesel cycle engine refers to the expression $K = c \cdot VG-18$, where $G = V \cdot n/t$ set in standard NBR- 5478-Method for Measuring Soot Exhaust Gas Emitted by Diesel Engine - Correlation Units and Construction of Boundary Curve Formula, except where the situations in which the nominal flow of gas leakage "G" is less than or equal to 42 liters per second, or "G" is greater than or equal to 200 l/s, when the "c" maximum permissible concentration of soot should be calculated for the values of "G" equal to 42 l/s or 200 l/s, respectively.

§ 1. The determinations of emission of soot content must be carried out in constant regime, through the Opacimeter or Sampler by Filter Element, as prescribed in the Technical Standards NBR-5484 – Alternative internal Combustion Engines by Compression (Diesel) or Spark Ignition internal (Otto) of Variable Angular Velocity - Test Method; NBR-7027 - Exhaust Gas Emitted by Diesel Engines – Determination of Soot Content in Constant Regime - Test Method; NBR-7026 – Exhaust gas emitted by Diesel Engine - Soot Content Measurement with Sampler for Filter Element; and Standard Project 05: 017.02-002, mar/92 - Employment of the Opacimeter for Measuring the Soot Content of Diesel Engine - Light Absorption Method.

§ 2 In the measurements of smoke at altitudes above 350 m above sea level, the values observed in the Bosch Unit should be reduced by 0.5 Bosch Unit.

§ 3 The maximum limits of smoke, calculated in accordance with this article, are presented in Annexes I and II for lower altitudes lower than to 350 m, as well as to higher altitudes, where the correction mentioned in § 2 is already included.

Art. 7. The manufacturer or the importer (s) of vehicles fitted with Diesel cycle engine shall provide to IBAMA and the accredited technical organ, until 12/31/1993, Typical Values Reports of Smoke at Free Acceleration - TVRS, relating the values obtained with the respective test altitudes of all configurations of engines produced in 1993 for commercialization in the national territory, as provided for in the project of standard 05.017.02-002 (March92) -Employment of the Opacimeter for Measuring the Soot content of Diesel Engine - Light Absorption Method and project of standard 05.017.02-005 (July92) - Exhaust Gas Emitted by Diesel Engine at Free Acceleration -Determination of Opacity.

Art. 8. As from March 1, 1994, all processes for approval and certification of Diesel cycle engines for light or heavy vehicle applications, must include the free acceleration smoke index, measured with the methodology specified in art. 7, as per manufacturer's specification, to ensure proper engine adjustment throughout its use.

§ IBAMA will propose to CONAMA, until June 94, the regulation deadlines, limits and altitude correction factors for free-acceleration smoke index for new engines. The new limits will be based on typical values of 1993 and approvals of 1994 and will have the goals of 0.83 m⁻¹ (30 HSU) and 1.19 m⁻¹ (40 HSU) for turbocharged and naturally aspirated engines, respectively. (deadline extended until the *3rd ordinary meeting of CONAMA in the year 1995, by Resolution No. 2794*)

§ 2 As from March 1, 1994, the certification of conformity of production has, as limit of the smoke index under free acceleration, the value declared in the prototype approval process for each engine configuration.

Art. 9. The choice of the settings to be taken as representative for the purposes of approval, certification and production of TVRS, can be made using the criterion of family, that must be justified by the manufacturer and submitted for approval to IBAMA and the technical organ, before running the tests.

Art. 10. The prescribed maximum emission ceilings must be secured in writing by the manufacturer or importer for 80,000 km for light vehicles and 160,000 km for trucks, or for five years of use, demonstrated through tests that produce equivalent results in durability, as proposed by the manufacturer and approved procedures previously by IBAMA.

§ 1. Until the official establishment of the test procedures referred to in this article, the manufacturer's warranties may be overridden by the 10% reduction in the prescribed emission ceilings, except for the carbon monoxide emissions at idling of vehicles with Otto cycle engine.

§ 2 for the purposes of this article, the maximum calculated smoke with the deterioration factor of 10% are given in ANNEX II.

Art. 11. For the fulfillment of the requirements of this Resolution reference fuel for emissions testing shall be used, applied to the type of engine, namely, gasoline, alcohol or Diesel oil, according to the specifications contained in CNP-24/89, CNP-01/85 or those listed in ANNEX III to this Resolution.

§ 1. In the case of the use of fuels alternative to those mentioned in this article, the emission test shall be performed with the commercial specification fuel, until

IBAMA defines the specifications of reference fuel.

§ 2 For the implementation of this Resolution and Resolution No. 18/86 of CONAMA, Petrobras should ensure the availability of Diesel oil and petrol for emission tests in accordance with the specifications mentioned in this article, with a maximum period of three months from the date of delivery of the purchase order to PETROBRÁS.

Art. 12. Commercial Diesel oil may have different specifications for use in different regions of the country, according to their environmental needs and in accordance with the specifications of ANNEX IV, recommended by this Resolution.

§ 1. It is recommended that the National Department of Fuels – DNC should specify A and B Diesel oils for marketing, in accordance with the specifications in ANNEX IV, within 30 days from the date of publication of this Resolution.

§ 2 the IBAMA or the technical body accredited by it shall define the actions and coordinate a Working Group, involving the engine manufacturers, the DNC, Petrobras and the CETESB to analyze until 12/31/1994, the influence of new commercial Diesel oil specifications on emissions of pollutants from engines, when compared to the results obtained with the fuel of reference, so as to make the characterization of the actual emission of the fleet of vehicles.

Art. 13. IBAMA shall define, within 15 days from the date of publication of this Resolution, on the basis of each region's environmental needs and respected the practical feasibility of production and distribution, those regions which receive the underground Diesel (types B and C).

Art. 14. The agencies and entities responsible for the specification, production and distribution of fuels should examine the feasibility of producing a Diesel fuel with 0.05% of maximum sulphur in weight 10% maximum aromatics and cetane number 48 min., for distribution to all vehicles that meet the limits of Phase IV of this Resolution, and to IBAMA, in consultation with these bodies, propose to the DNC the specifications and implementation dates, until 21/31/1994.

Art. 15. As from March 1, 1994, light vehicles equipped with Diesel cycle engine shall meet the emission ceilings of the crankcase and leakage, except the content of carbon monoxide at idling, prescribed for light vehicles, according to the requirements of CONAMA Resolution No. 1886.

§ 1. As from 1 March 1994, the emission of particulate matter in exhaust gas of light vehicles, equipped with Diesel cycle engine, must be less than the limit of 0.05 g/km, measured according to the method of test and analysis and the equipment defined in the "Code of Federal Regulations" of the United States of America, title 40, part 86, of July 1992, which will serve as a basis for the approval by IBAMA of specific complementary standard.

§ 2 The light vehicle Diesel cycle of mixed use or cargo, with total gross weight exceeding 2000 kg, can meet the requirements for heavy vehicles, as an alternative to the procedures laid down in this article, provided that the characteristics of the engine allow the test. (*See Resolution 415/2009*).

Art. 16. As from 1 July 1994, the manufacturer and the importer(s) of Diesel cycle engines vehicles must provide to the consumer and to authorized services network, through vehicle owner's manuals and maintenance and services, the maximum values of the soot content in the angular velocity of each engine, expressed both in Bosch Unit (BU) and in the light absorption coefficient (m-1), as well as the smoke index under free acceleration expressed in "m-1", applicable to engines manufactured from 1 March 1994.

Art. 17. As from 1 July 1994, all Diesel cycle engine vehicles should have posted in the engine compartment, protected and easy viewing, a sticker with the indications of smoke index under free acceleration and angular velocities at idling and maximum free, recommended by the manufacturer to ensure proper engine tuning. (*deadline extended to January 1, 1996 by Resolution No. 27/94*)

Art. 18. As from the dates of introduction of the requirements of this Resolution, the manufacturers and importers of vehicles/engines must submit to IBAMA, until the last day of each calendar semester, Quality Emission Control Reports (RCQE) of all vehicles/engines settings being produced or imported, explaining the criteria used for obtaining and completing the results. The reports of tests performed should be at the disposal of IBAMA, for consultation for three years.

Art. 19. Until December 31, 1994, IBAMA shall review the procedures for Conformity of Production Certification, required by item 3.6 of Ch.. VIII of the Resolution CONAMA No. 18/86, with the objective of raising the confidence interval of sampling to 95%.

Art. 20. Art. 1 of CONAMA Resolution n° 1, of February 11, 1993, shall be replaced by the following:

"Art. 1. Establish, for domestic and imported vehicles, except motorcycles, scooters, mopeds, bicycles with auxiliary motor vehicles and the like, the ceilings of the vehicle noise under acceleration and idling.

§ 1. For the national vehicles produced for the domestic market, the maximum limits of the vehicle noise under acceleration, defined in table 1A of this Resolution, enter into force, as the timeline below by manufacturer brand:

a) The Otto-cycle vehicles, except those of categories "c" and "d":

a. 1) at least 20% of the vehicles produced from 1 March 1994;

a. 2) at least 50% of the vehicles produced from 1 January 1995;

- a. 3) 100% of the vehicles produced from 1 January 1997
- a. 3) 100% of the vehicles produced from 1 January 1997;
- b) all motor vehicles of the Diesel cycle and Otto-cycle vehicles of categories "c" and "d":
 - b. 1) at least 40% of the vehicles produced from 1 January 1996;
 - b. 2) 100% of Otto-cycle vehicles produced from 1 January 1997;
 - b. 3) 100% of the vehicles produced from 1 January 1998.

Table 1A - Maximum noise limits emitted by vehicles in acceleration, according to NBR-8433

Category		Noise level (dB/A)			
Description		Otto	Diesel		
			DireDirectet Injection	Indirect injection	
A	Passenger vehicles up to nine seats and mixed use vehicle derived from automobile	77	78	77	
B	Passenger vehicles with more than nine seats, cargo or traction vehicle, mixed use vehicle not derived from automobile	TGW up to 2,000 kg	78	79	778
		TGW Above 2,000 kg and up to 3,000 kg	79	80	79
C	Passengers vehicle or up to mixed use with TGW above 3,500 kg	Maximum power below 150 kW (204 CV)	80	80	80
		Maxim power equal or above 150 kW (204 CV)	83	83	83
D	Cargo or traction vehicle with TGW above 3,500 kg	Maxim power below 75 kW (102 CV)	81	81	81
		Maxim power between 75 and 150 kW (102 to 204 CV)	83	83	83
		Maximum power equal or above 150 kW (204 CV)	84	84	84

Remarks:

1) Vehicle Designations as per NBR-6067

2) TGW: Total gross weight

3) Power: effective maximum net Power (NBR-5484)

4) This table cancels and replaces Table 1 of CONAMA Resolution n° 1, of February 1, 1993.

§ 2 For all imported vehicles, the maximum noise levels during acceleration established in this article, shall take effect from 1 March 1994, except vehicles produced or assembled in Argentina, Paraguay and Uruguay, to

which maximum noise limits with the vehicle under acceleration, established in this article, shall apply from January 1, 1995 for the vehicles of sub-item "a" of § 1 of this article and from January 1, 1996 for the vehicles of subitem "b" of § 1 of this article.

§ 3 The noise limits established in this article must be respected throughout the warranty period granted and under the conditions specified by the manufacturer or importer.

§ 4 Eventual impossibilities of meeting the percentage set out in the schedule will be evaluated by IBAMA.

§ 5 The noise level of the vehicle, when stopped, is the reference value of the new vehicle in the verification process. This value plus 3 (three) dB (A), shall be the maximum limit of noise for monitoring the vehicle in use.

§ 6 As from 1 March 1994, IBAMA should receive , in two copies, the noise level with the vehicle stopped, measured in the vicinity of exhaustion, according to NBR-9714, of all models of vehicles produced for the inspection of vehicles in service. "

Art. 21. CONAMA resolutions No. 4 and 10, of June 15, 1988 and September 14, 1988, respectively, shall be revoked, , as well as provisions in contrary.

Art. 22. To the breaching of the provisions in this Resolution will be apply the penalties provided for in Law 6.938 dated August 31, 1981, with wording by Law 7.804, July 18, 1989, without prejudice to any other penalties provided for in federal legislation, as well as of the sanctions of penal and civil character.

Art. 23. For the purposes of this Resolution, the results of the exhaust emission must be submitted via the Annexes V and VI of this Resolution.

Art. 24. The vehicles produced or assembled in Argentina, Paraguay and Uruguay will have national vehicle treatment, in accordance with this Resolution, in case the Harmonization Commission of MERCOSUR adopts the same requirements for Brazilian vehicles.

Art. 25. This resolution shall enter into force on the date of its publication.

FERNANDO COUTINHO JORGE-Council President
SIMON MARRUL FILHO - Executive Secretary

ANNEX I
LIMITS OF SMOKE VALUES FOR DIFFERENT ALTITUDES

	For altitudes below or equal to 350 m		For altitudes above 350 m	
Air flow rate (l/s)	Bosch unit (uB)	Coef. abs. Light (m ⁻¹)	Bosch unit (uB)	Coef. abs. light (m ⁻¹)
≥ 200	3.21	1.08	3.71	1.40
198	3.21	1.08	3.71	1.41
195	3.23	1.09	3.73	1.42
192	3.24	1.10	3.74	1.43
189	3.25	1.10	3.75	1.44
186	3.27	1.11	3.77	1.45
183	3.28	1.12	3.78	1.46
180	3.30	1.13	3.80	1.47
177	3.31	1.14	3.81	1.48
174	3.33	1.15	3.83	1.49
171	3.34	1.15	3.84	1.50
168	3.36	1.16	3.86	1.52
165	3.37	1.17	3.87	1.53
162	3.39	1.18	3.89	1.54
159	3.40	1.19	3.90	1.55
156	3.42	1.20	3.92	1.57
153	3.44	1.22	3.94	1.58
150	3.46	1.23	3.96	1.60
147	3.47	1.24	3.97	1.61
144	3.49	1.25	3.99	1.63
141	3.51	1.26	4.01	1.64
138	3.53	1.28	4.03	1.66
135	3.55	1.29	4.05	1.68
132	3.57	1.30	4.07	1.70
129	3.59	1.32	4.09	1.71
126	3.61	1.33	4.11	1.73
123	3.63	1.35	4.13	1.75
120	3.65	1.36	4.15	1.77
117	3.68	1.38	4.18	1.79
114	3.70	1.40	4.20	1.82
111	3.72	1.41	4.22	1.84
108	3.75	1.43	4.25	1.86
105	3.77	1.45	4.27	1.89
102	3.80	1.47	4.30	1.92
99	3.83	1.49	4.33	1.94
96	3.86	1.52	4.36	1.97
93	3.88	1.54	4.38	2.00
90	3.91	1.56	4.41	2.04
90	3,91	1,56	4,41	2,04
87	3.95	1.59	4.45	2.07
84	3.98	1.62	4.48	2.11
84	3.98	1.62	4.48	2.11

81	4.01	1.65	4.51	2.14
78	4.05	1.68	4.55	2.18
75	4.08	1.71	4.58	2.23
72	4.12	1.74	4.62	2.27
69	4.16	1.78	4.66	2.32
66	4.20	1.82	4.70	2.37
63	4.25	1.86	4.75	2.43
60	4.29	1.91	4.79	2.49
57	4.34	1.96	4.84	2.55
54	4.39	2.01	4.89	2.62
51	4.45	2.07	4.95	2.70
48	4.51	2.14	5.01	2.78
45	4.57	2.21	5.07	2.87
≤ 42	4.63	2.29	5.13	2.98

ANNEX II

LIMITS OF SMOKE VALUES FOR DIFFERENT ALTITUDES CONSIDERING 10% OF DETERIORATION FACTOR

Air flow rate (l/s) ≥ 200)	For altitudes below or equal to 350 m		For altitudes above 350 m	
	Bosch unit (uB)	Coef. abs. Light (m ⁻¹)	Bosch unit (uB)	Coef. abs. light (m ⁻¹)
	3.03	0.98	3.53	1.27
198	3.04	0.98	3.54	1.28
195	3.05	0.99	3.55	1.29
192	3.06	1.00	3.56	1.30
189	3.08	1.00	3.58	1.31
186	3.09	1.01	3.59	1.32
183	3.10	1.02	3.60	1.33
180	3.12	1.03	3.62	1.34
177	3.13	1.03	3.63	1.35
174	3.14	1.04	3.64	1.36
171	3.16	1.05	3.66	1.37
168	3.17	1.06	3.67	1.38
165	3.19	1.07	3.69	1.39
162	3.21	1.08	3.71	1.40
159	3.22	1.08	3.72	1.41
156	3.24	1.09	3.74	1.42
153	3.25	1.10	3.75	1.44
150	3.27	1.11	3.77	1.45
147	3.29	1.12	3.79	1.46
144	3.31	1.13	3.81	1.48
141	3.33	1.15	3.83	1.49
138	3.34	1.16	3.84	1.51
135	3.36	1.17	3.86	1.52
132	3.38	1.18	3.88	1.54
129	3.40	1.19	3.90	1.55
126	3.42	1.21	3.92	1.57

123	3.44	1.22	3.94	1.59
120	3.47	1.23	3.97	1.61
117	3.49	1.25	3.99	1.63
114	3.51	1.26	4.01	1.65
111	3.53	1.28	4.03	1.67
108	3.56	1.30	4.06	1.69
105	3.58	1.31	4.08	1.71
102	3.61	1.33	4.11	1.73
99	3.64	1.35	4.14	1.76
96	3.66	1.37	4.16	1.78
93	3.69	1.39	4.19	1.81
90	3.72	1.41	4.22	1.84
87	3.75	1.44	4.25	1.87
84	3.79	1.46	4.29	1.90
81	3.82	1.49	4.32	1.93
78	3.85	1.51	4.35	1.97
75	3.89	1.54	4.39	2.01
72	3.93	1.57	4.43	2.05
69	3.97	1.61	4.47	2.09
66	4.01	1.64	4.51	2.14
63	4.05	1.68	4.55	2.19
60	4.10	1.72	4.60	2.24
57	4.14	1.76	4.64	2.30
54	4.19	1.81	4.69	2.36
51	4.25	1.86	4.75	2.43
48	4.30	1.92	4.80	2.50
≤ 42	4.43	2.05	4.93	2.67

ANNEX III
SPECIFICATIONS FOR REFERENCE DIESEL OIL FOR TESTS OF CONSUMPTION AND EMISSION

Characteristics	Units	Phases			Methods (1)
		I and II	III	IV	
Distillation: P.I.E. 10% 50% 90% PFE	°C	160-190 190-220 245-280 230-360 max 390	min-245 320-340 max-370	min-245 320-340 max-370	MB-45
Total sulfur	% mass	0,2-0,5	max 0,3	max 0,05	MB-106
Flash point (minimum)	°C	55	55	55	MB-48
Viscosity at 37,8 °	cSt	2,5-3,5	2,5-3,5	2,5-3,5	MB-293
Ashes (maximum)	% mass	0,02	0,01	0,01	MB-47

Calc. cetane rate	-	48-54	48-54	48-54	ASTM D-976
Aromatic Carbon	% V	15-25	15-25	15-25	ASTM D-3238
C.F.P.P. (maximum)	°C	- 5	-5	-5	EN 116
Density at 20/4 °C	-	0,835 0,845	0,835 0,84	0,835 0,84	MB-104
Corrosivity to Copper 3h at 50°C (maximum)	-	2	1	1	MB-287
Carbon wastes 10% dest. final (maximum)	% mass	0,25	0,20	0,20	MB-290
Water and Sediments (max.)	% V	0,05	0,05	0,05	MB-38
Cor ASTM (maximum)	-	3	3	3	MB-351
Aspect	-	Limpid and free of suspension material			VISUAL
Stability to Oxidation(2)	mg/100 ml	Report	Report	report	ASTM D 2274
N° of Neutralization (2)	mg/K OH/g	Report	Report	Report	ASTM D 974
Hydrogen/carbon Ratio/ (2)	-	Report	Report	report	-

- (1) Use Brazilian methods or corresponding ASTM.
(2) Discuss and specify value until 12/31/94.

ANNEX IV
SPECIFICATIONS FOR COMMERCIAL DIESEL OIL

Characteristics		Units	Specifications			Methods (1)
Type			A	B	C	
Distillation: 50% evap. 85% evap. max. PFE		°	260-310 370 -	260-310 370 -	(2) 370 (2)	MB-45
Total sulphur (maximum)		% mass	1,0	0,5	0,3	MB-106
Flash point		°C	(3)	(3)	(3)	MB-48
Viscosity at 37,8°C		cSt	1,6-6,0	1,6-6,0	1,6-6,0	MB-293
Ashes (maximum)		% mass	0,02	0,02	0,02	MB-47
Cetan number (maximum)		-	40 (4)	40 (4)	(2)	D-613
Minimum computation center rate		-	45	45	(2)	A S T M D-976
C.F.P.P. (maximum)		°C	(2)	(2)	(2)	EN 116
Cloud point		°C	6-19 (5)	6-19 (5)	6-19 (5)	P-MB-585
Density at 20/4 °C		-	0,82-0,88	0,82-0,88	(6)	MB-104
Corrosivity to copper 3h to 50°C (maximum)		-	2	2	2	MB-287
Carbon residue of 10% final dest. (maximum)		% mass	0,25	0,25	0,25	MB-290
Water and sediments (maximum)		% v	0,05	0,05	0,05	MB-38
Color ASTM (maximum)		-	3	3	3	MB-351
Aspect		-	limpid and free of suspension material			VISUAL

- (1) Use the Brazilian or corresponding ASTM
(2) Discuss and specify value until 12/31/94
(3) Only specified for Diesel oil for use in marine engines, whose minimum value is 60° c.
(4) Where the CFR engine is not available, is it acceptable the cetane index calculated by ASTM D-976 method, as approximation. In case of disagreement the ASTM D-613 shall prevail.
(5) Varying by regions and times of the year.
(6) Discuss and specify value up to 12/31/94, studying the feasibility of limiting the range of variation in 0.04.

ANNEX V
EMISSION TEST REPORT
ENGINE EXHAUST FOR HEAVY VEHICLE

1. **Laboratory** _____ Test No. _____ Date _____

2. **Characterization of equipment**

Dynamometer _____ Meter for consumption of Analyzers of _____
Gases _____ Opacimeter _____

3. **Motor Characterization**

Brand _____ Model _____ Serial No. _____ Date of Manufacturing _____ Softening (h) _____

Type of injection _____ Type of aspiration _____

Backpressure in exhaustion(max)----- kPa

Intake depression (max) -----kPa

M.L. angular speed -----rpm

Interm. angular speed. -----rpm

Max free angular speed -----rpm

Effective power: _____ kW at _____ rpm

Momentum maximum power : _____ Nm at _____ rpm

4. **Fuel type** _____ specific mass _____ kg/l

5. **Responsible for test** _____

6. **Gaseous emission test results**

POINTS	1	2	3	4	5	6	7	8	9	10	11	12	13
Angular Speed(rpm)													
Load Observed (Nm)													
Barometric Pressure (kPa)													
Temp. dry bulb (°C)													
Temp. wet bulb (°C)													
Temp. admission air (°C)													
Temp. burette temp. (°C)													
Depression at admission (kPa)													
Admission air flow (m ³ /h)													
Fuel consumption (kg/min)													
Escape back pressure (kPa)													
CO Concentration (ppm)													
CO ₂ Concentration(%)													
HC Concentration (ppm)													
NOx Concentration(ppm)													
MP Mass(g)													
Specific Weighted emissions (g/kwh)													
CO													
HC													
NO _x													
MP													

7. **Tests results of emission of soot content under constant regime**

Barometric pressure _____ kPa

Altitude above sea level _____ m

POINT	ROTATION (rpm)	B.U Obs.	V obs.	B.U Obs.	Average U.B. Obs	B.U obs.	B.U Lim.
1							
2							
3							

4							
5							

NOTE: B.U. limit is the value obtained in ANNEXes I or II

8. Result of tests under free acceleration

ACCELERATIONS							FINAL RESULT
4	5	6	7	8	9	10	

Notes:

1. The final result is the arithmetic average calculated over four consecutive measurements not varying more than 0.25m⁴ and which are not in a decreasing order
- 2 – Mark the four measurements taken into account

ANNEX VI
TEST REPORT ON THE EMISSION OF EXHAUST FROM DIESEL CYCLE LIGHT
VEHICLES

1. Laboratory:

2. Characterization of equipment

Dynamometer

Sampler of Constant Volume

Analyzers

Fuel consumption meter _____

3. Vehicle's characterization

Brand _____ Model _____ Model year _____

Chassis No. _____ Odometer _____

Plate _____ Engine No. _____ Type _____

Vehicle's weight _____ kg Transmission type _____

Tyres type _____ Code _____

Inlet system type _____ Manufacturer's Code _____

4. Fuel

Type _____ specific mass _____ kg/la _____ °C

5. Testing conditions

Equivalent inertia _____ kg PRR₈₀ power _____ kw

Speed of gear change (km/h) _____

5.1 Responsible for testing _____

5.2 Testing Result _____

Essay	1				2				3				Final Avera	Devia-tion
	1	2	3	*	1	2	3	*	1	2	3	*		
No. /Date														
Phase														
Time														
Distance travelled (km)														
Room temperature (°C)														
Barometric pressure (mm Hg)														
Relative Humidity(%)														
Mass (g) or Volume (l) Fuel														
Measured autonomy (km/l)														
Stoichiometric autonomy (km/l)														
CO emission(g/km)														
CO ₂ emission (g/km)														
HC emission(g/km)														
NOx emission (g/km)														
MP emission (g/km)														

Remarks: * = Average

NOTE: Corrected in the Official Gazette No.201, of October 21, 1993, page 15748-15749 and Republished pursuant to Resolution No. 16/93 (original version) Official Gazette No. 188, of October 1, 1993.

This text does not replace the one published in the Official Gazette of December 31, 1993.

RESOLUTION CONAMA 14, December 13, 1995
Published in Official Gazette No. 249 on December 29, 1995, Section 1, pages 22875-22876

Correlations:

- Amended by CONAMA resolution No. 315/02 (added new paragraphs to art. 2, 4, 7 and 9)

Establishes deadline for automobile manufacturers of passenger light motor vehicles equipped with Otto cycle engine to submit to IBAMA a three-year program for the performance of durability test by engine group.

The NATIONAL ENVIRONMENT COUNCIL-CONAMA, pursuant to the powers granted to it by Law 6.938 dated August 31, 1981, regulated by Decree 99.274 from June 6, 1990 and its amendments, taking into account the provisions laid down in its Internal Rules and,

Considering the need of continuous update of program control of air pollution by motor vehicles-PROCONVE established by CONAMA Resolution n° 18, of May 6, 1986;

Considering the need to prove that the designs of light motor vehicles keep pollutant emissions below the limits required by at least 80,000 km;

Considering that Brazil already dominates the knowledge about methods and test procedures for accumulation of kilometers, aiming to guarantee the emission limits for light duty vehicles for 80,000 km, resolves:

Art. 1st Until December 31, 1996, manufacturers of light passenger vehicles equipped with Otto cycle engine, or produced in the MERCOSUR countries, must submit a three-year program to IBAMA for durability tests run by grouping of engines, classified according to ABNT project standard 5:17.01-007 or substitute standard and with annual sales greater than 15,000 units.

§ 1. The program referred to in the caput of this article shall be reviewed on an annual basis every year thereafter, always until December 31, in accordance with the manufacturer's sales forecast, to enable the submission to IBAMA emission deterioration factors of a producer of engines, as shown in the following schedule:

- a) Until December 31, 1997, to at least 25% of the total planned annual sales until December 31, 2000;
- b) Until December 31, 1998, to at least 50% of the total planned annual sales until December 31, 2001;
- c) Until December 31, 1999, to at least 75% of the total planned annual sales until December 31, 2002;
- d) Until December 31, 2000, for all groups of engines with forecast sales until December 31, 2002.

Art. 2 Manufacturers of light, passengers motor vehicles¹⁴¹, equipped with Otto cycle engine, manufactures in the country or in the MERCOSUR countries, must apply the factors of deterioration obtained according to ABNT project 5: 17.01-007 or substitute standard, to emissions from vehicles whose engines group, classified according to this same project standard, have annual sales forecast more than 15,000 units, in the homologations made to meet the ceilings as shown in the following schedule:

- a) As from 1 January 1999, to at least 25% of the total planned annual sales until December 31, 1999;
- b) As from 1 January 2000, to at least 50% of the total planned annual sales until December 31, 2000;
- c) As from 1 January 2001, for at least 75% of the total planned annual sales until December 31, 2001;
- d) As from 1 January 2002, for the entire annual sales.

§ 1. To vehicles which do not have certain factors, it will be admitted, as a result of the duration of the tests to determine the deterioration factors, that they be declared within a maximum of three hundred and sixty-five days, in beyond the current year, counting from the date of issue of the CAC/LCVM. (paragraph added by Resolution No. 315/02)

§ 2 During this period, the factors set out in art. 4, § 4, of this Resolution, will be applied for the issuance of the CAC/LCVM. (paragraph added by Resolution No. 315/02)

§ 3 For the groupings of motors that have an increase in sales volume forecast, at the time of renewal of the CAC/LCVM for the following year, surpassing the limit of fifteen thousand units per year, it will be admitted, on account of the duration of the tests to determine the deterioration factors,

¹⁴¹ Corrected in the DOU No. 65 of April 3, 1996, Page 5538

that these are declared within three hundred and sixty-five days, beyond the current year, counted from the date of revalidation of CAC/LCVM. *(paragraph added by Resolution No. 315/02)*

Art. 3. In case of impossibility proven by the manufacturer and accepted by IBAMA to meet the schedule defined in Art. 2 of this Resolution, homologations can be made to meet the limits according to the following schedule:

a) Until January 1, 2000, to at least 25% of the total planned annual sales until December 31, 2000;

b) Until January 1, 2001, to at least 50% of the total planned annual sales until December 31, 2001;

c) Until January 1, 2002, for the entire annual sales.

Art. 4. If the manufacturers of light passenger vehicles, equipped with Otto cycle engine, or produced in the MERCOSUR countries, do not apply the deterioration factors obtained according to the project of Standard ABNT 5:17.01-007 or substitute standard, to the vehicle emissions whose¹⁴² grouping of engines, classified according to this same project standard or substitute standard, have lower annual sales forecast than 15,000 units, approvals made to meet limits should apply the deterioration factors defined in paragraphs of this article:

§ 1. Until December 31, 1999, the deterioration factors for all pollutants should be 10%.

§ 2 From January 1, 2000 to December 31, 2001, the deterioration factors for alcohol vehicles must be: 20% for carbon monoxide (CO); 10% for hydrocarbons (HC); 10% for nitrogen oxides (NOx); 10% to total aldehyde (CHO); 10% for evaporative emission.

§ 3 From January 1, 2000 to December 31, 2001, the deterioration factors for gasoline vehicles must be: 20% for carbon monoxide (CO); 20% for hydrocarbons (HC); 10% for nitrogen oxides (NOx); 10% to total aldehyde (CHO); 10% for emission.

§ 4 From January 1, 2002, the factors of deterioration should be: 20% for carbon monoxide (CO); 20% for hydrocarbons (HC); 10% for nitrogen oxides (NOx); 10% to total aldehyde (CHO); 10% for emission.

§ 5 Groups of engines that have an increase in sales volume forecast, at the time of renewal of the CAC/LCVM for the following year, surpassing the limit of fifteen thousand units per year, should respect the deadline in art. 2 of CONAMA Resolution n° 14, 1995, in order to gain such deterioration factors as per Standard NBR-14008. *(paragraph added by Resolution No. 315/02)*

Art. 5 Complying with articles 2 and 3, until December 31, 2001, manufacturers of light passenger vehicles, equipped with Otto cycle engine, or produced in the MERCOSUR countries, may apply to deterioration factor equal to 10% vehicle emissions whose clusters of engines, classified according to Standard ABNT 5:17.01-007 or substitute standard, have annual sales forecast more than 15,000 units in the homologations made to meet the ceilings, while do not have the test results.

Art. 6 Until December 31, 2001, manufacturers of light commercial vehicles, equipped with Otto cycle engine, or produced in the MERCOSUR countries, which have not obtained the deterioration factors according to Standard ABNT 5:17.01-007 or substitute may apply standard factors of deterioration of art. 4 this Resolution to emissions from vehicles whose engine clusters¹⁴³, classified according to this same project standard or norm substitute, have annual sales forecast less than 15,000 units.

Art. 7. As from 1 January 2002, the manufacturers of light commercial vehicles, equipped with Otto cycle engine, or produced in the MERCOSUR countries, must apply the deterioration factors obtained according to Standard ABNT 5:17.01-007 or substitute standard, to the emissions of vehicles whose engines clusters, classified according to this same project standard or substitute norm, have annual sales forecast more than 15,000 units in the approvals made to meet the limits.

§ 1. For the vehicles which do not have the established factors, it will be admitted, on account of the duration of the tests to determine the deterioration factors, that these are declared within a maximum of three hundred and sixty-five days, beyond the current year, counted from the date of issue of the CAC/LCVM. *(paragraph added by Resolution No. 315/02)*

§ 2 During this period, the factors set out in art. 4, § 4, of the Resolution will be applied, for the issue of CAC/LCVM. *(paragraph added by Resolution No. 315/02)*

§ 3 To the cluster of engines that have an increase in sales volume forecast, at the time of renewal of the CAC/LCVM for the following year, surpassing the ceiling of fifteen thousand units per year, it will be admitted, on account of the duration of the tests to determine the deterioration factors, that these are declared within a maximum of three hundred and sixty-five days, outside the current year, counted from the date of revalidation of CAC/LCVM. *(paragraph added by Resolution No. 315/02)*

¹⁴² Corrected in DOU No. 65, of April 3, 1966, Page 5538

¹⁴³ Corrected in DOU No. 65, of April 3, 1966, Page 5538

Art. 8. From January 1, 1998, the importers of light passenger and commercial light motor vehicles, equipped with Otto cycle engine, can apply the emissions of vehicles whose engine cluster¹⁴⁴, classified according to Standard ABNT 5:17.01-007 or substitute standard, have annual sales forecast less than 15,000 units, the deterioration factors of article 4 of this Resolution, alternatively to the

Obtaining of deterioration factors through the test prescribed in project standard ABNT 5:17.01-007 or substitute standard.

Art. 9. As from January 1, 1998, the importers of light passenger and commercial light motor vehicles, equipped with Otto cycle engine, must apply the deterioration factors obtained according to project standard ABNT 5:17.01-007 or substitute standard, to the emissions of vehicles whose engines cluster, classified according to this same project standard or substitute norm, have annual sales forecast more than 15,000 units in the approvals made to meet the limits.

§1. During 1997 importers may use the deterioration factor of 10% for all pollutants.

§ 2 For vehicles that do not have certain factors, it will be admitted, on account of the duration of the tests to determine the deterioration factors, that these are declared, within a maximum of three hundred and sixty-five days, beyond the current year counted from the date of issue of the LCVM. *(paragraph added by Resolution No. 315/02)*

§ 3 During this period, the factors set out in art. 4, § 4, of the Resolution will be applied, for the issuance of LCVM. *(subparagraph added by Resolution No. 315/02)*

§ 4 For clusters of engines that have an increase in sales volume forecast, at the time of revalidating the LCVM for the following year, surpassing the limit of fifteen thousand units per year, it will be admitted, on account of the duration of the tests to determine the deterioration factors, that these are declared within a maximum of three hundred and sixty-five days beyond the current year, counted from the date of revalidation of LCVM. *(paragraph added by Resolution No. 315/02)*

Art. 10. The tests of imported vehicles as per project Standard ABNT 5:17.01-007 or substitute standard, for the compliance with this resolution, may be held abroad, being always subject to technical inspection by IBAMA, whose costs will be the responsibility of the importer

Art. 11. The trials of national vehicles or those produced in MERCOSUR countries, according to the project Standard of ABNT 5:17.01-007 or substitute standard, in order to meet this Resolution¹⁴⁵, they are subject to technical inspection by IBAMA, being that this monitoring costs will be the responsibility of the manufacturer.

Art. 12. To those who breach the provisions in this resolution IBAMA may suspend the issuance of new LCVM and will input the penalties provided for in Law 6.938 dated August 31, 1981, without prejudice to any other penalties provided for in specific legislation, as well as the penalties for criminal and civil character.

Art. 13. This Resolution shall enter into force on the date of its publication.

GUSTAVO KRAUSE-Council President

RAUL JUNGMAN-Executive Secretary

This text does not replace the one published in the Official Gazette, on December 29, 1995.

¹⁴⁴ Corrected in DOU No. 65, of April 3, 1966, Page 5538

¹⁴⁵ Corrected in DOU No. 65, of April 3, 1966, Page 5538

CONAMA RESOLUTION 15, December 13, 1995

Published in Official Gazette 249 on December 29, 1995, Section 1, pp. 22876-22877

Correlations:

- Changes CONAMA Resolution No.18/86 and 3/89 for pollutant emission limits for new vehicles with Otto cycle engine and for new light passengers' vehicles and light commercial, with Diesel cycle engine, domestic or imported.
- Changes CONAMA Resolution No. 8/93 for pollutant emission limits for new light passenger vehicles and light commercial vehicles , with Diesel cycle engine, imported and domestic.
- Amended by CONAMA Resolution No. 242/98 (changed mended article 5 § 2)

Establishes provisions for new classification of motor vehicles for the control of vehicular emissions of gases, particulate and evaporative matter and makes other provisions

The NATIONAL ENVIRONMENT COUNCIL-CONAMA, pursuant to the powers granted it by Law 6.938 dated August 31, 1981, regulated by Decree 99.274 from June 6, 1990 and its amendments, taking into account the provisions laid down in its rules of procedure, and,

Considering that the emission of pollutants by motor vehicles contributes to the continuing deterioration of air quality, especially in urban centers;

Considering the need of continuous update of program control of air pollution by motor vehicles-PROCONVE;

Considering national production and imports of motor vehicles, along with the need for international harmonization, resolves:

Art. 1 Establish for the control of vehicular emissions of gaseous, particulate and evaporative material, new classification of motor vehicles, from January 1, 1996.

§ 1 Light passenger motor vehicle: self-propelled vehicle with a maximum authorized total weight up to 3856 kg and mass of the vehicle in running order up to 2720 kg, designed to carry up to 12 passengers, or derivatives thereof for the transport of cargo.

§ 2 Light commercial vehicle: self-propelled vehicle not derived from light passenger vehicle with a maximum authorized total weight up to 3856 kg and mass of the vehicle in running order to 2720 kg, designed for the transportation of cargo or mixed or their derivatives, or designed to carry more than 12 passengers, or with special features for off-road use.

§ 3 The vehicle with special features for use off-road: four-wheel drive and at least four of the following characteristics calculated for the vehicle with the weight in running order on flat surface, with the front wheels parallel to the longitudinal centre line of the vehicle and tyres inflated to the pressure recommended by the manufacturer:

- minimum 25° angle of attack;
- minimum output angle 20°;
- implementing minimum ramp angle 14°;
- ground clearance between the axles, minimum 200 mm;
- ground clearance under the front and rear axles, at least 180 mm.

§ 4 Heavy vehicle: self-propelled vehicle for the transportation of passengers or cargo, with a maximum authorized mass greater than 3856 kg or¹⁴⁶ mass of the vehicle in running order greater than 2720 kg, designed for the transportation of passengers or cargo.

Art. 2 Adopt the following definitions for the purposes of this Resolution.

§ 1. Maximum authorized total mass - maximum mass of the vehicle as defined by the relevant legislation for the operating conditions established thereby.

§ 2 Mass of the vehicle in running order - mass of the vehicle with bodywork and with all electrical equipment and ancillaries required for the normal operation of the vehicle, plus the mass of the elements that the vehicle manufacturer provides as standard or optional, and which must be listed and the mass of the following components, provided they are normally supplied by the manufacturer:

- lubricants;
- coolant;
- washer fluid (windscreen);
- fuel (tank stocked with at least 90% of the capacity specified by the manufacturer);
- spare tire(s);
- fire extinguisher (s);
- spare parts;
- wheel chocks;
- toolkit.

¹⁴⁶ Corrected in DOU No. 65, of April 3, 1996, Page 5538

Art. 3 Establish pollutant emission limits for new vehicles with Otto cycle engine, to replace those set out in CONAMA Resolutions Nos. 18/86 and 03/89.

§ 1. As from January 1, 1996, the exhaust gas emission for light passenger vehicles, domestic or imported, and commercial light vehicles imported. Shall not exceed the following values:

- a) 12.0 g/km of carbon monoxide (CO);
- b) 1.2 g/km of hydrocarbons (HC);
- c) 1.4 g/km of nitrogen oxides (NOx);
- d) 0.15 g/km total aldehydes (CHO);
- e) 2.5% carbon monoxide (CO) at idle.

§ 2 As from January 1, 1996, the exhaust gas emission for light vehicles with a maximum authorized total weight up to 2800 kg, national or produced in the MERCOSUR countries, shall not exceed the following values:

- a) 24.0 g/km of carbon monoxide (CO);
- b) 2.1 g/km of hydrocarbons (HC);
- c) 2.0 g/km of nitrogen oxides (NOx);
- d) 0.15 g/km total aldehydes (CHO);
- e) 3.0% of carbon monoxide (CO) at idle.

§ 3 As from January 1, 1996 until December 31, 1997, the national commercial or light vehicles produced in MERCOSUR countries, with total maximum authorized mass greater than 2800 kg, are exempted from meeting the emission limits, except with regard to the emission of crankcase gases which must be null in any system of engine work.

§ 4 As from 1 January 1997, the exhaust gas emission for light passenger vehicles and imported, shall not exceed the following values:

- a) 2.0g/km of carbon monoxide (CO);
- b) 0.3 g/km of hydrocarbons (HC);
- c) 0.6 g/km of nitrogen oxides (NOx);
- d) 0.03 g/km total aldehydes (CHO);
- e) 0.5% of carbon monoxide (CO) at idle.

§ 5 As from January 1, 1997, the exhaust gas emission for light vehicles imported with commercial vehicle test mass up to 1700 kg, shall not exceed the following values:

- a) 2.0 g/km of carbon monoxide (CO);
- b) 0.3 g/km of hydrocarbons (HC)
- c) 0.6 g/km of oxides of nitrogen (NOx)
- d) 0.03 g/km total aldehydes (CHO);
- e) 0.5% of carbon monoxide (CO) at idle.

§ 6 As from January 1, 1997, the exhaust gas emission for light vehicles imported with commercial vehicle test mass greater than 1700 kg, shall not exceed the following values:

- 6a) .2 g/km carbon monoxide (CO);
- b) 0.5 g/km of hydrocarbons (HC);
- c) 1.4 g/km of nitrogen oxides (NOx);
- d) 0.06 g/km total aldehydes (CHO), or 0.10 gkm provided that the sum of hydrocarbons and aldehydes do not exceed 0.50 g/km;
- e) 0.5% of carbon monoxide (CO) at idle;

§ 7 As from January 1, 1996, all light passenger vehicles or light commercial, domestic or imported, the evaporative emission shall not exceed 6.0 g per test, except for vehicular methane gas powered vehicles and those included in § 3 of this article, and should have null Crankcase gas emissions in any system of engine work.

§ 8 As from January 1, 1998, the exhaust gas emission by light commercial vehicles, domestic or produced in MERCOSUR countries, with mass of vehicle for test up to 1700 kg, shall not exceed the following values:

- a) 2.0 g/km of carbon monoxide (CO);
- b) 0.3 g/km of hydrocarbons (HC);
- c) 0.6 g/km of nitrogen oxides (NOx);
- d) 0.03 g/km total aldehydes (CHO);
- e) 0.5% of carbon monoxide (CO) at idle;

§ 9 As from January 1, 1998, the exhaust gas emission by light commercial vehicles, or produced in the countries of MERCOSUR, with the test vehicle mass greater than 1700 kg, shall not exceed the following values:

- a) 6.2 g/km carbon monoxide (CO);
- b) 0.5 g/km of hydrocarbons (HC);
- c) 1.4 g/km of nitrogen oxides (NOx);
- d) 0.06 g/km total aldehydes (CHO), or 0.10 g/km provided that the sum of the emission of hydrocarbons and aldehydes do not exceed 0.50 g/km;
- e) 0.5% of carbon monoxide (CO) at idle.

§ 10. In case it is not possible to meet the total aldehydes emission limit established in § 4°, 5° § and § 8°, alcohol powered vehicles, they may, alternatively, during the period from January 1, 1997 to December 31, 1998, not exceed 0.06 g/km provided that the sum of the emissions of hydrocarbons (HC) and total aldehyde (CHO) do not exceed 0.3 g/km and that the technical justification for the use of this alternative be accepted previously by IBAMA.

§ 11. Until December 31, 1996, based on environmental needs, IBAMA will regarding alternative mentioned in § 10, reviewing the total aldehydes emission limit (CHO), for application as from January 1, 1999.

Art. 4 The emission levels measured in light passenger vehicles and light commercial vehicles, expressed in g/km, refers to the mass of pollutant emitted per kilometer run.

§ 1. The emissions of carbon monoxide (CO), hydrocarbons (HC) and oxides of nitrogen (NOx) shall be measured in accordance with Standard NBR-6601, of 1990 - Motor Light road vehicles-Determination of hydrocarbons, carbon monoxide, nitrogen oxides and Carbon dioxide in exhaust Gas.

§ 2 The total aldehyde emissions (CHO) must be measured in accordance with Standard NBR-12026, of 1990 - Light Motor road vehicles - Measurement of Aldehydes Emission and Ketones are contained in the Exhaust Gas, by Liquid Chromatography - Method NEPHROLOGY;

§ 3 The fuel evaporative emission shall be measured in accordance with Standard NBR-11481, of 1990 - Light road vehicles-measurement of Evaporative Emissions.

§ 4 The emission of carbon monoxide at idling should be measured ¹⁴⁷according to Standard NBR-10972, of 1989 - Motor Light road vehicles-measurement of concentration of carbon monoxide in the exhaust Gas idling

Laboratory Test, updated by projects of standards: 05:017.01-004 - infrared analyzer of carbon monoxide (CO), hydrocarbons (HC) and carbon dioxide (CO₂), contained in the exhaust gas of motor vehicles-lightweight specification and 05:017.01-005 - infrared Analyzer of carbon monoxide (CO), hydrocarbons (HC) and carbon dioxide (CO₂) contained in exhaust gas of motor vehicles light-test method.

Art. 5 Set new emissions limits for new light passenger vehicles and light commercial, with Diesel cycle engine, domestic or imported, in replacing those established by CONAMA Resolution No. 0893.

§ 1. As from January 1, 1996, the light passenger vehicles or light commercial vehicles must meet the same exhaust emission limits, prescribed in § 1, § 2, § 4, § 5, § 6, § 8 and § 9 of art. 3 of this resolution, except as to content of total aldehyde (CHO) and carbon monoxide (CO) at idle, measured according to the test methods and test equipment defined in the "Code of Federal Regulations" of the United States of America, Title 40, Part 86, July 1992, which will serve as a basis for IBAMA to sanction a specific complimentary standard.

§ 2 As from January 1, 1996, the emission of particulate matter from exhaust gas from light passengers vehicles and light commercial vehicles with test mass up to 1700 kg, must not exceed ~~0.05g/km~~ 0.124g/km and for light commercial vehicles, with the test vehicle mass greater than 1700 kg, shall not exceed 0.16 g/km, measured according to the method of test and analysis equipment defined in § 1 of this article. (new limit established by Resolution No. 242/98)

§ 3 From January 1, 1996 to December 31, 1997, the national commercial or light vehicles or those produced in MERCOSUR countries, with total maximum authorized mass greater than 2800 kg, must meet the requirements set out in Resolution No. 8/93 of CONAMA for heavy vehicles or, alternatively, the limits below, measured in accordance with the test method and test equipment defined in paragraph 1 of this article, the turbo-powered engines being exempted from zero-emissions requirement of crankcase gases:

- a) 12.0 g/km of carbon monoxide (CO);
- b) 1.2 /gkm of hydrocarbons (HC);
- c) 1.4 g/km of nitrogen oxides (NOx);

§ 4 The light commercial vehicles with total authorized weight¹⁴⁸ greater than 2000 kg, can meet the requirements established by CONAMA Resolution No. 893 for heavy vehicles, alternatively to procedures established in this article, provided that the characteristics of the engine allow the test, the turbo-powered engines being in this case exempted from the requirement of zero-emissions of crankcase gases.

Art. 6 IBAMA shall propose exhaust emission limits more suited to light vehicles new commercial Diesel cycle, in order to ensure the compliance with requirements provided for in § 2 and § 4 of art. 5 of this Resolution, in accordance with § 8 of art. 2 of CONAMA Resolution No. 893.

Art. 7 To those breaching the provisions in this Resolution, IBAMA may suspend the issuance of new LCVM and will input the penalties provided for in Law 6.938 dated August 31, 1981, without

¹⁴⁷ Corrected in DOU No. 65, of April 3, 5538

¹⁴⁸ Corrected in DOU No. 65, of April 3, 5538

prejudice to any other penalties provided for in specific legislation, as well as the penalties for criminal and civil character.

Art. 8. This resolution shall enter into force on the date of its publication.

Gustavo Krause-Council President
Raul Jungman-Executive Secretary

This text does not replace the one published in the Official Gazette, of December 29, 1995.

CONAMA RESOLUTION 16, December 13, 1995
Published in Official Gazette 249 on December 29, 1995, Section 1, pp. 22877-22878

Correlations:

- Complements CONAMA Resolution No. 893, establishing the approval and certification of new Diesel cycle engines for light or heavy vehicle applications, as to the content of smoke (opacity) under free acceleration.
- Supplemented by CONAMA Resolution No. 251/99 as to the control opacity levels of motor vehicle Diesel cycle in use.

Rules on the maximum residue limits for the emission of pollutants for engines for new heavy-duty vehicles, national and imported, and determines the homologation and certification of new vehicles of Diesel cycle as the smoke index under free acceleration

The NATIONAL ENVIRONMENT COUNCIL-CONAMA, pursuant to the powers vested on it by Law 6.938 dated August 31, 1981, regulated by Decree 99.274 from June 6, 1990 and its amendments, taking into account the provisions laid down in its Internal Rules, and,

Considering that the emission of smoke and particulate matter from vehicles contributes to the continuous degradation of air quality;

Considering the existence of proven techniques, solutions that enable increased emission control for Diesel-powered vehicles and assist in monitoring and inspection and maintenance programs for in-use Vehicles – I/M;

Considering national production and imports of motor vehicles and engines, along with the need for international harmonization;

Considering the provisions of the Code of Consumer Protection and Defense, Law 8.078, of September 11, 1990, resolves:

Art. 1 In addition to the CONAMA Resolution No. 893, of January 1, 1996, the new Diesel cycle engines for light or heavy vehicle applications, must be approved and certificated as to the smoke index certificates (opacity) under free acceleration through the test procedure described in Standard NBR-13037-Exhaust Gas Emitted by Diesel Engine at Free Acceleration - Determination of Opacity, in conformity with the limits defined in § 1 and § 2 of this article.

§ 1. Vehicles which meet the requirements of Phase II, defined in CONAMA Resolution No. 893, must be certified by a declaration by the manufacturer of the relevant index of smoke (opacity) under free acceleration to be used as a parameter of engine tuning and assessment of the state of maintenance of the vehicle in the Inspection and Maintenance Programs for In-use Vehicles - IM.

§ 2 in the case of vehicles that meet Phase III, as defined in CONAMA Resolution 893, the free acceleration smoke limits to be met within the reference atmospheric conditions, are as follows:

- Turbocharged engines: 1.19 m⁻¹ (40 HSU).

§ 3 To meet reference atmospheric conditions, the atmospheric factor *af* must be in 0.98 < *af* < 1.02 range.

§ 4 The atmospheric factor *af* shall be calculated by the following expression, as defined by the Directive 72306EWG of the European Economic Community, of August 2, 1972, including all later updates,

$$fa = \frac{(750)^{0,65}}{(H)} * \frac{(T)^{0,5}}{(298)}$$

Where

H = observed atmospheric pressure (mmHg);

T = Test temperature (K).

§ 5 The opacity under free acceleration values, obtained in approval tests and certification of new vehicles, conducted at altitudes in excess of 350 m and which do not meet the conditions laid down in paragraph 2 of this article, may be corrected for the reference atmospheric conditions, through the division of values in m⁻¹ by numerical factors determined by the manufacturer, provided that these do not exceed 1.50 and 1.35 for naturally aspirated and turbocharged engines, respectively.

§ 6 The opacity measurements can be made with any design that meets Standard NBR-12897 - Employment of the Opacimeter for Measuring the Soot Content of Motor Diesel - Light Absorption

Method, since it may be correlated with a sampling opacimeter with .43 m effective length of the light path through the gas.

Art. 2 The manufacturer or final bodywork manufacturer of the vehicle shall display on column B from the front right door, a label with the smoke index value, under free acceleration smoke, being responsible for the opacity value declared, this label provided by the chassis manufacturer.

§ 1. This label, with the opacity value to be used as limits for the assessment of the state of maintenance of the vehicle on the Inspection and Maintenance Programs of Vehicle in Use – I/M, should display the value of the opaque reference atmospheric conditions, declared in the homologation and certification process of the engine and/or vehicle, including a tolerance for the dispersion of production of maximum 0.5 m⁻¹.

§ 2 The label with the opacity value should be weather-resistant adhesive, in yellow, square with minimum size of 15 mm and with black digits with a height of a minimum of 5 mm and two decimal places, without the unit (m⁻¹).

§ 3 For the purposes of this Resolution, it is understood as column B of the vehicle, the structural ceiling support, nominally vertical, against which the front door is closed.

Art. 3 The owner manuals and vehicle service must contain the value of the index of smoke (opacity) under free acceleration set for the label, according §1 of article 2 of this Resolution; angular speeds (rpm) of idling and free maximum of engine; correction factor or the value already corrected to altitudes in excess of 350 m and the necessary clarifications to the use of this information for the correct maintenance of the vehicle.

Art. 4 The limits of smoke under free acceleration shall be reviewed until December 31, 1996, with the aim of its compatibility with the international legislations and Environmental requirements, for deployment by January 1, 2000, in accordance with paragraph 8 of article 2 of the CONAMA Resolution 8/93.

Art. 5. In addition to CONAMA Resolution 8/93, establish emission control release of crankcase gases in Diesel cycle turbocharged engines for heavy vehicles, keeping the limits for hydrocarbons (HC) set out in Table 1 of the same Resolution, provided the crankcase gas emissions from new engines turbo powered are 1.3% maximum intake air flow (m³/hour)determined for certification of engines.

Art. 6 To those breaching the provisions in this Resolution, IBAMA may suspend the issuance of new LCVM and will input the penalties provided for in Law 6.938 dated August 31, 1981, without prejudice to any other penalties provided for in specific legislation, as well as the penalties for criminal and civil character.

Art. 7. this resolution shall enter into force on the date of its publication.

Gustavo Krause-Council President
Raul Jungman-Executive Secretary

This text does not replace the one published in the Official Gazette, of December 29, 1995.

CONAMA Resolution 226, August 20, 1997
Published in Official Gazette 166 on August 29, 1997, Section 1, pp. 18985-18986

Correlations:

- Complements CONAMA Resolution 893 which establishes maximum residue limits for soot emission at full load and the changes to vehicles or motors, domestic and imported, produced to meet phase IV (EURO II)
- Amended by CONAMA Resolution No. 24198 - Deadlines for Compliance with the Requirements Concerning PROCONVE, are the same for imported and domestic vehicles
- Amended by CONAMA Resolution No. 32103 (tables I and III)

Establishes maximum limits for soot/black smoke emissions by motor vehicles

The NATIONAL ENVIRONMENT COUNCIL - CONAMA, pursuant to the powers vested on it by Law 6.938 dated August 31, 1981, regulated by Decree 99.274 from June 6, 1990, bearing in mind the provisions of its Internal Rules, and

Considering Law 8.723, of October 28, 1993, which provides for the reduction of emission of pollutants emitted from motor vehicles, as part of the Environmental National Policy;

Considering that the emission of pollutants by motor vehicles contributes to the continuing deterioration of air quality, especially in urban centers;

Considering the need of continuous update of program control of air pollution by motor vehicles - PROCONVE;

Considering national production and imports of motor vehicles, along with the need for international harmonization, resolves:

Art. 1 Confirm the limits for phase IV, the dates of their implementation, as envisaged in CONAMA Resolution nº 8, of August 31, 1993, and additionally establish maximum residue limits for the emission of soot to full load, as per the table in ANNEX A to this resolution.

Sole paragraph. Authorize, for Diesel cycle engines with a cylinder swept volume maximum equal to 0.7 dm³ and maximum speed 3000 rpm or more, the limit of 0.25 g/kWh for the emission of particulate matter, and this limit may be reviewed at any time at the discretion of the Brazilian Institute of the Environment and Natural Renewable Resources (IBAMA).

Art. 2 Approve commercial Diesel oil specifications and the schedule, as well as distribution regions listed in the tables of ANNEX B to this Resolution.

Sole paragraph. Recommend to the National Department of Fuels - DNC to make official the specifications of the caput of this article.

Art. 3 Vehicles or engines, domestic or imported, produced to meet Phase IV (EURO II), will be considered vehicles/engines intended to produce data needed to the determination of the emission deterioration factor which shall be fixed by the CONAMA until December 31, 1999, the same released from meeting the provisions of art. 10 of CONAMA Resolution nº 81993.

§ 1. IBAMA, will create the working group envisaged in CONAMA Resolution No. 8/93, that has as the objective of deploying the test schedule and technical assessment of the behavior of produced vehicles and engines to meet Phase IV (EURO II), as to the durability of emission of pollutants, using Diesel with maximum content of sulphur mass of 0.2% and propose to CONAMA the fixing of the emission deterioration factor.

§ 2 The Working Group also aims to resume negotiations, starting January 1998, on the Diesel with maximum content of 0.05% of mass of sulphur.

§ 3 During this period, the manufacturers/importers of engines/vehicles and the fuel manufacturers/distributors should ensure the immediate service to their user, should any technical problem is detected involving the operation of the engines dealt with in the caput of this article and, if it is found the correct operation/maintenance thereof, and fuel storage/supply system, by its owners, this service has no burden to them, and the costs involved, of the sole responsibility of the manufacturers/importers of engines/vehicles and manufacturers/distributors.

Art. 4. This Resolution shall enter into force on the date of its publication.

GUSTAVO KRAUSE GONÇALVES SOBRINHO-Council President
RAIMUNDO DEUSDARÁ FILHO-Executive Secretary

ANNEX A
SOOT EMISSION CEILINGS
AT FULL LOAD FOR DIFFERENT ALTITUDES

Air flow (l/s)	For altitudes below or equal to 350 m		For altitudes greater than 350 m	
	Bosch Unit (UB)	Coef. Abs. Light (m ⁻¹)	Bosch Unit (UB)	Coef. Abs. Light (m ⁻¹)
≤ 42	4.61	2.26	5.11	2.94
45	4.55	2.19	5.05	2.85
50	4.46	2.08	4.96	2.71
55	4.37	1.99	4.87	2.58
60	4.28	1.90	4.78	2.47
65	4.22	1.84	4.72	2.40
70	4.16	1.78	4.66	2.31
75	4.10	1.72	4.60	2.24
80	4.03	1.67	4.53	2.17
85	3.98	1.62	4.48	2.11
90	3.93	1.58	4.43	2.05
95	3.88	1.54	4.38	2.00
100	3.83	1.50	4.33	1.95
105	3.79	1.47	4.29	1.91
110	3.74	1.43	4.24	1.86
115	3.70	1.40	4.20	1.82
120	3.66	1.37	4.16	1.78
125	3.63	1.35	4.13	1.75
130	3.59	1.32	4.09	1.72
135	3.57	1.30	4.07	1.69
140	3.52	1.27	4.02	1.65
145	3.49	1.25	3.99	1.63
150	3.45	1.23	3.95	1.60
155	3.42	1.21	3.92	1.57
160	3.40	1.19	3.90	1.55
165	3.37	1.17	3.87	1.52
170	3.34	1.16	3.84	1.50
175	3.32	1.14	3.82	1.48
180	3.29	1.13	3.79	1.56
185	3.27	1.11	3.77	1.45
190	3.24	1.10	3.74	1.43
195	3.21	1.08	3.71	1.41
≥200	3.19	1.07	3.69	1.39

Determined in accordance with the standards and their updates, prescribed in CONAMA Resolution n° 8, of August 31, 1993, article 6, § 1.

ANNEX B
TABLE I-SPECIFICATIONS FOR COMMERCIAL DIESEL OIL

CHARACTERISTI CS	Unit	SPECIFICATIONS(1)					ASTM METHOD
TYPES	--	A (2)	B (3)(7)	C (7)	D (4)	E (7)	
ASPECT	--	Limpid and free from impurities					Visual
ASTM color, max	--	3,0	3,0	3,0	3,0	3,0	D 1500
COMPOSITI ONSulphur,	% mass	1,00	0,5	0,3	1,00	0,20	D 1552, D 2622 or D 4294
VOLATILITY Distillation 50% recovered 85% recovered. máx Flash point, min Density at 20°C/4°	° c °C	245-310 370 -- 0,8200 a 0,8800	245-310 370 -- 0,8200 0,8800	245-310 360 -- 0,8200 to 0,8800	245-310 370 60 0,8200 to 0,8800	245-310 360 -- 0,8200 to 0,8700	D 86 D 93 D 1298 or D 4052
FLUIDITY Viscosity at 40 °C Filter's cold obstruction	cSt °C	1,6 - 6,0 (5)	1,6 - 6,0 (5)	1,6 - 6,0 (5)	1,6 - 6,0 (5)	1,6 - 6,0 (5)	D 445 IP 309
CORROSION Corrosivity to copper (3 hs at 50 °C), max	--	2	2	2	2	2	D 130
COMBUSTION Ashes, máx RCR, at final 10% of distillation. max Cetane number , min Minimum Cetabe rate computed	% mass % mass	0,020 0,25	0,020 0,25	0,020 0,25	0,020 0,25	0,020 0,25	D 482 D 524 D 613 D 4737
CONTAMINANTS Water and e	% vol.	0,05	0,05	0,05	0,05	0,05	D 1796

- (1) All limits specified are absolute values according to ASTM E-29.
(2) Marketed in all Brazil except in the metropolitan regions mentioned in the TABLE III. Will stop being marketed as from January 1998, being replaced by Diesel type B.
(3) Diesel fuel marketed in the metropolitan regions of the capitals listed in TABLE III, until October 1997. From January 1998, it will be marketed in all Brazil, outside of metropolitan areas.
(4) Diesel fuel for use in marine engines.
(5) In accordance with TABLE II.
(6) In the case of Brazilian refineries which do not have CFR engine, it is waived the determination of the cetane number. However, the Diesel oil should have the number of cetane assured according to the specifications.
(7) It will be marketed in the metropolitan regions in accordance with the program of improvement of Diesel oil, according to the timeline set out in TABLE III.

CHARACTERISTI CS	Unit	SPECIFICATIONS(1)				ASTM METHOD
TYPES		A	B	C	D	
ASPECT	-	Limpid and free from impurities				Visual
ASTM color, max	-	3,0				D 1500

COMPOSITIO NSSulphur,	% mass	0,10	0,20	0,35	0,50	D 1552, D 2622 or D 4294
VOLATILITY Distillation 50% recovered 85% recovered. max Flash point, min Density at 20°C/4°	°C °C	245-320 - 360 0,8200 to 0,8600	245-320 - 360 - 0,8200 to 0,8700	245-310 370 - - 0,8200 to 0,8800	245-320 370 - - 0,8200 to 0,8800	D 86 D 93 D 1298 or D 4052
FLUIDITY Viscosity at 40 °C Filter's cold obstruction	CSt °C	1,6 - 6,0 (2)	1,6 - 6,0 (2)	1,6 - 6,0 (2)	1,6 - 6,0 (2)	D 445 IP 309
CORROSION Corrosivity to copper	-	2	2	2	2	D 130
(3 hs at 50 °C), max COMBUSTION Ashes, máx RCR, at final 10% of Cetane number , min	% mass % mass	0,020 0,25 42 (3) 45	0,020 0,25 42 (3) 45	0,020 0,25 40 (3) 45	0,020 0,25 40 (3) 45	D 482 D 524 D 613 D 4737
Minimum Cetane rate CONTAMINANTS	% vol.	0,05	0,05	0,05	0,05	D 1796

(new table given by Resolution No. 321/03)

(1) All limits specified are absolute values according to ASTM E-29

(2) According to table II

(3) In the case of Brazilian refineries without CFR engine, it is waived the determination of the cetane number. However the Diesel fuel cetane number should be assured according to the specifications.

Table II – Cold filters clogging point (° C, maximum values)

STATES	JAN-FEB-MAR- DEC	APR-OCT- NOV	MAY-JUN-JUL-AUG- SEPT
DF - GO - MG - ES - RJ	13	11	07
SP - MT - MS	12	09	05
PR - SC - RS	11	08	02

Table III – Program for improvement of Diesel Oil / deployment schedule

TYPE OF DIESEL OIL	OCT/1966	OCT-/1997	JAN/1998	JAN/2000
DIESEL A (1,0% of sulphur)	Other regions	Other regions	Extinct	extinct
DIESEL B (0,5% of sulphur)	Porto Alegre, Curitiba, Rio de Janeiro, Belo Horizonte, Recife	--	Other regions	Other regions

DIESEL ^C (0,3% of sulphur)	São Paulo, Santos, Cubatão, Salvador, Aracaju	Preceding regions and Porto Alegre, Curitiba, São José dos Campos, Rio de Janeiro	Porto Alegre, Curitiba, São José dos Campos, Campinas, Belo Horizonte, Belém	extinct
DIESEL E (0,2% of sulphur)	--	--	São Paulo, Santos, Cubatão, Rio de Janeiro, Salvador, Aracaju, Recife, Fortaleza	Preceding regions and Porto Alegre, Curitiba, São José dos Campos, Campinas.

TYPE OF DIESEL OIL	JAN/2000	JAN/2002
DIESEL A (0,10% of sulphur)	-	São Paulo Metropolitan Region, Baixada Santista, São José dos Campos and
DIESEL ^B (0,20% of sulphur)	São Paulo, Santos, Cubatão, Rio de Janeiro, Salvador, Aracaju, Recife, Fortaleza, Porto Alegre, Curitiba, São José	Rio de Janeiro Metropolitan region, Salvador, Aracaju, Recife, Fortaleza, Porto Alegre, Curitiba, Belo Horizonte and Belém
DIESEL C (0,35% of sulphur)	-	Other regions
DIESEL D (0,50% de of	Other regions	Extinct

(New table given by Resolution No. 321/03)

This text does not replace the one published in the Official Gazette of August 29, 1997.

CONAMA RESOLUTION 241, June 30, 1998
Published in Official Gazette 148, on August 5, 1998, Section 1, page 43

Correlations:

- Changes CONAMA Resolutions in 8/93 and 226/97, making the time limits for compliance with the requirements concerning PROCONVE to be the same for imported and domestic vehicles

Establishes provisions for the deadlines for the fulfillment of PROCONVE demands for imported vehicles.

The NATIONAL ENVIRONMENT COUNCIL-CONAMA, pursuant to the powers vested on it by Law 6.938 dated August 31, 1981, regulated by Decree 99.274 from June 6, 1990, and bearing in mind the provisions of its Internal Rules, and

Considering that Law 8.723, of October 28, 1993, in its article 4 stipulates that "the imported vehicles are required to meet the same limits and other requirements established in the totality of its sales in the domestic market"; resolves:

Art. 1 Deadlines to comply with the requirements relating to PROCONVE for imported vehicles provided for in CONAMA Resolutions, in particular No. 8, of August 31, 1993, and 226, of August 20, 1997, shall be the same as those provided for domestic vehicles.

Art. 2. This Resolution shall enter into force on the date of its publication, revoking the provisions to the contrary.

GUSTAVO KRAUSE GONÇALVES SOBRINHO-Council President
RAIMUNDO DEUSDARÁ FILHO-Executive Secretary

This text does not replace the one published in the Official Gazette of August 5, 1998.

CONAMA RESOLUTION 282, July 12, 2001
Published in Official Gazette 220 on November 19, 2001, Section 1, pages 93-95

Correlations:

• Complements CONAMA Resolution n° 18/86 to establish emission control requirements for catalytic converters produced specifically for replacement.

Establishes requirements for the replacement of catalytic converters and makes other provisions.

The NATIONAL ENVIRONMENT COUNCIL-CONAMA, pursuant to the powers vested on it by Law 6.938 dated August 31, 1981, regulated by Decree 99.274 from June 6, 1990, bearing in mind the provisions of its Internal Rules, and

Considering the provisions of art. 6 of Law 8.723, of October 29, 1993, and art. 98 of Law 9.503, of September 23, 1997, establishing the need for prior authorization from the competent organs for the original design specification changes of vehicles,

Considering the emission control systems with catalytic converters feature high-efficiency in reducing exhaust emissions from motor vehicles and that these catalytic converters suffer wear or are damaged and, therefore, require replacement;

Considering that catalytic converters do not need to present original characteristics of quality and durability compatible with the needs of environmental control;

Considering that the programs of vehicular inspection will require replacement in large amounts of catalytic converters;

Considering the needs of adequate identification of catalytic converters at the time of acquisition and of supervisory action in auto parts distribution systems, of field inspection and carrying out of vehicle inspection programs, resolves:

Art. The distribution and marketing of catalytic converters for replacement, in vehicles with Otto cycle engine, shall only be authorized for vehicles who have obtained registration of the SUPPLIER'S DECLARATION-DF, in accordance with the provisions of Resolution No. 4, of December 16, 1998, of the National Council of Metrology, Standardization and Industrial Quality-CONMETRO.

§ 1 The definitions laid down in ANNEX I shall be considered for the purposes of this Resolution

§ 2 The DF should come accompanied by the FORM FOR ELABORATION OF THE SUPPLIER'S DECLARATION OF REPLACEMENT CATALYTIC CONVERTER, ANNEX II of this resolution, and forwarded to the National Institute of Metrology, Standardization and Industrial Quality-INMETRO and Brazilian Institute of the Environment and Natural Renewable Resources - IBAMA within a period of up to sixty days prior to the inclusion of the catalytic converter in the market.

§ 3 In case of changes in the dimensional, geometric characteristics, of formulation of substances participating in the catalysis process of exhaust gases, of support to catalytic substances and tunneling, and of new applications for the replacement catalytic converter, the manufacturer or importer must issue a new DF and forward it to INMETRO and IBAMA.

§ 4 The exception to the provisions laid down in this Resolution are the original catalytic converters.

§ 5 The manufacturer or importer of replacement catalytic converter shall update the DF with INMETRO and IBAMA at every two years.

Art. 2 For the issue or updating of DF, the manufacturer or importer of replacement catalytic converters shall meet the requirements for issuing or updating of DF, listed in ANNEX III, of this Resolution.

Art. 3 It will be admitted the installation of an oxidation-reduction-type catalytic converter of replacing one of the oxidation type.

Art. 4 In cases of voluntary or compulsory recall, held by manufacturers, distributors or importers of vehicles involving operational deficiency of original catalytic converter, will not be allowed the use of non-original catalytic converters in its place.

Art. 5. Manufacturers and importers of replacement catalytic converters shall submit annual reports to IBAMA specifying the volume of sales by product type and model.

Art. 6th IBAMA may, at its discretion, and at any time, select samples of batches of catalytic converters with the manufacturers or importers to prove compliance to the requirements of this resolution.

Art. 7 Catalytic converters intended to spare, that have the DF, must exhibit a specific identification with indelible characteristics, approved by IBAMA and by INMETRO, from the date of this Resolution.

Art. 8. It is up to the manufacturer and the importer, respectively, the responsibility for the collection and environmentally appropriate final disposal of discarded catalytic converters after their use.

Art. 9 INMETRO may seize stocks of replacement catalytic converters sold without the DF or that are not in compliance with the provisions of this Resolution.

Art. 10. Expenditures arising from the actions of this Resolution, such as essays, gatherings, administrative costs, costs with product, of personnel transport, issuance of the DF, including those arising out of the actions provided for in art. 6 of this Resolution, shall be borne by the manufacturer, importer or legal representative.

Art. 11. The failure to comply with the provisions of this Resolution will subject violators to the penalties and sanctions referred to in Law 9.605, of February 12, 1998, in Decree 3.179 from September 21, 1999, and in the specific legislation.

Sole paragraph. Without prejudice to the penalties and sanctions referred to in the caput of this article, INMETRO, after hearing IBAMA, may cancel the existing DFs.

Art. 12. It shall be the responsibility of IBAMA and INMETRO, upon prior consultation to IBAMA, to decide on the omissive cases to this Resolution;

Sole paragraph. IBAMA must submit twice a year to CONAMA a brief report concerning the results of the implementation of this Resolution.

Art. 13. This Resolution shall enter into force 180 days after its publication.

JOSÉ CARLOS CARVALHO-Interim Council President

ANNEX I
DEFINITIONS

I - **Catalyst**: ceramic or metallic element redolent of chemicals responsible for chemical reactions,

II - **Substrate**: ceramic or metallic element used as support for catalyst chemicals;

III - **Catalytic converter**: set consisting basically of one or more catalysts and metal enclosure;

IV - **Oxidation catalytic converter**: promotes the oxidation of hydrocarbons and carbon monoxide contained in exhaust gases;

V - **Oxidation-reduction catalytic converter**: promotes the oxidation of hydrocarbons and carbon monoxide contained in exhaust gases and reduces the nitrogen oxides;

VI - **Original catalytic converter**: equipment or set approved by the vehicle manufacturer and its identification;

VII - **Replacement catalytic converter**: catalytic converter or a set of catalytic converters that presents general characteristics similar to the original catalytic converter(s);

VIII - **Supplier's declaration-DF**: document issued by the manufacturer or importer of the catalytic converter to the market which, in accordance with Resolution 04, of December 16, 1998, from the National Council of Metrology, Standardization and Industrial Quality, gives written assurance that a product complies with the requirements of this Resolution;

IX - **Operational durability**: durability of catalytic converter, checked after accumulation of mileage, according to the cycle established in NBR-14008-Motor Light Road Vehicles – Determination of Emission Deterioration Factor of Gases During the Accumulation of Shooting;

X - **Conversion Efficiency**: percentage of reduction of carbon monoxide (CO) and hydrocarbons (HC) and oxides of nitrogen (NOx) calculated from the emission measurements before and after the catalytic converter, according to standard procedure;

XI - **Manufacturer**: supplier of the replacement catalytic converter, complete and ready for installation on the vehicle;

XII - **Importer**: responsible for importation of replacement catalytic converter, complete and ready for installation on the vehicle.

ANNEX II
FORM FOR THE ISSUANCE OF A DECLARATION BY THE SUPPLIER - DF OF
REPLACEMENT CATALYTIC CONVERTER

The Supplier's Declaration of catalytic converter for replacement, to be forwarded to IBAMA and INMETRO, according to § 2, art. 1 this Resolution must be accompanied by form below, duly completed.

- I – Manufacturer/importer (corporate name and address in full);
- II – Brand/model/type/version;
- III - Catalyst Volume (cm³);
- IV - The total weight of the catalytic converter (kg);
- V - Application (detailed description stating the physical layout, brand and model of vehicle, brand and model of the engine(s), fuel types);
- VI - Substrate: (quantity, material, geometric shape, wall thickness and number of cells per are unit);
- VII - Catalyst: (supplier(s), composition and mass of the noble metals used);
- VIII – Shape/type of fixation of substract;
- IX - Thermal insulation form/type;
- X - Features of metal enclosure (material, number of plates, plate thickness, constructive form);
- XI – Manufacturer/importer’s legal Representative (name and address in full);
- XII - Accompanying documents (number and title of the documents/reports/guarantees/leaflets etc., submitted for analysis of application for approval);
- XIII - Date and place;
- XIV - Name and signature of the person responsible

ANNEX III
REQUIREMENTS FOR ISSUING OR UPDATING
SUPPLIER'S DECLARATION

I - about the product:

a) check conversion efficiencies equal or greater than 70% for carbon monoxide (CO), hydrocarbons (HC) to 70% and 60% for nitrogen oxides (NO_x) for minimum operational durability of 40,000 km as established in "TEST PROCEDURES FOR PURPOSES OF ISSUANCE OF THE SUPPLIER'S DECLARATION FOR CATALYTIC CONVERTERS FOR REPLACEMENT", ANNEX IV of this Resolution;

b) ensure that the structural strength of the product is compatible with the minimum operational durability of 40,000 km;

c) ensure use compatible with commercial fuels for the recommended application;

d) prove that the maximum back pressure measured within a variation band equal to $\pm 20\%$ of that measured under the same conditions with the original catalytic converter;

e) assure the thermal insulation equivalent to the original catalytic converter;

f) guarantee that it won't interfere negatively in terms of safety, drivability, performance, in general operation, in thermal comfort and fuel consumption of the vehicle;

g) ensure that its normal use will not increase the noise emission of the vehicle, as measured in accordance with NBR-9714 - Noise Emitted by Motor Vehicles Stopped -Test Method, and result in the emission of harmful substances.

II – as to the installation of the product:

a) provide to those responsible for the distribution, sale and installation of products, technical catalogues, containing information as to its characteristics, application, installation requirements and warranty;

b) keep training courses stressing that:

1. the catalytic converter installation follows the same layout and location of the original product and enable integration with other suitable catalytic converters, if the vehicle has originally more of a converter;

2. be installed only catalytic converters suitable and recommended for each application;

3. the catalytic converter is installed according to the recommendations of the manufacturer or importer, does not show any leakage of exhaust gases and noise, and increase of connections with sensors and air guns are redone properly and do not affect the operational efficiency of these components.

ANNEX IV
TEST PROCEDURES FOR ISSUANCE OF THE DECLARATION BY THE
SUPPLIER OF REPLACEMENT CATALYTIC CONVERTERS

I - the catalytic converter object of issue of the supplier's declaration shall be properly identified as to its characteristics, as set out in ANNEX II TO this Resolution, for each application set by the manufacturer or importer.

II - The tests of exhaust gas emission, required to subsidize the development of supplier's declaration shall be made with the catalytic converter installed on at least one vehicle representative of the application set, which should have the following characteristics:

a) to be in a good state of maintenance and tuning of the engine according to specification by the manufacturer of the vehicle. In case of unavailability of the original engine under appropriate conditions of use, it will be accepted the use of reconditioned engine, provided the reconditioning process has been done according to the manufacturer's specifications;

b) present original configuration of gas exhaust system, which should not present leaks or any other abnormalities;

c) represent the application with higher sales projection and, among such application, be the vehicle providing greater operational request to the catalytic converter. The identification of the application with the highest operational request should follow the precepts laid down in NBR-14008-Motor Light Road Vehicles – Determination of Emission Deterioration Factor of Gases During the Accumulation of Shooting or, in the case of this methodology does not identify such implementation, the second alternative procedure, properly described, justified and presented together with the documentation provided for in ANNEX I of this Resolution.

III - The selection of vehicles for applications defined and, if applicable, a detailed description of the alternative procedure adopted should be submitted prior to the carrying out of the trials, for IBAMA's approval, either directly or through technical body agreed

IV - The tests of exhaust gases must be conducted in a laboratory accredited by INMETRO and follow the provisions of the standards NBR-14008-Road Light Motor Vehicles – Determination of the Factor of Deterioration of Gas Emission During the Accumulation of Shooting, NBR-6601- Light Road Motor Vehicles – Determination of hydrocarbons, carbon monoxide, nitrogen oxides and carbon dioxide in exhaust-gas test method, and NBR-8689- Light Road Motor Vehicles - Test Fuels-Gasoline, Alcohol and Gasohol.

V - The test shall obey the following sequence:

a) after installation of the catalytic converter, object of issue of the Supplier's Declaration, the vehicle must accumulate a minimum of 40,000 km, or the distance corresponding to the operating durability guaranteed, whichever is greater, as the cycle defined in NBR-14008. It will be admitted the accumulation of mileage for alternative method, provided the same results in equivalent effect and be accepted previously by IBAMA.

b) upon reaching the mileage established, the vehicle shall be subjected to the test of exhaust gas emission, as per NBR-6601, and should be measured gross issuance and controlled emissions of CO, HC and NO_x, respectively before and after the catalytic converter;

c) the controlled emission should be initially measured. Subsequently, the catalytic converter must be replaced by a device that simulates the same back pressure caused by their presence and the vehicle should have its gross issuance. Alternatively to this procedure, it is assumed the gas gathering before and after the catalyst during the same test, provided that the sampling system configuration and gas permits analysis;

d) three trials should be performed for each condition of gross and controlled emission, and the arithmetic means should be calculated. Tests that produce results with more than 15% variation between the highest and the lowest value measured for CO, HC and NO_x, expressed as grams of pollutant/km, must be discarded. In these cases, the tests shall be repeated until three consecutive measurements are valid for all three gases. Based on averages calculated for gross (Eb) and controlled (Ec) emissions, it should be calculated for CO, HC and NO_x the conversion efficiency (E) according to the following formula: ¹⁴⁹

$$E = \frac{Eb - Ec}{Eb} \times 100$$

¹⁴⁹ Corrected in DOU No. 26, of February 6, 2006, Pager 67

VI - The manufacturer or importer shall attach to the manufacturer's declaration to be forwarded to IBAMA and INMETRO, as referred to in § 1, article 1 of this Resolution, the originals of emission test reports, calculations regarding registered conversion efficiency, data components used in the tests, indicating the date of its manufacture, the mileage accumulation period and the vehicle or alternative system that held it and other pertinent information for verification of compliance.

VII - In case of conformity of results with the requirements of this Resolution, the manufacturer or importer shall keep available to INMETRO and IBAMA or its technical body, for a minimum period of 30 days from the notification of the results to IBAMA or its technical body, the vehicle and the catalytic converter used in the tests, for possible confirmatory test.

This text does not replace the one published in the Official Gazette, of November 19, 2001.

CONAMA RESOLUTION 291, October 25, 2001
Published in Official Gazette 79 on April 25, 2002, Section 1, pp. 130-131

Establishes complete regulations for the conversion of vehicles to gas combustion and makes other provisions.

The NATIONAL ENVIRONMENT COUNCIL-CONAMA, pursuant to the powers vested on it by Law 6.938, of August 31, 1981, regulated by Decree 99.274 from June 6, 1990, bearing in mind the provisions of Laws 8.723, of October 28, 1993, 9.503, of September 23, 1997, Decree 1.787 from January 12, 1996 in CONTRAN Resolution No. 25 of May 21, 1998, and in its Internal Rules, and

Considering the provisions of the Program for Air Pollution Control by Motor Vehicles-PROCONVE established by the National Environmental Council, through resolution CONAMA No. 18, of June 6, 1986, and other complementary Resolutions;

Considering the Programs of Inspection and Maintenance of Vehicles in Use-IM, defined in CONAMA Resolution No. 7, of August 31, 1993, supplemented by CONAMA Resolution No. 227, of August 20, 1997; Considering that the interest of the environmental sector in the sense of motor vehicles incorporating technological advances of controlling emissions of pollutants;

Considering the need of continuous update of PROCONVE, as well as complementing its execution procedures, resolves:

Art. 1. It is hereby established the Environmental Certificate for Use of Natural Gas in Vehicles-CAGN.

§ 1. The CAGN will be issued by the Brazilian Institute of the Environment and Renewable Natural Resources -IBAMA, for each model of Set of Components of the Natural Gas system for motor vehicles, for each type of motorization, as per art. 2, subparagraph IV, of this Resolution, and for each fuel, in the name of the manufacturer or importer expiring on an annual basis, and may be renewed provided all procedures of this Resolution are complied with.

§ 2 As from ninety days of the publication of this Resolution, the vehicle having a Set Components of the GN System may only be registered in the state transit organs by presenting the CAGN.

Art. 2 The following deadlines are hereby established to meet emission limits applicable to the "Set of Components of the GN system " in Otto-cycle engines, accomplishing with the technological level established in the phases of the Program for the Control of Air Pollution by Motor Vehicles-PROCONVE:

I - up to 90 days after the publication of this Resolution, regardless of the phase of PROCONVE, all vehicles with CNG systems installed must meet the limits established in CONAMA Resolution No.7, of August 31, 1993, and its technological level configuration, as shown in the ANNEX.

II - up to 90 days after the publication of this Resolution, the manufacturers and importers of components for GN should declare the typical values of the emission of gaseous pollutants for vehicles with CNG installed systems that meet the phase III of PROCONVE (vehicles produced from January 1997 on), using the most representative vehicle/model.

III - After twelve months of the publication of this resolution, the company interested in receiving the CAGN, shall present a vehicle with its Set of Component of GN System for Otto-cycle Vehicles of phase III of PROCONVE approved according to the requirements prescribed in CONAMA Resolutions No.18, of May 6, 1986, and 15, of December 13, 1995, and in accordance with the configuration of its technological level, pursuant to ANNEX to this resolution.

IV - after twenty-four months from the publication of this Resolution, the Components of the GN System for Otto-cycle vehicles of phase III of PROCONVE are homologated according to the class of engine and fuel volume, as mentioned below, and pursuant to the requirements prescribed in CONAMA Resolutions Nos. 18, of May 6, 1986, 18 and 15, of December 13, 1995 and in accordance with the configuration of its technological level, appearing in the ANNEX to this resolution: technologic, as contained in the ANNEX to this Resolution:

- a) class A: up to 1000 engine capacity;
- b) class B: from 1000 to 1500 engine capacity;
- c) class C: 1500 to 2000 engine capacity;
- d) class D: from 2000 to 2500 engine capacity; and
- e) class E : over 2500 engine capacity.

V-after thirty-six months from the publication of this Resolution, the set of Components of the GN System for Otto-cycle vehicles of phase III of PROCONVE shall be approved according to the requirements of item III of this article, by brand/model/motorization of the vehicle.

§1. The GN Conversion Systems for Otto-cycle vehicles, intended for vehicles produced to meet the later stages to phase III, shall be homologated in accordance with the rules governing those phases, by brand/model/motorization of the vehicle.

§ 2 All vehicles with more than five years of manufacture with GN system installed, regardless the phase of PROCONVE, should have regard to the provisions of paragraph I of this article.

§ 3 At the time of the GN system re-installation of a vehicle to another, it must meet the provisions of this article, as per the situation of the vehicle object of the reinstallation.

Art. 3 GN system installations for the Phase III vehicles of PROCONVE and later phases must meet the conditions listed below:

I - GN System installation cannot modify any of the embedded technological resources, such as: catalyst, oxygen sensor, stepper motor, learning system, calibration, among others;

II - the emission levels of gaseous pollutants of a vehicle with GN System installed shall not exceed the emission levels obtained for the same vehicle, prior to the installation of GN System, with the original fuel;

III - the levels of emissions of carbon monoxide (CO), nitrogen oxides (NOx) and non-methane hydrocarbons (NM-HC) of the vehicle with GN system installed, when measured with natural gas, shall be equal to or lower than those measured with the original fuel, except for the total hydrocarbons (THC);

IV. the evaporative emission test shall not apply.

Art. 4 the limits and procedures set out in this resolution apply to all installations of GN system performed in original settings already approved by IBAMA.

Art. 5. manufacturers and importers of components for GN interested in obtaining CAGN for GN system components, domestic or imported, must

submit request to IBAMA, together with technical information listed in the ANNEX to this resolution.

Art. 6 the tests for the purpose of obtaining CAGN for GN system components must be carried out in Brazil, in the laboratory surveyed by IBAMA, or accredited by the National Institute of metrology, Standardization and Industrial Quality-INMETRO, according to Brazilian standards and accompanied by IBAMA technician.

§ 1. The manufacturers or importers shall inform, at least thirty days before, the date of availability of the vehicle equipped with Set Components of the GN System to carry out the tests.

§ 2 The costs associated with conducting the tests will run on behalf of the manufacturer or importer, and shall be collected in the process of approval of the GN system components.

Art 7 IBAMA may request, in its sole discretion, a sample of lots of the Set of GN System Components, manufactured or imported for sale in the country, for the purpose of verifying compliance with the requirements of PROCONVE.

§ 1. The costs of compliance proof tests shall be borne by the manufacturer or importer.

§ 2 The finding of non-compliance with requirements of legislation, by the manufacturer or importer, implies the rejection of applications for the issue by CAGN, for the Set of GN System Components object from the request.

§ 3 The observation of non-fulfillment of the requirements of the legislation, after receiving the CAGN, implies the cancellation of the same, as well as in the collection of the lots involved to repair by the manufacturer or importer, and subsequent verification of conformity before IBAMA, in accordance with the requirements of current legislation, ensuring the effectiveness of the corrections made.

§ 4 The manufacturer or importer of the Set of GN system Components shall bear with all costs arising from the provisions of § 3.

Art. 8. For control purposes, the manufacturer or importer shall submit semiannually to IBAMA a report on sales volume of the Set of GN System Components marketed in this country through them.

Art. 9 The GN system installation in any type of motor vehicle, shall only be carried out by an installer registered with INMETRO.

Art. 10. The GN System installation on any type of motor vehicle shall only be permitted if Sets of GN System Components with CAGN are used and after compliance with the procedures authorized by IBAMA.

Art. 11. It will not be allowed to install the GN system in motor vehicles supercharged (turbo-compressor or volumetric compressor) adapted.

Sole paragraph. The provisions in the caput of this article shall not apply to the installation of the CNG system on turbocharged vehicles, thus originally configured by the factory.

Art. 12. The installation of GN system cannot change the parameters or calibration controls and existing systems for the vehicle using original fuel.

Art. 13. The company and the responsible technician for the installation of the CNG system are responsible for the performance of the vehicle with GN system installed and for compliance with the

requirements laid down in specific legislation and Inspection Programs Maintenance of Vehicles in Use-IM.

Sole paragraph. The emission limits, for purposes of inspection of these vehicles shall be those contained in the CONAMA Resolution No. 7, of August 31, 1993.

Art. 14. Until thirty days after the publication of this Resolution, all registered installers at INMETRO shall inform IBAMA the amount of GN systems installations already carried out until then and, at the end of each semester, the volume of GN system installations made through them, by informing the Set of GM System /components used.

Article 15 This Resolution shall enter into force on the date of its publication.

JOSÉ CARLOS CARVALHO-Council President

ANNEX
CONVERSION SYSTEM FEATURES
BI-FUEL ENGINES OF OTTO CYCLE

1. Manufacturer/importer of conversion system (set)

1.1. Corporate Name, National Record of Taxpayers, State registration

1.2. Technical Responsible with CREA

2. technological System Configuration

2.1. PROCONVE PHASE I

2.2. PROCONVE PHASE II

2.3. PROCONVE PHASE III

3. Description of engine

3.1. Manufacturer

3.2. Model

3.3. Year/model of vehicle equipped

3.4. Volumetric Displacement (cm³)

3.5. Fuels used

4. Operating characteristics for each fuel

4.1. Idling rotation (rpm)

4.2. Concentration of carbon monoxide (v) in idle and at 2500 rpm

4.3. Hydrocarbon concentration (ppm C) in idle and at 2500 rpm

4.4. Effective maximum net power momentum

4.5. Effective maximum net power

5. Intake system

5.1. Report any change in the original system of the vehicle, if any.

6. Formation of mixture

6.1. By carburetor

6.1.1. Feeding dosing system of GN, with detailed illustrative schema and brief description of operation;

6.1.2. Type (mixer or injector nozzle)

6.1.3. Location of mixer or injector nozzle

6.2. By fuel injection

6.2.1. Feeding dosing system of GN, with detailed illustrative schema and brief description of operation;

6.2.2. Type (mixer or injector nozzle)

6.2.3. Location of mixer

6.2.4. Injector nozzle Manufacturer

6.2.5. Injector nozzle type (code/specification)

7. Ignition system

7.1. On vehicles with carburetor

7.1.1. Advance Variator, with a brief description of the operation and the original advance with original fuel and GN

7.2. On vehicles with fuel injection

7.2.1. Resources and input and output parameters of the control unit

7.2.2. Description of the system (describe changes/replacements)

7.2.3. Specification of the initial advance

7.2.4. Opening of the electrodes of the spark plugs

7.2.5. Advance Variator (describing operation, original advance with original fuel with GN).

8. Relation of gn system components

8.1. Pressure reducer (quantity, manufacturer, part number);

8.2. Set of stepper motor (idem)

8.3. Set of idle stepper motor (idem)

8.4. Electronic control unit (idem)

8.5. Set venturi/mixer (idem)

8.6. Advance variator (idem)

8.7. System control unit of "closed loop" system (management of oxygen sensor signal) (idem)

8.8. Metering valve (idem)

8.9. Set of "Signal Simulators" emulators (injector, oxygen sensor, map - "Collector Pressure Meter" and others) with the respective wires (idem)

9. Procedures to perform the conversion (discriminate)

This text does not replace the one published in the Official Gazette, of April 25, 2002.

CONAMA RESOLUTION 297, February 26, 2002
Published in Official Gazette 51 on March 15, 2002, Section 1, pages 86-88

Correlations:

- Supplemented by CONAMA Resolution No. 342/03, establishing limits for exhaust emissions of gaseous pollutants for new motorcycles and similar vehicles
- Supplemented by CONAMA Resolution 432/2011

Establishes limits for the release of polluting gases by mopeds, motorcycles and similar new vehicles.

The NATIONAL ENVIRONMENT COUNCIL-CONAMA, pursuant to the powers vested on it by Law 6.938 dated August 31, 1981, regulated by Decree 99.274 from June 6, 1990, and bearing in mind the provisions of its Internal Rules, and

Considering the significant growth of the fleet of mopeds, motorcycles and the like in the major metropolitan areas of the country;

Considering that the emission of pollutants by mopeds, motorcycles and the like contributes to the continuing deterioration of the quality of life, especially in urban centers;

Considering that mopeds, motorcycles and the like are relevant sources of emission of pollutants harmful to human health and the environment;

Considering the existence of appropriate technologies, of proven efficiency, which enables to meet the needs of pollution control, resolves:

Art. 1 Establish the limits for emissions of gaseous pollutants by mopeds, motorcycles and similar vehicles.

Art. 2 Establish, from January 1, 2003, as a precondition for the import, production and marketing of new mopeds, motorcycles new and similar, throughout the national territory, the license for use of Mopeds, Motorcycles and the like-LCM;

§ 1 Only new mopeds settings, new motorcycles and the like, or any extension thereof, which contain LCM to be issued by the Brazilian Institute of the Environment and Natural Resources - IBAMA may be marketed in the National Territory.

§ 2 The LCM will be valid for the calendar year on which it is issued, and may be revalidated by IBAMA, annually, and will be the exclusive property of the person or entity requesting it.

§ 3 The LCM issued in the third quarter will have its validity specified also for the subsequent calendar year.

§ 4 The emission values of exhaust gases approved for an LCM can be extended to other settings, provided they use the same configuration of engine, transmission and exhaust system, and the mass in running order of the vehicle to receive the extension is, at most, a class of inertia above or below the vehicle initially approved as defined in ANNEX I of this resolution.

§ 5 The revalidation dealt with in § 1 of this article shall be granted only in cases where there is no change in the specifications provided for in ANNEX II of this Resolution.

Art. 3 For the purposes of this Resolution the definitions set out in ANNEX I of this Resolution shall be taken into account.

Art. 4 For obtaining LCM the interested party must submit a formal request to IBAMA, along with the information listed in ANNEX II of this Resolution.

Art. 5 The test method and the measurement of pollutants in exhaust gases must follow the requirements laid down in Annexes I and II of the European Community Directive No. 9724/EC, for mopeds and motorcycles and similar, respectively.

Sole paragraph. To meet o the determinations of the caput of this section, it will be used the version in force of the mentioned European Community Directive or the one that will replace it, until the procedures for regulated industries are laid down.

Art. 6 The emission tests for purposes of configuration of settings should be performed in Brazil, in a laboratory certified for o the relevant analysis by the National Institute of Metrology, Standardization and Industrial Quality-INMETRO, according to the requirements of this Resolution.

§ 1. The tests dealt with in the caput of this article shall be monitored by representatives of IBAMA or by a technical agent..

§ 2 Where, arguably, the lack of local conditions require the performance of overseas trials, it will be at the discretion of the IBAMA the approval of schedule of rehearsals, location, vehicles to be tested and the monitoring team that will be composed of a maximum of three technicians.

§ 3 For the tests performed on the National Territory, the manufacturers and importers shall inform, at least thirty days in advance, the date of availability of the vehicles to perform them.

§ 4 For tests conducted abroad, manufacturers and importers should report at least 60 days in advance, the date of availability of the vehicles to perform them.

§ 5 Manufacturers and importers must provide to IBAMA the documentation established in ANNEX II of this Resolution, at least twenty days before of testing.

§ 6 The competent environmental agency may, at any time, require additional testing in accredited laboratories.

§ 7 The costs associated with conducting the tests will be borne by the manufacturer or importer.

Art. 7 The maximum exhaust gas emission limits for new mopeds are the following:

I - For vehicles produced from January 1, 2003: the carbon monoxide): 6.0 g/km;

b) nitrogen oxides hydrocarbons: 3.0 g/km;

II - For launching of new models with the new engine settings, power systems, transmission and exhaust, produced from January 1, 2005: the carbon monoxide): 1.0 g/km;

b) nitrogen oxides hydrocarbons: 1.2 g/km;

III - For all models produced from January 1, 2006, the emission limits shall be established to in sub-clauses "a" and "b" of section II of this article.

Art. 8. The maximum exhaust gas emissions for motorcycles and the like are the following:

I - For vehicles produced from January 1, 2003: the carbon monoxide): 13.0 g/km;

b) hydrocarbons: 3.0 g/km;

c) nitrogen oxides: 0.3 g/km;

d) carbon monoxide content at idle: 1-6.0 in volume for motorcycles with volumetric displacement less than or equal to two hundred and fifty cubic centimeters; and

2 - 4.5% in volume for motorcycles with volumetric displacement greater than two hundred and fifty cubic centimeters.

§ 1. To the launching of new models with the new engine settings, power systems, transmission and exhaust, produced from January 1, 2005, IBAMA will propose to CONAMA, until December 31, 2002, the new limits to be met.

§ 2 For all models in production from January 1, 2006, the emission limits shall be the same to be laid down in paragraph 1 of this article

§ 3 To establish the proposal referred to in paragraph 1 of this article, IBAMA should be based on the corresponding limits adopted by the European Community in its second stage of control.

Art. 9. On the date of entry into force of the limits set out in this Resolution and the dates of changing the limits provided for in their arts. 7 and 8, it shall be permitted, for a period of four months, the sale of stock of vehicles manufactured before the entry into force of the new limits.

Art. 10. For mopeds, the marketing of which is less than four thousand units per year, with same configuration of engine/vehicle, regardless of the type of finishing available, the manufacturer can request to IBAMA the exemption of the compliance with the ceilings of exhaust gas regulations, provided for in art. 7 of this Resolution, and the total maximum admitted, by manufacturer, of ten thousand units per year

§ 1 The waiving of service to current emission ceilings does not exempt the manufacturer or importer to request their LCM to the IBAMA.

§ 2 As from January 1, 2005, for the new releases of mopeds, the waiver of service to current emission ceilings of the exhaust gas will be for sale less than 50 units per year, for vehicles equipped with the same configuration of engine/vehicle, being the total maximum of one hundred units per year per manufacturer.

Art. 11. For motorcycles and similar vehicles, equipped with the same engine/vehicle configuration, regardless of the type of finish available and whose marketing is less than 50 units per year, the manufacturer or importer may request to IBAMA the exemption of the compliance with the ceilings to exhaust gas regulations, referred to in art. 8 of this Resolution, and the total maximum, by manufacturer of one hundred units per year.

§ 1. May also be exempted those vehicles which, even belonging to a configuration to which the maximum emission limits apply, constitute a series for specific use: military use, for research of alternative fuels to gasoline and

To automotive diesel oil, in sporting events and special launchings, thus considered at the discretion and judgment of IBAMA.

§ 2 The waiving of compliance with existing emission ceilings does not exempt the manufacturer or importer to request their LCM by the IBAMA.

Art. 12. For all mopeds, motorcycles and the like:

§ 1. As from January 1, 2006, the maximum emission of gaseous pollutants shall be guaranteed in writing by the manufacturer or importer, in accordance with the durability criteria to be established by CONAMA until December 31, 2003.

§ 2 IBAMA must submit to CONAMA, until December 31, 2002, the regulatory proposal for emission durability criteria contemplated in paragraph 1 of this article.

§ 3 The fuel for the tests must be of "emission test pattern" type, defined by IBAMA, and comply with the regulations established by the National Petroleum Agency (ANP), and the gasoline-alcohol mixture should be prepared in a proportion of $22.0\% \pm 1.0\%$ of anhydrous alcohol by volume.

§ 4 The engine lubricating oils used for emission testing should be in accordance with the recommended for normal use in their vehicle owner's manual.

Art. 13. Spare parts which exert influence on vehicle emissions, excluding those with original manufacturer's warranty, must have their quality certified by INMETRO

Sole paragraph. INMETRO, when establishing certification procedures in the caput of this article, should listen to the IBAMA.

Art. 14. Twelve months after the date of publication of this Resolution, the manufacturers or importers of mopeds, motorcycles and the like should declare to IBAMA, until the last working day of each calendar semester, typical values of carbon monoxide, hydrocarbons and nitrogen oxides in the exhaust gas of all setting of vehicles being produced, as well as present the criteria used for obtaining and concluding the results.

Sole paragraph. The typical values of the levels of carbon monoxide and hydrocarbons at idling speed shall be declared by the manufacturer and importer to IBAMA, within six months from the date of publication of this Resolution.

Art. 15. The exhaust gas emission and its control mechanisms established in this Resolution, integrate, in national character, the Program for the Control of Air Pollution by Motorcycles and Similar Vehicles-PROMOT, which will be executed by IBAMA, with the goals of:

I - reducing the emission levels of gaseous pollutants by mopeds, motorcycles and the like, in order to meet national environmental quality standards in force;

II - promoting the national technological development of the industry of motorcycles and similar vehicles, both in engineering design and manufacturing, and also in methods and equipment for testing and measurements of the emission of pollutants;

III - proposing criteria and limits for inspection and maintenance of mopeds, motorcycles and similar in use, as to the emission of gaseous pollutants;

IV - promoting the awareness of the population regarding the environmental pollution caused by mopeds, motorcycles and the like;

Art. 16. As from January 1, 2003, aiming at the correct adjustment of the engines, the manufacturers and importers of mopeds, motorcycles and the like shall provide to the consumer through the owner's manual, the recommended values of:

I-concentration of carbon monoxide and hydrocarbons in exhaust gases, idling, expressed as a percentage by volume and parts per million (ppm), respectively;

II-angular velocity of the engine at idling, expressed in revolutions per minute.

Sole paragraph. The recommended values in items I and II of this article shall be specified in the nameplate or sticker on all vehicles, in a protected and accessible spot.

Art. 17. As from January 1, 2003, manufacturers and importers must disclose, especially in Service Manuals and Owner's Manual, the following:

I-that the vehicle meets the requirements of the Program for the Air Pollution Control of Air Pollution by Motorcycles and Similar Vehicles-PROMOT.

II-information about the importance of proper vehicle maintenance to reduce air pollution.

Sole paragraph. From the date referred to in the caput of this article, any promotional material in the media, specialized or otherwise, concerning vehicle model with a LCM, shall inform, in a clear and objective manner, compliance with this Resolution.

Art. 18. IBAMA, based on reasoned and substantiated facts, can order, at its discretion, samples of batches of vehicles produced or imported for sale in the country, for the purpose of verifying compliance with the requirements of this resolution, through emission testing

§ 1. The cost of tests of conformity, made in Brazil or abroad, as well as the results of any actions of repair and storage, will be borne by the manufacturer or importer of the vehicle.

§ 2 The verification of the non-fulfillment of the requirements of this Resolution, on the part of the manufacturer's or importer's vehicle, implies the cancellation of the respective LCM, the offender being prevented from continuing its marketing throughout the national territory.

§ 3 The observation of non-fulfillment of the requirements of the legislation after the LCM is obtained, will entail the recall of the lots involved to repair by the manufacturer or importer and later evidence to IBAMA, in accordance with the requirements of this Resolution, thus ensuring the effectiveness of the corrections made.

Art. 19. As from January 1, 2006, manufacturers and importers are required to submit semiannually to IBAMA vehicle emission reporting being produced-REVP, referring to the configurations produced or imported during the previous calendar semester;

Sole paragraph. IBAMA will propose to CONAMA, until December 31, 2003, the specific rules and obligations concerning the Report dealt with in the caput of this article.

Art. 20. The emission limits of pollutants and specific procedures for the periodic inspection of vehicles in use in the Vehicle Inspection Programs will be established in its own Resolution to be proposed by IBAMA to CONAMA until December 31, 2002.

Art. 21. Manufacturers and importers shall send monthly to IBAMA, from the date of commencement of the authorized marketing of vehicle configurations or models, the sales data of their products.

Art. 22. The manufacturer or importer shall authorize the entry of agents accredited by IBAMA into its premises, whenever he deems necessary to comply with this Resolution.

Art. 23. The results of tests for certification of vehicles already in production are not considered confidential and may be used in the preparation of information to be disclosed.

Art. 24. The revision of the ceilings of the exhaust gas emission set out in this Resolution or the establishment of new ceilings will be coordinated by IBAMA, summoning, at any time, the bodies involved and present to CONAMA the proposal for regulation for its consideration.

Art. 25. The non-compliance with this Resolution shall lead to the application of penalties laid down in Law 9.605, of February 12, 1998, regulated by Decree 3.179 from September 21, 1999.

Art. 26. This resolution shall enter into force on the date of its publication.

JOSÉ CARLOS CARVALHO-Council President

ANNEX I DEFINITIONS

Mopeds: Two-wheel vehicle and its similar three-wheeled (tricycle) or four wheelers (quadricycle), equipped with an internal combustion engine, whose cylinder capacity does not exceed 50 cubic centimeters and maximum speed of manufacture does not exceed fifty kilometers per hour.

Inertia Class: it refers to the equivalent inertia of the vehicle used in the test and varies according to the mass in running order as established in the European Community Directive No. 97/24/EC, in its Annexes I and II, for mopeds and motorcycles and similar vehicles, respectively.

Engine configuration: unique combination of engine family, emission system, volumetric displacement, fuel system and ignition system.

Vehicle configuration: unique combination of engine, inertia and transmission including their relations from the gear box to the wheel.

Exhaust gases: substances that originate in internal combustion engine and sent into the atmosphere by the engine exhaust system.

Hydrocarbons: total organic substances, made up of unburned fuel fractions and by-products resulting from combustion.

Mass in running order: is the total mass of the vehicle with all the necessary fluids tanks supplied as recommended by the manufacturer, and the fuel tank with at least 90% of its maximum capacity.

Mass of the vehicle for test: is the mass in running order, plus 75 kg.

Idling: engine working scheme, specified by the manufacturer or importer, operating with no load.

Vehicle model: name that characterizes a production line of vehicles of the same manufacturer with the same features, except ornamentals.

Motorcycle: two-wheeled motor vehicle and the like three-wheeled (tricycle) or four wheelers (quadricycle), with internal combustion engine having a cylinder capacity exceeding 50 cc and whose maximum speed exceeds fifty kilometers per hour.

Carbon monoxide: pollutant gas, resulting from the incomplete combustion of fuels in internal combustion engines.

Nitrogen oxides: pollutants gases generated by the combination of air oxygen and nitrogen under the conditions of temperature and pressure inside the cylinder of the engine.

Revalidation: To extend the validity of the LCM for next calendar year, provided the homologated vehicle does not show any changes in its basic configuration.

Typical emission value: pollutant emission value, obtained through statistical surveys and which should represent the configuration of motorcycles and the like, and cannot be considered as specific regulated limit.

ANNEX II
FORM OF CHARACTERISTICS OF THE VEHICLE

A - ENGINE FEATURES

1. Description of Engine

- 1.1. Manufacturer:
- 1.2. Type:
- 1.3. Motor Cycle: () 4 times () 2 times
- 1.4. Number and arrangement of cylinders:
- 1.5. Diameter of the cylinder(s): (mm)
- 1.6. Travel of the piston(s) (mm)
- 1.7. Volumetric displacement (cm³)
- 1.8. Compression ratio:
- 1.9. Drawings of combustion chamber and piston, including rings
- 1.10. Cooling System
- 1.11. Use of supercharging: (describe)
- 1.12. Drawing air filter(s), or manufacturer and type
- 1.13. Lubrication system (2 stroke engines)

2. Additional pollution control systems

- 2.1. Description and diagrams

3. Air supply systems and fuel

- 3.1. Description and diagrams of the air intake system
- 3.2. Fuel supply system
 - 3.2.1. By carburetor part number:
 - 3.2.1.1. Manufacturer:
 - 3.2.1.2. Type / model;
 - 3.2.1.3. Specifications:
 - 3.2.1.3.1. Injectors:
 - 3.2.1.3.2. Venturis:
 - 3.2.1.3.3. Vat level:
 - 3.2.1.3.4. Weight of the float:
 - 3.2.1.3.5. Float needle valve:
 - 3.2.1.4. Choke: () manual () automatic
 - 3.2.1.5. Pressure of Feeding Pump: Pressure (or characteristic diagram)
 - 3.2.2. By injection system:
 - 3.2.2.1. Feed pump
 - 3.2.2.1.1. Manufacturer:
 - 3.2.2.1.2. type/model:
 - 3.2.2.1.3. Volume injected: mm³ per cycle of rotation rpm
 - 3.2.2.2. Injecting nozzles
 - 3.2.2.2.1. Manufacturer:
 - 3.2.2.2.2. Type/model:
 - 3.2.2.2.3. Opening pressure (Mpa)

4. Valve Actuation

- 4.1. Valve actuation by mechanical means
 - 4.1.1. Maximum lift and angles of opening and closing
 - 4.1.2. Valve clearance
- 4.2. Distribution by windows (2T)
 - 4.2.1. Volume of Carter with piston at bottom dead point
 - 4.2.2. Description of reed valves, if any (show drawings)
 - 4.2.3. Description of head (with drawings) and valve diagram

5. Ignition system

- 5.1. By distributor
 - 5.1.1. Manufacturer;
 - 5.1.2. Type/ model:
 - 5.1.3. Ignition advance curve
 - 5.1.4. Initial ignition advance:
 - 5.1.5. Slack in contact:

6. Exhaust System

- 6.1. Description and diagrams

7. Additional Information on test conditions

- 7.1. Lubricant used
 - 7.1.1. Manufacturer:
 - 7.1.2. Type:

- 7.1.3. Percentage of addition to fuel: (% vol.)
- 7.2. Spark plugs
 - 7.2.1. Manufacturer:
 - 7.2.2. Type:
 - 7.2.3. Opening: (mm)
- 7.3. Ignition coil
 - 7.3.1. Manufacturer:
 - 7.3.2. Type:
- 7.4. Ignition condenser
 - 7.4.1. Manufacturer:
 - 7.4.2. Type:
- 7.5. Idling System. Describe operation and adjustment, cold start.
- 7.6. Concentration of carbon monoxide at idling: (% vol.)

8. Engine performance data

- 8.1. Idling rotation (rpm)
- 8.2. Maximum power: rotation (rpm)
- 8.3. Maximum power: kW

B-DESCRIPTION OF VEHICLE

- 1. Manufacturer:
- 2. Importer:
- 3. Brand/ Model/ version:
- 4. Fuel:
- 5. Engine used:
- 6. Mass in running order: (kg)
- 7. Test vehicle mass: (kg)
- 8. Resistive power on roll: (kW)
- 9. Transmission: () manual () automatic
- 10. Number of gears:
- 11. Gear ratios:
- 12. Final transmission Ratio
- 13. Tyres
 - 13.1 Type:
 - 13.2. Measure:
 - 13.3. Dynamic Radius: (mm).

C-COMPLEMENTARY DATA:

- 1-Name, address and telephone number(s) of its representative(s) accredited by the manufacturer or importer, those responsible and date.
- 2-Signature of the legal representative of the manufacturer or importer.
- 3-The vehicle's Owner Manual or recommendations and procedures for maintenance of the vehicle.
- 4-Estimated number of vehicles to be sold per year.
- 5-Declaration of manufacturer / importer of vehicles, produced from the date on which the Term of Characterization, reflect the descriptions and specifications of that term.

This text does not replace the one published in the Official Gazette, of March 15, 2002.

RESOLUTION 299, October 25, 2001
Published in Official Gazette 95 on May 20, 2002, Section 1, pp. 67-68

Establishes procedures for the elaboration of rate reports for the control of emissions by new vehicles, including imported vehicles.

The NATIONAL ENVIRONMENT COUNCIL-CONAMA, pursuant to the powers vested on it by Law 6.938, of August 31, 1981, regulated by Decree 99.274 from June 6, 1990, and bearing in mind the provisions of Law 8.723, of October 28, 1993, and CONAMA Resolution No. 18, of May 6, 1986, as well as the provisions laid down in its Internal Rules, and

Considering the environmental concerns on the use of vehicles that incorporate technological advances already deployed and validated emission in the country;

Considering the requirements of the Program for Control of Air Pollution by Motor Vehicles-PROCONVE, established under the National Environment Council-CONAMA by CONAMA Resolution No. 18, of May 6, 1986, and other complementary Resolutions;

Considering the need of continuous updating of ROCONVE, as well as the completion of its implementation procedures, resolves:

Art. 1 Establish the Report on Emission Values of Production-RVEP for the vehicle settings or engines, domestic or imported, produced for marketing in the national territory for a period of one semester.

Art. 2 At the beginning of the semester, the manufacturer or the representative importer, shall provide to the Brazilian Institute of the Environment and Renewable Natural Resources-IBAMA, within thirty days, the RVEP relative to the immediately preceding semester.

§ 1. The reports must contain the identification of the laboratory and performer and, for the configuration of the vehicle or engine tested, date and number of the respective tests with their emission values obtained, as well as the mean and standard deviation and, for each configuration of vehicle or engine, should be provided the reference value, as defined in the ANNEX of this Resolution

§ 2 – Biannual volumes smaller than one thousand units per light vehicle configuration including its extensions, and the biannual volumes smaller than 100 units per engine setting for heavy vehicle, are exempted from the requirements of this article.

§ 3 IBAMA, in the case of the exemptions referred to in the first subparagraph, may select at its discretion, a sample of lots of new vehicles or engines with the manufacturers or representatives in the country, importers for proof of compliance with their regulated emission limits.

Art. 3. The failure to provide the reports, by the manufacturer or importer, representative, as provided in art. 2 of this Resolution, shall lead to the suspension, at the discretion of IBAMA of approvals, extensions or revalidations that the manufacturer or importer representative will request, until the abeyance is regularized, excepted those cases arising from force majeure or those technically justified.

Art. 4 All expenses arising from the actions of this Resolution, such as essays, recalls, repairs, administrative costs, costs of transporting the product or the personnel involved, shall be made exclusively by the manufacturer or its representative importer or, in its absence, by the importer responsible for the batch of vehicles or engines.

Art. 5 the conditions for the drawing up of RVEP are described in the ANNEX to this Resolution.

Art. 6 This Resolution enters into force one hundred and eighty days after the date of its publication.

JOSÉ CARLOS CARVALHO-Council President

This text does not replace the one published in the Official Gazette of May 20, 2002

**ANNEX
REPORTS OF EMISSION VALUES OF PRODUCTION (REVP)**

1. SPECIFIC CONDITIONS

1.1. The emission tests of light vehicles classified according to CONAMA Resolution No. 15, of 1995, are executed in accordance with Standards: NBR 6601-"Light Motor Road Vehicles - Determination of hydrocarbons, carbon monoxide, nitrogen oxides and carbon dioxide - Test Method "; NBR 10972-"Light Motor Road Vehicles – measurement of the concentration of carbon monoxide in the exhaust gas idling - Laboratory-Test method"; NBR 12026-"Light motor road vehicles-measurement of emission of aldehydes and ketones are contained in the exhaust gas, liquid-chromatographic Method NEPHROLOGY 1999;-test method", including their updated versions or ersatz, provided they are approved by IBAMA.

1.2. The emission testing of vehicles classified as per CONAMA Resolution No. 15, of 1995, as well as other classifications that will be tested as such, shall be implemented in accordance with Standards: NBR 14489-"Diesel-Engine Analysis and Determination of Gases and Particulates emitted by diesel cycle engines-Cycle 13 points"; NBR-7027 "Exhaust Gas emitted by Diesel engines-determination of soot content in constant regime-test method"; NBR-13037 "Exhaust Gas emitted by Diesel engine under free acceleration-determination of opacity-test method "; including their updated versions or ersatz, provided they are approved by IBAMA.

2. GENERAL CONDITIONS

2.1. For the elaboration of the REVP, new vehicles or engines will be used intended for the national market and approved by the quality control of the manufacturer or importer, randomly chosen on their assembly lines or stock, throughout the semester.

2.2. The emission tests for the REVP may be carried out at the premises of the manufacturer or of third parties provided they are carried out in a laboratory recognized by IBAMA, or accredited by INMETRO for this purpose.

2.3. The vehicle or engine selected for the REVP is subjected to tests for the determination of the pollutants regulated under the existing legislation contained in the exhaust gas in accordance with the standards specified in items 1.1 and 1.2.

2.3.1. For light passenger or commercial vehicles, it will not be established the evaporative emission.

2.3.2. Vehicles equipped with evaporative emission control system, can be tested without the fuel tank heating, as prescribed in NBR 6601.

2.3.3. For light gasoline-powered passenger or commercial vehicles, total aldehydes emission is not determined in any selected sampling, according to item 3, but only in five vehicles of the same, randomly distributed, respected the provisions of item 3.8.

2.4. Vehicles or engines of production will be tested without the running-in period, with their shooting in new condition.

2.4.1. For engines of production classified as being heavy vehicles, it can be applied a softening factor provided it is duly proven and accepted by IBAMA.

2.5. The selected vehicles or engines are tested only once.

2.6. The vehicles or engines tested, whose value of any pollutant "i" exceeds the respective limit established, should be reworked to meet at the same.

2.6.1. The vehicle or engine reworked should be tested again. The new value of x'_i is obtained shall not be included in the average L_i , but separately reported.

2.7. For each vehicle or engine configuration, the following condition must be met for each regulated pollutant:

$$\bar{x}_i + k \cdot s_i \leq L_i$$

$$s_i = \sqrt{\frac{\sum (x_i - \bar{x}_i)^2}{n - 1}}$$

Where:

\bar{X}_i = average of "i" pollutant

S_i = pattern deviation of "I" pollutant

K = statistical factor established in table No. 1
 N = No. of vehicles tested by configuration

\bar{X}_i = each value measures for “i” pollutant
 L_i = legal limit established for “i” pollutant

Table 1 – Statistical k factor

n	3	4	5	6	7	8	9	10	11
k	1.061	.978	.941	.920	.906	.896	.889	.883	.879

n	12	13	14	15	16	17	18	19	20	>20
k	.876	.873	.870	.868	.866	.865	.863	.862	.861	.860

3. DETERMINATION OF SAMPLING FOR RVEP

The sampling of vehicles or engines for the REVP should obey the following plan:

3.1. For new configurations of light vehicles, according to item 1.1:

It is classified as new lightweight vehicle configuration, the one corresponding to the semester in which their production was initiated. The extensions of the vehicles are classified according to their master configuration.

3.1.1. It is adopted as the reference value for the “I” pollutant the respective average value obtained in the certification to obtain the respective homologation.

3.2. For the existing configurations of light vehicles, according to item 1.1.

It is classified as already existing configurations of light vehicles all those already in production at least since the previous calendar semester, or from extensions of master configurations already in production in the previous semester.

3.2.1. It is adopted as reference value for each “i” pollutant the respective averaged obtained in the evaluation of the immediately preceding semester.

~~3.3. For configurations of light vehicles that present all reference values smaller than 60% from the respective limit (L_i), will be tested along the semester $n = 0.3\%$ of its respective total production.~~

~~Example:~~

~~$$\bar{x}_i \leq 0,60L_i \Rightarrow n = 0,3\%$$~~

3.3. For configurations of light vehicles that present all reference values smaller than 60% from the respective limit (L_i), will be tested along the semester $n=0.2\%$ of its respective total production.

Example:

$$\bar{x}_i \leq 0,60L_i \Rightarrow n = 0,2\%$$

(text amended by resolution 415/2009)

3.4 For configurations of light vehicles that present all reference values less than 80% from respective limit (L_i), will be tested along the semester $n = 0.4\%$ of its respective total production.

Example:

$$\bar{x}_i \leq 0,80L_i \Rightarrow n = 0,4\%$$

3.4. For configurations of light vehicles that present all reference values less than 80% from respective limit (L_i), will be tested along the semester $n = 0.4\%$ of its respective total production.

Example:

$$\bar{x}_i \leq 0,80L_i \Rightarrow n = 0,3\%$$

(text amended by resolution 415/2009)

3.5. For configurations of light vehicles that present all reference values less than 100% from respective limit (L_i), will be tested along the semester $n = 0.5\%$ of its respective total production.

Example:

$$\bar{x}_i \leq 1,00L_i \Rightarrow n = 0,5\%$$

3.5. For configurations of light vehicles that present all reference values less than 100% from respective limit (L_i), will be tested along the semester $n = 0.4\%$ of its respective total production.

Example:

$$\bar{x}_i \leq 1,00L_i \Rightarrow n = 0,4\%$$

(text amended by resolution 415/2009)

3.6 In case a configuration of light vehicle shows its emissions, respectively, at different levels as related to its limits, they will be testes along the respective semester production, an “n” sampling corresponding to the highest level.

Example:

$$\left. \begin{array}{l} \bar{x}_1 \leq 0,60L_1 \\ \bar{x}_2 \leq 0,60L_2 \\ \bar{x}_3 \leq 1,00L_3 \\ \bar{x}_4 \leq 0,80L_4 \end{array} \right\} \Rightarrow n = 0,5\%$$

Where:

$\bar{X}_1; \bar{X}_2; \bar{X}_3; \bar{X}_4$ = average of pollutants 1, 2, 3 and 4, respectively;

The $n=0.5\%$ sampling of the configuration was established by the emission 3 of pollutants, which is at the highest level of the respective limit.

~~3.7 For the configurations of heavy vehicles or engines, according to item 1.2, they will be testes along the semester $n=0.4\%$ of its respective total production.~~

3.7 For the configurations of heavy vehicles or engines, according to item 1.2, they will be testes along the semester $n=0.3\%$ of its respective total production.

(text amended by Resolution 415/2009)

3.8 For any motor vehicle configuration to be tested, the minimum sampling shall be of three units/semester.

3.9 For the light or heavy vehicles (or engines) configurations, under production, it shall be granted a 0.1 percentage point (one tenth of percentage point) reduction in the volume to be sampled along the semester, if, for each regulated pollutant, in the calendar semester immediately preceding, the condition defined in item 2.7 of this ANNEX is met, using the K statistical factor established by the following table No. 2.

Table 2 – K Statistical factor (for item 3.9)

n	3	4	5	6	7	8	9	10	11
k	2.92	2.35	2.13	2.02	1.94	1.90	1.86	1.83	1.81
n	12	13	14	15	16	17	18	19	>20

k	1.80	1.78	1.77	1.76	1.75	1.75	1.74	1.73	1.73	1.70
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CONAMA RESOLUTION 315, October 29, 2002
published in Official Gazette 224 on November 20, 2002, Section 1, pages 90-92

Correlations:

- Changes CONAMA Resolution n° 18/86 (revoking item 1.9 of sub item IV)
- Changes the CONAMA Resolution No. 14/95 (adds paragraphs to art. 2, 4, 7 and 9)
- Regulated by CONAMA Resolution n° 354/04 regulated art. 10)

Establishes provisions for the new stages of the Program for the Control of Air Pollution by Motor Vehicles (PROCONVE) to comply with the ratification of new motor vehicles, national or imported, light or heavy produced exclusively for the national Brazilian market.

The NATIONAL ENVIRONMENT COUNCIL-CONAMA, pursuant to the powers vested on it by Law 6.938 dated August 31, 1981, regulated by Decree 99.274 from June 6, 1990, and bearing in mind the provisions of its Internal Rules, attached to Ordinance No. 326, of December 15, 1994¹⁵⁰;

Considering that the emission of pollutants by motor vehicles contributes significantly to the deterioration of environmental quality, especially in urban centers;

Considering that the Otto-cycle vehicles are significant sources of fuel evaporative emission;

Considering that the use of adequate automotive technologies, of proven effectiveness, enables the compliance with the needs of pollution control, fuel economy and market competitiveness;

Considering the need and the deadlines to promote the quality of national automotive fuels to facilitate the introduction of modern technologies of fuel consumption and pollution control;

Considering the needs of a deadline for the technological adequacy of vehicular engines and motor vehicles to the new pollution control requirements; and

Considering the need to establish new standards of emission for vehicular engines and domestic light and heavy and imported vehicles, in order to maintain the reduction of air pollution in urban centers of the country and fuel economy, resolves that:

Art. 1 Further steps are established for the control of air pollution for the Program for the Control of Air Pollution by Motor Vehicles-PROCONVE in national character, to be met in the homologations of new, domestic and imported, heavy and light motor vehicles, intended exclusively to the Brazilian domestic market, with the following objectives:

I - Reduce the emission levels of pollutants by leakage and evaporation, in order to meet national standards of environmental quality in force;

II - promote national technological development, both in project engineering and manufacturing, and also in methods and equipment for the control of the emission of pollutants; and

III - promote the adequacy of automotive fuels marketed in order they result in less aggressive products to the environment and to public health, and to allow the adoption of automotive technologies needed to meet the this Resolution's requirements.

Art. 2nd It is hereby established, from one hundred and eighty days from the date of publication of this Resolution, for new homologations, the limit of two grams of total hydrocarbons by test for evaporative emission of all light motor vehicles that use Otto-cycle engines, except those using only natural gas (PROCONVE L-4).

Art. 3 It is hereby established, as from January 1, 2007, the following maximum emission of pollutants from the exhaust of light passenger vehicles

(PROCONVE L-4):

a) carbon monoxide (CO): 2.0 g/km;

b) total hydrocarbons (THC), only for natural gas vehicles: 0.30 g/km;

(c) non-methane hydrocarbons) (NMHC): 0.16 g/km;

d) nitrogen oxides (NOx) to Otto cycle engines: 0.25 g/km;

e) nitrogen oxides (NOx) for Diesel cycle engines: 0.60 g/km;

f) aldehydes (HCO), only for Otto cycle engines (except natural gas): 0.03 g/km;

g) particulate matter (PM), only for Diesel cycle engines: 0.05 g/km;

h) carbon monoxide content) at idle, only for Otto cycle engines: 0.50 vol.

Art. 4 It is hereby established, from January 1, 2009, the following maximum emission of pollutants from the exhaust of light passenger vehicles (PROCONVE L-5):

a) carbon monoxide (CO): 2.0 g/km;

b) total hydrocarbons (THC), only for natural gas vehicles: 0.30 g/km;

c) non-methane hydrocarbons) (NMHC): 0.05 g/km;

¹⁵⁰ Ordinance revoked by Ordinance MMA No. 499, of December 18, 2002

- d) nitrogen oxides (NOx) for Otto cycle engines: 0.12 g/km;
- e) nitrogen oxides (NOx) for Diesel cycle engines: 0.25 g/km;
- f) aldehydes (HCO), only for Otto cycle engines (except natural gas): 0.02 g/km;
- g) particulate matter (PM), only for Diesel cycle engines: 0.05 g/km;
- h) carbon monoxide content) at idle, only for Otto cycle engines: 0.50% vol.

Art. 5 It is hereby established, from January 1, 2007, the following maximum air pollutants emission for light vehicles, commercial vehicle mass for test less than or equal to one thousand and seven hundred kg (PROCONVE L-4):

- a) carbon monoxide (CO): 2.0 g/km;
- b) total hydrocarbons (THC), only for natural gas vehicles: 0.30 g/km;
- (c) non-methane hydrocarbons) (NMHC): 0.16 g/km;
- d) nitrogen oxides (NOx) for Otto cycle engines: 0.25 g/km;
- e) nitrogen oxides (NOx) for Diesel cycle engines: 0.60 g/km;
- f) aldehydes (HCO), only for Otto cycle engines (except natural gas): 0.03 g/km;
- g) particulate matter (PM), only for Diesel cycle engines: 0.08 g/km;
- h) carbon monoxide content) at idle, only for Otto cycle engines: 0.50% vol.

Art. 6 It is hereby established, from January 1, 2009, the following maximum emission of pollutants from the exhaust of commercial light vehicles, with the test vehicle mass less than or equal to one thousand and seven hundred kg (PROCONVE L-5):

- a) carbon monoxide (CO): 2.0 g/km;
- b) total hydrocarbons (THC), only for natural gas vehicles: 0.30 g/km;
- (c) non-methane hydrocarbons) (NMHC): 0.05 g/km;
- d) nitrogen oxides (NOx) to Otto cycle engines: 0.12 g/km;
- e) nitrogen oxides (NOx) to Diesel cycle engines: 0.25 g/km;
- f) aldehydes (HCO), only to Otto cycle engines (except natural gas): 0.02 g/km;
- g) particulate matter (PM), only to Diesel cycle engines: 0.05 g/km;
- h) carbon monoxide content) at idle, only Otto cycle engines: 0.50 vol.

Art. 7 Are established, from January 1, 2007, the following maximum emission of pollutants from the exhaust of commercial light vehicles, with the test vehicle mass greater than a thousand and seven hundred kg (PROCONVE L-4):

- a) carbon monoxide (CO): 2.7 g/km;
- b) total hydrocarbons (THC), only for natural gas vehicles: 0.50 g/km;
- c) non-methane hydrocarbons) (NMHC): 0.20 g/km;
- d) nitrogen oxides (NOx) for Otto cycle engines: 0.43 g/km;
- e) nitrogen oxides (NOx) for Diesel cycle engines: 1.00 g/km;
- f) aldehydes (HCO), only for Otto cycle engines (except natural gas): 0.06 g/km;
- g) particulate matter (PM), only for Diesel cycle engines: 0.10 g/km;
- h) carbon monoxide content) at idle, only for Otto cycle engines: 0.50% vol.

Art. 8. It is hereby established, from January 1, 2009, the following ceilings of polluting emissions from light commercial vehicles exhaust, with the test vehicle mass greater than a thousand and seven hundred kg (PROCONVE L-5):

- the) carbon monoxide (CO): 2.7 g/km;
- b) total hydrocarbons (THC), only for natural gas vehicles: 0.50 g/km;
- (c) non-methane hydrocarbons) (NMHC): 0.20 g/km;
- d) nitrogen oxides (NOx) for Otto cycle engines: 0.43 g/km;
- e) nitrogen oxides (NOx) for Diesel cycle engines: 1.00 g/km;
- f) aldehydes (HCO), only for Otto cycle engines (except natural gas): 0.06 g/km;
- g) particulate matter (PM), only for Diesel cycle engines: 0.10 g/km;
- h) carbon monoxide content) at idle, only for Otto cycle engines: 0.50% vol.

Art. 9 The heavy vehicles with Otto cycle engine, with maximum total mass allowed between three thousand, eight hundred and fifty-six kilograms and four thousand, five hundred and thirty-six kilograms, can be tested, alternatively, as a light commercial vehicle with reference mass to test more than one thousand and seven hundred kg, by applying the provisions of arts. 7 and 8 of this Resolution.

Sole paragraph. For the cases dealt with in the caput of this article, the mass of the vehicle for test shall be the arithmetic mean between the mass of the vehicle in running order and maximum authorized mass.

Art. 10. It is hereby established the possession de devices/systems for auto diagnosis (OBD), of the engine management functions that have influence on emissions of air pollutants, for all light passenger vehicles and light commercial vehicles.

Sole paragraph. The Brazilian Institute of the Environment and Renewable Natural Resources -IBAMA shall propose to the National Environment Council-CONAMA the specification of dates of

deployment, the technological characteristics and the desired range for devices and systems referred to in the caput of this article

Art. 11. Manufacturers or importers of light passenger and light commercial vehicles, shall apply the deterioration factors, per eighty thousand kilometers or five years of use, as set forth in this Resolution, in CONAMA Resolution n^o 14 of December 13, 1995, and complementary standards, in order to prove their compliance with pollutant emission ceilings, set out in arts. 2 to 8 of this Resolution.

Art. 12. Manufacturers or importers must meet emission ceilings of air pollutants set out in arts. 3, 5 and 7, as well as the application of the damage factor determined by art. 11, all of this Resolution, as defined in Schedule of phases in §§ 1, 2 and 3, as follows:

§ 1. At least forty percent of the annual total of light passenger vehicles added to light commercial vehicles, produced two years before the dates laid down in those articles;

§ 2 At least seventy percent of the annual total of passenger light vehicles added to light commercial vehicles, produced from one year before the dates established in said articles;

§ 3 One hundred per cent of the annual total of light passenger vehicles added to light vehicles, produced from the dates established in said articles.

Art. 13. IBAMA may propose to CONAMA changing the limit of NMHC equal to 0.05 g/km for light vehicles powered by ethanol, gasoline added with ethanol or natural gas, as long as it is proven the technical impossibility for its compliance.

Art. 14. The new configurations of light vehicles produced and launched from January 1, 2006, shall comply, one hundred percent of production, with the limits set out in arts. 3, 5 and 7, as well as the application of deterioration factor determined by art. 11 of this Resolution.

Art. 15. It is hereby established maximum limits for the emission of pollutants and the respective dates of deployment, as per Table 1 and Table 2, below, for engines for heavy-duty vehicles, domestic and imported, in accordance with the standard test cycles ESC, ELR and ETC, as defined in ANNEX I of this Resolution.

§ 1. The engines and vehicles for special applications that cannot be used for the urban and road transport may be partially or fully exempted from the requirements of this Resolution, by decision motivated by IBAMA.

§ 2 This resolution does not include the maritime, rail and industrial engines, as well as those intended for earthmoving and agricultural machinery, defined as the Brazilian standards NBR-6142 and TB-66, respectively.

§ 3 The conventional Diesel cycle engines and those fitted with electronic fuel injection equipment, exhaust gas recirculation (EGR) and/or oxidation catalysts should meet the emission limits given in Row 1, of Table 1, being tested following the ESC and ELR cycles, and to meet the limits of Line 2 of Table 1 the motor must meet, in addition, the limits of the line 2, of Table 2, according to the ETC cycle. leakage, as NOx catalysts and/or particulate filters, in addition to meeting the limits expressed in 1 Line, of Table 1, must meet in addition the established emission limits for the ETC test cycle, according to Line 1 of Table 2.

§ 5 The natural gas engines shall comply with the emission limits set out in table 2, according to the ETC test cycle.

§ 6 the IBAMA should confirm the emission limits for natural gas engines, established in § 5 of this article.

§ 7 Until December 31, 2004, natural gas engines can be partially exempted from the requirements of this Resolution, by decision motivated by IBAMA.

§ 8 For the city buses, the deployment date of emission limits set out in Table 1, Row 1, shall be January 1, 2004, § 4 of this article.

§ 9 For minibuses, the deployment date of emission limits set out in Table 1, Row 1, shall be January 1, 2005, § 4 of this article.

§ 10. For heavy vehicles, except urban buses and minibuses, for forty percent of the annual production per manufacturer or importer, the date of implementation of emission limits set out in table 1, Row 1, shall be January 1, 2005, § 4 of this article.

§ 11. Alternatively to the provisions of § 8 of this article, the manufacturer or importer will be able to meet the emission limits with a minimum of sixty percent of the annual production of urban buses, to be mandatorily complemented by January 1, 2005, and, in this case, it will be required to meet the established in § 10 with at least sixty percent of the annual production of heavy-duty vehicles.

§ 12. For heavy vehicles, for one hundred percent of the annual production per manufacturer or importer, the date of deployment of the emission limits given in row 2, of Tables 1 and 2 will be January 1, 2009.

Table 1 – Limit values – ESC and ELR tests

Date of service	Carbon Monoxide CO (g/kWh)	Hydrocarbons (g/kWh)	Nitrogen Oxides NOx (g/kWh)	Particulate material MP (g/kWh)	Opacity (ELR) _{m - 1}
Line 1 – From 1/Jan/2006 (PROCONVE P-5)	2,1	0,66	5,0	0,10 or 0,13 ⁽¹⁾	0,8
Line 2 – From 1/Jan/2009 (PROCONVE P-6)	1,5	0,46	3,5	0,02	0,5

(1) For engines with a cylinder swept volume lower than 0.75 dm³ and a rated power speed higher than 3000 min⁻¹.

Table 2: limit values-ETC tests (i)

Date of service	Carbon Monoxide CO (g/kWh)	Hydrocarbons non methane (g/kWh)	Methane (g/kWh)	Nitrogen Oxides NOx (g/kWh)	Particulated Material MP ⁽³⁾ (g/kWh)
Line 1 – From 1/Jan/2006 CONVE P-5)	5,45	0,78	1,6	5,0	0,16 or 0,21 ⁽⁴⁾
Line 2 – From 1/Jan/2009 CONVE P-6)	4,0	0,55	1,1	3,5	0,03

(1) For natural gas engines, the test conditions, according to the ETC, and the limit values must be confirmed by IBAMA until December 31, 2004;

(2) Only for natural gas engines;

(3) It shall not apply to engines fuelled with natural gas;

(4) For engines with a cylinder swept volume lower than 0.75 dm³ and a rated power speed higher than 3000 min⁻¹.

Art. 16. For the purposes of approval, when proving service to exhaust emission limits of Diesel cycle engines of heavy vehicles, will not be applied emission Deterioration Factors, however, the manufacturer undertakes to keep their emissions within the bounds of PROCONVE by one hundred and sixty thousand kilometers of the vehicle or the period of five years, which occurs first.

Art. 17. the Ministry of the Environment should submit to CONAMA studies and proposals to establish incentives to manufacturers and importers of motor vehicles and automotive fuels, through the reduction of taxes, so that they voluntarily establish dates of marketing in the domestic market of products that meet the limits prescribed by this Resolution, except for those that meet the required percentages set out in arts. 12, 14 and 15 of this Resolution.

Art. 18. The fuels needed to meet the provisions in this Resolution should be made available as provided in art. 7, of Law 8.723, of October 29, 1993.

§ 1 For the purposes of products development, certification testing and homologation, the reference fuels should be available, as per the law cited in the caput of this section.

§ 2 Commercial fuels should have suitable and compatible characteristics with the technologies to be adopted and be available on the dates set forth in this Resolution.

Art. 19. For the measurement of the emission of pollutants from the exhaust of light passenger and light commercials vehicles, which are tested according to the procedure of Brazilian Standard NBR-6601, remain the criteria established by CONAMA Resolution n° 18, of May 6, 1986.

§ 1. The Diesel cycle light motor vehicles shall be tested according to the methodology referred to in the code of Federal Regulations (Code of Federal Regulations) of the United States of America, vol. 40, part 86, until publication of the Brazilian standard equivalent.

§ 2 The measurement of methane in exhaust gas of light automotive vehicles, is expected to be made according to the methodology referred to in the code of Federal Regulations (Code of Federal Regulations) of the United States of America, vol. 40, part 86, until publication of the Brazilian standard equivalent.

Art. 20. The test and measurement of aldehyde in exhaust gas of Otto cycle passenger motor and light commercial vehicles should be performed according to the requirements of Brazilian Standard NBR-12026.

Art. 21. The test and the measurement of evaporative emission of Otto cycle light passenger motor and light commercial vehicles should be performed according to the requirements of Brazilian standard NBR-11481.

Art. 22. The tests of measurement of carbon monoxide, hydrocarbons, nitrogen oxides and particulate matter in exhaust gas of engines for Diesel cycle heavy vehicles should be carried out according to the methods and procedures established for the ESC, ELR and ETC of Directive 1999/96 of the European Parliament and of the Council of December 13, 1999, its ersatz and add-ons, until the publication of Brazilian standard equivalent.

Art. 23. Diesel cycle light commercial vehicles with a maximum authorized mass greater than 2,000 kg, can meet the demands established optionally for heavy vehicles, since the characteristics of the engine allow the test to be met the requirements for completion of the documentation to be established by IBAMA Normative Instruction. (See Resolution 41520/09).

Art. 24. IBAMA should coordinate the studies and work on any review required to emission ceilings and limits laid down in this Resolution, summoning, at any time, the organs related to the subject and shall submit the final report to CONAMA with the proposal for consideration.

Art. 25. The vehicles for specific use, military use, competition and special launchings, so considered by decision motivated and exclusive of IBAMA, may be exempted from the requirements of this Resolution.

Art. 26. Vehicles with alternative propulsion systems or fuels not provided for in this Resolution can be partially exempted from certain requirements in this regulation, by means of decision motivated and exclusive of IBAMA, for a period of up to twenty-four months.

Art. 27. All fuels used in the tests will be the default type for the emission test and must conform to the regulations of the national agency of petroleum, gasoline with alcohol mixture is prepared from their standard test fuels containing 22.0% ± 1.0% in anhydrous ethyl alcohol fuel volume.

Art. 28. The manufacturer or importer shall authorize the entry of agent accredited by IBAMA in its premises, whenever deemed necessary to comply with this Resolution.

Sole paragraph. The denial of access to its premises, shall subject the manufacturer or importer to penalties in accordance with the legislation in force.

Art. 29. Art. 2 of CONAMA Resolution n° 14 of December 13, 1995, shall be increased by the following paragraphs:

"Art. 2

§ 1. For vehicles which do not have certain factors, it shall be admitted, on account of the duration of the tests to determine the deterioration factors, which are declared within a maximum of three hundred and sixty-five days, beyond the current year, counting from the date of issue of the CAC/LCVM.

§ 2 During this period, the factors set out in art. 4, § 4, of this Resolution shall be applied, for the issuance of the CAC/LCVM.

§ 3 For the groupings of engines that have an increase in sales volume forecast, at the time of renewal of the CAC/LCVM for the following year, surpassing the limit of fifteen thousand units per year, it shall be admitted, on account of the duration of the tests to determine the deterioration factors, that these are declared within a maximum of three hundred and sixty-five days, beyond the current year, counted from the date of revalidation of CAC/LCVM. "

Art. 30. Art. 4 of CONAMA Resolution No. 14, of December 13, 1995, shall be increased by the following paragraph:

"Art. 4

.....

§ 5 The groups of engines that have an increase in sales volume forecast, at the time of renewal of the CAC/LCVM for the following year, surpassing the limit of fifteen thousand units per year, should respect the deadline established in art. 2 of CONAMA Resolution n° 14, 1995, in order to gain such deterioration factors as per NBR-14008."

Art. 31. Art. 7 of CONAMA resolution n° 14, of 1995, shall be increased by the following paragraphs:

"Art. 7

§ 1. For vehicles which do not have certain factors, it shall be admitted, on account of the duration of the tests to determine the deterioration factors, that these are declared within a

maximum of three hundred and sixty-five days, beyond the current year, counted from the date of issue of the CAC/LCVM.

§ 2 During this period, the factors set out in art. 4, § 4, of the Resolution shall be applied, for the issue of CAC/LCVM.

§ 3 For the groupings of engines that have an increase in sales volume forecast, at the time of renewal of the CAC/LCVM for the following year, surpassing the limit of fifteen thousand units per year, it shall be admitted, on account of the duration of the tests to determine the deterioration factors, that these are declared within a maximum of three hundred and sixty-five days, beyond the current year, counted from the date of revalidation of CAC/LCVM. "

Art. 32. Art. 9 of CONAMA Resolution n° 14, of 1995, shall be increased by the following paragraphs:

"Art. 9

§ 2 For vehicles that do not have certain factors, it shall be admitted, on account of the duration of the tests to determine the deterioration factors, that these are declared, within a maximum of three hundred and sixty-five days, beyond the current year counted from the date of issue of the LCVM.

§ 3 During this period, the factors set out in art. 4, § 4, of this Resolution shall be applied, for the issuance of LCVM.

§ 4 For groups of engines that have an increase in sales volume forecast, at the time of revalidating the LCVM for the following year, surpassing the limit of fifteen thousand units per year, it shall be admitted, on account of the duration of the tests to determine the deterioration factors, that these are declared within a maximum of three hundred and sixty-five days beyond the current year, counted from the date of issue of the revalidation of LCVM. "

Art. 33. The manufacturers or importers of light commercial vehicles, equipped with Otto cycle engine, who have not obtained the deterioration factors as per NBR-14008 shall apply the deterioration factors of art. 4, paragraph 4, of Resolution No. 14, of 1995 to the vehicle emissions, whose grouping of engines, classified according to this norm, have annual sales forecast less than fifteen thousand units.

Sole paragraph. For the groups of engines that have an increase in sales volume forecast, at the time of renewal of the CAC/LCVM for the following year, surpassing the limit of fifteen thousand units per year, it shall be admitted, on account of the duration of the tests to determine the deterioration factors, that these are declared within a maximum of three hundred and sixty-five days beyond the current year, counted from the date of revalidation of CAC/LCVM.

Art. 34. IBAMA, by means of a motivated and unique decision, can grant temporary exemption of compliance with the provisions in this Resolution.

Art. 35. The definitions necessary for the fulfillment of this Resolution are set out in ANNEX I.

Art. 36. The non-compliance with the provisions of this Resolution would subject violators to the penalties provided for in Law 9.605, of February 12, 1998 and Decree 3.179 from September 21, 1999, without prejudice to any other penalties provided for in specific legislation.

Art. 37. This Resolution shall enter into force on the date of its publication.

Art. 38. It is hereby revoked item 1.9 of item VI, of CONAMA Resolution n° 18, of 6 May 1986.

MONICA MARIA LIBORIO-Council's Executive Secretariat

ANNEX I Definitions

1-**E.L.R Cycle**-called European Cycle of Load Response - test cycle consisting of a sequence of four levels at constant rotations and increasing loads from 10% to 100% percent, to determine the opacity of exhaust emission;

2- **E.S.C. cycle** – called European Cycle under Constant Regime - consists of a test cycle with 13 operation under constant modes;

3- **E.T.C. cycle** – called European Cycle in Transient Test - test cycle consisting of one thousand eight hundred transient modes, second by second, simulating real conditions of use;

4- **On-board diagnostic devices and/or systems (OBD)** - devices or systems installed aboard the vehicle and connected to the electronic control module, in order to identify deterioration or malfunction of control system components emissions, warn the user of the vehicle to make servicing or repair of the emission control system, store and provide access to the occurrences of defects and/or deregulations in control systems and provide information to the interested parties about the state of maintenance and repair of emission control systems;

5 - **Total hydrocarbons** - total of organic substances, including fractions of unburned fuel and by-products resulting from combustion, present in the exhaust gas and that are detected by flame ionization detector.

6- **Non-Methane Hydrocarbon** - portion of total hydrocarbons, discounted the methane fraction;

7- **New homologations** - those homologations covering the new configurations of vehicles not yet in production or existing settings with changes in the emission control system, except, however the revalidations of existing approvals.

8- **Motor vehicles** – motor vehicles for road usage.

9- **New settings** - light vehicle models launched on the market, which are not derived from production vehicles.

10 - **Urban bus** - bus as defined by Law 9.503, of September 23, 1997, ANNEX I, of predominantly urban use.

11 – **Minibuses** - minibus definition as given by law 9.503 of 1997, ANNEX I.

This text does not replace the one published in the Official Gazette, of November 20, 2002

CONAMA RESOLUTION 321, January 29, 2003
Published in Official Gazette 53 on March 18, 2003, Section 1, page 54

Correlations:

- Changes CONAMA Resolution No. 226/97 (tables I and III)

Establishes provisions for the alteration of CONAMA Resolution 226 from Aug. 20, 1997, that addresses specifications for commercial diesel oil and the regions where it is distributed.

The NATIONAL ENVIRONMENT COUNCIL-CONAMA, pursuant to the powers vested on it by Law 6.938 dated August 31, 1981, regulated by Decree 99.274 from June 6, 1990, and bearing in mind the provisions of its Internal Rules, attached to Ordinance No. 499, of December 18 2002¹⁵¹, and

Considering Law 8.723, of October 28, 1993, which provides for the reduction of emission of pollutants emitted from motor vehicles, as part of the National Environmental Policy;

Considering the provisions of the Program for the Control of Air Pollution by Motor Vehicles-PROCONVE, established by the National Council of the Environment by means of CONAMA Resolution No. 18, of May 6, 1986, and other complementary Resolutions, its updating and the complementation of their execution procedures;

Considering that there is a reduction in environmental contamination when using by motor vehicles of higher quality fuels, resolves:

Art. 1 To replace Tables I and III of ANNEX B of the CONAMA Resolution No. 226, of August 20, 1997, by the tables set out in Annexes A and B of this Resolution.

§ 1. Table I shall enter into force in accordance with table in ANNEX A.

§ 2 the table III shall take effect in accordance with table in ANNEX B,.

Art. 2. This resolution shall enter into force on the date of its publication.

MARINA SILVA-Council President

¹⁵¹ Ordinance revoked by Ordinance MMA No. 168, of June 10, 2005

ANNEX A

Table 1 – Minimum quality for commercial Diesel oil

CHARACTERISTICS	UNIT	SPECIFICATIONS (1)				ASTM METHOD
		A	B	C	D	
TYPES						
Aspect		limpid and free from impurities				Visual
ASTM color, max	–	3,0				D 1500
COMPOSITION Sulphur,	% mass	0,10	0,20	0,35	0,50	D 1552, D 2622 or D 4294
VOLATILITY Distillation: 50% recovered 85% recovered 90% recovered, max Flash point, min Density at 20°C/4°C	°C °C	245-320 - 360 -	245-320 - 360 -	245-310 370 -	245-320 370 -	D 86 D 93 D 1298 or D 4052
FLUIDITY Viscosity at 40 °C Cold point of obstruction of filter	CSt °C	1,6 - 6,0 (2)	1,6 - 6,0 (2)	1,6 - 6,0 (2)	1,6 - 6,0 (2)	D 445 IP 309
CORROSION Corrosivity to copper (3)	–	2	2	2	2	D 130
COMBUSTION Ashes, max RCR, at final 10% of distillation, max Cetane number , mín Cetane rate computed minimum	% mass % mass	0,020 0,25 42 (3) 45	0,02 0 42 (3) 45	0,02 0 40 (3) 45	0,02 0 40 (3) 45	D 482 D 613 D 4737
CONTAMINANTS Water and sediments	% vol.	0,05	0,05	0,05	0,05	D 1796

(1) All limits specified are absolute values according to ASTM E-29

(2) According to table II

(3) In the case of Brazilian refineries without CFR engine, it is excused the determination of the cetane number. However the Diesel fuel shall have cetane number assured according to the specifications.

ANNEX B

Table III – Program for the improvement of Diesel Oil / implantation schedule

TYPE OF DIESEL OIL	Jan/2000	Jan/2002
DIESEL A (0,10% of sulphur)	-	São Paulo Metropolitan Region, Baixada Santista, São José dos Campos and Campinas
DIESEL B (0,20% of sulphur)	São Paulo, Santos, Cubatão, Rio de Janeiro, Salvador, Aracajú, Recife, Fortaleza, Porto Alegre, Curitiba, São José dos Campos, Campinas, Belo Horizonte and Belém	Rio de Janeiro Metropolitan Region, Salvador, Aracajú, Recife, Fortaleza, Porto Alegre, Curitiba, Belo Horizonte and Belém
DIESEL C (0,35% of sulphur)	-	Other regions
DIESEL D (0,50% of sulphur)	Other regions	extinct

This text does not replace the one published in the Official Gazette of March 18. 2003.

CONAMA RESOLUTION 342, September 25, 2003
Published in Official Gazette 240, on December 10, 2003, Section 1, page 95

Correlations:

• Complements CONAMA Resolution No. 297/02, establishing limits for polluting exhaust emissions for new motorcycles and similar vehicles

Establishes new levels for polluting gases for mopeds, motorcycles and new similar vehicles in order to comply with Resolution 297 from Feb. 26, 2002 and makes other provisions.

The NATIONAL ENVIRONMENT COUNCIL-CONAMA, pursuant to the powers vested on it by arts. 6 and 8 of Law 6.938, of August 31, 1981, regulated by Decree 99.274 from June 6, 1990, and bearing in mind the provisions in its Internal Rules, annexed to Ordinance No. 499, of December 18 2002¹⁵², and

Considering the provisions of Law 8.723, of October 28, 1993, which provides for the reduction of pollutants emitted from motor vehicles, and in Resolution 297, of February 26, 2002, which establishes limits for the emission of gaseous pollutants by new mopeds, motorcycles and similar vehicles; and

Considering the significant growth of the fleet of mopeds, motorcycles and the like in the major metropolitan areas of the country; and

Considering the existence of appropriate technologies, of proven effectiveness, which allow the fulfillment of the needs of pollution control, resolves:

Art. 1. Establishes limits for emissions of gaseous pollutants through exhaust for new motorcycles and similar vehicles, in compliance with § 1 of art. 8 of CONAMA Resolution No. 297, of February 26, 2002, as follows:

I - For launching of new vehicle models, equipped with new engine settings, feeding system, transmission and exhaust, produced from January 1, 2005:

a) volumetric displacement engine vehicles < 150 cm³:

1. carbon monoxide: 5.5 g/km;

2. hydrocarbons: 1.2 g/km;

3. nitrogen oxides: 0.3 g/km.

b) volumetric displacement engine vehicles ≥ 150 cm³:

1. carbon monoxide: 5.5 g/km;

2. hydrocarbons: 1.0 g/km;

3. nitrogen oxides: 0.3 g/km.

II - for all types of vehicles being produced from January 1, 2006, the emission limits are the same set out in sub-clauses "a" and "b" of sub-item I of this article.

III - for three-wheeled motorcycles (motor scooters) and four wheelers (quadricycles) the limits are:

a) for releases of new models of vehicles, equipped with new engine settings, feeding system, transmission and exhaust, produced from January 1, 2005:

1. carbon monoxide: 7.0 g/km;

2. hydrocarbons: 1.5 g/km;

3. nitrogen oxides: 0.4 g/km.

b) for all types of vehicles in production from January 1, 2006, emission limits are the same as laid down in paragraph "a" of this item.

IV - for all types of vehicles being produced from January 1, 2009:

a) vehicles with 150 cm³ volumetric capacity engine:

1. carbon monoxide: g/km 2.0;

2. hydrocarbons: 0.8 g/km;

3. nitrogen oxides: 0.15 g/km.

b) motor vehicles of volumetric capacity 150 cm³:

1. carbon monoxide: 2.0 g/km;

2. hydrocarbons: 0.3 g/km;

3. nitrogen oxides: 0.15 g/km.

Art. 2 - Test procedures for the determination of the exhaust gases in various stages of control, provided for in Resolution CONAMA No. 297, of 2002, should follow the changes of equivalent technical regulations adopted by the

European Community.

¹⁵² Ordinance revoked by Ordinance MMA No. 168, of June 10, 2005

Art. 3. The rules for the durability guarantee criteria of exhaust emissions in the § 1, art. 12 of CONAMA Resolution No. 297, of February 26, 2002, must be provided to CONAMA until 30/12/2003.

Art. 4 Pollutant emission limits and specific procedures for the periodic inspection of vehicles in use for vehicle inspection programs referred to in article 20 of CONAMA Resolution No. 297, of February 26, 2002, should be proposed to CONAMA until 30/12/2003

Art. 5. The reports on exhaust gas emissions, within the framework of the Program for the Control of Air Pollution by Motorcycles and Similar Vehicles-PROMOT, shall present data relating to the emission of carbon dioxide, in order to subsidize the Brazilian studies on emissions of global warming (greenhouse effect).

Art. 6. The time limits in section IV of the art. 1 of this Resolution, may be reviewed by CONAMA, by means of technical and environmental motivation, until June 30, 2008.

Art. 7. The non-compliance with the provisions of this Resolution would subject violators, among others, to the penalties and sanctions, respectively, under Law 9.605, of February 12, 1998 and Decree 3.179 from September 21, 1999.

Art. 8. This resolution shall enter into force on the date of its publication.

MARINA SILVA-Council President

This text does not replace the one published in the Official Gazette, of December 10, 2003.

CONAMA RESOLUTION 354, December 13, 2004
Published in Official Gazette 239 on December 14, 2004, Section 1, pp. 62-63

Correlations:

- Complements CONAMA Resolution No.18/86
- Regulates art. 10 of CONAMA Resolution No. 315/02

Establishes provisions for the adoption of on board diagnosis systems (OBD) for light motor vehicles aimed at the preservation the integrity of the performance of emission control systems.

The NATIONAL ENVIRONMENT COUNCIL-CONAMA, pursuant to the powers vested on it by art. 225 and 170, item VI, of the Federal Constitution, by Law 6.938 dated August 31, 1981, in particular its arts. 6 and 8, as well as its regulation by Decree 99.274 from June 6, 1990, and bearing in mind the provisions of its Internal Rules, annexed to Ordinance No. 499, of December 18 2002¹⁵³and

Considering the need of continuous update of the Program for the Control of Air Pollution by Motor Vehicles-PROCONVE, established by Resolution No. 18, of May 6, 1986, from the National Environmental Council-CONAMA, Law 8.723, of October 29, 1993 and other supplementary regulations;

Considering the amendment of the regulation of vehicle characteristics resulting from their use contributes to the malfunction of the emission control systems and results in increased levels of emission of air pollutants;

Considering that CONAMA Resolution No. 315, of 2002, establishes the use of On-board Diagnosis (OBD) systems since they are proven action technology for identifying malfunctions of the emission control systems enabling anticipation of corrective measures and the consequent prevention in increased emission of air pollutants;

Considering that the adoption of the OBD in motor vehicles represents a significant technological breakthrough that allows the user of the vehicle to prevent the occurrence of severe damages to the emission control systems, contributing to improving the environmental quality, and thus safeguard the interests of consumers and society in general;

Considering that the importance of the Inspection and Maintenance of Vehicles in Use - UM acquires the data provided in the OBD system to better assess the state of maintenance of the inspected vehicles, resolves:

Art. 1 Set for light passenger vehicles and light commercial, domestic and imported, intended for the Brazilian market, equipped with Otto cycle engines, the use of on-board diagnosis (OBD) system introduced in two consecutive and complementary stages called OBDBr-1 OBDBr-2, in compliance with art. 10 of Resolution 315, of October 29, 2002, from the National Environmental Council-CONAMA.

§1. The OBDBr-1 system must possess the minimum features for the detection of faults in the following components (if applicable) for the evaluation of operation of ignition systems and fuel injection:

- a) absolute pressure sensor or air flow;
- b) butterfly position sensor;
- c) cooling temperature sensor;
- d) air temperature sensor;
- e) oxygen sensor (pre-catalyst sensor only);
- f) vehicle speed sensor;
- g) shaft position sensor crankshaft;
- h) crankshaft position sensor;
- i) systems of exhaust gas recirculation (EGR);
- j) sensor for detecting detonation;
- l) injection valves;
- m) ignition system;
- n) engine electronic control module;
- o) malfunction indicator lamp (LIM); and
- p) other components that the manufacturer deems relevant for the correct assessment of the vehicle operation and control of pollutant emissions.

§ 2 The OBDBr-2 system, in addition to the functions and features of the OBDBr-1 system, should detect and register the existence of combustion faults, deterioration of primary oxygen sensor (s) and conversion efficiency of the catalytic converter that cause increase in emissions, as well as

¹⁵³ Ordinance revoked by Ordinance MMA No. 168, of June 10, 2005

introduce minimum requirements for the detection of faults in the following components, where applicable:

a) oxygen sensors (pre and post catalyst);
b) purge control valve of canister; and
c) other components that the manufacturer deems relevant for the correct assessment of the vehicle operation and control of pollutant emissions.

Art. 2 The manufacturers or importers of vehicles are responsible for implementing the OBDBr-1 system, and:

I-starting January 1, 2007, at least for 40% of the total annual passenger light vehicles produced or imported into the internal market;

II - from January 1, 2008, at least for 70% of the annual total of light vehicles passenger, produced or imported into the internal market; and

III-from January 1, 2009, to the totality of light passengers' vehicles, produced or imported into the internal market.

Art. 3 The manufacturers or importers of vehicles are responsible for implementing the OBDBr-2 system, and:

I-from January 1, 2010, at least for 60% of the total annual passenger light vehicles and light commercials, produced or imported into the internal market; and

II. from January 1, 2011, for all light passengers vehicles and light commercial, produced or imported into the internal market.

Art. 4. IBAMA may exempt the fulfillment of some system requirements for natural gas vehicles, bi-fuel and multi-fuel, in the case of specific projects, where the manufacturer can demonstrate the impracticality of the fulfillment, until new rules are established for these cases.

Art. 5 OBDBr-1 and OBDBr-2 systems should be certified in the process of obtaining License for Use of the Vehicle Configuration or Engine-LCVM, according to procedures to be defined in specific order of the Brazilian Institute of the Environment and Renewable Natural Resources - IBAMA.

Sole paragraph. OBDBr-2 system must indicate the failure of a component or system, according to § 2 art. 1, when this shall produce increments of vehicle emission levels in excess of the test values to be defined in the Ordinance mentioned in the caput of this article.

Art. 6 Different vehicle models from the same manufacturer that present OBD systems with the same characteristics and functional parameters can be classified as belonging to the same vehicle family -OBD.

Sole paragraph. The OBD system approval granted to a vehicle type may be extended to different vehicle types belonging to the same vehicle family -OBD, according to IBAMA's specific Ordinance.

Art. 7. The conformity of the production of a vehicle family -OBD, when required, should be proved b test through the removal of a vehicle, randomly, from the production and subject it to the tests prescribed in specific Ordinance from IBAMA.

Art. 8. Specific Ordinance from IBAMA, based on international standards, should standardize the communication of data acquisition equipment, inspection and diagnosis of vehicle OBD systems, their interfaces, communication protocols, formatting, means of protection and the language of the information stored.

Art. 9 The programs defined for the periodic inspection of vehicles in use shall employ appropriate equipment to OBD systems data acquisition, through its standardized communication interfaces, from the availability of these systems on the market, the regulatory time limits of /IM.

Sole paragraph. Manufacturers and importers of vehicles and on-board diagnosis systems must make available the technical information necessary for the OBD systems of their car models when requested by IBAMA.

Art. 10. Failure to comply with this Resolution shall imply the application of penalties laid down in Law 9.605, of February 12, 1998, regulated by Decree 3.179 from September 21, 1999.

Art. 11. This Resolution shall enter into force on the date of its publication.

MARINA SILVA-Council President

This text does not replace the one published in the Official Gazette, of December 14, 2004.

CONAMA RESOLUTION 373, May 9, 2006
Published in Official Gazette 88 on May 10, 2006, Section 1, page 102

Defines the criteria for the selection of areas supplied with Diesel Oil with Low Sulphur Content (DMTE) and makes other provisions.

The NATIONAL ENVIRONMENT COUNCIL-CONAMA, pursuant to the powers vested on it by Law 6.938 dated August 31, 1981, regulated by Decree 99.274 from June 6, 1990, bearing in mind the provisions of its Internal Rules, annexed to Ordinance No. 499, of 19 December, 2002 ¹⁵⁴

Considering the impact on health and the environment of sulphur compounds contained in emissions from motor vehicles and the increased exposure of urban populations to risk from respiratory ailments resulting from the concentration of particulate matter from Diesel oil use;

Considering the influence of the sulphur content of diesel oil in vehicular emissions, particularly in the emission of particulate matter;

Considering CONAMA Resolution No. 315, of October 29, 2002, which provides for on the new stages of vehicular emissions control program-PROCONVE; and

Considering the need of fulfilling the air quality standards and other requirements established by CONAMA Resolution No. 3, of June 28, 1990, resolves:

Art. 1 Establish criteria for selecting municipalities and micro regions for purposes of collecting Diesel Fuel with Lower Sulphur Content – DMTE, aiming to reduce emissions from motor vehicles.

Art. 2 The following definitions are hereby established for the purposes of this Resolution:

I-density of fleet: fleet of buses, minibuses and vans of the municipality, according to the National Department of Transit-DENATRAN, or competent body, divided by the area of the municipality;

II-local air quality indexes-indexes used to classify municipalities regarding the annual averages of concentrations of inhalable particles MP₁₀ and/or smoke-FMC, calculated according to the criterion set out in the Annex to this Resolution;

III-location representative of concentrations of pollutants in the urban area: local monitoring station positioning of air quality located at a minimum distance of 20 m from industries or other stationary sources, and roads with traffic volume of more than 20,000 vehicles a day, including light and heavy vehicles;

IV-micro region: geographic regional division consisting of a number of municipalities, according to classification of the Brazilian Institute of Geography and Statistics - IBGE; and

V-Diesel Oil with the Lowest Sulphur Content – DMTE: automotive use fuel with the lowest sulphur content among those specified by the National Agency of Petroleum, Natural Gas Natural and Biofuels (ANP).

Art. 3. Every municipality in which are observed violations of air quality standards in the past three years concerning the particulate material - MP, expressed in terms of inhalable particles - MP₁₀ and/or smoke-FMC as per CONAMA Resolution No. 3, of June 28, 1990, shall, together with the micro region to which it belongs, receive the DMTE.

Art. 4 Once met the municipalities and respective micro regions dealt with in the previous article, and when a DMTE is available, they will receive, in order of priority, the DMTE:

I-the municipalities who show the worst local indexes of air quality, even if they do not violate air quality standards, according to the criteria set out in the ANNEX to this Resolution;

II-the municipalities that do not have monitoring and air quality data considered valid, selected according to criteria of highest density of fleet.

Sole paragraph. For the purposes of this article, municipalities with population over 200 thousand inhabitants shall be taken into account.

Art. 5 the Ministry of the Environment, based on the monitoring data submitted by the competent environmental bodies and the criteria set out in this Resolution, will update annually the list of municipalities and micro-regions, as laid down in art. 3 of this Resolution, as well as recommend, in the form of art. 4, those who can receive the DMTE, forwarding it to the ANP.

§ 1. Monitoring data should be those contained in the last three years prior to the assessment.

§ 2 Air quality monitoring should be carried out on a representative location of concentrations of pollutants from urban area.

Art. 6 In the case of emancipation of municipalities, the new municipality will continue to receive the DMTE.

¹⁵⁴ Ordinance revoked by Ordinance MMA No. 168, of June 10, 2005

Art. 7. This Resolution shall enter into force on the date of its publication, and will be reviewed until July 1, 2009.

BAZILEU ALVES MARGARIDO NETO-Interim Council President

ANNEX
Criterion for determining the local air quality index

For purposes of comparison between the commitment levels of the air quality in different municipalities, the annual averages of concentrations of inhalable particles - MP_{10} and/or smoke-FMC corresponding to locations where monitoring is conducted, should be transformed into local air quality indexes-IQA, by the following criteria:

1. Select the Highest Annual Average-MMA of past three years of monitoring to MP_{10} (MMA_(MP10)) and FMC (MMA_(FMC));

2. Calculate the air quality index to MP_{10} -(IQA_(MP10)), obtained from the relation:
 $IQA_{(MP10)} = \frac{MMA_{(MP10)}}{PQA_{(MP10)}} \times 100$, where $PQA_{(MP10)}$ is the annual national secondary standard of inhalable particulate air quality as CONAMA Resolution No. 3, of 1990.

3. Calculate the air quality index for FMC-(IQA_(FMC)), obtained from the relation:
 $IQA_{(FMC)} = \frac{MMA_{(FMC)}}{PQA_{(FMC)}} \times 100$, where $PQA_{(FMC)}$ is the annual national secondary standard of air quality to smoke as CONAMA Resolution No. 3, of 1990.

4. The local air quality index - IQA will be the highest value among those obtained on items 2 and 3 above.

This text does not replace the one published in the Official Gazette of May 10, 2006

CONAMA RESOLUTION 403, November 11, 2008

Published in Official Gazette 220 on November 12, 2008, Section 1, page 92

Correlations:

- Complemented by Resolutions No. 414 and 415/2009

Establishes provisions for the new phase of demands imposed by the Program for the Control of Air Pollution by Motor Vehicles (PROCONVE) for new heavy vehicles (Phase P-7), and other provisions.

The NATIONAL ENVIRONMENT COUNCIL-CONAMA, pursuant to the powers vested on it by art. 8, subitem VII of Law 6.938, of August 31, 1981, and by art. 2, § 9, and art. 3 of Law 8.723, of October 28, 1993, bearing in mind the provisions in its Internal Rules; and

Considering that the emission of pollutants by motor vehicles contributes significantly to the deterioration of environmental quality, especially in urban centers;

Considering the use of adequate automotive technologies, of proven efficiency, associated with the fuel specifications that enables to meet the needs of pollution control, fuel economy and market competitiveness;

Considering the need of deadline and of investments to promote the improvement of the quality of national automotive fuels to make viable the introduction of modern technologies of fuel consumption and pollution control;

Considering the need of deadline for technological adequacy of vehicular engines and motor vehicles to new pollution control requirements;

Considering the need to establish new standards of emission for vehicular engines and heavy motor vehicles, domestic and imported, aiming at reducing air pollution in urban centers of the country and fuel economy;

Considering the need to improve knowledge concerning the emission of carbon dioxide and aldehydes by Diesel cycle engines, resolves:

**CHAPTER I
EMISSION LIMITS FOR NEW VEHICLES**

Art. 1 It is hereby established as from 1 January 2012, new ceilings for emission of pollutants for Diesel cycle engines for new heavy vehicles, domestic and imported, hereinafter referred to as P-7 Phase of the Program for the Control of Air Pollution by Motor Vehicles-PROCONVE, as per the table in ANNEX I of this Resolution.

§ 1 In order to meet the non-methane hydrocarbons limits (NMHC) the measurements of total hydrocarbons (THC) will be admitted, provided they meet the limits of NMHC.

§ 2 For purposes of homologation of motor vehicles referred to in this Resolution, the guarantee of fulfillment of emission limits should take account of the provisions of art. 16 of CONAMA Resolution No.315, of October 29, 2002, and , after three years of the entry into force of the emission limits of this Resolution, this warranty will be for vehicles with total gross weight (tgw) above 16 tons for 500,000 km or seven years of use, what shall occur first.

§ 3 The measurement tests of carbon monoxide, hydrocarbons, nitrogen oxides and particulate matter in exhaust gas of engines for heavy vehicles should be carried out according to the methods and procedures established for the Cycle of Constant Regime (ESC), the European Cycle Load Response (ELR) and the Transient Regime Cycle (ETC) of Directive 1999/96 of the European Parliament and of the Council, of December 13, 1999, their ersatz and add-ons, until the publication of Brazilian standard equivalent.

Art. 2 It is hereby established for the P-7 phase the requirement of incorporation of on-board diagnostic (OBD), engine management functions that exercise influence on emissions of air pollutants, with fault indicators to the driver and features that reduce engine power in the event of faults persisting for more than two consecutive days for all heavy vehicles

Art. 3. Manufacturers and importers of Diesel cycle engines or Diesel vehicles for the domestic market must submit to the Brazilian Institute of the Environment and Natural Renewable Resources -IBAMA, until December 31, 2012, a report of typical values of carbon dioxide emissions and total aldehydes as well as specific fuel consumption, measured in the tests of Transient Regime Cycle (ETC) and Stationary Regime Cycle (ESC) and expressed in g/kWh.

§ 1. The results of tests obtained in engines are accepted as typical values representing one or more engine models under production, whose criteria for obtaining and completing the results must be defined, justified and presented by its manufacturer.

§ 2 Total aldehyde emissions (CHO) must be measured in accordance with procedures to be determined until December 31, 2010, by IBAMA.

CHAPTER II CHARACTERISTICS OF DIESEL TEST PATTERN

Art. 4 The characteristics of Diesel emission testing standard for purposes of development and homologation, necessary to meet the limits set out in this resolution, shall be established by the National Agency of Petroleum, Natural Gas and Biofuels-ANP, in a term compatible with the provisions in the caput of the art. 7 of Law 8.723, of October 28, 1993.

Sole paragraph. It is hereby established, as per ANNEX II, with an eminently indicative character, the characteristics of Diesel emission testing standard for purposes of development and approval.

Art. 5 ANP will specify the standard Diesel emission testing according to the characteristics set out in ANNEX II of this Resolution in a term compatible with the provisions in the caput of the art. 7 of Law 8.723, 1993.

Sole paragraph. In the absence of any specification within the period provided for by the Law it shall be adopted the indication shown in ANNEX II.

CHAPTER III CHARACTERIZATION AND DISTRIBUTION OF COMMERCIAL DIESEL OIL

Art. 6 the characteristics of commercial Diesel oil for distribution and consumption will be established by ANP, in a term compatible with the provisions in the caput of art. 7 of Law 8.723, of 1993.

§ 1 It is hereby established in accordance with ANNEX II, with an eminently indicative character, the characteristics of Diesel oil for commercial distribution and consumption.

§ 2 ANP, as a regulating federal agency, can specify the fuel for marketing purposes in limits other than those listed in ANNEX II, guaranteeing the maximum sulphur content of 10 ppm and characteristics compatible with the Diesel oil test pattern and so as not to significantly change the engine performance obtained with test standard Diesel.

Art. 7 ANP shall be responsible for presenting the fuel supply plan needed to fulfill this Resolution, giving wide publicity to its content, especially to the Ministries of Environment and Mines and Energy.

§ 1 In the design and implementation of the plan of supply, the fuel for meeting the P-7 phase will be available primarily to new vehicles nationwide and, subsequently, within a maximum period of twelve months, to other municipal vehicles and micro-regions of CONAMA Resolution No. 373, of May 9, 2006, this period being reviewed by CONAMA upon justification.

§ 2 Producers, importers, distributors and retailers of fuels should submit to ANP, at intervals determined by it, the information necessary for the preparation of this plan.

§ 3 The plan prepared by the ANP shall predict the availability of fuel in the volume and anticipation required, as well as its distribution at geographically located posts, allowing a P-7 Phase vehicle iterate through the national territory always refueling with the Diesel specified by the ANP in accordance with art. 9 of this Resolution.

CHAPTER IV TRANSITIONAL AND FINAL PROVISIONS

Art. 8. The Technical Chamber of Control and Environmental Quality shall submit to CONAMA,

Within 60 days from the date of publication of this Resolution, a proposal for the revision of CONAMA Resolution No. 18, of May 6, 1986, with regard to the monitoring and evaluation of PROCONVE – CAP. (See Resolution 414/2009)

Art. 9. In the period from January 1, 2012 to December 31, 2012, it will be admitted the supply of commercial Diesel that meets the specification dealt with in Resolution ANP No. 32, of October 16, 2007, for use on vehicles of P-7 phase, in substitution of Diesel S10.

Art. 10. CONAMA shall prepare and deliberate under an emergency regime a proposal for a Resolution establishing new pollutant emission ceilings and the respective date for implantation, for light vehicles equipped with Diesel cycle engine. (See Resolution 415/2009)

Sole paragraph. IBAMA will present the proposal dealt with in the caput within 30 days

Art. 11. IBAMA will regulate the application of specific emission control technologies to enable the appropriate management of systems aimed at introducing nitrogen oxides sensors, quality control and the correct dosage of liquid reducer agent, the availability of this product in the tank, changes in the engine performance when there is a lack of the reducer agent and emission of new undesirable pollutants.

§ 1. The On-Board Diagnostic (OBD) system must be set with engine management functions that detect absence of reagent and other failures that enhance the increase of air pollutants emissions and should be provided with failure indicators to the driver and resources that reduce engine power in the event of faults which persist for more than two consecutive days, as well as the implementation of other measures to discourage tampering with emission reduction systems.

§ 2 The control technologies provided for in the caput of this article should consider the definitions of motor calibration strategy to limit them, so they do are not characterized as undesirable action devices, established in CONAMA Resolution No.230, of August 22, 1997.

§ 3 IBAMA should regulate until November 30, 2008, the specification of net NO_x reducing agent (urea solution) based on the characteristics set out in Standards DIN 70070 and ISO 22241-1: 2006.

Art. 12. This resolution shall enter into force on the date of its publication.

CARLOS MINC-President of CONAMA

ANNEX I
Emission limits (g/kWh)

	NO _x	HC	CO	CH ₃ (a)	MP	NMHC	Opacity (m-1)	NH ₃ (ppm) Mean value
ESC/ELR essay	2.00	0.46	1.5	NA	0.02	NA	0.5	25
ETC essay (1)	2.00	NA	4.00	1.10	0.03(3)	0.55	NA	25

- 1) gas engines are tested only in this cycle
 (2) only gas engines are subjected to this limit
 (3) gas engines are not subject to this limit

ANNEX II
Indicative characteristics of Diesel oil (commercial pattern)

Parameter	Unit	Limits(1)		Essay methods
		Minimum	Maximum	
Cetane rate ⁽²⁾		52	54	EN-ISO 5165
Density at 15°	Kg/m ³	833	837	EN-ISO 3675
Distillation:				
- point of 50%	°C	245	-	EN-ISO 3405
- point of 95%	°C	345	350	EN-ISO 3405
- final ebullition point	°C	-	370	EN-ISO 3405
Flash point	°C	55		EN 227 19
Cold obstruction of filter	°C		-5	EN 11 6
Viscosity at 40°C	mm ² /s	2,3	3,3	EN-ISO 3104
Aromatic Polycyclic hydrocarbons	% in mass	2,0	6,0	IP 391
Sulphur content ⁽³⁾	mg/kg		10	ASTM D 5453
Copper corrosion essay		-	Class 1	EN-ISO 21 60
Ramsbottom carbon wastes in the final 10% wastes form	% in mass		0,2	EN-ISO 10370
Content and ashes	% in mass		0,01	EN-ISO 6245
Water content	% in mass		0,02	EN-ISO 12937
Rate of neutralization (strong acid)	mg KOH/g		0,02	ASTM D 974
Stability to oxidation ⁽⁴⁾	mg/ml		0,025	EN-ISO 12205
Lubricity	µm		400	CEC F-06-A-96

1-The values quoted in the specification are "true values". In order to establish the ceilings it was applied ISO 4259, "Petroleum products-Determination and application of precision data in relation to methods the test" and, in order to fix a minimum value, it took into account a minimum difference of 2R above zero; in fixing a maximum and minimum value, the minimum difference is 4R (R reproducibility).

Although this measure is necessary for technical reasons, the manufacturer of fuels should, however, try to get the value zero, when the maximum value established is 2R, and the average value, in case they are the maximum and minimum limits. If it is necessary to determine whether a fuel meets or not the conditions of the specifications, ISO 4259 should be applied.

2-The range indicated for the cetane number is not in accordance with the requirements of a minimum of 4R. However, in the case of divergence between the fuel supplier and user, ISO standard 4259 can be applied to resolve such differences, provided a sufficient number of repeated measurements is made to obtain the necessary precision rather than perform unique measurements.

3-The actual content of sulphur in fuel used in Type 1 test must be indicated.

4-Although the stability of oxygenation is controlled, it is likely that the expiry date of the product is limited.

It is recommended that the supplier be consulted on the storage conditions and durability.

ANNEX III

Definitions

1. E.L.R. Cycle - called European Load Response - test cycle consisting of a sequence of four levels the constant rotations and increasing loads from ten to one hundred percent, to determine the opacity of exhaust emission;
2. E.S.C. cycle - called European Stationery Cycle -consists of a cycle 13 test modes of operation under constant regime;
3. E.T.C Cycle.-called European Transient Cycle- test cycle consisting of one thousand eight hundred transient modes, second by second, simulating real conditions of use;
4. CH₄-methane;
5. CHO-total aldehydes
6. CO-carbon monoxide;
7. CO₂-carbon dioxide;
8. On-board diagnostic devices or systems (OBD)-devices or systems installed on-board of the vehicle and connected to the electronic control module, in order to identify deterioration or malfunction of the components of the emission control system, alerting the user of the vehicle for servicing or repair of the emission control system, store and provide access to the occurrences of defects and/or deregulations in control systems and provide information to interested about the state of maintenance and repair emission control systems;
9. HC-hydrocarbons;
10. NMHC non-methane hydrocarbons--portion of total hydrocarbons, discounted the methane fraction;
11. MP-particulate matter;
12. NH₃-ammonia;
13. New homologations - those covering the new configurations of vehicles not yet under production or existing settings with system changes in the emission control system, except if, however the revalidations of existing approvals.
14. THC - Total hydrocarbons -total of organic substances, including fractions of unburned fuel and by-products resulting from the combustion , present in exhaust gas that are detected by the flame ionization detector.
15. Motor vehicles-motor vehicles for road usage.

This text does not replace the one published in the Official Gazette, of November 12, 2008

RESOLUTION 414, September 24, 2009
Published in Official Gazette 184 on 09/25/2009, pp. 52-53

Correlations:

- Changes Resolution No. 1819/86.

Changes CONAMA Resolution 18 from May 6, 1986 and restructures the Monitoring and Assessment of PROCONVE-CAP, its objectives, competencies, composition and operation.

The NATIONAL COUNCIL for the ENVIRONMENT – CONAMA, pursuant to the powers vested on it by art. 3, of Law 8.723, of October 28, 1993, by art. 41 of its Internal Rules, and what is provided for in Process 02000.0000782009-04, and also,

Considering the need for improvement of the Program for the Control of Air Pollution by Motor Vehicles – PROCONVE, through the upgrading of the monitoring mechanisms, as well as its instruments for f evaluation of results;

Considering the provisions of art. 8 of CONAMA Resolution No. 403, of November 11, 2008, which deals with the presentation to CONAMA, by the Technical Chamber of Environmental Quality Control of a proposal for the revision of CONAMA Resolution nº 18, of May 6, 1986, with regard to the monitoring and evaluation of PROCONVE – CAP; and,

Considering the need to restructure the CAP in its objectives, membership and functioning, in order to meet the demand of technical monitoring by PROCONVE and evaluation of their results, resolves:

CHAPTER I
THE OBJECTIVES AND COMPETENCIES

Art. 1. The objective of the Commission for Monitoring and Evaluation of PROCONVE – CAP, a Technical Advisory Group, is to monitor and evaluate the implementation of the program of control of air pollution by motor vehicles – PROCONVE, with the following objectives:

I – monitor the implementation and fulfillment of the provisions established in PROCONVE;

II-evaluate the Program with a view to its efficiency and effectiveness, and to achieve its goals set in CONAMA Resolution No. 18, of May 6, 1986, and in the other regulations necessary for the implementation of its various phases.

Art. 2 it is up to the CAP:

I-elaborate the Monitoring and Evaluation Report of PROCONVE;

II-evaluate technical studies and research on the effects of vehicle emissions on air quality and the development of emission control technologies, test equipment and emission analysis justifying the deployment of new phases of PROCONVE;

III – deliberate on its organization and functioning;

IV – deliberate on omitted cases.

§1 CAP may request technical information from public and private entities for the proper monitoring and evaluation of the program

(2) For the accomplishment of its powers, CAP may indicate partnerships with public and private entities involved with the subject, notably research centers and universities.

Art. 3 The Monitoring and Evaluation Report of ROCONVE will be presented to CONAMA, annually, and shall contain at least the following information:

I-schedule of monitoring of the program, with emphasis on the compliance with the deadlines and obligations set out in the CONAMA resolutions and other related legal rules;

II-analysis of program effectiveness based on performance indicators;

III-recommendations for program improvement.

Sole paragraph. The monitoring and evaluation report of PROCONVE shall be assessed by the Technical Chamber for Environmental Quality and Control, and forwarded by this to the plenary of CONAMA in the first half of the year following the year to which the report refers.

Art. 4 Wide publicity shall be made to the documents produced by the CAP.

CHAPTER II
ON THE COMPOSITION

Art. CAP is made up of the following representatives of agencies and entities members of CONAMA and invited members to be appointed by the following institutions and bodies, being one principal and one alternate:

I-Ministry of the Environment, that will coordinate it;
II-Ministry of Health;
III- Ministry of Mines and Energy;
IV-Brazilian Institute of the Environment and Renewable Natural Resources– IBAMA;
V- National Agency of Petroleum, Natural gas and Biofuels - ANP;
VI- Brazilian Association of State Entities of Environment-ABEMA;
VII-National Association of Municipal Agencies of the Environment-ANAMMA;
VIII – National Industry Confederation – CNI;
IX-Technical Agent of PROCONVE; and
X-Non-governmental Organization appointed by the Standing Committee of the National Register of Environmentalists Entities-CNEA.

§ 1. The representatives of Ministries shall be designated by the respective Ministers of State.

§ 2 The representatives of public bodies and entities referred to in sections IV, V, VI, VII, VIII and IX shall be designated by the respective Presidents or Directors.

§ 3 The members nominated by ABEM and ANAMMA, referred to in sections VI and VII shall be renewed every two years, and may have their mandates renewed for the same period.

CHAPTER III GENERAL GUIDELINES FOR THE FUNCTIONING OF THE CAP

Art. 6. CAP shall meet, ordinarily, at every 6 (six) months and, extraordinarily, whenever called, by its Chairperson or on request of at least three of its members.

§1 The ordinary meetings will have an annual calendar, to be set at the last meeting of the previous year.

§2 In the eventual postponement of ordinary meeting, the new date will be fixed within a maximum of 30 (days) from the date previously determined.

§ 3 The agenda of meetings and documents will be sent to the members of the CAP 15 (fifteen) days before the date fixed in advance.

§ 4 The meetings may be held outside the Federal District, whenever reasons so justify.

§ 5 Extraordinary meetings shall be convened at least 5 (five) days in advance, by making available, within the same term, the agenda and documents for analysis.

Art. 7. CAP shall meet in public session and with the presence of at least half plus one of its members.

Sole paragraph. CAP's Coordinator may invite to participate in the meetings, on his name or by appointment of other members of the Commission, representatives of government agencies, public or private entities and specialists depending on the subject in the agenda.

Art. 8. In the performance of the coordination of the CAP it will be up to the Ministry of the Environment:

I-plan, organize and coordinate the administrative and technical activities;

II- organize and maintain the archive of the documentation concerning activities;

III-organize the data and information required for activities;

IV-propose and follow up the timetable and agenda of meetings;

V-convene meetings and send the notifications to members;

VI- make available the work of technical and administrative secretariat;

VII- provide information when requested;

VIII-communicate, send and publish its acts;

IX – publish the Report on Monitoring and evaluation of PROCONVE; and

X-perform other related duties proposed by the CAP.

Art. 9. The participation of members of the CAP is considered an unpaid public service of relevant nature, and the organs and entities shall bear the costs needed to their representation.

CHAPTER IV GENERAL PROVISIONS

Art. 10. The first ordinary meeting of CAP shall occur within 90 days of the publication of this Resolution.

Art. 11. This Resolution shall enter into force on the date of its publication.

Art. 12. Sub items III and IV of the CONAMA Resolution nº 18, of May 6, 1986 are hereby revoked.

CARLOS MINC-Council President

This text does not replace the one published in the Official Gazette of 09/25/2009

RESOLUTION 415, September 24, 2009
Published in the Official Gazette 184 on 09/25/2009, pp. 53-54

Correlations:

- Changes items 3.3, 3.4, 3.5 and 3.7 of the ANNEX of Resolution No. 299/2001;
- Revokes, with effect from January 1, 2013, §2 of art. 15 of Resolution No. 8/1993, and art. 23 of Resolution No. 315/2002;
- Complements Resolution No. 403/2008.

Establishes provisions for the new phase (PROCONVE L6) regarding demands set by the Program for the Control of Air Pollution by Motor Vehicles (PROCONVE) for new light road motor vehicles, and makes other provisions

The NATIONAL ENVIRONMENT COUNCIL-CONAMA, pursuant to the powers vested on it by art. 8, subitem VII of Law 6.938 dated August 31, 1981, and by art. 2, § 9, and art. 3 of Law 8.723, October 28, 1993, bearing in mind the provisions of art. 10 of Resolution No. 403, of November 11, 2008, from the National Environmental Council-CONAMA and in its Internal Rules, ANNEX to Ordinance No. 168, of June 13, 2005; and

Considering that the emission of pollutants by motor vehicles contributes significantly to the deterioration of environmental quality, especially in urban centers;

Considering the use of adequate automotive technologies, of proven efficiency, associated with the fuel specifications that to meet the needs of pollution control, fuel economy and market competitiveness;

Considering the need of deadline and of investments to promote the improvement of the quality of national automotive fuels to facilitate the introduction of modern technologies of fuel consumption and pollution control;

Considering the need of deadline for technological adequacy of vehicular engines and motor vehicles to new pollution control requirements;

Considering the need to set new emission standards for vehicles engines and light vehicular motor vehicles, domestic and imported, to reduce air pollution in the urban centers of the country and fuel economy;

Considering the need to improve knowledge concerning the emission of carbon dioxide and aldehydes by Diesel cycle engines;

Considering the principles of education and environmental information, expressed in art. 225, § 1, item VI of the Federal Constitution; art. 9, section XI, of Law 6.938 of 1981, and in Principle 10 of the Rio Declaration of January 1992;

Considering the need of promoting the awareness of the population with respect to the issue of air pollution by motor vehicles, resolves:

CHAPTER I
EMISSION CEILINGS FOR NEW LIGHT VEHICLES

Art. 1 The following maximum Emission of pollutants are hereby established from light passenger motor vehicles exhaust, for road use, to the L6 phase of PROCONVE:

I-carbon monoxide (CO): 1.30 g/km;

II-total hydrocarbons (THC), only natural gas vehicles: 0.30 g/km;

III-non-methane hydrocarbons (NMHC): 0.05 g/km;

IV-nitrogen oxides (NOx): 0.08 g/km;

V-aldehyde (CHO) p Otto cycle: 0.02 g/km;

VI-particulate matter (PM) p Diesel cycle: 0.025 g/km; and

VII-carbon monoxide idling p Otto cycle: 0.2% in volume.

Art. 2 The following emission ceilings are hereby established for pollutants from light commercial vehicles exhaust, road use with the test vehicle mass less than or equal to 1,700 (one thousand and seven hundred) kilograms, for the L6 phase of PROCONVE:

I-carbon monoxide (CO): 1.30 /gkm;

II-total hydrocarbons (THC), only natural gas vehicles: 0.30 g/km;

III-non-methane hydrocarbons (NMHC): 0.05 g/km;

IV-nitrogen oxides (NOx): 0.08 g/km;
V-total aldehyde (CHO) p Otto cycle: 0.02 g/km;
VI-particulate matter (PM) p Diesel cycle: 0.030 g/km; and
VII-carbon monoxide idling p Otto cycle: 0.2% in volume.

Art. 3 The following emission ceilings for pollutants from light commercial vehicles exhaust, road usage, are hereby established with test mass of the vehicle greater than 1,700 (one thousand and seven hundred) kilograms, to

The L6 phase of PROCONVE:
II-total hydrocarbons (THC), only for natural gas vehicles: 0.50 g/km;
III-non-methane hydrocarbons (NMHC): 0.06 g/km;
IV-nitrogen oxides (NOx) g Otto cycle: 0.25 g/km;
V-nitrogen oxides (NOx) g Diesel cycle: 0.35 g/km;
VI-total aldehydes (CHO) p Otto cycle: 0.03 g/km;
VII-particulate matter (PM) p Diesel cycle: 0.040 g/km; and
VIII-carbon monoxide idling p Otto cycle: 0.2% in volume.

Art. 4 The maximum residue levels established in this Resolution come into force according to schedule below:

I- Diesel cycle light vehicle: 100% from January 2013.

II- Otto cycle light vehicles: from January 1, 2014 to new models and from January 1, 2015 for the rest.

Art. 5 from January 1, 2012, it is established for the new approvals to the limit of 1.5 gram of evaporated fuel per test for the evaporative emission according to NBR 11,481, of all light vehicles using the Otto cycle engines, except those that use only natural gas.

Sole paragraph. For the test described in the caput of this article, may be used alternatively the sealed chamber of variable volume, according to the procedure described in the "Code of Federal Regulations, Volume 40, Part 86, of the United States of America, using the limit of 2.0 (two) grams of evaporated fuel per test for the emission.

Art. 6. Manufacturers and importers shall include all emission test reports, according to NBR-6601, from 30 (thirty) days after the publication of this, the values of the emission of carbon dioxide from exhaust gases of light vehicles.

Art. 7. Manufacturers and importers of Diesel cycle, light vehicles for the domestic market, must submit to the Brazilian Institute of the Environment and Renewable Natural Resources - IBAMA, until December 31, 2013, report of value typical exhaust emission of total aldehydes (CHO), measured at the driving cycle according to NBR-6601 and expressed in grams per kilometer (g/km), of all its models being marketed.

Sole paragraph. The issue of total aldehydes (CHO) must be measured in accordance with procedures to be determined until December 31, 2011, by IBAMA.

Art. 8 manufacturers and importers of light motor vehicles are required to submit to IBAMA typical values of emission of nitrogen oxides, obtained with the tested vehicle according the NBR 7024 , of all their models being marketed in the national territory, in accordance with the following deadlines:

I-Diesel cycle light vehicles, from January 1, 2013 until 31 December of the same year;

II-Otto cycle light vehicles, from January 1, 2014 until December 31, 2015.

CHAPTER II ON THE REFERENCE FUELS AND THEIR SPECIFICATIONS

Art. 9 The National Agency of Petroleum, Natural Gas and Biofuels (ANP) specifies the reference fuels, gasoline, ethanol fuel and car fuel gas needed to meet the limits set out in this Resolution in time to enable its supply in advance of 36 months, in accordance with the provisions in the caput of the art. 7 of Law 8.723, of October 28, 1993.

§1 The gasoline mixture and anhydrous ethyl alcohol fuel should be prepared from the corresponding reference fuel, containing 22%, with a variation of one percentage point up or down in volume of anhydrous ethyl alcohol fuel, as set forth in art. 9 of Law 8.723, of 1993.

§ 2 Shall be regarded, for the purposes of development and approval, the specifications of reference fuels gasoline, ethanol fuel, diesel oil, and vehicular fuel gas established in technical regulations contained in the ANP Resolutions No. 21 of July 2, 2009, 05, February 24, 2005, 40 of December 24, 2008, 16 of June 17, 2008 and Standard ABNT NBR No. 8689, 2006, respectively, or in legislation that will replace them.

CHAPTER III COMMERCIAL FUELS AND THEIR SPECIFICATIONS

Art. 10. The specifications of commercial fuels, gasoline, ethanol fuel and natural gas for the purpose of distribution and consumption will be established by ANP, in a deadline compatible to ensure the supply at the time of deployment of the limits laid down in this Resolution, in accordance with the provisions in the caput of the art. 7 of Law 8.723, 1993.

§1 The diesel oil to meet the limits of phase L6 of PROCONVE will be made available, primarily for the new vehicles, produced from January 1, 2013, and, later, to other vehicles of municipalities and micro-regions defined in Resolution No. 373, of May 9, 2006 from CONAMA.

§2 The fuels, for marketing purposes, should introduce low sulphur and characteristics compatible with the gasoline, alcohol and gas reference fuel, so as not to significantly change the engine performance obtained with the reference fuel.

Art. 11. It will be up to ANP the presentation of the fuel supply plan needed to comply with this Resolution, giving wide publicity to its content, especially to the Ministries of Environment and of Energy.

§ 1. Producers, importers, distributors and retailers of fuels should submit to the ANP, at intervals determined by it, the information necessary for the preparation of this plan.

§ 2 The plan prepared by the ANP should predict the availability of fuel in bulk and with the antecedence required, as well as its distribution in posts geographically located, allowing a vehicle of L6 phase to go nationwide always fueling with fuel specified by the ANP.

CHAPTER IV TEST PROCEDURES

Art. 12. For the measurement of the emission of pollutants from the exhaust of light passenger vehicles and light commercial vehicles, which are tested according to the procedure of Brazilian Standard NBR 6601, remain the criteria established in CONAMA Resolution No. 18, of May 6, 1986.

Art. 13. All vehicle models that present annual production above 33% equipped with air-conditioning systems in the passenger compartment of driver/passengers, shall be tested in accordance with the Prescription in A4 of ANNEX A of Brazilian Standard ABNT NBR 6601, of 2005.

Art. 14. the test and measurement of aldehydes HCO in exhaust gas of Otto cycle light passenger motor vehicles and light commercial must be made according to the requirements of the Brazilian Standard ABNT NBR 12026.

CHAPTER V GENERAL PROVISIONS

Art. 15. Vehicles whose engines are equipped with exhaust gas recirculation (EGR), must be guaranteed by their manufacturers and importers that this system has technical conditions to operate at altitudes up to 1000 meters.

Art. 16. As from January 1, 2013, new approvals of Diesel cycle light vehicles must prove the fulfillment of the residue levels of regulated pollutants emission by 80,000 km (80,000 kilometers) or five years of use.

§ 1. For vehicles whose engine groups classified according to NBR 14.008 have annual sales forecast greater than 15,000 (fifteen thousand) units, the deterioration factors shall be determined according to NBR 14.008, adopting the same deadlines and criteria laid down by CONAMA Resolution No. 14, of December 13, 1995, and supplemented by CONAMA Resolution n^o 315, of October 29, 2002.

§ 2. For vehicles whose engine groups classified according to NBR 14.008, have annual sales forecast of up to 15,000 (fifteen thousand) units, it may be adopted, optionally, the deterioration factor of 10% (ten per cent) for each pollutant regulated.

Art. 17. Heavy motor vehicles, with Otto cycle engine, with maximum authorized total mass between 3,856 kg and 4,536 kg, can be tested, alternatively as light commercial vehicle with test mass greater than 1,700 kg, by applying the provisions of art. 3 of this Resolution.

Art. 18. As from January 1, 2015, for Diesel cycle light vehicles, it will be required the carrying of devices/systems on-board diagnostic (OBD), of the functions of engine management exercising influence on the emission of air pollutants.

Art. 19. IBAMA will regulate the application of specific emission control technologies to enable proper management of light vehicles with Diesel cycle engine, including the on-board diagnostic system (OBD), giving science to CONAMA, within 24 months after publication of this resolution.

Sole paragraph. For vehicles with selective Catalysis system for the control of emissions of nitrogen oxides (NOx) and using liquid reducing agent, the system design for on-board diagnostic (OBD) should consider measures to reduce significantly the performance of the vehicle, if detected malfunction emission control system or even swindle attempts.

Art. 20. IBAMA will coordinate studies and works for any review required to emission ceilings deadlines laid down in this Resolution, summoning, at any time, the organs/entities related to the theme and must submit to CONAMA the final report with the proposal for consideration.

Art. 21. vehicles for specific use, agricultural use, military, and special launchings, so considered by decision motivated and exclusive of IBAMA, may be exempted from the requirements of this Resolution.

Art. 22. Vehicles with alternative propulsion systems or fuels not provided for in this Resolution can be partially exempted from certain requirements in this regulation, by means of decision motivated and exclusive of IBAMA, for a maximum period of 24 (twenty-four) months.

Art. 23. The Ministry of the Environment should submit to CONAMA studies and proposals to establish incentives to manufacturers and importers of motor vehicles and automotive fuels, through the reduction of taxes, so that they voluntarily established dates of marketing in the domestic market of products that meet the limits prescribed by this Resolution.

Art. 24. The non-compliance with the provisions of this Resolution will subject violators to the penalties provided for in Law 9.605, of February 12, 1998, and Decree 6.514 from July 22, 2008, without prejudice to any other penalties provided for in specific legislation.

Art. 25. IBAMA will regulate up to December 31, 2009 the continuing disclosure, by the World Wide Web, of emission data contained in the homologation processes of motor vehicles, which must be disclosed by brand/model, for all Licenses for Use of the Vehicle or Engine Configuration-LCVM issued.

Art. 26. As from January 1, 2013, post treatment systems of exhaust gas shall provide for the reinstatement of active elements of emission control aiming at the reduction of maintenance costs.

Sole paragraph. It will be up to IBAMA to rule the replacement of active elements provided for in the caput of this article, within 180 days after publication of this Resolution.

Art. 27. Items 3.3, 3.4, 3.5 and 3.7 of the ANNEX of CONAMA Resolution No. 299, of October 25, 2001, will have samples reduced from 0.1 percentage point, by applying the new sampling values from the following calendar half-year to date publication of this Resolution.

Art. 28. For the purpose of emission control of production, for presentation of the Report of Emission Values of Production Values-RVEP, according to CONAMA resolution No. 299, of 2001, the manufacturers and importers of light vehicles are allowed to display the measured values of total hydrocarbons (HC), alternatively to the values of non-methane hydrocarbons (NMHC), applying, in this case, the limit of 0,15g/ km .

Sole paragraph. In the event of opting for the alternative of presenting the values of total hydrocarbons (HC) the manufacturer or importer shall submit, at least five vehicles per model with the measured results of non-methane hydrocarbons (NMHC).

Art. 29. This Resolution shall enter into force on the date of its publication.

Art. 30. As from January 1, 2013, §2 of art. 15 of CONAMA Resolution No. 8, of August 31, 1993, , and art. 23 of CONAMA Resolution No. 315, of 2002, are hereby revoked.

Sole paragraph. Light commercial vehicles homologated as heavy-duty vehicles will have the engine's and vehicle's LCVMs revalidated until December 31, 2012, respecting the stocks.

CARLOS MINC-Council President

This text does not replace the one published in the Official Gazette of 09/25/2009

RESOLUTION 432, July 13, 2011.
Published in Official Gazette 134 on 07/14/2011, p. 69

Correlations:

- Complements Resolution No. 297, of 2002.

Establishes new phases for the control of polluting gas emissions by mopeds, motorcycles and new similar vehicles and makes other provisions.

The NATIONAL ENVIRONMENT COUNCIL-CONAMA, pursuant to the powers vested on it conferred by art. 8, subitem VII of Law 6.938, of August 31, 1981, and by art. 2, § 9, and art. 3 of Law 8.723, October 28, 1993, bearing in mind the provisions of its Internal Rules; and

Considering the provisions of Law 8.723, of October 28, 1993, which provide for the reduction of pollutants emitted from motor vehicles and in Resolution 297, of February 26, 2002, from the National Environmental Council-CONAMA, that creates the Program for the Control of Air Pollution by Mopeds, Motorcycles and the Like-PROMOT. and

Considering the need of continuous development and updating of PROMOT, resolves:

Art. 1 To establish new levels of control of the emission of gaseous pollutants by exhaust from new mopeds, motorcycles and similar vehicles, in compliance with § 1 of art. 8 of Resolution 297, of February 26, 2002, from the National Environmental Council -CONAMA as follows:

CHAPTER I
MAXIMUM EMISSION LIMITS AND TEST PROCEDURES

Art. 2 As from January 1, 2014, the maximum emission limits of pollutants from the exhaust of motor cycles, motor tricycles and quadricycles, PROMOT phase M4, are hereby established , according to table I of the ANNEX to this Resolution.

Art. 3 As from January 1, 2016, the maximum emission of pollutants from the exhaust of motor cycles, motor tricycles and quadricycles, PROMOT phase M4, are hereby established according to table I of the ANNEX to this Resolution.

Art. 4 In phase M4 of PROMOT, the procedures of tests for determining of the exhaust gas of motor cycles, motor tricycles and quadricycles shall be those laid down in the European Community legislation, using the transient driving cycle WMTC Worldwide Motorcycle Test Cycle, available in the electronic Site of the Brazilian Institute of the Environment and Natural Renewable Resources - IBAMA.

Art. 5 As from January 1, 2014, the maximum residue levels of emission of pollutants from mopeds exhaust, PROMOT phase M4, are hereby established according to table II of the ANNEX to this Resolution.

Art. 6 All vehicles covered by this Resolution shall have the values of CO, HC and angular velocity of the engine at idling declared by the manufacturer or importer on the basis of proven certification test values and must be disclosed by the vehicle owner's Manual as well as to the Authorized Service Network, by means of the Service Manual.

Art. 7 Test procedures for the determination of the exhaust gas of mopeds shall be as laid down in CONAMA Resolution No. 297, of 2002.

Art. 8. For purposes of development and homologation, the specifications of reference fuels for vehicle gasoline, ethanol fuel, diesel oil and combustible gas, shall be established in the technical regulations contained in ANP Resolutions No. 21, of July 2, 2009, 38, of December 9, 2009, 23, of July 6, 2010, 40, of December 24, 2008, 16, of June 17, 2008, and ABNT NBR No. 8,689 of 2006, respectively, or on the legislation that will replace them, observing the provisions of art. 7, caput of Law 8.723 of 1993, regarding commercial availability of fuels to be provided.

Art. 9 As from January 1, 2016, the ceiling of evaporative emission of 1 (one) gram/test is established for all mopeds, motorcycles, motor tricycles and quadricycles.

Sole paragraph. For the determination of evaporative emissions from vehicles in the caput of this article, it is adopted the procedure of the hot phase as described in Brazilian standard NBR 11,481-"Light motor road vehicles-measurement of evaporative emission ", using the 0.14 m³ volume.

CHAPTER II
EMISSION DETERIORATION FACTORS

Art. 10. Effective January 1, 2014, in the homologation processes, manufacturers and importers of mopeds, motorcycles, motor tricycles and quadricycles should apply the factors of

deterioration (FD) obtained according to standard ABNT NBR 14008, or substitute standard, to emissions from vehicles of the same engine and transmission configuration that have forecast annual sales greater than 10,000 units, as follows:

a) for mopeds, the distance to be traveled for the determination of FD is 10,000 km and emission testing should be carried out in intervals of vehicle maintenance, according to the maintenance schedule recommended by their manufacturer.

b) for motorcycles, motor tricycles and quadricycles with maximum speed less than 130km/h, the distance to be traveled for determination of FD is 18,000 km and emission testing should be carried out in intervals of vehicle maintenance, according to the plan of maintenance recommended by the manufacturer; and

c) for motorcycles, motor tricycles and quadricycles with maximum speed greater than or equal to 130km/h the distance to be traveled for determination of FD is 30,000 km and emission testing should be carried out in intervals of vehicle maintenance, according to the maintenance schedule recommended by their manufacturer.

§ 1. For productions or imports of less than 10,000 units/year of the same engine and transmission configuration it will be applied the predetermined deterioration factor of 20% for CO, HC and NO_x, and the manufacturer or importer shall have the right to determine FDs to a specific configuration.

§ 2 The accumulation of mileage will be held according to standard ABNT NBR 14008, in AMA cycle with commercial fuel and supporting tests with standard fuel.

§ 3 For the clusters of engines that show an increase in sales volume forecast, at the time of renewal of the license for use of mopeds, motorcycles and the like-LCM for the following year, surpassing the limit of ten thousand units per year, it shall be admitted, on account of the duration of the tests to determine the deterioration factors, that these are declared within a year beyond the current year, counted from the date of revalidation of LCM.

CHAPTER III PRODUCTION CONTROL

Art. 11. It is established, as from July 1, 2011, with a semi-annual periodicity, the Report on the Production Emission Values -RVEP, for the mopeds, motorcycles, tricycles and quadricycles, with production or import for sale in the country of more than 1,000 units per semester, including their extensions.

§ 1. At the beginning of the semester, the manufacturer or representative importer shall provide to IBAMA, within thirty days, the RVEP relative to the immediately preceding semester.

§ 2 The reports must contain the identification of the laboratory and the performing unit, by setting of tested vehicle, date and number of respective tests, with their emission values obtained, as well as the mean and standard deviation, and , for each configuration of the vehicle or engine, should be provided the reference value, as defined in the ANNEX to this Resolution.

Art. 12. emissions tests for the control of production made in Brazil or abroad shall be performed in laboratories accredited by INMETRO or accepted by IBAMA.

Art. 13. For each configuration of mopeds, motorcycles, motor tricycles and quadricycles subject to RVEP, three units shall be tested per semester, and if the average results are under the pollutant limits laid down for the period in which the vehicle was approved, the production will be considered compliant.

§ 1. In the absence of compliance, according to the condition set in the caput of this article, up to two units may be added to the sample, always comparing the average results obtained with the limits of pollutants.

§ 2 If the threshold is not met for any of the pollutants, using up to five units in the sample, the production will be considered non-compliant.

CHAPTER IV GENERAL PROVISIONS

Art. 14. All expenditure arising from actions of this Resolution, such as tests, recalls, repairs, administrative costs, costs of transporting the product or personnel involved, shall be made exclusively by the manufacturer or its representative importer or, in his absence, by the importer responsible for the batch of vehicles or engines.

Art. 15. IBAMA will coordinate studies and works for any review required to the emission ceilings and deadlines laid down in this Resolution, summoning, at any time, the organs/entities related to the theme, and should submit to CONAMA the final report with the proposal for consideration.

Art. 16. IBAMA must update and where necessary regulate, through Normative Instruction with technical grounds, the testing and reporting procedures and noise related to PROMOT.

Art. 17. This Resolution shall enter into force on the date of its publication.

IZABELLA TEIXEIRA-Council President

This text does not replace the one published in the Official Gazette of 07/14/201

**ANNEX
Table I**

Category	Date of validity	Maximum speed	Limits			
			CO (g/km)	HC (g/km)	NO _x (g/km)	CO ₂
Moped and alike	01/01/2014	< 130 Km/h	2	0,8	0,15	
		≥ 130 Km/h	2	0,3	0,15	
	01/01/2016	< 130 Km/h	2	0,56	0,13	Report
		≤ 130 Km/h	2	0,25	0,17	

Table II

Category	Date of validity	Maximum speed	Limits			
			CO (g/km)	HC (g/km)	NO _x (g/km)	CO ₂
Motorcycle	01/01/2014	1	0.8	0.15	Report	

RESOLUTION 433, July 13, 2011
published in Official Gazette 134 on 07/14/2011, p. 69

Provisions the inclusion of Motor Vehicles in the Air Pollution Program (PROCONVE) and establishes the maximum rates of noise emissions by new agriculture machines and new roadways.

The NATIONAL ENVIRONMENT COUNCIL-CONAMA, in the use of the powers conferred to it by art. 8, subitem VII of Law 6.938, of August 31, 1981, and by art. 2, § 9, and art. 3 of Law 8.723, of October 28, 1993, bearing in mind the provisions of its Internal Rules; and

Considering Law 8.723, of October 28, 1993, which provides for the reduction of emission of pollutants emitted from motor vehicles, as part of the National Policy of the Environment;

Considering the provisions of the Program for the Control of Air Pollution by Motor Vehicles-PROCONVE, established under the National Environment Council-CONAMA Resolution No. 18, of May 6, 1986, and other complementary resolutions;

Considering the need of continuous development and updating of PROCONVE, resolves:

Art. 1 To include in the Program For the Control of Air Pollution by Motor Vehicles-PROCONVE and establish maximum noise emission for new agricultural and road machinery.

Art. 2 For purposes of this Resolution, the following definitions are used:

I-Engine configuration: unique combination of family of engines, which can be described by the systems that affect directly the emission control;

II-Engines family: basic classification for production line of the same manufacturer, determined in such a way that any engine from the same family has the same emission characteristics;

III-Road Machine: motorized machine on wheels, treadmills or legs, which has equipment or accessories designed primarily to perform operations of trenching, digging, loading, transporting, dispersion or compression of the earth and similar materials;

IV-Agricultural machine: motorized machine on wheels or treadmills, which has equipment or accessories designed primarily to conduct operations on land preparation, planting, up keeping, harvesting of agricultural and forestry products;

V-Agricultural Machine or Road model: name that characterizes a production line of machines of the same manufacturer with the same construction characteristics; and

VI-New launching: introduction into the consumer's market of agricultural or road machine configuration, with a new engine configuration.

Art. 3 The maximum emission of pollutants for Diesel cycle engines, referred to in table I of the ANNEX to this resolution, for new automotive agricultural and road machinery, domestic and imported, defined through the MERCOSUR Common Nomenclature Codes-NCM are hereby established in accordance with ANNEX B of this Resolution.

Art. 4 Engines with power equal to or greater than 19 kW for agricultural and road machinery, domestic and imported, sold in Brazil, must meet the emission ceilings defined in table I of the ANNEX to this Resolution and the dates laid down in this article.

§ 1. As from January 1, 2015, engines with power equal to or greater than 37 kW, designed for new launchings of road machinery, must meet the limits of MAR-I phase according to table I of the ANNEX to this Resolution.

§ 2 As from January 1, 2017, all engines for road machinery under production or imported, for all power ranges, must meet the limits of MAR –I phase according to table I of the ANNEX to this Resolution.

§ 3 As from January 1, 2017, all engines for new agricultural machines, in production or imported, with power equal to or greater than 75 kW, must meet the limits of MAR-I phase according to table I of the ANNEX to this Resolution.

§ 4 As from January 1, 2019, all engines for new agricultural machines, under production or imported, with power equal to or greater than 19kW and up to 75 kW, must meet the limits of MAR – I phase according to table I of the ANNEX to this Resolution.

Art. 5 The emission levels measured in agricultural and road machinery engines are expressed in g/kWh, and refer to the mass of pollutant emitted per hour per unit of power.

§ 1. Carbon monoxides emissions (CO), hydrocarbons (HC), nitrogen oxides (NOx) and particulate matter (PM) should comply with the ISO 8178-1.

§ 2 At the discretion of the Brazilian Institute of the Environment and Renewable Natural Resources -IBAMA, NBR standards that result from ISO standard mentioned in the preceding paragraph may be used for the measurement dealt with in the caput of this article.

Art. 6 The reference fuel for the certification test shall be, for MAR-I phase, the one regulated by the National Agency of Petroleum, Gas and Bio-fuels (ANP).

Art. 7 Only the models of agricultural machinery and road machinery, domestic or imported that possess the LCVM-License for Use of the Vehicle or Engine Configuration, issued by IBAMA may be marketed.

Sole paragraph. The procedures and requirements for obtaining the LCVM are the same as set out by the complementary regulation of PROCONVE.

Art. 8. As from January 1, 2015, the noise emission ceilings for road machines, namely: hydraulic excavators, excavators, tractors with blade, wheel loaders, motor graders, backhoes and roller-compactors with installed capacity less than 500 kW, domestic or imported for sale in the domestic market are hereby established.

§ 1 The sound power level shall be measured under the conditions laid down in accordance with NBR-NM-ISO 6395, and must not exceed the permissible level L_{wa} in DB(a) 1 pW specified with respect to net power P in kW installed in accordance with the tables II and III set out in ANNEX A to this Resolution.

§ 2 The formulae set out in table II of the ANNEX to this Resolution shall be valid only for values greater than the lowest levels of sound power for machine types.

These lower sound power levels correspond to lower values of net installed power for each type of machine.

§ 3 For liquid powers installed below these values, the permissible sound power levels are the lowest level data shown in table III of the ANNEX to this Resolution.

§ 4 The net installed power P must be determined as defined in ISO 14396: 2002.

Art. 9. The equipment, the location and the test method used for measurement of noise levels, for the purposes of this Resolution, shall be in accordance with NBR-NM-ISO635 and its normative references.

Art. 10. It will be up to IBAMA, through Normative Instruction, establish additional procedures and requirements necessary for the implementation of the provisions of this Resolution.

Art. 11. IBAMA will coordinate studies and works for any review required emission ceilings and limits laid down in this Resolution, summoning, at any time, the organs and entities related to the subject and must submit to CONAMA the final report with the proposal for consideration.

Art. 12. this resolution shall enter into force on the date of its publication.

IZABELLA TEIXEIRA-Council President

This text does not replace the one published in the Official Gazette of 07/14/2011

ANNEX A

Table 1 – Emission ceilings for agriculture and road machinery engines (PROCONVE MAR-I)

(Power P in kW)*	CO	HC + NO _x (g/kWh)	MP (g/kWh) (g/kWh)
$130 \leq P \leq 560$	3,5	4,0	0,2
$75 \leq P < 130$	5,0	4,0	0,3
$37 \leq P < 75$	5,0	4,7	0,4
$19 \leq P < 37$	5,5	7,5	0,6

*Maximum power according to Standard ISO 14396:2002 which, at IBAMA's discretion, may adopt an equivalent ABNT standard

TABLE II – Road Machinery

Type of highway machinery	Computation formula
Tractor with tracks crawlers, track wheel loaders, tracks backhoe loaders	$L_{wa} = 87 + 11 \log P$
Wheel blade tractor, wheel loaders, backhoe loaders, motor graders, non-vibrating roller compactors	$L_{wa} = 85 + 11 \log P$
Vibrating roller compactors	$L_{wa} = 89 + 11 \log P$
Bulldozer	$L_{wa} = 83 + 11 \log P$

TABLE III – Road Machinery

Type of highway machinery	Lowest level of sound power in dB(A)/1 pW
Tractor with tracks crawlers, track wheel loaders, tracks backhoe loaders	106
Wheel blade tractor, wheel loaders, backhoe loaders, motor graders, non-vibrating roller compactors	104
Vibrating roller compactors	109
Bulldozer	96

ANNEX B

Agricultural and road machinery covered by this Resolution

NCMS Code Description

8424 MECHANICAL APPLIANCES (EVEN HAND-OPERATED) FOR PROJECTING, DISPERSING OR SPRAYING LIQUIDS OR POWDERS; FIRE EXTINGUISHERS, EVEN CHARGED; SPRAY GUNS AND SIMILAR APPLIANCES; MACHINERY FOR SANDBLASTING, STEAM JET AND JET-LIKE DEVICES.

8424.81.19 Self-propelled sprayers

8429 "BULLDOZERS, ANGLEDOZERS, GRADERS, SCRAPERS, MECHANICAL SHOVELS, EXCAVATORS, SHOVEL LOADERS, TAMPING MACHINES AND ROADROLLERS, SELF-PROPELLED

8429.1 Bulldozers and angle dozers

8429.11 Of caterpillars

8429.11.10 Of steering wheel power greater than or equal to 387, 76kW (520HP)

8429.11.90 Other

8429.11.90 Ex 001- Crawler bulldozers, with front blade and rear ripper, maximum power on the steering wheel higher than 405HP and below 520HP

8429.19 Other

8429.19.10 "Bulldozers" with steering wheel power equal to or greater than 234, 90kW (315HP)

8429.19.90 Other

8429.20 Levelers

8429.20.10 Articulated motograders, of maximum steering wheel power greater than or equal to 205, 07kW (25HP)

8429.20.90 Other

8429.30.00 Scrapers

8429.40.00 Tamping machines and road rollers

8429.40.00 Ex 001-Trash compactors, self-propelled guns for diesel engine with servo drive and steering wheel power of planetary of 340HP, with operating weight equal to 36,967 kg, containing perforated rolls crushers, jaw type, and moving front blade.

8429.40.00 Ex 002-Soil compactors, self-propelled rollers, vibratory tandem rollers, with maximum operating weight exceeding 7,000 kg

8429.40.00 Ex 003-Soil compactors, rammers, hydrostatic, self-propelled guns, powered by diesel engine with power of 33.7 HP, with an approximate capacity of asphalt compression of 15 cm and 61 cm soil and operating weight of 2,550 kg

8429.40.00 Ex 004-Soil compactors, vibratory Rollers, self-propelled guns, remotely controlled, equipped with two rollers with legs of mutton, powered by diesel engine with 21 HP power, compressibility of up to 75 cm deep, productivity of 972 m²h and operating weight of 1,473kg

8429.5 Self-propelled mechanical shovels, excavators, shovel loaders

8429.51 Shovel loaders, front loading

8429.51.1 Loaders-carriers

8429.51.11 Of the type used in underground mines

8429.51.19 Other

8429.51.2 Motor infrastructures, suitable to receive equipment from item 8430.69.1

8429.51.21 Steering wheel power greater than or equal to 454, 13kW (609HP)

8429.51.21 "Ex" - wheel traction units for excavators, with no national similar

8429.51.29 Other

8429.51.29 "Ex" - wheel traction units for excavators, with no national similar

8429.51.9 Other

8429.51.91 Steering wheel power greater than or equal to 297.5 kW (399HP)

8429.51.92 Steering wheel power less than or equal to 43.99 kW (59HP)

8429.51.99 Other

8429.52 Machines whose superstructure is able to perform a 360-degree rotation

8429.52.1 Excavators

8429.52.11 Steering wheel power greater than or equal to 484.7 kW (650HP)

8429.52.12 Steering wheel power less than or equal to 40.3 kW (54HP)

8429.52.19 Other

8429.52.19 Ex 001- Propelled bulldozers, with superstructure capable of performing 360° rotation, load capacity of between 10, 7 m³ and 76, 5 m³, equipped with

DC electric motors for propulsion, rotation and elevation, no steering wheel on the engine, with drive of lifting system from loading by means of cables

8429.52.19 Ex 002 - Propelled bulldozers, with superstructure capable of performing 360° rotation, consisting of alternating current electric motors for propulsion, turning and lifting system with pneumatically bucket lifting system of cargo through cables and maximum load capacity equal to or greater than 19m³

8429.52.20 – Motor infrastructures, suitable to receive equipment from subheadings 8430.49, 8430.61 or 8430.69, same with rail displacement device

8429.52.90 Other

8429.59.00 Other

8432.40.00-Manure spreaders and fertilizer distributors

8701 TRACTORS (OTHER THAN TRACTORS FROM HEADING 8709)

8701.10.00 Controlled tractors

8701.20.00 “Ex” - Truck-tractor, special heavy-duty construction, intended to work directly linked to the transport of ores, rocks, land with stones and similar materials, which does not identify himself as a truck-commercial type or common tractor adapted or strengthened

8701.30.00 Track-laying tractors

8701.30.00 Ex 001-Forestry tractors type "feller buncher", on mats, used for felling, with engine power above 200HP, with hydraulic crane for head support feller

8701.30.00 Ex 003 - Rubber track tractor, powered by diesel engine with power over 200HP

8701.30.00 Ex 004 - Forest tractors, self-propelled, feller bunch type, crawler mounted, used for felling trees, with engine power up to 120 kW, with hydraulic crane for head support feller

8701.90 Other

8701.90.10 Specially designed tractors to drag logs ("log skidders")

8701.90.10 "Wheeled agricultural tractors without treadmills"

8701.90.10 "4 wheeled agricultural Tractors"

8701.90.90 Other

8701.90.90 Ex 01-With mechanical or hydraulic power take-off

8701.90.90 "4-wheel micro tractors, for horticulture and agriculture"

8701.90.90 "Wheeled agricultural tractors without treadmills"

8701.90.90 "4-wheel agricultural Tractors"

8704 MOTOR VEHICLES FOR TRANSPORT OF GOODS

8704.10 Dumpers designed for off-road use

8705.10-Crane Trucks

8705.10.10 With telescopic stem of maximum height greater than or equal to 42m, maximum lifting capacity greater than or equal to 60 tons, according to Standard DIN 15019, Part 2, and with 2 or more axes of wheels packaged

8705.10.90 Other

8433. MACHINERY AND APPLIANCES FOR HARVESTING OR THRESHING OF AGRICULTURAL PRODUCTS, INCLUDING STRAW OR FODDER BALERS; MOWERS AND HARVESTERS; MACHINES FOR CLEANING OR SELECTING EGGS, FRUITS OR OTHER AGRICULTURAL PRODUCTS, EXCEPT THOSE OF

HEADING 84.37.

8433.30.00 Self-propelled forage machine

8433.5 Other machinery and appliances machinery for harvesting and machinery devices for threshing

8433.51.00 Combine harvesters

8433.52.00 Other threshing machinery

8433.53.00 Machines for harvesting roots or tubers

8433.59 Other

8433.59.1 Cotton harvesters

8433.59.11 With ability to work up to two harvest grooves and steering wheel power less than or equal to 59.7 KW (80HP)

8433.59.90 Other

8433.59.90 Ex 001 - Tomato Harvesters, with electronic selector, rotary shaker with vibrating beams with alternating movement for separation of fruits and unloading ramp

8433.59.90 Ex 002 – Self-propelled harvesters for corn on the spikes, with platform of nine or more rows, dual cleaning system of spikes, unloading elevator, with 4-wheel hydrostatic transmission system

8433.59.90 Ex-003 – 4-wheel drive sugarcane grinders, , 350HP engine power, cleaning system by air flow with two extractors and two turbines, non-reversible sugar cane unloading elevator, cane cutting device, spacing of rows of 1.0 meter between cane themselves, reaping simultaneously two rows of canes

8436 OTHER MACHINERY FOR AGRICULTURE, HORTICULTURE, FORESTRY, POULTRY FARMING OR BEE-KEEPING, INCLUDING GERMINATION PLANT FITTED WITH MECHANICAL OR THERMAL EQUIPMENT AND BROODERS FOR POULTRY-KEEPING.

8436.80.00 Ex 008- Self-propelled machines on wheels for felling, delimiting and cut out of logs, type "harvester", with 4 x 4 traction or higher, no loading dock

8436.80.00 Ex 010- Self-propelled crawler machines for felling, delimiting and cut out of logs, type "harvester", engine power of between 250 and 294HP, maximum range of throws with head equal to 8, 9 m

8436.80.00 Ex 011- Self-propelled crawler Machines for felling, delimiting and cut out of logs, with power equal to or exceeding 240HP, prepared to receive/use processing heads.

8479 MACHINES AND MECHANICAL APPLIANCES WITH SPECIFIC FUNCTION, NOT SPECIFIED OR INCLUDED ELSEWHERE IN THIS CHAPTER

8479.10 Machinery for public works, construction or similar work

8479.10.10 Self-propelling vehicle for spreading and pressing floorings

8479.10.90 Other (*MILLING*)

8430.50.00 MILLING MACHINES

8430 OTHER MOVING, GRADING, LEVELING, SCRAPING, EXCAVATING, TAMPING, COMPACTING, EXTRACTING OR BORING MACHINERY, FOR EARTH, MINERALS OR ORES; PILE DRIVERS AND PILE-BOOTS; SNOW PLOUGHS

8430.50.00 Other machinery, self-propelled

8430.50.00 "Ex"-Hydraulic wedge

8430.50.00 "Ex"-Disassembler

8430.50.00 Ex 001- Self-propelled equipment, articulated and demoted, equipped with a bulldozer blade and telescopic arm with hydraulic hammer of 850 foot-pounds, to offset rocks loose on the roof of underground mines.

8430.50.00 Ex 002- Self-propelled equipment, articulated and demoted, equipped with a bulldozer blade and telescopic arm with claw to offset rocks loose on the roof of underground mines

8430.50.00 Ex 003- Electro-hydraulic or diesel-hydraulic, self-propelled demolition equipment, operated by remote control, with point jacks, turntable with a rotation equal or superior to 245 with articulated 3 segments arm with connections to various types of tools and power unit greater than or equal to 4.0 kW

8430.50.00 Ex 004 - Self-propelled equipment, with articulated chassis on wheels and equipped with projection, concrete pump type pistons and mono-type accelerator pump, driven by electric motor with pulse suppression control and throttle flow controlled by a programmable logic controller (PLC) with arm and articulated boom, air compressor and lighting system, used in underground mines

Plan for the control of Pollution by Vehicles in Use – PCPV
and Inspection and Maintenance Program of Vehicles in
Use – I/M

RESOLUTION 418, November 25, 2009
Published in Official Gazette 226 on 11/26/2009, pp. 81-84

Correlations:

- Revokes Resolutions No. 71993; No. 151994; No. 181995; No. 2271997; No. 2511999; No. 2521999 and No. 2561999;
- Amended by Resolutions No. 4262010 and No. 4352011.

Establishes provisions for the creation of Plans for the Control of Vehicle Pollution (PCPV) and for the establishment of Programs for the inspection and Maintenance of Vehicles in USE (I/M) by state and municipal environmental organs and Establishes new limits for emissions and proceedings for the evaluation of the state of vehicles in use

The NATIONAL ENVIRONMENT COUNCIL-CONAMA, pursuant to the powers vested on it by art. 8, item VI of Law 6.938 dated August 31, 1981, art. 3 and art. 12 of October 28, 1993, Law 8.723, articles 104 and 131, among other devices of Law 9.503, of September 23, 1997, bearing in mind the provisions of its Internal Rules, and

Considering that the Environmental Vehicle Inspection, if properly implemented, can be an effective instrument for reducing emissions of gaseous and particulate pollutants and noise by rolling stock fleet of motor vehicles, within the framework of the National Program for Air Quality Control-PRONAR established by CONAMA Resolution nº 5, of June 15, 1989, as well as the Program for the Control of Air Pollution by Motor Vehicles-PROCONVE established by CONAMA Resolution nº 18, of May 6, 1986, and the National Program of Vehicle Noise Control, in accordance with CONAMA Resolutions No. 1 and 2, of 1993;

Considering that the lack of maintenance and improper maintenance of vehicles may be responsible for increased pollutant emissions and fuel consumption;

Considering the need to develop strategies for reducing vehicular pollution, especially in urban areas with problems of air pollution and noise pollution; and

Considering the need to revise, update and systematize the legislation concerning environmental vehicle inspection, with a view to the development of vehicle technology and the development of new inspection procedures, and the need for the systematic development of cost-benefit studies, aiming at the continuous improvement of public policies for the control of air pollution by motor vehicles, resolves:

Chapter I
General Provisions

Art. 1 This Resolution establishes criteria for drawing up Plans of Vehicular Pollution Control – PCPV, for the deployment of Inspection and Maintenance Programs for in-use Vehicles-IM by environmental state and municipal agencies, determine new emission limits and procedures for the assessment of the status of maintenance of vehicles in use.

Art. 2 For purposes of this Resolution, the following definitions are used:

I- Motorcycle: any type of two-wheel motor vehicle, including mopeds, scooters and motorcycles.

II - Organ responsible: State or municipal environmental agency responsible for the implementation of the IM Program which can also be the executing agency of the Program operation and audit

III- OBD System: on-board diagnosis system used to control emissions and the capability of identifying the likely area of the malfunctions, verified by means of fault codes stored in the memory of the engine control module, implemented in Brazil in two phases, OBDBr-1 and OBDBr-2.

IV- Intensive use Vehicles: light commercial vehicles, heavy vehicles and taxis.

Chapter II
On the Vehicular Pollution Control Plan-PCPV

Art. 3 The Vehicular Pollution Control plan-PCPV is a management tool of the air quality of the National Program for Air Quality Control-PRONAR and Program for the Control of Air Pollution by Motor Vehicles-PROCONVE, with the goal of establishing rules for the management and control of the emission of pollutants and fuel consumption of vehicles.

Art. 4 The PCPV to be elaborated by state environmental agencies after hearing the municipalities and the Federal District should take as a basis the emission inventory for of mobile sources and, when applicable, monitoring air quality, aiming at the reduction of pollutants, and should provide, clearly and objectively, alternative management and control actions for f the

emission of pollutants and fuel consumption, including a Program for Inspection and Maintenance of Vehicles in Use- IM when needed.

§1 The PCPV shall contain, in addition to other information, data on the air quality in the regions concerned and on the relative contribution of mobile sources to this commitment.

§ 2 On the basis of the data referred to in paragraph 1°, the PCPV shall evaluate and compare the different instruments and alternatives for control of air pollution by motor vehicles, technically justified the measures selected based on their cost and effectiveness in terms of reducing emissions and improving air quality.

Art. 5 The environmental agencies of the States and the Federal District shall, within 12 months, prepare, approve, publish the PCPV and inform the same to their State environmental councils, from the date of publication of this resolution.

§ 1. The deadline referred to in the caput of this article also applies to environmental bodies of municipalities with more a fleet of more than three million vehicles.

§ 2. The municipalities with a fleet of less than 3 million vehicles can make their own PCPVs. (See Resolution 426/2010)

§3. The municipal PCPVs shall be drawn up in line with the state PCPV.

Art. 6 In the cases in which the PCPV indicates the conduction of a program of Inspection and Maintenance of Vehicles in Use-I/M, this should describe the conceptual and operational characteristics determined in this Resolution, and establish at least:

I-the geographic extent and the regions to be prioritized;

II-the target fleet and its technical and legal grounds;

III-the deployment schedule;

IV-the way of linking with the state system of registration and vehicle transit licensing;

V-the frequency of inspection;

VI-economic analysis; and

VII-how to integrate, when appropriate, with vehicle safety inspection programs and other similar.

§ 1. The target fleet of the Inspection and Maintenance Program for Vehicles in Use-I/ is set to cover the motor vehicles, motorcycles and similar vehicles with an internal combustion engine, regardless of the type of fuel they use.

§ 2 The target fleet can comprise only a portion of the licensed fleet in the region of interest, to be expanded or restricted at the discretion of the responsible body on grounds of experience and the results obtained with the implementation of the program and the regional needs.

§ 3 The target fleet of the Program for Inspection and Maintenance for Vehicles in Use-IM will be set by municipality, on the basis of its contribution to air quality commitment.

§ 4 As regards the target fleet, the PCPV may determine the exemption from mandatory inspection for vehicles designed solely for military applications, competition, agricultural tractors, earthmoving and paving machines and other special design application without specific procedures for obtaining LCVM/LCM.

Art. 7. The PCPVs shall also provide for the establishment of specific measures to encourage the maintenance and supervision of the fleet of heavy use, especially that aimed at the public and cargo transport and specific conditions for movement of motor vehicles.

Art. 8 Is at the discretion of the responsible authority, in the context of the PCPV, the establishment and implementation of integrated Programs of Inspection and Maintenance, so that, in addition to the mandatory inspection of items relating to pollutant emissions and noise, are also included those relating to vehicle safety, according to specific rules of traffic agencies.

Sole paragraph. The responsible agency or its contractors, in the case of indirect enforcement regime, should seek the establishment of agreements with the concessionaires of the vehicle safety inspections, contracted in accordance with the rules of the National Traffic Council-CONTRAN, for the realization on the same location, of the two inspections, keeping the individual responsibilities of each executor.

Art. 9 The PCPV will be periodically evaluated and revised by the authority responsible on the basis of the following requirements:

I- comparison between expected results and those obtained, in particular with regard to emissions initially planned and those actually obtained through the implementation of the Plan;

II-valuation of new alternatives of vehicular pollution control;

III- evolution of vehicular technology of new models and technologies of vehicle environmental inspection;

IV- the projections concerning the evolution of the circulating fleet;

V- cost-benefit ratio of the Programs for Inspection and Maintenance of Vehicles in Use-IM identified in the studies provided for by article 14 of the present Resolution and other management actions alternatives and emission control of pollutants and fuel consumption.

Sole paragraph. The PCPV should be reviewed at least every three years and the authority responsible organ may establish a smaller interval between revisions.

Chapter III **Program for Inspection and Maintenance for Vehicles in Use-IM**

Section I **General Guidelines**

Art. 10. the Program for Inspection and Maintenance of Vehicles in Use-IM aims to identify non-conformities of vehicles in use, taking as references:

I- the original specifications of the vehicle manufacturers;

II- the requirements of regulations of PROCONVE; and

III- maintenance failures and changes from the original project which cause an increase in the emission of pollutants.

Sole paragraph. The implementation of the Program for Inspection and Maintenance of Vehicles in Use-IM can only be made after the issuance of a Vehicular Pollution Control Plan-PCPV.

Art. 11. The competent authorities may develop field inspections on the basis of procedures and limits set out in this Resolution and in its regulations and additional standards.

Art. 12. The Programs for Inspection and Maintenance of Vehicles in Use-IM will be deployed primarily in regions that are based on a technical study commitment of air quality due to emissions of pollutants by the circulating fleet.

~~§ 1 The Program for Inspection and Maintenance of Vehicles in Use-IM, dealt with in the caput, shall be deployed within a period of 18 months from the date of publication of the PCPV.~~
(Revoked by Resolution 426/2010)

§2 Technical bodies involved in the implementation of the Programs for Inspection and Maintenance of Vehicles in Use-IM can be performed directly by the respective authority responsible or through the hiring by the Government of specialized services.

Art. 13. it is up to the state environmental agency responsible for the implementation of the Program for Inspection and Maintenance of Vehicles in Use-IM, as defined in the PCPV.

§1 Municipalities with total fleet less than three million vehicles may deploy inspection Programs for Inspection and Maintenance of Vehicles in Use-IM,, by specific agreement with the State.

§ 2 The other municipalities or consortia of municipalities indicated by Vehicular Pollution Control Plan, will also deploy inspection Programs for Inspection and Maintenance of Vehicles in Use-IM, by specific agreement with the State, and this responsibility for the oversight of the program.

Art. 14. Environmental agencies responsible for implementing vehicle inspection and their operators must develop and keep updated, every three years, upon publication, studies on the cost-benefit ratio of the Programs for Inspection and Maintenance of Vehicles in Use-IM, in-progress.

Sole paragraph. The costs and benefits dealt with in the caput of this article shall be identified by operators of Programs for Inspection and Maintenance of Vehicles in Use-IM in agreement with the local environmental authorities and public health and valued as the best practices applicable.

Art. 15. At the initial stage of the Program for Inspection and Maintenance of Vehicles in Use-IM, the body responsible may consider, at its discretion, for a maximum period of 12 months, counted from the beginning of the operation, a testing phase with the objectives of disseminating his systematic, public awareness and adjustment to the requirements of the program.

Art. 16. The periodicity of the environmental vehicle inspection should be annual.

Sole paragraph. In the case of the fleets of heavy use, should be intensified actions for adoption of the Program for Internal Self-monitoring of the Correct Maintenance of the fleet, according to guidelines established by IBAMA, as well as those related to implementation of state programs for the improvement of the maintenance of diesel vehicles and the business volunteer programs for inspection and maintenance.

Art. 17. The body responsible shall publicize, on a permanently basis , conditions for the participation of the target fleet in the Program and the basic information related to the inspection.

Art. 18. State and municipal environment agencies should promote actions aimed at the conclusion of an agreement with the competent executive transit body, which has the objective of compliance with the procedures of its competence in the execution of the Program for Inspection and Maintenance of Vehicles in Use-IM, bearing in mind the following guidelines:

I- execution, by delegation, of the inspections of pollutant emissions and noise;

II- the establishment of integrated Programs for Inspection and Maintenance of Vehicles in Use-IM, kept the individual responsibilities of each performer, as determined by CONAMA and by the National Council-CONTRAN.

III – the integration of activities to avoid duplicate programs of coexistence and security in the same area of work, considering the consolidated legal situations;

IV-inclusion in areas not yet covered by the PCPV and through delegation, of environmental items checking in safety inspection programs, according to the technical criteria defined by CONAMA and under the guidance and supervision of the respective State environmental agency;

V – The permanent exchange of information, in particular those necessary to the correct environmental vehicle licensing and the information from the executive traffic bodies necessary for the proper operation of the environmental inspection.

Art. 19. The Ministry of the Environment, through the Brazilian Institute of the Environment and Renewable Natural Resources– IBAMA, should guide the bodies responsible for implementation of the Programs of for Inspection and Maintenance of Vehicles in Use-IM, who will find technical difficulties.

Section II On the Operationalization and Implementation

Art. 20. After the deadlines provided for in art. 5 and paragraph 1 of art. 12, the target fleet vehicles subject to periodic inspection may not get the annual licensing without being inspected and approved as to the emission levels, in accordance with the procedures and thresholds established by CONAMA or, when applicable, by the body responsible.

~~§1 The vehicles belonging to the target fleet should be inspected with maximum 90 days in advance of the deadline for its annual licensing.~~

§1. The vehicles belonging to the target fleet should be inspected with maximum advance up to one hundred and fifty days for its licensing. (new wording by Resolution n° 435/2011).

§ 2 For the light passenger vehicles equipped with Otto cycle engine, the inspection referred to in this resolution will only be required from the second annual licensing, inclusive.

§ 3 The executing units will be able to regulate the application of the deadline within the limit set. (new wording by Resolution n° 435/2011).

Art. 21. The effective beginning of inspections of pollutant emissions and noise, in compliance with the time limit provided for in paragraph one of article 12 of this Resolution will be formally communicated by the body in charge of the state executive traffic body to adopt the measures provided for in paragraphs 2 and 3 of article 131 of the Brazilian Traffic Code.

Art. 22. Once the conditions set out in this resolution are met, it will be up to the body in charge the elaboration of criteria for deployment and implementation of the Programs for Inspection and Maintenance of Vehicles in Use-IM and for certification of operators of line inspection centers, as well as the establishment of quality control procedures, audit and additional standards, considering the local peculiarities

Art. 23. Environmental agencies responsible for the implementation of the Programs for Inspection and Maintenance of Vehicles in Use-IM must develop permanent audit systems, performed by technically qualified and reputable institutions, covering the quality of equipment and procedures, as well as the statistical performance of inspection records, as requirements to be defined by the body responsible.

Sole paragraph. In the case of programs operated by third parties, the systematic failures identified by the audit must be necessarily linked to a system of clearly defined contractual penalties.

Art. 24. Programs for Inspection and Maintenance of Vehicles in Use-IM should be measured predicting the building of inspection lines for light vehicles, heavy vehicles, motorcycles and similar vehicles in appropriate proportion to the target fleet program.

Art. 25. The compulsory inspections must be carried out at inspection centers distributed over the area covered by the program.

Art. 26. It is permitted the operation of mobile inspection stations for the solution of specific problems or for onsite service of large captive fleets.

Art. 27. IBAMA should regulate, within three months after the adoption of this Resolution, the general inspection procedures which should be adopted by Programs for Inspection and Maintenance of Vehicles in Use-IM, giving science the CONAMA in the meeting following the deadline set.

Section III Access to information and data from Program

Art. 28. All activities for data collection, logging of information, execution of inspection procedures, inspection data comparison with the limits and providing certificates and reports, shall be carried out by means of computerized systems, according to requirements set by the body responsible.

§ 1° The service provider must provide all environmental inspection data to the responsible agencies.

§ 2° The responsible bodies should make available in electronic data transmission system to the Brazilian Institute of the Environment and Renewable Natural Resources -IBAMA the information consolidated by states concerning environmental vehicle inspection.

Art. 29. The Program's information are public, and the environmental inspection agency responsible should provide annual reports on the results of the program, in accordance to given in the respective PCPV.

§ 1. Reports dealt with in the caput shall contain at least the following:

I- results of approval and disapproval, explaining the reason for disapproval;

II- data on emission of pollutants of vehicles inspected, segmented by category, explaining the mean and the standard deviation; and

III- assessment of the effects of the program on air quality, taking as a basis the monitoring network data, if any.

§ 2° Information consolidated by state relating to subheadings I and II should be presented according to the fuel, category, type, year of manufacture of the vehicle, the classification of vehicles in terms of CONAMA Resolution 15, of December 13, 1995 and later, as well as the classification of brand-model-version.

§ 3° IBAMA is responsible for elaborating, from the reports referred to in the preceding paragraph, of a National Vehicle inspection Report, which should contain a compilation of all the reports presented in a systematic document.

§ 4° The National Vehicle inspection Report must be submitted to CONAMA annually.

§ 5° Wide publicity should be given to the annual reports ruled in this article.

Chapter IV

On the limits and procedures for the assessment of the status of maintenance of Vehicles in use

Art. 30. The status of maintenance of vehicles in use shall be assessed in accordance with procedures to be defined by Act of the IBAMA.

§1. The regulation dealt with in the caput of this article shall be drawn up within 120 days after the adoption of this Resolution, and should define:

I-emission test procedures for vehicles with Otto cycle engine, in circulation, including motorcycles, fuel versions available on the market;

II-emission test procedures for vehicles in use with Diesel cycle engine fuel versions available on the market; and

III-evaluation procedure of the exhaust noise level on vehicles in use.

§ 2 In the process of elaboration and updating of acts of IBAMA, the deadline for implementation, the specific technical standards and best engineering practices and processes should be complied with.

Art. 31. IBAMA must coordinate with the responsible bodies, the regular undertaking of studies in order to identify the most effective and inspection procedures appropriate to the new vehicle technologies, including the use of on load inspection emissions and on-board diagnosis system-OBDBr.

§1 When approving technically more effective and suitable inspection procedures, IBAMA shall present to CONAMA technical reports with proposals for new procedures and limits, for appreciation by the Council, with a view to incorporating them into Program standards.

§ 2 The responsible body or its contractors shall make available the necessary resources to carry out the activities provided for in the caput of this section.

§ 3. It is afforded to the responsible environmental agency to propose to IBAMA specific procedures for vehicles that do not meet the procedures stipulated in this Resolution.

Art. 32. The emission limits set out in ANNEX I shall be used for the assessment of the status of vehicles in use.

Chapter V

Final Provisions

Art. 33. The states and municipalities that have already granted or authorized the environmental vehicle inspection services should adapt themselves, as applicable, to the terms of this Resolution within 24 months of its publication.

Sole paragraph. As regards the inspection of motorcycles and similar vehicles with 4 stroke Otto cycle engine,, these states and municipalities must conform to the terms of this Resolution within 40 months from their publication. (new wording by resolution n° 435/2011).

Art. 34. It is up to manufacturers, importers and distributors of motor vehicles, motorcycles and auto parts to develop, guide and spread along the network of technical assistance linked to them, the requirements and procedures related to the proper maintenance and tuning of their vehicles as to the limits and procedures provided for in this Resolution.

Art. 35. Within a period of twelve months after the publication of this Resolution, IBAMA must make available on its Internet Web site, the characteristics of the vehicle necessary for the realization of the vehicle inspection.

Art. 36. CONAMA Resolutions No. 7, of August 31, 1993; No. 15, of September 29, 1994; No. 18, of December 13, 1995; No. 227, of August 20, 1997; No. 251, of January 12, 1999; No. 252, of February 1, 1999 and No. 256, of June 30, 1999.

Art. 37. This resolution shall enter into force on the date of its publication.

CARLOS MINC-Council President

This text does not replace the one published in the Official Gazette of the Union of 11/26/2009

ANNEX I – EMISSION LIMITS

1. For vehicles with Otto cycle engine, the exhaust emission ceilings for CO_{corrected} and HC_{corrected}, of dilution and angular speed of the engine shall be as defined in tables 1 and 2 below:

Table 1- CO_{corrected} emission ceilings, at idling and at 2500rpm for motor vehicles with Otto cycle engine.

Year of manufacture	CO _{corrected} (%) Limits			
	Gasoline	Alcohol	Flex	Natural Gas
All up to 1979;	6,0	6,0	-	6,0
1980 - 1988	5,0	5,0	-	5,0
1989	4,0	4,0	-	4,0
1990 and 1991	3,5	3,5	-	3,5
1992 – 1996	3,0	3,0	-	3,0
1997 - 2002	1,0	1,0	-	1,0
2003 to 2005	0,5	0,5	0,5	1,0
2006 onwards	0,3	0,5	0,3	1,0

Note: For vehicles using gaseous and liquid fuel, the limits of each fuel shall be taken into account.

Table 2- HC_{corrected} emission ceilings, at idle and at 2500 rpm for vehicles with Otto cycle engine

Year of manufacture	CO _{corrected} (%) Limits			
	Gasoline	Alcohol	Flex	Natural Gas
Up to 1979;	700	1100	-	700
1980 - 1988	700	1100	-	700
1989	700	1100	-	700
1990 and 1991	700	1100	-	700
1992 – 1996	700	700	-	700
1997 - 2002	700	700	-	700
2003 to 2005	200	250	200	500
2006 onwards	100	250	100	500

Note: For vehicles using liquid and gaseous fuels, the limits of each fuel shall be taken into account.

1. The angular speed at idling must be in the range of 600 to 1200 rpm and be stable within ± 100 rpm;

1.2. The angular speed at 2500 rpm at fast-paced scheme must have tolerance of ± 200 rpm;

1.3. The dilution factor of the exhaust gases must be equal to or less than 2.5. In the case of dilution factor less than 1.0, this should be regarded as equal to 1.0, for the calculation of the adjusted values of CO and HC.

2. For motorcycles and the like, with Otto cycle engine, the exhaust emission ceilings for $CO_{corrected}$ and $HC_{corrected}$, are defined in table 3 below.

2.1. the dilution factor of the exhaust gases must be equal to or less than 2.5. In the case of dilution factor less than 1.0, this should be regarded as equal to 1.0, for the calculation of the adjusted values of CO and HC.

2.2. The angular speed at idling must be stable within a range of 300 rpm, and not exceed the limits of at least 700 rpm and a maximum of 1400 rpm.

Table 3 - Emission ceilings of $CO_{corrected}$, $HC_{corrected}$ at idle and the dilution factor (1) for motorcycles and similar vehicles with Otto cycle engine, 4 stroke (2):

Year of manufacture	Cylinders	1 st Stage (2010)		2 nd Stage (2011 onward)	
		CO_{corr} (%)	HC_{corr} (ppm)	CO_{corr} (%)	HC_{corr} (ppm)
Up to 2002	All	7,0	3500	5,0	3500
2003 to 2008	<250cc	6,0	2000	4,5	2000
	≥250cc	4,5	2000	4,5	2000
2009 onward	All	1,0	200	1,0	200

(2) The gases emission limits only apply to motorcycles and similar vehicles equipped with four-stroke Otto cycle.

cc: volumetric capacity of engine cylinder capacity or cm^3 .

3. For Diesel cycle motor vehicles, residue levels of opacity under free acceleration are the values and certificates issued by the manufacturer. Diesel cycle motor vehicles, which do not have its opacity ceilings at free acceleration disclosed by the manufacturer, are those set out in tables 4 and 5.

Table 4-maximum opacity under free acceleration of vehicles not covered by CONAMA Resolution 1695 (prior to 1996 model years)

Altitude	Type of engine	
	Naturally aspirate or turbocharged with LFA (1)	Turbocharged
Up to 350m	1,7 m^{-1}	2,1 m^{-1}
Above 350 m	2,5 m^{-1}	2,8 m^{-1}

(1) LDA is the control device of fuel injection pump for adequacy of its debt to the pressure of the turbocharger.

Table 5 – Limits of opacity under free acceleration from diesel vehicles after the effect of CONAMA Resolution 16/95 (year-modelo1996 onwards)

Year-Model	Altitude	Opacity (m^{-1})
1996 - 1999	Up to 350m	2,1
	Above 350m	2.8
2000 and onward	Up to 350m	1,7
	Above 350m	2,3

4. For all motor vehicles, domestic or imported, the noise ceilings at idle are the values certificates and informed by the manufacturer. In the absence of this information, noise ceilings are established at idle in table 6.

Table 6 – Noise ceilings emitted by motor vehicles at idle for vehicles in use.

Category	Engine Position	Noise level Db(A)
Passengers vehicle up to nine seats for mixed use derived from automobile	Front	95
	Rear	103
Passengers vehicle with more than nine seats, cargo or traction vehicle, mixed use vehicle not derived from automobile and GW up to 3.500 kg	Front	95
	Rear	103
Passengers vehicle for mixed use with more than 9 seats and GW above 3.500kg	Front	92
	Rear between axles	98
Cargo or traction vehicle with GW above 3.500 kg	All	101
Motorcycles, mopeds, bicycles with auxiliary engine and alike	All	99

Remarks:

- 1) Vehicle designations as per NBR 6067.
- 2) PBT: Total gross weight.
- 3) Power: effective Max net power as per NBR ISO 1585.

5. Definitions

CO: carbon monoxide contained in exhaust gases, measured by % volume.

CO_{corrected}: is the carbon monoxide value measured and corrected as to the dilution of the sampled gas, according to the expression:

$$CO_{corrected} = \frac{15}{(CO+CO_2)_{measured}} \cdot CO_{measured}$$

HC_{measured}: is the measured value of HC and corrected as to the dilution of sampled gases according to the expression

$$HC_{corrected} = \frac{15}{(CO+CO)_{measured}} \cdot HC_{measured}$$

Factor of dilution of exhaust gases: is the volumetric ratio of dilution exhaust gas sample due to air from entering the system, given by the expression:

$$F_{dilution} = \frac{15}{(CO+CO_2)_{measured}} \cdot$$

Idle: work regime in which the angular velocity of the engine specified by the manufacturer shall be maintained during the engine operation with no load and with the controls of the fuel feeding system, throttle and choker on idle position.

Diesel cycle engine: engine which works following the compression-ignition principle.

Otto cycle engine: engine which has spark ignition.

Opacity: light absorption measurement suffered by a light beam across a column of exhaust gas, expressed in m⁻¹, among the emerging and incident light beams.

Bi-fuel vehicle: a vehicle with two separate fuel tanks, excluding the auxiliary starting reservoir.

Flex vehicle: vehicle that can run on gasoline or hydrated ethanol fuel or any mixture of these two fuels in the same tank.

RESOLUTION 426, December 14, 2010
Published in Official Gazette 164 on 12/15/2010, p. 164.

Correlations:

- Changes art. 5, caput and §1 and revokes §1 of art. 12 of Resolution No. 418, of 2009

Changes art. 5 and art. 12 of CONAMA Resolution 418 from 2009 and establishes new deadlines for the Plan for the Control of Vehicle Pollution and the Program for the Inspection and Maintenance of Vehicles in Use.

The NATIONAL ENVIRONMENT COUNCIL-CONAMA, pursuant to its duties and the powers vested on it by art. 8 of Law 6.938 dated August 31, 1981, regulated by Decree 99.274 from July 6, 1990 and, in view of the provisions of its Internal Rules, ANNEX to MMA Ordinance No. 168, of June 13, 2005, and:

Considering the provisions of art. 4 and art. 5, caput and §1 of CONAMA Resolution No. 418, of November 25, 2009, which provides for criteria for drawing up plans of Vehicular Pollution Control – PCPV-and for the deployment of Program for the Inspection and Maintenance of Vehicles in Use-IM- by state and municipal environmental agencies and determines new emission limits and procedures for assessing the status of maintenance of vehicles in use; e.

Considering that it was completed only in 2010 the first National Inventory of Air Emissions by Road Vehicles, elaborated by the working group set up by MMA Ordinance No. 336, of September 2009, and, still, Considering that the methodology used in the study is of relevant value and contribution to the work of the states, Federal District and Municipalities;;

Resolves:

Art. 1. Postpone until June 30, 2011 the deadlines set out in art. 5, caput and paragraph 1 of CONAMA Resolution No. 418, of November 25, 2009.

Art. 2. The States whose PCPVs provide the implementation of a Program for Inspection and Maintenance of Vehicles in Use shall implement them until April 25, 2012.

Art. 3 Revoke §1 of art. 12 of CONAMA Resolution No. 418, of November 25, 2009.

Art. 4. This Resolution shall enter into force on the date of its publication.

IZABELLA TEIXEIRA-Council President

This text does not replace the one published in the Official Gazette in 12/15/2010

RESOLUTION 435, December 16, 2011

Correlations:

- Changes art. 20 and the art. 33 of Resolution No. 418, of 2009.

Changes the texts of articles 20 and 33 of Resolution 418 from Nov, 25, 2009, changed by Resolution 426 from Dec. 14, 2010, and regulates the date of enforcement for inspection and maintenance programs, of motorcycles and similar vehicles with 4 Otto moped engines, in states and municipalities.

The NATIONAL ENVIRONMENT COUNCIL-CONAMA, pursuant to the powers vested on it by section VI of art. 8 of Law 6.938 dated August 31, 1981, by arts. 3rd and 12 of Law 8.723, of October 28, 1993, and art. 104 of Law 9.503, of September 23, 1997, bearing in mind the provisions of its Internal rules, and

Considering the entry into force of the emission limits for motorcycles and the like, as defined in Resolution 418 of November 25, 2009, is scheduled for November 26, 2011; and

Considering the emission limits for motorcycles and the like, as defined in Resolution 418, of 2009, are in the review process that should only be appreciated by CONAMA in 2012, resolves:

Art. 1 Arts. 20 and 33 of Resolution No. 418 of November 25, 2009, from the National Environment Council-CONAMA, published in the Official Gazette of 26 of November 2009, Section 1, pages 81 to 83, shall be read as follows:

“Art. 20.

§ 1. The vehicles belonging to the target fleet should be inspected in up to one hundred and fifty days maximum advance for its licensing.

§ 3. The executing units will be able to regulate the application of the deadline within the limit established. (NR)

“Art. 33. Sole paragraph. As regards the inspection of motorcycles and similar vehicles with 4-stroke Otto cycle engine, these states and municipalities must conform to the terms of this Resolution within 40 months from its publication. (NR)

Art. 2 States and municipalities that have not yet started inspection and maintenance programs until the publication of this Resolution should only submit motorcycles and similar vehicles with 4-stroke Otto cycle engine, for these programs after completing the process of review of table 3 of ANNEX I to CONAMA Resolution No.418, of November 25 in 2009.

Art. 3. This Resolution shall enter into force on the date of its publication.

IZABELLA TEIXEIRA-Council President

NOISE AND AIR POLLUTION

CONAMA Resolution 230, August 22, 1997
published in Official Gazette 163 on August 26, 1997, Section 1, pages 18603-18604

Correlations:

- Revokes CONAMA Resolution No. 20/96

Bans the use of tools that can reduce the efficiency of the control of noise and atmospheric pollution levels in motorized vehicles.

The NATIONAL ENVIRONMENT COUNCIL-CONAMA, pursuant to the powers vested o it by Law 6.938 dated August 31, 1981, regulated by Decree 99.274 from June 6, 1990, bearing in mind the provisions of its Internal Rules, and

Considering the requirements laid down in Law 8.723, of October 28, 1993, to control the emission of noise and air pollutants from motor vehicles;

Considering that the conformity of services to established emission limits is made according to standard procedures, designed to reproduce conditions and characteristics representative of automobile operation in normal use;

Considering that the automobile industry has as one of its main objectives the optimization of its products and that in the achievement of this goal technological solutions are adopted involving systems of any nature, fuels, lubricants, additives, parts, components, devices, software, and operational procedures that can be directly or indirectly related to the noise control and emission of air pollutants;

Considering the presence of certain components, parts, devices, software, systems, lubricants, additives, fuel and operating procedures in the vehicles, which are considered as an integral part of them, may negatively affect the control of noise and air pollutants emission from motor vehicles, in conditions of use and normal operation also resulting in their non-compliance, in the most extreme cases;

Considering that standardized procedures for the verification of compliance with the emission limits can, in many cases, not be sufficiently sensitive to the action of parts, components, devices, systems, software, lubricants, additives, fuel and operating procedures used, enabling the results effectively unrepresentative of conditions intended to reproduce, thus invalidating the trials, resolves

Art. 1. Set as "undesirable action items" any parts, components, devices, systems, software, lubricants, additives, fuel and operational procedures in non-compliance with the vehicle's homologation, that reduce or might reduce the effectiveness of the control of the emission of noise and air pollutants from motor vehicles, or produce variation above the standards or discontinuous of these emissions, in conditions that could be expected during its operation in normal use.

§ 1. The homologation should consider any eventual exceptional circumstances regarding the contents of caput , when modifications occur for reasons of security, protection of the vehicle or its components.

§ 2. It will also be considered "undesirable action items" those described in this section's caput that provide the recognition of standardized testing procedures and cause changes in the engine or vehicle behavior, specifically under the conditions of the test cycle, and which do not occur in the same way when the vehicle is in normal use on the streets.

Art. 2 Prohibit the use of equipment considered "undesirable action items" as defined in the caput of the previous article

Art. 3. Any vehicle which has its systems of noise and atmospheric emissions control fully or partially commanded by computerized systems, should provide security features that do not permit programming modifications, especially the exchange of memory components or even access to programming codes.

Art. 4 IBAMA could test or require tests of any vehicle designated in a place designated by it, with the aim of investigating the possible presence or effect of "undesirable action items".

§ 1. in the performance of the tests mentioned in the caput of this article, IBAMA may use any test procedures and conditions that can be expected during the operation in normal use of the motor vehicle.

§ 2. When notified by IBAMA, due to evidences of the presence of "undesirable action items ", responsible for the production, import or design of the vehicle, must provide all necessary means to tests, such as: the vehicle instrumentation, computers, software and data access interfaces and electronic parameters monitored, as well as all other systems and components.

§ 3 IBAMA may require from the responsible for the production, import or vehicle design, with indications of the presence of "undesirable action items ", to present detailed information about the programs and results of tests, engineering assessments, project specifications, calibrations, vehicle

computers, algorithms and embedded design strategies for the operation, both the standardized driving cycle and under normal use.

Art. 5 To the violators of the provisions in this Resolution, IBAMA may, cumulatively, suspend the issuance of new LCVM and require the recall of vehicles for the repair or replacement of "undesirable action items", without prejudice to the penalties provided for in Law 6.938 dated August 31, 1981.

Art. 6 The cases not provided for in this resolution will be deliberated by IBAMA.

Art. 7 This Resolution shall enter into force on the date of its publication.

Art. 8. It is hereby revoked Resolution No. 20, of October 24, 1996.

GUSTAVO KRAUSE GONÇALVES SOBRINHO-Council President

RAIMUNDO DEUSDARÁ FILHO-Executive Secretary

NOTE: Republished for bringing inaccuracies (original version in at 162, 25 of August 1997, page. 18443)

This text does not replace the one published in the Official Gazette, of August 26, 1997.

CONAMA Resolution 242, June 30, 1998
published in Official Gazette 148 on August 5, 1998, Section 1, page 43

Correlations:

- Complements CONAMA resolution No. 1/93 for vehicles with special features for use outside roads (table 1)
- Changes CONAMA Resolution No. 15/95 for light commercial vehicle with a reference mass for test of up to 1700 kg (amends article 5 § 2)

Establishes emission rates for light commercial vehicles and maximum noise levels for off-road vehicles with special characteristics.

The NATIONAL ENVIRONMENT COUNCIL-CONAMA, pursuant to the powers vested on it by Law 6.938 dated August 31, 1981, regulated by Decree 99.274 from June 6, 1990, and bearing in mind the provisions of its Internal Rules, and

Considering that the harmonization of technical regulations on pollutants and noise emitted by motor vehicles among the States Parties of Mercosur aims to eliminate barriers to trade, as well as the free movement of motor vehicles in the region;

Considering that the states parties already have agreed to adapt their laws to permit the exchange of motor vehicles, as contained in the Protocol of Ouro Preto, of December 17, 1994, articles 38, 40 and 42, as well as the MERCOSUR/ Resolution GMCRES No. 128, of December 13, 1996, resolves:

Art. 1 The maximum emission of particulate material for light commercial vehicle with a reference mass to test up to 1700 kg, contained in article 5, paragraph 2, of CONAMA Resolution No. 15, of December 13, 1995, is changed to 0.124 g/km.

Art. 2 Vehicles with special features for use outside the roads will have the limits of Table 1A-maximum noise wastes emitted by vehicles in acceleration, according to NBR-8433", contained in CONAMA Resolution nº 1, of February 11, 1993, added by:

I- 1 (one) dB (A) for those with an engine power smaller than 150 kW,

II-2 (two) DB(A) for those with an engine power equal to or greater than 150 kW.

Art. 3. This resolution shall enter into force on the date of its publication.

GUSTAVO KRAUSE GONÇALVES SOBRINHO – Council President

RAIMUNDO DEUSDARÁ FILHO-Executive Secretary

This text does not replace the one published in the Official Gazette, of August 5, 1988.

MANAGEMENT OF WASTES AND HAZARDOUS PRODUCTS

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USE OF WASTES AND HAZARDOUS PRODUCTS

CONAMA Resolution 7, September 16, 1987
published in Official Gazette on October 22, 1987, Section 1, 17500-17501 pages

Correlations:

- Amended by CONAMA Resolution No. 9/88 (changed art. 6)
- Supplemented by CONAMA Resolution No.19/96 (art. 1)

Establishes provisions for the amendment of Resolution 7/87, which rules on the regulation of the use of asbestos in Brazil.

The NATIONAL ENVIRONMENT COUNCIL-CONAMA, pursuant to the powers vested on it by the article 48 of Decree 88.351 from June 1, 1983 ¹⁵⁵, for the effective exercise of the responsibilities conferred on it by article 18 § 1 of the same Decree.

Considering the importance of the subject and the need to start the process of regulation of the use of amianthus (asbestos), resolves:

Art. 1. The manufacturers of products containing amianthus (asbestos) should print on each piece of the same, the following words, which must be conspicuous.

BEWARE! THIS PRODUCT CONTAINS ASBESTOS FIBERS. AVOID GENERATION OF DUST. BREATHING ASBESTOS DUST CAN SERIOUSLY DAMAGE YOUR HEALTH. DANGER IS GREATER FOR SMOKERS. ¹⁵⁶

§ 1. When by the small dimensions or other product characteristics it is not possible to print on them the words above, the manufacturer must put this warning on individual label or printed on the packaging of each piece or set of pieces, communicating to the competent environmental agency that will evaluate the opportunity to request a change.

§ 2 The products intended for export should have this communication in the official language of the country, or in the words required by the importing country.

Art. 2 Manufacturers of products containing amianthus (asbestos) in its composition should also communicate to intermediate and final consumers the care regarding the use of these products safely through leaflets or posters in standard colors: red, black and white.

Art. 3 Failure to comply with the provisions of this Resolution, will input to offenders a fine of 10 to 1,000 OTNs ¹⁵⁷, applicable in double at recidivism, in accordance to article 14 and subparagraphs (a), of Law 6.938 and of Decree 88.351, article 37 and article 5(1)(a), supplemented by Decree 89.532/84

Art. 5. The penalties referred to herein will be applied by the environmental authorities of the States, Distrito Federal, Territories and, by default, by the Special Secretariat for the Environment-SEMA ¹⁵⁸and Municipalities.

~~Art. 6 SEMA will present the Technique Chamber on Industrial Pollution by up to one hundred and eighty days from the date of publication of this Resolution, studies aimed at:~~

Art. 6 The Special Secretariat of Environment-SEMA, in coordination with other competent organs, shall submit to the Technical Chamber of Industrial Pollution, up to 90 (ninety) days from the date of publication of this Resolution, studies: (new wording by Resolution No. 988)

the) establishment of standards and procedures for mining, transportation, industrialization, commercialization and handling of amianthus (asbestos) as regards environmental and occupational protection.

b) Formulation of a national program for the use of asbestos and any eventual replacements.

Art. 7 It is banned, from a year of the publication of this Resolution, the marketing of products containing amianthus (asbestos) without compliance with the provisions contained in articles 1 and 2.

Sole paragraph. Failure to comply with the provisions of this section caput will shall input to the

¹⁵⁵ Decree revoked by Decree 99.274 from June 6, 1990

¹⁵⁶ See Resolution No. 19/96 – Art. 1 When it is not possible, print over the parts containing asbestos all warning phrases provided for in article 10 of CONAMA Resolution 7/87, the same may be replaced by the following: “CONTAINS ASBESTOS. WHEN CUTTING OR DRILLING, DO NOT BREATHE THE DUST GENERATED, SINCE IT MAY SERIOUSLY JEOPARDIZE YOUR HEALTH”.

¹⁵⁷ National Treasury Bond – OTN was extinct by Law 7.730, of January 31, 1989.

¹⁵⁸ The Special Environment Secretariat – SEMA, linked to the Ministry of the Interior, was extinct by Law 7.735, of February 22, 1989, which established the Brazilian Institute of the Environment and Renewable Natural Resources – IBAMA. The duties on environmental issues belong currently to the Ministry of the Environment.

violators the penalties provided for in this Resolution.

Art. 8. This Resolution shall enter into effect on the date of its publication, , and revokes the provisions in contrary.

DENI LINEU SCHWARTZ – Council President

This text does not replace the one published in the Official Gazette of October 22, 1987.

CONAMA RESOLUTION 9, December 14, 1988
Published in Official Gazette on August 11, 1989, Section 1, page 13660

Correlations:

- Changes CONAMA Resolution No. 7/87 (changes article 6)

Establishes provisions for the amendment of Resolution 7/87 – regulation of the use of asbestos.

The NATIONAL ENVIRONMENT COUNCIL-CONAMA, pursuant to the powers vested on it conferred by § 1, article 7 and article 48 of Decree No. 88,351, dated June 1, 1983 ¹⁵⁹ resolves:

Art. 1 The caput of article 6, of CONAMA Resolution nº 7, of September 16, 1987, shall read as follows:

"Art. 6 The Special Secretariat for the Environment-SEMA ¹⁶⁰, in articulation with the other competent organs, shall submit to the Technical Chamber of Industrial Pollution, up to 90 (ninety) days from the date of publication of this Resolution, studies aimed at:

a)

b).....

Art 2 This decision shall enter into force on the date of its publication.

Art 3 I revokes the provisions to the contrary.

JOÃO ALVES FILHO – Council President

FERNANDO CÉSAR DE MOREIRA MESQUITA -Executive Secretary

This text does not replace the one published in the Official Gazette , of August 11, 1989.

¹⁵⁹ Decree revoked by Decree 99.274 from June 6, 1990.

¹⁶⁰ The Special Environment Secretariat – SEMA, linked to the Ministry of the Interior, was extinct by Law number 7735, of February 22, 1989, which established the Brazilian Institute of the Environment and Renewable Natural Resources – IBAMA. The duties on environmental issues belong currently to the Ministry of the Environment

CONAMA RESOLUTION 19, October 24, 1996
published in Official Gazette 217 on November 7, 1996, Section 1, page 23071

Correlations:

- Complements CONAMA Resolution No. 7/87 (complements art. 1)

Establishes provisions for warning on parts containing asbestos.

The NATIONAL ENVIRONMENT COUNCIL-CONAMA, pursuant to the powers vested on it by Law 6.938 dated August 31, 1981, amended by Law 8.028, of April 12, 1990, regulated by Decree No. 99,274, of June 6, 1990, and bearing in mind the provisions of its rules of procedure, and

Considering the implications of the printing on the parts which contain amianthus (asbestos) of all words of warning prescribed in article 1 of CONAMA Resolution No. 7/87, of September 16, 1987, resolves:

Art. 1 When it is not feasible to print over the parts containing amianthus (asbestos) all words of warning contained in the first article of CONAMA Resolution No. 7/87, they may be replaced by the following:

"CONTAINS ASBESTOS. WHEN CUTTING OR DRILLING DO NOT INHALE THE DUST GENERATED BECAUSE IT CAN SERIOUSLY IMPAIR TOUR HEALTH ".

Art. 2. This Resolution shall enter into force on the date of its publication.

GUSTAVO KRAUSE GONÇALVES SOBRINHO-Council President
EDUARDO DE SOUZA MARTINS-Executive Secretary

This text does not replace the one published in the Official Gazette, of November 7, 1996

CONAMA Resolution 267, September 14, 2000
published in Official Gazette 237 on December 11, 2000, Section 1, pages 27-29

Correlations:

- Amended by CONAMA Resolution n° 340/03 (revoked art. 7 and changed art. 15)
- Revokes CONAMA Resolutions No. 13/95 and 229/97

Regulates the ban of substances that destroy the Ozone Layer.

The NATIONAL ENVIRONMENT COUNCIL-CONAMA, pursuant to the powers vested on it by Law 6.938 dated August 31, 1981, regulated by Decree 99.274, of June 6, 1990 and bearing in mind the provisions of Decrees 99.280, of June 7, 1990, and 181, of July 24, 1991 and legislative decrees Nos. , 51, of May 29, 1996, and 91, of 1996¹⁶¹,

Considering the deadlines, limits and restrictions set out in the Montreal Protocol on Substances that Deplete the Ozone Layer, the production, trade and world consumption of substances that deplete the Ozone Layer, known as a whole as controlled substances and as SDOs;

Considering the Brazilian Program for Elimination of the Production and Consumption of Substances that Deplete the Ozone Layer-PBCO, a compromise formalized by the Brazilian Government with the Secretariat of the Montreal Protocol, in June 1994, which establishes the gradual elimination of the use of these substances in the country;

Considering the need of improving CONAMA Resolution No. 13¹⁶², of December 13, 1995, which established procedures and timelines for the elimination of the controlled substances and, in the face of the PBCO, revised March 1999, resolves:

Art. 1 It is prohibited throughout the national territory, the use of controlled substances listed in Annexes A and B of the Montreal Protocol on Substances that Deplete the Ozone Layer, in the Annex of this Resolution in systems, equipment, installations and new products, domestic or imported:

I-on any products used in the aerosol form, except for medicinal purposes as set forth in art. 4 of this Resolution;

II- firefighting equipment and systems;

III-central air conditioning installations;

IV-refrigerating facilities with compressors with unit power exceeding 100 HP;

V-automotive air conditioning;

VI-all uses as solvents.

Art. 2 It is prohibited from January 1, 2001, throughout the national territory, the use of controlled substances listed in Annexes A and B of the Montreal Protocol in systems, equipment, installations and new products, domestic or imported:

I-refrigerators and freezers;

II-all other refrigeration systems and equipment;

III-semi-rigid and rigid foam (flexible and shaped/integral); and

IV-all uses like sterilants.

Sole paragraph. For the purposes of this Resolution, it is understood as "new", products, systems, equipment and installations, in art. 1 and in this article, produced or installed from January 1, 2001.

Art. 3 Imports of CFC-11 (trichlorofluoromethane), are restricted from January 1, 2001

CFC-12 (dichlorodifluoromethane), Halon 1211 (be)

and Halon 1301 (Bromotrifluoromethane) as follows:

I-maximum imports of CFC-12 will suffer gradual reductions in weight, by importer/producer company, in compliance with the schedule in subparagraphs "a" to "g" of this subitem based on the amount of CFC-12 imported/produced in the year 1999, and may not exceed the average of import/production of that substance, by company, in the period of 1995 to 1997:

a) fifteen per cent in the year 2001;

b) thirty-five percent in the year 2002;

c) fifty-five percent in the year 2003;

d) seventy-five percent in the year 2004;

e) eighty-five per cent in the year 2005;

f) ninety-five percent in the year 2006; and

¹⁶¹ Corrected the date of Legislative Decree 91 from May 29, 1996

¹⁶² Resolution revoked by Resolution 267/00

g) one hundred percent in the year 2007.

II- imports of CFC-12 from 2007 are hereby prohibited;

III- imports of CFC-11 will be allowed only to supply the consumptions of companies registered with the Brazilian Institute of the Environment and Renewable Natural Resources -IBAMA and which have free technology conversion projects of this substance in the deployment process, or in the process of submitting proposals for such a purpose, up to twelve months from the date of publication of this Resolution;

IV- to fulfill the mentioned applications as of (essential use) as defined in art. 4 of this Resolution

Art. 4 "of essential uses", for the purposes of this Resolution, are the uses and/or applications allowed for use of substances referred to in Annexes A and B of the Montreal Protocol, namely:

I- for medicinal purposes and pharmaceutical formulations for medications in aerosol form, such as the Measured Dose Inhalers – MDI or the like in the form "spray" for nasal or oral use;

II- as an agent of chemical and analytical processes and as a reagent in scientific research;

III- in fire extinguishing in the air and maritime navigation, unspecified military applications, cultural and artistic collections, power plants and electric power and nuclear transformation, and in offshore oil extraction- Halons: bromochloridfluomethane (Halons 1211) and bromotrifluoromethane (Halon 1301).

Art. 5 It is prohibited, with the countries which are not signatories of the Montreal Protocol, the import and export of any controlled substances or products/equipment containing them.

Art. 6 It is banned the import of recycled controlled substance s, except the bromochloridfluomethane (Halons 1211) and bromotrifluoromethane (Halon 1301) for meeting the essential uses specified in art. 4, paragraph III of this Resolution.

Art. 7 In any process for the removal of controlled substances at the site of installation or maintenance and repair workshops, the refrigerants or for extinguishing fires must be properly collected, packaged and subsequently sent for incineration centers or recycling units accredited by the competent environmental organ.

§ 1. In the absence of incinerators or recycling centers accredited by competent environmental organs, the substances referred to in this article must be packed properly in containers that that comply with the standards NBR-12,790 and NBR-12,791, or subsequent standards.

§ 2 only the steel returnable drums for compressed gases that adhere to technical standards NBR-12,790

NBR-12,791, or subsequent standards. can be used for the marketing of CFC-11 and CFC-12 (Revoked by resolution No. 340/03)

Art. 8. Companies covered with funds from the Multilateral Fund for the implementation of the Montreal Protocol-FMPM when replacing the equipment, within the time limits laid down in the respective projects, or adapt technologies to operate without the controlled substances, might no longer make use of such equipment shall be replaced removed from the production line.

Art. 9 The companies producing, importing, exporting, marketing or using controlled substances listed in the Annexes to the Montreal Protocol, or products containing them, especially in the service sector, in an annual amount equal to or greater than two hundred kilograms, shall be registered with IBAMA up to twelve months from the date of publication of this Resolution.

§ 1. An exemption from the registration dealt with in this article shall be granted to the companies which operate, in all their units, with less than 200 kilograms per year of controlled substances, and also companies, such as shops and supermarkets, which only sell products that contain these substances.

§ 2 For controlled substances listed in Group II of ANNEX A to the Montreal Protocol, namely, Halon 1211, Halon 1301 and dibromotetrafluoretane (Halon 2402), the registration with IBAMA is mandatory for any quantity imported, exported, sold, or used as provided for in IBAMA specific Normative Instruction or equivalent standard.

Art. 10. Registered companies shall provide annually to IBAMA, until 30 April of each year, the inventory with the quantitative data relating to controlled substances marketed or used in the period from January 1 to December 31 of the year immediately preceding to the current one.

Sole paragraph. To fulfill the provisions of art. 9 and of the caput of this article, companies must respond to registration forms and Annual Inventory of Companies Operating with Substances Controlled by the Montreal Protocol, provided by IBAMA.

Art. 11. Companies that sell controlled substances must submit to IBAMA at the end of each semester, corresponding to the periods from January 1 to June 30 and July 1 to December 31, the list of companies that purchased controlled substances, with the respective registration codes with IBAMA and the quantity purchased.

Sole paragraph. Commercial operations with controlled substances, purchasing firms shall submit their registration code provided by IBAMA.

Art. 12. IBAMA and the State and Municipal Environmental Agencies shall exercise guiding and inspecting activities with a view to compliance with the provisions of this Resolution.

Art. 13. IBAMA will put at the disposal of State and Municipal Environmental Agencies official data of their preferences concerning companies of each state, in order to assist the participation of these organs in the actions of control and supervision provided for in this Resolution.

Art. 14. The OEMAs shall provide to IBAMA available data and interest information relating to controlled substances in their respective states.

Art. 15. The non-compliance with the provisions of this Resolution will subject violators to the penalties stipulated in Law 9.605, of February 12, 1998, regulated by Decree No. 3,179 of September 21, 1999.

Art. 15. The non-compliance with the provisions of this Resolution would subject violators, among others, to the penalties and sanctions, respectively, under Law 9.605, of February 12, 1998 and Decree 3.179 of September 21, 1999. (new wording by Resolution 340/03)

Art. 16. this resolution shall enter into force on the date of its publication.

Art. 17. The present revokes CONAMA Resolutions No. 13, of December 13, 1995 and 229, of August 20, 1997.

JOSÉ SARNEY FILHO – Council President

JOSÉ CARLOS CARVALHO – Executive Secretary

**ANNEX
CONTROLLED SUBSTANCES***

SUBSTANCES

GENERIC NAME

CHEMICAL COMPOSITION

ANNEX A

Group I

CFC-11	CFCl_3
CFC-12	CF_2Cl_2
CFC-113	$\text{C}_2\text{F}_3\text{Cl}_2$
CFC-114	$\text{C}_2\text{F}_4\text{Cl}_2$
CFC-115	$\text{C}_2\text{F}_5\text{Cl}$

Group II

Halon - 1211	CF_2BrCl
Halon - 1301	CF_3Br
Halon - 2402	$\text{C}_2\text{F}_4\text{Br}_2$

ANNEX B

Group I

CFC - 13	CF_3Cl
CFC - 111	C_2FCl_5
CFC - 112	$\text{C}_2\text{F}_2\text{Cl}_4$
CFC - 211	C_3FCl_7
CFC - 212	$\text{C}_3\text{F}_2\text{Cl}_6$
CFC - 213	$\text{C}_3\text{F}_3\text{Cl}_5$
CFC - 214	$\text{C}_3\text{F}_4\text{Cl}_4$
CFC - 215	$\text{C}_3\text{F}_5\text{Cl}_3$
CFC - 216	$\text{C}_3\text{F}_6\text{Cl}_2$
CFC - 217	$\text{C}_3\text{F}_7\text{Cl}$

Group II

CTC – carbon tetrachloride	CCl_4
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Group III

1,1,1 – trichloroethane (methylchloroform)	$\text{C}_2\text{H}_3\text{Cl}_3$
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ANNEX C

Group I

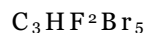
HCFC - 21	CHFCl_2
HCFC – 22	CHF_2Cl

HCFC – 31	CH_2FCl
HCFC – 121	C_2HFCl_4
HCFC – 122	$\text{C}_2\text{HF}_2\text{Cl}_3$

HCFC – 123 (*)	CHCl_2CF_3
HCFC – 124 (*)	CHFClCF_3
HCFC – 131	$\text{C}_2\text{H}_2\text{FCl}_3$
HCFC – 132	$\text{C}_2\text{H}_2\text{F}_2\text{Cl}_2$
HCFC – 133	$\text{C}_2\text{H}_2\text{F}_3\text{Cl}$
HCFC – 141	$\text{C}_2\text{H}_3\text{FCl}_2$
HCFC – 141b (*)	CH_3CFCl_2
HCFC – 142	$\text{C}_2\text{H}_3\text{F}_2\text{Cl}$
HCFC – 142b	$\text{CH}_3\text{CF}_2\text{Cl}$
HCFC – 151	$\text{C}_2\text{H}_4\text{FCl}$
HCFC – 221	C_3HFCl_6
HCFC – 222	$\text{C}_3\text{HF}_2\text{Cl}_5$
HCFC – 223	$\text{C}_3\text{HF}_3\text{Cl}_4$
HCFC – 224	$\text{C}_3\text{HF}_4\text{Cl}_3$
HCFC – 225	$\text{C}_3\text{HF}_5\text{Cl}_2$
HCFC – 225ca (**)	$\text{CF}_3\text{CF}_2\text{CHCl}_2$
HCFC – 225cb (**)	$\text{CF}_2\text{ClCF}_2\text{CHClF}$
HCFC – 226	$\text{C}_3\text{HF}_6\text{Cl}$
HCFC – 231	$\text{C}_3\text{H}_2\text{FCl}_5$
HCFC – 232	$\text{C}_3\text{H}_2\text{F}_2\text{Cl}_4$
HCFC – 233	$\text{C}_3\text{H}_2\text{F}_3\text{Cl}_3$
HCFC – 234	$\text{C}_3\text{H}_2\text{F}_4\text{Cl}_2$
HCFC – 235	$\text{C}_3\text{H}_2\text{F}_5\text{Cl}$
HCFC – 241	$\text{C}_3\text{H}_3\text{FCl}_4$
HCFC – 242	$\text{C}_3\text{H}_3\text{F}_2\text{Cl}_3$
HCFC – 243	$\text{C}_3\text{H}_3\text{F}_3\text{Cl}_2$
HCFC – 244	$\text{C}_3\text{H}_3\text{F}_4\text{Cl}$
HCFC – 251	$\text{C}_3\text{H}_4\text{FCl}_3$
HCFC – 252	$\text{C}_3\text{H}_4\text{F}_2\text{Cl}_2$
HCFC – 253	$\text{C}_3\text{H}_4\text{F}_3\text{Cl}$
HCFC – 261	$\text{C}_3\text{H}_5\text{FCl}_2$
HCFC – 262	$\text{C}_3\text{H}_5\text{F}_2\text{Cl}$
HCFC – 271	$\text{C}_3\text{H}_6\text{FCl}$

Group II

HBFC – 22B1	CHBr_2
	CHF_2Br
	CH_2FBr
	C_2HFBr_4
	$\text{C}_2\text{HF}_2\text{Br}_3$
	$\text{C}_2\text{HF} + \text{Br}_2$
	$\text{C}_2\text{HF}_4\text{Br}$
	$\text{C}_2\text{H}_2\text{FBr}_3$
	$\text{C}_2\text{H}_2\text{F}_2\text{Br}^2$
	$\text{C}_2\text{H}_2\text{F}_3\text{Br}$
	$\text{C}_2\text{H}_3\text{FBr}_2$
	$\text{C}_2\text{H}_3\text{F}_2\text{Br}$
	$\text{C}_2\text{H}_4\text{FBr}$



Remarks:

*The controlled substances listed as ANNEX are the same included in those presented in the Annexes to the Montreal Protocol on substances that Deplete the Ozone Layer.

**Refers to the more commercially viable isomer

ANNEX D (1)

LIST OF PRODUCTS (2) CONTAINING SUBSTANCES FROM ANNEX A	
PRODUCT	
-	Air conditioning units contained in automobiles and trucks
-	Commercial and domestic refrigerators and air conditioning equipment and heating pumps (3), such as:
-	Refrigerators,
-	Freezers,
-	Water coolers,
-	Ice machines,
-	Air conditioning Units and heating pumps,
-	Sprays, except those for medicinal use,
-	Portable fire extinguishers,
-	Boards, panels and insulation tubes,
-	Pre-polymers

(1) This ANNEX was adopted during the 3rd Meeting of the Parties to the Protocol of Montreal, on June 21, 1991, as required in 3rd paragraph of art. 4 of the Protocol.

(2) When not imported in personal consignment for domestic use, or else in similar conditions not for commercial purposes.

(3) When contains controlled substance of ANNEX A such as cooling fluid or as insulation material

ANNEX E

Group I

SUBSTANCE	
GENERIC NAME	CHEMICAL COMPOSITION
	CH_3Br

CODEL, 1988. Regulamento para uso e homologação de dispersantes químicos em derrame de petróleo no mar. CODEL-Comitê de Defesa do Litoral, Secretaria de Estado do Meio Ambiente de São Paulo, São Paulo, 9pp.

DOERFER, J.W., 1992. Oil spill response in the marine environment. Pergamon Press, 391pp.

DOU, 2000. Diário Oficial no 82-A, abril, Atos do Poder Executivo, Lei no 9.966.

EXXON, 1994. Exxon dispersants guidelines. Exxon Research and Engineering Co., USA, 109pp.

IMO, 1995. IMO/UNEP guidelines on oil spill dispersants application including environmental considerations. London, UK, 55pp.

IPIECA, 1993. Dispersants and their role in oil spill response. IPIECA Report Series, vol. 5 London, UK, 24pp.

ITOPF, 1987. Response marine oil spill. Whiterby&The Internacional Tanker Owners Pollution Federation (ITOPF), London, UK, 150pp.

ITOPF, 1998. Documentos/Arquivos/Internet/Óleo – Dispersantes. The Internacional Tanker Owners Pollution Federation (ITOPF), London, UK, 5pp.

Ministry of Agriculture, Fisheries and Food, 1997. The approval and use of oil dispersants in the UK, MAFF Publications, London, UK, 22pp.

NRC, 1989. Using oil spill dispersants on the sea. National Academy Press, Washington, D.C., USA, 335pp.

PETROBRÁS, 1995. Critérios para utilização de dispersantes químicos. CPNTEC-Comissão de Normas Técnicas-N 2563, Dezembro de 1995, Rio de Janeiro, RJ, 13pp.

PETROBRÁS, 1995. Critérios para homologação de dispersantes químicos. CPNTEC- Comissão de Normas Técnicas-N 2530, Março de 1995, Rio de Janeiro, RJ, 13pp.

POFFO, I.R.F.;MIDAGLIA, C.L.M.; CANTÃO, R.F.;HEITZMANN, S.R.; EYSINK, G.G.J.;

NAKASAKI, A.; CAETANO, N.A.; POMPÉIA, S.L.; 1996. Dinâmica dos vazamentos de óleo no canal de São Sebastião, S.P. (1974-1994). CETESB, SP, 2 vol.

This text does not replace the one published in the Official Gazette of December 11,2000.

CONAMA RESOLUTION 314, October 29, 2002
published in Official Gazette 224 on November 20, 2002, Section 1, page 90

Establishes provisions for the registration of medicinal products and makes other provisions.

The NATIONAL ENVIRONMENT COUNCIL-CONAMA, pursuant to the powers vested on it by Law 6.938 dated August 31, 1981, regulated by Decree 99.274, of July 6, 1990, and bearing in mind the provisions of its Internal Rules, ANNEX to Ordinance No. 326, 15 December 1994¹⁶³; and

Considering that that accidents involving leaks of potentially polluting substances, including petroleum and its derivatives, are a major source of environmental pollution and the use of remediators is a viable option in specific actions of recovery;

Considering the benefits that can arise from the proper use of remediators in the recovery of contaminated ecosystems in the treatment of waste and effluents, in clearing and cleaning of pipelines and equipment;

Considering that, on the basis of their peculiarities or misuse, the remediators can lead to imbalance in the ecosystem and harm to the environment, resolves:

Art. 1 Remediators must be registered with the Brazilian Institute of the Environment and Renewable Natural Resources -IBAMA for purposes of production, import, marketing and use.

Sole paragraph. Are exempted from the provisions in the caput of this article, the remediators for research and experimentation, requiring up to these activities the prior informed consent of IBAMA.

Art. 2 For the purposes of this Resolution, shall have the following meanings:

I-remediator: product, formed by micro-organisms, intended for the recovery of contaminated environments and ecosystems, treatment of effluents and wastes clearance

cleaning of pipelines and equipment and acting as an agent of physical, chemical, biological process or combined together.

§ 1 The provisions of this Resolution shall not apply to equipment and materials intended for combat and recovery processes essentially mechanical or thermal equipment, unless they are members with the above mentioned products;

§ 2 The chemical agents, whose record is governed by its own legislation, and the products or agents of biological processes involving genetically modified organisms, as such defined and regulated in specific legislation, will also be the object of prior registration by the IBAMA when used as remediators.

Art. 3 The remediators to be sold or exposed for sale are required to display labels, leaflets or brochures, containing instructions and restrictions of use of the product.

Sole paragraph. The use of remediators can only be carried out in accordance with the instructions contained in the reports mentioned in the caput of this section.

Art. 4 The procedures and requirements which may be needed for the implementation of the present Resolution, shall be established by IBAMA Normative Instruction, within the framework of its competence, to be edited within one hundred and twenty days from the date of publication of this Resolution.

Art. 5 Producers, importers or traders of remediators should inform their activities and products to IBAMA, within ninety days from the date of publication of this Resolution.

Art. 6 The failure to comply with the provisions of this Resolution will subject violators to the penalties and sanctions referred to in Law 9.605, of February 12, 1998 and Decree 3.179 of September 21, 1999, without prejudice to other penalties provided for in the relevant legislation.

Art. 7. This resolution shall enter into force on the date of its publication.

MONICA MARIA LIBÓRIO-Executive Secretary

This text does not replace the one published in the Official Gazette , of November 20, 2002.

¹⁶³ Ordinance revoked by Ordinance MMA No. 499, of December 18, 2002

CONAMA Resolution 359, April 29, 2005
published in Official Gazette 83 on May 3, 2005, Section 1, pp. 63-64

Establishes provisions for the regulation of phosphor content in powder detergents used in the entire national territory and makes other provisions.

The NATIONAL ENVIRONMENT COUNCIL-CONAMA, pursuant to the powers vested on it by Law 6.938 dated August 31, 1981, regulated by Decree 99.274, of July 6, 1990, and bearing in mind the provisions of its rules of procedure,

Considering that phosphorus (P) is present in the formulation of most powdered detergents manufactured in Brazil, in the form of sodium tripolyphosphate (STPP);

Considering that powder detergents are products that contribute to the good health and hygiene practices;

Considering the critical condition of eutrophication of rivers, lakes, ponds and reservoirs, particularly those located in the area of influence of large urban agglomerations;

Considering the amount of phosphorus in the environment from various sources, as domestic sewage and industrial effluents, fertilizers, soil erosion, diffuse sources, among others, is substantially increasing the phosphorus concentrations in water bodies, intensifying the effect of eutrophication, negatively affecting natural ecosystems, water supplies and other uses;

Considering that the phosphorus is a cumulative element and limiting nutrient for the growth of phytoplankton organisms;

Considering the principles of precaution and prevention members of the Brazilian legal system, referred to in art. 225, § 1, item V of the Constitution, in Law 6.938 of 1981 and in other legal provisions;

Considering the Decree 24,643 dated July 10, 1934, Law 9.433 of January 8, 1997, which provides for the management and the rational use of water, and Law 6.360, of September 23, 1976, combined with Law 9.782, of January 26, 1999, as amended;

Considering it is for the public authorities and to the productive sector in the sustainable development process, to adopt preventive measures with the aim of preventing the eutrophication of water resources, resolves:

Art. 1 Establish the criteria for the use of phosphorus in powder detergent formulations for use in the domestic market, aiming at the reduction and eventual elimination of phosphorus intake from this source in water bodies.

Art. 2 For the purposes of this Resolution, the following definitions are adopted:

I-powder detergents: household product, intended for the cleaning of fabrics through decreasing the surface tension of water;

II-weighted average by ,manufacturer/importer group (GFI): the sum of the multiplication of the bulk amount (tonnage) of each powder detergent for use in the country, by its content of phosphorus, divided by the sum of the quantities in bulk (tonnage) of powdered detergent, according to the following formula:¹⁶⁴

$$MP = \frac{\sum (m_i * \%P \text{ in powder detergent})}{\sum m_i}$$

Where:

MP = weighted average

m_i = mass of each powder detergent

P = phosphorous

III-builder: a substance used in the formulation of powder detergents, for the purpose of promoting the relaxation of water hardness and structure of the product;

IV-sodium tripolyphosphate (STPP) Na₅P₃O₁₀: inorganic salt used as a builder in the formulation of powder detergents;

V-eutrophication: excess organic production in a given water body, depending on the elevation of the concentration of nutrients in their waters, mainly nitrogen and phosphorus;

VI-manufacturer/importer group (GFI): company or group of companies belonging to the same corporate conglomerate regardless of the National taxpayer's Identification -CNPJ, responsible for manufacturing, importing or hire the manufacture of powder detergents for use in the national territory;

¹⁶⁴ Corrected in DOU No. 91, of May 13, 2005, page 76-77

VII-contracted manufacturing: production of one or more brands of powder detergents by a company, ordered by a manufacturer/importer group.

Art. 3 the contribution of phosphorus from powder detergents will be controlled through the establishment of limits of maximum concentration of phosphorous per product and the weighted average of phosphorus by manufacturer/importer group

Art. 4 The criteria set out in the table in ANNEX I of this Resolution should be satisfied by manufacturers/importers groups, to reduce the concentration of phosphorus in their powder detergents and the weighted average by manufacturers/importers group.

§ 1. The criteria set out in this table apply to powder detergents manufactured in the country and imported powdered detergents, both for use in the national territory.

§ 2 Each manufacturers/importers group can distribute its total amount of phosphorus, at its discretion, in its powdered detergents, in accordance with the provisions of the caput, for this article.

Art. 5 For the purpose of verification of the concentration limits set out in ANNEX I, each manufacturers/importers group of detergent powder should provide the Brazilian Institute of the Environment and Renewable Natural Resources -IBAMA data listed in the table in ANNEX II of this Resolution.

§1. The companies of a same group should be identified in accordance with corporate name and National Registration Number (CNPJ).

§ 2 The calendar year shall be considered as the period of investigation, and the data must be supplied to the competent environmental agency until March 31 of the subsequent year.

§ 3 In the case of imported powder detergents, it will be taken into account the date of issue of the import statement regardless of customs clearance.

§ 4 If the clearance is given in the period subsequent to the verification, the manufacturer / importer group shall inform the competent environmental agency about the quantities and concentrations involved.

§ 5 For purposes of inspection of the powder detergents manufactured for use in the country, it shall be taken into account the date of manufacture.

§ 6 IBAMA shall make available to the public, within thirty days after the delivery of the data referred to in § 2, a detailed report on the compliance by the manufacturers/importers groups listed in ANNEX I of this Resolution.

Art. 6 In the application of this Resolution it shall be respected the industrial secrecy, commercial, financial or any other secret protected by law, in accordance with the provisions of law No. 10,650, of April 16, 2003, and in Decree No. 99,274, of June 6, 1990

Art. 7 This Resolution will be reviewed in 12 months after the implementation of the last reduction provided for in ANNEX I of this Resolution.

§ 1. The review must consider at least the consumption of powder detergents, the evolution of the levels of phosphorus in the water bodies and the assessment of the contribution and the control of other sources of this element.

§ 2 With the publication of this Resolution, a working group shall be established, which shall define within six months a basic network of water quality monitoring to fulfill the purpose of this Resolution, as well as the procedures for the dissemination of information.

Art. 8. Failure to comply with the provisions of this Resolution will cause the sanctions and penalties upon the violators prescribed by law, respectively, No. 9,605, of February 12, 1998, and in Decree No. 3,179 of September 21, 1999, among others.

Art. 9. This Resolution does not apply to powder detergents manufactured in the country intended exclusively for export, which shall comply with regulations of the importing country.

Art. 10. The obligations laid down in this resolution are characterize a relevant environmental concern.

Art. 11. This Resolution shall enter into force on the date of its publication.

MARINA SILVA-Council President

ANNEX I

Period for Adequacy - from the publication of this Resolution	P ₂ O ₅ ceiling by formulation (%)	P ceiling by formulation (%)	Maximum weighted P average by GFI (%)	Maximum weighted STPP average by GFI (%)
6 months	12,71	5,55	3,91	15,5
18 months	12,14	5,30	3,41	13,5
36 months	10,99	4,80	3,16	12,5

ANNEX II

Identification of the manufacturer/importer group – GFI

Corporate name: _____ CNPJ: _____

Corporate name of members	CNPJ

Powder detergent	m _i Mass of each powder detergent (tons) (1)	%P in powder detergent	Total mass of each powder detergent x % P in powder detergent
A			
B			
C			
D			
Σ			

$$MP = \frac{\sum (m_i * \%P \text{ In the powder detergent})}{\sum m_i}$$

Weighted average

(1) For the domestic market by manufacturer/importer group

Period of calculation: date:
Legal Representative Technician Responsible

This information should be treated as industrial secrecy

Comments:

- 1) It must be respected: a) the levels of P for powder detergent; b) the weighted average for the whole portfolio of the manufacturer/importer group.
- 2) the lines must be matched to the number of members of the manufacturer/importer group and powder detergents manufactured by him, hired or imported.
- 3) the manufacturer/importer group should inform the data for all of its brands, regardless if it is its own manufacturing or if it contracted.

NOTE¹⁶⁵: Ratified in the Official Gazette No. 91, of 05/13/2005, p. 76-77

¹⁶⁵ Corrected in DOU No. 91, of May 13, 2005, Page 76-77

This text does not replace the one published in the Official Gazette of May 3, 2005

CONAMA RESOLUTION 375¹⁶⁶, August 29, 2006
published in Official Gazette 167 on August 30, 2006, Section 1, pp. 141-146

Correlations:

- ANNEX I rectified by CONAMA Resolution n° 380/06

Defines criteria and procedures for the agricultural use of sewage sludge generated in sewage treatment plants and their derivative products, and makes other provisions.

The NATIONAL ENVIRONMENT COUNCIL-CONAMA, pursuant to the powers vested on it by arts. 6, subparagraph II and 8, subitem VII of Law 6.938 dated August 31, 1981, regulated by Decree No. 99,274, of June 6, 1990 and its amendments, taking into account the provisions laid down in its Internal Rules, and

Considering that the production of sewage sludge is an intrinsic characteristic of sewage treatment processes and tends to an increase at least in proportion to human population growth and the solution for their disposal is an action requiring urgency;

Considering that sewage sludge is a potential source of risk to public health and the environment and leverage the proliferation of disease vectors and harmful organisms;

Considering that due to natural and accidental factors the sewage sludges are waste that may contain heavy metals, persistent organic compounds and pathogens in concentrations harmful to health and the environment;

Considering the need of disposing sewage sludge from sewage treatment plants properly to protect the environment and health of the population;

Considering that sewage sludge is a source of organic matter and nutrients to plants and its application in soil can bring benefits to agriculture;

Considering that sewage sludge is a waste product that can contain chemicals and pathogens harmful to health and the environment;

Considering that the agricultural use of sewage sludge is an alternative that offers environmental advantages when compared to other practices of final destination; and

Considering that the application of sewage sludge in agriculture falls on the principles for re-use of waste environmentally appropriate manner, resolves:

SECTION I

Preliminary Provisions

Art. 1 This Resolution establishes criteria and procedures for use in agricultural areas, sewage sludge generated in sewage treatment plant and its derived products, targeting benefits to agriculture and preventing risks to public health and to environment.

Sole paragraph. For the production, purchase, sale, transfer, exchange or loan of sewage sludge and its derived products, in addition to the provisions of this Resolution, the provisions of Decree No. 4,954, of January 14, 2004 shall be complied with, regulating Law 6.894, of December 16, 1980, which provides for the inspection and supervision of the production and fertilizer trade, corrective substances, or Inoculants of bio-fertilizers intended for agriculture.

Art. 2 For the purposes of this Resolution, the following definitions are adopted:

I-pathogens: bacteria, protozoa, fungi, viruses, helminthes, able to cause illness to the host;

II- soil application: action of applying sewage sludge or derivative product evenly:

a) over the surface of the soil (whether followed or not by incorporation);

b) into grooves;

c) in pits;

d) by subsurface injection;

III-agricultural areas: areas for agricultural production and forestry;

IV-areas of application of sewage sludge: agricultural areas where sewage sludge or derivative product is applied;

V-vector attractiveness: characteristic of sewage sludge or derivative product, not treated or treated inappropriately, to attract rodents, insects and other vectors of pathogens;

VI-accumulated theoretical charge of an inorganic substance:

a) sum of applied loads;

b) sum (application rate X concentration of inorganic substance in sewage sludge or derivative product applied);

¹⁶⁶ Corrected in DOU No. 176, of December 13, 2006

VII-concentration of microorganisms: number of micro-organisms present in sewage sludge or derivative product per unit of mass of total solids (dry basis);

VIII-sewage: liquid sewage dump consisting of predominantly domestic, water infiltration and surface parasitic rain contribution;

IX-stabilization: process that makes the sewage sludge for agricultural use not presenting odor generation potential and attractiveness of vectors, even when re humidified;

X-Sewage treatment plant-E TE: structure of public or private property used for the treatment of sewage;

XI-fraction of nitrogen mineralization of sewage sludge or derivative product: fraction of total nitrogen in sewage or sludge by-product, which, through the process of mineralization, will be transformed into inorganic nitrogen available to plants;

XII-sewage sludge: waste generated in sewage treatment processes;

XIII-sewage sludge or derivative stabilized product sewage sludge or derived product: which does not present potential for the generation of odors and attraction of vectors according to the levels established in the present norm;

XIV-sewage sludge or sanitized derivative product: sewage sludge or derivative product subjected to treatment process for the reduction of pathogens, in accordance with the levels set out in this standard;

XV-batch of sewage sludge or derivate product: quantity of sewage sludge or derivative product intended for agricultural use, generated by a sewage-treatment plant - ETE or Sludge Management Unit-UGL in the period between two subsequent samplings, physically and chemically and microbiologically characterized;

XVI-handler: an individual or legal entity dedicated to the activity of application, manipulation or storage of sewage sludge or derivative product;

XVII-plot: homogeneous area, defined for purposes of monitoring, on the basis of the criteria set out in ANNEX IV of this Resolution;

XVIII-derived product: any product intended for agricultural use containing sewage sludge in its composition;

XIX-agronomic project: project prepared by a professional enabled for the application of sewage sludge or derivative product in a particular agricultural area, observing the criteria and procedures laid down in this Resolution;

XX-application rate: amount of sewage sludge or derivative product applied in tons (dry basis) per hectare, calculated on the basis of the criteria laid down in this Resolution;

XXI-sewage sludge conveyor: person or entity that is engaged in handling of sewage sludge or product derived from the ETE to the UGL and from it to the areas of agricultural application, through appropriate vehicle or pipe; and

XXII-Sludge Management Unit-UGL: unit responsible for receiving, processing, characterizing, transporting, disposing of sewage sludge produced by one or more sewage treatment plants and monitoring of environmental effects, health and agronomic of its application in agriculture.

Art 3 The sludge generated in sewage treatment systems for agricultural application, shall undergo the process of reduction of pathogens and vectors attractiveness, according to ANNEX I of this Resolution.

§ 1. This Resolution does not apply to sludge from effluent treatment station of industrial processes.

§ 2 This Resolution vetoes the agricultural use of:

I-sludge from effluent treatment station of hospital facilities;

II-sludge from effluent treatment station of ports and airports;

III-waste screening;

IV-desander waste;

V-lipid supernatant material from primary decanters, fat boxes and from anaerobic reactors;

VI-sludge from individual treatment system, collected by vehicles, before its treatment by a sewage treatment plant;

VII-non-stabilized sewage sludge; and

VIII-sludge classified as hazardous in accordance with the Brazilian standards in force.

Art. 4 The batches of sewage sludge and derivative products for agricultural use, shall respect the limits laid down in art. 11, tables 2 and 3, of this Resolution.

Sole paragraph. Sewage sludge that does not meet the characteristics set out in art. 11, tables 2 and 3, this Resolution cannot be mixed.

Art. 5 For the use of sewage sludge as a component of derived products intended for agricultural use, the batch shall comply with the limits for the potentially toxic substances, as defined in art. 11, Table 2, of this Resolution.

Art. 6 It is forbidden to import sewage sludge or derivative product.

Art. 7 The characterization of sewage sludge or derivative product to be applied must include the following aspects:

- I-agronomic potential;
- II- potentially toxic inorganic and organic substances;
- III-bacteriological indicators and pathogens; and
- IV-stability.

§ 1 For the characterization of agronomic potential of sewage sludge or derivative product, the following parameters should be determined in accordance with Annex II, III and IV of this Resolution:

- I-organic carbon;
- II-total phosphorus;
- III-Kjeldahl nitrogen;
- IV-ammoniacal nitrogen;
- V-nitrate/ nitrite;
- VI-pH in water (1:10);
- VII-total potassium;
- VIII-total sodium;
- IX-total sulphur;
- X-total calcium;
- XI-total magnesium;
- XII-moisture; and
- XIII-total volatile solids.

§ 2 For chemical characterization of sewage sludge or derivative product for the presence of inorganic substances, the following substances: shall be determined in accordance with ANNEX II and (IV) of this Resolution:

- I-Arsenic;
- II-Barium;
- III-Cadmium;
- IV-Lead;
- V-Covers;
- VI-Chrome;
- VII-Mercury;
- VIII-Molybdenum;
- IX-Nickel;
- X-Selenium; and
- XI-Zinc.

§ 3 For the chemical characterization of sewage sludge or derivative product for the presence of organic substances, the substances listed in Table 1 of ANNEX V to this Resolution shall be determined in accordance with Annex II and IV of this Resolution, including quantitatively.

§ 4 Depending on the particular characteristics of the basin of sewage and effluents received, the UGLs may request, from the competent environmental agency, waiver or modification of the list of organic substances to be analyzed in batches of sewage sludge or derivative product.

§ 5 For the characterization of sewage sludge or derivative product for the presence of pathogenic agents and bacteriological indicators should be determined in accordance with Annexes II and IV of this resolution, the concentrations of:

- I- thermo tolerant coliforms;
- II-viable eggs of helminthes;
- III-Salmonella; and
- IV-enteric viruses.

§ 6 For agricultural use, sewage sludge or derivative product shall be considered stable if the ratio between volatile solids and solids is less than 0.70.

Art. 8. The competent environmental agency may request, upon motivation, other tests and analyses not listed in this Resolution

Sole paragraph. Depending on the particular characteristics of the basin of sewage and effluents received, the UGLs may request, from the competent environmental agency, waiver or modification of the list of substances to be analyzed in batches of sewage sludge or derivative product.

Art. 9 The application of sewage sludge and derivative products on the agricultural soil may only occur upon the existence of a duly licensed UGL duly accredited by the competent environmental agency..

§ 1 The environmental licensing of UGL must obey to the same procedures used for the potentially polluting activities and/or modifiers of the environment, required by the competent environmental bodies.

- § 2 The UGL environmental licensing will mandatorily include the areas of application.
- § 3 The licensing process should predict mechanisms for providing information to the population on the locality in which the sewage sludge or derivative product will be used, on
- I-the benefits;
 - II-risk;
 - III-type and class of sewage sludge or product derived used;
 - IV-application criteria;
 - V-procedures to prevent contamination of the environment and of human pathogenic organisms; and
 - IV-the control of proliferation of animal vectors.

SECTION II
Monitoring frequency of Sewage Sludge or derivative product

Art. 10. The monitoring of the characteristics of sewage sludge or derivative product should be implemented in accordance with the frequency criteria defined in Table 1.

Table 1. Monitoring frequency

Amount of sewage sludge or derivative product to be applied in agriculture in tons/year (dry base)	Frequency of monitoring
Up to 60	annual, preferably before the period of greater demand by sewage sludge or derivative product
From 60 to 240	semestrial, preferably before the period of greater demand by sewage sludge or derivative product
From 240 to 1.500	At every three months
From 1.500 to 15.000	At every two months
Above 15.000	monthly

§ 1 The characterization of the sewage sludge or derivative product, represented by sampling, is valid exclusively for the batch generated in the period between this and the subsequent sampling.

§ 2 If the values for potentially toxic substances reach 80% of the limits established by this Resolution, the monitoring frequency should be increased, according to parameters set by the competent environmental agency, and the UGL should implement appropriate measures to reduce these values.

§ 3 At the licensing environmental agency discretion, in conjunction with the competent health and agriculture bodies, the sampling frequency can be increased, when duly justified.

§ 4 The chemical and biological analyses provided for in this Resolution shall be carried out in laboratories that adopt the analytical quality control procedures required to meet the required conditions.

§ 5 Batches of sewage sludge or derivative product, for use in agriculture that do not fall within the limits and criteria set out in this Resolution shall receive another form of final disposal, duly detailed in the environmental licensing process and approved by the licensing environmental agency

SECTION III
Minimum Quality Requirements of Sewage Sludge or Derivative Product For Agriculture

Art. 11. The batches of sewage sludge and derivative products for agricultural use, must comply with the maximum concentration limits of Tables 2 and 3, specified below:

Table 2. Sewage sludge or product derived from inorganic substances

Inorganic substances	Maximum concentration allowed in sewage sludge or derivative product (mg/kg. dry base)
Arsenic	41

Barium	1300
Cadmium	39
Lead	300
Copper	1500
Chromium	1000
Mercury	17
Molibdemium	50
Nickel	420
Selenium	100
Zinc	2800

Table 3. Classes of sewage sludge or derivative product-pathogens

Type of sewage sludge or derivative product	Pathogens concentration
A	Thermo tolerant Coliforms <math><10^3\text{NMP/g}</math> of ST Viable eggs of helminthes <math><0.25\text{ egg/g}</math> of ST Salmonella absence in 10g of ST Virus <math><0.25\text{ UFP or UFF/g}</math> of ST
B	Thermo tolerant Coliforms <math><10^6\text{NMP/g}</math> of ST Viable eggs of helminthes <math><10\text{ eggs/g}</math> of ST

ST: Total Solids

NMP: Most Probable Number

UFF: Focus-forming unit

UFP: Plaque forming unit

§ 1 After 5 years from the date of publication of this Resolution will only be allowed the application of Class A sewage sludge or derivative product, except if new criteria or limits are proposed based on risk assessment studies and national epidemiological data, demonstrating the safety of using Class B sewage sludge.

§ 2 The UGLs shall have, after the date of publication of this Resolution, 18 months to adapt themselves to this Resolution.

SECTION IV

The crops Ready to receive Sewage Sludge or derivative product

Art 12. It is prohibited to use any class of sewage sludge or derivative product in pastures and cultivation of oleraceous tubercles, roots and flooded crops, as well as other cultures whose edible part comes into contact with the ground.

§ 1. In soils where sewage sludge or derivative product is applied, the pastures can be deployed after a minimum period of 24 months from the last application.

§ 2 In soils where sewage sludge or derivative product is applied, only oleraceous tubercles, roots and other cultures whose edible part comes into contact with the ground can be cultivated, as well as flooded crops, after a minimum period of 48 months from the last application.

Art. 13. Sewage sludge or derivative product classified as Class A may be used for any cultures, provided the restrictions in arts. 12 and 15 of this Resolution are complied with.

Art. 14. The use of sewage sludge or derivative product classified as Class B is restricted to coffee plantations, forestry, crops for the production of fiber and oils, with the mechanized application, in furrows or hollows, followed by incorporation, compliance with the restrictions set out in art. 15 and in 11th paragraph of art. 18 of this Resolution.

SECTION V

Locational Constraints and Suitability of the soil of the Areas of Application

Art. 15. It will not be permitted the application of sewage sludge or derivative product:
 I-in conversation areas, with the exception of the Areas of Environmental Protection-APA;
 II-in Permanent Preservation Area-APP;
 III-in Watershed Protection Areas-APMs defined by state and municipal legislation and in other areas of water for public supply, at the competent environmental agency discretion;
 IV-inside the Transport Zone to mineral water springs, spas and mineral and drinkable water resorts, as defined in DNPM Ordinance No. 231, of 1998;
 V-within a minimum radius of 100 m of shallow wells and residences, and this limit be extended to ensure that no nuisances to the neighborhood;

V - I within a minimum distance of 15 (fifteen) meters from public domain routes and drains interceptors and surface water of downstream splitters and draining trenches of groundwater and surface water;

VII-in the agricultural area with a slope of plots exceeding:

a) 10% in the case of superficial application without incorporation;

b) 15% in the case of shallow with incorporation;

c) 18% in the case of subsurface and grooves application, and in the case of superficial application without incorporation in forestry production areas;

d) 25% in case of application in burrows;

VIII-in plots with soils with less than 50 cm of thickness to the horizon C;

IX-in areas where the depth of water table aquifer level is less than 1.5 m in the lowest level of the ground; and

X-in agricultural areas defined as not suitable for motivated decision from competent environmental and agriculture agencies

§ 1 the sewage sludge or derivative product may be used in the buffer zone of conservation units, subject to compliance with the restrictions and the care of application provided for in this Resolution, as well as the restrictions laid down in

management, upon prior authorization of the body responsible for the administration of the conservation unit.

§ 2 In the case of identification of any adverse effect resulting from the application of sewage sludge or derivative product produced in accordance with this Resolution, and in order to protect human health and the environment, the competent authorities should establish, immediately after the mentioned identification, additional requirements to the standards and criteria contained in this Resolution.

SECTION VI

Agronomic design and conditions of Use

Art. 16. Every application of sewage sludge and derivative products on agricultural soils should be subject to the elaboration of a project for the agronomic application areas, as set out in ANNEX VIII of this Resolution, signed

by a qualified professional, which meets the criteria and procedures herein established

Sole paragraph. The UGL shall forward to the owner and the lessee or administrator of the area, a statement based on the model laid down in ANNEX VI of this Resolution, containing information about the characteristics of sewage sludge or derivative product, in particular as regards the treatment adopted for the reduction of pathogens and vectors, and guidance about the application, based on agronomic project, for their approval and consent.

SECTION VII

The Application

Art 17. It shall be adopted, for the maximum application rate on a dry basis, the lowest value calculated according to the following criteria:

I-the maximum annual application of sewage sludge and derivative products in tons per hectare shall not exceed the ratio between the amount of nitrogen recommended for culture (kg/ha), according to the official state agronomic recommendation, and the nitrogen content available in the sewage sludge or derivative product (N_{disp} in kg/t), calculated in accordance with ANNEX III to this Resolution;

$$\text{Application rate (t/ha)} = \frac{\text{N recommended (kg/ha)}}{\text{N}_{\text{disp}} \text{ (kg/t)}}$$

II-the computation of annual maximum application rate shall must take into account the results of the tests of pH elevation caused by sewage sludge or derivative product listed in ANNEX II of this Resolution, in the predominant soil in the region so as to ensure that the final pH of the soil-sewage sludge mixture or derivative product does not exceed the limit of 7.0; and

III. Compliance with the total theoretical accumulated charge limits in soil as to the application of inorganic substances, taking into account the table 4, below:

Table 4. Accumulated theoretical loads allowed from inorganic substances by applying sewage sludge or derivative product in agricultural soils

Inorganic substances	Theoretical allowed accumulated load of inorganic substances by the application of sewage sludge or derivative product (kg/ha)
Arsenic	30
Barium	265
Cadmium	4
Lead	41
Copper	137
Chromium	154
Mercury	1.2
Molibdemium	13
Nickel	74
Selenium	13
Zinc	445

Art. 18. For the handling and application of sewage sludge and its derivative products, the UGL should inform the owner, lessee, operators and shippers the following requirements:

I- constraints on the use of the area and the sewage sludge or derivative product;

II-limits of the area of application of sewage sludge or derivative product established in the agronomic project;

III-appropriate practices and techniques of soil and water conservation;

IV-no application of sewage sludge or derivative product under rainy conditions;

V-avoid the manual application of Class A sewage sludge or derivative product;

VI-to the Class B sewage sludge or derivative product, make mandatorily the mechanized application, in grooves or pits, with incorporation of sewage sludge or derivative product soon after application;

VII-guide operators concerning safety and hygiene procedures and the use of personal protective equipment in accordance with labor legislation;

VIII. use adequate and regulated equipment so as to ensure the application rate provided for in the project;

IX-avoiding cultivation or other manual labor in the area that received sewage sludge or derivative product, for a period of 30 days after the application;

X-in the case of manual harvesting, the sewage sludge application or derivative product from Class B should be made at least 6 months prior to collection;

XI-for the sewage sludge or derivative product from Class B, take appropriate measures to restrict public access to the areas of application of sewage sludge or derivative product, for a period of 12 months after the last application. These measures should, necessarily, include the placing of signs indicating the activities that are being conducted at each site; and

XII-the owner or tenant must notify any instances of noncompliance with the execution of the agronomic project to the UGL which should immediately inform the competent organs.

SECTION VIII

Loading, transport and Storage

Art. 19. The UGL is responsible for the loading and transportation procedure of sewage sludge or derivative product, and should comply with the provisions of ANNEX VII of this Resolution.

Art. 20. The storage of sewage sludge or derivative product in the property should be restricted to a maximum period of 15 days, and must meet the following criteria:

I-the declivity of the storage area shall not exceed 5%; and

II. the minimum distance from the place of storage to rivers, wells, mines and water courses, canals, lakes and dwellings must comply with the provisions of art. 15 of this Resolution.

Sole paragraph. Storage is prohibited directly on the soil of sewage sludge or derivative product containing free liquids, whose identification should be made according to the Brazilian standard.

SECTION IX

Monitoring of the Areas of Application of Sewage Sludge or Derivative Product

Art. 21. The UGL will characterize agricultural soil, before the first application of sewage sludge or derivative product by observing the provisions of Annexes II and IV, as to:

- I-fertility parameters;
- II-exchangeable sodium;
- III-electrical conductivity; and
- IV. inorganic substances.

§ 1 The use of the proposed area for application of sewage sludge or derivative product will depend on the assessment of soil quality, performed by comparison of analytical results with guiding values of soil quality, at the discretion of the competent environmental agency.

§ 2 For organic substances, permitted concentrations in the soil are those in table 2 of ANNEX V of this Resolution.

§ 3 The monitoring of parameters of soil fertility must be performed at least every 3 years, when there is application of sewage sludge or derivative product in the area in question.

§ 4 The monitoring of parameters of soil fertility should be performed prior to each application, in the case of sewage sludge or derivative product with alkaline stabilization.

§ 5 The inorganic substances monitoring in the soil should be performed in the following cases:

I-each application, whenever these inorganic substances are considered limiting pollutants from the application rate;

II-when the accumulated theoretical load added for any inorganic substance monitored achieves 80% of the theoretical accumulated load allowed, established in table 4, art. 17 of this Resolution, to verify that the subsequent applications are suitable; and

III-at every 5 applications, in layers of 0-20 and 20-40 cm depth in the soil.

§ 6 The organic substances monitoring in the soil should be performed whenever these substances are detected in the characterization of sewage sludge or derivative product batch and concentrations listed in Table 2 of Annex V, and Annexes II and IV of this resolution should be complied with, and the frequency of monitoring should be established by the competent environmental agency.

§ 7 At the discretion of the competent environmental agency additional monitoring may be applied, including the monitoring of groundwater or surface water courses.

Art. 22. The application of sewage sludge or derivative product in agriculture should be stopped in areas that have been checked for any environmental damage or to public health.

SECTION X

Responsibilities

Art. 23 The management and monitoring of agricultural use of sewage sludge or derivative product are the responsibility of the generator and the UGL.

§ 1 The results of the monitoring provided for in this Resolution may, at any time, be audited by the environmental agency.

§ 2 When proven the use of sewage sludge or product negligently, recklessly, incompetence, bad faith or failure to comply with the criteria and procedures set out in this Resolution, the responsibility will be of its author.

Art. 24. The following shall be considered responsible in solidarity for the quality of soil and water in areas where sewage sludge or derivative product is applied:

- I-the generator of sewage sludge or derivative product;
- II-the UGL that forwards the sewage sludge or derivative product for land application;
- III-the owner of the application;
- IV-the effective possession holder;
- V-the technician responsible;
- VI-the transporter; and
- VII-those who benefit directly from the application.

Art. 25. The producer, handler, the carrier and the responsible technician for the licensed areas, which will receive application of sewage sludge or derivative product, must immediately inform to the competent environmental agency any accident or potentially fact generator of an

accident in the processes of production, handling, transportation and application of sewage sludge or derivative product, which imply an accidental dump sewage sludge or derivative product in the environment.

SECTION XI Final Provisions

Art 26. For monitoring purposes, the UGL should keep on file all documents referred to in this Resolution, in particular the agronomic designs, reports and results of analysis and monitoring, for a period of at least ten years.

Sole paragraph. In the case of bankruptcy, dissolution or liquidation of UGL, documents must be supplied to the environmental agency to be joined to the licensing process.

Art. 27. The information provided for in this Resolution will be part of a database, organized and maintained by the environmental licensing organ, which should ensure the broad dissemination and use of its data.

§ 1. The UGL should forward to the environmental licensing body the results of monitoring of soil and sewage sludge.

§ 2 The UGL shall inform annually to the environmental licensing body the properties that received sewage sludge, derivative products and respective quantities, which should make them public, preferably by electronic means.

§ 3 The environmental agencies part of the National System of Environment-SISNAMA shall, within ninety days of the date of publication of this resolution, establish a normative instruction within its jurisdiction, including the information that must be forwarded by the UGL.

Art. 28. the technical criteria adopted in this Resolution can be reworked and/or supplemented at any time according to the scientific and technology development and the need to preserve the environment, public health and sustainable soil management, and should be checked obligatorily in the seventh year of its publication.

Art. 29. The Ministry of the Environment shall coordinate a permanent monitoring group to follow up this Resolution, which shall meet at least annually, with the participation of a representative and respective alternate of the agencies from:

I-health;

II-agriculture;

III-environment;

IV-territorial planning of the different spheres of Government;

V-teaching and research institutions;

VI- generators of sewage sludge or derivative product;

VII- UGLs;

VIII-the representative entities of state environmental agencies;

IX-municipal environmental agencies; and

X-non-governmental environmental organizations.

Sole paragraph. The monitoring group of the caput of this article shall produce and submit annually to CONAMA a report containing recommendations aimed at the improvement of this Resolution

Art. 30. Failure to comply with the provisions of this Resolution shall subject violators, among others, to the penalties and sanctions, respectively, under Law 9.605, of February 12, 1998, and in Decree 3.179 of September 21, 1999.

Art. 31. This Resolution shall enter into force on the date of its publication.

MARINA SILVA-Council President

ANNEX I
PROCESSES TO REDUCE PATHOGENS AND
ATTRACTIVENESS OF VECTORS

The description of the significant reduction processes of pathogens, additional reduction of pathogens and vectors attractiveness presented below, were based on the provisions

by the U.S.EPA, according to 40 CFR Part 503-Annex B, Federal Register, of February 19, 1993. The lists below show the processes supported for significant reduction of pathogens (needed for sewage sludge or derivative product type B), additional reduction of pathogens (needed for sewage sludge or derivative product type A) and reduction of the attractiveness of vectors. Other processes may be considered, provided there is proof of their efficiency and will be accepted by the environmental agency.

1. Procedures for Significant Reduction of Pathogens

a) aerobic digestion- by air or oxygen, with minimum 40 days holds at 20° C or for 60 days at 15° C;

b) drying in sand beds or in basins, paved or not, for a minimum period of 3 months;

c) anaerobic digestion for a minimum period of 15 to 35 days -55° C or 60 days at 20° C;

d) composting by any of the methods mentioned above, provided that the biomass reaches a minimum temperature of 40° C, for at least five days, with a peak of 55° C, over four successive hours during this period; and

e) stabilization with lime, by adding sufficient amount so that the pH is raised to at least 12, for a minimum period of two hours.

2. Additional pathogen Reduction processes

a) contained or in aerated plots composting (3 days at least 55° C) or with revolving plots (15 days at 55° C at least, with mechanical rotation of plot for at least 5 days over the 15 of the process);

b) direct or indirect thermal drying to reduce sewage sludge moisture or derivative product at 10% or less, and the temperature of the particles of sewage sludge or derivative product derived overcome should exceed 80% C or the wet bulb temperature of gas in contact with sewage sludge or derivative product at the point of unloading from the dryer, exceed 80°C;

c) thermal treatment by heating the sewage sludge or liquid derivative product at 180°c, minimum, during a period of 30 minutes;

d) thermophilic air or oxygen aerobic digestion, with residence times of 10 days at temperatures of 55 to 60° C;

e) irradiation processes with the minimum dosages of beta rays of 1 megarads at 20°c, or with gamma rays at the same intensity and temperature, from cobalt 60 or Cesium 137 isotopes; and

f) pasteurization processes, for the maintenance of sewage sludge or derivative product to a minimum temperature of 70° C for a period of at least 30 minutes.

3. Processes to reduce the Attractiveness of Vectors¹⁶⁷

This list shows, in parentheses, the number of criteria to be observed in order to check the acceptability of the process on the reduction of attractiveness of vectors.

a) anaerobic digestion of sewage sludge or derivative product (criterion 1 or 2);

b) aerobic digestion of sewage sludge or derivative product (1 or 3 criterion or 4 or 5);

c) composting (criterion 5);

d) chemical stability (criterion 6);

e) drying (criterion 7 or 8);

f) subsurface application (criterion 9); and

g) incorporation in the soil (criterion 10).

These processes will be accepted only if they met the criteria specified below.

Criteria to verify that the adopted treatment process for sewage sludge or derivative product reduces the potential for spread of disease through vectors (ex. flies, rodents and mosquitoes):

criterion 1- related to aerobic or anaerobic digestion: the concentration of volatile solids (SV) must be reduced by 38% or more. The reduction of SV is measured by comparing its concentration in the affluent, the stabilization process of sewage sludge or derivative product (aerobic or anaerobic digestion), with its concentration in sewage sludge or derivative product ready for use or disposal;

criterion 2-related to anaerobic digestion: If the reduction of 38% of SV of sewage sludge or derivative product is not reached, after it is subjected to an anaerobic digestion process, the process adopted will be accepted only if in lab scale the same sample of sewage sludge or derivative product, after a further period of 40 days of digestion, with temperature ranging between 30 and 37 °c, presenting a reduction of SV less than 17%;

¹⁶⁷ Corrected by Resolution No. 380;06

critério 3-related to aerobic digestion: If the reduction of 38% of SV of sewage sludge or derivative product is not reached, after it is subjected to a process of aerobic digestion, and sewage sludge or derivative product has a concentration of dry matter (DM) of less than 2%, the process adopted will be accepted only if in lab scale the same sample of sewage sludge or derivative product, after a further period of 30 days of digestion, with minimum temperature of 20 °C, presents a reduction of SV less than 15%;

critério 4-related to aerobic digestion: after the period of digestion, the specific rate of oxygen consumption (SOUR – Specific Oxygen Uptake Rate) must be less than or equal to 1.5 mg O₂/hour x gram of total solids (ST) at 20°C;

critério 5 - related to composting or other aerobic process: during the process, the temperature should be maintained above 40° C for at least 14 days. The average temperature during this period must be greater than 45° C;

critério 6 - related to chemical stabilization: at a temperature of 25°C, the alkali quantity mixed with sewage or sludge or derivative product, must be sufficient to ensure that the pH is raised for a period of at least 12 for a minimum period of 2 hours, remaining above 11.5 for more than 22 hours. These values should be achieved without an additional application of alkali;

critério 7-related to drying with forced or thermal ventilation for all sewage sludge or derivative product that did not receive addition of raw primary sludge: after the drying process, the solids concentration must reach at least 75% MS, without any additive mixture. It is not accepted the blending with other materials to achieve the required percentage of total solids;

critério 8-related to heating or drying the or to air for all sewage sludge or derivative product which have received addition of raw primary sludge: after the drying process, the solids concentration must reach at least 90% MS, without any additive mixture. It is not accepted the blending with other materials to achieve the required percentage of total solids;

critério 9 - related to the application of sewage sludge or derivative product in the soil in liquid form: sewage sludge or liquid derivative product liquid injection beneath the surface will be accepted as a process for vector attraction reduction if: it is not checked the presence of significant amount of sewage sludge or derivate product on the soil surface after one hour of application. In the case of sewage sludge or derivate product class A, the sewage sludge or derivative product injection must be made within a maximum period of up to eight hours after the completion of the process of reduction of pathogens;

critério 10 - related to the application of sewage sludge or derivate product in the soil: in this situation, the sewage sludge or derivate product must be incorporated into the soil before the elapsing of six hours after the application in the area. If the sewage sludge or derivative product is of class A, it must be applied and incorporated after no more than eight hours after its process of reducing pathogens

ANNEX II

CRITERIA FOR THE ANALYSIS OF SEWAGE SLUDGE OR DERIVATIVE PRODUCT AND SOIL AND PRESENTATION OF RESULTS

1. Determination of inorganic substances

The analysis of inorganic substances to be carried out on samples of sewage sludge or derivative product and soil must allow the determination of the total substance searched that is present in the raw sample.

For the determination of the elements: As, Ba, Cd, Cr, Cu, Hg, Mo, Ni, Pb, and Zn in the samples of sewage sludge or derivative product and soil, must employ the methods 3050 and 3051, established in U.S. EPA SW-846, "on line" version <http://www.epa.gov/epaoswer/hazwaste/test/main.htm#table>. The results shall be expressed in g or mg of parameter per kg on dry basis.

For determination of organic substances in sewage sludge or derivative product and soil, should be adopted the U.S.EPA SW-846 methods, latest edition or other internationally accepted methods.

Reference:

U.S. EPA-United State Environment Protection Agency. SW-846. Test Methods for Evaluating Solid Waste, Physical Chemical Methods.

2. determination of soil fertility – pH, organic matter, P, Ca, K, HAL, Mg, Na, S, CTC and V

Determinations of pH, organic matter, P, Ca, K, Mg, Na, potential acidity (HAL), total bases (S), cationic exchange capacity (CEC) and percentage of bases saturation

(V) in soils must be carried out in accordance with procedure established by:

References:

RAIJ, B. van; GHEYI, H.R.; BATAGLIA, O.C. Determinação da condutividade elétrica e de cátions solúveis em extratos aquosos de solos. In: Raij, B. van; Andrade, J.C.; Cantarella,

H.; Quaggio, J.A. *Análise química para avaliação da fertilidade de solos tropicais*. Campinas, Instituto Agrônomo, 2001, p. 277-284.

Empresa Brasileira de Pesquisa Agropecuária - EMBRAPA. *Serviço Nacional de Levantamento e Conservação do Solo. Manual de métodos de análise do solo*. Rio de Janeiro, Ministério da Agricultura, 1997, 212 p.

3. Determination of pH, moisture, organic carbon, total N, N Kjeldahl N ammoniacal nitrogen, N nitrate/nitrite, P total, K total, Ca total, Mg total, S total, NA total and total volatile solids in the sewage sludge or derivative product

Determinations of pH, moisture, organic carbon, total N, N jeldahl, N ammoniacal, N nitrate/nitrite, P total, Ca total, Mg total S total, Na total and volatile solids and totals in sewage sludge or derivative product should be carried out in accordance with the procedures adopted by U.S. EPA SW-846 "on line" version (<http://www.epa.gov/epaoswer/hazwaste/test/main.htm#table>). BIGHAM (1996) presents the methodology to be adopted for organic carbon (NELSON SOMMERS, 1996), P (KUO, 1996), ammonia N (BREMNER, 1996), total N (BREMNER, 1996) and nitrate/nitrite (MULVANEY, 1996). For volatile solids and N Kjeldahl adopt method established by APHA et al (2005). The results shall be expressed in mg of the parameter per kg of sewage sludge or derivative product on a dry basis.

References:

BIGHAM, J.M. *Methods of Soils Analysis. Part 3. Chemical Methods*. Madison, WI. Soil Science Society of America and American Society of Agronomy. Book Series no 5, 1996.

NELSON, D.W. & SOMMERS, L.E., 1996. In: Bigham, J.M., p. 961-1010.

KUO, S., 1996. In: Bigham, J.M., p. 869-919.

BREMNER, J.M., 1996. In: Bigham, J.M., p. 1085-1121.

MULVANEY, R.L., 1996. In: Bigham, J.M., p. 1123-1200.

GESTÃO DE RESÍDUOS E PRODUTOS PERIGOSOS - Uso APHA - American Public Health Association; AWWA - American Water Works Association &

WPCF - Water Pollution Control Federation, 2005. *Standard Methods for the Examination of Water and Wastewater*. 21 st ed. Washington, DC.

4. Determination of electric conductivity in soil

Measurements of electrical conductivity in the soil must be carried out in accordance with the procedure laid down by CALDWELL et al (1986) or RAIJ et al. (2001) in ratio extract 1:1.

References:

RAIJ, B. van; GHEYI, H.R.; BATAGLIA, O.C. *Determinação da condutividade elétrica e de cátions solúveis em extratos aquosos de solos*. In: Raij, B. van; Andrade, J.C.; Cantarella, H.; Quaggio, J.A. *Análise química para avaliação da fertilidade de solos tropicais*. Campinas, Instituto Agrônomo, 2001, p. 277-284.

CAMARGO, O.A.; MONIZ, A.C.; JORGE, J.A.; VALADARES, J.M.A.S., 1986. *Métodos de Análise Química, Mineralógica e Física de Solos do Instituto Agrônomo de Campinas*. Boletim Técnico no 106, Campinas, Instituto Agrônomo

5. Determination of microbiological indicators and pathogens

Thermotolerant coli forms

US Environmental Protection Agency. *Environmental Regulations and Technology - Control of Pathogens and Vector Attraction in Sewage Sludge (Including Domestic Septage)*. Under 40 CFR Part 503. Annex F: Sample Preparation for fecal coli form test and Salmonella sp. Analysis, p. 137, EPA/625/R-92/013, 2003. www.epa.gov/ORD/NRMRL/pubs

CETESB. *Coliformes fecais - Determinação em amostras de água pela técnica de tubos múltiplos com meio A1 - Método de ensaio*. Norma Técnica CETESB L5-406, 1992, 20 p.

Salmonella:

US Environmental Protection Agency. *Environmental Regulations and Technology - Control of Pathogens and Vector Attraction in Sewage Sludge (Including Domestic Septage)*. Under 40 CFR Part 503. Annex F: Sample Preparation for fecal coli form test and Salmonella sp Analysis, p. 137, EPA/625/R-92/013, 2003. www.epa.gov/ORD/NRMRL/pubs

Viable eggs of helminthes

US Environmental Protection Agency. *Environmental Regulations and Technology - Control of Pathogens and Vector Attraction in Sewage Sludge (Including Domestic Septage)*. Under 40 CFR Part 503. Annex I - Test Method for Detecting, Enumerating, and Determining the Viability of Ascaris Ova in Sludge, p. 166, EPA/625/R-92/013, 2003. www.epa.gov/ORD/NRMRL/pubs

Enteric viruses:

Enteric viruses to be searched are preferably: adenovirus and Enterovirus type viruses (Poliovirus, Echovirus, Coxsackievirus). In special situations-or endemic or epidemic - (diarrhea outbreaks, hepatitis and other viruses of fecal-oral transmission), rotavirus, hepatitis A and others should be surveyed, defined by the environmental agency, after hearing the competent organs.

References:

US Environmental Protection Agency. Environmental Regulations and Technology - Control of Pathogens and Vector Attraction in Sewage Sludge (Including Domestic Septage). Under 40 CFR Part 503. Annex H - Method for the recovery and assay of total culturable viruses from sludge, p. 150, EPA/625/R-92/013, 2003. www.epa.gov/ORD/NRMRL/pubs

CETESB. Método de concentração de lodo de esgoto para isolamento de enterovírus. Norma Técnica CETESB L5.506, 1988, 23p.

CETESB. Identificação de Enterovírus - Método de Ensaio. Norma Técnica CETESB L5.504, 1985, 22p.

Reação de amplificação em cadeia pela polymerase (PCR) para pesquisa de vírus DNA como adenovírus:

Santos, F.M.; Vieira, M. J.; Monezi, T.A.; Hársi, C.M.; Mehnert, D.U. Discrimination of adenovirus types circulating in urban sewage and surface polluted waters in São Paulo city, Brazil. *Water Science Technologie, Water Supply* vol. 4 (2): 79-85, 2004.

Reação de transcrição reversa seguida de amplificação em cadeia pela polimerase (RT-PCR) para pesquisa de vírus RNA como gênero Enterovirus (Poliovírus, Echovírus, Coxsackievírus), Rotavírus, Hepatite A e outros:

ARRAJ, A., BOHATIER, J. LAVERAN, H. AND TRAORE, O. Comparison of bacteriophage and enteric virus removal in pilot scale activated sludge plants. *J. Applied Microbiol.* 98:516-524, 2005.

FORMIGA-CRUZ, M., HUNDESA, A., CLEMENTE-CASARES, P., ALBINANA-GIMENEZ, N., ALLARD, A., GIRONEZ, R. Nested multiplex PCR assay for detection of human enteric viruses in shellfish and sewage. *J. Virol. Method*, 125: 111-118, 2005.

Método de diluição end-point com cálculo de título por método de Reed-Muench e resultado expresso em DICT₅₀ por 4 g:

HAWKE, A. General principles underlying laboratory diagnosis of viral infections. In: E.H. Lennette; N.G. Schmidt (Ed.) – *Diagnostic procedures for viral, rickettsial and chlamydial infections*. Washington, D.C., APHA, 1979. p. 3-48.

Resultado expresso em Unidades Formadoras de Focos (UFF) por 4 g:

BARARDI, CRM, EMSLIE, K, VESEY, G; WILLIAMS, K. Development of a rapid and sensitive quantitative assay for rotavirus based on flow cytometry. *J. Virol. Method.* 74: 31-38, 1998.

MEHNERT, D.U.; STEWIEN, K.E. *Detection and distribution of rotaviruses in raw sewage and creeks in São Paulo, Brazil. Appl. Environ. Microbiol.*, 59: 140-3, 1993.

6. Determination of the elevation of pH caused by sewage sludge or derivative product treated with lime

The elevation of pH curve is obtained by incubation assay using soil-sewage sludge or derivative product mixture as described below:

a) Weight 200 g of the soil collected in the place where the application of sewage sludge or derivative product is planned and add the corresponding to the following doses of sewage sludge or derivative product, in tons/ha (dry basis): 0, 10, 20, 40, 80.

b) Homogenize the mixture and put it in containers of inert material.

c) Add water in order to keep the humidity at 70% of the maximum capacity of soil water retention throughout the experiment.

d) The receptacles shall be kept covered to prevent drying out. The test should be done with three repetitions.

e) Show the soil of treatments with the soil-sewage sludge or derivative product mixture in the times 7, 14, 30, 45 and 60 days and determine the pH, CaCl₂ as per RAIJ et al. (2001) or EMBRAPA (1997), until it shows a constant value in 3 consecutive mandates.

f) The pH elevation curve shall be obtained through the end pH variation graphic of the soil-sewage sludge mixture or derivative product mixture as a function of dose (dose of sewage sludge or derivative product on the abscissa and pH on the ordinate).

References:

RAIJ, B. van; GHEYI, H.R.; BATAGLIA, O.C. *Determinação da condutividade elétrica e de cátions solúveis em extratos aquosos de solos*. In: Raij, B. van; Andrade, J.C.; Cantarella, H.; Quaggio, J.A. *Análise química para avaliação da fertilidade de solos tropicais*. Campinas, Instituto Agrônomo, 2001, p. 277-284.

ANNEX III CALCULATION OF AVAILABLE NITROGEN IN SEWAGE SLUDGE OR DERIVATIVE PRODUCT

For the calculation of the available nitrogen (N_{disp}) in sewage sludge or derivative product, the following fractions of mineralization (FM) should be used:

- Undigested sewage sludge 40%
- Aerobically digested sewage sludge 30%
- Anaerobically digested sewage sludge 20%
- Composted sewage sludge 10%

Reference:

NCDEHNR-North Carolina Department of Environment, Health and Natural Resources - Division of Environmental Management, Land Application of Residual Solids, form LARS 06/94, North Carolina, 1994.

In case of interest of UGL, mineralization fractions may be used as determined by tests that adopt methodologies accepted by the competent environmental agency. For derived products, these tests should be performed.

The N content available in the sewage sludge or derivative product is calculated by the expressions:
Formula for calculation of N_{disp} (mg/kg) for surface application

$$N_{disp} = (FM/100) \times (K_{Kj} - N_{NH_3}) \times 0.5 \times (N_{NH_3}) (N_{NO_3} N_{NO_2})$$

Formula for calculation of N_{disp} (mg/kg) for subsurface application

$$N_{disp} = (FM/100) \times (-N_{Kj} N_{NH_3}) (N_{NO_3} N_{NO_2})$$

Data needed for the calculation of the N_{disp}:

fraction of nitrogen mineralization (FM) (%);

Kjeldahl nitrogen (Kjeldahl = nitrogen total organic nitrogen + ammoniacal nitrogen (N_{Kj}) (mg/kg);

Ammoniacal nitrogen (N_{NH₃}) (mg/kg);

Nitrate nitrogen and nitrite (N_{NO₃} N_{NO₂}) (mg/kg).

The concentrations used in these calculations should be in mg per kg of the parameter of sewage sludge or derivative product on dry basis.

ANNEX IV CRITERIA FOR SAMPLING OF SOIL AND SEWAGE SLUDGE OR DERIVATIVE PRODUCT

1. Soil sampling

The number of soil samples should be representative of the area to be evaluated. The sampled area shall be divided into homogeneous parcels not exceeding 20 hectares, considering the history of disposal of sewage sludge or its derivatives, topography, soil type, and the type of culture.

The parcels shall be identified on a map, on a scale compatible, for planning and follow-up monitoring.

In relation to the place of sampling, it shall be subject to the following criteria:

a) for perennial crops, sampling should be carried out on tracks fertilized with sewage sludge or its derivative products;

b) for annual crops, sampling should be carried out randomly in a zigzag, throughout the area.

The type of sampling should be selected on the basis of the parameters to be analyzed:

a) For non-volatile substances, samples should be composed, for each homogeneous portion,

Considering that:

a. 1) for the 0-20 cm depth, 10 (ten) subsamples should be collected forming 1 (a) composite sample;

a. 2) for 20-40 cm depth, 2 (two) subsamples should be collected forming a composite sample;

a. 3) for each parcel, the sub-samples should be collected at the same depth, placed in a container of inert material, for subsequent homogenization.

b) For semi-volatile or volatile substances, the samples should be simple and should be 1 (one) specimen collected in depth of 0-20 cm and 1 (one) specimen in depth of 20-40 cm.

The sample collector must use disposable gloves and avoid cross contamination of the sample.

The basic requirements for preparation, preservation and validity of soil samples should be followed for each physical or chemical parameter to be determined in accordance with the instructions of the respective analysis labs, to ensure the integrity of the samples.

2. Sampling of sewage sludge or product derived for analysis of inorganic, organic and microbiological parameters

Any sampling of sewage sludge or derivative product, both for initial characterization and monitoring, should meet the requirements set out in the Brazilian standard on waste sampling.

2.1 Sampling of sewage sludge or derivative product for analysis of inorganic parameters

2.1.1 Initial characterization

When dealing with digested sewage sludge or derivative product from, its characterization must be carried out through analysis of 4 (four) simple samples collected with a minimum lag of 7 (seven) days.

When the sampled material is not digested or is heterogeneous, as piles of sewage sludge or derivative product in the process of composting or air-drying, the characterization of inorganic substances must be performed from the collection of 4 (four) composite samples, formed from subsamples of equal amounts of the material collected at different points in the sample cell

2.1.2 Monitoring

The sampling frequency for monitoring purposes shall comply with those set out in art. 10 of this Resolution. Sampling shall comply with the same procedures described in item 2.1.1.

2.2 Sampling of sewage sludge or derivative product for organic parameters analysis

Both the initial characterization and monitoring should follow the established in relation to sampling for analysis of inorganic parameters, except with regard to the formation of composite samples, since all samples should be simple.

2.3 Sampling of sewage sludge or product derived for microbiological and parasitological analysis

2.3.1 Collection procedure

Sewage sludge samples or derivative product to for microbiological tests should be performed as described in the publication of the American Environmental Agency (U.S.EPA) "Control of Pathogens and Vector Attraction in Sewage Sludge"-EPA/625R/92/013, of July 2003.

The minimum number of samples to be collected shall be 1000 g (wet weight).

2.3.2 Initial characterization

For initial characterization of sewage sludge or derivative product, at least 15 samples should be collected over a period of 3 months. This sampling should be planned so that the collections are conducted at relatively uniform intervals throughout this period.

When the sampled material is heterogeneous (stacks of sewage sludge or derivative product in the process of composting or air drying), in order to obtain representative results, equal amounts of the material should be collected at different points. These sub-samples are then combined and analyzed as a sample only, in set of 15 samples.

2.3.3 Monitoring of sewage sludge or derivative product

For monitoring a sample should be collected, in quadruplicate, in accordance with the frequency laid down in table 1 of art. 10 of this Resolution. The quality of sludge or derivative product should also be checked prior to the first application and when the sewage sludge or derivative product is sold or distributed. Sampling should comply with the same procedures described in section 2.3.2.

ANNEX V

LISTS OF ORGANIC SUBSTANCES TO BE DETERMINED IN SEWAGE SLUDGE OR DERIVATIVE PRODUCT AND IN THE SOIL

Table 1. Potentially toxic organic substances to be determined in sewage sludge or derivative product

Substance	
Chlorinated Benzenes	Polycyclic aromatic hydrocarbons
1,2-Dichlorobenzene	Benzo(a)anthracene
1,3- Dichlorobenzene	Benzo(a)pirene
1,4- Dichlorobenzene	Benzo(k)fluoranthene
1,2,3-Trichlorobenzene	Indene(1,2,3-c,d)pyrene
1,2,4- Trichlorobenzene	Naphthalene
1,3,5- Trichlorobenzene	Fenantrene
1,2,3,4-Tetrachlorobenzene	Lindane

1,2,4,5-Tetrachlorobenzene	Persistent Organic Pollutants (POP's) Included in the Stockholm Convention
1,2,3,5-Tetrachlorobenzene	Aldrin
Phthalate esters	Dieldrin
Di-n-butyl phthalate	Endrin
Di (2-ethylhexil)phthalate	Chlordane
Dimetil phthalate	Heptachlor
Non chlorate phenols	DDT
Cresols	Toxaphene
Chlorated phenols	Mirex
2,4-Dichlorophenol	Hexachlorobenzene
2,4,6-Trichlorophenol	PCB's
Pentachlorophenol	Dioxins and Furans

Table 2. Allowable concentrations of organic substances in agricultural soils

Substance	Concentration allowed in soil (mg/kg)
Chlorated benzenes	
1,2-Dichlorobenzene	0,73
1,3- Dichlorobenzene	0,39
1,4- Dichlorobenzene	0,39
1,2,3-Trichlorobenzene	0,01
1,2,4- Trichlorobenzene	0,011
1,3,5- Trichlorobenzene	0,5
1,2,3,4-Tetrachlorobenzene	0,16
1,2,4,5- Tetrachlorobenzene	0,01
1,2,3,5-Tetraclorobenzeno	0,0065
Phthalate esters	
Di-n-butyl phthalate	0,7
Di (2-ethylhexil)phthalate (DEH)	1
Dimetil phthalate	0,25
Non chlorated phenols	
Cresols	0,16
Chlorated phenols	
2,4 – Dichlorophenol	0,031
2,4,6 – Trichlorophenol	2,4
Pentachlorophenol	0,16
Polycyclic aromatic Hydrocarbons	

Benzo(a)antracen	0,025
Benzo(a)piren	0,052
Indeno(1,2,3-c,d)piren	0,31
Naphtalene	0,12
Fenantrene	3,3
Lindane	0,001

ANNEX VI
MODEL OF STATEMENT TO BE FORWARDED BY THE MANAGEMENT UNIT OF
SEWAGE SLUDGE OR DERIVATIVE PRODUCT-UGL TO THE OWNER AND THE
LESSEE OR ADMINISTRATOR OF THE AREA FOR
APPLICATION OF SEWAGE SLUDGE OR DERIVATIVE PRODUCT

The person concerned shall submit to the environmental agency the following statement, duly completed and signed by the representative of the UGL and the owner, tenant or administrator of the area of application.

Model of Statement

Part 1: (to be filled by the sludge management unit-UGL)

- Name of the UGL
- Address
- Method used for pathogen reduction of sewage sludge or derivative product
- Sewage sludge class or derivative product: class A Class B
- Process used for the reduction of vectors
- Moisture content of sewage sludge or derivative product (%)
- Concentration of inorganic substances and pathogens

	Unit	Concentration (dry base)	Date of analysis
Arsenic	mg/kg		
Barium	mg/kg		
Cadmium	mg/kg		
Chromium	mg/kg		
Copper	mg/kg		
Lead	mg/kg		
Mercury	mg/kg		
Molybdenum	mg/kg		
Nickel	mg/kg		
Selenium	mg/kg		
Zink	mg/kg		
Thermotolerant Colliforms	NMP/g MS		
Enteric virus	UFP/4g or UFF/4g MS		
Eggs viable of helminthes	no of viable eggs/4g MS		

- concentration available in sewage sludge or derivative product in mg/kg (dry basis), calculated according to ANNEX III:

date of analysis: N available:

- Application rate
- Type of culture in which sewage sludge or derivative product is applied
- Name of the area of application
- Address of the application site
- Field/Plot
- Application area (hectares)
- Amount Applied (m³ or kg)
- Method of application
- Method used in field for vector attraction reduction (if applicable)

Note: In case of different cultures or modes of application, the corresponding declarations shall be completed.

I am aware that, in the case of falsehood of the statements herein made, I can be made administratively, civilly and criminally liable, according to the relevant legislation in force.

Name and signature of the person responsible for the UGL:

Date:

Part 2: (to be completed by the owner, lessee, or administrator)

I, _____, RG No. _____

the owner of (site, farm etc.), _____

located at (address) _____ geographical coordinates

(UTM) _____ agree with the application of sewage sludge or derivative product on my property, committing myself to follow the guidelines of the project prepared by the UGL.

Name and signature of the owner: _____

Date: _____

ANNEX VII RECOMMENDATIONS ON THE TRANSPORT

1. Sewage sludge or derivative product will only be loaded and removed from the ETE or UGL upon exhibition by the truck driver, of the Disclaimer (No. 1 loading) and the Withdrawal Control Form.

2. The driver must be properly registered and accredited with the sewage sludge generating or derivative product company.

3. For the transportation, trucks with fully enclosed body should be used, such as dump trucks, equipped with locking system to prevent the opening of the rear cover, plastic canvas cover, signaling cones, shovel or hoe and a pair of latex gloves.

4. It is forbidden any kind of crowning in the trucks (loading height exceeding the height of the bodywork).

5. The trucks must have some sort of communication system for immediate use in the event of an accident.

6. In the event of a claim on public roads, with sewage sludge spill, all cleaning procedures are the responsibility of the sewage sludge or derivative product transportation company.

7. All workers in contact with sewage sludge or derivative product should always use protective gloves leather or plastic. It is also required the use of appropriate footwear, shoes or boots of leather or plastic, being forbidden the use of sandals and other shoes.

8. At the end of services, wash with water and soap the gloves, shoes and hands.

9. The cleaning of tyres should be observed when trucks are leaving ETE or UGL

Term of liability by the carrier of sewage sludge or derivative product

_____, _____, 200__.

I, _____ bearer of identity card no. _____,

Was hired by the company _____ to transport product transport sewage sludge or product derived from the sewage sludge or derivative product between the Sewage Treatment Plant of Sanitation Company or UGL _____ and the user- applicator property located at _____.

I declare that I will make the transportation, in accordance with the recommendations of the Sanitation Company, using trucks with fully enclosed body, equipped with locking system to prevent opening the back cover, plastic canvas cover, signaling cones, shovel or hoe and a pair of latex gloves. I inform I am aware that the product can only be delivered on the property defined in the Agronomic Project No. _____, and any problems that may occur during transportation or as a result thereof shall be of full responsibility.

Control for the Removal of Sewage sludge or derivative product

		Project No.
Logo Sanitation Co.	Control of Removal of sewage sludge by third parties	Document
		Revision/Date
Date: / N°.		
Destination:		City:
Volume withdrawn: m ³		
Place of withdrawal : Landfill _____ Press yard		
Driver:		
ID:		
Transport company:		
Vehicle's plate:		
<p>The driver hereby declares that he is aware of the precautions for the transportation of sewage sludge or derived product described overleaf:</p> <p>Signature of the transporting driver</p> <p>Copy of reception When leaving, it is mandatory the delivery of this form filled out at the reception da ETE or UGL.</p>		
Logo Sanitation Co.	SEWAGE HANDLING STATION	
	Date: /	
	Volume of sewage sludge or derived product removed: m ³	
<p>Precautions when transporting the sewage sludge or derived product.</p> <ol style="list-style-type: none"> 1. The truck shall have a locker of bodywork and the bodywork shall be fully sealed. 2. The bodywork shall be covered with a plastic canvas. 3. The vehicle shall have during the trip a shovel and/or grubber and a signaling cone. 4. For direct contact with the sewage sludge or derived product, use gloves and, after this contact, wash the hands and the footwear with water and soap. 		
ETE or UGL:		
Address of ETE or UGL:		
Copy of the transporting driver		

ANNEX VIII ROADMAP FOR AGRONOMIC DESIGN

For the design of sewage sludge application or derivative products in agriculture, it should be noted the following roadmap:

1. Characterization of wastewater treatment facility-ETE or UGL

Present treatment system description including location of the treatment, its operational capacity, the characteristics of sewage drainage basin, the type of treatment, the simplified flowchart of the process, the various units of the system and the volume of sewage sludge or derivative product generated.

2. Characterization of sewage sludge or derivative product

Present sewage sludge or derivative product characterization, in compliance with the provisions in art. 7 of this Resolution.

Present the test for determining the elevation of pH caused by the application of sewage sludge or derivative product in soil, according to item 6 of ANNEX II of this Resolution, in the case of sewage sludge or derivative product treated with lime.

Present in detail the description of the processes adopted to reduce pathogens and attractiveness of vectors.

3. Characterization of the fields of application of sewage sludge or derivative product

Present name and address of the owner of the area and statement from UGL, as ANNEX VI of this Resolution.

3.1 Location

Present planialtimetric maps plans of situation of the application locations, with the minimum scale of 1:10,000, covering up to 500 m of the boundary of the application, bringing indications of the following elements:

- a) indication of use of soil in the area to be used for the application;
- b) geographic coordinates (UTM) of application areas;
- c) location of springs and water eyes;
- d) location of bodies of water, indicating its width;
- e) location of ponds, lakes, reservoirs, rainwater, water supply wells, dwellings;
- f) location of the remaining native forests;
- g) survey of conservation units incidents;
- h) description of the neighborhood; and
- i) access to the site.

In the sites with no planialtimetric survey in the 1:10,000 scale, will be accepted, by way of exception, the 1: 50,000 scale surveys complemented by detailed description of the area and sketch indicating the slope of application areas.

3.2 Soil characterization of the fields of application of sewage sludge or derivative product

Present soil characterization, observing the provisions in art. 21 this Resolution and should include a map with the location of sampling points.

4. Rate of application of sewage sludge or derivative product

Present the rate of application of sewage sludge or derivative product in soil, observing the provisions in art. 17 this Resolution for each area.

5. Storage and transportation of sewage sludge or derivative product

Present details of storage and transport systems of sewage sludge or derivative product, which shall comply with the provisions in arts. 19 and 20 and in ANNEX VII of this Resolution.

6. Application and handling plans

Present plan of application of sewage sludge or derivative product and of the area handling, in compliance with art. 18 this Resolution and other requirements of this Resolution, including:

- a) description of application sequence of sewage sludge or derivative product, detailing periods laid down for the application throughout the year;
- b) indication in a map of the crops of each parcel; and
- c) description of handling detailing the time of planting and/or development of culture.

7. Operation report

Draft report of the operation, which must be kept on file by the UGL, containing records of the operation, including minimally:

- a) origin of sewage sludge or derivative product;
- b) characterization of sewage sludge or derivative product;
- c) date of application of sewage sludge or derivative product;
- d) location of application of sewage sludge or derivative product (local, field or in the plot);
- e) mass of sewage sludge or derivative product applied in tons (dry basis) per hectare;
- f) annual total sewage sludge or derivative product applied on dry tons per hectare;

g) cumulative totals, since the beginning of the application, in kilograms per hectare, of each metal evaluated;

h) method of application;

i) vegetation type or culture to be deployed on site;

j) amount of nitrogen available applied, in kg/hectare; and

l) comment on the occurrence of rains at the time of application and soil conditions as regards erosions.

8. Monitoring

Present detailed description of the monitoring proposed to monitor the application of sewage sludge or derivative product, in compliance with the provisions of arts. 10 and 21 of this Resolution.

Report models should be proposed for monitoring of sewage sludge or derivative product and soil of areas of application, to be made by the responsible for the application of sewage sludge or derivative product.

9. Note of technical responsibility

Present the Technical Note of Responsibility-ART of the agronomic project proposed. In the completion of the ART the responsible for the project should be designated as to the choice of site, application rate and selection of the type of culture, bringing the type annotation 1 in field 6.

10. Additional Information

At the environmental agency discretion, additional information may be required that are not included in this roadmap.

This text does not replace the one published in the Official Gazette of August 30, 2006.

CONAMA SOLUTION 380, October 31, 2006
Published in Official Gazette 213 on November 7, 2006, Section 1, page 59

Correlations:

- Rectifies ANNEX I of CONAMA Resolution No. 375/06

Ratifies CONAMA Resolution 357/2006 – defines criteria and procedures for the agricultural use of sewage sludge generated in sewage treatment plants and their derivative products, and makes other provisions

The NATIONAL ENVIRONMENT COUNCIL-CONAMA, pursuant to the powers vested on it by arts. 6, subparagraph II and 8, subitem VII of Law 6.938 dated August 31, 1981, regulated by Decree 99.274, of June 6, 1990 and its amendments, taking into account the provisions laid down in its Internal Rules, decides:

Art. 1 ANNEX I to Resolution 375, of August 29, 2006, published in the Official Gazette of August 30, 2006, Section 1, page 141 to 146, rectified on September 13, 2006, Section 1, page 80, shall read as follows:

“.....
3. Processes to Reduce the Attractiveness of Vectors

This list shows, in parentheses, the number of criteria to be observed in order to check the acceptability of the process on the reduction of attractiveness of vectors.

- a) anaerobic digestion of sewage sludge or derivative product (criterion 1 or 2);
- b) aerobic digestion of sewage sludge or derivative product (1 or 3 criterion or 4 or 5);
- c) composting (criterion 5);
- d) chemical stability (criterion 6);
- e) drying (criterion 7 or 8);
- f) subsurface application (criterion 9); and
- g) incorporation in the soil (criterion 10).

These processes will be accepted only if the criteria specified below are complied with.

Criteria to verify that the adopted treatment process for sewage sludge or derivative product reduces the potential for spread of disease through vectors (e.g. flies, rodents and mosquitoes):

criterion 1- related to aerobic or anaerobic digestion: the concentration of volatile solids (SV) must be reduced by 38% or more. The reduction of SV is measured by comparing its concentration in the affluent, the stabilization of sewage sludge or derivative product (aerobic or anaerobic digestion), with its concentration in sewage sludge or derivative product ready for use or disposal;

criterion 2- related to anaerobic digestion: If the reduction of 38% of SV of sewage sludge or derivative product is not reached, after it is subjected to a process of anaerobic digestion, the process adopted will be accepted only if in lab scale the same sample of sewage sludge or derivative product, after a further period of 40 days of digestion, with temperature ranging between 30 and 37 °c, presents a reduction of SV less than 17%;

criterion 3 - related to aerobic digestion: If the reduction of 38% of SV of the sewage sludge or derivative product is not reached, after it is subjected to an aerobic digestion process, and sewage sludge or derivative product has a concentration of dry matter (MS) of less than 2%, the process adopted will be accepted only if in same laboratory scale the same sample of sewage sludge or derivative product, after an additional period of 30 days of digestion, with minimum temperature of 20 °c, presents a reduction of SV less than 15%;

criterion 4 - related to aerobic digestion: after the period of digestion, the specific rate of oxygen consumption (SOUR – Specific Oxygen Uptake Rate) must be less than or equal to 1.5 mg x O₂/hoar x gram of total solids (ST) at 20°C;

criterion 5 - related to composting or other aerobic process: during the process, the temperature should be maintained above 40° C for at least 14 days. The mean temperature during this period must be greater than 45° C;

criterion 6 - related to chemical stabilization: at a temperature of 25°C, the alkali quantity mixed with sewage sludge or derivative product, must be sufficient for the pH to rise to at least to 12 for a minimum period of 2 hours remaining above 11.5 for more than 22 hours. These values should be achieved without having made an additional application of alkali;

criterion 7 - related to drying with forced ventilation or sewage sludge thermal or derivative product that did not receive raw primary sludge addition: after the drying process, the solids concentration must reach at least 75% MS, without any additive mixture. Blending is not accepted with other materials to achieve the required percentage of total solids;

critério 8 - related to drying by heating or to air for o sewage sludge or derivative product that has received addition of raw primary sludge: after the drying process, the solids concentration must reach at least 90% MS, without any additive blending. Binding is not accepted with other materials to achieve the required percentage of total solids;

critério 9 - related to the application of sewage sludge or derivative product in the soil in liquid form: sewage sludge or derivative product injection in liquid form beneath the surface will be accepted as a process of vector attraction reduction if: is not found for the presence of significant amount of sewage sludge or derived product on the soil surface after one hour of application. In the case of sewage sludge or derivative product class A, the sewage sludge or derivative product injection must be made within a maximum period of up to eight hours after the completion of the process of reduction of pathogens;

critério 10 - related to the application of sewage sludge or derivative product in the soil: in this situation, the sewage sludge or derivative product must be incorporated into the soil before the elapsing of six hours after application. If the sewage sludge or derivative product is class A, it must be applied and incorporated after no more than eight hours after its discharge from the process of reduction of pathogens.

.....” (NR)
Art. 2. This resolution shall enter into force on the date of its publication.

MARINA SILVA-Council President

This text does not replace the one published in the Official Gazette of November 7, 2006.

TRANSPORTATION, IMPORTATION AND EXPORTATION OF
WASTES AND HAZARDOUS PRODUCTS

CONAMA Resolution 1A, January 23, 1986 ¹⁶⁸
Published in Official Gazette on August 17 4, 1986, Section 1

Establishes provisions for the transportation of hazardous products in the national territory.

The NATIONAL ENVIRONMENT COUNCIL-CONAMA, pursuant to the powers vested on it by item II of article 7 of Decree n^o 88,351, of June 1, 1983¹⁶⁹, as amended by Decree No. 91,305, of June 3, 1985¹⁷⁰ and article 48 of the same piece of legislation, and considering the growing number of dangerous cargo moving close to densely populated areas, of watershed protection, water reservoirs and natural environment protection, as well as the need to obtain adequate levels of security in its transport, to avoid environmental degradation and damage to health, resolves:

Art. 1 When considered appropriate by the States, the transport of hazardous products, in their territory, shall be effected by means of essential complementary measures to those established by Decree No. 88,821, of October 6, 1983.

Art. 2 State environmental agencies should be informed by the carrier of hazardous goods, at least seventy-two hours of their effectuation in order to take the required steps.

Art. 3 In the event referred to in article 1, CONAMA recommends to the state environmental bodies the joint definition with transit agencies, of the special measures to be adopted.

Art. 4. This resolution shall enter into force on the date of its publication.

DENI LINEU SCHWARTZ-Council President

This text does not replace the one published in the Official Gazette of August 4, 1986.

¹⁶⁸ This Resolution was published as an ordinance, and was endorsed as resolution after its publication in the DOU

¹⁶⁹ Decree revoked by Decree 99.274 from June 6, 1990

¹⁷⁰ Decree revoked by Decree 99.274 from June 6, 1990

CONAMA RESOLUTION 8, September 19, 1991
Published in Official Gazette on October 30, 1991, section 1, page 24063

Establishes provisions for the prohibition of the entry into the country of waste materials intended destined for final disposal and incineration in Brazil.

The NATIONAL ENVIRONMENT COUNCIL-CONAMA, pursuant to the powers vested on it by subheadings I and VII, art. 8 of Law 6.938, of August 31, 1981, amended by Law 7.804, of July 18, 1989, and Law 8.028, of April 12, 1990, regulated by Decree 99.274, of June 6, 1990, resolves:

Art. 1 It is prohibited the entry into the country of waste materials intended for final disposal and incineration in Brazil.

Art. 2 The non-compliance with this Resolution will subject violators to penalties provided for in current legislation.

Article 3 This Resolution shall enter into force on the date of its publication, and revokes the provisions to the contrary.

EDUARDO DE SOUZA MARTINS-Council President

This text does not replace the one published in the Official Gazette of October 30, 1991.

CONAMA RESOLUTION 24, December 7, 1994
Published in Official Gazette 248 on December 30, 1994, Section 1, page 21346

Requires prior informed consent of the CNEN-National Commission of Nuclear Energy, to any import or export of radioactive material, in any form and chemical composition, in any quantity.

The NATIONAL ENVIRONMENT COUNCIL-CONAMA, pursuant to the powers vested on it by Law 6.938 dated August 31, 1981, regulated by Decree 99.274, of June 6, 1990, amended by Decree 1.205, of August 1, 1994¹⁷¹, and its ANNEX I, and in view of the provisions in its Internal Rules, and

Considering the provisions of article 8 of CONAMA Resolution n^o 7, of May 4, 1994¹⁷² ;

Considering Law 4.118, of August 27, 1962, modified by Law 6.189, of December 16, 1974, with new wording by Law 7.781, of June 27, 1989 and Decree 150, of June 15, 1991¹⁷³, the Internal Rules of CNEN (SAE Ordinance 53, of May 18, 1994) and Resolutions and Ordinances issued by the National Commission of Nuclear Energy - CNEN;

Considering the procedures relating to the enforcement of existing legislation on radioactive waste;

Considering radioactive waste material resulting from human activities, which contains radionuclides in amounts exceeding the exemption limits, according to specific CNEN Standard, and for which re-use is unfit or not foreseen, resolves:

Art. 1 All import or export of radioactive waste in whatever form and chemical composition, in any quantity, can only be conducted with the prior consent of CNEN, after hearing the Brazilian Institute of the Environment and Natural Resources - IBAMA.

Art. 2 IBAMA shall notify the country's Competent Authorities of the destination on any export of radioactive waste.

Art. 3 The Foreign Trade Secretariat – SECEX (MICT) and the Internal Revenue Service-SRF (MF) shall adopt, within their competences, all measures to control the import or export of radioactive waste, which are dependent on prior informed consent of the CNEN.

Art. 4 The transport of radioactive waste must meet both the requirements laid down in the rules of the CNEN and the Ministries of Transport and Labor, such as those specified in the relevant international legislation.

Art. 5 The importer or exporter that does not comply with the provisions of this Resolution shall be subject to:

- a) return at its expenses, to the country of origin of the imported material;
- (b) the cancellation of the request for to import or export.

Art. 6 This resolution shall enter into force on the date of its publication.

HENRIQUE BRANDÃO CAVALCANTI-Council President
ROBERTO SERGIO STUDART WIEMER-Deputy Executive Secretary

This text does not replace the one published in the Official Gazette of December 30, 1994.

¹⁷¹ Decree revoked by Decree 2.619 from July 5, 1998

¹⁷² Resolution revoked by Resolution number 37/94

¹⁷³ Decree revoked by Decree 3.565 from August 17, 2000

CONAMA RESOLUTION 228, August 20, 1997
Published in Official Gazette 162 on August 25, 1997, Section 1, pages 18442-18443

Correlations

- Complements CONAMA resolution No. 23/96

Establishes provisions for the importation of lead waste products and lead wastes from electric accumulators

The NATIONAL ENVIRONMENT COUNCIL-CONAMA, pursuant to the powers vested on it by Law 6.938 dated August 31, 1981, regulated by Decree 99.274, of June 6, 1990, bearing in mind the provisions of its Internal Rules, and

Considering the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Deposit, adopted under the aegis of the United Nations, done at Basel, Switzerland, in March 22, 1989, was enacted by the Brazilian Government, through Decree No. 875 of July 19, 1993, published in the subsequent day D.O.U, and recommends that the trans boundary movement of hazardous wastes and other wastes is reduced to the minimum consistent with the environmentally sound and efficient management of such waste and which is carried out in order to protect human health and the environment from the adverse effects that may result from such movement;

Considering Decision II-12, adopted by consensus at the second Meeting of the Parties to the Basel Convention, held on the March 21, 25, 1994, prohibiting, after December 31, 1997, the cross-border movement of hazardous wastes from OECD – Organization for Economic Cooperation and Development-for non-OECD countries;

Considering CONAMA resolution n^o 23, of December 12, 1996, which regulates the import of waste, in the first paragraph of his art. 2 provides for the possibility to authorize the importation of hazardous wastes, exceptionally, in the situations recognized by CONAMA as essential;

Considering that Brazil is not a producer of metallic lead, including since it does not have lead ore in the quantity and quality required by the metallurgical sector, and,

Considering that the national chain of electric accumulators (especially automotive batteries) is also heavily dependent on the import of lead scrap (used batteries) to meet the growing demand of the Brazilian automotive sector, which characterizes the situation of high dependence of such imports, resolves:

Art. 1 To authorize, until December 31, 1997, exceptionally, the import of item 8548.10.10-waste and scrap of lead accumulators, of Common Foreign Tariff-TEC, in compliance with the national and international legislation in force.

Art. 2 The high dependence on imports of used electrical lead accumulators will be reevaluated by CONAMA within a maximum of 18 (eighteen) months due to international and national legal instruments in force, of the he studies of new technologies and market and the environmental performance of the lead reprocessing sector .

Art. 3. The procedures to be followed for such imports shall be the same as set out in art. 5 of CONAMA Resolution No. 23/96, preceded by the approval by IBAMA of the Plan for Continuous Improvement of Environmental Management of Independent and the independent Audit Report presenting the assessment of the situation of each lead reprocessing unit with respect to air emissions, liquid effluents, solid waste and contamination of soil and groundwater.

Art. 4. This Resolution shall enter into force on the date of its publication.

GUSTAVO KRAUSE GONÇALVES SOBRINHO-Council President

RAIMUNDO DEUSDARÁ FILHO-Executive Secretary

This text does not replace the one published in the Official Gazette of August 25, 1997.

TREATMENT AND FINAL DESTINATION OF
WASTES AND HAZARDOUS PRODUCTS

CONAMA RESOLUTION 2, August 22, 1991
Published in Official Gazette on September 20, 1991, Section 1, pp. 20293-20294

Establishes provisions for the treatment of deteriorated, contaminated or outdated load materials.

The NATIONAL ENVIRONMENT COUNCIL-CONAMA, pursuant to the powers vested on it by Law 6.938 dated August 31, 1981, amended by Law 8.028, of April 12, 1990, regulated by Decree 99.274, of June 6, 1990, and bearing in mind the provisions of its Internal Rules, and

Considering that damaged, contaminated or out of specifications cargoes have a large potential to generate environmental damage;

Considering that the preventive actions, if taken as soon as the facts appear, are less expensive and can prevent damage to the environment;

Considering that the corrective action, treatment and final disposal of these cargoes are expensive;

Considering that the international and national laws establish civil and criminal liability for these cases; resolves:

Art. 1 Damaged, contaminated, out of specification or abandoned cargoes are treated as potential sources of risk to the environment until manifestation of competent environmental body.

Art. 2 It is up to the Federal Environment Agency in conjunction with other agencies with jurisdiction over the matter, to adopt the necessary measures to facilitate the internalization and the final solution in the event of problems with damaged, contaminated, out of specification or abandoned cargoes.

Art. 3 it is the organ that has knowledge of the existence of damaged, contaminated loads, out of specifications or abandoned, the communication of fact, within maximum of 12:0 AM the State Environment Agency that will inform the Federal Agency for the environment, which will trigger the competent authority and the person responsible for the charges for the measures within their competence.

Art. 4 Respond jointly and severally by the action of prevention, control, treatment and final disposal of waste generated by loads mentioned in art. 1 the importer, the carrier, the shipper or agent that represents, unless specific preview of liability in contract.

Sole paragraph. Expenditure arising out of the evaluation, monitoring, control and management of waste generated by loads mentioned in art. 1 will be at the expense of the person responsible for the same.

Art. 5 The ports, terminals and customs warehouses shall provide areas for storage of loads mentioned in art. 1st, contaminated, according to establish normative Environment body.

Art. 6 It is up to the Federal Environmental Agency to coordinate inter-agency action of regulation and definition of technical-operational and administrative procedures that should be adopted to take account of the provisions of this Resolution.

Art. 7. The failure to comply with this Resolution shall subject violators to the penalties referred to in the legislation.

Art. 8. This Resolution shall enter into force on the date of its publication.

EDUARDO DE SOUZA MARTINS-Council President

TÂNIA MARIA TONELLI MUNHOZ-Executive Secretary

This text does not replace the one published in the Official Gazette of September 20, 1991.

CONAMA RESOLUTION 6, September 19, 1991
Published in Official Gazette on October 30, 1991, section 1, page 24063

Establishes provisions for the treatment of solid waste of healthcare facilities, ports and airports.

The NATIONAL ENVIRONMENT COUNCIL-CONAMA, pursuant to the powers vested on it by subheadings I and VII, art. 8 of Law 6.938, of August 31, 1981, as amended

by Law 7.804, of July 18, 1989, and Law 8.028, of April 12, 1990, regulated by Decree 99.274, of June 6, 1990, resolves:

Art. 1 It is relieved the incineration or any other treatment of burning of solid wastes from medical institutions, ports and airports, except in the cases provided for by law and international agreements.

Art. 2 In the States and Municipalities who opt not to incinerate solid wastes referred to in art. 1, state environmental agencies shall establish standards for special treatment as a condition for licensing the collection, transportation, storage and disposal.

Art. 3 The Secretary of the Environment ¹⁷⁴of the Presidency of the Republic, in coordination with the Ministry of Health, the National Secretariat of Sanitation and the competent state and federal competent federal, after consultation with representative entities of the scientific and technical community, submit to CONAMA, within 180 (one hundred eighty) days, the proposal for minimum standards to be observed in the treatment of the waste referred to in article 1.

Art. 4 The non-observance of this Resolution will subject violators to penalties provided for in current legislation.

Art. 5. this Resolution shall enter into force on the date of its publication, and revokes the provisions to the contrary.

Eduardo de Souza Martins-Council President

This text does not replace the one published in the Official Gazette of October 30, 1991.

¹⁷⁴ The Secretariat of the Environment of the Presidency of the Republic was changed into the Ministry of the Environment by PM number 309, of October 16, 1992, transformed into Law number 8, of November 19, 1992

CONAMA RESOLUTION 5, August 5, 1993
Published in Official Gazette 166 on August 31, 1993, Section 1, pages 12996-12998

Correlations:

• Revoked the provisions dealing with solid wastes from health-care services by CONAMA Resolution in 35805.

*Establishes provisions for the management of solid waste generated in ports, airports, rail and road terminals
and health service providers.
(Revokes the provisions dealing with solid wastes
from health services by Resolution No. 35805)*

The NATIONAL ENVIRONMENT COUNCIL-CONAMA, pursuant to the powers vested on it by Law 6.938 dated August 31, 1981, as amended by Laws 7.804, of July 18, 1989, and paragraph 8.028, of April 12, 1990, and regulated by Decree 99.274, of June 6, 1990, and in the internal regulations approved by CONAMA Resolution n^o 25 of December 3, 1986 ¹⁷⁵,

Considering the determination contained in art. 3 of CONAMA Resolution n^o 6, of September 19, 1991, concerning the definition of minimum standards for solid waste treatment from health-care services, ports and airports, as well as the need to extend these requirements to rail and road terminals;

Considering the need to define the minimum procedures for the management of this waste, in order to preserve public health and the quality of the environment; and,

Considering that, finally, the preventive actions are less expensive and minimize the damage to public health and the environment, resolves:

Art. 1 For the purposes of this Resolution the following definitions are adopted:

I-Solid waste: according to NBR-10,004, of the Brazilian Association of Technical Standards-ABNT- "Solid and semisolid states wastes, resulting from the source community activities: industrial, domestic, agricultural, commercial, hospital services and sweeping. This definition includes the sludge from water treatment systems, those generated in equipment and plant for pollution control, as well as certain liquids whose circumstances make it impossible to release in public sewers or water bodies, or require technically and economically impractical solutions, given the best technology available."

II- Solid waste Management Plan: an integral document of the environmental licensing process, that points to and describes the actions relating to solid waste management, in the framework of the establishments mentioned in art. 2 of this Resolution, including aspects relating to generation, segregation, collection, storage, packaging, transport, treatment and disposal, as well as the protection of public health;

III- Solid Waste Treatment System: set of units, processes and procedures that change the physical, chemical or biological characteristics of the waste and lead to the minimization of the risk to public health and the quality of the environment;

IV - Final Disposal System of Solid Wastes: set of units, processes and procedures that are aimed at releasing waste into the soil, ensuring the protection of the public health and the quality of the environment.

Art. 2 This Resolution applies to solid waste generated in ports, airports, rail and road terminals ~~and health care providers.~~

~~(Revokes the provisions dealing with solid wastes from health-care services by Resolution No. 35805)~~

Art. 3 For the purposes of this Resolution, the solid waste generated in the establishments referred to in art. 2, are classified in accordance with ANNEX I of this Resolution.

Art. 4 It will be up to the already referred establishments the management of their solid waste, from the generation to final disposal, in order to meet environmental requirements and public health.

Art. 5 The administration of the establishments mentioned in art. 2, in operation or to be deployed, should submit the Solid Waste Management Plan, to be submitted to the approval by the regional environment and health agency within its respective spheres of competence, in accordance with current legislation.

§ 1 The elaboration of the Solid Waste Management Plan shall consider as principles that lead to recycling, as well as integrated or consortium solutions, for the treatment and final disposal systems, according to guidelines established by competent health and environment organs.

¹⁷⁵ Resolution implicitly revoked by new Internal Rules

§ 2 The regional environment and health organs shall jointly determine the criteria to determine which establishments are required to submit the plan required in this article.

§ 3 The organs members of the National System of Environment-SISNAMA, shall define and establish, in their respective spheres of competence, the means and the operating procedures to be used for the appropriate management of waste referred to in this Resolution.

Art. 6 Establishments listed in art. 2 will have a technical officer, duly registered in a professional council, for the correct management of solid wastes generated as a result of their activities.

Art. 7 Solid wastes will be packed appropriately, taking into account the ABNT standards and other legal provisions in force.

§ 1. Solid waste belonging to the group "A" in ANNEX I of this Resolution shall be packed in plastic bags with the symbology of infecting substance.

§ 2 If there are, among the waste referred to in the previous paragraph, others perforating or cutting wastes, these will be previously packed in rigid, watertight container, sealed and identified by the symbology of infecting substance.

Art. 8. The solid waste transport, object of this Resolution will be made in appropriate vehicles, compatible with the characteristics of the waste, taking into account the constraints of environmental protection and public health.

Art. 9. The implementation of systems for the treatment and final disposal of solid wastes is subject to licensing by the competent environmental agency in accordance with the standards in force.

Art. 10. Solid waste belonging to the group "A" cannot be discarded into the environment without pretreatment to ensure:

- a) elimination of characteristics of dangerousness residue;
- b) the preservation of natural resources; and,
- c) meet environmental quality standards and public health.

Sole paragraph. Sanitary landfills deployed and operated in accordance with current technical standards shall include in their environmental licensing specific systems allowing the disposal of solid waste belonging to group "A".

Art. 11. one of the alternatives that can be used in the treatment of solid waste, belonging to the group "A", subject to particular conditions of employment and operation of each technology, as well as considering the current stage of technological development, it is recommended the steam sterilization or incineration.

§1. Other treatment processes may be adopted, provided they comply with the provisions of art. 10 of this Resolution and with prior approval by the competent health and environment organ.

§ 2 After treatment, solid waste belonging to group "A" will be considered "common waste" (group "D"), for the purpose of final disposal.

§ 3 Solid waste belonging to group "A" cannot be recycled.

Art. 12. Solid waste belonging to group "B" must be subjected to specific treatment and final disposal, according to the characteristics of toxicity, flammability, corrosivity and reactivity, according to requirements of the relevant environmental agency.

Art. 13. Solid waste classified and framed as radioactive waste belonging to group "C", of ANNEX I of this Resolution, shall comply with the requirements laid down by the National Commission of Nuclear Energy-CNEN.

Art. 14. Solid waste belonging to group "D" will be collected by the municipal agency of urban cleaning and will receive treatment and final disposal similar to those established for household waste, provided conditions are maintained for the protection of the environment and public health.

Art. 15. When it is not ensured the proper solid waste segregation, these will be regarded in their entirety as belonging to the group "A", except the solid waste belonging to groups "B" and "C" which, by its peculiarities, should always be separated from waste with other qualifications.

Art. 16. Common wastes (Group "D") generated in establishments set out in art. 2 coming from endemic areas laid down by the competent public health authorities, will be considered, with a view to handling and treatment, as belonging to the group "A".

Art. 17. The treatment and final disposal of waste generated shall be controlled and monitored by environmental, public health and competent health surveillance agencies, in accordance with current legislation.

Art. 18. The food waste "IN NATURA" cannot be forwarded for feeding animals, if they are originated from the establishments listed in art. 2, or from endemic areas as referred to in art. 16 of this Resolution.

Art. 19. The atmospheric emission standards of solid waste treatment processes, object of this Resolution, shall be established within the framework of the National Program for Air Quality Control - PRONAR, within 180 (one hundred and eighty) days from the date of publication of this Resolution, while those already established and in effect.

Art. 20. Loads in confiscation regarded as waste for the purposes of treatment and final disposal, present public and private terminals, shall comply with the provisions in CONAMA Resolution n^o 2, of August 22, 1991.

Art. 21. The competent environmental control and health bodies, especially those participating in the SISNAMA-National Environmental System, are responsible for the implementation of this Resolution, and it is their responsibility and are responsible for the inspection, as well as the imposition of the penalties provided for in the relevant legislation, including the interdiction of activities.

Art. 22. State bodies of the environment with the involvement of state secretariats of health and other institutions concerned, including non-governmental organizations, shall coordinate programs, aiming at the implementation of this resolution and to ensure their compliance.

Art. 23. This resolution shall enter into force on the date of its publication.

Art. 24. It revokes the provisions to the contrary, especially items I, V, VI, VII and VIII, Ordinance No. 53¹⁷⁶ MINTER, of March 1, 1979.

FERNANDO COUTINHO JORGE-Council President
HUMBERTO CAVALCANTE LACERDA - Executive Secretary

ANNEX I CLASSIFICATION OF SOLID WASTES

(Revokes the provisions dealing with solid wastes from health-care services by Resolution 358/05)

GROUP A: wastes that pose a potential risk to public health and the environment due to the presence of biological agents.

This group includes, among others: blood and blood products; animals used in experimentation, as well as materials that have come into contact with them; excretions, secretions and fluids; culture media; tissues, organs, fetuses and anatomical parts; aspirated gas filters from contaminated area; waste from isolation area; food debris from isolation unit; wastes from clinical analysis laboratories; wastes from ambulatory units; sanitary waste of inpatient unit and ward and dead animals on board the means of transport, the object of this Resolution. This group includes, among others, perforating or sharp objects, able to cause puncture or cut, such as razor blades, scalpel, syringe, needles, broken glass etc., coming from health service providers establishments.

GROUP B: wastes that pose a potential risk to public health and the environment due to their chemical characteristics

This group includes, among others:

- a) chemotherapy drugs and products contaminated by them;
- b) pharmaceutical waste (overdue, contaminated, restricted or not—used medicines); and,
- c) other products considered hazardous, according to classification of ABNT NBR-10004 (toxic, corrosive, flammable and reactive).

GROUP C: radioactive waste: this group includes the radioactive materials or contaminated with radionuclides, from clinical exams laboratories, nuclear medicine and radiotherapy services, according to CNEN Resolution 6.05.

GROUP D: common wastes are all others that do not fit into the groups described above.

This text does not replace the one published in the Official Gazette of August 31, 1993

CONAMA RESOLUTION 23, December 12, 1996
Published in Official Gazette 13 on January 20, 1997, Section 1, pp. 1116-1124

Correlations:

- Amended by CONAMA resolution No. 235/98 (amended ANNEX 10) pursuant to the provisions of art. 8 of Resolution no 23/96

- Amended by CONAMA Resolution n° 244;98 (deleted item from ANNEX 10)
- Supplemented by CONAMA Resolution n° 228/97
- Revokes CONAMA Resolution n° 37/94

Establishes provisions for definitions and treatment to be given to hazardous waste in accordance with the standards adopted by the Basel Convention on the control of Transboundary Movements of Hazardous Wastes and their Deposit.

The NATIONAL ENVIRONMENT COUNCIL-CONAMA, pursuant to the powers vested on it by Laws 6.938, of August 31, 1981, 8028, of April 12, 1990, 8,490, of 19 November 1992¹⁷⁷, by Decree 99.274, of June 6, 1990, and bearing in mind the provisions of its Internal Rules and,

Considering that the actual and potential risks that waste handling can lead to health and the environment;

Considering that the need to control and, in many cases, ban the entry of waste, especially that considered dangerous, in our country;

Considering the Basel Convention on the Control of Trans boundary Movements of Hazardous Wastes and their Deposit, adopted under the aegis of the United Nations, done at Basel, Switzerland, on March 22, 1989, was enacted by the Brazilian Government, through Decree No. 875 of July 19, 1993, published in the Official Gazette in the subsequent day, and recommends that the trans boundary movement of hazardous wastes and other wastes is reduced to the minimum consistent with environmentally healthy management and effective of such waste and which is carried out in order to protect human health and the environment from the adverse effects that may result from such movement;

Considering that the Convention fully recognizes that any country member has the sovereign right to ban the entry or depositing of hazardous waste and other waste in its territory;

Considering, moreover, Decision II-12 of the 2nd Meeting of the Parties to the Basel Convention which banned from March 25, 1994, trans boundary movement of waste hazardous waste for final disposal and prohibits, from December 31, 1997, the trans boundary movements of such wastes for recycling or recovery operations from Member States to non-Member States of the Organization for Economic Co-operation and Development-OECD (ANNEX 4), resolves:

Art. 1 For the purposes of this Resolution the following definitions are adopted:

a) Hazardous waste- Class I: are those that fit in any category contained in ANNEX 1-A.to 1-C, unless they do not possess any of the characteristics described in Annex 2, as well as those which, although not listed in the Annexes, have any of the characteristics described in Annex 2.

b) Non-Inert Waste-Class II: are those that do not qualify as hazardous waste, inert waste or other waste, as defined in subparagraphs (a), (c) and (d), respectively,

c) Inert Waste-Class III. are those that, when subjected to the test of solubilization, according to NBR-10,006, none of his constituents are not trapped in a concentration greater than the standards specified in Annex 3.

d) other wastes. are those collected from households or resulting from the incineration of household waste.

Art. 2nd It is forbidden to import hazardous waste- Class 1, throughout the national territory, in any form and for any purpose.

§ 1. If indispensable situations hazardous of waste import shall occur, such exceptional circumstance is conditioned to the appreciation and deliberation of CONAMA, through evaluation by its environmental Control Technical Chamber.

§ 2 The lists of wastes and hazardous characteristics set out in Annexes 1 and 2 of this Resolution may be enlarged by CONAMA Resolution.

Art. 3 It is prohibited the import of waste defined in paragraph "d" of art. 1 as "other wastes", in any form and for any purpose.

¹⁷⁷ Law revoked by Law number 9649, of May 27, 1998

Art. 4 Inert Waste – Class III are not subject to import restrictions, except for used tyres whose import is prohibited.

Sole paragraph. CONAMA can enlarge the ratio of inert waste – Class III subject to import restriction.

Art. 5. The importation of items of Non-inert Waste category-Class II can only be held for the purposes of recycling or reuse after environmental permit from IBAMA, preceded by technical advice and consent of the State Agency of Environment, and after meeting the following requirements:

a) registration with IBAMA, according to forms set out in ANNEX 5 of this Resolution;

b) presentation by the Environment organ of the State of the location of the company, upon request expressed by IBAMA, document (ANNEX 6) stating that the situation of regularity of the interested party as to compliance with environmental legislation and its ability to recycle or reuse its waste on an environmentally safe manner;

c) technical report attesting the composition of waste that is being imported, when required by IBAMA;

d) complying with the best technique and to national and international standards for packaging and transport, as well as compliance with the special care of handling in transit, including, in addition to the emergency actions forecast for each type of waste;

e) compliance with the conditions laid down by federal, state and local laws environmental control relevant regarding the storage, handling, use and reprocessing of imported waste as well as of any waste generated in this operation, including as to its final disposal;

f) forwarding to IBAMA, at every six months, of the import notification forms, relating to the trans boundary movements of waste occurring in the period, the statements and the information specified in ANNEX 7.

g) presentation to IBAMA, until November 30 of each year of import forecast form for the following year, according to the data of ANNEX 8.

§ 1. The consent and the technical opinion of the caput of this article refer to each type of waste to be imported.

§ 2 The companies wishing to import waste for recycling or reuse by third parties, may do so, provided they comply with subparagraphs (a), (f) and (g) of this article and inform to

IBAMA the reprocessing companies to be liable, formally, by recycling or reusing imported waste, providing copy of the contract executed.

§ 3 The forms set out in Annexes 5, 6, 7 and 8 of this Resolution can be modified at the discretion of the Ministry of the Environment, Water Resources and the Legal Amazon -MMA¹⁷⁸.

§ 4 The validity of the registration referred to in paragraph "a" of this article, of every importer or reprocessing company of imported waste, is of 12 (twelve) months. Their non-renewal implies the automatic cancellation in the register.

§ 5 If there are changes in the information rendered in the register on the waste to be imported, a new registration shall be made by the company.

Art. 6 The importation of waste authorized after complying with the requirements, should also address the procedures for prior notification, as determined in art. 6, Annexes V-A and V-B, of the Basel Convention (Annex 9), when the exporting or importing country is a member.

Sole paragraph. In the case of countries not members to the Convention, trans boundary movement of waste can only be made by means of Bilateral, Multilateral or Regional Agreements or Arrangements.

Art. 7 IBAMA shall forwards, twice a year, to the Foreign Trade Secretariat of the Ministry of Industry, Trade and Tourism-SECEX/MICT an updated list of companies registered and able to carry out imports of waste.

Art. 8. The listing of related waste according to MERCOSUR Common Nomenclature based on the Harmonized Commodity Description and Coding System (NCM-SH), is specified in ANNEX 10, depending on the release of its importation on the part of SECEX/MICT of previous authorization from IBAMA, complying with article 2 of this Resolution.

Sole paragraph. It will be up to the Technical Environmental Control Chamber, within 120 (one hundred twenty) days, to elaborate study and proposal to CONAMA on the assessment and classification of the listing in Annex 10.

Art. 9 Once the violation is noticed of any of the requirements set out in article 5 of this Resolution the registration of the company, will be automatically cancelled and informed to SECEX/MICT its impediment for further imports of waste.

Art. 10. MMA and MICT may provide additional standards providing for the control and monitoring procedures to be adopted for imports of waste, under the conditions laid down in this resolution and in accordance with the guidelines laid down by the Basel Convention.

¹⁷⁸ The Ministry of the Environment, Water Resources and Legal Amazon changed its name to Ministry of the Environment by PM number 1795, of January 1, 1999, republished in PM number 2216-37, of August 31, 2001, changing Law number 9649, of May 27, 1998.

Art. 11. Failure to comply with the provisions of this Resolution will subject violators to the penalties stipulated in articles 14 and 15 of Law 6.938 dated August 31, 1981, as amended by Laws 7.804, of July 18, 1989 and 8.028, of April 12, 1990.

Art. 12. This resolution shall enter into force on the date of its publication, revoking CONAMA resolution n^o 37, of December 30, 1994 and other provisions to the contrary.

GUSTAVO KRAUSE GONÇALVES SOBRINHO-Council President
EDUARDO DE SOUZA MARTINS-Executive Secretary

ANNEX 1-A
HAZARDOUS WASTE-CLASS-1
(ANNEX I of Basel Convention)

WASTE STREAMS

Y1	Clinical waste from medical care in hospitals, medical centers and clinics
Y2	Waste from the production and preparation of pharmaceutical products
Y3	Waste from drugs and pharmaceutical products
Y4	Waste from the production, formulation and use of biocides and phytopharmaceutical products
Y5	Waste from the manufacturing, formulation and use of chemical products used in wood preservation
Y6	Waste from the production, formulation and use of organic solvents
Y7	Waste from operations of thermal treatment and tempera containing cyanides
Y8	Waste from mineral oils not reusable for the purposes they were planned to
Y9	Mixture or residual emulsions of oils / water, hydrocarbons / water
Y10	Substances and residual articles containing or being contaminated with polychlorinated phenyls and/or polychlorinated tarphenils and/or polybromated byphenils
Y11	Tar waste resulting from the refining, distillation or any other pyrolytic treatment
Y12	Waste from the production, formulation and use of general paints, pigments, coloring material, lacquer, varnishes
Y13	Waste from the production, formulation and use of latex resins, plasticizers, glues / adhesives
Y14	Waste from chemical substances produced in research and development or teaching activities which are not identified and/or are new and the effects of which on man and/or the environment are unknown
Y15	Waste from explosive nature not subject to other legislation
Y16	Waste from the production, preparation and use of chemical products and materials for photograph processing
Y17	Was resulting from superficial treatment of metals and plastics
Y18	Waste resulting from operations of deposit of industrial waste.

WASTE CONTAINING AS CONSTITUENT ELEMENTS:

Y19	Metallic carbonyls
Y20	Beryllium compounds,
Y21	Hexavalent chromium compounds
Y22	Copper compounds
Y23	Zink compounds
Y24	Arsenic, arsenic compounds
Y25	Selenium, selenium compounds
Y26	Cadmium, cadmium compounds
Y27	Antimony, antimony compounds
Y28	Tellurium, tellurium compounds
Y29	Mercury, mercury compounds
Y30	Thallium, thallium compounds
Y31	Lead, lead compounds
Y32	Inorganic Fluor compounds, excluding calcium fluoride
Y33	Inorganic cyanides
Y34	Acid solutions or acids on solid form
Y35	Basic solutions or bases in solid form
Y36	Asbestos (powder and fibers)
Y37	Phosphorous organic compounds
Y38	Organic cyanides
Y39	Phenols, ohenolic compounds, including chlorophenols
Y40	Ethers
Y41	Organic halogenated solvents
Y42	Organic solvents, excluding halogenated solvents
Y43	Any similar to dibenzo-furan polychlorated
Y44	Any similar to dibenzo-p-dioxin
Y45	Halogen organic compounds different from the substances mentioned in the present

ANNEX 1-B
HAZARDOUS WASTE-
CLASS I OF NON-SPECIFIC SOURCES
(ANNEX A of NBR-10.004/87)

Industry	Code of Hazardous Waste	Hazardous Waste	Code of Risk
Generic	FO01	The following spent halogenated solvents used in degreasing, tetrachloroethylene, trichloroethylene, chloride methylene 1, 1, 1-trichloroethane, carbon and chlorinated fluorocarbons, and sludges from the recovery of these solvents.	(T)
	FO02	The following spent halogenated solvents tetrachloroethylene, methylene chloride, trichloroethylene, 1, 1,1- trichloroethane, chlorobenzene, 1, 1, 2-1, tricolor – 1.2.2-trifluoretano ortodichlorobenzene, trichlorofluormetane and the residue of these solvents recovery fund	(T)
	FO03	The following spent non-halogenated solvents: xylem, acetone, ethyl acetate, ethyl benzene, ethyl ether, methyl isobutyl ketene, n-butyl alcohol, cyclohexanone and methanol and waste recovery fund of these solvents.	(I)
	FO04	The following spent non-halogenated solvents: cresols and cresylic acid, nitrobenzene and waste from the column originated from the recovery of these solvents.	(T)
	FO05	The following spent non-halogenated solvents: toluene, methyl ethyl ketene, carbon disulphide, Isobutene, pyridine and residue from the bottom of column from the recovery of solvents	(I,T)
	FO06	Sludge from treatment of residual waters from electroplating operations except those originating from the following processes: (1) anodizing of sulphuric acid aluminum; (2) tin plating of carbon steel; (3) zinc plating (segregated basis) of carbon steel; (4) aluminum siding or zinc-aluminum in carbon steel; (5) lcleaning/extraction operations associated with tin, zinc and aluminum carbon steel; and (6) Chemical milling and stamping of aluminum	(T)
	FO07	Exhausted solutions from surface treatment bath with cyanides from electroplating operations (except exhausted solutions containing electro deposition of metals from cyanide accurate)	(R,T)
	FO08	Sludge from bottom of bath for the superficial treatment From electroplating operations where cyanides are used in the process (except bath surface treatment sludge with precious metals by electroplating).	(T)
	FO09	Solutions depleted from extraction and cleaning baths from electroplating operations where cyanides are used in the process (except solutions exhausted of extraction and cleaning baths from electroplating with precious metals).	(R,T)
	FO10	Sludges from quenching bath originated from oil baths of thermal operations operations of metals from processes, where cyanides are used (accept sludges from quenching bath in the thermal treatment of precious metals)	(R,t)
	FO11	Exhausted cyanide solutions from the cleaning the crucible of saline bath heat treatment of metals (except exhausted solutions	(R<T)

	heat treatment of precious metals from cleaning of saline baths crucibles).	
F012	Wastewater treatment sludges from quenching baths of thermal treatment operations of metals in the processes in which cyanides are used (except water treatment sludges residuary from the temple baths heat treatment of precious metals).	(T)
F014	Sediments from discharge pond bottom of wastewater treatment of cyanidation of operations of extraction of metals from ore	(T)
F015	Exhausted solutions from baths containing cyanide from the operations of extraction of metal from ores	(R,T)
F017	Waste and sludges of paint and industrial paint	(T)
F018	Sludges from waste water treatment systems of industrial painting	(T)
F019	Sludges from treatment of waste waters of aluminum coating by chemical conversion	(T)
F020	Waste (except sewage and coal spent in the purification of hydrochloric acid) production or use (as reagent, intermediate or component) of tri or tetrachlorophenol or of intermediates uses to produce its derivatives biocides except the waste from the production of hexachlorophene from 2, 4,5-trichlorophenol.	(T)
F021	Waste from production or use (as a reactant, intermediate or component) of pentachlorophenol or of intermediates used to produce their derivatives, except wastewater and coal used in the purification of hydrochloric acid.	(E)
F022	Waste form use (such as reagent, intermediate or component) of tetra, penta-or Hexachlorobenzene under alkaline conditions, excluding wastewater and tar spent in purification of hydrochloric acid.	(E)
F023	Waste (except sewage and coal spent in the purification of hydrochloric acid) production of materials in equipment previously used for the production or use (as a reactant, intermediate or component) of tri and tetrachlorophenol, except waste from equipment used only for production or use of hexachlorophene when made from 2; 4; 5-trichlorophenol.	(E)
F024	Wastes from the production of aliphatic hydrocarbons F026 chlorinated that have from one to five carbons, using free radical catalyzed process, including, but not limited to, distillation waste column funds, tar and cleaning of waste reactor, except these F 027 in ANNEX B-Listing No. 2	(T)
F026	Waste from the production of materials in equipment previously used for the use (as reagent, intermediate or component) of tetra, penta-or Hexachlorobenzene under alkaline conditions, excluding wastewater waste and coal spent in acid hydrochloric purification	(E)
F027	Waste from unused formulations containing tri, tetra-or pentachlorophenol or those containing compounds derivatives of these chlorophenols, except formulas containing the synthesized hexachlorophene of 2, 4.5 trichlorophenol.	(E)
F028	Waste resulting from the incineration or thermal treatment of soil contaminated with wastes F 020, 021, F F 022, 023, 026 or F F F 027.	(T)
F030	Used oil including those used as f grease (motors, gears, turbines), with hydraulic fluid (including the one used in transmission), at work with metals (including for cutting, polishing, machining, stamping, cooling and cover) and oil used in cooling or insulation that is	(T)

		contaminated.	
	F100	Dielectric fluids nased on polychlorinated biphenyls	(T)

Note: Toxic (T), (I), (R) Reactive Flammable, highly toxic (E)

ANNEX 1-C
HAZARDOUS WASTE-1 CLASS of SPECIFIC SOURCES
(ANNEX B of the NBR-10.004/87)

Industry	Code of Hazardous Waste	Hazardous Waste	Code of Risk
Wood preservation	K001	Bottom sediment sludge from the treatment of wastewater from the process of wood preservation has pooled using creosote and/or pentachlorophenol	(T)
Inorganic pigments	K002	Sludge from the treatment of waste water from the production of orange and yellow chrome pigments	(T)
	K003	Sludge from the treatment of waste water from the production of orange and molybdate pigment	(T)
	K004	Sludge from the treatment of waste water from the production of yellow green chromium pigment	(T)
	K005	Sludge from the treatment of waste water from the production of orange and molybdate pigment	(T)
	K006	Sludge from the treatment of waste water from the production of green oxide pigment (anhydrous and hydrated)	(T)
	K007	Sludge from the treatment of wastewater from the production of blue iron pigment	(T)
	K008	Waste from ovens for the production of green chromium oxide pigment.	(T)
Organic chemical products	K009	Waste from fund of distillation from the production of acetaldehyde	(T)
	K010	Fractions from the distillation of the production of acetaldehyde from ethylene	(T)
	K011	Bottom current from the "stripper" of liquid waste in the production of acryl nitrite	(T)
	K013	Output column background of Acetonitrile production	(R,T)
	K015	Background of residue distillation column of benzyl	(T)
	K016	Heavy fraction or waste from the production distillation of carbon tetrachloride	(T)
	K018	Heavy fraction of waste from fractionation column of the production of ethyl chloride	(T)
	K019	Heavy fraction from distillation of dyeline in the production of this substance	(T)
	K020	Heavy fraction from distillation of vinyl chloride from monomer production of vinyl chloride	(T)
	K021	Aqueous catalytic antimony waste exhausted from the fluorometan production	(T)

Pesticides	Ko22	Waste from distillation bottom with tars from the production of phenol acetone from cumene	(T)
	Ko23	Light waste from anhydride of distillation from the production of phthalic acid from naphthalene	(T)
	Ko24	Waste from distillation bottom from the production of anhydride phthalic acid from naphthalene	(T)
	Ko25	Waste from of distillation bottom from the production of nitrobenzene by nitration of benzene.	(T)
	Ko26	Background wastes of metilethylpiridines production puller	(T)
	Ko27	Waste from distillation and centrifugation of the production of toluene diisocyanate	(T)
	Ko28	Catalyst exhausted of hydro chlorination reactor in the production of 1, 1.1-trichloroethane	(R,T)
	Ko29	Steam extractor waste from the f production of 1, 1.1-trichloroethane	(T)
	Ko30	Column background wastes or heavy fraction from the production of trichloroethylene and perchloroethylene	(T)
	Ko83	Background of the distillation of aniline production	(T)
	Ko85	Distillation column background or fractionation of production of chlorobenzenes	(T)
	Ko93	Light waste from anhydride production distillation	(T)
	Ko94	Background waste of the distillation of phthalic anhydride to from ortoxilene	(T)
	Ko95	Background distillation waste from the production of 1, 1.1-trichloroethane	(T)
	Ko96	Background of distillation column of heavy fraction in the production of 1, 1.1-trichloroethane	(T)
	Ko102	Waste from process on the extraction of aniline during its production	(T)
	Ko103	Combined wastewater generated in the production of Nitrobenzenoaniline	(T)
	Ko104	Aqueous effluent ion the cleaning of product reactor In the production of chlorobenzene	(T)
	Ko105	Wash water in the production of chlorobenzene	(T)
	Ko31	By-products in the form of salts generated in the prod. of MSMA and cacodylic Acid	(T)
Ko32	Sludge from wastewater treatment plant from the production of chlordanes	(T)	
Ko33	Wastewater and water chlorination gas washer of cyclopentadiene in the production of chlordanes	(T)	

	Ko34	Solid waste from the filtration of hexachlorocyclopentadiene production of chlordane	(T)
	Ko35	Treatment of wastewater sludge generated in creosote production	(T)
	Ko36	Background waste from the recovery process of toluene or distillation of disulfoton production	(T)
	Ko37	Wastewater treatment sludge from the production of disulfoton	(T)
	Ko38	Wastewaters from the washing and extraction of production of "phorate"	(T)
	Ko39	Waste of acid filtration dimethyl phosphorodithioate pie from the production of phorate "	(t)
	Ko40	Sludge from the treatment of wastewaters I the production of "phorate"	(T)
	Ko41	Sludge from the treatment of wastewater from the production of toxaphene	(T)
	Ko42	Heavy fractions or wastes from the distillation of tetrachloroethylene 2, 4,5-T production.	(T)
	Ko43	Waste from 2.6 – dichlorophenol from the production of 2.4-D	(T)
	Ko97	Vacuum extractor discharge from the chlordane chlorinator made during its production	(T)
	Ko98	Process wastewater without treatment, from the production of toxaphene	(T)
	Ko99	Wastewater without treatment, from the production of 2.4-D	(T)
Explosives	Ko44	Wastewater treatment sludge from the manufacturing and processing of explosives	(R)
	Ko45	Coal spent in the wastewater treatment, which contains explosives	(R)
	Ko46	Wastewater treatment sludge from the manufacturing, formulation and handling operations of compounds lead-based primers	(T)
	Ko47	Pink/red water from f TNT operations	(R)
Oil refining	Ko48	Separators supernatants of DAF type in the industries oil refining	(T)
	Ko49	Residual oil emulsion solids from refining industry of oil	(T)
	Ko50	Cleaning sludge from tubes of heat exchangers of the petroleum refining industry	(T)

	K051	Sludge of oil separators of the oil refining industries	(T)
	K052	Waste containing lead from the bottom of the tank of the petroleum refining industry	(T)
Iron and Steel	K061	Sludge or dust of the control system of greenhouse primary steel production in electric ovens	(T)
	K062	Pickling exhausted bath of finishing steel operations	(C,T)
	K090	Sludge or dust of the emission control system from the production of iron-silicon chrome	(T)
	K091	Sludge or dust of the emission control system from the production of ferrochrome	(T)
	K092	Sludge or dust of the emission control system from the production of ferromanganese	(T)
	K209	Dust of the control system of gases emission in the Cubilot furnace in iron foundry.	(T)
Primary copper	K064	Thickening sludge and mud of the "blow down" acid in the primary copper production	(T)
Primary lead	K065	Solids contained in tanks of systems for the treatment of primary lead smelter emissions or removed from these reservoirs	(T)
Primary zinc	K066	Sludge from the wastewater treatment or "blow down acid in the production of primary zinc	(T)
	K067	Calcareous mud or sludge from electrolytic anodes of the primary zinc production	(T)
	K068	Waste from cadmium unit (iron oxide) in the production of primary zinc	(T)
Secondary lead	K069	Sludge or dust of the emission control system of gases in secondary lead smelting	(T)
	K100	Residual solution from the acid wash of sludge or dust of the control system of gas emission from the fusion of secondary lead	(T)
Inorganic chemistry	K071	Mud from effluent treatment station of the process for chlorine production on mercury cell	(T)
	K073	Chlorinated hydrocarbon wastes from the purification step of the diaphragm cell process using graphite anodes in chlorine production	(T)

	K074	Wastewater treatment sludge in the production of TiO ₂ pigment with ores containing chromium by chloride process	(T)
	K106	Sludge from the wastewater treatment process of mercury cells in the production of chlorine	(T)
Paints manufacturing	K078	Cleaning residue with solvent in the manufacture of paints	(I,T)
	K079	Cleaning residue with water or caustic materials in the manufacture of paints	(T)
	K081	Sludge in the treatment of wastewater in the production of paints	(T)
	K082	Sludge or dust from the control of gases emissions in the production of paints	(T)
	K086	Sludge and washing with solvent , sludge, and alkaline washings, or sludge and aqueous washings of pipeline cleaning and equipment used in the formulation of paints from pigments, driers, soaps and/or stabilizers	(T)
Pharmaceutical and Veterinary Products	K084	Wastewater treatment sludge generated during the production of veterinary pharmaceuticals from arsenic of organoarsenical compounds	(T)
	K101	Wastes of the distillation of base compounds aniline in obtaining veterinary pharmaceuticals Arsenic keratosis or organoarsenical compounds	(T)
	K102	Wastes from the use of active coal for discoloration in the production of arsenic-based veterinary products and organoarsenicals	(T)
	K203	Waste from diseases research laboratories	(T)
	K205	Waste from active carbon used for discoloration in the production of arsenic or organoarsenical compounds	(T)
Coking process	K060	Lime sludge containing ammonia of waste from the coking operations fund	(T)

Ko87	Tar sludge from the decantation tank used in system of coke oven gas treatment	(T)
K206	Acid washing waste of benzene, originating in the coke tar distillation	(C,T)

ANNEX 2
LIST OF HAZARDOUS CHARACTERISTICS
(ANNEX III to the Basel Convention)

Class	Code	Characteristics	
1	H1	Explosives	An explosive substance or waste is a solid or liquid substance or waste (or mixture of substances or wastes) which is in itself capable by chemical reaction of producing gas at such a temperature and pressure and at such a speed as to cause damage to the surroundings.
3	H3	Flammable liquids	The word “flammable” has the same meaning as “inflammable”. Flammable liquids are liquids, or mixtures of liquids, or liquids containing solids in solution or suspension (for example, paints, varnishes, lacquers, etc., but not including substances or wastes otherwise classified on account of their dangerous characteristics) which give off a flammable vapor at temperatures of not more than 60.5°C, closed-cup test, or not more than 65.6°C, open-cup test. (Since the results of open-cup tests and of closed-cup tests are not strictly comparable and even individual results by the same test are often variable, regulations varying from the above figures to make allowance for such differences would be within the spirit of this definition.)
4.1	H4.1	Flammable solids	Solids, or waste solids, other than those classed as explosives, which under conditions encountered in transport are readily combustible, or may cause or contribute to fire through friction.
4.2	H4.2	Substances or wastes liable to spontaneous combustion	Substances or wastes which are liable to spontaneous heating under normal conditions encountered in transport, or to heating up on contact with air, and being then liable to catch fire.
4.3	H4.3	Substances or wastes which, in contact with water, emit flammable gases	Substances or wastes which, by interaction with water, are liable to become spontaneously flammable or to give off flammable gases in dangerous quantities.

5.1	H5.1	Oxidizing	Substances or wastes which, while in themselves not necessarily combustible, may, generally by yielding oxygen cause, or contribute to, the combustion of other materials.
5.2	H5.2	Organic Peroxides	Organic substances or wastes which contain the bivalent-o-o-structure are thermally unstable substances which may undergo exothermic self-accelerating decomposition
6.1	H6.1	Poisonous (acute)	Substances or wastes liable either to cause death or serious injury or to harm human health if swallowed or inhaled or by skin contact.
6.2	H6.2	Infectious substances	Substances or wastes containing viable micro organisms or their toxins which are known or suspected to cause disease in animals or humans.
8	H8	Corrosives	Substances or wastes which, by chemical action, will cause severe damage when in contact with living tissue, or, in the case of leakage, will materially damage, or even destroy, other goods or the means of transport; they may also cause other hazards
9	H10	Liberation of toxic gases in contact with air or water	Substances or wastes which, by interaction with air or water, are liable to give off toxic gases in dangerous quantities.
9	H11	Toxic (Delayed or chronic)	Substances or wastes which, if they are inhaled or ingested or if they penetrate the skin, may involve delayed or chronic effects, including carcinogenicity.
9	H12	Ecotoxic	Substances or wastes which if released present or may present immediate or delayed adverse impacts to the environment by means of bioaccumulation and/or toxic effects upon biotic systems.
9	H13		Capable, by any means, after disposal, of yielding another material, e.g., leachate, which possesses any of the characteristics listed above.

Corresponds to the risk classification system including in the United Nations Recommendations for the Transport of Hazardous Goods (STSG/Ac. 10/1 Rev. 5, United Nations, New York, 1988)

Tests

Potential testing of certain types of waste has not yet been fully documented; There are no tests to define quantitatively these hazards. It is necessary to deepen research in order to develop means to characterize risks of such waste in relation to humans or to the environment. Standardized tests have been developed for pure substances and materials. Several countries have developed national tests that can be applied to the materials listed in ANNEX 1 (*) in order to decide whether these materials exhibit any of the characteristics listed in this ANNEX.

(*) ANNEX 1-concerning the Basel Convention – equivalent to ANNEX1-A of this resolution

ANNEX 3
INERT WASTE STANDARDS FOR SOLUBILIZING TEST
(ANNEX H of the NBR-10.004/87)

POLLUTANT	CEILING IN EXTRACT (mg/L)
Arsenic	0,05
Barium	1,0
Cadmium	0,005
Lead	0,05
Cyanide	0,1
Total chromium	0,05
Phenol	0,001
Fluoride	1,5
Mercury	0,001
Nitrate (mg N/I)	10,0
Silver	0,05
Selenium	0,01
Aldrin	3,0 x 10 ⁻⁵
Chlordane all isomers)	3,0 x 10 ⁻⁴
DDT(all isomers)	1,0 x10 ⁻³
Dieldrin	3,0 x 10 ⁻⁵
Endrin	2,0 x 10 ⁻⁴
Epoxy-eptachlor	1,0 x 10 ⁻⁴
Heptachlor	1,0 x 10 ⁻⁵
Hexachlorobenzene	1,0 x 10 ⁻⁵
Lindane	3,0 x 10 ⁻³
Methoxychlor	0,03
Pentachlorophenol	0,01
Toxaphene	5,0 x 10 ⁻³
2,4 -D	0,1
2,4,5 - T	2,0 x 10 ⁻³
2,4,5 - TP	0,03
Organophosphate and carbamates	0,1
Aluminum	0,2
Chloride	250,0
Copper	1,0
Hardness (mgCaCo ₃ /I)	500,0
Iron	0,3
Manganese	0,1
Sodium	200,0
Surfactants (tensioactive)	0,2
Sulphate(mg SO ₄ /I)	400,0
Zinc	5,0

Note: values obtained from the W.H.O-Guidelines for Drinking Water Quality – vol. I – Recommendations Geneva – 1984 and supplemented by Ordinance No. 56 BSB, OF 0314.77, Ministry of Health – Brazilian Pattern for Drinking Water.

ANNEX 4
DECISION II/12 OF THE 2ND MEETING OF THE PARTIES TO THE BASEL
CONVENTION

The Conference,

Recalling the request of the countries of the Group of 77 at the First Meeting of the Conference of the parties to the Basel Convention in Uruguay, from November 30 to December 4, 1992, for the total ban of all exports of hazardous waste from OECD countries to non-OECD countries;

Recognizing that trans boundary movements of hazardous wastes from Member States to non-OECD States, have high probability of being managed on a non-environmentally safe way as required by the Basel Convention;

1. Decides to prohibit immediately all trans boundary movements of hazardous wastes for final disposal, from Member States to non-Member States of the OECD;

2. Decides also on the gradual elimination, until December 31, 1997, and, ban, from that date, of all trans boundary movements, from the Member States to Non-OECD States, of hazardous waste destined for recycling or recovery operations;

3. Decides further that any non-Member State of the OECD, which did not adopt the national ban on the import of hazardous waste and to allow the importation of hazardous wastes from OECD Countries for recycling or recovery operations until December 31, 1997, should inform the Secretariat of the Basel Convention that will allow the importation of hazardous wastes from OECD Countries for recycling or recovery operations. It should also specify the categories of hazardous waste that are acceptable for import purposes; the quantities to be imported; the specific procedure to be employed at recycling/recovery; and the final destination/disposal of wastes arising from the operations of recycling/recovery;

4. Calls on the parties to report regularly to the Secretariat on the implementation of this Decision, including details of trans boundary movements of hazardous wastes permitted in paragraph 3 above.

5. Requests also the Secretary to prepare a summary and compile these reports to be considered by an Open-ended ad hoc Committee, which will submit a report based in the inputs provided by the Secretariat to the Conference of the parties to the Convention;

6. Also calls on the parties to cooperate and to work actively to ensure the effective implementation of this decision.

ANNEX 6
DOCUMENT OF THE STATE ENVIRONMENTAL AGENCY
CERTIFYING THE ENVIRONMENTAL SITUATION OF THE COMPANY

The company _____ is
duly regularized with regard to relevant environmental legislation, being able to recycle/reuse waste
_____ on an environmentally safe manner.

Institution:

Address:

Legal guardian (name, address and telephone number of the legal guardian, stating the post):

ANNEX 7

DICORF	INFORMAÇÕES DE NOTIFICAÇÃO PRÉVIA PARA IMPORTAÇÃO DE MATERIAL PERIGOSO	
RG	PAG	
1. DADOS DA EMPRESA IMPORTADORA		
1. NOME/RAZÃO SOCIAL		2. CÓDIGO DA EMPRESA
2. IDENTIFICAÇÃO DAS UNIDADES INDUSTRIAIS PROCESSADORAS		
1. NOME DA UNIDADE INDUSTRIAL		2. CÓDIGO DA EMPRESA PROCESSADORA
3. ENDEREÇO		4. BAIRRO
5. BAIRRO	6. UF	7. TELEFONE
		8. TELEX
		9. FAX
1. NOME DA UNIDADE INDUSTRIAL		2. CÓDIGO DA EMPRESA PROCESSADORA
3. ENDEREÇO		4. BAIRRO
5. BAIRRO	6. UF	7. TELEFONE
		8. TELEX
		9. FAX
1. NOME DA UNIDADE INDUSTRIAL		2. CÓDIGO DA EMPRESA PROCESSADORA
3. ENDEREÇO		4. BAIRRO
5. BAIRRO	6. UF	7. TELEFONE
		8. TELEX
		9. FAX
3. DESCRIÇÃO DO MATERIAL A SER IMPORTADO		
1. AGREGAÇÃO FÍSICA		
2. COMPOSIÇÃO QUÍMICA		
3. CÓDIGO DO MATERIAL SEGUNDO NEMSHEONU		
4. REQUISITOS ESPECIAIS NA MANIPULAÇÃO		

OBS. ANEXAR LAUDO COMPROBATORIO DA COMPOSIÇÃO FÍSICO-QUÍMICA DO MATERIAL, EXPEDIDO POR INSTITUIÇÃO OFICIAL DE MEIO AMBIENTE DO PAÍS EXPORTADOR
MOD 07.011

ANNEX 8

DICORF	INFORMAÇÕES DE NOTIFICAÇÃO PRÉVIA PARA IMPORTAÇÃO DE MATERIAL PERIGOSO
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1. DADOS DA EMPRESA IMPORTADORA/VIAGEM	
1. NOME / RAZÃO SOCIAL DA UNIDADE INDUSTRIAL	2. CÓDIGO DA EMPRESA
3. ENDEREÇO	4. UF 5. CEP
6. BAIRRO	7. MUNICÍPIO

2. PROVÁVEIS PROCESSADORES DO MATERIAL A SER IMPORTADO	
1. NOME / RAZÃO SOCIAL DA UNIDADE INDUSTRIAL	2. CÓDIGO DA EMPRESA
1. NOME / RAZÃO SOCIAL DA UNIDADE INDUSTRIAL	2. CÓDIGO DA EMPRESA
1. NOME / RAZÃO SOCIAL DA UNIDADE INDUSTRIAL	2. CÓDIGO DA EMPRESA
1. NOME / RAZÃO SOCIAL DA UNIDADE INDUSTRIAL	2. CÓDIGO DA EMPRESA

3. PREVISÃO DO MATERIAL A SER IMPORTADO					
1. NOME COMERCIAL DO MATERIAL	2. PREVISÃO DE IMPORTAÇÃO TRIMESTRAL (KG OU M3)				
	I TRIM.	II TRIM.	III TRIM.	IV TRIM.	TOTAL

4. DADOS DE CONTROLE	
1. RESPONSÁVEL PELA EMPRESA	
2. CARGO	
3. DATA DE PREENCHIMENTO	4. ASSINATURA E CARIMBO DA EMPRESA

MOD 07.012

ANNEX 9
ART. 6, ANNEXES V-A AND V-B OF THE BASEL CONVENTION
Article 6
Trans boundary movement between Parties

1. The exporting state shall notify, or require the generator or exporter to notify, in writing, through the competent authority of the state of export, the competent authority of the States concerned, in respect of any trans boundary movement of hazardous wastes or other wastes. This notification should contain statements and information specified in ANNEX V-A, written in a language acceptable to the State of import. Just a notification needs to be sent to each of the states concerned.

2. The importing state shall respond in writing to the informer, allowing the movement with or without conditions, denying permission for the movement, or requesting additional information. A copy of the final response by the importing State shall be submitted to the competent authorities of the States concerned who are parties.

3. The State of export shall not allow the generator or exporter to start trans boundary movement until it has received written confirmation that:

- a) the informer has received the written consent of the State of import and;
- b) the informer has received from the State of import confirmation as to the existence of a contract between the exporter and the person in charge of specifying the environmentally sound management of the waste in question.

4. Each State of transit which is a party shall promptly acknowledge to the informer receipt of the notification. Subsequently, it may give an answer in writing to the informer, within a period of 60 days, allowing the movement with or without conditions, denying permission for the movement, or requesting additional information. The exporting State shall not allow the trans boundary movement to start before it has received the written permission of the State of transit. Nevertheless, if at any moment any party decides not to require prior written consent, generally or under specific conditions, for transit trans boundary movements of hazardous wastes or other wastes, or modify its requirements in this respect, it should promptly inform the other parties of its decision, as provided for in article 13. In the latter case, if the exporting State does not receive any response within a period of 60 days from the receipt of a given notification by the State of transit, the State of export may allow the export to be made out through the State of transit.

5. In the case of a trans boundary movement in which the wastes are legally defined or considered hazardous wastes only:

a) by the State of export, the requirements of paragraph 9 of this article that apply to the importer and responsible for the deposit and to the State of import shall apply mutatis mutandis to the exporter and to the State of import, respectively;

b) By the State of import, or by States of import and transit which are Parties, the requirements of paragraphs 1, 3, 4, and 6 of this article that apply to the exporter and State of export shall apply mutatis mutandis to the importer or in charge of the deposit and the State of import, respectively; or

c) by any State of transit which is a Party, the provisions of paragraph 4 shall apply to such State.

6. the State of export may, upon written consent of the States concerned, allow the generator or the exporter to use a general notification where hazardous wastes or other wastes having the same physical and chemical characteristics are shipped regularly to the same charge of deposit via the same Customs Office of exit of the State of export via the same Customs Office of entry of the State of import and, in the case of transit, via the same Customs Office of entry and exit of the State or States of transit.

7. The States concerned may submit their written permission for the use of the general notification referred to in paragraph 6 by providing certain information such as the exact quantities or periodical lists of hazardous wastes or other wastes to be shipped.

8. The general notification and written consent referred to in paragraphs 6 and 7 may cover multiple shipments of hazardous wastes or other wastes during a maximum period of 12 months.

9. The Parties shall require that all persons in charge of a trans boundary movement of hazardous wastes or other wastes sign the movement document of the movement at the delivery or receipt of the wastes in question. They also must require that the party in charge of the deposit inform both the exporter and the competent authority of the State of export of the receipt by the party in charge of deposit, of the waste concerned and, in due time, the completion of the deposit in accordance with the specifications of the notification. If these details are not received in the State of export, the competent authority of the State of export or the exporter shall notify the State of import.

10. The notification and response required by this article shall be transmitted to the competent authority of the interested parties or government authorities responsible in the case of Member States which are not parties.

11. Any trans boundary movement of hazardous wastes or other wastes shall be covered by insurance, bail or other security required by the importing State or any State of transit which is a Party.

ANNEX V-THE BASEL CONVENTION INFORMATION TO BE PROVIDED ON THE OCCASION OF THE NOTIFICATION

1. Reason for the export of waste
2. Exporter of waste (1)
3. Generator (s) of the wastes and site of generation (1)
4. Person in charge of the deposit and its effective site (1)
5. Intended carrier (s) of the waste or their agents, if known (1)
6. Country of export of the waste competent Authority (2)
7. Possible countries of transit competent Authority (2)
8. Country of import of the waste competent Authority (2)
9. General or isolated notification
10. Projected date (s) of shipment (s) and period during which the waste will be exported and proposed itinerary (including point of entry and exit) (3)
11. The planned means of transport (road, rail, sea, air, inland waters)
12. Information on insurance (4)
13. Designation and physical description of the waste including Y number and United Nations number and its composition (5) and information on any special handling requirements including emergency provisions in case of accidents
14. Planned packaging type (for example, in bulk, in drums, ship)
15. Estimated amount in weight/volume (6)
16. The process by which the waste is generated (7)
17. For the wastes listed in ANNEX 1, ANNEX III classifications: risk characteristics, H number, and United Nations class
18. Deposit method, in accordance with ANNEX IV
19. Declaration by the generator and exporter that the information is correct
20. Information transmitted (including technical description of the plant) to the exporter or generator from the person in charge of the deposit on the waste, on the basis of which It made his assessment that there was no reason to believe that the waste will not be managed in an environmentally sound way in accordance with the laws and regulations of the importing country.
21. Information concerning the contract between the exporter and the person in charge of deposit

NOTES

- (1) Full name and address, telephone number, telex, or facsimile transmissions and name, address, telephone number, telex or facsimile of the person to be contacted
- (2) Full name and address, telephone number, telex or facsimile
- (3) In the case of a general notification to several expeditions, planned dates of each shipment or, if not known, the expected frequency of the shipments will be required.
- (4) Information to be provided on requirements relating to insurance and about how they are met by exporter, carrier and person in charge of the deposit.
- (5) The nature and concentration of the most hazardous components, in terms of toxicity and other hazards presented by the waste both in handling and in the proposed deposit method.
- (6) In the case of a general notification to several expeditions, both the total amount estimated as the estimated quantities for each individual shipment will be required.
- (7) In so far as this is necessary in order to assess risk and determine to what extent the proposed deposit operation is effectively adequate

ANNEX V-B OF THE BASEL CONVENTION INFORMATION TO BE PROVIDED ON THE MOVEMENT DOCUMENT

1. Exporter of the waste 1/
2. Generator(s) of the waste and site of generation 1/
3. Disposer of the waste and actual site of disposal 1/
4. Carrier(s) of the waste 1/ or his agent(s)
5. Subject of general or single notification
6. The date the trans boundary movement started and date(s) and signature on receipt by each person who takes charge of the waste
7. Means of transport (road, rail, inland waterway, sea, air) including countries of export, transit and import, also point of

- entry and exit where these have been designated
8. General description of the waste (physical state, proper UN shipping name and class, UN number, Y number and H number as applicable)
 9. Information on special handling requirements including emergency provision in case of accidents
 10. Type and number of packages
 11. Quantity in weight/volume
 12. Declaration by the generator or exporter that the information is correct
 13. Declaration by the generator or exporter indicating no objection from the competent authorities of all States concerned which are Parties
 14. Certification by disposer of receipt at designated disposal facility and indication of method of disposal and of the approximate date of disposal.

Notes

The information required on the movement document shall where possible be integrated in one document with that required under complement rather than duplicate that required under the transport rules. The movement document shall carry instructions as to who is to provide information and fill-out any form.

1/ Full name and address, telephone, telex or telefax number and the name, address, telephone, telex or telefax number of the person to be contacted in case of emergency.

NOTES

The information required for the document shall be, when possible, integrated into a single document with the information required by the transport standards. When this is not possible, the information should complement, and not duplicate, those required in accordance with the transport norms. The movement document shall contain instructions as to who should provide information and fill in any form.

(1) Full name and address, telephone number, telex or facsimile and the name, address, telephone number, telex or facsimile of the person to be contacted in case of emergency.

ANNEX 10

10-A HAZARDOUS WASTE – CLASS I – IMPORT FORBIDDEN	
NCM Code	DESCRIPTION
2524.00.20	Powder asbestos).
2524.00.90	Other (Emphasis: asbestos refuse).
2620.11.00	Hard zinc spelter containing particularly zinc.
2620.20.00	Ashes and waste containing particularly lead.
2620.30.00	Ashes and waste containing particularly copper.
2620.50.00	Ashes and waste containing particularly vanadium.
2620.90.10	Other ashes and waste containing particularly titanium.
2620.90.90	Other (ashes and waste).
2713.90.00	Other waste of petroleum oils or bituminous minerals.
2903.69.19	Other (Emphasis: waste containing polychlorate biphenyls - PCBs)
3804.00.11	Waste lixiviums from the manufacturing of cellulose paste to sulphite.
3804.00.12	Waste lixivium from the manufacturing of cellulose paste to sodium or
3804.00.20	Lignin sulphonates (revoked by Resolution n° 244/98)
7802.00.00	Lead rubbish and waste.
8107.10.90	Other (Cadmium rubbish and waste).
8110.00.90	Other (Antimony rubbish and waste).
8112.11.00	Beryllium (Emphasis : Rubbish, waste and powder).
8112.20.90	Other (Chrome rubbish and waste).
8548.10.1	Rubbish and waste from unusable lead electrical accumulators.
(w/out code)	Arsenic Rubbish and Waste.
(w/out code)	Selenium rubbish and waste.

(w/out code)	Tellurium rubbish and waste.
(w/out code)	Thallium rubbish and waste
(w/out code)	Mercury rubbish and waste.

10-B NON INERT WASTE – CLASS II – CONTROLLED BY IBAMA	
NCM Code	DESCRIPTION
2517.20.00	Macadama of blast furnaces slag, from other slags or similar industrial waste
2618.00.00	Blast furnace granulated slag (slag sand) from the manufacture of iron and steel.
2619.00.00	Slags and other rubbish from the manufacture of iron and steel.
2620.19.00	Other (Ashes and waste containing mainly zinc).
2621.00.90	Other (Other slags and ashes).
3103.20.00	Slags from dephosphorization.
3504.00.19	Other (Emphasis: Furs powdered, treated or not by chrome).
7404.00.00	Copper rubbish and waste (Emphasis: except copper metal scraps).
7503.00.00	Nickel rubbish and waste.
7902.00.00	Zinc rubbish and waste.
8002.00.00	Tin rubbish and waste.
8101.91.00	Tungsten (volframium) rubbish and waste.
8102.91.00	Molibdium rubbish and waste.
8103.10.00	Tantalus waste and powder
8104.20.00	Magnesium rubbish and waste.
8105.10.90	Other (Emphasis: cobalt waste and powder).
8106.00.90	Other (Bismuth rubbish and waste).
8108.10.00	Otters (Emphasis: Titanium rubbish ,waste and powder).
8109.10.00	Emphasis: Zirconium rubbish and waste.
8111.00.90	Other (Emphasis: Manganese rubbish and waste and powder).
8112.91.00	Other (Emphasis: Germanium and vanadium rubbish and powder).
8112.99.00	Other (Emphasis: rubbish and waste and powders).
8113.00.90	Other (Emphasis: Cermets rubbish and waste).

10-C INERT WASTE – CLASS III – IMPORT FORBIDDEN	
NCM Code	DESCRIPTION
4012.20.00	Used pneumatics

(New content given by resolutions No. 235/8 and 244/98)

This text does not replace the one published in the Official Gazette of January 20, 1997.

CONAMA RESOLUTION 235, January 7, 1998
Published in Official Gazette 6 on January 9, 1998, Section 1, page 167

Correlations:

- Changes Resolution CONAMA No. 23/96 (amends ANNEX 10) pursuant to the provisions of art. 8 of CONAMA Resolution No. 23/96

Changes annex 10 of CONAMA Resolution 23 from December 12, 1996.

The NATIONAL ENVIRONMENT COUNCIL-CONAMA, pursuant to the powers vested on it by Law 6.938 of August 31, 1981, regulated by Decree 99.274, of June 6, 1990, bearing in mind the provisions of its Internal Rules; and

Considering the provisions of the sole paragraph of art. 8 of CONAMA Resolution nº 23, of December 12, 1996, which determines the reassessment and framing of the listing contained in its ANNEX 10, and

Considering the need of waste classification, for better management of imports, resolves:

Art. 1 ANNEX 10 of CONAMA Resolution nº 23, of December 12, 1996, enters into effect with the wording set out in the ANNEX of this Resolution.

Art. 2. This resolution shall enter into force on the date of its publication.

GUSTAVO KRAUSE GONÇALVES SOBRINHO – Council President
RAIMUNDO DEUSDARÁ FILHO – Executive Secretary

ANNEX 10

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2620.90.90	Other (ashes and waste).
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8002.00.00	Tin rubbish and waste.
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8102.91.00	Molibdemium rubbish and waste.
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8104.20.00	Magnesium rubbish and waste.
8105.10.90	Other (Emphasis: cobalt waste and powder).
8106.00.90	Other (Bismuth rubbish and waste).
8108.10.00	Otters (Emphasis: Titanium rubbish ,waste and powder).
8109.10.00	Emphasis: Zirconium rubbish and waste.
8111.00.90	Other (Emphasis: Manganese rubbish and waste and powder).
8112.91.00	Other (Emphasis: Germanium and vanadium rubbish and powder).
8112.99.00	Other (Emphasis: rubbish and waste and powders).
8113.00.90	Other (Emphasis: Cermets rubbish and waste).
10-C INERT WASTE – CLASS III – IMPORT FORBIDDEN	
NCM Code	DESCRIPTION
4012.20.00	Used pneumatics

This text does not replace the one published in the Official Gazette of January 9, 1998.

CONAMA RESOLUTION 244, of October 16, 1998
Published in Official Gazette 199, on October 19, 1998, Section 1, page 51
Correlations:

- Changes CONAMA Resolution No. 23/96 (excludes item in ANNEX 10)

Excludes an item included in annex 10 of CONAMA Resolution 23 from December 12, 1996

The NATIONAL ENVIRONMENT COUNCIL-CONAMA pursuant to the powers vested on it by Law 6.938 dated August 31, 1981, regulated by Decree 99.274, of June 6, 1990, bearing in mind the provisions of its Internal Rules, and

Considering that the lignin sulphonates are stable chemicals, with defined chemical composition, and have low toxicity to the environment and to health, not considered, therefore, as waste, resolves:

Art. 1 Delete from ANNEX 10 of CONAMA Resolution n^o 23, of December 12, 1996, the following item:

10-A HAZARDOUS WASTE – CLASS I – IMPORT FORBIDDEN	
NCM Code	DESCRIPTION
3804.00.20	Lignin sulphonates

Art. 2. This resolution shall enter into force on the date of its publication.

GUSTAVO KRAUSE GONÇALVES SOBRINHO-Council President

RAIMUNDO DEUSDARÁ FILHO-Executive Secretary

This text does not replace the one published in the Official Gazette, of October 19, 1998.

CONAMA RESOLUTION 269, September 14, 2000
Published in Official Gazette 9 on January 12, 2001, Section 1, pages 58-61

Correlations:

- Revokes CONAMA Resolution No. 6/90

Regulates the use of chemical dispersants in oil spills into the sea.

The NATIONAL ENVIRONMENT COUNCIL-CONAMA, pursuant to the powers vested on it by Law 6.938 dated August 31, 1981, regulated by Decree 99.274, of June 6, 1990, bearing in mind the provisions of its Internal Rules and,

Considering that the oil spill and its derivatives into the sea is one of the main sources of pollution of coastal and marine ecosystems;

Considering that the exploitation of undersea fields on continental shelves and the transport and storage operations involve constant movement of oil and its derivatives into the sea;

Considering that the activities involving oil and its derivatives constitute risks to health and the environment;

Considering that the International Convention on the Preparation, Response and Cooperation in Case of Oil Pollution, enacted by Brazil through Decree No. 2,870 of December 10, 1998, defines as one of its commitment to establish a National System to Respond to Oil Pollution Incidents, including the preparation of the National Contingency Plan;

Considering Law 9.966, of April 28, 2000, which provides for the prevention, control and monitoring of pollution caused by oil and other harmful or dangerous substances in waters under national jurisdiction;

Considering that the application of chemical dispersants in marine oil spills is a technically viable option, resolves:

Art. 1 The production, import, marketing and use of chemical dispersants to the actions of combating oil spills and their derivatives at sea can only be enforced after obtaining product registration with the Brazilian Institute of the Environment and Renewable Natural Resources - IBAMA.

Sole paragraph. IBAMA shall establish, through Normative Instruction, the procedures and requirements necessary to obtain registration of chemical dispersants.

Art. 2 The use of chemical dispersants in leaks, spills and discharges of oil and its derivatives into the sea should obey to the criteria laid out in the regulation attached to this Resolution.

Art. 3 The failure to comply with the provisions of this Resolution will subject violators to the penalties stipulated in current legislation.

Art. 4. This Resolution shall enter into force on the date of its publication.

Art. 5 It is hereby revoked CONAMA Resolution n^o 6, of October 17, 1990.

JOSÉ SARNEY FILHO – Council President

JOSÉ CARLOS CARVALHO-Executive Secretary

ANNEX
REGULATION FOR USE OF CHEMICAL DISPERSANTS
IN OIL SPILLS INTO THE SEA

1. INTRODUCTION

Brazil promulgated the International Convention about Preparation, Response and Cooperation in case of Oil Pollution, signed in London, United Kingdom in 1990 (OPRC90), through Decree No. 2,870, of December 10, 1998, bringing to the country the obligation to establish a National System to Respond to Oil Pollution Incidents, which shall include a National Contingency Plan envisaging the infrastructure needed to respond appropriately to such occurrences.

This same obligation was ratified by Law 9.966, of April 28, 2000, which provides for the prevention, control and monitoring of pollution caused by oil and other harmful or dangerous substances in waters under national jurisdiction and makes other provisions.

Thus, among other activities to be implemented to support this Plan, the Regulations for Use of Chemical Dispersants is of fundamental importance, because it is an internationally recognized technique for combating marine oil spills.

Therefore, this document aims to establish guidelines for the use of these products during emergency operations, serving as a subsidy for taking of emergency decision by the coordinators, on such occasions.

Considerations on criteria for use of dispersants listed in this document are general in character, whose guidelines orient the use in situations of oil spills, thus recommending:

- The definition of the geographical area to be considered (direct and indirect risk area);
- The definition of the distribution and seasonality of each ecosystem that comprises the area;
- The identification of socio-economic resources at risk;
- The definition of the coastal geomorphology and of relative sensitivity of oil environments;
- Obtaining meteorological and climatological data;
- Obtaining hydrodynamic data and hydrographic conditions;
- Cartography of physical-natural and socio-economic data, identifying where the application of dispersants is recommended or not.

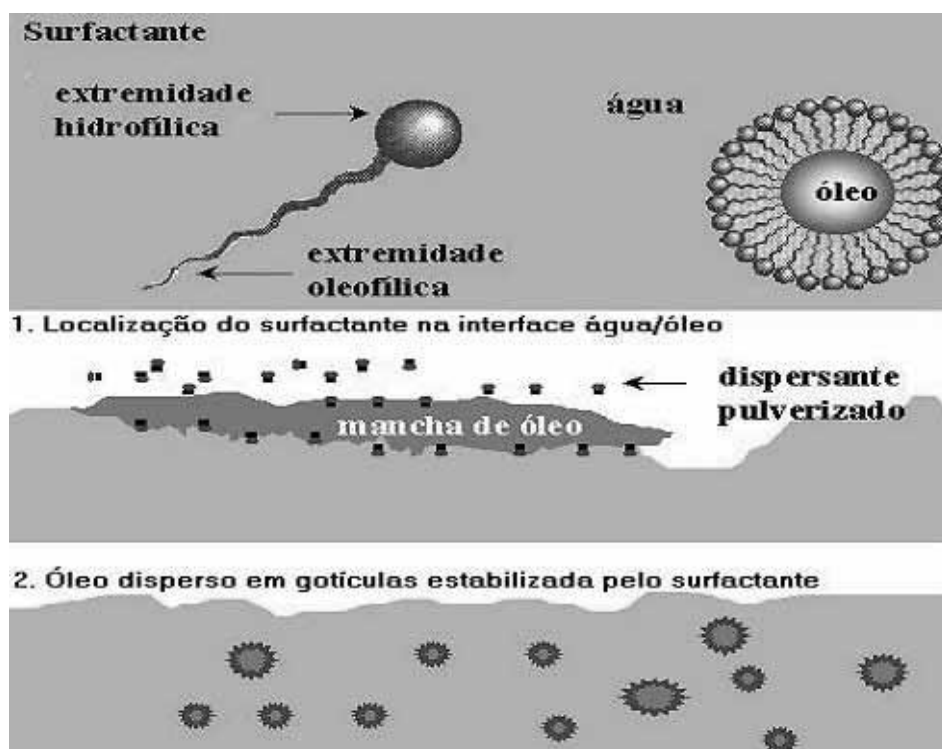
It is important to use, also, a mathematical model that predicts the tendency of orientation and movement of marine oil slicks, in areas of direct influence and indirect potential pollutant sources, such as: terminals, pipelines and shipping routes.

2. GENERAL CONSIDERATIONS

The dispersants are chemical formulations of organic nature, designed to reduce the surface tension between oil and water, helping to disperse the oil droplets in aqueous medium. They consist of active ingredients, called surfactants, whose molecule is composed of an organic chain, basically not polar, with affinity for oils and greases (oleophilic) and a strong polarity, with affinity for water (hydrophilic). In addition to surfactants, dispersants are also made up of solvents from an active part that enable their diffusion into the oil. The dispersants are potentially applicable in situations of oil spills to the protection of natural and socioeconomic resources sensitive to marine and coastal ecosystems. Its applicability, however, should be judiciously established and accepted only if result in less harm to the environment, when compared to the effect caused by a stroke without any treatment, or employed as alternative option or, still, supplementing the mechanical recoil and containment in case of ineffectiveness of these procedures.

The effectiveness of the dispersant, among other considerations, is related to the process of weathering of oil at sea. Weathered oils become more viscous and can also suffer emulsification, which decreases the efficiency of these chemical agents. That way, if it is relevant to the use of the dispersant and considering the spill scenario, its application as much as possible, should be carried out during the initial operations of the service, and preferably in the first 24 hours.

When a dispersant is applied over a stain, the oil droplets are surrounded by surfactants substances, stabilizing the dispersion (fig. 1-top), what helps promote rapid dilution by water movement. The dispersant reduces surface tension between water and oil, helping the formation of smaller droplets (Fig. 1-lower and central part), which tend to both move in the water column, and to remain in suspension on the surface, accelerating the natural process of degradation and dispersion, favoring thus the biodegradation. Figure 1-representation of the action of dispersant on the oil stain (IPIECA, 1993)



1. Location of surfactant on the water/oil interface

Surfactant water
Oleophilic

Hydrophilic end

2. Dispersed oil droplets stabilized by surfactant

Oils stain *sprayed dispersant*

The dispersants, when appropriately applied, can help to transfer to the water column a large volume of oil that was on the surface, thus getting results faster than the mechanical removal methods.

The dispersants, in general, have little effect on viscous oils, because there is a tendency of oil spreading in the water before the solvents and surfactants, components of dispersants, can penetrate in the stain. Most of the currently available products have reduced effect if applied when the process of weathering has already been initiated and if the stain is under the aspect of viscous emulsion ("chocolate mousse").

There are three types of dispersants: conventional, water dilutable concentrated and not dilutable concentrate in water. The following is a summary of its characterization:

Type 1 – Conventional Dispersant. The active material is diluted with solvents, usually aliphatic hydrocarbons. The concentration of the active material is low and the product is ready for use. It should not suffer dilution in the application or before being applied.

Type 2- Water-Dilutable Concentrated Dispersant

The active material is usually a mixture of surface active substances and oxygenates or other. Is water-based and can suffer previous dilution to be applied.

Type 3-Non water-Dilutable Concentrated Dispersant

The active material is usually a mixture of surface active substances, oxygenated compounds, aliphatic hydrocarbons or other. Its concentration is high, resulting in a low consumption of the product. Normally it is water based and should be applied undiluted. The mode of application of these products varies according to the conventional and concentrated types (tab. 1).

Table 1 – Classification of Types of Dispersants

Dispersant	Type	Mode of Application	Solvent
Conventional	1	Not diluted (pure), by vessels and/or airplanes	Non aromatic Hydrocarbons
Concentrate	2	Diluted , by vessels and/or airplanes	Oxygenated (glycol, ethers)
	3	Not diluted (pure), by vessels and/or airplanes	Non aromatic hydrocarbons

3. CRITERIA FOR DECISION MAKING REGARDING THE USE OF DISPERSANTS

3.1 - Criteria for Use

1. Only chemical dispersants approved by the Federal Environmental Agency can be used.
2. The chemical dispersants may be used:
 - a) In line with the Convention on the Protection of Human Life at Sea (SOLAS/ 74), when it is necessary the adoption of emergency measures arising from the oil spill, in which there is imminent risk of fire with danger to human life at sea or at coastal regions, involving marine facilities or own or third parties vessels;
 - b) In situations where other techniques, such as containment and collection of oil, are not efficient, due to the oil characteristics, the volume and environmental conditions;
 - c) In situations where the oil stain is moving to areas designated as environmentally sensitive and should be applied at a minimum of 2,000 m from the shore, including Islands, or at distances

smaller than this, if satisfied the depths greater than the isobaths, found along the territorial sea (1), as defined below:

- From the Orange Cape to the mouth of the Parnaíba River-10 m
- From the mouth of the Parnaíba River to *Calcanhar* Cape - 15 m
- From *Calcanhar* Cape to Ilheus-20 m
- From Ilhéus to Chuí-15 m;

d) In situations that its application is more efficient and beneficial in minimizing the overall impact of a spillover, that might reach environmentally sensitive areas, in order to ensure that the oil/dispersant mixture does not compromise the coastal environment nor other important environmental assets;

e) In areas and specific situations not provided for in the previous items, provided they are duly authorized by the competent environmental agency.

3.2-Restrictions for Use

The chemical dispersants may not be used in:

i. Sheltered coastal areas with low circulation and little renewal of its waters, where both the chemical dispersant on the oil mixture can stay concentrated or have a high period of residence, such as coastal semi-enclosed water bodies

ii. Estuaries, canals, rocky shores, sandy beaches, sludge or gravel, or sensitive areas such as mangrove swamps, marshes, coral reefs, lagoons, sandbanks, shoals exposed by the tide, protected areas, ecological parks and environmental reserves;

iii. Areas detailed in sensitivity maps as being of :

- upwelling;
- natural fish nursery and spawning;
- endangered species;
- populations of fish or seafood to commercial interests or artificial breeding of fish, crustaceans or mollusks (aquaculture);
- migration and reproduction of species (mammals, birds, turtles);
- water resources for use both of human supply and for industrial purposes.

iv. Oil or derivatives spills that have dynamic viscosity of less than 500 mPa.s, or more than 2,000 mPa.s at 10° c, because the effectiveness of dispersants on this type of oil is low or zero (2);

v. Where the process of formation of water-oil emulsion has been started ("chocolate mousse") or, still, when the aging process of the oil mixture is visible.

vi. Situations in which the intent is to keep only the aesthetics of water body, but without such a fact being predominant on the provisions in item 3.1.2. d; and

vii. Cleaning of port facilities in any type of vessel, as well as equipment used in the operation of oil spill or derivatives response.

3.3- Criteria for Decision-Making

The decision tree for the use of chemical dispersants homologated, presented below, aims to facilitate the Coordinator of operations the decision making as to the need for its use.

3.4- Criteria for Implementation

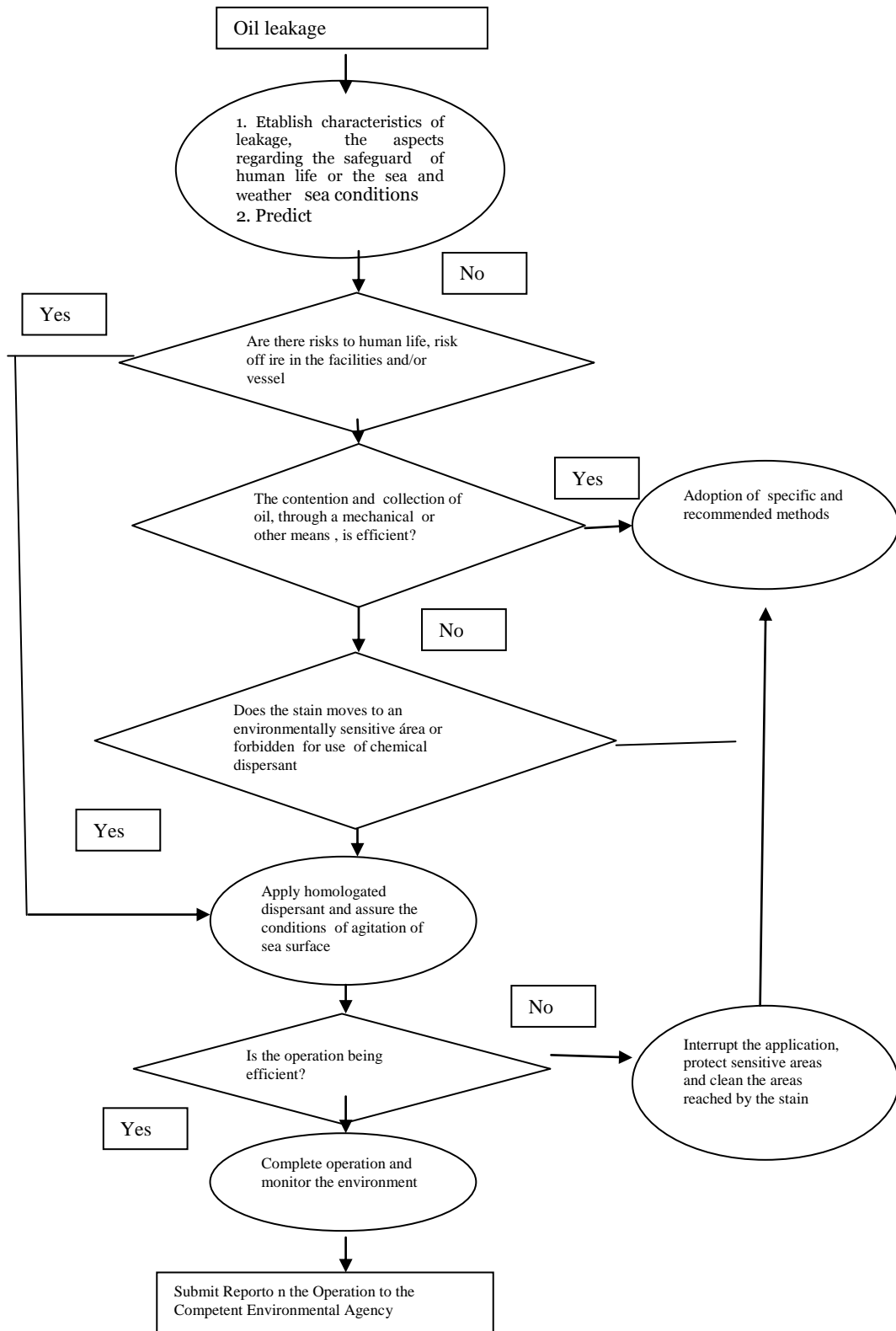
When chemical dispersants are used, the effective scattering only occurs when the marine environment has sufficient power to enable the reduction of surface tension

Of the oil/dispersant stain mix. In some cases, the natural turbulence of the sea can promote the dispersion of oily stain, but, as a rule, it is necessary to shake mechanically this oil/dispersant mixture, for example, with the passage of a vessel several times over the stain.

It should be emphasized that these chemicals have limited efficiency when applied over oils with fluidity point near or higher than the room temperature.

However, if on the one hand high temperatures reduce the viscosity of the spilled oil, some components of the dispersants become less soluble in water and, therefore, are more likely to remain attached to the oil.

Figure 2 – Decision Making Tree on the Use of Dispersant



3.4.1- Methods and Forms of Applications

The methods and ways of application of dispersants in fighting the marine oil spills, should be chosen taking into consideration a series of factors, among which deserve special attention:

- the type and volume of oil to be scattered;
- degree of weathering of oil at sea at the time of application;
- oceanographic and meteorological characteristics;
- type of dispersant being used;
- equipment available for the application.

For proper oil dispersion in water, in calm sea conditions, it should be promoted mechanical agitation after dispersant application.

The application rate of dispersants varies according to the type of oil, stain thickness and oceanographic conditions. The application rate control can be realized via two variables: pump flow delivery system and speed of the vessel or aircraft. The relationship between these two variables can be calculated by the following equation (ITOPF, 1993):

$$Q_b = 0.003 * Q_a * v * l$$

Where:

Q_b = pump flow (l/min);

Q_a = application rate (l/ha);

v = speed of vessel or aircraft (knots);

l = width of application strip (m).

For example, to a stain with an estimated thickness of 0.2 mm, a volume of approximately 2 m³/ha, will require an application fee of 100 l/ha (Q_a), if used a concentrated dose 1:20 a dispersant; thus, a vessel operating at 10 knots (v) in a strip with a width of 30 m (l) you will need a pump with a flow rate of 90 l/min.).

Table 2 serves as a guidance for the choice of the method to be used for application of dispersant, depending on sea conditions, targeting the aspects related to safety and efficiency of operation.

Table 2 – Limit Conditions for Dispersant Application Systems

Effective and Safety Operations					
Application System	Beaufort Scale	Wind speed		Waves height	
		(knots)	(m/s)	(feet)	(m)
	3 - 5	7 - 21	3,6 – 10,8	1 - 9	0,30 – 2,70
Single engine place	5	17 - 21	8,7 – 10,8	6 - 9	1,80 – 2,70
Helicopter	5 - 6	17 - 27	8,7 – 13,9	6 - 17	1,80 – 5,20
Large size airplane	7	30 - 35	15,4 – 18,0	17 - 23	5,20 – 7,00

The application of dispersants should always include an estimate of the area to be treated and the volume of oil to be scattered; thus, it is necessary a previous planning that considers not only the equipment available for such, but also the amount and the type of product to be used in this operation. Table 3 provides subsidies to orient this actions.

Table 3-the Volume of oil that can be dispersed per hectare at different rates of application of dispersant

Rate of application Dispersant/Óil	Volume of Dispersant Used (liters/ha)				
1:1	46,8	65,5	93,5	187,1	467,7
1:2	93,6	131	187	374,2	935,4
1:4	187,2	262	374	748,4	1871
1:10	468	655	935	1871	4677

1:20	936	1310	1870	3742	9354
1:30	1404	1965	2805	5613	14031
1:50	2340	3275	4675	9355	23385
1:100	4680	6550	9350	18710	46770

The dispersants may be applied by means of aircraft and vessels. Small aircrafts and helicopters, tugs are suitable for the release of these chemicals into small size occurrences, on the basis of their speed limits and transport capacity, mainly. In larger events, bigger planes are more advantageous.

3.4.1.1.- Application of dispersants by sea

The methods for applying by vessels include a system composed of "arms", with a set of spraying nozzles that will throw the product on the stain of oil (fig. 3). Tugs, vessels and barges, among others, can be used in this operation. However, as they are relatively slow, since they move at speeds below 10 knots and, in addition to cover small areas during application, these vessels are suitable for combating small leaks. In this activity, the air monitoring has a key role to optimize the application of dispersant by sea.

Through the flyby, the dense greater and closer to sensitive areas stains, can be located with greater precision than when observed by sea. The vessel being used, may be driven by a system of direct communication with the aircraft, about the best way of positioning. The operation must be carried out simultaneously, because it can happen to depart from the boat's exact location of application, by influence of stream among other factors.

The efficiency of the use of dispersants, by sea, is associated with the application system design, which should make it possible to carry out this operation in a controlled manner. In a typical installation, the "arms" should be mounted as far as possible of the hull of the vessel, in order to avoid the wave action of the bow, causing agitation of the oil stain, spoiling the desired results. Figure 3 shows a typical system of "arms" for the application of chemical dispersants on vessels. The spray nozzles must be dimensioned according to the characteristics of the pump to be used (flow and pressure), so as to enable uniform application of droplets and never in the form of fog or mist.

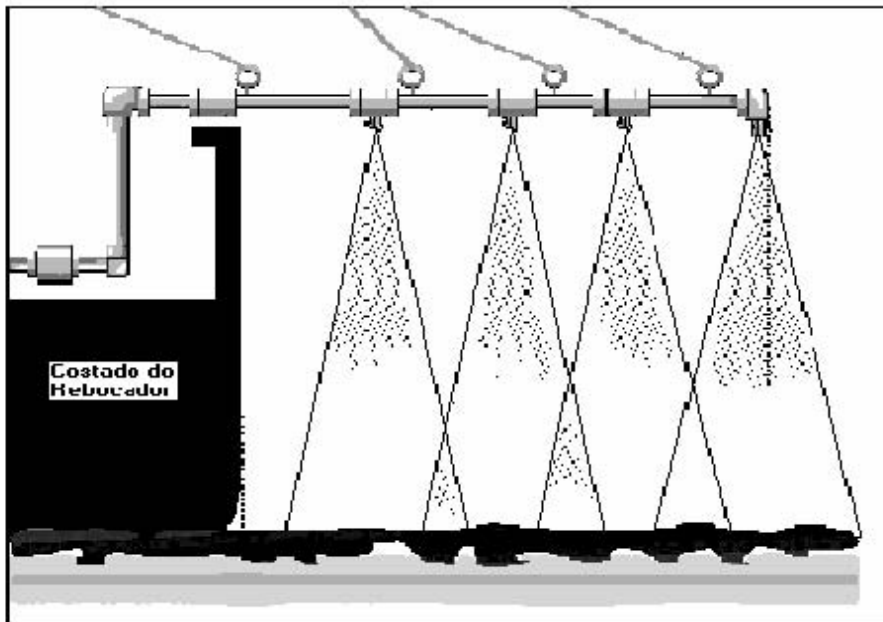


Figure 3 – Arms for the application of dispersants by vessels

If there is a need to promote the agitation to facilitate the mixing process and obtain a proper dispersion, wood planks can be used, installed in the "arms" of spraying, or on the vessel, when these are at midship and its speed does not exceed 5 knots, as shown in Figure 4.

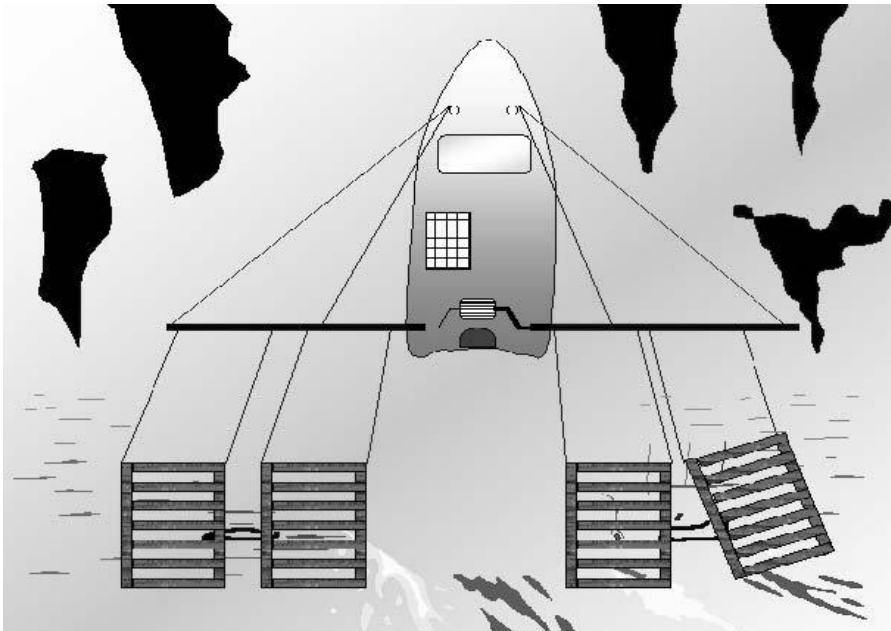


Figure 4 – Use of wood planks to assist the oil dispersion/agitation

The use of existing fire-fighting systems on vessels, such as tugs, should be seen as a last resort, when specific systems are unavailable. In this case, the product launching system on the stain must be accomplished with a slope ranging between 30° and 40° in relation to the horizontal plane, so that the necessary conditions are created for the firefighting hoses spraying.

Similarly, it must be ensured that the dilution of the dispersant is reached in the proportion required, which is why one should know in advance the characteristics of the system employed, so that it allows the application in the required specifications

Generally speaking, the systems for the application of dispersants should possess the following characteristics:

- easy to carry;
- light but stiff;
- easy and fast installation;
- versatile and adaptable to different numbers of nozzles, according to the characteristics of the pump, vessel speed and type of product to be used.

The application of dispersants by aircraft offers certain advantages in relation to the use of vessels, among which we can highlight:

- more efficient dispersion;
- faster trigger combat actions;
- treating stains of a greater extent;

Better observation and evaluation of application

In this case, it is very important to take into consideration the deposition efficiency of product over the stain, which, in many occasions, is affected by the conditions of application and existing weather features at the time, in particular with respect to the winds, which can seriously compromise the operation. One should reach at least 80% in the area of the stain with the sprayed product.

Another important factor to be considered relates to the height of the flight in order the operation is conducted efficiently. Tests have shown that altitudes around 50 feet (15 m) show high efficiency, although in some cases they good results were achieved between 100 and 150 feet (30 and 45 m).

The air application should be carried out preferably with concentrated products whose kinematic viscosity must be at least 60 cSt, since dispersing of low viscosity certainly will not produce droplets in a position to achieve the stain or even mix properly with the oil.

Other features of the product to be applied, that influence the efficiency of the operation by aircraft, are volatility, density and surface tension. The volatility is important only if the dispersant has very volatile solvents in its composition, which is not common in concentrated products; the density and surface tension also does not influence significantly the result of aerial application, when compared with the viscosity.

The choice of the aircraft should take into consideration its autonomy, size of leaking, distance from the place of combat and cargo capacity. Small aircrafts, with good flight autonomy, low fuel consumption and ability to operate in improvised airstrips are recommended for small spills

near the coast. The helicopters have as a greater advantage the maneuverability and are therefore more suitable for operations in port and hilly areas or platforms of oil production.

The application system adapted in aircrafts must be designed in order to provide the required efficiency as regards the size and distribution of the droplets of the product at the time of application. Thus, the number of nozzles, the diameter of the holes, the pump flow and the speed of the aircraft must be specified appropriately for obtaining for best results. The equipment for the application of dispersants by aircraft must generally have the following characteristics:

- flight autonomy compatible with the size of the leak to be tackled;
- load capacity sufficient to safely movement of the system for applying dispersant;
- maneuverability compatible with the scene of the occurrence;
- ability to fly at low altitudes
- appropriate communication systems, covering vessels and the headquarters of the operation;
- radar system for monitoring the flight altitude, in order to eliminate errors of judgment during the application operation.

It is noteworthy also that, during the flyby in higher altitudes, the presence of clouds, coral banks, shoals of fish and seaweed among other factors, may be confused with oil stains, hindering the application.

Both aircrafts and helicopters spraying arms must be adapted to the aircraft fuselage. In the helicopters the system can be used suspended by cables that support the tank, the pump and the arms. Figures 5 and 6 show, respectively, dispersant application systems tailored to planes and helicopters.



Figure 5 – System for application of dispersant adapted to aircrafts



Figure 6 – System for application of dispersant adapted to helicopters

3.4.2- Monitoring the Application of Dispersants

The application must be held with the simultaneous monitoring of air and maritime monitoring, in order to maximize the efficiency of this operation and avoid contamination of areas affected by the oil. In the case of large leaks, when there is a tendency of forming multiple stains, the monitoring should be more intense and cover more extensive areas, pondering on those which will have priority for dispersion. It is always recommended to make an aerial survey of the marine oil stains licks after finding the leak, to know the trend of displacement and guiding the application of dispersants, by sea or air, using, if necessary, a second aircraft. The monitoring should be done preferably by helicopter, due of its ability to maneuver, and technicians assigned to this job should have maps, nautical charts and radios, and photographic equipment.

Air monitoring work should cover:

General assessment:

- Flying over the region by identifying the extent and width of the denser stains and closer to sensitive areas, registering their positioning geographic coordinates;
- Observe the data on depth and distance from the coast, obtaining informing about the weather and oceanographic conditions as well as forecasts for the next few hours;

-Operating Procedure:

- Guide the form of application to be initiated from the ends or outline of denser stains, restricting its spreading and avoiding the application over the already dispersed oil;
- Recommend to the vessel or aircraft which is making the application of the product, to maintain its position over the thickest stain, which can be easily changed by the influence of waves and currents;
- Oversee the shape and direction of application, so that uniform dispersion is maintained, avoiding the formation of mist or fog;
- Monitor the behavior of the oil stain in the process of scattering, observing the application efficiency, its fragmentation and the possible displacement of smaller stains, due to changes in the direction and speed of winds and sea current, taking into account the probability of proximity of sensitive coastal areas. These data can be used in mathematical models for prediction of trend of stain displacement.

3.4.2.2.-Marine Monitoring

During the application of dispersant monitoring is recommended with speedboat, to monitor its efficiency, and may even aid in mechanical agitation of scattered oil stains. Similarly, monitoring is recommended after applying, to follow the trend of shifting of feathers of oil dispersed, according to the predominant direction of the wind and marine current.

3.4.2.3.-Environmental Monitoring

It is recommended the collection of samples of water, sediments, plankton, marine organisms, among these the seafood, especially those raised in aquaculture, as well as systems of fish confined to sieges or fishing gillnets from the region affected by the oil spill, and campaigns in the early days, 30 days and 90 days after the application of dispersants to check possible changes.

Remark:

Environmental monitoring after using dispersing agents must contemplate the chemical analysis of individual hydrocarbons by gas or liquid chromatography, on the surface, water column and sediment, both in the area where dispersion of oil stain occurred, as also in neutral location, apart, to serve as a control, both during application as immediately after, and including, at medium and long term.

Alternatively, the hydrocarbon detection can be made by fluorescence through ultraviolet rays by specialized appliances, on the surface. As biological parameter, one must analyze the presence of components of the dispersant product applied on aquatic organisms, such as mollusks and fish.

The responsible for the application of dispersants must submit to the Environment Organ, a detailed plan, including:

- ways of collecting and sampling;
- responsible persons for sampling and analysis;
- methodology to be used in the collection and analysis of chemical and biological parameters;
- period of time to be considered in the short, medium and long term;
- results of the analyses.

On the basis of the report that will be presented, technical and scientific subsidies may be obtained to support and direct new jobs, in future calls to emergency operations, as well as to evaluate the possible environmental impacts arising from the application of dispersant

3.4.3-communication and report on the application of dispersants

Every time an oil spill occurs, and it is defined the need of applying a chemical dispersant approved as a control measure, the following actions should be taken by the entity responsible for respond to the accident:

1. Formal previous notification to the State Environmental Agency (CEMÁ) and the representation of the Brazilian Institute of the Environment and Renewable Natural Resources - IBAMA, as set out in the contingency plan, enabling the tracking and monitoring of its use by environmental agencies, and this communication shall contain at least the following data:

- Name and geographic coordinates of the place where the oil spill occurred and where the dispersant should be applied;

- Type and characteristics of the spilled oil;
- Date and time of when it was verified the oil spill and the prediction of when there will be the first application of dispersant;

- Name of the dispersant to be applied

2. Formal submission of a detailed report to OEMA and to the representation of the local IBAMA, within a period not exceeding 15 days, after completion of the application of dispersant, on the criteria and procedures for its use. The report must contain at least the following information:

1. About the spill or leak, before application of dispersant

- Name of the locality and the geographic coordinates of where the accident occurred;

- Date and time of occurrence;

- Depth and distance from the coast where the event occurred;

- Source and cause: ship (mention the name and the flag), terminal or other;

- Type and characteristics of the spilled oil;

- The stain aspect;

- Estimation of stain: area and thickness

2. Environmental conditions

- Direction and intensity of wind;

- Direction and intensity of marine current;

- Status of the sea;

- Sense of tide (ebb or flood);

- Air and water temperature;

- Occurrence or not of rain.

3. On the application of dispersant

- Name of the dispersant applied;

- Rationale for choice of dispersant applied, on the basis of its type (table 1);

- Geographic coordinates, depth and distance from the coast where the application of dispersant occurred;

- Volume of dispersant employed;

- Application rate ;

- Volume of petroleum and derived treated;

- Method of mixing and application (equipment, manpower, time);

- Date and time of the beginning and the end of the operation.

4. General remarks on the operation

- Visual, photographic, telemetric monitoring;

- Environmental monitoring (see note);

- Monitoring of the behavior of dispersed stain (dispersion, disappearance, reimmersion, formation of pellets), including positioning data with references about date and time and geographical coordinates, preferably plotted on cartographic base;

- Stain post-application observation (dispersion, disappearance, reimmersion etc), day and time.

5. Responsibility for the Operation

- Name of the General Coordinator of the operation.

6. Resources deployed

- Financial, human and material resources deployed in the operation.

3.4.4- Operation environmental assessment

Within 90 days after the end of the response to the oil spill, with the application of chemical dispersant the entity responsible for attendance shall present to OEMA and to the representation of the local IBAMA, a document with the evaluation of the environmental and socioeconomic impacts caused by both the leakage and the application of chemical dispersant, focusing on its observations, reports and commentary on the socio-economic and environmental impacts generated by the spilled oil and the chemically dispersed stains.

For the preparation of the document may be used, in addition to the formal reports of the accident response operation (notes, memoirs and reports), the following subsidies:

- coastal zone sensitivity maps;

- environmental inventories;

- socio-environmental diagnostics;

- proposed zoning; or

- other information available.

3.4.5 - Classification of Areas for Use of Dispersants

To guide and accelerate the use of chemical dispersants, it is recommended that the areas subject to oil spills are classified, mapped and made known by the institutions responsible for the integrated management of coastal and marine environments, as suggested below:

a) **Exclusion Areas** – Areas in which the use of chemical dispersants is not allowed;

b) **Pre-Approved Areas** - areas in which the use of chemical dispersant is allowed, provided the requirements of the items 3.1 and 3.2 are met;

c) **Conditioned Areas**– areas in which the use of chemical dispersant should be negotiated in advance with the OEMA or representation of the local IBAMA, as a result of specific features of the ecosystems involved, the movement of the stains and the advantages of using or not the dispersant.

4. GLOSSARY OF TECHNICAL TERMS

Homologated dispersant – Dispersant approved by the competent institution for use on Brazilian jurisdictional waters.

Chemical dispersants - chemical formulations composed of solvent and surfactant agents (tense-active) used to decrease the oil-water interfacial tension and to stabilize the dispersion of oil droplets on the surface and in the water column

Application dosage - Volume of dispersant applied by oil volume

Application efficiency - The ratio of volume of dispersant applied that effectively reaches the oil stain

Relative dispersant efficiency - Ratio between the quantity of oil dispersed in the water, by action of dispersant in test conditions, and the amount of oil initially employed in laboratory test

Efficiency monitoring - Visual observation or otherwise to determine the efficiency of application of dispersant

Monitoring of effects - Measurement of effects on specific target species resulting from the application of dispersant

SOLAS 74 - International Convention for Protection of Human Life at Sea.

Decree No. 87,186, of May 18, 1982

Application rate- Volume of dispersant applied per area unit

5. BIBLIOGRAPHIC REFERENCES

AMSA, 1998. Oil Spill Dispersants. Top 20 Frequently Asked Questions. Download/Dispersants. AMSA-Australia Maritime Safety Authority, Australia. 14pp.

API, 1989. Oil Spill Conference (Prevention, Behavior, Control, Cleanup). American Petroleum Institute. Publication n 4479 February, 1989. 587pp.

API, 1991. Oil Spill Conference (Prevention, Behavior, Control, Cleanup). American Petroleum Institute. Publication n 4529 March, 1991. 739pp.

API, 1997. International Oil Spill Conference. Differences in Risk Perception: How Clean is Clean ? Prepared by Jenifer M. Baker. American Petroleum Institute. Technical Report IOSC-006.

CODEL, 1988. Regulamento para Uso e Homologação de Dispersantes Químicos em Derrames de Petróleo no Mar. CODEL-Comitê de Defesa do Litoral. Secretaria de Estado do Meio Ambiente de São Paulo, São Paulo. 9pp.

DOERFER, J.W, 1992. Oil Spill Response in the Marine Environment. Pergamon Press. 391pp.

DOU, 2000. Diário Oficial. No. 82-A. Abril. Atos do Poder Executivo. Lei nº 9.966.

EXXON, 1994. Exxon Dispersants Guidelines. Exxon Research and Engineering Co. USA. 109pp + anexos.

IMO, 1995. IMO/UNEP Guidelines on Oil Spill Dispersants Application Including Environmental Considerations. London, UK. 55pp.

IPIECA, 1993. Dispersants and their role in Oil Spill Response. IPIECA Report Series vol. .5 London, UK. 24pp.

ITOPF, 1987. Response Marine Oil Spill. Whiterby & The International Tanker Owners Pollution Federation (ITOPF). London, UK. 150pp.

ITOPF, 1998. Documentos/Arquivos/Internet/Óleo - Dispersantes. The International Tanker Owners Pollution Federation (ITOPF). London, UK. 5pp.

Ministry of Agriculture, Fisheries and Food, 1997. The Approval and Use of Oil Dispersants in the UK. MAFF Publications. London, UK. 22pp.

NRC, 1989. Using Oil Spill Dispersants on the Sea. National Academy Press. Washington, D.C.-USA. 335pp.

PETROBRÁS, 1995. Critérios para Utilização de Dispersantes Químicos. CONTEC- Comissão de Normas Técnicas – N-2563 - Dezembro de 1995. Rio de Janeiro, RJ. 13pp.

PETROBRÁS, 1995. Critérios para Homologação de Dispersantes Químicos Químicos.

CONTEC- Comissão de Normas Técnicas – N-2530 – Março de 1995. Rio de Janeiro, RJ. 13pp.

POFFO, I.R.F.; MIDAGLIA, C.L.M.; CANTÃO, R.F.; HEITZMANN, S.R.; EYSINK. G.G.J;

NAKASAKI, A.; CAETANO, N.A.; POMPÉIA, S.L., 1996. Dinâmica dos Vazamentos de Óleo no Canal de São Sebastião, S.P. (1974-1994). CETESB, SP. 2 vol.

FOOTNOTES

1. *Such physiographic characteristics of the Brazilian coast favor (the occurrence) the decrease of the concentration of the oil/dispersant mixture by diffusion and dilution, decreasing toxicity and consequently the harmful effects to local biota.*

2. *In oils with viscosities in excess of 2,000 mPa.s, or where the aging process of the oil has been initiated it is possible to use chemical dispersants, provided it is proven the efficiency for its application.*

NOTE: attachments republished in the Official Gazette No. 22, of January 31, 2001, pages. 14-18, for including inaccuracies (original version in the Official Gazette No. 9, of 01/12/2001, p. 58-61)

This text does not replace the one published in the Official Gazette of January 12, 2001.

CONAMA RESOLUTION 275, April 25, 2001
Published in Official Gazette 117-E on June 19, 2001, Section 1, page 80

Establishes the color code for the different types of wastes to be adopted for the identification of collectors and transporters as well as used in information campaigns aimed at selective collections.

The NATIONAL ENVIRONMENTAL COUNCIL-CONAMA pursuant to the powers vested on it by Law 6.938, of August 31, 1981, and in view of the provisions of Law 9.605, of February 12, 1998, and in Decree 3.179 of September 21, 1999, and

Considering that the recycling of waste should be encouraged, facilitated and expanded in the country, to reduce the consumption of raw materials, non-renewable natural resources, energy and water;

Considering the need to reduce the environmental impact associated with the extraction, generation, processing,, transportation, treatment and final disposal of raw materials, causing the increase of dumps and landfills;

Considering that the environmental education campaigns, provided with an easy-to-see identification system, of national validity and inspired by forms of encoding already adopted internationally, are essential to effect the selective collection of waste, making feasible the recycling of materials, resolves:

Art. 1 Establish the code of colors for different types of waste, to be used in the identification of collectors and transporters, as well as in campaigns for separate collection.

Art. 2 Selective collection programs, created and maintained within the framework of public federal, state and municipal administration levels, direct and indirect, and state owned entities, should follow the standard colors established in the ANNEX.

§1. It is recommended the adoption of this code of colors for selective collection programs established by the private sector, cooperatives, schools, churches, non-governmental organizations and other interested entities.

§ 2 The entities referred to in the caput of this article shall have a term of up to twelve months to adapt to the terms of this Resolution.

Art. 3 The inscriptions with the names of waste and additional instructions, as to segregation or as to the type of material, will not be object of standardization, however it is recommended the adoption of black or white, according to the need of contrast with the base color.

Art. 4. This Resolution shall enter into force on the date of its publication.

JOSE SARNEY FILHO – Council President

ANNEX
Default colors

BLUE: paper/cardboard;

RED: plastic;

GREEN: glass;

YELLOW: metal;

BLACK: wood;

ORANGE: hazardous waste;

WHITE: ambulatory and health services waste;

PURPLE: radioactive waste;

BROWN: organic waste;

GRAY: General unrecyclable waste or mixed, contaminated or not capable of separation.

This text does not replace the one published in the DOU, of June 19, 2001.

RESOLUTION 307, July 5, 2002
Published in Official Gazette 136 on 07/17/2002, pp. 95-96

Correlations:

- Amended by Resolution No. 448/12 (amending articles 2, 4, 5, 6, 8, 9, 10 and 11 and revokes articles 7, 12 and 13)
- Amended by Resolution No. 431/11 (changed items II and III of art. 3)
- Amended by Resolution No. 348/04 (changed item IV, art. 3)

Establishes directives, criteria and procedures for the management of wastes from building construction

The NATIONAL ENVIRONMENTAL COUNCIL-CONAMA, pursuant to the powers vested on it by Law 6.938 dated August 31, 1981, regulated by Decree 99.274, of July 6, 1990, and in view of the provisions in Internal Rules, ANNEX to Ordinance No. 326, of December 15, 1994, and

Considering the urban policy on full development of the social function of the city and of the urban property, as set forth in Law 10.257 of July 10, 2001;

Considering the need of implementing guidelines for the effective reduction of the environmental impacts generated by waste from civil construction;

Considering that the disposal of waste from civil construction in inappropriate places is contributing to the degradation of environmental quality;

Considering that the waste from civil construction represents a significant percentage of the solid waste generated in urban areas;

Considering that the generators of waste from civil construction should be responsible for waste from construction, reform, repair and demolition of structures and roads activities, as well as those resulting from the removal of vegetation and soil excavation;

Considering the technical and economic viability of the production and use of materials from the recycling of civil construction waste; and

Considering that the integrated management of civil construction waste should provide benefits of social, economic and environmental order, resolves:

Art. 1 Establish guidelines, criteria and procedures for the management of waste from civil construction, disciplining the necessary actions in order to minimize environmental impacts.

Art. 2 For the purposes of this Resolution, the following definitions are adopted:

I- Waste from civil construction: are those from constructions, renovations, repairs and demolition of construction works and those resulting from the excavation and preparation of land, such as: brick, ceramic, concrete blocks in general, soils, rocks, metals, resins, glues, paints, wood and plywood, liners, mortar, plaster, tiles, pavement asphalt, glass, plastics, pipes, electrical wiring etc., commonly called spoils of works, limestone or shrapnel;

II- Generators: are people, individuals or corporations, public or private, responsible for activities or projects that generate the waste defined in this Resolution;

III- Conveyors: are people, individuals or corporations, responsible for the collection and transport of waste between the generating sources and destination areas;

IV- Recycled aggregate: granular material derived from the improvement of construction waste that have techniques characteristics for application in building, infrastructure, in landfills or other works of engineering;

V- Waste management: is the management system that aims to reduce, reuse or recycle waste, including planning, responsibilities, practices, procedures and resources to develop and implement the necessary actions to comply with the steps provided for in programs and plans;

VI- Reuse: is the process of reapplication of a waste, without its processing;

VII- Recycling: is the process of reclaiming a residue, after having undergone the transformation;

VIII- Processing: is the act of submitting a residue to operations and/or processes intended to provide them with conditions to be used as a raw material or product;

~~IX- Civil construction waste landfill: is the area where techniques will be used for the disposal of civil construction waste class "A" on the ground, aiming at the reservation of segregated materials so as to enable its future use and/or future use of the area, using engineering principles to confine them to the smallest volume possible, without causing damage to public health and the environment;~~

IX- Landfill of waste material class A from reservation of material for future uses: is technically appropriate area where techniques will be used for the destination of waste from construction class A into the soil, aiming at the reservation of segregated materials so as to enable its future use or future use of the area, using engineering principles to confine them to the smallest

volume possible, without causing damage to public health and the environment and properly licensed by the competent environmental agency; (new wording by Resolution 448/12)

~~X- Waste disposal areas: are areas intended for processing or final disposal of waste.~~

X- Trans-shipment and construction waste sorting and bulky waste area (TTA): area intended to receive civil construction waste and bulky waste, for sorting, temporary storage of materials segregated, eventual transformation and subsequent removal for proper disposal, noting specific operational standards so as to avoid damage or risks to public health and safety and to minimize adverse environmental impacts; (new wording by Resolution 448/12)

XI- Solid waste Management: set of actions carried out, directly or indirectly, in the stages of collection, transport, transfer, treatment and environmentally adequate final destination of solid waste and environmentally appropriate disposal of waste, according to the municipal plan of integrated solid waste management or with solid waste management plan required in accordance with Law 12.305, of August 2, 2010; (new wording by Resolution 448/12)

XII- Integrated solid waste management: set of actions geared toward finding solutions to solid waste, in order to consider the political, economic, environmental, cultural and social dimensions, with social control and under the premise of sustainable development. (new wording by Resolution 448/12)

Art. 3. Civil construction waste shall be classified for the purposes of this Resolution, as follows:

I- Class A - reusable or recyclable waste as aggregates, such as: a) from construction, demolition, reforms and paving repairs and other infrastructure works, including soils from earthwork;

b) from construction, demolition, renovation and repairs of buildings: ceramic components (bricks, blocks, tiles, flooring boards etc.), mortar and concrete;

c) from manufacturing process and/or demolition of concrete precast parts (blocks, pipes, wires etc.) produced in construction sites;

~~II- Class B - the recyclable waste for other destinations, such as: plastics, paper cardboard, metals, glass, wood and others;~~

II- Class B: recyclable waste to other destinations, such as: plastics, paper, cardboard, metal, glass, wood and plaster; (wording by Resolution No. 431/11).

~~III- Class C - wastes for which were not developed economically viable technologies or applications that allow their recycling/recovery, such as the products from plaster;~~

III- Class C: wastes for which were not developed economically viable technologies or applications that allow recycling or recovery; (wording given by Resolution No. 431/11).

~~IV- Class D: hazardous waste from the construction process, such as: paints, solvents, oils and other, or those contaminated from demolitions, renovations and radiological clinics, repairs industrial installations and other. (wording by Resolution No. 431/11).~~

IV- Class D: hazardous waste from the construction process, such as paints, solvents, oils and other or those contaminated or harmful to health arising from demolition, renovations and repairs in radiological clinics, industrial and other facilities, as well as tiles and other objects and materials containing asbestos or other products harmful to one's health. (wording by Resolution No. 348/04).

Art. 4 The generators should have as a priority objective to not waste generation and, secondarily, reduction, reuse, recycling and final disposal.

Art. 4 The generators should have as a priority objective to not waste generation and, secondarily, reduction, reuse, recycling, waste management solids and environmentally appropriate disposal of waste. (new wording by Resolution 448/12)

~~§1 Civil construction waste cannot be disposed in household waste landfills, in the areas of "boot off", on the slopes, water bodies, and vacant lots in areas protected by law, subject to the time limits set out in art. 13 of this resolution.~~

§1 The construction waste cannot be disposed in municipal solid waste landfills, in the areas of "bota fora", on the slopes, water bodies, vacant lots and areas protected by law. (new wording by Resolution 448/12)

§ 2 The waste should be discarded in accordance with the provisions of art. 10 of this Resolution.

~~Art. 5 It is a tool for the implementation of the construction waste management the Integrated Waste Management Plan of construction, to be prepared by the Municipalities and the Federal District, which must incorporate:~~

~~I- Municipal Management Program of Civil Construction Waste; and~~

~~II- Projects for the Management of Civil Construction Waste~~

Art. 5 It is tool for the implementation of the construction waste management the Municipal Plan for the Management of civil construction waste, to be drawn up by the municipalities and the Federal District, according to the Municipal Plan of Integrated Solid Waste Management. (new wording by Resolution 448/12)

~~Art. 6 Should be included in the integrated plan of the construction Waste Management;~~

Art. 6 Should be included in the Municipal Plan for the Management Civil Construction Waste (new wording by Resolution 448/12)

I- technical guidelines and procedures for the Municipal Program for the Management of Civil Construction waste for the Projects for the Management of civil Construction Waste to be drawn up by the large generators, making possible the exercise of the responsibilities of all generators.

I- technical guidelines and procedures for the exercise of the responsibilities of small generators, in accordance with the technical criteria of the urban site and cleaning system for Plans for the Management of Civil Construction Waste to be drawn up by the large generators, making possible the exercise of the responsibilities of all generators; (new wording by Resolution 448/12)

II- the register of public or private areas, suitable for receiving, sorting and temporary storing small volumes, in accordance with the size of the municipal urban area, making possible subsequent disposal of waste from generator to small processing areas;

~~III- the establishment of licensing procedures for processing and final disposal of waste;~~

III- the establishment of licensing procedures for the processing and storage of waste and spoils disposal;

IV- the prohibition of the disposal of civil construction waste in unlicensed areas;

V- encouraging the reintegration of reusable or recycled waste in the production cycle;

VI- the definition of criteria for the registration of transporters;

VII- the actions of guidance, control and supervision of agents involved;

VIII- educational actions aimed at reducing the generation of wastes and enable their segregation.

~~Art. 7 The Municipal Program for Management of Civil Construction Waste will be developed, implemented and coordinated by the municipalities and the Federal District, and should establish guidelines, techniques and procedures for the exercise of responsibilities of small generators, in accordance with the technical criteria of the urban cleaning system. (Revoked by Resolution 448/12)~~

~~Art. 8. The Projects for the Management of Civil Construction Waste will be developed and implemented by non-generator framed in the previous article and will aim to establish the necessary procedures for the management and environmentally appropriate disposal of waste.~~

Art. 8 The Plans for the Management of Civil Construction Waste will be developed and implemented by large generators and will aim to establish the procedures necessary for the proper management and environmentally sound disposal of waste. (new wording by Resolution 448/12)

~~§ 1 the Project for the Management of Civil Construction Waste, of undertakings and activities not covered in the legislation as the object of environmental licensing, should~~

~~be submitted along with the project design of the undertaking for examination by the competent organ of the municipal public power, in accordance with the Municipal Program for Management of Civil Construction Waste.~~

§ 1. The Plans for Management of Civil Construction Waste of undertakings and activities not covered in the legislation as the object of environmental licensing, shall be submitted along with the project of the undertakings for examination by the competent organ of the municipal public power, in accordance with the Municipal Plan for Management of Civil Construction Waste. (new wording by Resolution 448/12).

§ 2 The Project for the Management of Civil Construction Waste of activities and undertakings subject to environmental licensing must be examined within the licensing process by the competent environmental agency.

§ 2 The Plans for Management of Civil Construction Waste of undertakings and activities subject to environmental licensing must be examined within the licensing process, together with the competent environmental bodies. (new wording by Resolution 448/12)

Art. 9 The Projects for the Management of Civil Construction Waste should include the following steps:

Art. 9 The Plans for Management of Civil Construction Waste should include the following steps: (new wording by Resolution 448/12)

I- characterization: in this step the generator must identify and quantify the waste;

II- screening: must be carried out, preferably by the generator at the origin, or be held at licensed disposal areas for this purpose, respecting the classes of wastes laid down in art. 3 of this Resolution;

III- packaging: the generator must ensure the containment of waste after generation until the transport step, ensuring in all possible cases, the conditions for re-use and recycling;

IV- transportation: should be carried out in accordance with the previous steps and in accordance with the technical standards in force for the carriage of wastes;

V- destination: should be laid down in accordance with the provisions of this Resolution.

~~Art. 10. construction waste shall be allocated in the following ways:~~

Art. 10. Civil construction waste, after screening, should be used in the following ways: *(new wording by Resolution 448/12)*

~~I- Class A: should be reused or recycled in the form of aggregates, or sent to landfill waste areas of civil construction, being discarded in order to allow their use or future recycling;~~

I- Class A: should be reused or recycled in the form of aggregates or sent to landfill of waste material storage class A for future uses; *(new wording by Resolution 448/12)*

II- Class B: should be reused, recycled or sent to temporary storage areas, being willing to allow their use or future recycling;

III- Class C: must be stored, transported and used in accordance with the specific technical standards.

~~IV- Class D: must be stored, transported, used and designed in accordance with the specific technical standards.~~

IV- Class D: must be stored, transported and used in accordance with the specific technical standards. *(new wording by Resolution 448/12)*

~~Art. 11. It is laid down the maximum period of twelve months for the municipalities and the Federal District to prepare their integrated Plans for Management of Civil Construction Waste, contemplating the Municipal Programs for Management of Civil Construction Waste from small volumes, and generating the maximum period of 18 months for its implementation.~~

Art. 11. It is laid down the maximum period of twelve months from the date of publication of this Resolution, so that the municipalities and the Federal District to draw up its Municipal Plan for Management of Civil Construction Waste, which should be implemented in up to six months after its publication. *(new wording by Resolution 448/12)*

Sole paragraph. The Municipal Plans for Management of Civil Construction Waste may be drawn up jointly with other municipalities, in line with art. 14 of Law 12.305, of August 2, 2010. *(new wording by Resolution 448/12)*

~~Art. 12. it is laid down the maximum period of 24 months for the generators, not framed in art. 7, to include the Projects for Management of Civil~~

~~Construction Waste in the projects of works to be submitted for approval or licensing to the competent organs, according to §§ 1 and 2 of art. 8. *(Revoked by resolution 448/12)*~~

~~Art. 13. Within eighteen months the municipalities and the Federal District should cease the disposal of waste from construction in household waste landfills and in areas of "bota fora". *(Revoked by resolution 448/12)*~~

Art. 14. This resolution shall enter into force on January 2, 2003.

JOSÉ CARLOS CARVALHO-Council President

This text does not replace the one published in the Official Gazette of July 17, 2002

CONAMA RESOLUTION 313, October 29, 2002
Published in Official Gazette 226 on November 22, 2002, Section 1, pp. 85-91

Correlations:

- Revokes CONAMA Resolution No.6/88

Establishes provisions for the National Inventory of Solid Industrial Wastes.

The NATIONAL ENVIRONMENTAL COUNCIL-CONAMA, pursuant to the powers vested on it by Law 6.938 dated August 31, 1981, regulated by Decree 99.274, of June 6, 1990, and in view of the provisions in its Internal Rules, ANNEX to Ordinance No. 326, of December 15, 1994¹⁷⁹; and

Considering the need of elaboration of State Programs and the National Plan for Management of Solid Industrial waste;

Considering the lack of precise information on the amount, type and destination of solid waste generated in the industrial park of the country;

Considering that such waste may contain features harmful to human health and the environment;

Considering that for the elaboration of national guidelines for the control of industrial wastes is essential to carrying out an inventory of industrial waste generated and existing in the country;

Considering that the National Inventory of Industrial Solid Waste is one of the instruments of waste management policy, resolves:

Art. 1 Existing waste or that generated by industrial activities will be subject to specific control as an integral part of the environmental licensing process.

Art. 2 For the purposes of this Resolution it is understood that:

I- industrial solid waste: is any waste resulting from industrial activities and who is solid, semi-solid States, gas-when liquid-contained, and whose

details become impossible its release on the public network of sewer or water bodies, or require technical solutions for this or uneconomical in the face of the best technology available. Are included in this definition the sludge from water treatment systems and those generated in equipment and plant for pollution control.

II-National Inventory of Industrial Solid Waste: is the collection of information about characteristics, generation, storage, transport, treatment, reuse, recycling, recovery and final disposal of solid waste generated by the country's industries

Art. 3 Electric power utilities and companies that have materials and equipment containing Polychlorinated Biphenyls – PCBs shall submit to the state body the environment inventory of those stocks, in the form and time limit to be set by the Brazilian Institute of the Environment and Renewable Natural Resources -IBAMA.

Art. 4 Industries of the types set out in the National Classification of Economic Activities of IBGE, identified below , shall, no later than one year after the publication of this Resolution, or according to the provisions established by the state agency for the environment, submit this information on generation, features, storage, transportation and disposal of solid waste, in accordance with Annexes I to III:

I- preparation of leather and manufacture of leather goods, saddlery and footwear (19);

II- manufacture of coke, petroleum refining, preparation of nuclear fuels and ethanol production (23);

III- manufacture of chemicals (Division 24);

IV- basic metallurgy (27);

V- manufacture of metal products, except machinery and equipment (Division 28);

VI- manufacture of machinery and equipment (Division 29);

VII- manufacture of office machinery and computer equipment (Division 30);

VIII- manufacture and assembly of motor vehicles, trailers and bodies (34); and

IX- manufacture of other transport equipment (Division 35).

§1. the information provided for in this article shall be provided to the environmental state agency and updated every twenty-four months, or in a lesser term, in accordance with the established by the governing body.

§ 2 The environmental state agency may include other industrial typologies, besides those listed in the caput of this article, in accordance with the specificities and characteristics for each state, and information on industrial typologies included should be passed on to IBAMA, as set out in this Resolution.

¹⁷⁹ Ordinance revoked by Ordinance MMA Bo. 499, of December 18, 2002

§ 3 The state environmental agency may, within the industrial typologies listed in the caput of this article, limit the universe of industries listed to be according to the characteristics and specificities of each state, prioritizing the largest waste generator.

Art. 5 The industries shall indicate the information they deem sensitive.

Art. 6 The environmental state organs shall, within a maximum period of two years from the date of publication of this Resolution submit to IBAMA inventory data mentioned in art. 2, in the form to be set by this Institute.

§ 1. The information referred to in the caput of this article should be updated every twenty-four months, in the form determined by the IBAMA.

§ 2 At every two years, Annexes which are part of this Resolution may be reviewed, at the discretion of IBAMA, jointly with the state environmental agencies.

Art. 7 IBAMA and the environmental state organs must draw up, by up to three years counted from the date of publication of this resolution, in a coordinated way and under of its powers, the State Programs for Management of Industrial Waste, and, within four years, counted from the publication of this Resolution, the National Plan for Industrial Waste Management.

Art. 8. Industries, after sixty days from the date of publication of this Resolution shall register each month and keep in the industrial unit the data on the generation and disposal of waste generated for the purpose of obtaining the data for the National Inventory of industrial Waste.

Art. 9. Failure to comply with the provisions in this Resolution will subject violators the penalties and sanctions referred to in Law 9.605, of February 12, 1998 and Decree 3.179, of September 21, 1999.

Art. 10. It is hereby revoked CONAMA Resolution nº 6, of June 15, 1988.

Art. 11. This Resolution shall enter into force on the date of its publication.

MONICA MARIA LIBÓRIO-Executive Secretary

ANNEX I
**NATIONAL INVENTORY OF INDUSTRIAL SOLID WASTE
GENERAL INFORMATION AND INSTRUCTIONS**

This form was developed for gathering information about the solid waste generated in its industrial activity.

Obtaining this information correctly is crucial for the state to have the knowledge of the real situation in which such waste is found, and to fulfill its role in the elaboration of guidelines for the control and management of industrial waste in the country.

Guidelines to facilitate the filling in of the form:

1. Fill in the spaces provided for the answers according to the discretion of each question.
2. The issues that present the option "other" must be specified.
3. If the spaces are not sufficient, use attached sheets, in case of filling in paper, or insert rows in case of typing on the computer.
4. In the Annexes to this form, you will find listings with codes needed for the completion of the form.
5. If you are not able to answer, look for the industry professional trained for this activity. The responsible for the industrial process is the most appropriate person.
6. Be sure to inform any residue generated by industrial activity, regardless this being reused or re-processed. Any scrap generated by industrial process, including by-products, should be included.
7. The period corresponding to the information should be retroactive to one year.
8. If your activity is not industry, refer to the environmental agency, through the envelope letter of reply, a statement on the type of activity performed on the site.
9. If the activity is disabled, please return to the environmental agency, through the envelope letter of reply, a statement on the deactivation with its respective date.
10. See Annex II and check out what are the waste that your industry generates, and select the codes and the corresponding types of waste. The filling out of the residue code should be made on the basis of the ABNT NBR-10,004-Solid Waste-Sorting and in this Resolution. If the description of the residue in Annex II is not sufficient to characterize the waste generated, use the field "description of waste" in the table to specify it, according to its origin, or use the ABNT standard NBR-10004.

When using the

A011, A099, D001, D002, D003, D004, D099 and D199 codes, describe of what material is the residue composed.

11. The code to be used for the storage type can be found in ANNEX III (Storage System), using "S" for the waste currently generated and "Z" for no more generated waste .

12. The code to be used for the target type can be found in ANNEX III. In case of any doubt in the completion of the form, please do not hesitate to contact the Call Center of the Waste Inventory.

INSTRUCTIONS FOR COMPLETING

Initially, inform the period (month/year of the beginning and the month/year of completion) which the information provided on the form refer to.

GENERAL INFORMATION FROM N INDUSTRY

I - Business name of the industry

Write the correct name of industrial activity, as recorded in the Secretariat of Finance.

II - Industrial unit Address

Identify the street address (Street, Avenue, square etc.), the number, district, zip code and municipality where the industrial activity is located, the number of the State registration (CGC/TE) and the number of the National Registry of Legal Entities (CNPJ)-.

III-mailing address

Identify the mailing address, including city and the phone of the company unit.

IV- Technical contact

This should be the person in the company who should provide clarification in case of doubt on the data filled out on the form. Enter your name, title, email, phone and fax.

V-Characteristics of industrial activity:

Item 1:

Describe the main activity of the industry stating the basic features such as the existence or not of steps for surface treatment (phosphating, electroplating etc.) or of painting. For example: manufacture of metal artifacts with plating and painting.

The space reserved for the CNAE code will be filled by the environmental agency.

Item 2:

Indicate how many hours per day the industry operates, how many days per month and how many months a year.

Item 3:

Indicate the number of employees who work in the production, in the administrative area and in other areas of the industry.

Item 4:

Indicate the total useful area of industry in m², including all areas used for the development of industrial activity: industrial process, deposits of raw materials, products, waste, tank areas, environmental control equipment, administrative areas, refectory, warehouse etc.

Item 5:

Enter the geographical coordinates of the location of the industrial plant, measured by means of GPS measurement equipment or measured by using a map in the Universal Projection Mercator (note that this will be explained in the map), because they have this type of coordinates.

VI - Responsible for the company:

Identify the natural person responsible for the company, indicating the post that he holds .

Insert the date, stamp and sign the form attesting to the veracity of the information provided.

GENERAL INFORMATION ON INDUSTRY

I- corporate name of industry:

	Period of Reference	
	Beginning	End

II- address of industrial unit

Address/No.	
District	Zip Code:
Municipality	Telephone: ()
CGC/TE:CGC/MF	CNPJ:

III – address for correspondence:

Address/No.	
District	Zip Code:
Municipality	Telephone: ()

IV – technical contact:

Name:	Position:
Email:	
Telephone for contact	Fax

V – Characteristics of industrial activity

1. Main activity of industry	CNAE Code:	
2. Period of production: Hours per day: Days per month: Months per year:		
3. Total number of employees in the following areas of the industry: Production: Administration: Other areas:		
4. Total useful area (m ²):		
5. Geographic coordinates of industrial unit	Latitude	Longitude:
	Degrees:	Degrees Minutes

VI – Person responsible for the company:

Name: Position:

I declare under the penalties of Law, the veracity of the information given in this form.

On ___/___/___
Signature:

INFORMATION ON THE PRODUCTION PROCESS DEVELOPED BY INDUSTRY

Raw material is main and essential substance in the composition of a product, which is subject to a processing or transformation, process for obtaining this product, for example, steel, sugar cane, skins. Input is any substance that is part of the productive process, benefiting or processing the raw material, for example, chemicals, and detergents.

Item VII:

List the raw materials and inputs used in your industry, indicating the total quantities used in the last year and those corresponding to the maximum capacity of the industry, with the corresponding units of measurement (t, m³, kg, L, units etc.). The chemicals should be mentioned in chemical names rather than trade names.

Item VIII:

Identify the quantities of the products manufactured by the industry over the past 12 months and those corresponding to the maximum capacity of the industry, clearly indicating the corresponding units of measurement

INFORMATION ON THE PRODUCTION PROCESS DEVELOPED BY THE INDUSTRY

VII. List the raw materials and inputs used

Raw materials and Inputs	Current Amount (per year)	Maximum Capacity (per year)	Measurement unit

VIII. Identify the annual production of the industry

Products	Current Amount (per year)	Maximum capacity (per year)	Measurement unit

Industrial solid waste are all waste resulting from industrial activities in the solid, semi-solid, gaseous - when contained states - and whose particulars make it impossible to launch them into the public sewer or water bodies, or require technically or uneconomically unfeasible solutions according to the best technology available. Included in this definition are the sludge from water treatment systems and those generated in equipment and facilities for pollution control.

Solid wastes are classified as hazardous, non-inert and inert.

IX. Present a list of steps of the manufacturing process and, next to each step, its description, clarifying the points of solid waste generation (fill in as many sheets as necessary)

If the industry has more than one production line, introduce as many relationships as necessary.

STAGES OF THE PRODUCTION PROCESS INDUSTRY

X. List all steps of the production process.

Name of Stage	Description
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	

INFORMATION ON SOLID WASTE GENERATED IN THE LAST TWELVE MONTHS

Item X:

First, enter the description of the residue, as per ANNEX II and, for each type of waste generated in the industry over the past twelve months, fill the cards presented below, the information related to:

1. Forms of storage;
2. Forms of treatment in the industry;
3. Forms of treatment outside of the industry/destination, as described below:

Note: include also the wastes that are donated or sold by industry.

Repeat filling for each type of waste generated in the industry over the past 12 months, using new cards.

1. Fields related to the forms of storage:

1.1. Description of storage, as per storage table of ANNEX III (Storage System);

1.2. Type of destination, enter only if the final destination or has residue has no definite destination;

1.3. In the area of industry, please state whether the storage is done in the area of the industry itself or not. If it is outside the area of the industry, enter below, in the appropriate field, the geographical coordinates of the location where the waste is stored.

1.4. Amount/year, inform the amount in tons of waste generated by the company over the past 12 months;

1.5. Physical State, write: "S" If the waste generated is solid; "G" for gases contained, "P" If the residue is semi-solid or pasty, or "L" If the physical state is liquid – in this case, these are liquids whose specific characteristics make infeasible its launch in public sewers or water bodies, or require technical and uneconomical viable solutions given the best available technology, as depleted baths and oils.

1.6. Geographical Location of the Place where the storage occurs in an area outside of the industry, please specify the geographical position (latitude: degrees and minutes; longitude: degrees and minutes) where was stored the amount of waste reported.

Note: The code to be used for the storage type can be found in the ANNEX

INFORMATION ON THE SOLID WASTE GENERATED

Storage shapes

X. Enter the description of the residue, as shown in the ANNEX II, and then the data related the form of storage, as per ANNEX III.

Code of Waste:	Waste description:

1. Storage forms			
Code	Description	Type of storage:	In the industry's area?
			YES NO
Amount (ton/year) Amount/Year (ton)	Physical status	Site's Geographical position	
		Latitude	Longitude
		Degrees: Minutes	Degrees: Minutes:
2. Storage forms		Description	Type of storage: In the industry's area?
			YES NO

3. Storage forms			
Code	Description	Type of storage:	In the industry's area?
			YES NO
Amount (ton/year) Amount/Year (ton)	Physical status	Site's Geographical position	
		Latitude	Longitude
		Degrees: Minutes	Degrees: Minutes:
2. Storage forms		Description	Type of storage: In the industry's area?
			YES NO

INFORMATION ON THE SOLID WASTE GENERATED

treatment, reuse, recycling or final disposal in the industry itself

2. The fields related to treatment in industry are:
- 2.1. Description of the treatment, reuse, recycling or recovery of the waste, as per the table in ANNEX III;
- 2.2. Amount/year, enter the amount in tons of waste generated by the company over the past 12 months.
- Note: see ANNEX III to select the target code, type of treatment or reuse, recycling, recovery of waste.

INFORMATION ON THE SOLID WASTE GENERATED

Destination: treatment, reuse, recycling or Final disposal in the industry itself

2. If part of the residue reported in item X, also receives some type of treatment, reuse, recycling or final disposal in the industry itself, then submit the information below, remembering to fill out as many cards as required:

1. Treatment, Reuse, Recycling or Final Disposal in the industry itself		
Code	Description	Amount (ton/year)
2. Treatment, Reuse, Recycling or Final Disposition in the Industry itself		
Code	Description	Amount (ton/year)
3. Treatment, Reuse, Recycling or Final Disposition in the Industry itself		
Code	Description	Amount (ton/year)

INFORMATION ABOUT THE SOLID WASTE GENERATED

Destination: treatment, reuse, recycling or final disposal outside the industry

3. The fields related to destination/treatment outside the industry are the following fields:
- 3.1. Treatment, reuse, recycling or final disposal code of the residue out of the industry, according to the table in ANNEX III;
- 3.2. Description of the treatment, reuse, recycling or final disposal of the residue outside the industry, according to the table in ANNEX III;
- 3.3. For waste identified by Code and Description, enter:
- a) Corporate name/Name of Destination, CGC/TE, CNPJ, Environmental License No., address etc.: enter in these fields the data concerning the consignee of the waste;
- b) Physical State, enter the physical state of the waste, as follows: "S" If the waste generated is solid; "G" for gases contained therein; "P" If the residue is semi-solid or Pasty, or "L" If the physical state is liquid - in this case, these are liquids whose specific characteristics make infeasible its launch in public sewers or water bodies, or require for this technical and uneconomical solutions given the best available technology, as depleted baths and oil
- c) Amount/year, enter the amount in tons, forwarded to destination in the last twelve months;
- 3.4. Geographical location of the place of destination, enter the geographical position (latitude: degrees and minutes; longitude: degrees and minutes) of destination of the waste.
- Note: see ANNEX III to select the code of the destination of the waste.

INFORMATION ABOUT THE SOLID WASTE GENERATED

Destination: treatment, reuse, recycling or final disposal of the residue outside the industry.

3. If part of the already informed waste in item X is intended also to any instance outside the industrial unit, enter in this box the following fields:

Treatment, reuse, recycling or Final Disposal of the Residue outside of industry

Code of Destination		Description of destination	
Destination 1:			
Corporate name/Name of Destination 1	CGC/TE	CNPJ	No. of Environmental License

Address Destination 1			
Street/No.:		Municipality	ZIP Code
E-mail		Tel.:	Fax:
Destination 2:			
Corporate name/Name of Destination 1	CGC/TE	CNPJ	No. of Environmental License
Address Destination 1			
Street/No.:		Municipality	ZIP Code
E-mail		Tel.:	Fax:
Amount (ton/year) Amount/Year (ton)	Physical status	Site's Geographical position Latitude Longitude	
		Degrees: Minutes:	
Destination 2:			
Corporate name/Name of Destination 1	CGC/TE	CNPJ	No. of Environmental License
Address Destination 1			
Street/No.:		Municipality	ZIP Code
E-mail		Tel.:	Fax:
Amount (ton/year) Amount/Year (ton)	Physical status	Site's Geographical position Latitude Longitude	
		Degrees: Minutes:	

WASTE GENERATED IN PREVIOUS YEARS

Item XI:

Waste generated in previous years and which is under the responsibility of the company, irrespective of the place where it is stored.

1. Fields related to wastes generated in previous years and which are under the control of the industry:

1.1. Description of the residue, as ANNEX II and, for each type of waste, fill out the cards, repeating for each type of waste;

1.2. Description of storage, as per the storage table of ANNEX III (storage system);

1.3. In the area of the industry, advise if storage is done in the area of industry itself or not. If it is outside the area of industry, enter below, in the appropriate field, the geographical coordinates of the location where the waste is stored.

1.4. Amount/year, enter the amount in tons of waste generated by the company over the past 12 months;

1.5. Physical State, write: "S", if the waste generated is solid, "G" for gases contained, "P" If the residue is semi-solid or Pasty, or "L" If the physical state is liquid, in this case, these are fluids whose circumstances make it unfeasible to release in public sewers or water bodies, or require for this technical and uneconomical solutions given the best available technology, as depleted baths and oil.

1.6. Geographical location of the place where the storage occurs in an area outside the industry, please specify the geographical position (latitude: degrees and minutes; longitude: degrees and minutes) that was stored the amount of waste reported.

Note: repeat the filling for each type of waste generated in previous years, using new cards.

WASTE GENERATED IN PREVIOUS YEARS

XI. Please enter description of the residue, as shown in the ANNEX II, and, then, the data related to the storage form, as ANNEX III.

Waste generated in previous years that are under the control of the industry

Code of Waste:		Waste description:	
Description of Storage		In the industry's area?	
		YES NO	
Amount (ton/year) Amount/Year (ton)	Physical status	Site's Geographical position Latitude Longitude	
		Degrees: Minutes Degrees: Minutes:	
Description of Storage		In the industry's area?	
		YES NO	
Amount (ton/year) Amount/Year (ton)	Physical status	Site's Geographical position Latitude Longitude	
		Degrees: Minutes Degrees: Minutes:	
Description of Storage		In the industry's area?	
		YES NO	
Amount (ton/year) Amount/Year (ton)	Physical status	Site's Geographical position Latitude Longitude	
		Degrees: Minutes Degrees: Minutes:	

**ANNEX II
INDUSTRIAL SOLID WASTE**

WASTE CODE	WASTE DESCRIPTION
	CLASS I OR CLASS II
A001	Waste from restaurants (food leftovers)
A002	Waste generated out of the industrial process (office, packages etc.)
A003	Waste from factory variation
A004	Scraps from ferrous metals
A104	Metal packages (empty cans)
A204	Metal drums
A005	Scraps from non-ferrous metals (tin etc.)
A105	Non-ferrous metal packages (empty cans)
A006	Paper and cardboard waste
A007	Waste from polymerized plastics of process
A107	Non-contaminated plastic banisters
A207	Films and small plastic packages
A008	Rubber waste
A108	Ethyl Vinyl acetate (EVA) waste
A208	Polyurethane (PU) waste
A308	Foams
A009	Wood waste containing non-toxic substances
A010	Textile materials waste
A011	Non-metallic minerals waste
A111	Ashes from boiler
A012	Slag from aluminum casting
A013	Slag from iron and steel production
A014	Slag from tin casting
A015	Slag from zinc casting
A016	Sand from casting sand
A017	Waste from refractory and ceramic materials
A117	Glass waste
A018	Solid waste composed of non-toxic metals
A019	Solid waste from effluents treatment units containing non-toxic biological material
A021	Solid waste from effluents treatment units containing non-toxic substances
A022	Pasty waste from effluents treatment units containing non-toxic substances
A023	Pasty waste containing limestone
A024	Cane bagasse
A025	Fiber glass
A099	Other non-hazardous waste
A199	Salty cutting
A299	Cuttings from <i>caleadas</i> furs
A399	Cuttings, scraps from tanned leather
A499	<i>Carnaça</i>
A599	Organic waste from process (sebum, serum, bones, blood, others from food industry)

A699	Rice husk
A799	Sawdust, tanned leather bran and powder
A899	Liming sludge
A999	Waste from fruits (bagasse, must, skin etc.
A026	Slab from jetting containing non-toxic substances
A028	Waste from gaseous emission control system containing non-toxic substances (precipitators, sleeve filters, among other)
A029	Products not included in the specification or out of the validity period containing non-hazardous substances

Remarks:

1. These codes should only be used if the residue is not previously classified as hazardous. Ex. sweeping residue of from Parathion packing unit must be coded as D099 or P089 and not as A003.

2. Empty containers contaminated with substances in listings 5 and 6, of NBR-10004, are classified as hazardous waste.

PRODUCT CODE	CLASS I
C001 a C009	List 10 – hazardous waste containing volatile components, on which are not applied lixiviation and/or solubilization tests , showing concentrations above those indicated in the its 10 of NBR 10004 Standard
D001	Hazardous waste since they show flammability
D002	Hazardous waste since they show corrosivity
D003	Hazardous waste since they show reactivity
D004	Hazardous waste since they have pathogenic content
D005 to D029	List 7 of NBR-10.004 standard: hazardous waste characterized by lixiviation test
K193	Cuttings from chrome tanned leather
K194	Sawdust and powder from chrome tanned leather
K195	Sludge from effluents treatment units of chrome tanning
F102	Catalyzers waste not specified in NBR-10.004 standard
F103	Waste from industrial laboratories (chemical products) not specified in NBR-10.004 standard
F104	Empty contaminated not specified in NBR-10.004 standard
F105	Contaminated solvents (specify solvent and main contaminant)
D099	Other hazardous wastes - specify
F001 to F0301	List 1 of NBR-10004 standard – waste kown as hazardous - Class 1, from non-specific sources
F100	Polychlorinated biphenyl - PCB`s. Packages contaminated with PCBs including transformer and capacitors
P001 to P123	List 5 of NBR-10.004 standard – hazardous waste since they contain acutely toxic substances (leftovers of packages contaminated with substance from list 5; waste from leaking on contaminated soils, and products not specified or products of prohibited trading of any substance contained in list 5 of NBR-10.004 standard
K001 to K209	List 2 of ABNT 10004 standard – waste kown as hazardous from specific sources
K053	Paints and pigments leftovers and sediments

K078	Waste from cleaning with solvents in the manufacturing of paints
K081	Sludge from ETE in the production of paints
K203	Waste from diseases research laboratories
K207	Sediment from the reprocessing of used oils (acid sediment)
U001 to U246	List 6 of NBR-10004 standard – hazardous waste since they contain toxic substances (waste from leakage on contaminated soils; products not included in the specification or products from prohibited trading of any substance included in list 6 of NBR-10004 standard,

Remarks: If the Waste is classified as FO30 use:
F130 for used lubricating oil;
F230 for hydraulic fluid;
F330 for cutting and machining oil;
F430 for used contaminated oil in cooling or insulation;
F530 for oily wastes from oil and water separator system.

**ANNEX III
CODES FOR STORAGE, TREATMENT, REUSE, RECYCLING AND FINAL DISPOSAL**

CODE		STORAGE	CODE		STORAGE
Z0i	S0i	Drum on impermeable floor, covered	Z04	S04	Tank with containment basin
Zii	Sii	Drum on impermeable floor, uncovered area	Z14	Si4	Tank without containment basin
Z2i	S2i	Drum on floor, covered area	Z05	S05	Canister on impermeable floor, covered area
Z3i	S3i	Drum on floor, uncovered area	Zi5	s	Canister on impermeable floor, uncovered area
Z02	S02	In bulk on impermeable floor, covered	Z25	S	Canister on floor, covered
Zi2	Si2	In bulk on impermeable floor, uncovered area	Z35	S35	Canister on floor, uncovered area
Z22	S22	In bulk on floor, covered area	Z09	S09	Lagoon with waterproofing
Z32	S32	In bulk on floor,un covered area	Zi9	Si9	Lagoon without impermeabilization
Z03	S03	Bucket with cover	Z08	S08	Other systems (specify)
Zi3	Si3	Bucket without cover			
CODE		TREATMENT	CODE		TREATMENT
Toi		Incinerator	Ti2		Neutralization
To2		Chamber incinerator	Ti3		Adsorption
To5		Open-air burning	Ti5		Biological treatment
To6		Detonation	Ti6		Composting
To7		Cyanides oxidation	Ti7		Drying
To8		Encapsulation /chemical fixation or solidification	Ti8		"Landfarming"
To9		Chemical oxidation	Ti9		Thermal plasma
Tio		Precipitation	T34		Other treatments (specify)
Tii		Detoxification			
CODE		REUSE/RECYCLING/ RECOVERY	CODE		FINAL DESTINATION
R0i		Use in industrial oven (except cement ovens)	Boi		Infiltration in the soil
R02		Use in boiler	Bo2		Municipal landfill
R03		Co-processing in cement ovens	Bo3		Own industrial landfill
R04		Formulation of waste "blend"	Bo4		Third party industrial
R05		Use in the formulation of micro	Bo5		Municipal landfill
R06		Incorporation in rural soil	Bo6		Private landfill
R07		Fertigation	B20		Sewage network
R08		Animal food	B30		Other (specify)
R09		Solvents reprocessing			
Rio		Oil re-refining			
Ru		Oil reprocessing			
Ri2		Intermediate Scrap dealers			
Ri3		Reuse/recycling/internal recovery			
R99		Other forms of reuse /recycling/ recovery (specify)			

This text does not replace the one published in the Official Gazette of November 2002.

CONAMA RESOLUTION 316, October 29, 2002
Published in Official Gazette 224 on November 20, 2002, Section 1, pages 92-95

Correlations

. Article 18 amended by CONAMA Resolution n° 386/06

*Establishes provisions, procedures and criteria for the operations of systems for
thermic residual treatment.*

The NATIONAL ENVIRONMENTAL COUNCIL-CONAMA, pursuant to the powers vested on it by Law 6.938 dated August 31, 1981, regulated by Decree 99.274, of June 6, 1990, and in view of the provisions in its Internal Rules, ANNEX to Ordinance No. 326, of December 15, 1994¹⁸⁰; and

Considering that the precautionary principle is the foundation of sustainable development;

Considering that the systems of thermal treatment of waste are potential sources of environmental risk and hazardous pollutants emission, and may constitute aggression to health and the environment if not properly installed, operated and maintained;

Considering that, among these pollutants stand out, by their dangerousness, persistent organic pollutants, and that the reduction of the total emissions of the pollutants referred to its continuing minimization and, where feasible, ultimate elimination must be sought ;

Considering that the persistent organic pollutants have toxic properties, resist degradation, bio-accumulate themselves, are transported by air, by water and by migratory species across international boundaries and deposited far from the place of issue, where they accumulate in terrestrial and aquatic ecosystems;

Considering that the determination of emission ceilings for pollutants to be released into the atmosphere, water and soil by thermal treatment systems, contributes to the implementation of the Licensing System of Polluting Activities, as provided for in CONAMA Resolution n° 237, of December 19, 1997, resolves:

Art. 1 Discipline processes of thermal treatment of waste and dead bodies, establishing operational procedures, emission limits and performance criteria, control, treatment and final disposal of waste, in order to minimize the impacts to the environment and public health as a result of these activities.

§ 1 Are exempted from the discipline of this resolution:

a) radioactive waste, which should follow the specific standards of the National Nuclear Energy Commission -CNEN;

b) waste co-processing in rotary kilns of clinker production, which should follow the specific CONAMA Resolution n° 264, of August 26, 1999, except the provision on dioxins and furans, which must comply with this resolution.

§ 2 The study of dispersion of atmospheric emissions of the treatment system must necessarily be based on the decision as to its location.

Art. 2 It is considered, for the purposes of this Resolution:

I - Waste: materials or substances that are unserviceable or not liable to economic exploitation, resulting from industrial origin, urban, health services, agricultural and commercial activities which include those from ports, airports and borders, and other, as well as contaminated by pesticides;

II - Best available techniques: means the most effective and advanced stage of development of the various treatment technologies, processing and final disposal of waste, as well as their activities and methods of operation, indicating the practical combination of these techniques that lead to emissions production in values equal to or less than those laid down by this Resolution in order to eliminate and, where it is not feasible, to reduce emissions in general, as well as their effects on the environment as a whole

III - Thermal treatment: for the purpose of this regulation is any process whose operation is held above the minimum temperature of 800 degrees Celsius.

Art. 3 All thermal waste treatment systems should meet the technical criteria set out in this Resolution, supplemented, where considered necessary by the competent environmental bodies, in order to meet regional and local peculiarities.

¹⁸⁰ Ordinance revoked by Ordinance MMA No. 499, of December 18, 2002.

Art. 4 The adoption of thermal waste treatment systems must be preceded by a technological alternatives analysis study that proves that the choice of technology adopted is in accordance with the concept of best available technique.

Art. 5 The waste received by thermal treatment system should be documented by means of the registry, which includes its origin, quantity, and characterization, depending on specific provisions of the articles of this Resolution.

Sole paragraph. The transport of waste for thermal treatment should take account of specific legislation in the environmental policy of the Ministry of Transport, among others.

Art. 6 For the packaging and storage of any waste to be submitted the thermal treatment process, should be adopted procedures to ensure water tightness

Art. 7 The waste storage areas should have procedures that mitigate or eliminate the emission of odoriferous substances, in order to lessen the impact by olfactory perception outside the bounds of the thermal treatment system.

Art. 8. The technician responsible for the thermal treatment system should register all abnormality involving spillage or leakage of waste, as well as provide, at the discretion of the competent environmental agency, a study for evaluation of potential damage to the environment.

Art. 9 Installation of systems of thermal treatment of industrial waste should take account of the legislation in force and cannot be installed in residential areas.

Art. 10 Waste of industrial origin and mixtures of waste received by thermal treatment system should record the following information:

I - origin and production process of generator and quantity;

II – quantification of parameters relating to calorific value, ashes, and, when fit, metals, halogens and halogenated compounds;

III - chemical composition and physic-chemical characteristics of the waste, which prove its compatibility with the constraints of the operation license;

IV - incompatibility with other wastes;

V- methods of sampling and analysis used, with the respective limits of detection.

Sole paragraph. In the case of mixture of wastes, the following information should be provided:

I- the percentage by weight of each residue in the mixture;

II. description of the methods used in the preparation of the mixture.

Art. 11. All thermal treatment system for industrial waste should achieve the rate of destruction and removal efficiency (EDR) greater than or equal to ninety-nine integers and ninety and nine-tenths percent for the main dangerous organic compound (PCOP) set in the burning test.

Sole paragraph. In the case of polychlorinated biphenyls (PCBs), the rate of destruction and removal efficiency (EDR) should be greater than or equal to ninety-nine integers and ninety nine-tenths percent.

Art. 12. The technician responsible for any thermal treatment system should make the registration of the shipping, stocking, identification, date, and the analysis of wastes that will constitute the system's feeding load, preserving representative samples for a period of six months, for eventual evidences, at the discretion of the competent environmental agency.

Art. 13. The installation of systems for the thermal treatment of waste from health systems must take into account the legislation in force, and should preferably occupy areas which are not part of hospital complexes.

Sole paragraph. The chambers should operate at the minimum temperature of 800 degrees Celsius, and the residence time of the gases in its interior cannot be less than one second.

Art. 14. Institutions generating waste from health service that opt for thermal treatment of waste, should include this in the Management Plan of Health Services, in accordance with the CONAMA Resolution n° 283113, of July 12, 2001, approved by the governing bodies of the environment and of health organs, within their respective spheres of competence, in accordance with current legislation.¹⁸¹

Art. 15. Waste from health services received by thermal treatment system should be documented by means of recording of generating source data, containing at a minimum, information on the date received, amount and classification of waste as the group to which it belongs, in accordance with the CONAMA Resolution No. 283¹⁸², of 2001.

Art. 16. Waste from health services, when susceptible to thermal treatment, must be fulfilled, according to their classification, to the following:

I- GROUP A: waste that presents risk to public health and the environment, due to the presence of biological agents, must be intended for specially licensed systems to this end, by the competent environmental agency;

¹⁸¹ Resolution revoked by Resolution No.358-05

¹⁸² The provisions regarding solid waste from health services of Resolution No. 283/01 were revoked by Resolution No. 358/05

II- group B: waste that poses risk to public health and to the environment because of its physical, chemical and physico-chemical properties, shall be subject to the specific conditions of thermal treatment for industrial waste.

III-GROUP D: common wastes must be included in the specific conditions of thermal treatment for urban solid waste

Art. 17. Every crematorium system must have, at a minimum, the combustion chamber and secondary chamber for burning of volatile materials.

§1. The secondary chamber should operate at the minimum temperature of 800 degrees Celsius, and the residence time of the gases in its interior cannot be less than one second.

§ 2 The system can only start the operation after the temperature of the secondary chamber reaches the temperature of 800 degrees Celsius.

~~Art. 18. The operation of the crematorium system should meet the following limits and monitoring parameters:~~

~~I- particulate matter (PM): one hundred milligrams per normal cubic meter corrected by oxygen content on combustion of the chemise to seven percent on a dry basis. Monitoring must be punctual, according to the methodology laid down in the relevant standards;~~

~~II- carbon monoxide (CO): a hundred parts per million volume, dry basis referred to seven percent oxygen (O₂), checked in continuous monitoring by means of registers;~~

~~III- oxygen (O₂): the limits will be determined during the burning test and its monitoring should be continuous, by means of registers;~~

~~IV- combustion chamber temperature: minimum thresholds will be determined at the time of the burning test, and should be continuously monitored by means of registers;~~

~~V- secondary chamber temperature: minimum of 800 degrees Celsius, with continuous monitoring by means of registers;~~

~~VI- combustion chamber pressure: positive, with continuous monitoring through a manostat and registers.~~

Art. 18. The operation of the crematorium system should meet the following limits and monitoring parameters:

I- particulate matter (PM): one hundred milligrams per normal cubic meter corrected by oxygen content on combustion mixture of the chemise to seven percent on a dry basis, and monitoring be punctual and comply with the relevant standards set by pertinent standards;

II- carbon monoxide (CO): a hundred parts per million volume, dry basis, checked with continuous monitoring, and the licensing may require continuous recording;

III- combustion chamber temperature: minimum thresholds will be determined at the time of the burning test, and should be continuously monitored and the licensing organ may require continuous recording;

IV- secondary chamber temperature: minimum of 800 degrees Celsius, with continuous monitoring and recording;

V- combustion chamber pressure: negative, with continuous monitoring, with the use of pressure gauge, and the licensing organ may require continuous recording. *(new wording by Resolution No. 386/06)*

Art. 19. The bodies, fetuses or anatomical parts received at the crematorium, should be prosecuted, preferably within eight hours.

Sole paragraph. On the impossibility of processing within the time limit set in the caput, bodies, parts or fetuses shall be kept in a proper refrigeration equipment..

Art. 20. The funeral urn, used in crematoria should be of cardboard or wood, free from treatment, painting, plastic and metal decoration, except for cases in which sealed urns are required for reasons of public health or sanitary emergencies.

Art. 21. The crematorium system cannot start operation before the burning test following the criteria of this Resolution and of the competent environmental agency.

Art. 22. The thermal treatment system for urban origin waste, when implanted, must meet the following conditions, without prejudice to other requirements in the licensing procedure and complementary legislation:

I- covered area for the receipt of waste;

II. proper collection and treatment system of slurry

Art. 23. Waste of urban origin, received by thermal treatment system, are expected to have a record of information relating to the area of origin and quantity.

Sole paragraph. The chambers shall operate at the minimum temperature of 800 degrees Celsius, and the residence time of waste in its interior cannot be less than one second.

Art. 24. The implementation of the waste thermal treatment system of urban origin must be preceded by the implementation of a waste segregation program, integrated action with those responsible for collecting system and heat treatment for recycling or reuse, in accordance with the municipal waste management plans.

Sole paragraph. After the operating license of the thermal treatment system, the following minimum schedule of goals should be complied with:

I- in the first biennium, the percentage corresponding to six per cent of the waste generated in the service area of the system should be segregated;

II- in the second biennium the percentage corresponding to twelve percent of waste generated in the service area of the system should be segregated;

III – in the third biennium the percentage corresponding to 18 per cent of the waste generated in the service area of the system should be segregated;

IV- in the fourth biennium the percentage corresponding to twenty-four percent of waste generated in the service area of the system should be segregated; and

V- from the fifth biennium the percentage corresponding to thirty per cent of the waste generated in the service area of the system should be segregated.

Art. 25. The thermal treatment of pesticides and the like, as well as the materials, products or waste contaminated by them when required by specific legislation, shall meet the provisions of this Resolution, following the same parameters and criteria adopted for industrial waste.

Art. 26. The licensing process of thermal waste treatment units will be technically grounded on the basis of the following related studies, to be presented by the person concerned:

I- Basic and detailed Projects;

II- Study and Environmental impact report (EIA/RIMA) or another study, defined by the competent environmental agency;

III- Risk analysis;

IV- Burning test Plan (ANNEX II);

V- Contingency Plan (ANNEX III);

VI. Emergency plan (ANNEX IV).

§ 1 The maximum period of validity of the operating license shall be five years.

§ 2 The frequency of tests to check the conformity of emission ceilings and the other conditions of the operating license, as well as other procedures not listed, should be fixed at the discretion of the competent environmental agency.

§ 3 In case of termination of the activities, the entrepreneur shall submit to the competent environmental agency the Deactivation Plan of the system (ANNEX V), obtaining the

Due of licensing.

Art. 27. Any thermal treatment system must have units of reception, storage, power supply, treatment of gaseous and particulate emissions, liquid effluents treatment, treatment of ash and slag.

Sole paragraph. In the case of liquid and solid effluents are not treated within the treatment system installations, the recipient who receive them must be properly licensed for this purpose.

Art. 28. All waste thermal treatment system shall have a technician responsible for its operation, duly authorized for this purpose, with technical responsibility registered with the competent professional body.

Sole paragraph. The technician responsible will have the following duties:

I- management of the operation, maintenance and control of the thermal treatment system;

II. the implementation of emergency plans; and

III-development and guard for twenty-five years, in the form of reports, of all the records of operation, maintenance, and system disruption, including amount of waste treated, their characterization, the input menu, when applicable, the slag produced, as well as checks of the fulfillment of air and water emission pollutants limits.

IV- The legally qualified technician will be responsible for issuing thermal treatment certificate attesting to have fulfilled the conditions of the environmental permit whose data

Will be included in such a certificate, and the custody of this document shall also be the responsibility of the generator of the waste, contractor operation.

Art. 29. The first checking of compliance with the Emission Ceilings will be held at full capacity, and must necessarily precede the dispatch operation license (LO), which in turn may not exceed six months from the start of the unit

Sole paragraph. The burning test is required to be made at the time of licensing, license renewal, and any modification of the operating conditions.

Art. 30. The thermal treatment system operator must be trained in the following topics:

I-environmental concepts and relevant legislation;

II-basic principles of combustion, thermal treatment of waste and the generation of pollutants (gas, liquid and solid);

III- operation manual, with emphasis on the type of system, starting procedures, operation and shutdown;

IV-operation and maintenance of components and subsystems, including the monitoring and control of pollution;

V-handling of waste generated in the thermal treatment process;

VI-procedures for the reception of wastes, with attention to the non-receipt of radioactive waste;

VII-Program for the Prevention of Labor Accident Risks of the Ministry of Labor;

VIII-accidents and malfunctions of the system;

IX-operational records; and

X-simulation of response to the Emergency Plan.

Art. 31. Every waste thermal treatment system must have:

I- System's Inspection and Maintenance Plan, with complete records of inspection, maintenance, calibration;

II- Self-monitoring system, capable of maintaining the record of effluent discriminated in the conditions of the licensing process.

Sole paragraph. These records must be made available in full to the environmental agency, whenever requested.

Art. 32. The licensing for the thermal treatment of waste, not itemized in the licensing conditions of the system, should be subject to a specific procedure, before the competent environmental agency.

Art. 33. The burning test must comprise the set of measurements performed in the operating unit with waste feeder, to assess the compatibility of the operating conditions of the thermal treatment system, with a view to meet the emission limits set out in this Resolution and with the technical requirements laid down by the competent environmental agency.

Art. 34. At the beginning of the Burning Test, the interlocking system should be assessed to automatically interrupt the waste feeding.

Art. 35. The collections of samples must be carried out in triplicates.

Art. 36. The following are prerequisites to perform the burning test:

I- have a Burning Test Plan approved by the competent environmental agency;

II- present no risk whatsoever to public health and the environment;

III- have installed, calibrated and in working condition, at least, the following continuous monitors and recorders: carbon monoxide (CO), oxygen (O₂), temperature and system pressure furnace, waste feed rate and operational parameters of ECPs;

IV- installing and operating condition in an interlocking system, to stop automatically the waste power, at least in cases of:

a) low-temperature combustion);

b) lack of indication of flame;

c) power failure or sudden drop in voltage;

d) fall of levels of oxygen (O₂) both in the post-combustion chamber, and in the chimney;

e) excess carbon monoxide (CO) in the chimney in relation to the emission limit established;

f) malfunction of the monitors and oxygen or carbon monoxide loggers;

g) discontinuance of operation of Pollution Control Equipment (CPE); and

h) air supply drop of instrumentation.

Art. 37. Monitoring and control of gaseous effluents shall include at least:

I- equipment that reduce the emission of pollutants, in order to ensure compliance with the emission limits set out in this Resolution;

II- availability of access to the discharge point, enabling the periodic checking of the emission limits laid down in this Resolution;

III- continuous monitoring system with registration for levels of oxygen (O₂) and carbon monoxide (CO) at least in addition to other parameters defined by the competent environmental agency;

IV- biennial analysis of emissions of persistent organic pollutants and interlocking systems' operation.

Art. 38. Every thermal treatment system must not exceed the following maximum emission of air pollutants:

I- total particulate matter (PM): 70 milligrams per normal cubic meter;

II-inorganic substances in particulate form, grouped together as:

a) class 1: twenty-eight hundredths of a milligram per normal cubic meter including:

1. cadmium and its compounds, measured as cadmium (Cd);

2. mercury and its compounds, measured as mercury (Hg);

3. thallium and its compounds, measured as thallium (Tl);

b) class 2: one milligram and four tenths per normal cubic meter including:

1. arsenic and its compounds, measured as arsenic (As);

2. cobalt and its compounds, measured as cobalt (Co);

3. nickel and its compounds, measured as nickel (Ni);

4. tellurium and its compounds, measured as tellurium (Te);

5. selenium and its compounds, measured as selenium (Se);

c) class 3: seven milligrams per normal cubic meter including:

1. antimony and its compounds, measured as antimony (Sb);
2. lead and its compounds, measured as lead (Pb);
3. chromium and its compounds, measured as chromium (Cr);
4. soluble, easily measured as cyanides Cyanides (CN);
5. copper and its compounds, measured as copper (Cu);
6. tin and its compounds, measured as Tin (Sn);
7. fluorides soluble, easily measured as Fluorine (F);
8. manganese and its compounds, measured as manganese (Mn);
9. platinum and its compounds, measured as Platinum (Pt);
10. palladium and its compounds, measured as Palladium (Pd);
11. rhodium and its compounds, measured as rhodium (Rh);
12. vanadium and its compounds, measured as vanadium (V).

III. Gases:

1. sulphur oxides: two hundred and eighty milligrams per normal cubic meter, measured as sulphur dioxide;
2. nitrogen oxides: five hundred and sixty milligrams per normal cubic meter, measured as nitrogen dioxide;
3. carbon monoxide: a hundred parts per million per normal cubic meter;
4. inorganic chlorinated compounds: 80 milligrams per normal cubic meter, up 1.8 kgh, measured as hydrogen chloride;
5. inorganic fluorine compounds: five milligrams per normal cubic meter, measured as hydrogen fluoride;
6. dioxins and furans: polychlorinated dibenzo-p-dioxins and dibenzo-p-furans, expressed as TEQ (toxic equivalent) of 2, 3,7, 8 TCDD (tetrachloride-dibenzo-para-dioxin): 0.50 ngNm³;
 § the toxicity equivalency factors (FTEQ) are those set out in ANNEX I.
 § 2 the parameters measured should be corrected by the oxygen content in the flue gas, mixture of the discharge point, to seven percent on a dry basis.
 § 3 the competent environmental agency can restrict the limits, depending on the location and conditions of air quality standards in the region.

Art. 39. the verification of the Emission Ceilings must meet the following under the technical standards in force for the following topics:

- I-determination of sampling points, in ducts and chimneys of stationary sources;
- II- gaseous discharges, in ducts and chimneys of stationary sources-determination of molecular weight-dry basis;
- III- waste gases, in ducts and chimneys of stationary sources--determination of flow and speed;
- IV- gaseous discharges, in ducts and chimneys of stationary sources-determination of moisture;
- V- gaseous discharges, in ducts and chimneys of stationary sources – determination of particulate matter;
- VI- gaseous discharges, in ducts and chimneys of stationary sources-calibration of equipment used in sampling;
- VII- gaseous discharges, in ducts and chimneys of stationary sources-determination of sulfur dioxide, sulfur trioxide and sulfuric acid mists.

Art. 40. The release of liquid effluent into water bodies must meet the emission limits and quality standards established by the legislation in accordance with the criteria contained in CONAMA Resolution No. 20, of June 18, 1986 ¹⁸³and other requirements laid down in the environmental licensing.

Art. 41. The methods of collection and analysis of wastewater must be those specified in the standards provided for in art. 24 of CONAMA Resolution n^o 20, of 18 June 1986¹⁸⁴.

Art. 42. Every equipment or thermal waste treatment system that produce waste solids, semi-solids or pasty post-treatment should keep registration procedures and a systematic control of them and meet the requirements from the licensing agency as regards its final destination.

Art. 43. All material not completely processed shall be considered waste and be subjected to thermal treatment.

§ 1 The ashes and slags from thermal treatment process, should be considered, for the purposes of disposal, as class I –Dangerous waste.

§ 2 The environmental agency may authorize the disposal of ash and slag as Class II waste (non-hazardous, non-inert) and class III (inert, non-hazardous), if its blanketing is proven by the operator.

¹⁸³ Resolution revoked by Resolution No. 357/05

¹⁸⁴ Resolution revoked by Resolution No. 357/05

Art. 44. For the facilities already licensed and in operation, the entrepreneur should establish, before the competent environmental agency the Environmental Commitment Term for the adequacy of systems to the requirements of this Resolution.

Sole paragraph. Will be at the discretion of the agency responsible for licensing, to establish the maximum period, limited to three years, to the adequacy of equipment or thermal treatment systems, already operational, to this Resolution.

Art. 45. The system of treatment which, on the date of the publication of this Resolution, is operating without proper environmental permit should apply for regularization of its undertaking, before the competent environmental agency, within a maximum period of ninety days.

Art. 46. The non-compliance with this Resolution will subject violators to sanctions and penalties set forth in Law 9.605, of February 12, 1998 and Decree 3.179 of September 21, 1999, without prejudice to other sanctions.

Art. 47. This Resolution shall enter into force on the date of its publication.

JOSÉ CARLOS CARVALHO-Council President

ANNEX I
TOXICITY EQUIVALENCY FACTORS-FTEQ OR TOXIC FACTORS EQUIVALENT FOR
DIOXINS AND FURANS

DIOXINS	FTEQ
mono-, di-, e tri-CDDs (mono-, di- e tri-chlorine-dibenzo-p-dioxins)	0
2,3,7,8 - TCDD (tetra chlorine-dibenzo-p-dioxin)	1
other TCDDs (tetra chlorines-dibenzo-p-dioxins)	0
1,2,3,7,8 - PeCDD (pent chlorine-dibenzo-p-dioxin)	0,5
Other PeCDDs (pent chlorine-dibenzo-p-dioxins)	0
1,2,3,4,7,8 - HxCDD (hexachlorine-dibenzo-p-dioxin)	0,1
1,2,3,6,7,8 - HxCDD (hexachlorine -dibenzo-p-dioxin)	0,1
1,2,3,7,8,9 - HxCDD (hexachlorine -dibenzo-p-dioxin)	0,1
other HxCDDs (hexachlorine -dibenzo-p-dioxins)	0
1,2,3,4,6,7,8 - HpCDD (hexachlorine -dibenzo-p-dioxin)	0,01
Other HpCDDs (hexachlorine -dibenzo-p-dioxins)	0
OCDD (octachloro-dibenzo-p-dioxin)	0,001
FURANS	FTEQ
Mono-, di-, tri-CDFs (mono-, di- e tri-chlorine-dibenzofurans)	0
2,3,7,8 - TCDF (tetrachlorine-dibenzofuran)	0,1
Other TCDFs (tetra chlorine -dibenzofurans)	0
1,2,3,7,8 - PeCDF (pentachlorine-dibenzofuran)	0,05
2,3,4,7,8 - PeCDF (pent chlorine -dibenzofuran)	0,5
other PeCDDs (pent chlorine -dibenzofuran)	0
1,2,3,4,7,8 - HxCDF (hexachlorine-dibenzofuran)	0,1
1,2,3,6,7,8 - HxCDF (hexachlorine -dibenzofuran)	0,1
1,2,3,7,8,9 - HxCDF (hexachlorine -dibenzofuran)	0,1
2,3,4,6,7,8 - HxCDF (hexachlorine -dibenzofuran)	0,1
other HxCDFs (hexachlorine -dibenzofurans)	0
1,2,3,4,6,7,8 - HpCDF (heptachlorine-dibenzofuran)	0,01
1,2,3,4,7,8,9 - HpCDF (heptachlorine-dibenzofuran)	0,01
Other HpCDFs (heptachlorine-dibenzofuran)	0
OCDF (octachlorine-dibenzofuran)	0,001
FURANS	FTEQ
Mono-, di-, tri-CDFs (mono-, di- e tri-chlorine-dibenzofuran)	0
2,3,7,8 - TCDF (tetrachlorine-dibenzofuran)	0,1

other TCDFs (tetra chlorine -dibenzofurano)	0
1,2,3,7,8 - PeCDF (pentachlorine-dibenzofuran)	0,05
2,3,4,7,8 - PeCDF (pent chlorine -dibenzofuran)	0,5
other PeCDDs (pent chlorine -dibenzofurans)	0
1,2,3,4,7,8 - HxCDF (hexachlotone-dibenzofuran)	0,1
1,2,3,6,7,8 - HxCDF (hexachlotone -dibenzofuran)	0,1
1,2,3,7,8,9 - HxCDF (hexachlotone -dibenzofuran)	0,1
2,3,4,6,7,8 - HxCDF (hexachlotone -dibenzofuran)	0,1
other HxCDFs (hexachlotone -dibenzofurans)	0
1,2,3,4,6,7,8 - HpCDF (heptachlorine-dibenzofuran)	0,01
1,2,3,4,7,8,9 - HpCDF (heptachlorine -dibenzofuran)	0,01
other HpCDFs (heptachlorine -dibenzofurans)	0
OCDF (octachlorine-dibenzofuran)	0,001

ANNEX II THE BURNING TEST PLAN

Art. 1. The Burning Test Plan (PTQ) should contain the data, the calculations and procedures related to the proposed incineration operations for the residue or material to be subjected to thermal treatment.

Art. 2 The following items should be included in the content of the plan:

- I- objective of the test;
- II- process flowcharts, with indication of the power points, description and capacity of power systems (air, water, auxiliary fuel and waste), as well as the temperature profile of the system;
- III- description of burning system equipment:
 - a) manufacturer's name;
 - b) types and a brief description of the components of the system;
 - c) maximum capacity of design and rated capacity;
- IV- description of each supply current:
 - a) waste:
 - 1- origin, stocked quantity;
 - 2- higher calorific value, probable composition, elementary composition and identifying and quantifying any substances, evaluated on the basis of the process residue, generator and bearing of the listings contained in ANNEX I to this Resolution;
 - 3- desired feeding rate
 - 4- rate of metals and total chlorine levels /chloride, fluorides, sulfur, ashes and moisture;
 - 5- selection of Major Hazardous Organic Compounds-PCOPs;
 - 6- description of waste pre-mixing procedures, where applicable.
 - b) fuels:
 - 1- type;
 - 2- higher calorific value-PCS;
 - 3- levels of sulfur, ashes and moisture; and
 - 4- flow.
 - c) primary air and secondary air:
 - 1- flow;
 - 2- temperature;
 - d) process water or steam:
 - 1- flow;
 - 2- temperature;
- V- operating conditions proposed for burning test, including residence time for gases and solids, with memories of calculation;
- VI. description of the emissions control system, equipment and their operational conditions;
- VII- description of the final destination of the waste generated in atmospheric emissions control system. If there are steps for treatment of this system, which generate Liquids effluents, describe your equipment and operations, its parameters and operating conditions, and your proposed monitoring for these wastewater treatment systems.

The same applies to the effluents generated in cleaning operations of floors and equipment as well as contaminated rainwater;
- VIII- description of the sampling system and characterization of ashes and slag generated during incineration;
- IX- description and sketch of the location of all measurement points and collecting samples for monitoring and emission control systems, and description of these data management systems;
- X- list of parameters to be monitored, in incineration equipment and systems for the treatment of gases from incineration, relating equipment used in monitoring;
- XI - list of parameters to be monitored, at all stages of emission control, including, without limitation, methodologies and data collection and analysis equipment, detection limits of the methods of laboratory analysis, data collection frequency of sampling and measurements to: fuels, raw materials, waste disposal, such as currents and particulate, gaseous effluents, solid waste and liquid effluents;
- XII- interlock system, description of the conditions in which the interruption and resumption of feeding of waste occurs;
- XIII- estimate of the maximum theoretical rate of waste feed, based on mass balance, compliance with the emission limits set out in this Resolution;
- XIV- estimation of emission levels, resulting from the adoption of the desired feed rate, based on mass balance, contemplating the input data (air, water, fuel and wastes) and output (ashes, effluents, exhaust gas, particulate matter retained in the ECP, particulates in gases emitted into the atmosphere, among others);

XV- operating schedule;
XVI- identification of the technicians involved in the test, including responsibilities and qualifications. All documents submitted must be signed by a professional enabled, and registered with the competent professional council;

XVII- licensing sequence, after the adoption of the Burning Test Plan.

Sole paragraph. For the feeding of waste under intermittent system, in cans, canisters, packages, or without prior fragmentation of larger quantities, the volume of each batch and the frequency of its feeds should be established to ensure that the rapid volatilization of compounds introduced to the system, does not promote reductions in concentrations of oxygen (O₂), below which the efficiency of thermal destruction process of these compounds is compromised.

Art. (2) The entrepreneur shall fix the date for the Burning Test, in agreement with the environmental agency, which will monitor all operations of the test, as well as the control and watch for the release of lots of waste and its transport.

§ 1 It may be predicted the realization of a "pre-test of burning", which should be scheduled by the environmental organ, in order the necessary adjustments can be made for the conditions of waste feeding to be tested, as well as support to professionals involved with the activity, the correct fit for the Burning Test Plan.

§ 2 At the expiration of the period requested for the pre-test, the environmental agency should be informed as to eventual changes in the Burning Test Plan.

Article 3 The waste cannot be changed by addition or replaced by any other type of waste containing contaminants other than those previously approved.

Sole paragraph. In the event that changes occur, new Burning Test Plan should be drawn up.

ANNEX III CONTINGENCY PLAN

Art. 1 It is mandatory the drawing draw up of a Contingency Plan, aiming to identify the answers to a number of emergency situations, previously identified, assigning personal tasks, equipment to be use and evacuation plans if necessary.

Sole paragraph. The plan will be implemented whenever there is the occurrence of fire, explosion or release of hazardous emissions, which may cause impact to health and/or the environment.

Art. 2 The Contingency Plan should have a coordinator who will submit report of cases to the competent environmental agency.

Art. 3. The Contingency Plan shall include at least the following topics:

I-communication systems;
II-internal alarm systems;
III-mutual assistance plan;
IV-fire control and leaks equipment;
V- decontamination equipment and procedures;
VI-testing procedures and maintenance of protective equipment;
VII-maintenance plan, including shutting down the unit and disposal of waste;
VIII-removal plan of wounded;
IX-simulation and training plan;
X-description of procedures for receipt, storage, handling and disposal of waste;
XI-description of the safety equipment and procedures;
XII-description of precautions to prevent accidental ignition or , reactive or incompatible inflammable waste reactions;
XIII-description of internal transport of waste, including indicating in internal traffic routes plant.

Art. 4 All equipment must have interlocking mechanisms, on the following occurrences:

I- low temperature of combustion;
II- lack of indication of flame;
III- electric power outage or sudden drop in voltage;
IV- low concentration of oxygen in the post-combustion chamber or in the chimney;
V- detection of values of carbon monoxide (CO) between one hundred and five hundred parts per million for more than ten consecutive minutes;
VI- malfunction of the monitors and oxygen or carbon monoxide loggers;
VII- interrupt or stop the operation of the pollution control equipment;
VIII- fall air supply of instrumentation;
IX- exhaust fan stop .
X- under positive pressure in the combustion chamber.

**ANNEX IV
EMERGENCY PLAN**

Art. 1 The emergency Plan is mandatory and must contain, at a minimum, procedures to be adopted in the following cases:

- I- fire in the storage of waste;
- II- discharging operations risks;
- III- leaks from storage areas and handling of hazardous waste to the environment, or to prevent against flooding;
- IV- equipment failures and interruption of electricity supply;
- V- undue exposure of people to waste;
- VI- gas release to the environment.

Art. 2 The person responsible for any equipment or system of thermal treatment of waste, must report to the licensing agency, the occurrence of any accident.

§ 1 It shall be submitted to the environmental agency, a report highlighting causes, evaluation of the consequences and measures adopted in time limit to be fixed in the operating license.

§ 2 The technologies that require the installation of emergency chimney must have opening sensor and automatic device registration, with registration of data on the causes and time of opening.

§ 3 The lack of information on the environmental agency shall subject the offender to penalties laid down in the legislation in force

**ANNEX V
DISABLING PLAN**

Art. 1 The termination of activities of thermal treatment systems must be preceded by the presentation of a Deactivation Plan, which shall contain at least the following topics:

- I- description of how and when the unit will be partially or completely discontinued;
- II- environmental diagnosis of the area;
- III- inventory of wastes stocked;
- IV. Description of procedures for decontamination of the premises;
- V- disposal of stocked waste and of materials and contaminated equipment;
- VI- schedule of deactivation.

Art. 2 The Deactivation Plan shall be presented by the enterprising and prepared by a professional qualified and subject to prior approval by the competent environmental agency.

Sole paragraph. Any change in the Deactivation Plan must be authorized by the environmental agency.

Art. 3 Procedures for post-deactivation shall be established by the competent environmental agency, when appropriate, in the framework of the Plan of Deactivation.

Art. 4 Upon the completion of the proposed activities, the thermal treatment system owner must submit, to the environmental agency, a final report.

This text does not replace the one published in the Official Gazette, of November 20, 2002

CONAMA RESOLUTION 340, September 25, 2003
Published in Official Gazette 213 on November 3, 2003, Section 1, pp. 61-62

Correlations:

- Changes CONAMA Resolution No. t 267/00 (revokes art. 7 and changes art. 15)

Establishes provisions for the use of containers for the packaging, storage, transportation, collection and commercialization of gases that harm the Ozone Layer and makes other provisions¹⁸⁵

The NATIONAL ENVIRONMENTAL COUNCIL-CONAMA, pursuant to the powers vested on it by art. 6 and 8 of Law 6.938, of August 31, 1981, regulated by Decree 99.274, of June 6, 1990, and bearing in mind the provisions of its Internal Rules, Annexed to Ordinance No. 499, of 18 December 2002¹⁸⁶, and

Considering the need of implementation of training mode for refrigeration mechanical provided for in the National Plan for the Elimination of the Consumption of CFCs, approved in 2002 by the Executive Committee of the Montreal Protocol, with international donation funds;

Considering the provisions of CONAMA Resolution No. 267, of September 14, 2000, which regulated the process of collecting and storing destructing gases¹⁸⁷ in the Ozone Layer during the equipment maintenance, resolves:

Art. 1 It is prohibited the use of pressurized disposable cylinders which are not in conformity with the specifications of this Resolution, as well as any other capacities for misused as containers for packaging, storage, transportation, collection and marketing of CFC-12, CFC-114, CFC115, R-502 and Halons H-1211, H- 1301. And H-2402.

Art. 2 During any process of withdrawal or sale of controlled substances, specified in Annexes A and B of the Montreal Protocol, used as refrigerant fluids and fire extinguishing systems, removal of systems, installation, equipment or in maintenance or repair shops, is prohibited the release of these controlled substances in the atmosphere and they must be collected by means of appropriate collection and placed in suitable containers.

§ 1. The CFC-11 and CFC-113 liquids at ambient temperature and pressure, and not recycled *in loco*, should be collected in cylinders designed for storing and transporting liquid solvents, and completed to occupy a space that does not exceed the ninety percent of container capacity at 25° C.

§ 2 The controlled substances that are liquefied gases or for fire extinguishing under specified pressure and temperature, and not recycled *in loco*, i.e. CFC-12, CFC-114, CFC-115, R-500 series containing CFCs and Halons H-1211, H-1301 and H2402, should be mandatorily collected in a container, designed for the collection, storage and transport of liquefied non-flammable refrigerants and for fire extinguishing with working pressure of at least 350 psig, and level of filling the space occupied by the refrigerant or gas fire-extinguishing system shall not exceed 80% of the net capacity of the container at a temperature of 25° c.

§ 3 The transfer of liquefied refrigerant or Halon for the container must be carefully controlled by the weight, taking into consideration the net capacity of the container and the density of controlled substance to 25°C.

I- The maximum allowable weight of refrigerant collected or Halon placed in the container should be determined using the following formula:

a) maximum allowable weight per kg = $0.8 \times CL$ (CL = net capacity of pickup roller in kg) x DL (DL = liquid coolant density of collection or Halon at 25°C in kg/l)

§ 4 Cylinders and collecting machines should be designed to contain an anti-overflow device that will automatically limit the maximum level of refrigerant or fire-extinguishing transferred respecting the level of 80% of his net volume.

§ 5 In the case of collection and recycling of substance at the site of operation to recharge the system or equipment, which has been withdrawn, it will be observed:

I- fluid refrigerants or for fire extinguishing can only be collected with a collecting and recycling equipment designed to be used with refrigerant fluid or fore fire extinguishing or with a suitable internal cylinder for this purpose, and automatic anti-overflow control of internal cylinder or container interconnected.

II if the *in loco* operations of collection and recycling initially include gathering of controlled substance for an external container followed by recycling the contents of the container, the

¹⁸⁵ Corrected in DOU No. 224 pf November 18, 2003, page 103

¹⁸⁶ Ordinance revoked by Ordinance MMA No. 168, of June 10, 2005

¹⁸⁷ Corrected in DOU No. 224 pf November 18, 2003, page 103

refrigerant fluid or for fire extinguishing should be collected to appropriate containers in accordance with §§ 1 and 2 of this article.

§ 6 The containers of refrigerant gas or for extinguishing of fires collected, except those containing CFC-12 collected, will be sent to recycling units or incineration centers licensed by the competent environmental agency, unless the refrigerant gas or for extinguishing is recycled *in loco*.

§ 7 The cylinders containing CFC-12 refrigerant should be sent to regional centers of refrigerant regeneration licensed by the competent environmental agency or the centers for collection and accumulation associated with regeneration plants.

§ 8 If no regeneration plants or collection centers the accumulation exist, the cylinders of CFC-12 refrigerant collected shall be stored until shipment to these regeneration centers or collection.

Art. 3 Art. 15 of CONAMA Resolution No. 267, of September 14, 2000, shall take effect as follows:

"Art. 15. The non-compliance with the provisions of this Resolution will subject violators, among others, to the penalties and sanctions, respectively, provided for in Law 9.605 of February 12, 1998 and Decree 3.179 of September 21, 1999".

Art. 4 This resolution shall enter into force on the date of its publication.

Art. 5 Art. 7 of CONAMA Resolution o. 267. O 2000, is hereby revoked.

MARINA SILVA – Council President

This text does not replace the one published in the Official Gazette o November 3, 2003.

RESOLUTION 344, March 25, 2004
Published in Official Gazette 087 on 05/07/2004, pp. 56-57

Correlations:

- Art. 9 revoked by Resolution No. 421/2010.

Establishes general directives and minimum requirements for the assessment of dredge materials in waters under national jurisdiction and makes other provisions.

The NATIONAL ENVIRONMENTAL COUNCIL-CONAMA, pursuant to the powers vested on it by Law 6.938 dated August 31, 1981, regulated by Decree 99.274, of July 6, 1990, and bearing in mind the provisions of its Internal Rules, ANNEX to Ordinance No. 499, of December 18, 2002, and

Considering the provisions of the Convention on the Prevention of Marine Pollution by Dumping of Waste and other Matters (the London Convention-LC/72), promulgated by Decree 87.566 of September 16, 1982, as amended, providing in its art. 2 that the contracting parties shall adopt, according to their scientific, technical and economic possibilities, effective measures, individually and collectively, to prevent contamination of the sea caused by the dumping of waste;

Considering the provisions of art. 30 of Law 9.966, of April 28, 2000, which provides that the dumping of wastes or other matter in waters under national jurisdiction must comply with the conditions laid down in the Convention of London promulgated by Decree 87.566, of 1982, as amended;

Considering the need of conducting dredging activities to ensure the deployment and operation of ports and port terminals, and the conditions of navigability of the water bodies;

Considering that the dredging activity is subject to environmental licensing under CONAMA Resolution No. 237, of December 12, 1997, and, when applicable, CONAMA Resolution nº 1, of January 23, 1986, based on environmental studies and activity monitoring obligation;

Considering the need to support and harmonize the activities of the competent environmental agencies with regard to the environmental licensing process of dredging activities, resolves:

Art. 1 Establish the general guidelines and minimum procedures for the evaluation of the material to be dredged in order to manage its disposal in Brazilian jurisdictional waters.

§ 1. For the purposes of classification of the material to be dredged for disposal on land, the same should be compared to the guiding values established for soils by the standard from the Environmental Sanitation Technology Company-CETESB, "Establishment of the Guiding Values for soil and Groundwater in the State of São Paulo", published in the Business Official Gazette.; São Paulo, 111 (203), Friday, October 26, 2001, until national guiding values are established by the National Council of The Environment – CONAMA;

§ 2- If the material to be dredged will not meet the values referred to in paragraph 1, alternatives shall be selected for the disposition authorized by the competent environmental agency.

Art. 2 For the purposes of this Resolution the following settings are adopted:

I- dredged material: material removed or moved from the bed of water bodies due to dredging activity, provided this material does not constitute a mineral asset.

II- competent environmental agency: environmental agency for environmental protection and control from the federal, state or municipal executive branch, member of the National System of Environment-SISNAMA, responsible for environmental licensing, within the framework of its competences;

III- final disposal of dredged material: place where the materials resulting from dredging activities will be placed, where they can stay indefinitely, in their natural state or processed into material suitable for this permanence, in a manner not detrimental to the safety of navigation, not to cause harm to the environment or human health;

IV-Brazilian jurisdictional waters:

a) inland waters:

1. waters between the coast and the straight baseline from which the territorial sea is measured;

2. port waters;

3. the waters of bays;

4. waters of rivers and their mouths;

5. the waters of lakes, ponds and canals;

6. waters between the shoals and the coast.

b) maritime waters:

1. waters covered by a band of twelve nautical miles

width, measured from the straight base and low tide line, as stated in the large-scale nautical charts, which constitute the territorial sea;

2. waters covered by a track that extends from twelve to two hundred nautical miles, counted from the baselines for measuring the territorial sea, the exclusive economic zone comprising; and

3. the waters overlying the continental shelf, when this exceeds the limits of the exclusive economic zone.

V-eutrophication: natural process of enrichment by nitrogen and phosphorus in lakes, dams, rivers or estuaries and, consequently, of organic production; in cases where there are environmental impacts arising from man-made processes, there is a significant acceleration of the natural process, with damage to scenic beauty, environmental quality and the aquatic biota.

Art. 3 for the purposes of classification of the material to be dredged, quality criteria are defined, from two levels, according to procedures laid down in the ANNEX to this Resolution:

I- level 1: threshold below which it is expected low probability of adverse effects to biota.

II- level 2: threshold level above which it is expected a likely adverse effect to biota.

§ 1. The quality criteria are based on the comparison of the results of the characterization of the material to be dredged, with the guiding values set out in TABLE III of the ANNEX to this Resolution, in order to guide the management of the disposal of dredged material in the environmental licensing procedure.

§ 2 It is dismissed from previous classification the material from dredging carried out for the cases of emergency or public calamity, officially enacted.

§ 3 It is dispensed from classification for disposal at sea, the material to be dredged at sea, in estuaries and bays dredged with volume less than or equal to 100,000 m³, provided all samples collected show a sand percentage equal to or greater than 90%.

§ 4 It is dispensed from classification for disposal in Brazilian jurisdictional waters, the material to be dredged in rivers or ponds with dredged volume less than or equal to 10,000 m³, provided all samples collected with sand percentage equal to 90% or more.

Art. 4 To support the monitoring of the process of eutrophication in disposition areas subject to this process, the characterization of the material to be dredged should include measurements of organic carbon and nutrients contained in TABLE IV in the ANNEX of this Resolution.

Sole paragraph. The reference values in TABLE IV shall not be used for the classification of the material to be dredged, but only as a contributing factor to the desktop management.

Art. 5 For the classification of the material to be dredged, the data obtained in the sampling of sediments must be presented in the form of tables, with the raw data and their interpretation, and samples of each station should be analyzed individually and collected in sufficient quantities for the purpose of rebuttal, whose analysis will be carried out at the discretion of the competent environmental agency.

I- collection stations shall be identified and georeferenced by a geographic coordinate system by specifying the geodetic reference system.

II- the methodologies employed in the collection of sediment samples should be proposed by the entrepreneur and approved by the competent environmental agency.

III -the chemical analyses should include analytical traceability, validation and analytical data consistency, control cards, (prepared with concentration tracks significantly close to those expected in solid matrices), and certified tests with sediment samples in order to verify the accuracy of the results by means of parallel tests.

IV -the certified samples not containing the analyzes of interest (for example, organic compounds), the tests should be performed by standard addition or addition of reinforcement ("spike"), so that it is guaranteed a degree of acceptable recovery for determination of these compounds in the array. The limits of detection must be performed below the level 1, of TABLE III of the ANNEX to this Resolution, for each compound.

V- the analytical methodology for the extraction of metals from the samples would consist in attack with concentrated nitric acid and heating by microwaves, or similar methodology to be established by the competent environmental agency.

Sole paragraph. The competent environmental agency has previously established the methodology for the preservation of counter evidence.

Art. 6. The physical, chemical and biological analyses provided for in this Resolution must be carried out in laboratories that have these processes of analysis accredited by INMETRO- National Institute of Metrology, or in laboratories qualified or accepted by the competent environmental licensing agency.

Sole paragraph. Laboratories should have analytical quality control system implemented, in compliance with the procedures established in this Resolution.

Art. 7. The material to be dredged may be disposed of in Brazilian jurisdictional waters, according to the following criteria to be observed in the environmental licensing process:

I - it will not require additional studies for its characterization:

a) material composed of coarse sand, gravel or pebble in fraction equal or greater than 50%,

or

b) material with a concentration of metals; except mercury, cadmium and lead or arsenic between levels 1 and 2; or

d) material with a concentration of polycyclic aromatic hydrocarbons PAHs in Group B is between levels 1 and 2 and the sum of the concentrations of all PAHs is below the value corresponding to the sum of PAHs.

II- the material with a concentration of any pollutant exceeds the level 2 can only be provided by technical-scientific evidence and provided for monitoring of the process and of the disposition, so that the biota of this area did not suffer adverse effects greater than those expected for the level 1, not being accepted techniques that consider layout principle as, dilution or dissemination of sediments of dredged material.

III- the material with a concentration of mercury, cadmium, lead or arsenic, or of Group A PAHs is between levels 1 and 2, or if the sum of the concentrations of all PAHs is above the value corresponding to the sum of PAHs, should be

Submitted to ecotoxicological tests, among other tests as may be required by the competent environmental agency or proposed by the entrepreneur in order to frame it in criteria laid down in sections I and II of this article.

Art. 8 The authors of studies and technical reports are considered experts for the purposes of article 342, caput, of Decree-Law 2.848 of December 7, 1940-Penal Code.

~~Art. 9 This resolution will be revised up to five years, counted from the date of publication of this Resolution, aiming at the establishment of national guiding values~~

~~For the classification of the material to be dredged.-(revoked by resolution 421/2010)~~

Art. 10. The Brazilian Institute of the Environment and Renewable Natural Resources - IBAMA should standardize the form of presentation of data generated for classification of dredged material, monitoring of dredging and disposal areas, so that the data generated by the competent environmental bodies are matched, when at the time of the revision of this Resolution.

Art. 11. The provisions of art. 19 of CONAMA Resolution No. 237 of 1997 shall be applied to the environmental licenses in force and any renewal shall fully comply with the provisions of this Resolution.

Art. 12. The framework of the technical aspects related to items III and IV art. 5 of this Resolution, shall be in the transitional period of up to two years, counted from the date of publication of this Resolution.

Art. 13. The ecotoxicological characterization referred to in item III of art. 7 of this Resolution may, without prejudice to the other requirements and conditions laid down in this Resolution and in other applicable regulations, be exempted by the competent environmental bodies, by non-extendable period of up to two years, counted from the date of publication of this Resolution, allowing the disposal of this material in Brazilian jurisdictional waters, provided that the following conditions are fulfilled:

I- the place of provision is monitored in order to check for damage to biota from pollutants in the material provisions, in accordance with procedures established by the competent environmental agency, with presentation of periodic reports;

II- the disposal site has received over the last three years, volume equal to or greater than of dredged material from the same source and with similar physical and chemical characteristics, resulting from periodic dredging, and the disposal of dredged material has not produced evidence of significant impacts on environmental pollutants in place of disposal.

Art. 14. This Resolution shall enter into force on the date of its publication.

MARINA SILVA-Council President

This text does not replace the one published in the Official Gazette of 05/072004

**ANNEX
1 – COLLECT OF SEDIMENT SAMPLES**

Consists on characterizing the horizontal and vertical section of the dredging area, from collecting sediment samples representing the material to be dredged. The spatial distribution of sediment samples should be representative of the size of the volume and area to be dredged. The depths of the collections of samples should be representative of the profile (quota) to be dredged. TABLE 1 provides the number of collection stations to be established.

**TABLE I
MINIMUM NUMBER OF SAMPLES FOR CHARACTERIZATION OF
SEDIMENTS***

Volume to be dredged (m ³)	Number of samples **
Up to 25.000	3
Between 25.00 and 100.000	4 to 6
Between 100,000 and 500,000	7 to 15
Between 500,000 and 2,000,000	16 to 30
Above 2,000,000	10 extra per 1 million m ³

*Reference: The Convention for the Protection of the Marine Environment of the North-East Atlantic ("OSPAR Convention") was opened for signature at the Ministerial Meeting of the Oslo and Paris Commissions in Paris on September 22, 1992.

**The number of samples may vary depending on the environmental characteristics of the area to be dredged;

This number will be determined by the competent environmental licensing agency.

TABLE I does not apply to rivers and waterways, where the stations should be laid down at a maximum distance of five hundred feet from each other in the excerpts to be dredged, measured in the longitudinal direction, regardless of the volume to be dredged.

2- LABORATORY TESTING

The laboratory research (testing) of the material to be dredged will be developed in three stages, namely:

1st STAGE - PHYSICAL CHARACTERISTICS

The basic physical characteristics include the amount of material to be dredged, the particle size distribution and the specific weight of the solids.

**TABLE II
GRANULOMETRIC CLASSIFICATION OF SEDIMENTS**

CLASSIFICATION	Phi (φ)**	(mm)
Very thick sand	-1 to 0	2 to 1
Thick sand	0 to 1	1 to 0.5
Medium sand	1 to 2	0.5 to 0.25
Thin sand	3 to 4	0.25 to 0.125
Very thin sand	3 to 4	0.125 to 0.062
Silt	4 to 8	0.062 to 0.00394
Clay	8 to 12	0.00394 to 0.0002

*References: Granulometric Scale of Wentworth, 1922.

**Phi (ϕ) corresponds to the unit of measurement of the diameter of the sediment particle, whose equivalence in millimeters (mm) is presented in column 3 of TABLE II.

2nd STAGE - CHEMICAL CHARACTERIZATION

The chemical characterization should determine the concentrations of pollutants in sediment in the total fraction. The detail will be given in accordance with pre-existing sources of pollution in the area of the project and will be determined by the competent environmental agency, in accordance with the classification levels of the material to be dredged, referred to in TABLE III.

The substances listed in this table, when necessary to their investigation, will have their guiding values previously established by the competent environmental agency.

If data exist on baseline levels (natural values recognized by the environmental agency jurisdiction) of a particular region, these should take precedence over the values of TABLE III whenever they are higher.

TABLE III 1
LEVELS OF CLASSIFICATION OF THE MATERIAL TO BE DREDGED

POLLUTANTS		LEVELS OF CLASSIFICATION OF MATERIAL TO BE DREDGED (in unit of dry material)			
		FRESHWATER		SALINE AND BRACKISH WATER	
		Level 1	Level 2	Level 1	Level 2
Heavy metals and Arsenic (mg/kg)	Arsenic (AS)	5.9 ¹	17 ¹	8.2 ²	70.2 ²
	Cadmium (Cd)	0.6 ¹	3.51	1.2 ²	9.6 ²
	Lead (Pb)	35 ¹	91.3 ¹	46.7 ²	218 ²
	Copper (Cu)	35.7 ¹	197 ¹	34 ²	270 ²
	Chromium (Cr)	37.3 ¹	90 ¹	81 ²	370 ²
	Mercury (Hg)	0.17 ¹	0.486 ¹	0.15 ²	0.71 ²
	Nickel(Ni)	18 ³	35.9 ³	20.9 ²	51.6 ²
	Zinc (Zn)	123 ¹	315 ¹	150 ²	410 ²
Pesticides organochloric (µg/kg)	BHC (Alpha-BHC)	-	-	0.32 ³	0.99 ³
	BHC (Beta-BHC)	-	-	0.32 ³	0.99 ³
	BHC (Delta-BHC)	-	-	0.32 ³	0.99 ³
	BHC (Gama-BHC/Lindane)	0.94 ¹	1.38 ¹	0.32 ¹	0.99 ¹
	Chlordane (Alfa)	-	-	2.26 ³	4.79 ³
	Chlordane(Gama)	-	-	2.26 ³	4.79 ³
	DDD	3.54 ¹	8.51 ¹	1.22 ¹	7.81 ¹
	DDE	1.42 ¹	6.75 ¹	2.07 ¹	374 ¹
	DDT	1.19 ¹	4.77 ¹	1.19 ¹	4.77 ¹
	Dieldrin	2.85 ¹	6.67 ¹	0.71 ¹	4.3 ¹
Endrin	2.67 ¹	62.4 ¹	2.67 ¹	62.4 ¹	
PCBs (µg/kg)	Biphenyl Poloychlorated-Totals	34.1 ¹	277 ¹	22.7 ²	180 ²
Group A	Benzo(a)anthracene	31.7 ¹	385 ¹	74.8 ¹	693 ¹
	Benzo(a)pyrene	31.9 ¹	782 ¹	88.8 ¹	763 ¹
	Chrysene	57.1 ¹	862 ¹	108 ¹	846 ¹
	Dibenzo(a,h)anthracen	6.22 ¹	135 ¹	6.22 ¹	135 ¹
	Acenaphthene	6.71 ¹	88.9 ¹	16 ²	500 ²
	Acenaphtilen	5.87 ¹	128 ¹	44 ²	640 ²

Hydro-carbons Policíclics Aromàtics- PAHs (µg/kg)	Group B	Anthracene	46,9 ¹	245 ¹	85,3 ²	1100 ²
		Fenanthrene	41,9 ¹	515 ¹	240 ²	1500 ²
		Fluoranthene	111 ¹	2355 ¹	600 ²	5100 ²
		Fluorine	21,2 ¹	144 ¹	19 ²	540 ²
		2-Metilnaftalen	20,2 ¹	201 ¹	70 ¹	670 ¹
		Naphthalene	34,6 ¹	391 ¹	160 ²	2100 ²
		Pyrene	53 ¹	875 ¹	665 ²	2600 ²
Add. of PAHs		1000		3000		

#considering the 13 compounds evaluated.

The guiding values, adopted in TABLE III, have as a reference the following Canadian and North-American official publications:

1 ENVIRONMENTAL CANADA. Canadian Sediment Quality Guidelines for the Protection of Aquatic Life Canadian Environmental Quality Guidelines Summary Tables.

<http://www.ec.gc.ca>, updated in 2002.

2 Long, E.R., MacDonald, D.D., Smith, S.L. Calder F. (1995). Incidence of adverse biological effects within ranges of chemical concentrations in marine and estuarine sediments. Environmental Management 19 (1): 81-97.

3. FDEP (1994). Approach to the Assessment of Sediment Quality in Florida Coastal Waters. Vol. I. Development and Evaluation of Sediment Quality Assessment Guidelines. Prepared for Florida Department of Environmental Protection-FDEP, Office of Water Policy, Tallahassee, FL, by MacDonald Environmental Sciences Ltd., Ladysmith, British Columbia. 1994.

At the time of the chemical profiling, determinations should be carried out of total organic carbon (TOC), total Kjeldahl nitrogen and total phosphorus of the material to be dredged, to subsidize the management in the area of disposal.

**TABLE IV
GUIDING VALUES FOR TOTAL ORGANIC CARBON AND
NUTRIENTS**

PARAMETERS	WARNING VALUE
TOTAL ORGANIC CARBON (%)	10
TOTAL KJELDAHL NITROGEN (mg/kg)	4800
TOTAL PHOSPHOROUS (mg/kg)	2000

WARNING VALUE - value above to which represents the possibility of harm to the environment in the area of disposal. At the discretion of the competent environmental agency, the COT may be substituted by organic matter content. Values arising from environments naturally enriched by organic matter and nutrients, such as mangroves, are excluded from the comparison with this characterization.

3rd stage-ECOTOXICOLOGICAL CHARACTERISTICS

Ecotoxicological characterization must be carried out in addition to physical and chemical characteristics, in order to assess the potential impacts to aquatic life, in the proposed site for the disposal of dredged material.

The tests and the types of samples (total sediments, or their fractions - elutriate, interstitial water, water-sediment interface) to be analyzed shall be determined by the competent environmental agency.

For the interpretation of results, ecotoxicological tests should be accompanied by the determination of ammoniacal nitrogen in the aqueous fraction, and corresponding concentration of unionized ammonia, as well as of the data relating to pH, temperature, salinity and dissolved oxygen.

Analytical results must be sent along with the updated control the sensitivity of the test organisms. The test results must also be submitted with the reference substance, held at the time of the tests with sediment samples.

NOTE: Rectified the last segment of table III in the Official Gazettes of the Union Nos. 94, of 05/18/2004, p. 74, 98, of 05/24/2004, p. 56, 102, of 05/28/2004, p. 142.

CONAMA RESOLUTION 348, August 16, 2004
Published in Official Gazette 158 on August 17, 2004, Section 1, page 70

Correlations:

- Changes Resolution CONAMA No. 307/02 (changes sub item IV, art. 3)

Changes CONAMA Resolution 307 from July 5, 2002 and adds asbestos to the hazardous wastes class.

The NATIONAL ENVIRONMENTAL COUNCIL-CONAMA, pursuant to the powers vested on it by Law 6.938 dated August 31, 1981, regulated by Decree 99.274, of June 6, 1990, and bearing in mind the provisions of its Internal Rules, and in view of the provisions of the Law 9.055, of June 1, 1995 and

Considering the provisions of the Basel Convention on control of trans boundary movements of hazardous wastes and their deposit, promulgated by Federal Decree No. 875, of July 19, 1993 which provides in its art. 1, item 1, sub item "a" and ANNEX I, considering asbestos residue as hazardous and belonging to class Y36;

Considering Resolution CONAMA No. 235, of January 7, 1998, which deals with waste classification for the management of imports, which classifies amiantus (asbestos) and other amiantus waste as hazardous waste of Class I of import prohibited according to ANNEX X;

Considering the Environmental Health Criterion No. 203, of 1998, of the World Health Organization - WHO on chrysotile asbestos which states inter alia that "exposure to chrysotile asbestos increases the risk of asbestosis, lung cancer and mesothelioma in a manner dependent according to the dose and that no tolerance limit was identified for the risk of cancer", resolves:

Art. 1 Art. 3, item IV of CONAMA Resolution No. 307, of July 5, 2002, shall take effect as follows:

"Art. 30.....

IV- Class "D": are hazardous waste from the construction process, such as paints, solvents, oils and others or those contaminated or harmful to health arising from demolition, renovations and repairs in radiological clinics, industrial facilities and others, as well as tiles and other objects and materials containing asbestos or other products detrimental to health".

Art. 2. This Resolution shall enter into force on the date of its publication.

MARINA SILVA-Council President

This text does not replace the one published in the Official Gazette of August 17, 2004.

CONAMA RESOLUTION 358, April 29, 2005
Published in Official Gazette 84 on May 4, 2005, Section 1, pages 63-65

Correlations:

- Revokes the provisions of CONAMA Resolution No. 5/93, dealing with solid wastes from health-care services, for the services covered in art. 1 of this Resolution.
- Revokes CONAMA Resolution No. 283/01

Establishes provisions for the treatment and final disposal of health service wastes and makes other provisions.

The NATIONAL ENVIRONMENTAL COUNCIL-CONAMA, pursuant to the powers vested on it by Law 6.938 dated August 31, 1981, regulated by Decree 99.274, of July 6, 1990, and bearing in mind the provisions of its Internal Rules, Annexed to Ordinance No. 499, of December 18, 2002¹⁸⁸, and in the process No. 02000.001672/2000-76, volumes I and II, resolves:

Considering the principles of prevention, precaution, polluter- pays, correction at source and integration between the various bodies involved for purposes of licensing and supervision;

Considering the need to improve, update and complementation of the procedures contained in the CONAMA Resolution No. 283¹⁸⁹, of July 12, 2001 concerning the treatment and final disposal of waste from health services, with a view to protecting public health and the quality of the environment;

Considering the need to minimize occupational hazards in the work environments and protect the health of workers and of the general population;

Considering the need to stimulate the minimization of waste generation by promoting the replacement of materials and processes for lower-risk alternatives, reduction at source and recycling, among other alternatives;

Considering that waste segregation at the time and place of his generation, reduces the volume of waste requiring special handling;

Considering that combined solutions, for the purpose of treatment and final disposal of health care waste, are particularly suitable for small generators and small municipalities;

Considering that the preventive actions are less onerous than the corrective action and minimize the damage more effectively to public health and the environment;

Considering that the need for integrated action among federal, state and municipal agencies of environment, health and urban cleaning in order to regulate the management of health care waste, resolves:

Art. 1 This Resolution applies to all services related to human or animal health care, including home care services and field works; analytical laboratories of health products; morgues, funeral homes and services which perform activities of embalming (tanatopraxia and somatic conservation); services of forensic medicine; drug stores and pharmacies including handling; teaching and research establishments in the field of health; zoonoses control centers; distributors of pharmaceutical products; importers, distributors and producers of materials and in-vitro diagnostic controls; mobile health care units; acupuncture services; tattoo services, among others.

Sole paragraph. This Resolution does not apply to radioactive sealed sources, which must follow the requirements of the National Commission of Nuclear Energy -CNEN, and health products industries, which should comply with the specific conditions of its environmental licensing.

Art. 2 For the purposes of this Resolution:

I- Class 4 risk agent (individual high risk, high risk for community): pathogen which represents major threat for humans and for animals, representing great risk to whom the handles it and with great power of transmissibility from one individual to another, no preventive measures and treatment existing for these agents;

II-establishment: title given to any building intended for realization of prevention, production, promotion, recovery and research activities in the area of health or that are related to it;

III- health care waste transfer unit: is a unit with exclusive facilities, with environmental license issued by the competent organ, to perform the transfer of waste generated in health services, ensuring the original packaging, without opening or transfer content from one to the other;

IV- body liquids: are represented by cerebrospinal, pericardial, pleural, articular, ascetic and amniotic liquids;

V-health care materials: materials related directly with the process of care to patients;

VI – prion: protein changed related structure related as etiological agent of the various forms of bovine spongiform encephalitis;

¹⁸⁸ Ordinance revoked by Ordinance MMA No. 168, of June 10, 2005

¹⁸⁹ Resolution revoked by Resolution number 358/05

VII- reduction of microbial load: application of a process aiming at the microbial inactivation of biological loads contained in the waste;

VIII- level III of microbial inactivation: inactivation of vegetative bacteria, fungi, viruses, parasites and hydrophilic and lipophilic micro bacteria with reduction equal to or greater than 6Log₁₀, and inactivation of spores of *Stearothermophilus* bacillus or *Subtilis* spores bacillus with reduction equal to or greater than 4Log₁₀;

IX- leftover from samples: remains of blood, feces, urine, sweat, tear, milk, colostrum, spermatic liquid, nasal secretions, saliva, vaginal or penile discharge, hair and nail that remain in collection tubes after the withdrawal of the material needed to carry out research;

X- health care waste: all those resulting from activities in the services defined in art. 1 of this Resolution which, by their characteristics, require different processes in their management, requiring or not treatment prior to their final disposal;

XI- Management Plan of Waste from Health Services-PGRSS: a document part of the environmental licensing process, based on the principles of not generation of waste and the minimization of waste generation, pointing and describes the actions relating to its management, within the services referred to in art. 1 of this Resolution, contemplating the aspects related to generation, segregation, collection, storage, packaging, transportation, recycling, treatment and disposal, as well as protection to public health and the environment;

XII- treatment system of waste from health services: set of units, processes and procedures that change the physical, physico-chemical, chemical or biological characteristics of waste, which may promote its mischaracterization, aimed at minimizing the risk to public health, the preservation of the quality of the environment, safety and health of the worker;

XIII- final disposal waste from health care services: is the practice of disposing solid wastes on previously prepared soil to receive them, according to technical and construction and appropriate operational criteria, in line with the requirements of the competent environmental bodies; and

XIV- source reduction: activities that reduce or avoid the generation of waste at source, in the process, or that change properties that confer risk, including modifications to the process or equipment, change of inputs, change in technology or procedure, replacement of materials, changes in management practice, internal administration of supply and increase in efficiency of equipment and processes

Art. 3 It is up to the generators of waste from health care services and the legal responsible, as referred to in art. 1 of this Resolution, the management of waste from the generation to the final disposal, in order to meet environmental requirements and occupational health and public health, without prejudice to the joint and several liability of all those, individuals and legal entities that directly or indirectly, cause or may cause environmental degradation, in particular carriers and operators of installations for the treatment and final disposal, pursuant to Law 6.938, of August 31, 1981.

Art. 4 Waste generators of health services listed in art. 1 of this Resolution ¹⁹⁰, in operation or to be deployed, should draw up and deploy the Plan for the Management of Health Care Waste-PGRSS, in accordance with current legislation, particularly the norms of health surveillance.

§ 1. It is up to the competent environmental agencies of the States, the Federal District and the Municipalities, the setting of criteria for determining which services will be object of environmental licensing, which must contain the PGRSS.

§ 2 The competent environmental agency, in the context of licensing, may, where necessary, request additional information to PGRSS.

§ 3 The environmental agency, in the context of licensing, shall fix time limits for the settlement of services in operation, and should submit the duly deployed PGRSS.

Art. 6 The generators of health care waste must submit to the competent bodies, until March 31 of each year, a statement related to the previous calendar year, signed by the main administrator of the company and a qualified technical person responsible, together with the respective ART, reporting the accomplishment of the requirements provided for in this Resolution.

Sole paragraph. The competent bodies may establish criteria and forms for presentation of the declaration referred to in the caput of this article, including, waiving it if appropriate for a lower pollution potential ventures.

Art. 7 Health care waste must be packed in compliance with the legal requirements relating to the environment, health and urban cleaning, and standards of the Brazilian Association of Technical Standards-ABNT, or, in his absence, internationally accepted standards and criteria.

Art. 8. The vehicles used for transport and external collection of health care waste must meet legal requirements and ABNT standards.

Art. 9 Transfer stations of waste from health services must be licensed by the competent environmental agency.

¹⁹⁰ Correct in the DOU Number 177 of July 21, 2005, Page 61

Sole paragraph. The original packaging characteristics should be kept, not allowing the opening, disruption or transfer of the contents of a package to another

Art. 10. the systems of treatment and final disposal of health care waste must be licensed by the competent environmental agency for operating purposes and subject to monitoring in accordance with parameters and periodicity defined in environmental licensing.

Sole paragraph. Consortium solutions are permitted for the purposes set out in this article.

Art. 11. The liquid effluents from the establishments of health service providers, to be released into the public sewer network or receipt body, must meet the guidelines established by environmental agencies, managers of water resources and sanitation.

Art. 12. For the purposes of this Resolution and on the basis of its characteristics, health service waste is re classified in accordance with ANNEX I of this Resolution.

Art. 13. Waste not defined in ANNEX I of this Resolution shall be that referred to in PGRSS, and its management must follow specific guidelines in accordance with the legislation in force or according to guidance from the competent environmental agency.

Art. 14. Segregation of waste at source and at the time of generation is compulsory, according to its characteristics, for the purpose of reducing the volume of waste to be treated and prepared, ensuring the protection of health and the environment.

Art. 15. Group A1 waste, in ANNEX I to this Resolution, should be subjected to treatment processes on equipment that promotes reduction of microbial load compatible with level III of microbial inactivation and should be referred to a licensed landfill or duly licensed location for final disposal of waste from health services.

Art. 16. Group A2 waste listed in ANNEX I of this Resolution, shall be subjected to the treatment process with microbial load reduction compatible with level III of inactivation and should be referred to:

I- licensed landfill or duly licensed location for final disposal of waste of health services, or

II- burial in cemetery for animals.

Sole paragraph. It should be noted the size of the animal for definition of the treatment process. When fractionation is needed, this must be previously authorized by the competent health authority.

Art. 18. Group A4 waste listed in ANNEX I of this Resolution can be forwarded without pretreatment for duly licensed location for final disposal of waste from health services.

Sole paragraph. Is at the discretion of the state and local environmental agencies the requirement of prior treatment, considering the criteria, specificities and local environmental conditions.

Art. 19. Group A5 waste listed in ANNEX I of this Resolution, specific treatment should be guided by the national health surveillance agency- -ANVISA.

Art. 20 Group A waste cannot be recycled, reused or recycled, even for animal feed.

Art. 21. Waste belonging to Group (B), included in ANNEX I to this Resolution, with characteristics of dangerousness, when they are not subjected to the process of re-use, recovery or recycling, should be subjected to specific treatment and final disposal.

§ 1 The characteristics of the waste belonging to this group are those contained in the Information data sheet of Chemical Products-MSDS.

§ 2 The wastes in solid form, when not treated, should be arranged in hazardous-waste landfill - Class I.

§ 3 Wastes in liquid state must not be sent for final disposal in landfills.

Art. 22. Waste belonging to Group B, included in ANNEX I to this Resolution, without characteristics of dangerousness, do not require pre-treatment.

§ 1. Waste referred to in the caput of this article, when in solid form, may have licensed landfill disposal.

§ 2 Waste referred to in the caput of this article, when in a liquid state, can be released into the body or public sewage network, provided it meets respectively the guidelines established by environmental agencies, managers of water resources and sanitation.

Art. 23. Any materials resulting from activities carried out by the services referred to in art. 1 of this Resolution containing radionuclides in amounts exceeding the exemption limits specified in standard CNEN-NE-6.02-Radiative Facilities Licensing, and where the reuse is unfit or not, are considered radioactive waste (Group C) and shall comply with the requirements laid down by the CNEN.

§ 1. Radioactive waste cannot be considered waste until the elapsing of the time required to attain the threshold of elimination.

§ 2 Radioactive waste, when reached the threshold of elimination, is considered biological, chemical waste or residue categories, and should follow the determinations of the group to which it belongs.

Art. 24. Waste belonging to Group D, referred to in ANNEX I of this Resolution, when is not subject to the process of re-use, recovery or recycling, should be forwarded for sanitary landfill of municipal solid waste, duly licensed by the competent environmental agency.

Sole paragraph. Group D waste, when it is liable to process of re-use, recovery or recycling must meet the legal standards of cleaning and decontamination and CONAMA Resolution No. 275, of April 25, 2001.

. Art. 25. The waste belonging to the Group E set out in ANNEX I of this Resolution, shall have particular treatment in accordance with biological, chemical or radiologic. Contamination.

§ 1. Group E waste must be presented for collection packed in watertight, healthy and hard collectors, resistant to breakage, puncture, cutting or scarification.

§ 2 Waste referred to in the caput of this article, with radiological contamination, should follow the guidelines contained in art. 23, this Resolution.

§ 3 Waste containing cytostatic or antineoplastic drugs, should be treated as per art. 21, of this Resolution.

§ 4 Waste with biological contamination should be treated as per arts. 15 and 18 of this Resolution.

Art. 26. The competent environmental bodies, members of the National System of Environment-SISNAMA, are responsible for the implementation of this Resolution, and its supervision, as well as the imposition of administrative penalties provided for in the relevant legislation.

Art. 27. For municipalities or associations of municipalities with the urban population up to 30,000 inhabitants, according to the latest census available from the Brazilian Institute of Geography and Statistics-IBGE, and that do not have licensed landfill, is exceptional and technically motivated, by means of a Conduct Adjustment Term, with a defined schedule of deployment steps and with a maximum period of three years, the final disposal in soil complying with the minimum criteria set out in ANNEX II of this Resolution, with the due approval of the competent environmental agency.

Art. 28. The generators of waste from health services and the municipal urban cleaning bodies may, at the discretion of the competent environmental agency, have up to two years, counting from the date of this Resolution, to comply with the requirements provided for therein.

§ 1 The entrepreneur shall submit to the competent environmental agency, among other documents, the schedule of the measures necessary to comply with the provisions of this Resolution.

§ 2 the period referred to in the caput of this article may, when exceptionally and technically motivated, be extended for up to one year, by means of Conduct Adjustment Term, which will be advertised, by sending a copy to Public Prosecutors Office.

Art. 29. The failure to comply with the provisions of this Resolution will subject violators to the penalties and sanctions provided for in the relevant legislation, in particular Law 9.605 of February 12, 1998, and its regulatory Decree.

Art. 30. The requirements and duties set out in this resolution are important environmental interest obligation.

Art. 31. This Resolution shall enter into force on the date of its publication.

Art. 32. It is hereby revoked CONAMA Resolution No. 283 of July 12, 2001, and the provisions of the Resolution No. 5, of August 5, 1993, dealing with solid waste from of health services, for the services covered in art. 1 of this Resolution.

MARINA SILVA-Council President

ANNEX I

I- **GROUP A:** Waste with the possible presence of biological agents which, by their characteristics of greater virulence or concentration, may present a risk of infection.

a) A1

1. cultures and stocks of micro-organisms; wastes from the manufacture of biological products, except the blood products; disposal of living microorganisms or attenuated vaccines; culture media and instruments used to transfer, inoculation or mixture of cultures; genetic laboratories waste;

2. wastes resulting from the health care of individuals or animals, with suspicion or certain biological contamination by class 4 risk, micro-organisms with epidemiological relevance and risk of spreading or causing emerging disease that becomes epidemiologically important or whose transmission mechanism is unknown;

3. transfusion bags containing blood or blood products rejected by contamination or poor maintenance, or with expired validity, and those from incomplete collection;

4. laboratory samples containing remains of blood or bodily fluids, containers and materials resulting from the healthcare process, containing free blood or fluids.

b) A2

1. carcasses, anatomical parts, viscera and other waste from animals subjected to experimental inoculation with processes of microorganisms, as well as their creepers, and the corpses of animals suspected of being carriers of epidemiological and relevant micro-organisms with risk of spread, submitted or not to anatomical and pathological study, or diagnostic confirmation.

c) A3

1. anatomical parts (members) of the human being; product of fecundation without vital signs, weighing less than 500 grams or height less than 25 cm or gestational age less than 20 weeks, which have no scientific or legal value and there have been no request by the patient or family members.

d) A4

1. arterial, intravenous lines kits and dialyzers, when discarded;

2. air and gas filters, aspirated from contaminated area; filtering membrane from medical and hospital and research equipment, among other similar equipment;

3. remains of laboratory samples and their containers containing feces, urine and secretions from patients that do not contain or are suspected to contain Class 4 risk agents and not having epidemiological relevance and risk of spread, or microorganisms causing emerging disease or that becomes epidemiologically important or whose transmission mechanism is unknown or suspected of contamination with prions;

4. waste from fat tissue, resulting from lip sculpture or another plastic surgery procedure that generates this type of waste;

5. containers and materials resulting from the healthcare process, that does not contain blood or bodily fluids on the freeform;

6. anatomical parts (organs and tissues) and other wastes from surgical procedures or anatomical and pathological studies or diagnostic confirmation;

7. carcasses, anatomical parts, viscera and other waste from animals not subject to processes of experimentation with inoculation of microorganisms, as well as their creepers; and 8. transfusion bags empty or with residual volume post-transfusion.

e) A5

1. organs, tissues, organic fluids, sharps or scarificant materials and other materials resulting from health care of individuals and animals, suspected or with confirmation of contamination by prions.

II- GROUP B: Wastes containing chemicals that can present a risk to public health or to the environment, depending on its characteristics of flammability, corrosivity, reactivity and toxicity.

a) hormonal products and antimicrobial products; cytostatics; antineoplastic; immunosuppressants; digitalic; immunomodulators; antiretrovirals, when discarded by health services, pharmacies, drug stores and distributors of medications or those seized and waste and pharmaceutical inputs from controlled drugs by Ordinance MS 344/98 and its updates;

b) waste from cleaning products, disinfectants, desinfectants; waste containing heavy metals; laboratory reagents, including containers contaminated with these;

c) effluents from image processors (developers and fixers);

d) effluents from automated equipment used in clinical analyses; and

e) other products considered dangerous, according to classification of NBR-10,004 (toxic, corrosive, inflammable and reactive)

III- GROUP C: Any materials resulting from human activities containing radionuclides in quantities exceeding the limits specified in the regulations for the disposal of the National Commission of Nuclear Energy-CNEN and for which re-use is unfit or not provided.

a) this group includes any materials resulting from research and teaching laboratories in the area of health, clinical laboratories and nuclear medicine and radiotherapy services containing radionuclides in excess of the limits of elimination.

IV- GROUP D: Waste that does not have biological, chemical or radiological risk to health or the environment, and may be treated as household waste.

a) domestic and sanitary paper, diapers, sanitary napkins, disposable pieces of clothing, food leftovers from patients, material used in antiseptia and homeostasis, venoclisis serum and other similar equipment not classified as A1;

b) leftovers of food and food preparation;

c) food cafeteria leftovers;

d) waste from administrative areas;

e) wastes from sweeping, flowers, pruning and gardens; and

f) wastes of plaster from health care.

V- GROUP E: sharp or scarificant materials, such as: razor blades, needles, scalps, glass ampoules, drills, endodontic files, diamond burs, scalpel blades, lancets; capillary tubes;

micropipettes; slides and cover slips; spatulas; and all the broken glass utensils in the laboratory (blood collection tubes, pipettes and Petri dishes) and other similar.

ANNEX II
MINIMUM CRITERIA FOR WASTE DISPOSAL
EXCLUSIVELY FROM HEALTH SERVICES

- I) Regarding the area selection:
 - A) not having restrictions on environmental zoning (removal of protected areas or related areas);
 - b) respecting the minimum distances established by the competent environmental bodies of fragile ecosystems, surface and groundwater resources.
- II) about the safety and signaling devices:
 - A) system for control of access by vehicles, unauthorized persons and animals, under continuous surveillance; and
 - b) warning signaling with educational information about the dangers involved.
- III) As regards the technical aspects
 - a) storm water drainage systems;
 - b) collection and disposal of leachate;
 - c) gas collection;
 - d) base and slopes waterproofing; and
 - e) environmental monitoring
- IV) As to the procedure for the final disposal of health care waste:
 - a) the waste disposal directly on the bottom of the site;
 - b) accommodation of waste without direct compression;
 - c) daily cover with soil , assuming layering;
 - d) final coverage; and
 - e) closure plan.

This text does not replace the one published in the Official Gazette of May 4, 2005.

CONAMA RESOLUTION 362, June 23, 2005
Published in Official Gazette 121 on June 27, 2005, Section 1, pages 128-130

Correlations:

- Revokes Resolution CONAMA No. 9/93

Establishes provisions for the gathering, collection and final destination of used or contaminated lubrication oil.

The NATIONAL ENVIRONMENTAL COUNCIL-CONAMA, pursuant to the powers vested on it by Law 6.938 dated August 31, 1981, regulated by Decree 99.274, of June 6, 1990, bearing in mind the provisions of its Internal Rules

attached to Ordinance No. 499, of December 18, 2002¹⁹¹, and:

Considering the prolonged use of a finished lubricant oil results in their partial decay, which is reflected in the formation of compounds such as organic acids, potentially carcinogenic polynuclear aromatics, resins and lacquers;

Considering that the Brazilian Association of technical standards-ABNT in its NBR-10004, "Solid waste-classification", classifies the lubricant oil used as waste dangerous due to its toxicity;

Considering that the disposal of used or contaminated lubricating oil into the soil or water courses causes serious environmental damage;

Considering that combustion of used lubricating oils generates waste gases harmful to the environment and public health;

Considering that the technological-industrial processes category called generally of re-refining, corresponds to the most environmentally safe method for recycling used or contaminated lubricant oil, and therefore the best alternative environmental management of this type of waste; and

Considering the need to establish new guidelines for the collection and disposal of used or contaminated lubricating oil, resolves:

Art. 1 All used or contaminated lubricating oil should be gathered, collected and have a final destination, so that it does not negatively affect the environment and fosters the maximum recovery of the components it contains, in the form provided for in this Resolution.

Art. 2 For the purposes of this Resolution the following definitions will be adopted:

I- catcher: legal person duly authorized by the regulator of the oil industry and licensed by the competent environmental agency to undertake collection activity of used or contaminated lubricating oil;

II- collection: withdrawal activity of used or contaminated oil from the place of gathering and transportation to the environmentally adequate destination;

III- collection certificate: document provided for in the legal norms in force that proves the volumes of used or contaminated lubricating oils collected;

IV- certificate of receipt: document provided for in the legal norms in force that proves the delivery of used or contaminated lubricating oil from the collector to the re-refiner;

V- generator: person or entity that, as a result of its activity generates used or contaminated lubricating oil;

VI -importer: legal entity that performs the import of finished lubricating oil, duly authorized for the exercise of the activity;

VII- basic lubricating oil: major constituent of finished lubricating oil, which meets the relevant legislation;

VIII- finished lubricant product: product formulated from basic lubricant oils, which may contain additives;

IX- used or contaminated lubricating oil: finished lubricant oil which, as a result of normal use or due to contamination, has become unsuitable for its original purpose;

X- producer: legal person responsible for the production of finished lubricating oil on its own or third-party installation, duly licensed by the competent environmental agency, and for the exercise of the activity by the regulator of the oil industry;

XI-recycling: used or contaminated, lube oil transformation process making it inputs for other productive processes;

XII- recoil: is the removal and proper storage of used or contaminated soil of the equipment which used it until the time of its collection, made by the dealer or by the generator;

XIII- re-refiner: legal person responsible for the activity of re-refining, duly authorized by the regulator of the oil industry for re-refining and licensed by the competent environmental agency;

¹⁹¹ Ordinance revoked by Ordinance MMA No. 168, of June 10, 2005

XIV- re-refining: category of industrial contaminant removal processes, degradation products and additives of used or contaminated lubricating oils, with the same features of basic oils, as specific legislation;

XV- reseller: legal entity that sells the finished lubricant oil as wholesale and retail such as service stations, workshops, supermarkets, auto parts stores, wholesalers etc.; and

XVI- inland waters: those between the coast and the straight baselines from which the breadth of the territorial sea is measured; the ports; the of bays; the rivers and their estuaries; the Lakes, ponds, and canals and the subterranean ones.

Art. 3 All used or contaminated lubricating oil should be collected for recycling through the re-refining process.

§1. The recycling referred to in the caput may be performed at the discretion of the competent environmental agency, through other technological process with proven environmental effectiveness equivalent or superior to re-refining.

§ 2 It will be admitted the processing of used or contaminated lubricant oil for the manufacture of products to be consumed solely by the respective industrial generators.

§ 3 Proven, before the competent environmental agency, the impracticality of destination referred to in the caput and in § 1 of this article, any other use of the used or contaminated lubricating oil will depend on environmental licensing.

§ 4 The processes used for lube oil recycling must be licensed by the competent environmental agency.

Art. 4 The lubricating oils used in Brazil must observe the principle of compulsory recyclability.

Art. 5. The producer, importer and reseller of finished lubricating oil and used lubricating oil generator, are responsible for gathering lubricating used or contaminated oil, within the limits of the powers provided for in this Resolution.

Art. 6 The producer and importer of finished lubricating oil must collect or ensure the collection and give the final destination of the used or contaminated lubricating oil, in accordance with this Resolution, proportionate to the total volume of finished lubricating oil that has been marketed.

§ 1 For the fulfillment of the obligation referred to in the caput of this article, the producer and the importer may:

I- hire collection company regularly authorized by the regulatory body of the petroleum industry; or

II- enable itself as collection company, in the form of the legislation of the regulating agency of the oil industry.

§ 2 The hiring of an outsources collector does not relieve the producer or importer of the responsibility for the collection and legal disposal of used or contaminated oil collected.

§ 3 The producer and the importer are responsible, jointly and severally, for the actions and omissions of the collectors that they hire.

Art. 7 Producers and importers are required to collect any oil available or ensure the funding of the entire collection of used or contaminated lubricating oil effectively carried out, in proportion to the oil put on the market as intermediate and final progressive goals to be established by the Ministries of Environment and of Energy in joint normative act, even if surpassed the minimum percentage set.

Sole paragraph. The bodies referred to in the caput shall establish, at least annually, the minimum percentage of collection of used or contaminated lubricating oils, not less than 30 (thirty per cent), in relation to the finished lubricant oil marketed, subject to the following:

I-market analysis of finished lubricating oils, which considers the data of the last three years;

II-national fleet trend whether it be road, rail, ship or air;

III-trend of oil-consuming industrial machinery park, including agro-industrial

IV-installed capacity of re-refining;

V-system evaluation of recoil and used or contaminated lubricating oil disposal;

VI-new destinations of the used or contaminated lubricating oil, duly authorized;

VII-regional criteria; and

VIII-the quantities of used or contaminated oil effectively collected.

Art. 8. The Brazilian Institute of the Environment and Renewable Natural Resources - IBAMA, the regulatory body of the oil industry and the State environmental agency, this, when requested, are responsible for the control and verification of compliance with the exact percentages of collection set by the Ministries of Environment and of Energy.

Sole paragraph. For the accomplishment of the control of the caput of this article, IBAMA will be based on information relating to the preceding calendar quarter.

Art. 9. The Ministry of the Environment, at the first regular meeting of the National Environment Council-CONAMA each year, shall submit the minimum percentage of used or

contaminated lubricant oil collection, accompanied by a detailed report, and IBAMA will report the results of the implementation of this Resolution.

Art. 10. The following finished lubricating oils do not form part of the basis for calculation of the amount of used or contaminated lubricating oil to be collected by the producer or importer:

I- intended for agricultural spraying;

II- for chains of chain saw;

III- industrial ones that comprise the final product, not generating residue;

IV-stamping;

V-to two-stroke engines;

VI-intended for use in sealed systems that do not require an exchange or involving total oil loss;

VII-soluble;

VIII-made from asphalt;

IX-intended for export, including those incorporated to machinery and equipment intended for export; and

X-any basic or finished lubricating oil traded between producing companies, between the importing companies, or between producers and importers, duly authorized by the National Petroleum Agency-ANP.

Art. 11. The Ministry of the Environment shall maintain and coordinate a permanent monitoring group to follow up this Resolution, which should meet at least quarterly, and ensured the participation of representatives of the oil industry regulator, producers and importers, dealers, collectors, re-refiners, representative of the environmental State and municipal bodies and non-governmental environmental organizations.

Art. 12. Any discard of waste oil drops or contaminated soils, underground, in internal waters, territorial sea, exclusive economic zone and in sewage systems or wastewater evacuation is hereby forbidden.

Art. 13. For the purposes of this Resolution, it is not understood as the combustion or burning of used or contaminated lubricant oil as ways of recycling or proper disposal.

Art. 14. In the case of floating resale stations that meet boats, the management of used or contaminated oil must meet current environmental legislation.

Art. 15. The used or contaminated lubricating oils not re-refinable, such as the biodegradable oils and oily emulsions, must be collected and eventually collected, separately, according to their nature, being forbidden its mixture with used or contaminated re-refinable oils.

Sole paragraph. The result of the mixture of used or contaminated re-refinable or not biodegradable with used or contaminated re-refinable oil is considered as fully used oil or contaminated non re-refinable, non-biodegradable oil and non-hazardous waste (class I), and must undergo final disposal or disposal compatible with it condition.

Art. 16. Are also obligations of producer and importer:

I-to ensure, on a monthly basis, the collection of used or contaminated lubricating oil, at the minimum volume fixed by the Ministries of Environment and of Energy, which will be calculated based on the average sales volume of finished lubricating oils, checked in the preceding calendar quarter;

II-provide to IBAMA and, when requested, to the state agency for the environment, until the 15th day of the month following each calendar quarter, as provided for in ANNEX I of this Resolution, monthly information regarding volumes of:

a) lubricating oils marketed by type, including those exempted from collection;

b) contracted collection by collector; and

c) basic re-refined oil purchased, by re-refiner.

III-receive the used or contaminated non-recyclable lubricating oils arising out of the use by individuals, and consign them to the treatment process approved by

The competent environmental agency;

IV-keeping under its custody for inspection purposes, the Certificates of Receipt issued by the re-refiner and other legal documents which may be required for a period of five years;

V-disclose, in all packages of finished lubricating oils, as well as in technical reports, the allocation and the return form of lubricating used or contaminated oils, recyclable or not, in accordance with the provisions of this Resolution; and

VI-from one year of the publication of this Resolution, disclose on all packages of finished lubricating oils, as well as in propaganda, advertising and technical reports, the damage that can be caused to the population and to the environment by improper disposal of used or contaminated oil.

§ 1 The producer or importer who hires outsourced collector should sign with it this collection contract, with the consent of the person responsible for proper disposal.

§ 2 One copy of the collection contract referred to in the preceding paragraph shall be filed, at the disposal of the state environmental agency, where the contractor has its headquarters, for a minimum period of five years from the date of termination of the contract.

Art. 17. The reseller's obligations are:

I-to receive from generators the used or contaminated lubricating oil;

II- to have appropriate facilities properly licensed by the competent environmental body to replace the used or contaminated oil and its secure collection in an accessible site to the collection, using suitable containers and resistant to leaks, so as not to contaminate the environment;

III- to adopt the measures necessary to ensure that the used or contaminated lubricating oil should be mixed with chemicals, fuels, solvents, water and other substances, thus avoiding the impracticability of recycling

IV-to dispose of the used or contaminated lubricant oils exclusively to the collector, requiring:

a) the presentation by the collector of the authorizations issued by the competent environmental agency by the regulator of the oil industry for the collection activity; and

b) the issue the corresponding certificate.

V-hold for surveillance purposes, documents proving the purchase of finished lubricating oil and the Collection Certificates of used or contaminated lubricant oil, for a period of five years;

VI-disclose in a visible location to the consumer , at the place of exhibition of finished oil put up for sale, the destination provided for in this Resolution, in the form set out in ANNEX III; and

VII-keep copy of licensing provided by the competent environmental agency for sale of finished oil, when applicable, and the collection of used or contaminated oil in a place visible to the consumer.

Art. 18. Are duties of generator:

I-collect the used or contaminated lubricating oils in a safe, accessible place to the collection, in suitable and leak-resistant containers, so as not to contaminate the environment;

II-to adopt the measures necessary to ensure that the used or contaminated lubricating oil be mixed with chemicals, fuels, solvents, water and other substances, avoiding the impracticability of recycling;

III-dispose of the used or contaminated lubricant oils exclusively to recoil or authorized collector, requiring:

a) presentation by the collector of the authorizations issued by the competent environmental agency and by the regulator of the oil industry for the collection activity; and

b) the issue the corresponding certificate.

IV-provide information to pick up on the possible contaminants in lubricating oil used during its normal use;

V-hold for inspection purposes, documents proving the purchase of finished lubricating oil and lubricating oil Collection Certificates of used or contaminated oil, for a period of five years;

VI-in the case of an individual, make the destination of the used or contaminated lubricating oils non-recyclable according to the guidance of the producer or importer; and

VII-in the case of a legal person, give adequate final disposal properly authorized by the competent environmental agency to used or contaminated lubricating non-recyclable oils.

§1. the used or contaminated oils from automotive fleet should preferably be collected at the premises of the resellers.

§ 2 If there are no collectors that serve directly the generators, the used or contaminated lubricating oil may be delivered to the respective dealer.

Art. 19. The obligations of the collector are:

I- to sign contract for the collection with one or more producers or importers with the intervention of one or more re-refiners, or responsible for environmentally appropriate disposal, for which it should necessarily deliver all the used or contaminated oil it collects;

II. to provide, when requested by the competent environmental agency for a period of five years, the signed collection contracts;

III- to pay to IBAMA and, when requested, to the state agency for the environment, until the 15th day of the following month, each calendar quarter, in the form set out in ANNEX II, monthly information relating to:

a) collected used or contaminated lubricating oil, by product/importer; and

b) used or contaminated lubricating oil delivered by re-refiner or responsible for the environmentally adequate disposal.

IV-issue at every purchase of used or contaminated lubricating oil, for the reseller for the generator, the corresponding Collection Certificate;

V-to ensure that the activities of transport, handling, storage and transshipment of contaminated or used lubricating oil collected, are carried out in appropriate conditions of safety and by properly trained people, taking into account the relevant legislation and licensing requirements;

VI-to adopt the measures necessary to ensure that the used or contaminated lubricating oil should be mixed with chemicals, fuels, solvents, water and other substances, thus avoiding the poison of recycling;

VII-make destination of all used or contaminated lubricating oil collected, even if pre-set quota is exceeded, the re-refiner or responsible for environmentally sound disposal adequate intervener in collection agreement it has signed, requiring the corresponding receive Receipt Certificate, where applicable;

VIII-to keep updated the records of acquisitions, disposals and legal documents, for inspection purposes, for a period of five years; and

IX-to respect legislation on the transport of hazardous goods.

Art. 20. The re-refiners have the following duties:

I-receive all used or contaminated lubricating oil solely from the collector, by issuing the corresponding certificate of receipt;

II-keep up to date and available for inspection the records of Receipt Certificates and other legal documents which may be required for a period of five years;

III-pay to IBAMA and, when requested, to the state agency for the environment, until the 15th day of the month following each calendar quarter, monthly information relating to:

a) the volume of used or contaminated lubricating oils received by collector;

b) the volume of basic re-refined lubricating oil produced and marketed by producer/importer.

§ 1. The basic oils from the re-refining should fit into the norms established by the regulatory body of the oil industry and not contain prohibited substances by environmental legislation.

§ 2 The re-refiner should adopt the policy of minimum scrap waste generation in the re-refining process.

§ 3 The unworkable residue generated in re-refining process will be considered as class I, unless proof to the contrary based on laboratory reports duly accredited by the competent environmental agency

§ 4 Scrap waste generated in re-refining process should be rendered inert and receive appropriate disposal and approved by the competent environmental agency.

§ 5 The licensing process of the activity of re-refining, besides the required by the state environment agency, should contain information about:

a) volumes of other usable materials resulting from the re-refining process;

b) unserviceable waste volumes generated in re-refining process, with an indication of the corresponding chemical average composition; and

c) volume losses in the process.

Art. 21. Recyclers must, in the recycling processes provided for in art. 3 of this Resolution:

I-pay to IBAMA and, when requested, to the state environmental agency, until the 15th day of the month following each calendar quarter, monthly information relating to:

a) the volume of used or contaminated lubricant oils received; and

b) to the volume of products resulting from the recycling process.

§ 1. The recycler should adopt the policy of minimum scrap waste generation in the recycling process.

§ 2 The unworkable residue generated in the recycling process will be considered as class I, unless proof to the contrary based on laboratory reports duly accredited by the competent environmental agency.

§ 3 The scrap waste generated in the recycling process should be rendered inert and receive appropriate and approved disposal by the competent environmental agency.

§ 4 The licensing process of the activity of recycling, in addition to the required by the state environment, should contain information about:

a) volumes of other usable materials resulting from the recycling process;

b) unserviceable waste volumes generated in the recycling process, with an indication of the corresponding average chemical composition; and

c) volume losses in the process.

Art. 22. Failure to comply with the provisions in this Resolution will subject the offenders, among other, to the penalties provided for in Law 9.605, February 12, 1998, and in Decree 3.179 of September 21, 1999.

Art. 23. The obligations laid down in this Resolution are of relevant environmental interest.

Art. 24. The enforcement of the obligations laid down in this Resolution and the application of sanctions is the responsibility of IBAMA and the state and municipal agency for the environment, without prejudice to the competence of the regulatory body of the oil industry.

Art. 25. This Resolution shall enter into force on the date of its publication.

Art. 26. It is hereby revoked CONAMA Resolution No. 9, of August 31, 1993.

MARINA SILVA-Council President

**ANNEX I
INFORMATION FROM PRODUCERS AND IMPORTERS**

Producers and/or importers must provide quarterly to IBAMA the information contained in tables I, II and III of this ANNEX, until the 15th business day of the month immediately subsequent to the period of time considered.

Table I

Producer and/or importer:
CNPJ:
Year

Discrimination of each product manufactured or imported by the record number with ANP		Volume traded (m ³)			Total quarter(m ³)
		Month:	Month:	Month:	
Total					
Total Volume exempted from collection(m ³)					
No Record with ANP	Predominant use				
Total					

Table II

Month/year	Hired collection (m ³)	Collector	CNPJ
Total			
Total			

Table III

Month/year	Volume acquired (m ³)	Re-refiner
Total		
Total		

Where:

Sales Volume = volume(in m³) sold of finished lubricating oil in each month of the quarter relative to all oils that make up your line of production and/or import, duly broken down by record number in the National Agency of Petroleum-ANP.

Volume exempted from Collection = Volume (in m³) sold of all oils exempted from collection that comprise its line of production and/or import, duly broken down by the number of registration with the National Agency of Petroleum-ANP, classified by their main use/destination in accordance with the information contained in the article.

Volume collected = volume (in m³) of used or contaminated lubricating oil collected in each month of the quarter under consideration.

Volume sent to re-refining = the volume (in m³) of used or contaminated lubricating oil in each month of the quarter under consideration, submitted to each re-refiner, identified by their respective National Registry of Legal Entities (CNPJ)-.

Volume purchased = the volume (in m³) of basic lubricant oil purchased in each month of the quarter under consideration, from the operation of re-refining, properly identified in each re-refiner, through its CNPJ.

Re-refining companies must provide quarterly to IBAMA information listed in tables IV and V of this ANNEX, until the fifteenth business day of the month immediately subsequent to the period of time considered.

Table IV

Re-refiner:
CNPJ:

Month/year	Volume received (m ³)	Re-refiner (CNPJ)
Total		
Total		

Table V

Month/year	Volume Re-refined Finished (m ³)		Producer and/or importer (CNPJ)
	Produced	Traded	
Total			
Total			

Where:

Volume Received = the volume (in m³) of used or contaminated lubricating oil received from the collection operation, in each month of the quarter under consideration, and sent to each producer and/or importer, identified by its CNPJ.

Finished Re-Refined Volume = Volume (m³) of finished re-refined lubricant oil, in each month of the quarter under consideration, submitted to each producer and/or importer, identified by its CNPJ.

IBAMA will provide specific reports each year containing the percentages achieved by, producer and/or importer, regarding the collection of used or contaminated lubricating oil and finished lubricating oil marketed through the site www.ibama.gov.br/CTF, menu reports.

**ANNEX II
COLLECTORS INFORMATION**

Collectors must provide quarterly to IBAMA the information contained in this ANNEX, tables I and II until the fifteenth business day of the month immediately subsequent to time period considered.

Collector:

CNPJ no:

Registration with ANP No.:

Year:

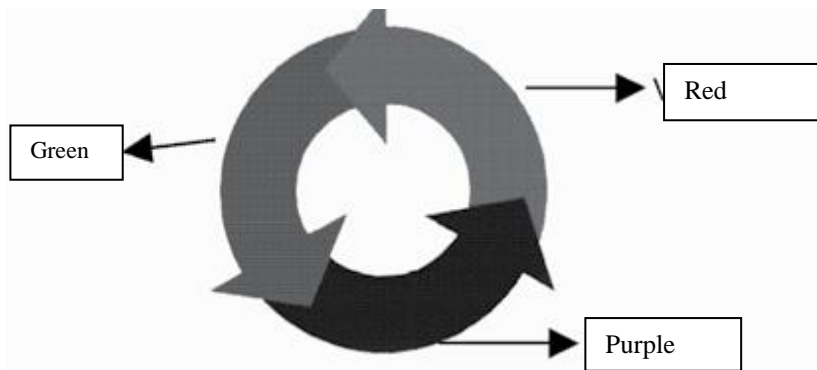
Table I

Month/year	Collected volume(m ³)	Producer/Importer	(CNPJ)
Total			
Total			

Table II

Month/year	Volume delivered (m ³)	Re-refiner	(CNPJ)
Total			
Total			

**ANNEX III
MODEL OF WARNING FOR THE LUBRICATING OILS AND RESALE
POINTS**



**WARNING
THE LUBRICATING OIL AFTER ITS USE IS AN HAZARDOUS WASTE**

Used lubricating oil when discarded into the environment causes negative environmental impacts, such as contamination of water bodies, contamination of soil by heavy metals.

The producer, importer or reseller of lubricating oil, as well as the consumer of used lubricating oil, are responsible for its collection and destination.

Dear Consumer: return the used lubricating oil to the reseller.

The non-compliance with CONAMA Resolution shall cause to the violators the sanctions provided for in Law 9.605, of February 12, 1998 and Decree 3.179, of September 22, 1999

This text does not replace the one published in the Official Gazette of June 27, 2005.

CONAMA RESOLUTION 386, December 27, 2006
Published in Official Gazette 249 on December 29, 2006, Section 1, page 665

Correlations:

- Changes art. 18 of CONAMA Resolution No. 316/02

Changes art. 18 of CONAMA Resolution 316 from October 29, 2002.

The NATIONAL ENVIRONMENTAL COUNCIL-CONAMA, pursuant to the powers vested on it by Law 6.938 dated August 31, 1981, regulated by Decree 99.274, of July 6, 1990, and in view of the provisions in its Internal Rules, ANNEX to Ordinance No. 168, of June 10, 2005, resolves:

Art. 1 art. 18 of CONAMA Resolution No. 316, of October 29, 2002, shall enter into force with the following wording:

"Art. 18. The operation of the crematorium system shall meet the following monitoring limits and parameters:

I- particulate matter (PM): one hundred milligrams per normal cubic meter corrected by oxygen content on chimney combustion mixture to seven percent on a dry basis, and monitoring shall be punctual and comply with the methodology established in relevant standards;

II- carbon monoxide (CO): a hundred parts per million volume, dry basis, checked with continuous monitoring, and the licensing agency may require continuous record;

III-combustion chamber temperature: minimum thresholds will be determined at the time of the burning test, under continuous monitoring and the licensing agency requires continuous record;

IV- secondary chamber temperature: minimum of 800 degrees Celsius, with continuous monitoring and registration;

V- combustion chamber pressure: negative, with continuous monitoring, with the use of pressure switch, and the licensing agency may require continuous record.

.....”
(NR)

Art. 2. This Resolution shall enter into force on the date of its publication.

MARINA SILVA-Council President

This text does not replace the one published in the Official Gazette, of December 29, 2006

CONAMA RESOLUTION 398, June 11, 2008
Published in Official Gazette 111 on June 12, 2008, Section 1, pages 101-104

Correlation:

- Revokes CONAMA Resolution No. 293/01

Establishes provisions for the minimum content of the Individual Emergency Plan for oil pollution incidents in waters under national jurisdiction within organized ports, port installations, terminals, ducts, land probes, platforms and support installations, refineries, shipyards, marinas, nautical clubs and similar installations, and provides guidelines for its elaboration.

The NATIONAL ENVIRONMENTAL COUNCIL-CONAMA, pursuant to the powers vested on it by Law 6.938 dated August 31, 1981, regulated by Decree 99.274, of June 6, 1990, and its Internal Rules, Annexed to the Ordinance No. 168 of June 10, 2005, and

Considering the need to establish prevention strategies and management of environmental impacts generated in the country by organized ports, port facilities and terminals, pipelines, platforms and their supporting facilities;

Considering the need to review the guidelines and procedures for response to oil pollution incidents in waters under national jurisdiction;

Considering need to set out guidelines for drawing up the Individual Emergency Plan provided for in Law 9.966, of April 28, 2000;

Considering that other facilities in addition to those provided for in Law 9,966, 2000, offer risk of accidents of oil pollution in waters under national jurisdiction; and

Considering that installations for operation with oil are included in the International Convention on Preparation, Response and Cooperation on Oil Pollution, of 1990, internalized in the country by Decree No. 2,870, of December 10, 1998, resolves:

Art. 1 The organized ports, port facilities, terminals, pipelines, platforms, their supporting facilities as well as terrestrial probes, refineries, shipyards, marinas, nautical club and similar facilities should have individual emergency plan for oil pollution incidents in waters under national jurisdiction, in accordance with this Resolution.

§1. The organized ports, port facilities, terminals and shipyards, even those not operating with oil cargo, should consider accidental settings of oil pollution from ships, when:

I-the ship originates from or is destined to its facilities; and

II-the ship is moored, docked or performing mooring, unmooring or docking maneuvers, on the evolution bay of these facilities.

§ 2 The oil pollution incidents originated from ships, which occurred in the areas of anchoring, access channel and port approach channel, these provided for in nautical charts, will be treated in the area plans.

Art. 2 For the purposes of this Resolution, the following definitions are adopted:

I- additional actions: set of actions following the emergency situation, including corrective actions, aftermath, the monitoring of recovery of the impacted area and generated waste management, among others;

II- environmentally sensitive areas: regions in maritime waters or inland, where the prevention, pollution control and the maintenance of ecological balance require measures for the protection and preservation of the environment;

III- port authority: authority responsible for the administration of the organized port, responsible for the port operations and ensure that the services are performed with regularity, efficiency, safety and respect for the environment;

IV- evolution basin: geographical area immediately next to the pier where the ship performs its mooring and or unmooring maneuvers;

V- accidental scenario: set of situations and circumstances of an oil pollution incident;

VI- lentic body water: environment with regard to standing water, with stagnant or slow motion;

VII- lotic water body: environment concerning continental moving waters;

VIII- spill or discharge: any form of release of oil or oily mixture in accordance with the current legislation for the environment, including eviccion, escape, overflow and leak in waters under national jurisdiction;

IX- duct: set of pipes and accessories used for transport of oil between two or more premises;

X- shipyard: installation that performs ship repair, with or without docking, or builds ships and platforms and which carries out any activity of oil handling;

XI- oil pollution incident: any oil or oily mixture spill in accordance with current legislation, resulting from accidental or intentional action or fact;

XII- facilities: the organized ports, port facilities, terminals, pipelines, platforms, their supporting facilities as well as terrestrial probes, refineries, shipyards, marinas, nautical club and similar facilities;

XIII- supporting facilities: any facilities or equipment to support the implementation of the activities of the platform or port facilities for cargo handling in bulk, such as ducts, monobuoys buoys mooring of vessels and for others;

XIV- port or terminal facilities: facilities operated by the legal person governed by public or private law, inside or outside of the area of the port, used in passenger movement or the movement or storage of merchandises destined or from water transport;

XV- rock weathering: changing, by natural processes, of the physico-chemical properties of spilled oil exposed to the action of weather;

XVI- territorial sea: waters covered by a band of twelve nautical miles wide, measured from the baseline and low-water line, as indicated in the large-scale charts officially recognized in Brazil;

XVII- oily mixture: mixture of water and oil, in any proportion;

XVIII- vessel: vessel of any type operating in the aquatic environment, including hydrofoils, air cushion vehicles, submersibles and other floating devices

XIX- oil: any form of hydrocarbon (oil and its net derivatives), including crude oil, fuel oil, sludge, oil refuse and refined products;

XX- competent environmental agency: environmental protection and control body of the, federal, state or municipal executive power, a member of the National Environment System-SISNAMA, responsible for the environmental licensing of port facilities, terminals, platforms, their respective supporting facilities, ports, pipelines, probes onshore, refineries, shipyards, and for their supervision in the framework of its competences;

XXI- area plan: document or set of documents that contain the information, measures and actions relating to a concentration area of the organized port, port facilities, terminals, pipelines or platforms and their supporting facilities, aimed at integrating the various Individual emergency plans in the area to combat oil pollution incidents, as well as facilitate and increase the responsiveness of this plan and guide the actions needed in the event of pollution incidents by oil of unknown origin;

XXII -Individual emergency plan-PEI: document or set of documents, containing the information and describing the installation procedures for responding to an oil pollution incident, in waters under national jurisdiction, arising from its activities;

XXIII- platform: installation or structure, fixed or mobile, located in waters under national jurisdiction, for the activity directly or indirectly related to the research and exploitation of mineral resources from the bed of inland waters or underground, or the sea, the continental shelf and its subsoil;

XXIV- uninhabited platform: automatically operated platform, with eventual boarding of persons;

XXV- organized port: the port built and equipped to meet the needs of navigation and the movement of passengers and or in the handling and storage of merchandises, granted or explored by the Union, whose traffic and port operations are under the jurisdiction of a port authority;

XXVI- small public port facility: facility for port operations of moving passengers, freight or both, intended or originated the inland waterway transport;

XXVII- coastal area: geographical space of interaction of air, sea and land, including their environmental resources, comprising the following tracks:

a) Marine Strip: strip extending around the sea, 12 nautical miles from baselines established in accordance with the United Nations Convention on the Law of the Sea, comprising the entirety of the Territorial Sea;

b) Terrestrial Strip: continent strip formed by municipalities that suffer direct influence of the phenomena occurring in the coastal area, namely:

1. the municipalities in from to the sea, so considered in listing established by the Brazilian Institute of Geography-and Statistics-IBGE;

2. the municipalities not in front of the sea located in coastal metropolitan areas;

3. the contiguous municipalities to large coastal cities and state capitals, with the process of conurbation;

4. the municipalities near the coast, up to 50 km of coastline, which allocate, on their territory, infrastructure or activities of great environmental impact on the Coastal Zone, or coastal ecosystems of high relevance;

5. the estuarine-lagoon municipalities, even if not directly in front of the sea, given the relevance of these environments for the maritime-coastal dynamics, or in estuary cross-border lagoon; and

6. the municipalities that even not in front of the sea, have all their limits with the municipalities referred to in previous sub items.

Art. 3 The presentation of the Individual Emergency Plan will take place on the occasion of the environmental licensing and approval when the grant of Operating License-LO, of the Previous Drilling License--LPper and the Previous Production License for Search-LPpro, when applicable.

§ 1. The facilities in operation must suit themselves to their Individual Emergency Plans, in the form established in this Resolution, for approval by the competent environmental agency, within the following periods:

I- for waterway terminals, sea pipelines, platforms, organized ports, port facilities and their supporting facilities, within one year after the date of entry into force of this Resolution;

II-for terminals, probes and terrestrial pipelines, refineries, shipyards, marinas, nautical clubs and similar facilities, by up to two years after the date of entry into force of this Resolution.

§ 2 For inhabited oil or natural gas production platforms, whose operational control is carried out centrally and remotely, a single Individual Emergency Plan should be elaborated for the set of platforms of each field, being considered in the operational procedures for response, the specifics of each of the platforms.

§ 3 The Individual Emergency Plans of platforms of the same entrepreneur, located in the same geographical area defined by the competent environmental agency may have organizational structure, resources and procedures shared by the platforms of this geographical area, for the actions to combating the oil spill on the sea, described and presented in a single document.

§ 4 The Individual Emergency Plans for port facilities, of a same entrepreneur, located in the same geographical area, may have organizational structure, procedures and resources shared by all those facilities, for the actions of combating the oil spill on sea, described and presented in a single document at the discretion of the competent environmental agency.

§ 5 The Individual Emergency Plan, at the time of its presentation for review and approval by the competent environmental agency, must be accompanied by a document containing the information specified in Annexes II and III to this Resolution.

Art. 4 The Individual Emergency Plan should ensure at the time of its adoption, the capacity of the facility running immediately, the actions of responses for attendance to oil pollution incidents, in their several kinds, with the use of own human and material resources, which may be supplemented with additional resources of others, by means of agreements previously entered into.

Art. 5 the Individual Emergency Plan for the facility must be drawn up in accordance with the following guidelines:

I- as per minimum content laid down in Annex I;

II- on the basis of the reference information laid down in Annex II;

III- based on the results of the risk assessment of the facility;

IV- according to the criteria of dimensioning of minimum capacity of response set out in ANNEX III;

V- in an integrated manner with the corresponding Area Plan.

§ 1. The marinas, nautical clubs, small moorings, small public port facilities and similar facilities that store oil or supply vessels in his dock, and terrestrial probes should have a simplified Individual Emergency Plan, according to Annex IV of this Resolution.

§ 2 in the case of Individual emergency plan presentation with structure or terminology different from those laid down in Annexes I and IV, this table should contain a table indicating the correlation between the topics listed in the plan submitted and those contained in said Annexes.

§ 3 In case of facilities located in areas close to environmentally sensitive areas special requirements may be aggregated to the Individual emergency plan at the discretion of the competent environmental agency.

Art. 6 The Individual Emergency Plan should be reassessed by the entrepreneur in the following situations:

I- when the update of the risk assessment of the facility so recommends;

II- whenever the facility suffers physical operating or organizational changes capable of affecting its procedures or its responsiveness;

III- when the assessing of the performance of Individual Emergency Plan as a result of its drive by incident or simulated exercise, so recommends;

IV- in other situations at the discretion of the competent environmental agency provided it is technically justified.

§ The evaluations provided for in the caput of this article shall be maintained by the entrepreneur, properly documented, at least for three years.

§ 2 If the Individual Emergency Plan assessment, referred to in this article, results in the need for change in procedures and in its capacity to respond, the plan should be revised and the changes must be submitted to the approval of the competent environmental agency.

Art. 7 The Individual Emergency Plan and its amendments shall, obligatorily, be filed in the records of the environmental licensing of the facility.

Sole paragraph. After the end of response to an oil pollution incident, as defined in the Individual Emergency Plan should be presented to the competent governing environmental body up to 30 days, a report containing critical analysis of its performance.

Art. 8. This resolution shall enter into force on the date of its publication.

Art. 9 It is hereby revoked Resolution No. 293, of December 12, 2001, published in the Official Gazette of February 5, 2002, Section 1, pages 133 to 137, and provisions in contrary.

CARLOS MINC-Council President

ANNEX I

Minimum content of Individual Emergency Plan

The Individual Emergency Plan should be drawn up in accordance with the following minimum content:

1. identification of facility
2. Accidental Settings
3. Information and procedures for response
 - 3.1. Oil spill alert
 - 3.2. Communication of the incident
 - 3.3. Organizational Structure of response
 - 3.4. Response equipment and materials
 - 3.5. Response operating procedures
 - 3.5.1. Procedures for oil discharge
 - 3.5.2. Procedures for oil spill containment
 - 3.5.3. Procedures for protection of vulnerable areas
 - 3.5.4. Procedures for monitoring the oil slick spilled
 - 3.5.5. Procedures for gathering of spilled oil
 - 3.5.6. Procedures for mechanical and chemical dispersion of spilled oil
 - 3.5.7. Procedures for cleaning the affected areas
 - 3.5.8. Procedures for collection and disposal of waste generated
 - 3.5.9. Procedures for displacement of resources
 - 3.5.10. Procedures for obtaining and updating of relevant information
 - 3.5.11. Procedures for registration of response actions
 - 3.5.12. Procedures for protection of the people
 - 3.5.13. Procedures for protection of fauna.
4. Termination of operations
5. Maps, charts, plans, drawings and photographs
6. Attachments

1. Identification of facility

This section must contain the following basic information about the facility:

- a) name, full address, telephone and fax of the facility;
- b) name, full address, telephone and fax of the company responsible for operation of the facility;
- c) name, full address, telephone and fax of the legal representative of the facility;
- d) name, title, full address, telephone and fax of the Coordinator of the response actions;
- e) geographical coordinates location and situation;
- f) description of the access to the facility.

2. Accidental settings

In this section, it should be setting accidental scenarios indicating the volume of the spill and the likely behavior and fate of spilled product, According to ANNEX II, section 2.2.

3. Information and procedures for response

This section shall include all the information and procedures needed to respond to an oil pollution incident. The information and procedures should be organized according to the sections listed below.

- 3.1. oil spill alert

This section must be described the procedures and equipment used for oil spill alert

- 3.2. Communication of the incident

This section should contain the list of individuals, organizations and official institutions that must be notified in the event of an oil pollution incident. The list shall contain, in addition to the names, all means of contact, including, as appropriate, telephone (commercial, residential and mobile), fax, radio (or frequency) etc.

The initial communication of the incident shall be made to the competent environmental agency, the port authority or to the river port authority jurisdiction of the incident and the regulatory body of the oil industry, based on the form in Annex 1 of this ANNEX.

3.3. Organizational structure of response

This section should bear the organizational structure of response to oil pollution incidents for each scenario considered accidental, including our own staff and hired. The following should be listed:

- a) functions;
- b) duties and responsibilities during an emergency;
- c) estimated maximum time for mobilization of personnel;
- d) technical qualifications of members for performance of the function envisaged in the organizational structure.

The organizational structure of response should be represented in an organization chart showing the relations among its constituent elements. The coordinator of the response actions and their eventual replacement should be clearly identified, within the organizational structure.

3.4. Response equipment and materials

This section must list equipment and materials in response to oil pollution incidents, such as those intended for containment, collection and oil dispersion and isolation protection of vulnerable areas, cleaning of affected areas,

absorbent products and oily waste packaging, adsorbents, vehicles (light and heavy), the use of which is provided for by the facility. The following should be indicated:

- a) name, type, and operational characteristics;
- b) quantity available;
- c) location;
- d) estimated maximum time offset for the location of use;
- e) limitations to the use of equipment and materials;

The relationship should contain both the equipment and materials belonging to the facility as those hired by third parties, in particular of organizations providing incident response services of pollution by oil. In the case of equipment and materials of third parties, should be attached to the contracts and other legal documents proving the availability of equipment and related materials.

.Personal Protective Equipment (Ppe) for use by response teams should also be specified..

3.5. Response operating procedures

This section must describe all procedures to control response and oil spill cleanup for each scenario considered accidental. In the description of the procedures, it should be taken into consideration the aspects related to the safety of personnel involved in the response. Dispersing chemical, mechanical or other techniques to compose the response structure of the facility, provided they are technically justified and accepted by the competent environmental agency. In the case of condensed oil leak on platforms, the containment and collection procedures mentioned above should not be applied, due to the predominance of safety aspects and safety of life and the absence of pollution control goal factor for containment and recoil.

The description of the procedures should be organized in accordance with the following sections.

3.5.1. Procedures for oil discharge

Must be described, for each scenario discussed in section 2, the operating procedures established for oil discharge

3.5.2. Procedures for oil spill containment

The procedures for oil spill containment or limitation of the spreading oil slick must be described. The description of the procedures should take into account accidental scenarios, as well as the related response equipment and materials in the section 3.4.

3.5.3. Procedures for protection of vulnerable areas

The procedures for protection of the areas identified on the maps of vulnerability must be described. The description of the procedures should take into account the response equipment and materials listed in section 3.4 as well as accidental scenarios referred to in item 2.

3.5.4. Procedures for monitoring the oil slick spilled

The procedures for monitoring the slick oil including must be described, as appropriate:

a) visual monitoring and through satellite images, photographs or other means deemed appropriate;

b) collecting samples;

c) mathematical modeling.

The way and the frequency of record of the information obtained during the monitoring procedures regarding the area, volume, offset and degradation of the oil stain should also be described.

3.5.5. Procedures for gathering of spilled oil

The procedures for collecting the spilled oil must be described.

The description of the procedures should take into account the related response equipment and materials in the section 3.4.

3.5.6. Procedures for mechanical and chemical dispersion of spilled oil

The procedures for the use of mechanical means and chemical agents for dispersion of the oil stain must be described. The description of the procedures should take into account the related response equipment and materials in the section 3.4, as well as CONAMA Resolution CONAMA No. 269, of 2000.

3.5.7. Procedures for cleaning the affected areas

The procedures for clearing of land areas-coastal zones, Islands, banks of rivers, lakes, ponds - hit by oil; structures and facilities the company itself; and equipment and third parties properties must be described. The definition of the procedures should consider factors such as the type of oil spilled, the geomorphology and degree of exposure of the area, the water circulation conditions, the type and sensitivity of biota and socio-economic activities.

3.5.8. Procedures for collection and disposal of waste generated

The procedures for collecting, packaging, transporting, sorting, decontamination and provisional disposition (in loco and installation) and definitive, in areas previously authorized by the competent environmental agency of waste generated in operations of control and cleaning the spill, including, as appropriate must be described:

- b) contaminated soil;
- c) contaminated materials and equipment, including personal protective equipment;
- d) chemicals used;
- e) other waste.

3.5.9. Procedures for displacement of resources

The means and procedures laid down for the displacement of human and material resources to the location of the incident must be described.

3.5.10. Procedures for obtaining and updating of relevant information

The procedures to obtain and update the following information must be described:

- a) hydrographic, meteorological, oceanographic and hydrodynamics information;
- b) description of impact (degree of rock weathering oil, infiltration, surface adhesion, affected flora and fauna etc.);
- c) monitoring of the atmosphere for detection of vapors, gases and explosive.

3.5.11. Procedures for registration of response actions

The procedures for registration of shares in response to the evaluation and revision of the plan and preparation of the final report must be described.

3.5.12. Procedures for protection of populations

In cases where the analyses to identify accidental settings that may pose risk to the safety of the people, procedures must be described for their protection, in accordance with the guidelines established by the National Civil Defense System - SINDEC".

3.5.13. Procedures for protection of fauna

Survey of the existing fauna in the region, as well as migratory fauna and detailing the measures to be adopted for salvage and protection of individuals affected.

4. Termination of operations

The following should appear in this section:

- a) criteria for decision as regards the closure of operations;
- b) procedures for the demobilization of personnel, equipment and materials used in the response actions;
- c) procedures for the definition of additional actions.

5. Maps, charts, plans, drawings and photographs

This section should contain all the maps, charts, plans, drawings and photographs, including mandatory:

- a) general installation plan, in paper and in digital format, in an appropriate scale, identifying and containing, as the case may be, the location of:

a. 1. tanks, pipelines, process equipment, loading and unloading and other potential sources of spills;

- a. 2. secondary containment systems;

- a. 3. equipment and material response to oil pollution incidents.

b) drain installation plan, on paper or in digital format, in an appropriate scale, containing and identifying, as appropriate:

- b. 1. main points and drainage lines, contaminated water and rainwater;

- b. 2. directions of oil spill from the discharge points up the limits of the system.

c) maps of vulnerability resulting from the analysis carried out in accordance with section 3 of ANNEX II.

d) black and white versions of the maps referred to in letter "c" in A-4 format, containing obligatorily a graphic scale, to enable their submission via fax, being tolerated simplifications provided there is no prejudice to its informational content.

6. Annexes

In this section, additional information should be included to the Individual Emergency Plan, such as:

- a) memory of dimensioning calculation of responsiveness capacity, as per ANNEX III;
- b) licenses or authorizations for the performance of any activity related to the response, according to applicable regulations;
- c) legal documents for receiving aid in the response actions;
- d) technical, physico-chemical, toxicological information and on safety of the substances;
- e) information about emergency medical facilities and services;
- f) glossary of terms;
- g) other information deemed relevant.

ANNEX I

Annex 1

INITIAL INCIDENT COMMUNICATION

I- Identification of the facility that caused the incident:

Name of facility:

Unable to inform

II. Date and time of the first observation:

Time:

Day/month/year::

III- Estimated date and time of incident:

Time:

Day/month/year:

IV- The geographical location of incident:

Latitude:

Longitude:

V- Spilled oil:

Type of oil:

Estimated Volume:

VI Likely cause of the incident:

Unable to inform

VII. Current situation of oil drain:

paralyzed

was not paralyzed

unable to inform

VIII- Initial actions that have been taken:

activated Individual Emergency Plan;

other actions:

no evidence of action or further action so far.

IX- Date and time of communication:

Time:

Day/month/year:

X- Informant identification:

Full name:

Position/job/duties at facility:

XI- Other information deemed relevant:

Signature:

ANNEX II

Reference information for Individual Emergency Plan

The Individual Emergency Plan must be submitted for review and approval by the competent environmental agency together with the document containing the following reference information:

1. Introduction
2. Identification and assessment of risks
 - 2.1. Risk Identification by source
 - 2.2. Accidental Hypotheses
 - 2.2.1. Worst-case Discharge
3. Vulnerability analysis
4. Staff training and response exercises
5. Bibliographical references

6. Technician responsible for preparing the Individual Emergency Plan

7. Responsible for implementing Individual Emergency Plan

1. Introduction

In this section, a descriptive summary must be submitted of the characteristics of the installation and of the main operations performed.

2. Identification and assessment of risks

In this section, the potential sources shall be identified and the possible consequences of oil pollution incidents assessed in accordance with the risk assessment of the installation.

2.1. Risk identification by source

All tanks, pipelines, process equipment (reactor, filter, separator, etc), loading and unloading ships and other potential sources of oil spill associated with installation, should be listed, indicating:

a) in the case of tanks, process equipment and other reservoirs:

a. 1. identification of the tank or reservoir equipment;

a. 2. type of tank or reservoir (horizontal, vertical, underground, fixed or floating roof, pressurized etc);

a. 3. oil types stocked;

a. 4. maximum storage capacity;

a. 5. ability of secondary containment (containment basins, drainage reservoirs, etc.);

a. 6. date and causes of previous incidents of pollution by oil

b) in the case of pipelines:

b. 1. identification of the duct;

b. 2. diameter and length of the duct;

b. 3. origin and destination of the duct;

b. 4. types of oil transported;

b. 5. pressure, temperature and maximum flow operation;

b. 6. date and causes of previous incidents of oil pollution;

c) in the case of loading and unloading:

c. 1. type of operation (loading or unloading);

c. 2. means of movement involved (ship, barge, truck, train, other);

c. 3. oil transferred types;

c. 4. maximum flow of transfer;

c. 5. date and causes of previous incidents of oil pollution;

d) in the case of ships:

d. 1. type of operation;

d. 2. type of vessel involved;

d. 3. type of oil involved;

d. 4. estimated maximum capacity of oil, including fuel and lubricants, planned to operate vessels at the facility;

d. 5. date and causes of previous incidents of oil pollution in the installation.

e) in the case of other potential sources of spills:

e. 1. font type or operation;

e. 2. types of oil involved;

e. 3. volume or flow involved;

e. 4. date and causes of previous incidents of pollution by oil.

This information should be presented as per tables in Annex 1 of this ANNEX. The location of tanks, pipelines, process equipment, loading and unloading and other potential sources of identified spill must be indicated in drawings, blueprints, charts and maps, in proper scale.

2.2. Accidental hypotheses

From the identification of potential sources of oil pollution incidents carried out in section 2.1 of this ANNEX, must be related and discussed the specific accidental hypotheses. For composition of these assumptions, should be taken into consideration all operations carried out in the installation, such as:

a) storage/ stocking;

b) transfer;

c) process;

d) maintenance;

e) loading and unloading;

In the case of ships, should be considered mooring, unmooring maneuvers and dockage, loading and unloading, fueling, transferring oil between tanks and evolution basin movement of facility.

In the discussion of accidental hypotheses should be considered:

a) spilled oil type;

b) shedding scheme (instantaneous or continuous);

c) the volume of the spill;

- d) the possibility of the oil reaching the external area of the installation;
- e) weather conditions and hydrodynamics.

In the case of ships, should be considered the incidents of loading and unloading, collision, stranding, hull cracks, among others.

2.2.1. Worst-case discharge

In this section, shall be calculated the volume of the spill for the worst-case discharge from the accidental assumptions set out in section 2.2. The calculation of the volume of shedding the worst-case discharge should be conducted on the basis of the following criteria:

- a) in the case of tanks, process equipment and other reservoirs:

$V_{pc} = V_1$, where:

V_{pc} = spill volume corresponding to the worst-case discharge

V_1 = tank's maximum capacity, process equipment or larger tank capacity (1)

(1) In the case of tanks operating equalized, should be considered the sum of the maximum capacity of the tanks.

- b) in the case of pipelines:

$V_{pc} = (T_1 T_2) \times Q_1 + V_1$, where:

V_{pc} = spill volume corresponding to the worst-case discharge

T_1 - estimated time to spill detection

T_2 - estimated time between the detection of the spill and the interruption of the transfer operation

Q_1 - maximum flow duct operation

V_1 - volume remaining in the duct section, after the interruption of the transfer operation (1).

(1) The volume V_1 can be reduced through technical justification to be presented by entrepreneur and approved by the competent environmental agency.

$V_{pc} = V_1$, where:

V_{pc} = spill volume corresponding to worst-case discharge

V_1 = estimated daily volume (1) arising from the loss of well control x 30 days

(1) To estimate the daily volume due to the loss of control of the well the known characteristics of the reservoir should be considered. If these characteristics are unknown, the characteristics of similar tanks should be considered. The estimated daily volume should be accompanied by technical justification.

- d) in the case of production platforms (1):

$V_{pc} = V_1 V_2$ (2), where:

V_{pc} - spill volume corresponding to the worst-case discharge

V_1 - sum of maximum capacity of all storage tanks and pipes platform

V_2 - estimated daily volume (3) due to the loss of control of the well flow rate associated to the larger platform x 30 days

(1) Includes production for research and long-term test, as CONAMA Resolution 23/94 and related ANP ordinances.

(2) When the loss of well control does not compromise the platform, storage, V_{pc} is equal to the greatest value between V_1 and V_2 .

(3) The estimated daily volume should be accompanied by technical justification.

- e) in the case of production land facilities

$V_{pc} = V_1$, where:

V_{pc} -spill volume corresponding to the worst-case scenario

V_1 -estimated daily volume (1) due to the loss of control of the larger flow well associated to the facility x 30 days

(1) To estimate the daily volume due to the loss of control of the well should be considered the known characteristics of the reservoir. The estimated daily volume should be accompanied by technical justification.

- f) in the case of loading and unloading:

$V_{pc} = (T_1 T_2) \times Q_1$, where:

V_{pc} -spill volume corresponding to the worst-case discharge

T_1 -estimated time to spill detection

T_2 -estimated time between detection and stopping the spill

Q_1 -maximum operating flow.

- g) in the case of storage platforms associated with production platforms:

$V_{pc} = V_1$, where:

V_{pc} -spill volume corresponding to the worst-case discharge

V_1 -volume corresponding to the largest sum of two adjacent storage tanks.

Calculations above should use units of the International System (SI).

3. Vulnerability analysis

In this section, the effects of oil pollution incidents on the safety of human life and the environment in the areas likely to be affected by these incidents shall be assessed.

The vulnerability analysis should take into account:

- a) oil likely to achieve certain areas;
- b) the sensitivity of these areas to oil.

The determination of these areas should be conducted from the accidental hypotheses defined in section 2.2, in particular the spill volume corresponding to the worst-case discharge.

- The areas likely to be affected should be determined by:
- the comparison with previous incidents) of pollution by oil, if applicable;
 - b) use of transport and dispersion models of oil.

In the areas likely to be affected by oil pollution incidents should be evaluated, as the case may be, the vulnerability of:

- a) water intake points);
- b) residential, recreation areas and other human concentrations;
- c) ecologically sensitive areas such as mangroves, coral banks, flood areas, estuaries, nesting, spawning, breeding, feeding, migratory and local wild species etc.;
- d) local fauna and flora;
- e) areas of socioeconomic importance;
- f) transport routes, by road and rail;
- g) conservation units, indigenous lands, archaeological sites, areas preserved and traditional communities.

The vulnerability analysis should, wherever possible, be based on the available information in charts of environmental sensitivity to oil spills (SAO charts) prepared in accordance with applicable technical specifications and standards. The location of vulnerable areas should be indicated in drawings and maps, in an appropriate scale, with indicative subtitles.

4. Staff training and response exercises

The content and the frequency of personal training programs and exercises in response to oil pollution incidents should be listed and described, including, as the case may be:

- a) communications exercises;
- b) planning exercises;
- c) resource mobilization exercises);
- d) complete response exercises.

5. Bibliographical references

Bibliographical references eventually used should be listed.

6. Technician Responsible for preparing the Individual Emergency Plan

Those responsible for the preparation of Individual emergency plan should be listed.

7. Technician Responsible for the implementation of the Individual Emergency Plan

Those responsible for the implementation of the Individual Emergency Plan should be listed

ANNEX II

Annex 1- Identification of risks by source

a) In the case of tanks, process equipment and other reservoirs:

Identification of tank, equipment or reservoir	Type of tank, equipment or reservoir	Type of oils stored	Maximum storage capacity	Secondary contention capacity	Date and causes of previous incidents
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b) In the case of ducts

Duct identification	Duct diameter	Type of oil transported	Maximum pressure of operation	Maximum temperature of operation	Maximum flow of operation	Date and causes of previous incidents
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c) In the case of loading and unloading operations :

Type of operation	Type of oil transferred	Maximum transfer flow	Date and causes of previous incidents
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d) in the case of vessels:

Type of operation	Type of vessel involved	Type of oil involved	Maximum estimated oil capacity, including fuel and lubricants, of vessels predicted to operate in the facility	Date and causes of previous pollution incidents by oil in the facility
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d) In the case of other potential sources of leakage:

Type of source or operation	Type of oil involved	Volume or flow involved	Date and causes of previous incidents
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ANNEX III Criteria for Dimensioning Minimum Response Capacity

1. Dimensioning of response capacity
2. Capacity to respond
 - 2.1. Containment barriers
 - 2.2. Collectors
 - 2.3. Chemical dispersants
 - 2.4. Mechanical dispersion
 - 2.5. Temporary Storage
 - 2.6. Absorbents
3. Materials resources by platforms

1. Dimensioning of response capacity

For dimensioning the response capacity of the facility, the response strategies laid down for the incidents identified in the accidental scenarios defined pursuant to section 2 of ANNEX I should be complied with.

2. Capacity to respond

The response capacity of the facility must be ensured by means of own or third-party resources from previously signed agreements, subject to the criteria of small discharges (8 m³) and medium (up to 200 m³) and worst case defined below. The Individual Emergency Plan can assume, based on these criteria, structures and strategies specific to each situation, according to accidental scenarios established and their requirements.

2.1. Containment Barriers

Containment barriers should be dimensioned based on the scenarios planned and accidental response strategies established, contemplating the job sites at the source, in limiting the spread of the stain and protection of vulnerable areas of priority, subject to the following criteria:

Strategy	Minimum amount
Complete enclosure of vessel out of leaking source	3x the length of the vessels or the leakage source, in meters.
Contention of the oil stain	According to the computation of the daily effective capacity of oil collection – CEDRO (item 2.2 of ANNEX III)
Protection of rivers, canals and other water bodies	The highest value between: <ul style="list-style-type: none"> - 3.5 x width of the water body, in meters, and - 1.5 + maximum speed of current in knots x width of the water body, in meters; up to the limit of 350 meters

2.2 Collectors

Calculation of collapsing capacity should meet the following criteria for small and average discharges:

Small (dp) and median (dm) discharges		
Volume	Time for availability of resources on the discharge site	Daily Effective Capacity of Oil Collection (CEDRO)
V _{dp} is the volume of small discharge	T _{dp} is the time for availability of resources for response to the small discharge	CEDRO _{dp} is equal to V _{dp}

	Tdp is less than 2 hours.	
Vdm is the mean discharge volume Vdm is equal to the smallest value between 200 m ³ and 10% of the worst case of discharge volume	TDM is the time for availability of resources to response to the mean discharge which may be extended, based on a technical justification, provided it is accepted by the competent environmental agency	DECROdm is equal to 0.5 x Vdm

a) In the case of platforms located beyond the Territorial Sea, the value to be applied to CEDROdm, Tdm, CEDROdp and Tdp might be changed based on a technical justification, provided it is accepted by the competent environmental agency.

b) In the case of organized and other ports, port facilities and terminals, should be included the scenario of the oil spill from ships within the following limits:

1. Oil Terminals: CEDRO should be dimensioned for small and average discharge.

In the case of oil spill above 200 m³, the installation must submit the planned actions to ensure the continuity of response to emergency care.

2. Organized ports, other port facilities and other terminals: CEDRO should be dimensioned for small discharge. In the case of oil spill over 8 m³, the facility must submit the planned actions to ensure the continuity of response to emergency care.

For the worst-case discharge situation, the answer must be planned in a scaled way, as per the table below, where the values of CEDRO refer to the total capacity available within the time specified:

Worst case discharge (dpc)	
TN ₁ is the maximum time for the availability of resources	TN ₁ is equal to 12 hours
CEDRO	Coastal Zone, lakes, dams and other lentic environments: CEDROdpcI equal to 2.400 m ³ /day Rivers and other lotic environments: CEDROdpcI equal to 320 m ³ /day Sea waters beyond the Coastal Zone: CEDROdpcI equal to 1,600 m ³ /day
TN ₂ is the maximum time for the availability of resources	TN ₂ is equal to 36 hours.
CEDRO	Coastal Zone, lakes, dams and other lentic environments: CEDROdpcI equal to 1,600 m ³ /day Rivers and other lotic environments : CEDROdpc2 equal to 640 m ³ /day
TN ₃ is the maximum time for the availability of resources	TN ₂ is equal to 60 hours
CEDRO	Coastal Zone, lakes, dams and other lentic environments: CEDROdpc3 equal to 8,000 m ³ /day Rivers and other lotic environments: CEDRO dpc3 equal to 1,140 m ³ /day Sea waters beyond the Coastal Zone: CEDROdpc3 equal to 6,400 m ³ /day

a) Volume calculation of worst-case discharge to determine the CEDRO required for platforms must consider the volume resulting from the loss of well control during 4 days, demonstrating capacity of maintenance of the structure of response during 30 days, keeping the other guidelines of section 2.2.1 of ANNEX II.

b) In the case of platforms located beyond the Territorial Sea, the values to be required for CEDROdpc and Tdpc can be changed from technical justification, provided it is accepted by the competent environmental agency.

c) In the case of rivers and other lotic environments, depending on the distance of the place of occurrence of the discharge, the amount to be requested for the CEDRO_{dpc} can be changed, from technical justification, provided it is accepted by the competent environmental agency.

d) In cases where the volume of worst-case discharge (V_{pc}) is less than the sum (S) of the gathering volumes of the three levels presented in the previous table, the calculation of the collapsing capacity should meet the following criteria:

Place of worst case discharge	S (m ³)
Coastal Zone, lakes, dams and other lentic environments	Less than 15m ² 00
Sea waters beyond the Coastal Zone	Less than 11,200
Time (TN)	CEDRO _{dpc}
TN ₁ is equal to 12 hours	CEDRO _{dpc1} is equal to 0.150 x V_{pc}
TN ₁ is equal to 36 hours	CEDRO _{dpc2} is equal to 0.30 x V_{pc}
TN ₁ is equal to 60 hours	CEDRO _{dpc3} is equal to 0.55 x V_{pc}

The computation for establishment of equipment related to the Effective Daily Capacity of Oil Gathering (CEDRO) must conform to the following formula:

e) $CEDRO = 24 \cdot C_n \cdot f_e$, where:

C_n is equal to the nominal capacity of the collector, in m³/h

f_e is the efficiency factor, whose maximum value is 0.20

The CEDRO, for dimensioning the equipment, may have another formulation, from technical justification, provided it is accepted by the competent environmental agency.

2.3. Chemical dispersants

The volume of chemical dispersant available should be compatible with the response strategy and its implementation should meet the requirements of the Resolution from the National Council of the Environment – CONAMA No. 269, of September 14, 2000.

2.4. Mechanical dispersion

In the case of the mechanical dispersion option, it should be presented to the competent environmental agency a justification of the dimensioning of amount of equipment and vessels to be used and the time for availability of these resources.

2.5. Temporary storage

The temporary storage of oil or oily mixture collected should be equivalent to three hours of operation of the collector.

2.6. Absorbents

The absorbents used for final cleaning of the area of the spill, for the locations inaccessible to collectors and, in some cases, to protect vulnerable coastlines in their extension or other special areas shall be quantified according to the following criteria:

a) absorbent barriers: the same length of the barriers used for the contention;

b) absorbent blankets: in a quantity equivalent to the length of the barriers used to contain;

and

c) absorbent material in bulk: in an amount compatible with the response strategy.

3. Material resources for platforms

The platforms should be equipped with the set of established equipment and materials inherent to the Shipboard Oil Pollution Emergency Plan-SOPEP, as defined in the International Convention for the Prevention of Pollution from Ships, done at London on November 2, 1973, its Protocol, done at London on February 17, 1998, amendments of 1984 and its Operational Annexes III, IV and V, promulgated in Brazil by Decree No. 2508, of March 4, 1998. Republished due to incorrectness, from the original, in the Official Gazette of February 27, 2002, Section 1, pp. 128 to 133.

ANNEX IV

Information for the elaboration of the Simplified Individual Emergency Plan

The marinas, nautical clubs, small moorings, small public port facilities and similar facilities that store oil, serving vessels in his berth, and terrestrial probes should have a simplified Individual emergency plan, containing:

1. identification of the responsible person for the development, as per ANNEX I, item 1;

2. identification of the undertaking, as per Annex I, item 1;

3. identification of accidental hypotheses including type of oil handled and estimates of oil leaked;

4. procedures for communication of occurrence, as per Annex I, item 3.2;

5. Description of the immediate actions envisaged, i.e. procedures for response actions including stopping the spill; containment and gathering of leaked oil; protection of sensitive areas and fauna; cleaning of affected areas; collection and disposal of waste generated-with its own resources and third parties through legal agreement previously signed;

6. Procedures for institutional articulation with the competent organs;

7. Personal training program in response to incidents of pollution by oil

This text does not replace does the one published in the Official Gazette, of June 12, 2008

CONAMA RESOLUTION 401, November 4, 2008
Published in Official Gazette 215 on November 5, 2008, Section 1, p. 108-109

Correlation:

- Amended by Resolution No. 424, of 2010.
- Revokes CONAMA Resolution No. 25799.

Establishes the maximum amounts of lead, cadmium and mercury for batteries sold within the national territory and the criteria and standards for their adequate environmental management as well as other provisions.

The NATIONAL ENVIRONMENTAL COUNCIL-CONAMA, pursuant to the powers vested on it by art. 8, subitem VII of Law 6.938, of August 31, 1981, and by art. 7, items VI and VIII, § 3, of the Decree 99.274, of June 6, 1990, and in accordance with the provisions laid down in its Internal Rules, and on what is included in Proceeding No. 02000.005624/1998-07, and

Considering the need to minimize negative impacts to the environment by improper disposal of batteries;

Considering the need to regulate the environmental management of batteries, especially those containing in their compositions lead, cadmium, mercury and its compounds, with respect to the collection, reuse, recycling, treatment or disposal;

Considering the need to reduce as far as possible, the generation of waste, as part of an integrated cleaner production, stimulating the development of clean processes and techniques in the production of batteries produced in Brazil or imported;

Considering the wide spread use of batteries in the Brazilian territory and the consequent need to educate the consumers of these products about the risks to the health and the environment from improper disposal;

Considering that there is a need to conduct studies to replace potentially dangerous or toxic substances reduce the amount until the technologically lowest possible values; and

Considering that it is necessary to update, because of greater public awareness and development of cleaner processes and techniques, the provisions in the CONAMA Resolution No. 257/99 resolves

CHAPTER I
GENERAL PROVISIONS

Art. 1 This Resolution lays down the ceilings of lead, cadmium and mercury and the criteria and standards for environmentally appropriate management of portable batteries, of lead-acid batteries, and industrial and automotive batteries and electrochemical systems batteries nickel cadmium and mercury oxide, related in chapters 85.06 and 85.07 of Mercosur-NCM, marketed on the national territory.

Art. 2 For the purposes of the provisions in this Resolution:

I - battery: rechargeable accumulators or sets of batteries, connected in series or in parallel;

II – battery or accumulator: electrochemical generator of electricity by converting chemical energy, which may be primary (non-rechargeable) or secondary (rechargeable);

III- portable battery or accumulator: battery or accumulator that is sealed, which is not industrial or automotive battery or accumulator and electrochemical system which would apply to this Resolution.

IV- lead-acid battery or accumulator: device on which the active material of positive plates consists of lead compounds and the negative plates of lead, essentially being the electrolyte a sulphuric acid solution;

V- button cell: cell that has a diameter greater than the height;

VI-cell button battery: battery in which each element has a diameter greater than the height;

VII- miniature battery: cell battery with height or diameter smaller than the AAA LR03R03, defined by the technical standards in force;

VIII- management plan of used batteries: set of procedures

environmentally suitable for disposal, segregation, collection, transport, receiving, storage, handling, treatment, reuse, recycling or final disposal;

IX- environmentally appropriate allocation: allocation that minimizes the risks to the environment and adopts technical procedures of collecting, receiving, reuse, recycling, treatment or disposal in accordance with the environmental legislation in force;

X- recycler: legal person duly licensed for the activity by the competent environmental agency dedicated to the recovery of components from batteries.

XI- importer: legal entity that imports for the internal market batteries or accumulators or products containing them, manufactured outside the country.

Art. 3 Domestic manufacturers and importers of batteries referred to in art. 1 and of products containing them shall:

I- be included in the Federal Technical Register of Potentially Polluting Activities or Users of Environmental Resources-CTF, in accordance with art. 17, item II, of Law 6.938, of August 31, 1981;

II- present, annually, to the Brazilian Institute of the Environment and Renewable Natural Resources -IBAMA a physicochemical composition report, issued by the laboratory accredited by the National Institute of Metrology and Standardization-INMETRO;

III- present to the competent environmental agency a management plan of batteries, with due allowance for the environmentally adequate destination, in accordance with this Resolution.

§ 1. If proven by physical-chemical report contemplated in item II that the content is above the permitted levels, the manufacturer and the importer shall be subject to the penalties provided for in the legislation.

§ 2. The importers of batteries must submit to IBAMA a management plan referred to in paragraph III to obtain the import license.

§ 3. The management plan submitted to the competent environmental agency must consider that the batteries to be received or collected are properly packaged and stored in a segregated way, until proper environmental disposal, in compliance with the environmental and public health standards, including the systematic regional and local collection system.

§4 IBAMA will publish within 30 days from the date of this Resolution, the term of reference for the preparation of the management plan.

Art. 4 The establishments that sell the products referred to in art. 1, as well as the technical assistance network authorized by manufacturers and importers of these products, should receive from users the used batteries, respecting the same active principle, being optional the receipt of other brands, for transfer to the corresponding manufacturers or importers.

Art. 5 For the batteries not contemplated in this Resolution, selective collection programs should be implemented, shared by their respective manufacturers, importers, distributors, traders and by the Government.

Art. 6 Batteries mentioned in art. 1, domestic and imported, used or unserviceable, received by merchants or authorized service network, shall be, in its entirety, forwarded to destination environmentally appropriate, under the responsibility of the manufacturer or importer.

Sole paragraph. IBAMA establishes through normative instruction how to receive and control the reception and final destination

CHAPTER II ON THE BATTERIES AND ELECTRIC BATTERIES ZINC-MANGANESE AND ALKALINE-MANGANESE

Art. 7. From July 1, 2009, the portable type batteries, button and miniature which are marketed, manufactured in the national territory or imported, must meet the following maximum levels of the metals of interest:

I- have up to 0.0005% by weight of mercury when it is of the type listed in item III of art. 2 of this Resolution;

II- contain up to 0.002% by weight of cadmium when it is of the type listed in item III of art. 2 of this Resolution;

III- contain up to 2.0% by weight of mercury when it is of the type listed in sections V, VI and VII of the art. 2 of this Resolution.

IV. contain traces of up to 0.1% in weight of lead.

CHAPTER III LEAD-ACID BATTERIES

Art. 8 Batteries, with lead-acid electrochemical system, may not possess metal levels above the following limits:

I- mercury - 0.005% by weight; and II-cadmium- 0.010% by weight.

Art. 9. The transfer of lead-acid batteries referred to in art. 4 may be made directly to the recyclers, provided they are licensed for this purpose.

Art. 10. It is not allowed the disposal of lead-acid batteries in any kind of landfill, as well as their incineration.

Art. 11. Transport of exhausted lead-acid batteries, without their respective electrolyte, will only be accepted when proven environmentally suitable disposal of the electrolyte.

CHAPTER IV NICKEL-CADMIUM AND MERCURY OXIDE BATTERIES

Art. 12. The transfer of nickel-cadmium and mercury oxide batteries laid down in art. 4 may be made directly to the recyclers, provided they are licensed for this purpose.

Art. 13. It is not allowed to incinerate and dispose of these batteries in any kind of landfill and they must be discarded in a t environmentally appropriate manner.

CHAPTER V INFORMATION, EDUCATION AND ENVIRONMENTAL COMMUNICATION

Art. 14. In the advertising materials and packaging of batteries, manufactured in the country or imported, must be clearly visible and in the Portuguese language, the indicative symbology of the appropriate destination, the warnings about the risks to human health and the environment, as well as the need to, after their use, be forwarded to the dealers or authorized service network as per ANNEX I.

Art. 15. Manufacturers and importers of products incorporating batteries should inform consumers about how to proceed with regard to the removal of these batteries after use, thus enabling its destination separately from devices.

Sole paragraph. In cases where the removal of batteries is not possible, offers risk to consumer or if they are an integral and non-detachable from the product, the manufacturer or importer shall comply with the criteria of this Resolution regarding the collection and its environmentally appropriate disposal, without prejudice to the obligation of informing the consumer about these risks.

Art. 16. The body of the product of lead-acid, nickel cadmium and mercury oxide batteries must contain:

I- in the national products, the identification of the manufacturer and, in imported products, the identification of the importer and of the manufacturer, clearly and objectively, in the Portuguese language, by using indelible legible labels and with sufficient mechanical strength to withstand the weather and handling, in order to thus preserve the information in them contained throughout the life of the battery;

II- the warning about the risks to human health and the environment; and

III -the need, after their use, to be returned to dealers or authorized service network to transfer to manufacturers or importers.

~~Sole paragraph. In the case of importation, the information referred to in this article is a prerequisite for customs clearance. (Revoked by Resolution No. 424/2010)~~

Art. 17. Manufacturers, importers, distributors, marketers of these batteries, or products containing them for o their operation, shall be encouraged, in partnership with public authorities and civil society, to promote educational environmental campaigns, as well as by the dissemination of information about post-consumer and responsibility for consumer participation incentives in this process.

Art. 18. Manufacturers and importers of the products covered by this Resolution should regularly promote the formation and training of human resources involved in this activity, including the waste pickers, on reverse logistics processes with environmentally appropriate disposal of their products.

CHAPTER VI FINAL PROVISIONS

Art. 19. Establishments selling batteries referred to in art. 1 must contain appropriate collection points.

Art. 20. Manufacturers and importers of the products covered by this Resolution, which are in operation on the date of its publication, will have a period of up to 12 months to fulfill the provisions of item III of art. 3.

Art. 21. In order to comply with the provisions of arts. 4, art. 5 and the heading of art. 6, it will be given a period of up to 24 months from the publication of this Resolution.

Art. 22. It will not be allowed improper forms of disposition or final disposal of used batteries of any type or characteristics, such as:

I- open pit release, both in rural or urban areas such as unlicensed landfill;

II- open-air burning or incineration in unlicensed facilities and equipment;

III- release in water bodies, beaches, mangroves, swamps, wastelands, wells or water holes, underground cavities, storm water drainage networks, sewage, or electricity or telephone networks, even if abandoned or in areas subject to flooding.

Art. 23. IBAMA, based on facts proven, may request, in its sole discretion, sample of lots of batteries, of any types, produced or imported for sale in the country, for the purpose of verifying compliance with the requirements of this Resolution, through the measurement of the levels of heavy metals in laboratories accredited by the competent bodies for this purpose, the signatories of the agreements of the International Laboratory Accreditation Cooperation (ILAC)-

§ 1. The costs of compliance verification tests, carried out in the country or abroad, as well as the result of any actions of repair and storage, will run on behalf of the manufacturer or importer of the batteries.

§ 2 The verification of non-compliance with the requirements provided for in this Resolution will result in an obligation for the manufacturer or importer to recall all batches in accordance with this norm.

Art. 24. The competent environmental agency may adopt additional procedures to control, surveillance, physical-chemical analyses and reports which are necessary for verifying compliance with the provisions of this Resolution.

Art. 25. It is the responsibility of the agencies and entities of the National System of Environment-SISNAMA, without prejudice to the competence of other organs and entities of the public administration, the audit on the compliance with the provisions of this Resolution.

Art. 26. The manufacturers and importers of the products covered by this Resolution should conduct studies to replace the hazardous substances contained therein or reduce their content until the lowest values technologically viable.

Sole paragraph. Studies and results mentioned in the caput should be delivered to IBAMA, who will assess them technically and will forward a report to CONAMA, in compliance with industrial secrecy and patents.

Art. 27. The non-compliance with the obligations laid down in this Resolution will subject violators to the penalties provided for in the legislation in force.

Art. 28. This Resolution shall enter into force on the date of its publication, revoking Resolution No. 257, of June 30, 1999.

CARLOS MINC-Council President

**ANNEX I
SYMBOLS ADOPTED FOR BATTERIES**

a) lead acid: use any of the 3 options below:



If the manufacturer or importer adopts a recycling system, it may additionally use the following zymology used:



b) Nickel-cadmium: Use any of the three below alternatives:

If the manufacturer or importer adopts a recycling system, it may additionally use the zymology below:



This text does not replace the one published in the Official Gazette of November 5, 2008.

RESOLUTION No. 416, September 30, 2009
Published in Official Gazette 188 on 10/012009, pp. 64-65

Correlations:

- Repeals Resolutions No. 258 / 1999 and No. 301/2002.

Establishes provisions for the preservation of environmentally degraded areas due to discarded tyres and their environmentally adequate destination, and makes other provisions

The NATIONAL ENVIRONMENTAL COUNCIL-CONAMA, pursuant to the powers vested on it by Art. 8, subitem VII of Law 6.938 dated August 31, 1981, and

in view of the provisions in its Internal Rules, and

Considering that it is necessary to regulate the management of scrap tyres;

Considering that the tyres when improperly arranged are an environmental liability that may result in a serious risk to the environment and public health;

Considering the need to ensure that this liability is intended as close as possible to their place of generation, on an environmentally appropriate and secure manner;

Considering that the importation of used tyres is prohibited by CONAMA Resolutions No. 23, December 12, 1996, and paragraph 235 of January 7, 1998;

Considering that the tyres should preferably be reused, recycled and refurbished before its final disposal;

Considering the provisions of art. 4 and in ANNEX 10-C of CONAMA Resolution n° 23, of December 12, 1996, with the wording given by CONAMA Resolution No. 235 of January 7, 1998;

Considering art. 70 of Federal Decree No. 70 6,514, of July 22, 2008, imposes fine for unit of imported used or refurbished tire;

Considering that the freedom of international trade and importation of raw materials should not represent an environmental liabilities transfer mechanism from one country to another, resolves:

Art. 1. Manufacturers and importers of new tyres, with unit weight over 2.0 kg (2 kilos), are required to collect and give proper disposal of scrap tyres on the national territory, in the proportion defined in this Resolution.

§ 1. Distributors, resellers, final consumers of tyres and the Government should, in conjunction with manufacturers and importers, implement the procedures for the collection of scrap tyres in the country, referred to in this Resolution.

§ 2. For the purposes of this Resolution, the reform of tire is not considered to be manufacturing or proper disposal.

§ 3 The hiring of a company to collect tyres by manufacturer or importer does not exempt them from the responsibility for compliance with the obligations laid down in the caput.

Art. 2 For the purposes of the provisions in this Resolution, it is considered:

I – Tire or pneumatic: component of a rolling system, consisting of elastomers, textiles, steel and other materials which, when mounted on a vehicle's wheel and containing fluid (s) under pressure, transmits traction due to its adherence to the soil, sustains elastically the vehicle's load and withstands the pressure caused by the reaction of the soil.

II – New tire: tire, from any source, that did not suffer any use, or has been subjected to any kind of reform and shows no signs of aging or deterioration, classified under heading 40.11 of NCM – NCM.

III- Used tire: tire that has been subjected to any kind of use, wear and/or classified under heading 40.12 of NCM, encompassing the retreads and unserviceable tyres.

IV-Retread tire: tire used that was submitted to a process of reutilization of the carcass with the specific purpose of increasing its life, such as:

a) recap: process by which a used tire is reformed by replacing its tread;

b) retread: process by which a used tire is reformed by replacing his shoulder and tread;

c) remolding: process by which a used tire is reformed by replacing its tread, shoulders and the entire surface of its flanks.

V- unworkable tire: used tire that presents irreparable damage in its structure is no more appropriate to rolling or reform.

VI-environmentally appropriate disposal of scrap tyres: technical procedures in which the tyres are mischaracterized from its initial form, and that their components are reused, recycled or processed by another technique accepted by the competent environmental bodies, in compliance with the legislation in force and specific operational standards so as to avoid damage or risks to public health and safety, and to minimize adverse environmental impacts.

VII- Collection point: place defined by the manufacturers and importers of tyres to receive and temporarily store the scrap tyres.

VIII. Storage center: temporary reception and storage unit of scrap, whole or chopped tyres, made available by the manufacturer or importer, aiming at a better destination logistics.

IX- tire replacement market is the result of the following formula:

$MR = (P + I) - (E + EO)$, where:

MR = Tire Replacement Market;

P = total of tyres produced;

I = total of imported tyres;

E = total exported tyres; and

EO = the total of tyres fitted to new vehicles.

Art. 3° From the entry into force of this Resolution, for each new tire sold to the replacement market, the manufacturers or importers must give proper disposal to unworkable tyres.

§ 1. For the purpose of control and supervision, the amount referred to in the caput must be converted into weight of scrap tyres to be destined.

§ 2. To calculate the weight to be destined, it will be applied the wear factor of 30% (thirty per cent) on the weight of the new tire produced or imported.

Art. 4 Manufacturers, importers, reformers and the determiners of scrap tyres are expected to be enrolled with the Federal Technical Register-CTF, before IBAMA.

Art. 5. Manufacturers and importers of new tyres must declare to IBAMA, in a maximum periodicity of 01 (a) year, by means of the CTF, the proper disposal of scrap tyres set out in Art. 3.

(1) The failure to comply with the provisions in the caput of this article may result in the suspension of the release of import.

§ 2 The balance resulting from the import-export balance may be compensated between manufacturers and importers as defined in article 1 of this Resolution, in accordance with criteria and procedures to be established by IBAMA.

§3 Once the goal of destination is fulfilled as laid down in art. 3 of this Resolution, the surplus can be used for subsequent periods.

§ 4 The noncompliance of the goal destination will cause accumulation of obligation for the subsequent period, without prejudice to the application of applicable sanctions.

§ 5 For purposes of attestation by IBAMA, it can be considered the proper storage of scrap tyres, obligatorily in chips or chopped, provided the demands of environmental licensing for this purpose and, also, those relating to installed capacity for storage and the maximum period of 12 months to the final destination are complied with.

Art. 6 The determiners must prove periodically to CTF of IBAMA, in a maximum periodicity of 01 (a) year, the disposal of scrap tyres, duly licensed by the competent environmental agency.

Art. 7. Manufacturers and importers of new tyres should draw up a plan for managing collection, storage and disposal of scrap tyres (PGP), within 6 months from the date of publication of this Resolution, which should be widely disseminated and made available to organs of SISNAMA.

§1 The PGP should contain at least the following requirements:

I- description of strategies for collection of scrap tyres, accompanied by a copy of any contracts, agreements or terms of appointment, for that purpose;

II- indication of storage units, stating the corresponding location and capacity, as well as informing the identification data of the owner, if they are not;

III- description of the types of tire disposal found that will be adopted by the interested party;

IV- description of educational programs to be developed with stakeholders, and especially with consumers;

V- number of environmental permits issued by the competent organs concerning storage units, processing, reuse, recycling and disposal;

VI- descriptions of relevant programs of self-monitoring.

§ 2 The PGP should include the collection and the collection and disposal mechanisms already existing on the date of entry into force of this Resolution.

§ 3 Each year, manufacturers and importers of new tyres must provide the data and results of PGPs.

§ 4 The PGPs should be updated whenever their grounds suffer any changes or the licensing environmental agency so requires.

Art. 8 Manufacturers and importers of new tyres, jointly or individually, should implement points for collection of used tyres, and may involve the points of commercialization of tyres, the municipalities, tire repair shops and others.

(1) The manufacturers and importers of new tyres should deploy in the cities with over 100,000 (one hundred thousand) inhabitants, at least one collection point within until 01 (one) year from the date of publication of this Resolution.

§ 2 The municipalities where there is no collection point will be met by manufacturers and importers through local and regional systems presented in PGP.

Art. 9 Tire marketing establishments are obliged, at the time of exchange of a used tire for a new or reformed tire, to receive and temporarily store the used tyres delivered by the consumer without any charge for this, adopting control procedures that identify their origin and destination.

§ 1. The establishments referred to in the caput of this article shall have a period of up to 1 (one) year to adopt the control procedures that identify the source and the destination of the tyres.

§ 2. The establishment for the selling of tyres, in addition to the mandatory caput, of this article, may receive tyres used as collecting points and temporary storage, being offered the signing of agreements and realization of regional and local campaigns with municipalities or other partners.

Art. 10. The temporary storage of tyres must ensure the conditions necessary for the prevention of environmental damage and public health.

Sole paragraph. It is forbidden to store tyres.

Art. 11. With the purpose of improving the collection process and disposal of scrap tyres nationwide, manufacturers and importers of new tyres must:

I- disseminate widely the locations of collection and storage of scrap tyres;

II- encourage consumers to deliver the tyres used in collecting points and storage power stations or points of sale;

III- promote studies and researches for the development of the techniques of reuse and recycling, as well as the collection and safe and proper disposal of scrap tyres;

IV- develop actions for the articulation of the various agents of the collection and proper disposal and safe from scrap tyres

Art. 12. Manufacturers and importers of new tyres can make the appropriate disposal of scrap tyres under their responsibility, in own facilities or by specialized third-party services.

Sole paragraph. The simple processing of scrap tyres into rubber chips is not considered final disposal of scrap tyres.

Art. 13. The environmental license of determiners of scrap tyres must specify the installed capacity and the emission limits under the destination process used, as well as the terms and conditions for the operation of the process.

Art. 14. It is forbidden to dispose used tyres that are useful to reform processes, according to technical standards in force.

Art. 15. It is forbidden the final tire disposal in the environment, such as abandonment or release into water bodies, vacant land or swampy, the disposal in landfills toilets and open-air burning.

Sole paragraph. The use of scrap tyres as fuel in industrial processes can only be performed if any standard specifies its use.

Art. 16. IBAMA, based on data from PGP, among other official data presented by the manufacturer and importer, will report annually to CONAMA, at the third meeting of the year, the consolidated data for disposal of scrap tyres for the previous year, stating:

I- the total national amount per manufacturer and importer of manufactured and imported tyres;

II- the total of scrap tyres for per unit of the Federation;

III- the total scrap tyres intended by destination category, including stored temporarily;

IV. difficulties in the implementation of this Resolution, new technologies and solutions to the issue of scrap tyres, and other related information considered relevant.

Art. 17. The procedures and methods for the verification of compliance with this Resolution shall be established by IBAMA normative instruction.

Art. 18. This Resolution shall enter into force on the date of its publication.

Art. 19. This Resolution repeals CONAMA Resolutions No. 258, of August 26, 1999, and No. 301, of March 21, 2002.

CARLOS MINC-Council President

This text does not replace the one published in the Official Gazette on 10/01/2009

RESOLUTION No. 420, December 28, 2009
Published in Official Gazette 249 on 12/30/2009, pp. 81-84

Establishes provisions for the criteria and guiding values regarding soil quality and the presence of chemical substances and establishes directives for the environmental management of contaminated areas by those substances due to anthropic practices.

The NATIONAL COUNCIL for the ENVIRONMENT, pursuant to the powers vested on it by art. 8, subitem VII of Law 6.938, of August 31, 1981, having in view of the provisions in its Internal Rules, and

Considering the need of preventing soil contamination in order to maintain its functionality and protection of surface and groundwater quality;

Considering that the existence of contaminated areas can be a serious risk to public health and the environment;

Considering that it is necessary to prevent contamination of the subsoil and groundwater that are public goods and strategic reserves for the public water supply and the environmentally sustainable development;

Considering the need to establish criteria for defining the guiding values for the prevention of soil contamination and to set guidelines for the management of contaminated areas;

Considering Law 6.938, of August 31, 1981, which provides for the National Environment Policy, imposes on the polluter and to degradator the obligation to retrieve and/or reimburse damage caused;

Considering Law 10.406, of January 10, 2002, determines, in its art. 1,228, § 1, that the right to property should be exercised so that the flora, fauna, natural beauty, ecological balance and the historical and artistic heritage are preserved, as well as avoided air pollution and water; and

Considering the need of establishing integrated procedures and criteria among the organs of the Union, States, Federal District and municipalities together with the organized civil society, for the sustainable use of the soil, in order to prevent harmful changes that may result in the loss of its functionality, resolves:

CHAPTER I
GENERAL PROVISIONS

Art. 1 This Resolution provides for criteria and the guiding values of soil quality in respect of the presence of chemical substances and establishes guidelines for the environmental management of areas contaminated by these substances as a result of anthropogenic activities.

Sole paragraph. In the event of proven natural concentrations of chemical substances that may cause risk to human health, the competent bodies should develop specific actions for the protection of the population exposed to them.

Art. 2. This Resolution shall not apply to areas and submerged soil in marine and estuarine aquatic environment.

Art. 3 Soil protection should be done preventively in order to ensure the maintenance of its functionality or corrective manner, aimed at restoring its quality or retrieve it in a manner consistent with the uses contemplated.

Sole paragraph. The main functions of soil are:

I- serve as a basic means for support of life and habitat for people, animals, plants and other living organisms;

II- keep the cycle of water and nutrients;

III- serve as a means for the production of food and other primary goods;

IV- act as a natural filter, and using adsorption, degradation and transformation of chemicals and organisms;

V- protect surface and groundwater;

VI- serve as a source of information about the natural, historical and cultural heritage;

VII- constitute a source of mineral resources; and

VIII- serve as a basis for territorial occupation, recreational practices and provide other economic and public uses.

Art. 4 Guidelines for the environmental management of contaminated areas cover the soil and subsoil, with all its solid, liquid and gaseous components.

Art. 5 The criteria for prevention, protection and control of groundwater quality shall comply with the specific legislation.

Art. 6 For the purpose of this Resolution, the following terms and definitions are hereby adopted:

I- Risk assessment: process which identifies, assesses and quantifies the risks to human health or to an asset of relevant environmental interests to be protected;

II- Preliminary assessment: initial assessment, conducted on the basis of the available historical information and inspection of the site, with the main objective of finding evidence, signs or facts that allow suspicion of contamination in the area;

III- Goods to protect: the health and well-being of the population; fauna and flora; the quality of the soil, air and water; the interests of protection to nature ; the infrastructure the territorial ordering and regional and urban planning; security and public order;

IV- Standardized exposure scenario: standardization of the set of variables relating to the release of chemical substances of interest, from a primary or secondary source of contamination; exposure to paths and routes of entry into the receiver considered to derive the values of research, depending on the different uses of the soil;

V- Contamination: presence of chemical substance (s) in the air, water or soil as a result of anthropogenic activities, in concentrations such that restrict the use of this feature environment for the current or intended uses, defined on the basis of risk assessment for human health, as well as to the assets to be protected, in standardized or exposure scenario specific;

VI- Free phase: occurrence of immiscible substance or product in a separate phase of the water;

VII- Tolerable daily intake: is the tolerable daily intake for humans of a substance in air, water, soil or food over a lifetime without deleterious effect demonstrated to human health;

VIII- Confirmatory research: step in the process of identifying contaminated areas that has as main objective to confirm or not the existence of substances of anthropic origin in suspected areas, in soil or groundwater at concentrations above the research values;

IX- Detailed research: step in the process of management of contaminated areas, consisting on the acquisition and interpretation of data in contaminated area under investigation, in order to understand the dynamics of the physical media contamination affected and the identification of specific scenarios of use and occupation of the soil, of the existing risk of display path and intake routes;

X- Limit of Detection of the Method-LDM- lower concentration of a substance that can be detected, but not necessarily quantified, by the method used;

XI- Limit of Workable Quantification-LQP- lower concentration of a substance that can be quantitatively determined with precision and accuracy by the method used;

XII- Limit of Sample Quantification - LQA-LQP adjusted for the specific characteristics of the sample analyzed;

XIII- Monitoring: measuring or checking, which may be continuous or periodic, for monitoring the condition of a medium quality or characteristics;

XIV- Tolerable Risk Level to Human Health, to Carcinogenic Substances:

XV- Tolerable level of Risk to Human Health, for Non-Carcinogenic Substances: the one associated with the daily intake of contaminants that is equal to or less than the tolerable daily intake to which a person may be exposed throughout his life;

XVI- Danger: Situation in which human life, the environment or the public and private heritage are threatened, due to the presence of toxic, pathogenic, reactive, corrosive or flammable agents in the soil or groundwater or in facilities, equipment and buildings abandoned, obsolete or not controlled;

XVII- Remediation: one of the actions for the rehabilitation of contaminated area, which consists in the application of techniques aimed at the removal, containment or reduction of concentrations of contaminants;

XVIII- Rehabilitation: intervention actions performed in a contaminated area in order to reach a tolerable risk, for declared or future use of the area;

XIX- Regional: any occurrence involving two or more Member States;

XX- Risk: is the probability of occurrence of the adverse effect (s) in receptors exposed the contaminants;

XXI- Guiding Values: are concentrations of chemicals that provide guidance on the quality and the changes of soil and groundwater;

XXII - Reference Value of Quality - VRQ: is the concentration of substance that defines the natural quality of the soil, determined on the basis of statistical interpretation of physico-chemical analyses of samples of various types of soils;

XXIII- Prevention Value -VP: is the concentration of substance threshold value in the soil, such that it is able to sustain its main functions according to art. 3.

XXIV- Research: Value – VI: is the concentration of a substance in soil or groundwater above which there are potential risks, direct or indirect, to human health, considering a standardized exposure scenario.

CHAPTER II CRITERIA AND GUIDING VALUES OF SOIL QUALITY

Art. 7 The assessment of soil quality, with regard to the presence of chemicals, should be done based on Guiding Values of Quality Reference, of Prevention and Research.

Art. 8. The soil's VRQs for naturally present chemicals shall be established by the competent environmental agencies of the States and the Federal District, within up to 04 years after the publication of this Resolution, in accordance with the procedure laid down in ANNEX I.

§ 1 In the border regions between States, whose soils have similar characteristics, their environmental agencies should establish common VRQs.

§ 2 The environmental agencies, at their discretion and when technically justified, may provide VRQs for naturally occurring organic substances, listed or not in ANNEX II.

Art. 9 The figures presented in ANNEX II, which were established on the basis of phytotoxicity tests or in ecological risk assessment will be adopted as VPs.

Art. 10., The figures presented in ANNEX II, which were derived based on human health risk assessment, on the basis of scenarios of standardized exposure for different uses and soil occupation will be adopted as the VIs.

Art. 11. At the request of the competent environmental bodies, when technically justified and approved by CONAMA, the VPs and VIs established in this Resolution may be revised, as well as state or regional VPs and Vis be established for chemicals listed in ANNEX II, based on the same methodology and ensuring the same level of risk.

Art. 12. Substances not listed in ANNEX II, when their investigation is required, will have their guiding values defined by the competent environmental agency.

Art. 13. The following classes of soil quality are hereby established, according to the concentration of chemical substances:

II – Class 1 - Soils that exhibit chemical concentrations less than or equal to VRQ;

II- Class 2 - Soils that have concentrations of at least one chemical VRQ greater than and less than or equal to the VP;

III Class III - Soils that have concentrations of at least one chemical substance greater than the VP and less than or equal to VI; and

IV Class 4 - Soils that have concentrations of at least one chemical substance greater than the VI.

CHAPTER III PREVENTION AND CONTROL OF SOIL QUALITY

Art. 14. With a view to the prevention and control of soil quality, the enterprises that develop activities with potential for contamination of soils and groundwater shall, at the discretion of the competent environmental agency:

I- deploy quality monitoring program of soil and groundwater in the area of the undertaking and, where appropriate, in its area of direct influence and in surface water; and

II- submitting conclusive technical report on the quality of soil and groundwater, at each application for license renewal and prior to the termination of activities.

§ 1. The competent environmental bodies shall publish the list of activities with potential for contamination of soils and groundwater, with the purpose of orientation of actions of prevention and control of soil quality, on the basis of the activities provided for in Law 10.165, of December 27, 2000.

§ 2 The monitoring program for groundwaters, as well as the technical report referred to in items I and II, shall be established in compliance with the actions implemented in the framework of the National System of Water Resource Management - SINGREH.

Art. 15. The concentrations of chemicals in the soil resulting from the application or disposal of waste and effluents, pursuant to the legislation in force, shall not exceed their VPs.

Art. 16. The procedures for assessment of concentrations of chemicals and soil quality control are, among others:

I- carrying out of sampling and field or laboratory tests, in accordance with articles 17, 18 and 19¹⁹²;

II- classification of soil quality as per article 13 ¹⁹³and

III- adoption of actions required as provided for in article 20¹⁹⁴.

¹⁹² Correction published in DOU No. 31, of February 13, 2012 – Page 124

¹⁹³ Correction published in DOU No. 31, of February 13, 2012 – Page 124

¹⁹⁴ Correction published in DOU No. 31, of February 13, 2012 – Page 124

Art. 17. In order to comply with this Resolution in the sampling, analysis and quality control for characterization and monitoring of soil and groundwater should be observed, as a minimum, the following guidelines:

I- adopt procedures for collecting, handling, preservation, packaging and transport of samples in accordance with national and international standards, respecting the periods of validity;

II- carry out physical, chemical, physical-chemical and biological analyses, using methodologies that meet the specifications described in recognized standards internationally;

III- in case the limit of quantification sample - LQA is greater than LQP, the LQA will be accepted for this resolution, provided it is technically justified;

IV- if the substance is identified in the sample in concentration between the detection limit of the method-LDM and the LQA, the fact should be reported in the analytical report with the note that the concentration cannot be reliably determined;

V- in the case of areas subject to the application of agrochemical products, the timing of collection must match with their grace period; and

VI- in case of application of fertilizers, the timing for the sample collection must be related to the product's harvest, when there is one.

Art. 18. The results of the analyses should be reported in analytical reports containing at least:

I- identification of sampling location, date and time of collection and entry of the sample in the laboratory by attaching the chain of custody;

II. details of the method of analysis used for each parameter examined;

III- the LQAs, for each parameter examined;

IV- the results of the whites of the method, and surrogates;

V- the uncertainty of measurement for each parameter; and

VI- essays of addition and recovery of the analyses in the array ("spike").

Sole paragraph. Other documents, such as letters-control, chromatograms, results in proficiency testing and certified samples can be requested at any time by the competent environmental agency.

Art. 19. The analysis for characterizing and monitoring the quality of soil and groundwater should be carried out in laboratories accredited by the National Institute for Metrology, Standardization and Industrial Quality-INMETRO for the parameters of interest.

Sole paragraph. For a period of five years analyses carried out by institution accepted by environmental or water resources agencies shall be admitted, for the respective parameters of interest.

Art. 20. After the soil classification the following procedures should be observed for the prevention and control of soil quality:

I- Class 1: does not require actions;

II-Class 2: may require an assessment of the environmental agency, including checking the possibility of natural occurrence of the substance or of the existence of sources of pollution, with preventive actions indicative of control, when fit, not necessarily involving research;

III- Class 3: requires identification of potential source of contamination, evaluation of the natural occurrence of substance, control the sources of contamination and monitoring of soil quality and groundwater; and

IV- Class 4 requires the actions set out in Chapter IV.

CHAPTER IV GUIDELINES FOR THE MANAGEMENT OF CONTAMINATED AREAS

Art. 21. The basic principles for the management of contaminated areas are:

I- the generation and availability of information;

II- the articulation, the interinstitutional cooperation and integration among the organs of the Union, States, Federal District and municipalities, property owners, users and others who have benefited or affected;

III- the gradualness in the setting of environmental goals, as a subsidy to define actions to be fulfilled;

IV- rationality and optimization of actions and costs;

V- the accountability of responsible for damage and its consequences; and,

VI. risk communication.

Art. 22. The contaminated areas management shall contain procedures and actions geared to meet the following objectives:

I- eliminate the hazard or reduce the risk to human health;

II- eliminate or minimize the risks to the environment;

III- avoid damage to other assets to be protected;

IV- prevent damages to public welfare during the execution of rehabilitation actions; and

V- enable the declared or future use of the area, noting the planning of soil use and occupation.

Art. 23. For the management of contaminated areas, the competent environmental agency should establish procedures and research and management actions, including the following steps, as shown in ANNEX III:

I- Identification: stage in which the areas suspected of contamination will be identified based on preliminary assessment, and, for those for which there is evidence of contamination a confirmatory investigation should be performed, the expense of the person responsible, in accordance with the technical rules or procedures in force.

II- Diagnosis: stage that includes the detailed investigation and risk assessment, the expense of the person responsible, in accordance with the technical rules or procedures in force, in order to subsidize the intervention stage after confirmatory research that has identified chemicals at concentrations above the value of research.

III- Intervention: implementing stage of control actions for the elimination of danger or reduction, at tolerable levels, of risks identified in the diagnostic stage, as well as the monitoring of the effectiveness of actions taken, considering the current and future use of the area, according to the technical rules or procedures in force.

Art. 24. It will be considered as Suspected Area of Contamination – AS, by the competent environmental agency, one in which, after a preliminary assessment, signs are noticed of contamination or identified conditions that may pose danger.

Art. 25. It will be declared as Contaminated Area under investigation-AI, by the competent environmental agency, one in which it is provenly established by research confirmatory, contamination with concentrations of substances in soil or groundwater above the research values.

Sole paragraph. When the concentration of a substance is recognized by competent environmental as naturally occurring, the area shall not be considered contaminated under investigation, however it will require the implementation of specific actions of protection to human health by the competent public authorities.

Art. 26. It will be declared as Contaminated Area under intervention-ACI, by the competent environmental agency, one in which it is found the presence of chemicals substances at free stage or it is proven, after detailed investigation and risk assessment the existence of risk to human health.

Art. 27. It will be declared as the Area in the Process of Monitoring for Rehabilitation-AMR, by the competent environmental agency, one in which the risk is considered tolerable, after implementation of risk assessment.

§ 1. In situations where the existence of certain AI or ACI can result in significant impacts to environmental resources, risk management can be based on the results of an ecological risk assessment, at the discretion of the competent environmental agency.

§ 2 In the impossibility of executing an ecological risk assessment in a particular area, the competent environmental agency should establish specific goals and values to support the rehabilitation of the area using technically justified methodology.

§ 3 In case of free stage identification, the risk assessment should be performed after their elimination or reduction to minimum levels established at the discretion of the competent environmental agency, on the basis of the available technological resources, without prejudice to the implementation of the stages of management of other sources of contamination of the area.

Art. 28. In the case of identification of dangerous condition, in any stage of management, emergency actions should be taken for the elimination of this condition and the continuity of research and management.

Art. 29. After the Declaration of AI or ACI, the competent environmental agency, in conjunction with the other agencies involved, should adopt appropriate measures to protect the risk receivers already identified in these stages. Art. 30. The competent environmental agencies should plan their actions, noting, for prioritization, the following aspects:

I- population potentially exposed;

II- protection of water resources; and

III -the presence of areas of environmental interest.

Art. 31. For the management of contaminated areas, the VIs to groundwater are those listed in ANNEX II, defined based on risk to human health.

§ 1. To unlisted substances and in areas where natural conditions are anomalous values for chemical substances, the competent environmental agency, in conjunction with body water resource manager, shall define specific actions for each case.

§ 2 In the case of the review of specific legislation that sets the standard for drinking water for human health risk, the values set out in ANNEX II shall be automatically amended

Art. 32. For the fulfillment of the procedures and actions in the management of contaminated areas, the competent environmental agency shall:

I- set, in conjunction with other agencies, emergency actions in case of identification of dangerous conditions;

II- set identification and diagnostic procedures;
III- assess the environmental diagnosis;
IV- promoting risk communication after the declaration of the area as contaminated under intervention;
V- assess, in conjunction with other agencies, the proposals for intervention in the area;
VI- follow up , jointly with other agencies, the emergency actions, monitoring and intervention;
VII- evaluate the effectiveness of intervention actions; and
VIII- give wide publicity and communicate the status of the owner, possessor, the Real Estate Registration Office of the judicial district where the property is located and to the property cadastre of the municipalities and the Federal District.

Sole paragraph. In the development of actions preponderant uses should be noticed the prevailing usages, the framing and the water resource plans

Art. 33. For the purpose of rehabilitation of the contaminated area, the owner shall inform the intended use to the competent authority which shall decide on its environmental viability, based on existing legislation, in the diagnosis of the area, in risk assessment, intervention proposals and actions in land use zoning.

Art. 34. Those responsible for the contamination of the area shall submit to the competent environmental agency proposal for the intervention action being carried out under their responsibility, and it shall, mandatorily consider:

I- the control or elimination of sources of contamination;
II- the current and future use of the soil in the area object and its vicinities;
III- the human health risk assessment;
IV- intervention alternatives considered technically and economically feasible and its consequences;
V- the program for monitoring the effectiveness of the actions taken; and
VI- costs and deadlines involved in implementing the proposed intervention alternatives to achieve the established goals.

Sole paragraph. The alternatives of intervention for rehabilitation of contaminated areas may contemplate, on a non-exclusive way, the following actions:

I- elimination of danger or tolerable levels of reduction in risks to public safety, human health and the environment;
II- zoning and restriction of the use and occupation of the soil and of surface and ground waters;
III - application of remediation techniques; and
IV- monitoring.

Art. 35. After the elimination of risks or their reduction to tolerable levels, the area will be declared by the competent environmental body, as are in the process of monitoring for rehabilitation-AMR.

Art. 36. After the monitoring period, defined by the competent environmental agency, confirming the removal of the hazard or risk reduction to tolerable levels, the area will be declared by the competent environmental agency as rehabilitated for the stated use.

Art. 37. The competent environmental bodies, upon the finding of the existence of a contaminated or rehabilitated area for the declared use, shall formally communicate:

I- to the person responsible for contamination;
II- to the owner or possessor of the contaminated or rehabilitated area;
III- to the federal, state, municipal and district health, the environment and water resources agencies;
IV- to the municipal public power;
V-to the concessionaire of local public water supply; and
VI-to the Real Estate Registration Office of the judicial district where a particular area is located, as well as to the real estate registration of the municipalities and the Federal District.

Sole paragraph. The Government should establish mechanisms for risk communication to the population adequate to different audiences involved, providing the easy understanding and access to information by socially and environmentally vulnerable groups.

Art. 38. The competent environmental bodies complying with the confidentiality required, laid down in law, must be primarily advertising in their institutional portals in the world computers network, information on contaminated areas identified and its main features in the form of a report which shall contain at least:

I- the identification of the area with data on toponymy and georeferencing, geological, hydrological features and physiography;
II- the active pollutant activity(ies) and inactive (s), primary and secondary or potential pollutant source, extent of the affected area, cause of contamination (accidents, leaks, improper disposal of chemical or dangerous product, among others);

- III- the characteristics of the pollutant sources with regard to waste disposal, storage of chemicals and hazardous waste, industrial production, ways of contamination and waterproofing;
- IV -the classification of the area in AI, ACI, AMR and AR;
- V- the current use of the soil of the area and its surroundings, ongoing and past action;
- VI- the means affected and concentrations of contaminants;
- VII- the description of the goods to be protected and away from the polluting source;
- VIII- risk scenarios and routes of exposure;
- IX- the forms of intervention; and
- X- the critical contaminated areas

§1. The information provided for in the caput shall be made available by state environmental agencies to IBAMA, which shall define and disseminate, in its institutional portal, the form of presentation and systematic organization of information.

§ 2 IBAMA will implement an institutional information system module, which will make public the information sent by state environmental agencies, organized and systematized in the form required.

§ 3 The information contained in the report mentioned in the caput shall constitute the National Database on Contaminated Areas.

CHAPTER V TRANSITIONAL AND FINAL PROVISIONS

Art. 39. The criteria and procedures set out in this Resolution do not apply to radioactive substances.

Sole paragraph. In the case of suspicion or evidence of contamination by radioactive substances, the environmental agency shall notify the National Commission for Nuclear Energy - CNEN.

Art. 40. This Resolution should be reviewed after 5 (five) years from its publication.

Art. 41. This Resolution shall enter into force on the date of its publication.

CARLOS MINC-Council President

This text does not replace the one published in the Official Gazette of 12/30/2009

ANNEX I
PROCEDURE FOR THE ESTABLISHMENT OF VALUES OF SOIL QUALITY
REFERENCE

The reference values of quality (VRQs) for naturally occurring inorganic substances in soil are established from statistical interpretation of analytical results from samples collected in the main soil types of the state, in accordance with the steps described below.

1- Selection of soil types

Identify the types of soil in each state, based on criteria such as soil's source material (lithology), relief and climate, in order to obtain a set of soil types that represent the geomorphological, pedological, geological compartments most representative of the State.

2- Selection of parameters for soil characterization

The parameters to be determined for soil characterization are: organic carbon, pH in water, cationic exchange capacity (CTC) and the levels of clay, silt, sand and oxides of aluminum, iron and manganese. Considering the regional peculiarities, other parameters may be included.

In each selected compartment according to item 1 should be defined sampling stations, in excerpts without anthropogenic interference or with anthropogenic negligible interference, to be distributed in order to statistically represent the geographical area of each soil type.

The sample of each type will be of the composed type, formed of subsamples of 10 (ten) sampling points, obtained at the depth of 0-20 cm. Simple sampling or for other depths can be adopted on the basis of regional specificities. The geographical coordinates and the altitude of the sampling points should be noted by specifying the geodetic reference system.

Procedures should be adopted for the collection, handling, preservation, packaging and transport of specimens, described in national and international standards, respecting the time limits of validity.

3- Analytical Methodologies

For analysis of inorganic substances listed in ANNEX II, using the fraction of soil less than 2 mm. The analytical methodology for the extraction of inorganic substances (except mercury) of the samples will be USEPA 3050 or USEPA 3051 or their updates. Determination of pH in water, CTC and the levels of organic carbon, clay, silt, sand, iron oxides, aluminum, manganese and silicon must follow the analytical methodologies developed by EMBRAPA

In the case of natural occurrence, recognized by the competent environmental agency of substances other than those referred to in the methodologies mentioned earlier, methodologies should be adopted that meet the specifications described in recognized standards internationally, including the most recent edition published by USEPA methods (United States Environmental Protection Agency), series SW-846-Test Methods for Evaluating Solid Waste; by ISO (International Standardization Organization) and DIN (Deutsches Institut für Normung).

Chemical analyses should include analytical traceability, validation, control charts prepared with concentration significantly close of those expected in solid matrices) and tests with certified reference materials in order to verify the accuracy of the results by means of parallel tests.

4- Data interpretation and obtaining of VRQs

Each State may establish, by substance, one sole VRQ or VRQ for each type of soil.

The VRQ of each substance may established, based on 75 percentile or 90 percentile of the sample universe, previously removed the anomalies. The VRQ referred to shall be determined using applicable statistical treatment and in accordance with the design of the sampling plan and with the sample set obtained.

Anomalies should be assessed in specific studies and statistically interpreted.

For the determination of chemical substances in which all analytical results are lower than the limit of practicable quantification (LQP) the respective analytical method, elect "<LQP" as being the substance VRQ and exclude them from other statistical interpretation procedures.

For statistical interpretation of the chemicals in which part of the analytical results are lower than the limit of workable quantification (LQP), consider as a result in the data array the value $LQP/2$.

For substances that have more than 60% of results higher than the limit of quantification, the definition of a group of soil types should be conducted on the basis of statistical test to prove similarity between sample groups.

For establishing the VRQ for each substance, evaluate the need to exclude from array of disparate results data (outliers), identified by statistical methods.

Substances which selected percentile is equal to $LQP/2$, adopt "<LQP" as being the substance VRQ.

5- Database

Data collected by states on sampling, analytical determinations and VRQs should compose the database on soil quality.

ANNEX II
LIST OF GUIDING VALUES FOR SOILS AND
GROUNDWATER

Substances	CAS n°	Soil (mg.kg-1 of dry weight) (1)					Ground-water (µg.L-1)
		Quality Reference	Prevention	Investigation			Investigation
				Rural APMax	Housing	Industrial	
				Inorganic			
Aluminum	7429-90-5	E	-	-	-	-	3.500**
Antimony	7440-36-0	E	2	5	10	25	5*
Arsenic	7440-38-2	E	15	35	55	150	10*
Barium	7440-39-3	E	150	300	500	750	700*
Borum	7440-42-8	E	-	-	-	-	500
Cadmium	7440-48-4	E	1,3	3	8	20	5*
Lead	7440-43-9	E	72	180	300	900	10*
Cobalt	7439-92-1	E	25	35	65	90	70
Copper	7440-50-8	E	60	200	400	600	2.000*
Chromium	7440-47-3	E	75	150	300	400	50*
Iron	7439-89-6	E	-	-	-	-	2.450**
Manganese	7439-96-5	E	-	-	-	-	400**
Mercury	7439-97-6	E	0,5	12	36	70	1*
Molibdemium	7439-98-7	E	30	50	100	120	70
Nickel	7440-02-0	E	30	70	100	130	20
Nitrate (as N)	797-55-08	E	-	-	-	-	10.000*
Silver	7440-22-4	E	2	25	50	100	50
Selenium	7782-49-2	E	5	-	-	-	10*
Vanadium	7440-62-2	E	-	-	-	1000	-
Zinc	7440-66-6	E	300	450	1.000	2.000	1.050**

Substances	CAS No.	Soi (mg-kg-1 of dry weight) (I)					Groundwater (pg.L-1)
		Investigation					
		Quality Reference	Prevention	Rural APMax	Housing	Industrial	Investigation
Volatile aromatic hydrocarbons							
Benzene	71-43-2	Na	0.03	0.06	0.08	0.15	5*
Styrene	100-42-	na	0,2	15	35	80	20*
Ethylbenzene	100-41-	na	6,2	35	40	95	300**
Toluene	108-88-	na	0,14	30	30	75	700**
Xylenes	1330-20-7	na	0,13	25	30	70	500**
Aromatic polycyclic hydrocarbons							
Anthracene	07/12/20		0.039			-	-
Benzo(a)anthracene	56-55-3	na	0,025	9	20	65	1,75
Benzo(k)fluoranten	207-06-9	na	0,38	-	-	-	-
Benzo(g,h,i)perilene	191-24-2	na	0,57	-	-	-	-
Benzo(a)pirene	50-32-8	na	0,052	0,4	1,5	3,5	0,7*
Chrysene	218-01-9	na	8,1	-	-	-	-
Dibenzo(a,h)anthracene	53-70-3	na	0,08	0,15	0,6	1,3	0,18
Phenanthrene	85-01-8	na	3,3	15	40	95	140
Indeno(1,2,3-c,d)pirene	193-39-5	na	0,031	2	25	130	0,17
Naphthalene	91-20-3	na	0,12	30	60	90	140
Chlorated benzenes							
Chlorobenzene (mono)	108-90-7	Na	0.41	40	45	120	700**
1,2-Dichlorobenzene	95-50-1	na	0,73	150	200	400	1000
1,3-Dichlorobenzene	541-73-1	na	0,39	-	-	-	-
1,4-Dichlorobenzene	106-46-7	na	0,39	50	70	150	300
1,2,3-Trichlorobenzene	87-61-6	na	0,01	5	15	35	(a)*
1,2,4-Trichlorobenzene	120-82-1	na	0,011	7	20	40	(a)*
1,3,5-Trichlorobenzene	108-70-3	na	0,5	-	-	-	(a)*
1,2,3,4-Tetrachlorobenzene	634-66-2	na	0,16	-	-	-	-

Substances	CAS n°	Soil (mg.kg-1 of dry weight) (1)					Ground-water (µg.L-1)
		Quality Reference	Prevention	Investigation			Investigation n
				Rural APMax	Housing	Industrial	
				Inorganic			
1,2,3,5-Tetrachlorobenzene	634-90-2	Na	0.01	-	-	-	-
1,2,4,5-Tetrachlorobenzene	95-94-3	Na	0.01	-	-	-	-
Hexachlorobenzene	118-74-1	Na	0.003(3)	0.005	0.1	1	1*
Chlorated ethanes							
1,1-Dichloroethane	75-35-4	na	-	8.5	20	25	280
1,2-Dichloroethane	107-06-2	na	0,075	0,15	0,25	0,50	10*
1,1,1-Trichloroethane	71-55-6	na	-	11	11	25	280
Chlorated ethanes							
Vinyl chloride	75-01-4	Na	0.003	0,005	0,003	0,008	5*
1,1-Dichloroethane	75-35-4	na	-	5	3	8	30*
1,2-Dichloroethane - cis	156-59-2	na	-	1,5	2,5	4	(b)
1,2-Dichloroethane - trans	156-60-5	na	-	4	8	11	(b)
Trichloroethane - TCE	79-01-6	na	0,0078	7	7	22	70*
Tetrachloroethane - PCE	127-18-4	na	0,054	4	5	13	40*
Chlorated methanes							
Methylene chloride - trans	75-09-2	na	0,018	4,5	9	15	20*
Chloroform	67-66-3	na	1,75	3,5	5	8,5	200
Carbon tetrachloride	56-23-5	na	0,17	0,5	0,7	1,3	2*
Chlorated phenols							
2-Chlorophenol (o)	95-57-8	na	0,055	0,5	1,5	2	10,5
2,4-Dichlorophenol	120-83-2	na	0,031	1,5	4	6	10,5
3,4-Dichlorophenol	95-77-2	na	0,051	1	3	6	10,5
2,4,5-Trichlorophenol	95-95-4	na	0,11	-	-	-	10,5

2,4,6-Trichlorophenol	88-06-2	na	1,5	3	10	20	200*
2,3,4,5-Tetrachloro-	4901-51-3	na	0,092	7	25	50	10,5
2,3,4,6-Tetrachloro-	58-90-2	na	0,011	1	3,5	7,5	10,5

Substances	CAS n°	Soil (mg.kg-1 of dry weight) (1)					Ground-water (µg.L-1)
		Quality Reference	Prevention	Investigation			
				Rural APMax	Housing	Industrial	
Pentachlorophenol	58-90-2	na	0,16	0,35	1,3	3	9*
Non Chlorated phenols							
Cresols	-	na	0,16	6	14	19	175
Phenol	108-95-2	na	0,20	5	10	15	140
Diethyl phthalate	117-81-7	na	0,6	1,2	4	10	8
Dimetil phthalate	131-11-3	na	0,25	0,5	1,6	3	14
Di-n-butyl phthalate	84-74-2	na	0,7	-	-	-	-
Organ chlorine pesticides							
Aldrin	309-00-2	na	0,015	0,003	0,01	0,03	(d)*
Dieldrin	60-57-1	na	0,043	0,2	0,6	1,3	(d)*
Endrin	72-20-8	na	0,001	0,4	1,5	2,5	0,6*
DDT	50-29-3	na	0,010	0,55	2	5	(c)*
DDD	72-54-8	na	0,013	0,8	3	7	(c)*
DDE	72-55-9	na	0,021	0,3	1	3	(c)*
HCH beta	319-85-7	na	0,011	0,03	0,1	5	0,07
HCH – gamma (Lin-	58-89-9	na	0,001	0,02	0,07	1,5	2*
PCBs							
TOTAL	-	na	0,0003 (3)	0,01	0,03	0,12	3,5

(1) – For comparison with guiding values, use the recommendations of 3050b methods (except for the element mercury) or 3051 of USEPA – SW-846 or other equivalent procedure for acid digestion of soil samples on the determination of inorganic constituents by spectrophotometric techniques.

E - to be set by the State.

na-not applicable to organic substances.

(a) the sum for trichlorobenzenes 20 µg.L-1.

(b) the sum for 1,2-dichloroethenes; = 50 µg.L-1.

(c) the sum for DDT-DDD DDE = 2 µg.L-1.

(d) the sum for Aldrin and Dieldrin = 0.03 µg.L-1.

*Potability patterns of chemicals that pose risk to health as defined in Ordinance No. 518/2004 of the Ministry of Health (Table 3).

** Values calculated based on risk to human health, according to the scope of this Resolution. They differ from the standards of acceptance for human consumption as defined in the Ordinance No. 518/2004 of the Ministry of Health (Table 5) and the maximum values allowed for human consumption defined in ANNEX I of CONAMA Resolution No. 396/2008.

Adapted from: CETESB, SP Decision from the Board of Directors. No. 195-2005-E, of November 23, 2005. Official Gazette of the State, Executive Branch, SP, of 12/3/2005, section 1, v. 115, no. 227, p. 22-23. Rectification in the Official Gazette of the State, of 12/13/2005, v. 115, no. 233, p. 42.

RESOLUTION 421, February 3, 2010
Published in Official Gazette 24 on 02/04/2010, page. 74

Correlations:

- Changes Resolution No. 344/2004.

Establishes provisions related to the revision and actualization of CONAMA Resolution 344 from March 25, 2004.

The NATIONAL ENVIRONMENTAL COUNCIL-CONAMA, pursuant to the powers vested on it by art. 8, subitem VII of Law 6.938 dated August 31, 1981, bearing in mind the provisions of its Internal Rules, and

Considering that a Working Group was set up within the framework of the Technical Chamber of Environmental Control and Quality-CTCQA, in order to carry out the revision of the CONAMA Resolution n° 344/2004, as per art. 9 of same, which lays down the general guidelines and the minimum procedures for evaluation of the material to be dredged in jurisdictional waters in Brazil;

Considering that art. 9 establishes that Resolution No. 344/2004 should be reviewed within five years from the date of publication, aimed at the establishment of national guiding values for the classification of the material to be dredged;

Considering that, after intense and careful work of the Working Group, it was presented to CTCQA the unenforceability of the target revision, within the term established in the mentioned art. 9, for the validation of the guiding values, and the evident need to review and update the remaining terms of the current Resolution No. 344/2004; resolves:

Art. 1 CONAMA shall review all or part of Resolution No. 344, of March 25, 2004.

Sole paragraph. The CTCQA shall submit to the plenary of CONAMA, within 24 months, proposed revision of Resolution No. 344, of March 25, 2004.

Art. 2 National guiding values for the classification of the material to be dredged, established in Resolution No. 344, of March 25, 2004, are valid until its partial or total review is carried out.

Art. 3 The Ministry of the Environment shall provide all the necessary technical support to CTCQA, especially with regard to joint activities with other agencies and the competent entities and systematization of the information needed for the establishment of national guiding values of classification of the material to be dredged.

Art. 4. This Resolution shall enter into force on the date of its publication.

Art. 5 It is hereby revoked art. 9 of Resolution No. 344, of March 25, 2004, published in Official Gazette of May 7, 2004, Section 1, PG. 56.

CARLOS MINC-Council President

This text does not replace the one published in the Official Gazette of 02/04/2010.

RESOLUTION 424, April 22, 2010
Published in Official Gazette 76 on 04/23/2010, p. 113

Correlations:

- *Revokes the single paragraph of art. 16 of CONAMA Resolution 401/2008.*

Revokes the single paragraph of art. 16 of CONAMA Resolution 401/2008.

The NATIONAL ENVIRONMENTAL COUNCIL-CONAMA, pursuant to the powers vested on it by Law 6.938 dated August 31, 1981, regulated by Decree No. 99,274, of June 6, 1990, and bearing in mind the provisions of its Internal Rules, Considering that sole paragraph of art. 16 of CONAMA Resolution n° 401/2008, establishes that at the time of the import of lead-acid batteries, nickel cadmium and mercury oxide the information specified in items I to III of the caput constitute a prerequisite for customs clearance;

Considering that the rules laid down by the Federal agencies for customs control meet the first paragraph, which states that "in the case of importation, the information referred to in this article are a prerequisite for the customs clearance", resolves:

Art. 1 It is hereby revoked the sole paragraph of art. 16 of CONAMA Resolution n° 401/2008.

Art. 2. This Resolution shall enter into force on the date of its publication.

CARLOS MINC-Council President

This text does not replace the one published in the Official Gazette of 04/23/2010

RESOLUTION 431, May 24, 2011
Published in Official Gazette 99 on 05/25/2011, p. 123

Correlations:

- Changes art. 3 of Resolution on 307/ 2002.

Changes art. 30 of Resolution 307 from July 5, 2002, issued by the National Environment Council (CONAMA) establishing a new classification for plaster.

The NATIONAL ENVIRONMENTAL COUNCIL-CONAMA, pursuant to the powers vested on it by art. 8 of Law 6.938 dated August 31, 1981, regulated by Decree 99.274, of July 6, 1990, and bearing in mind the provisions of its Internal Rules, ANNEX to Ordinance No. 168, of June 13, 2005, resolves:

Art. 1 Art. 3 of Resolution No. 307, of July 5, 2002, published in Official Gazette of July 17, 2002, Section 1, page 95 and 96, shall apply with the following wording:

"Art. 30

II- Class B - are the recyclable waste to other destinations, such as: plastics, paper, cardboard, metal, glass, wood and plaster;

III- Class C - are the wastes for which economically viable technologies or applications were not developed that allow recycling or recovery;

....." (NR)

Art. 2. This Resolution shall enter into force on the date of its publication.

IZABELLA TEIXEIRA-Council President

This text does not replace the one published in the Official Gazette of 05/25/2011

ENVIRONMENTAL LICENSING

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GENERAL RULES AND PROCEDURES FOR
ENVIRONMENTAL LICENSING

CONAMA RESOLUTION 1, January 23, 1986
Published in Official Gazette on February 17, 1986, Section 1, pages 2548-2549

Correlations:

- Amended by CONAMA Resolution No. 1186 (changed art. 2)
- Amended by CONAMA Resolution No. 587 (added sub item XVIII)
- Amended by CONAMA Resolution No. 23797 (revoked art. 3 and 7)

Establishes provisions for the basic criteria and general directives for the assessment of environmental impact

The NATIONAL ENVIRONMENTAL COUNCIL-CONAMA, pursuant to the powers vested in it by article 48 of Decree No. 88,351, of June 1, 1983¹⁹⁵ for effective exercise of the responsibilities conferred on it by article 18 of the same Decree, and

Considering the need to establish definitions, responsibilities, the basic criteria and the general guidelines for use and implementation of environmental impact assessment as an instrument of the National Policy on the Environment, resolves:

Art. 1 For the purposes of this Resolution, environmental impact is considered to be any change in the physical, chemical and biological characteristics of the environment, caused by any form of matter or energy resulting from human activities that directly or indirectly affect:

I-health, safety and well-being of the population;

II-the social and economic activities;

III-the biota;

IV-aesthetic and sanitary conditions of the environment;

V-the quality of environmental resources.

Art. 2 Depends on preparation of environmental impact assessment and environmental impact report - RIMA, to be submitted to the approval of the competent state organ, and the Special Secretariat for the Environment-SEMA ¹⁹⁶ in supplementary character, the licensing of the environment modifying activities such as:

I- The highways with two or more traffic lanes;

II- Railroads;

III- Ports and terminals of ore, petroleum and chemical products;

IV- Airports as defined by item 1, article 48 of Decree-Law 32, of September 18 1966¹⁹⁷;

V- Oil pipelines, gas pipelines, ore pipeline, collecting mains and sewage emissaries;

VI- Electric power transmission lines, over 230KV.

VII-Hydraulic works for the exploitation of water resources, such as: ¹⁹⁸for dam hydroelectric purposes, above 10MW, of sanitation or sanitation, opening of channels for navigation, drainage and irrigation, correction of watercourses, channels and mouths opening, transposition of basins, dykes;

VIII- Fossil fuel extraction (oil, shale, coal);

IX- Ore extraction, including those of class II, as defined in the Mining Code;

X- Landfills, processing and final destination of toxic or dangerous waste;

XI-Electricity generation plants, whatever the source of primary energy, over 10MW;

XII- Complex and industrial units and agro-industrial (petrochemicals, iron and steel, chlorochemical, alcohol distilleries, coal extraction and cultivation of hydrobios water resources?)¹⁹⁹;

XIII- Strictly industrial districts and zones - ZEI;

XIV- Economic exploitation of timber or firewood in areas above 100 hectares or smaller, when reaching significant areas in percentage terms or of importance from an environmental point of view;

XV- Urban projects, over 100 ha or in areas considered of relevant environmental interest at the discretion of SEMA and the competent municipal and state bodies state or municipal;

~~XVI- Any activity that uses charcoal, in quantities exceeding 10 tons per day.~~

XVI- Any activity that uses charcoal, derived or similar products, in quantities exceeding 10 tons per day (new wording by Resolution n° 11/86)

XVII- Agricultural Projects covering areas above 1,000 ha. Or less, in this case, when dealing with significant areas in percentage terms or of importance from an environmental point of view, including in the areas of environmental protection. (paragraph added by Resolution n° 11/86)

XVIII- Potentially developments harmful to the national speleological heritage.

(paragraph added by Resolution No. 5/87)

¹⁹⁵ Decree revoked by Decree 99.274 from June 6, 1990

¹⁹⁶ The Special Secretariat of the Environment – SEMA, linked to the Ministry of the Interior, was extinct by Law 7.735, of February 22, 1989, which established the Brazilian Institute of the Environment and Renewable Natural Resources – IBAMA. The duties on environmental issues are currently of the Ministry of the Environment

¹⁹⁷ Decree-Law revoked by Law 7.565, of December 19, 1986

¹⁹⁸ Corrected in the Service Order of MIN, of March 7, 1986

¹⁹⁹ Corrected in the Service Order of MIN, of March 7, 1986

~~Art. 3 It shall depend on the preparation of environmental impact study and respective RIMA, to be submitted to the approval of SEMA, the licensing of activities that, by law, be of federal competence. (Revoked by Resolution No. 237/97)~~

Art. 4 The competent environmental authorities and sectoral bodies of SISNAMA should harmonize the licensing processes with the planning and deployment stages of

Modifying activities of the environment activities, following the criteria and guidelines established by this Resolution and on the basis of the nature and size and the peculiarities of each activity.

Art. 5 The environmental impact study, in addition to meeting the legislation, in particular the principles and objectives expressed in the Law of National Policy on the Environment shall follow the following general guidelines:

I – Include all the technological alternatives and of project location, confronting them with the possibility of non-implementation of the project;

II. Identify and systematically assess the environmental impacts generated during the deployment and operation phases of the activity;

III- Define the boundaries of the geographic area to be directly or indirectly affected by impacts, called area of influence of the project, Considering that, in all cases, the water catchment area in which it is located;

IV- Consider the Government plans and programs proposed and being implanted in the area of influence of the project, and its compatibility.

Sole paragraph. When determining the implementation of the environmental impact assessment the competent state organ, or SEMA or, to the municipality, ²⁰⁰, shall lay down appropriate guidelines which, by the peculiarities of the project and environmental characteristics of the area, are deemed necessary, including deadlines for completion and analysis of the studies.

Art. 6 Environmental impact studies will develop the following minimum technical activities:

I- Environmental diagnosis of the area of influence, full project environmental projects description and analysis and their interactions, as they exist, in order to characterize the environmental situation of the area, before the implementation of the project, Considering that:

a) the physical medium- subsoil, waters, air and climate, including mineral resources, topography, soil types and features, the water bodies, the hydrological regime, the marine currents, atmospheric currents;

b) the biological environment and natural ecosystems-the flora and fauna, especially the species indicating environmental quality, scientific and economic value, rare and endangered of extinction and permanent preservation areas;

c) the socio-economic environment- the use and occupation of the soil, the water uses and socio-economics, highlighting the sites and cultural, historical and archaeological monuments of the community, dependency relationships between the local society, the environmental resources and the potential future use of these resources.

II- Analysis of the environmental impacts of the project and its alternatives, through identification, prediction of the magnitude and interpretation of the significance of likely relevant impacts, by broking: the positive and negative impacts (adverse and beneficial), direct and indirect, immediate and medium and long-term, permanent and temporary; their degree of reversibility; their cumulative and synergistic properties; the distribution of the burden and social benefits.

III- Definition of mitigating negative impacts of measures, among them the equipment control and treatment of waste systems, assessing the efficiency of each one of them.

IV. - Preparation of the follow-up program and monitoring of positive and negative impacts, indicating the factors and parameters to be considered.

Sole paragraph. When determining the implementation of environmental impact assessment, the competent state organ; or SEMA or, when fit, the Municipality will provide additional required instructions, by the peculiarities of the project and environmental characteristics of the area.

~~Art. 7 Te environmental impact study will be carried out by a qualified multidisciplinary team, non-dependent directly or indirectly from the proponent of the project and who will be technically responsible for the results presented. (Revoked by Resolution No. 237/97)~~

Art. 8. The project's proponent shall bear with all expenses and costs relating to the completion of the environmental impact assessment, such as: collecting and acquisition of data and information, jobs and field inspections, laboratory testing, technical and scientific studies and follow-up and monitoring of impacts, development of rhyme and supply of at least 5 (five) copies.

Art. 9 The environmental impact report - RIMA shall reflect the conclusions of the environmental impact study and shall contain, at a minimum:

I- The objectives and justification of the project, their relationship and compatibility with sectoral policies, plans and government programs;

II- The description of the project and its technological and locational alternatives, specifying for each of them, in the phases of construction and operation the area of influence, raw materials, and manpower, energy sources, processes and operating techniques, the likely effluents, emissions, wastes and energy losses, direct and indirect jobs to be generated;

III- The summary of the results of studies of environmental diagnoses of the area of influence of the project;

IV. The description of the likely environmental impacts of the deployment and operation of the activity, considering the project, its alternatives, the incidence time horizons of the

impacts and indicating the methods, techniques and criteria for their identification, quantification and interpretation;

²⁰⁰ Corrected in the Service Order of MIN, of March 7, 1986

V- The characterization of the future environmental quality of the area of influence by comparing the different situations of the adoption of the project and its alternatives, as well as with the hypothesis of their non-fulfillment;

VI- The description of the expected effect of mitigating measures envisaged in relation to negative impacts, including those that cannot be avoided, and the degree of change expected;

VII. The follow-up and monitoring program of impacts;

VIII. Recommendation regarding the most favorable alternative (general conclusions and comments).

Sole paragraph. The RIMA should be presented in an objective and adequate for its proper understanding. The information must be translated into accessible language, illustrated by maps, charts, tables, graphs and other visual communication techniques, so that the advantages and disadvantages of the project can be understood, as well as all environmental consequences of its implementation.

Art. 10. The competent state organ, or SEMA or, when applicable, the Municipality will have a period within which to manifest itself conclusively about the RIMA.

Sole paragraph. The period referred to in the caput of this article will have its initial time on the date of receipt by the competent state body or by the SEMA of the environmental impact study and its respective RIMA

Art. 11. Respecting the industrial secrecy, so requested and demonstrated by the interested party, RIMA will be accessible to the public. Its copies shall remain available to the interested party in documentation centers or libraries of SEMA and the corresponding state environmental control organ, including during the period of technical analysis.

§ 1. The public agencies that demonstrate interest, or are directly related to the project, will receive a copy of the RIMA, for knowledge and manifestation.

§ 2 When determining the implementation of environmental impact assessment and presentation of RIMA, the competent state organ or the SEMA or, when applicable, the municipality, will determine the deadline for receipt of comments to be made by public agencies and other interested parties and, where it deems appropriate, shall promote the realization of public hearing for information about the project and its environmental impacts and discussion of RIMA.

Art. 12. This Resolution shall enter into force on the date of its publication.

FLÁVIO PEIXOTO DA SILVEIRA – Council President

This text does not replace the one published in the Official Gazette, of February 17, 1986.

CONAMA RESOLUTION 6, January 24, 1986
Published in Official Gazette on February 17, 1986, Section 1, page 2550

Correlations:

- Supplemented by CONAMA Resolution No. 281/01

Regulates the approval of models for environmental license requests.

The NATIONAL ENVIRONMENTAL COUNCIL-CONAMA, pursuant to the powers vested on it by item I, of article 8 of Law No. 6,938, of August 31, 1981 and article 18, paragraph 4 of Decree No. 88,351, June of 1983²⁰¹, resolves:

I- To approve models of publication of permit applications in any of its forms, its renewal and the respective granting and approves the new models for publishing licenses, according to the following instructions:

Instructions for publishing in journals

The publication of applications for licensing, in any of its forms, its renewal and the granting of license should be sent for publication in the first section of the newspaper, in body 07 or higher, within 30 (thirty) calendar days subsequent to the date of application and/or the granting of the license.

Instructions for publication in the Official Gazette of the State

The publication of applications for licensing in any of its forms, its renewal and the granting of the license, must be made in the Official Gazette of the State or of the Union, in accordance with the criteria laid down in Ordinance No. 11/69, of June 30, 1983, from the General Office of the National Press, and published up to 30 (thirty) calendar days subsequent to the date of application, and/or of the granting of the license.

Instructions regarding the items that should be included in the publication.

For publication of applications for licenses, renewal and its concessions, in any of its modalities, should be included:

- a) company's name and abbreviation (if any)
- b) acronym of organ where applied for the license
- c) requested license mode
- d) purpose of license
- e) license expiration date (in the case of publication of the grant of license)
- f) type of activity that will be developed
- h) place for development of the activity

1. Model for publication of an application in a journal

(Company's name-acronym)

Informs that it applied to (name of organ where it applied for the license), to (type of license), to (activity and place)

An environmental impact study has been established and/or it was not established an environmental impact study

2. Model for publishing license application in the Official Gazette

(Company's name-acronym)

Informs that it applied to (name of organ where it applied for the license), the license (license type), for activity and place. An environmental impact study has been established and/or was not established an environmental impact study

3. Model for publication of license grant in a journal

(Company's name-acronym)

Informs that it received the (name of the agency who granted the license), to (purpose of license), with validity (expiry date) for (and place).

4. Model for publishing license grant in the Official Gazette

(Company's name-acronym)

Informs that it received the (name of the agency who granted the license), the license (license type), with validity (expiry date) for (and place).

5. Model for publication of application for license renewal in a journal

(Company's name-acronym)

²⁰¹ Decree revoked by Decree 99.274 from June 6, 1990

Informs it required to (name of the Agency which granted the license)²⁰² the renewal of its license (license type) until x, for (activity and place)

6. Model for publication of application for license renewal of official gazette

(Company's name-acronym) informs that it applied to (name of the agency where it applied for the license) for an extension of its License (type of license) for the validity term, for (activity and place)

7. Model for publication of periodic license renewal granting in a journal

(Company's name-acronym) Informs that it received the (name of the body which granted) the extension of the License (license type) until date x, for (activity and place).

8. Model for publishing concession license renewal granting in the official gazette

(Company's name.-acronym)
Informs that it received form (name of the body which granted) the extension of the License (license type) until date x, for (activity and place).

II- This Resolution enters into force on the date of its publication

FLÁVIO PEIXOTO DA SILVEIRA – Council President

This text does not replace the one published in the Official Gazette, of February 17, 1986

²⁰² Corrected in DOU of March 31, 1986

CONAMA RESOLUTION 11, March 18, 1986
Published in Official Gazette on May 2, 1986, Section 1, page 6346

Correlations:

- Changes Resolution CONAMA No. 1/86 (changes art. 2)

Establishes provisions for changes in Resolution 1/86.

The NATIONAL ENVIRONMENTAL COUNCIL-CONAMA, pursuant to the powers vested on it by article 48 of Decree No. 88351, of June 1983²⁰³, resolves:

I- To change sub item XVI and add sub item XVII to article 2, of CONAMA Resolution No. 1, of January 23, 1986, which are shall now read:

"Art. 2

XVI- Any activity using charcoal, derived or similar products, in quantities exceeding 10 tons per day.

XVII- Agricultural Projects covering areas above 1,000 ha or minor, in this case, when dealing with significant areas in percentage terms or of importance from an environmental point of view, including in the areas of environmental protection. "

II- This Resolution enters into force on the date of its publication.

DENI LINEU SCHWARTZ- Council President

This text does not replace the one published in the Official Gazette of May 2, 1986

²⁰³ Decree revoked by Decree 99.274 from June 6, 1990

CONAMA RESOLUTION 9, December 3, 1987
Published in Official Gazette on July 5, 1990, section 1, page 12945

Establishes provisions for the holding of Public Hearings in the environmental licensing process.

The NATIONAL ENVIRONMENT COUNCIL-CONAMA, pursuant to the powers vested on it by subitem II, article 7 of Decree No. 88,351, of June 1, 1983²⁰⁴, and considering the provisions of CONAMA Resolution No. 1, of January 23, 1986, resolves:

Art 1 Public Hearing referred to in CONAMA Resolution No. 1/86, aims to expose to those interested the content of the product under analysis and its referred RIMA, clarifying doubts and collecting from those present the criticisms and suggestions about.

Article 2 Whenever considered necessary, or when requested by civil entity, by the Public Prosecution Office or by 50 (fifty) or more citizens, the Environment Agency shall promote the realization of the public hearing.

§ 1. The Environmental Organ, from the date of the receipt of RIMA, shall establish and in a public notice and shall advertise through the local press the opening of the term which shall be no less than 45 days to request a public hearing.

§ 2 In the case of public hearing and if the State Agency does not hold it, the license granted will have no validity.

§ 3 After this deadline, the summons will be done by the licensor, by registered mail to the requestors and the dissemination in local news agencies.

§ 4 The public hearing shall take place on a place accessible to the stakeholders.

§ 5 Depending on the geographical location of requesters, and the complexity of the issue, there may be more than one public hearing on the same project of respective Environmental Impact Report (RIMA).

Art. 3 The public hearing will be conducted by a representative of the licensing organ which, after the objective exhibition of the project and its respective RIMA, will open discussions with stakeholders present.

Art 4 Minutes will be drawn up at the end of each public hearing.

Sole paragraph. All written and signed documents that are delivered to the chairman of the works during the section shall be attached to the minutes.

Art. 5. The minutes of the public hearing(s) and its ANNEXes, will serve as a basis, along with the RIMA, to the licensor's final opinion and analysis regarding the approval or otherwise of the project.

Art. 6 This Resolution shall enter into force on the date of its publication.

JOSÉ A. LUTZEMBERGER- Council President

TÂNIA MARIA TONEL MUNHOZ- Executive Secretary

NOTE: Resolution approved at the 15th Ordinary Meeting of CONAMA, however was only approved by the Council President during the 24th meeting held June 28, 1990.

This text does not replace the one published in the Official Gazette, of July 5, 1990.

²⁰⁴ Decree revoked by Decree 99.274 from June 6, 1990

CONAMA RESOLUTION 237, December 19, 1997
Published in Official Gazette 247 on December 22, 1997, Section 1, pages 30841-30843

Correlations:

- Changes CONAMA Resolution No. 186 (revokes art. 3 and 7)

Establishes provisions for the revision and complementation of procedures and criteria used for the granting of environmental licenses.

The NATIONAL ENVIRONMENTAL COUNCIL-CONAMA, pursuant to the powers vested on it by law No. 6,938 dated August 31, 1981, regulated by Decree No. 99,274, of June 6, 1990, and in view of the provisions in its Internal Rules, and

Considering the need to review the procedures and criteria used in environmental licensing, in order to implement the licensing system as environmental management instrument, established by the National Environmental Policy;

Considering the need to incorporate to the environmental licensing system the environmental management instruments, aiming at sustainable development and continuous improvement;

Considering the guidelines established by CONAMA Resolution No. 11/94, that determines the need for revision in the environmental licensing system;

Considering the need of regulating environmental licensing issues set out in the National Environmental Policy which have not yet been defined;

Considering the need to establish criteria for exercise of jurisdiction for licensing referred to in article 10 of Law no 6,938, of August 31, 1981;

Considering the need to integrate the activities of the competent bodies of the National System of Environment-SISNAMA in implementing the National Environmental Policy, in accordance with their respective competencies, resolves:

Art. 1 For the purposes of this Resolution, the following definitions are adopted:

I- Environmental Licensing: administrative procedure by which the competent environmental agency licenses the sitting, installation, expansion and operation of enterprises

and users of environmental resources, activities considered effectively or potentially polluting or of those which, in whatever form, can cause environmental degradation, considering the legal provisions and regulations and the technical rules applicable to the case.

II- Environmental License: administrative act by which the competent environmental body lays down the conditions, restrictions and environmental control measures that must be obeyed by the entrepreneur, individual or legal entity, to locate, install, enlarge and operate joint ventures or activities using environmental resources considered effectively or potentially polluting or those which, in whatever form, can cause environmental degradation.

III- Environmental Studies: are all and any studies concerning environmental aspects related to location, installation, operation and expansion of an activity or undertaking, presented as subsidy for the requested license analysis, such as:

environmental report, plan and environmental control project, preliminary environmental, environmental diagnosis, management plan, degraded area recovery plan and preliminary analysis of risk

IV ²⁰⁵ – Regional environmental Impact: is any environmental impact that affects directly (direct area of influence of the project), in whole or in part, the territory of two or more States.

Art. 2 The location, construction, installation, expansion, modification and operation of projects and activities using environmental resources considered effectively or potentially polluting as well as the enterprises capable, in any form, of causing environmental degradation, will depend on the competent environmental licensing agency, without prejudice to any other legally required licenses.

§ 1 Ventures and related activities in ANNEX 1, an integral part of this resolution are subject to environmental licensing.

§ 2 The competent environmental agency will define the criteria for enforceability, the detailing and complementing of ANNEX 1, taking into account the specific characteristics, environmental risks, the size and other characteristics of the venture or activity.

Art. 3 The environmental license for ventures and activities considered effective or potentially causing significant environmental degradation will depend on prior study on

environmental impact and respective assessment report of environmental impact (EIA/RIMA), which will receive advertising, upon the guarantee of holding public hearings, when fit, in accordance with the regulations.

Sole paragraph. The competent environmental agency, noting that the activity or venture is not potentially cause significant degradation of the environment, will define the environmental studies pertinent to the respective licensing process.

Art. 4 It is the responsibility of the Brazilian Institute for the Environment and Renewable Natural Resources -IBAMA, executing agency of SISNAMA, the environmental licensing referred to in article 10 of Law No. 6,938 dated August 31, 1981, projects and activities with significant environmental impact at the national or regional ambit, namely:

²⁰⁵ Sub paragraph renumbered due to an error in the original, in DOU No. 198, of October 13, 2003, Page 41

I- located or carried out jointly in Brazil and in neighboring country; in the territorial sea; in the continental shelf; in the exclusive economic zone; in indigenous lands or in protected areas of the Union.

II- located or carried out in two or more States;

III – whose direct environmental impacts surpass the territorial limits of the country or of one or more States;

IV- intended to research, cultivate, produce, improve,, transport, store and dispose of radioactive material at any stage, or using nuclear power in any of its forms and applications, based on the advice from the National Commission of Nuclear Energy-CNEN;

V- Military bases or ventures, when fit, in compliance with the specific legislation.

§ 1. IBAMA will make the licensing dealt with in this article after considering the technical examination carried out by environmental agencies of States and Municipalities in which the activity or venture is located, as well as, when applicable, the opinion of other competent agencies of the Union, the States, the Federal District and the Municipalities involved in the licensing procedure.

§ 2 IBAMA, except its additional competence, may delegate to the States the licensing activity with significant regional environmental impact, by standardizing, when possible, the requirements

Art. 5. It is up to the state or Federal District environmental agency the environmental licensing of projects and activities:

I- located or developed in more than one Municipality or in protected areas of the state or the Federal District area;

II- located or carried out in forests and other forms of natural vegetation of permanent preservation related in article 2 of Law No. 4,771, of September 15, 1965, and all that are considered by federal, state or municipal regulations;

III – whose direct environmental impacts surpass the territorial limits of one or more Municipalities;

IV- subrogated by the Union to the States or the Federal District, by legal instrument or agreement.

Sole paragraph. The State or Federal District environmental agency will make the licensing dealt with in this article after considering the technical examination carried out by environmental agencies at the municipalities in which the activity or project is located, as well as, when applicable, the opinion of other competent organs of the Union, States, Federal District and municipalities involved in the licensing process.

Art. 6 It is up to the municipal environmental agency, after hearing the competent organs of the Union, the States and the Federal District, when applicable, the environmental licensing of ventures and activities of environmental local impact of those subrogated to it by the State by legal instrument or agreement.

Art. 7. The ventures and activities will be licensed on a single level of jurisdiction, as established in the preceding articles.

Art. 8. Public Authorities, in the exercise of its competence of control, shall issue the following licenses:

I- Preliminary License (LP)- granted during the preliminary stage of planning of the enterprise or activity by approving its location and design, certifying the environmental viability and establishing the basic requirements and conditions to be met in the coming phases of their implementation;

II- Installation License (LI)- authorizes the installation of the project or activity in accordance with the specifications contained in the approved plans, programs and projects, including environmental control measures and other restrictions, which constitute determinant reason;

III- Operating License (LO)- authorizes the operation of the activity or venture, after the verification of effective compliance with the previous licenses, with environmental control measures and conditions determined for the operation.

Sole paragraph. Environmental licenses may be issued or separately or subsequently, depending on the nature, characteristics and phase of the project or venture.

Art. 9 CONAMA shall, when necessary, define environmental licenses, pursuant to the nature, characteristics and peculiarities of the activity or venture and, still, the compatibility of the licensing process through the steps of planning, implementation and operation.

Art. 10. The environmental licensing procedure will follow the following stages:

I- Definition by the competent environmental body, with the participation of the entrepreneur, of the documents, projects, and environmental studies required for the beginning of the licensing process corresponding to the license being applied for;

II- Environmental license application by the entrepreneur, accompanied by the documents, projects and pertinent environmental studies, giving due publicity;

III- Analysis by the competent environmental agency, part of SISNAMA of documents, projects and environmental studies presented and the performance of technical surveys, when required;

IV- Request for clarifications and additions by the competent environmental agency of SISNAMA, one single time, as a result of the analysis of the documents, projects and environmental studies presented, when appropriate, and the same request may be repeated if the clarifications and additions have not been satisfactory;

V- Public hearing, when applicable, in accordance with the pertinent regulations;

VI- Request for clarifications and additions by the competent environmental agency, as a result of public hearings, when appropriate, and the request may be repeated when the clarifications and additions have not been satisfactory;

VII- Issuing of conclusive technical advice and, when applicable, legal opinion;

VIII. Acceptance or rejection of the application for the license, giving due publicity.

§ 1 The environmental licensing procedure should mandatorily include the certificate from the Municipal Government, declaring that the location and the type of venture or activity are in accordance with the legislation applicable to the use and occupation of the soil and, when applicable, the authorization for removal of vegetation and the grant for water use, issued by the competent bodies.

§ 2 In the case of ventures and activities subject to environmental impact assessment-EIA study, if verified the need for new completion due to information already provided, as per sub sections IV and VI, the competent environmental agency by motivated decision and with the participation of the entrepreneur, may make a new request for completion.

Art. 11. The studies needed to the licensing process should be performed by legally qualified professionals, at the expense of the entrepreneur.

Sole paragraph. The entrepreneurs and professionals who subscribe the studies referred to in the caput of this article shall be responsible for the information presented, subject to

administrative, civil and penal sanctions. Art. 12. the competent environmental agency shall, if necessary, define specific procedures for environmental licenses, in compliance with the nature, characteristics and peculiarities of the activity or undertaking and, still, the compatibility of the licensing process through the stages of planning, implementation and operation.

§ 1 Simplified procedures may be established for the activities and projects of small environmental impact potential, which must be approved by the respective Boards of Environment.

§ 2 May be admitted a single process of environmental licensing for small undertakings and similar and neighbor activities or to those members of previously approved development plans, by the competent governmental body, provided that set the legal responsibility is defined for the set of ventures or activities.

§ 3 Criteria should be established to streamline and simplify the procedures for environmental licensing of activities and ventures implementing plans and voluntary environmental management programs, aiming at continuous improvement and the improvement of environmental performance.

Art. 13. The cost of analysis for obtaining the environmental permit should be established by legislation, aiming at compensation, by the entrepreneur, of expenditures incurred by the competent environmental agency.

Sole paragraph. The entrepreneur may access the spreadsheet of costs made by the environmental agency for analysis of the license.

Art. 14. The competent environmental agency may establish differentiated analysis periods for each type of license (LP, LI and LO), depending on the peculiarities of the activity or venture, as well as for the formulation of additional requirements, provided that the maximum period of 6 (six) months from the date of filing the application until its acceptance or rejection are complied with, except in cases in which there is EIA/RIMA and/or public hearing, when the period is up to 12 (twelve) months.

§ 1 The counting of the time limit referred to in the caput of this article shall be suspended during the elaboration of additional environmental studies or preparation of clarifications by the entrepreneur.

§ 2 The deadlines stipulated in the caput may be changed, provided they are justified and with the agreement of the entrepreneur and of the competent environmental agency.

Art. 15. The entrepreneur must fulfill the request for clarifications and additions, made by the competent environmental agency, within the maximum period of 4 (four) months from the receipt of the corresponding notification

Sole paragraph. The term period stipulated in the caput may be extended, provided it is justified and with the agreement of the entrepreneur and of the competent environmental agency.

Art. 16. Failure to comply with the deadlines laid down in articles 14 and 15, respectively, shall subject the licensing to the action of the organ that has competence to act additionally and the entrepreneur to the filing of its license application.

Art. 17. The filing of the licensing process will not prevent the presentation of new application for a license, which should comply with the procedures laid down in article 10, after new payment of analysis cost.

Art. 18. The competent environmental agency shall establish the terms of validity of each license type by specifying them in the relevant document, taking into account the following aspects:

I- The period of validity of the Previous License (LP) must be at least the one established by the schedule of the plans, programs and projects relating to the venture or activity, and must not be more than 5 (five) years.

II- The period of validity of the Installation License (LI) should be, at a minimum, the one established by the installation schedule set by the venture or activity, and must not exceed 6 (six) years.

III- The period of validity of the Operating License (LO) should consider the environmental control plans and will be of at least 4 (four) years and not more than 10 (ten) years.

§ 1 The previous license (LP) and the Installation License (LI) may have validity periods extended as long as they do not exceed the maximum limits set out in sections I and II.

§ 2 The competent environmental agency may establish specific validity periods for the Operation License (LO) of ventures or activities that, by their nature and peculiarities, are subject to termination or modification on shorter deadlines.

§ 3 In the renewal of the Operating License (LO) of an activity or venture, the competent environmental agency may, by a decision motivated, increase or decrease its period of validity, after evaluation of the environmental performance of the activity or venture in the previous period, pursuant to the limits laid down in paragraph III.

§ 4 The renewal of the Operating License (LO) of an activity or venture should be requested at least 120 (one hundred twenty) days of the expiration of its expiry date, fixed in its license, which will be automatically extended until the definitive manifestation of the competent environmental agency.

Art. 19. The competent environmental agency by decision motivated, can modify the conditions and the measures of control and suitability, suspend or cancel a license issued upon the occurrence of:

I- infringement or inadequacy of any constraints or rules of law;

II- omission or false description of relevant information that subsidized the issuance of the license;

III- the onset of serious environmental and health risks.

Art. 20. The federated entities, in order to exercise their licensing competences, should have implemented the Councils of Environment, with a deliberative nature and social participation and also have in their staff or at their disposal legally qualified professionals.

Art. 21. This resolution shall enter into force on the date of its publication, applying its effects to the licensing process in progress at the competent environmental authorities and revoking the provisions in contrary, in particular, articles 3 and 7 of CONAMA Resolution No. 1, of January 23, 1986.

GUSTAVO KRAUSE GONÇALVES SOBRINHO-Council President
RAIMUNDO DEUSDARÁ FILHO-Executive Secretary

ANNEX 1 ACTIVITIES OR VENTURES SUBJECT TO ENVIRONMENTAL LICENSING

Extraction and processing of minerals

- mining research with usage guide
- Open-pit mining, including alluvium, with or without processing
- underground mining with or without processing
- mining prospecting
- well drilling and production of oil and natural gas

Non-metallic mineral products industry

- non-metallic mineral processing, not related to extraction
 - manufacture and development of non-metallic mineral products such as: production of ceramic material, cement, gypsum, asbestos and glass, among others.

Metallurgical industry

- manufacture of steel and steel products
- production of iron castings and forged steel cold rolled wires with or without surface treatment, including electroplating
- metallurgy of non-ferrous metals, in primary and secondary forms, including gold
- production of hot-rolled steel / alloys / non-ferrous metal artifacts with or without surface treatment, including electroplating
- rerolling of non-ferrous metals, including alloys
- production of solder and anodes
- precious metals metallurgy
- powder metallurgy, including molded parts
- manufacture of metal structures with or without surface treatment, including electroplating
- manufacture of iron and steel artifacts of non-ferrous metals with or without surface treatment, including electroplating
- steel carburizing, quenching and annealing of wires, surface treatment

Mechanical industry

- manufacture of machinery, equipment, parts, tools and accessories with and without thermal and/or surface treatment

Electric, electronic and material communications industry

- manufacture of batteries and other accumulators
- manufacture of electric, electronic equipment for telecommunication and computers
- manufacture of electrical and domestic appliances

Transport equipment industry

- manufacture and assembly of road and rail vehicles, parts and accessories
- manufacture and assembly of aircraft
- manufacture and repair of ships and floating structures

Wood industry

- sawmill and wood scrolling
- wood preservation
- manufacture of plates, plates of agglomerated, particle and plywood wood
- manufacture of wooden furniture and structures
- manufacture of cellulose and mechanical pulp
- manufacture of paper and paperboard
- manufacture of paper, cardboard, paperboard, paperboard and pressed fiber artifacts

Rubber industry

- natural rubber processing
- manufacture of air chamber and manufacturing and reconditioning of tyres
- manufacture of laminates and rubber wires

- manufacture of rubber foam and foam rubber artifacts, including Latex

Industry of leather and skins

- drying and salting of leather and skins
- tanning and other preparations of leather and skins
- manufacture of various artifacts of leather and skins
- manufacture of animal glue

Chemical industry

- production of substances and manufacture of chemical products
- manufacture of products derived from the processing of petroleum, bituminous rocks and wood
- manufacture of non-petroleum fuels
- production of oils/fats/vegetal-animal waxes/ vegetal essential oils and other products from the distillation of wood
- manufacture of resins and fibers and artificial and synthetic rubber threads and synthetic Latex
- manufacturing of powder/explosives/detonating devices/ammunition for hunting-sports, safety match and pyrotechnic articles
- recovery and refining of solvents, mineral oils, vegetables and animals
- manufacture of concentrated natural, artificial and synthetic aromatic
- manufacture of products for cleaning and polishing, disinfectants, insecticides, and fungicides and germicidal
- manufacture of paints, enamels, lacquers, varnishes, waterproofing products, solvents and drying
- manufacture of fertilizers and agrochemicals
- manufacture of pharmaceutical and veterinary products
- manufacture of soaps, detergents and candles
- manufacture of perfumes and cosmetics
- production of ethanol, methanol and similar

Plastic products industry

- manufacture of plastic laminates
- manufacture of plastic artifacts

Textiles, clothing, footwear and textile artifacts

- processing of textile, vegetable, animal and synthetic fibers
- manufacture and finishing of yarns and fabrics
- dyeing, printing and other garment parts finishes and fabric sundries
- manufacture of footwear and components for footwear

Food and beverage industry

- processing, milling, roasting and food manufacturing
- slaughterhouses, abattoirs, fridges, ranches and derivatives of animal origin
- manufacture of canned products
- preparation of fish and manufacture of canned fish
- preparation, processing and industrialization of dairy products
- manufacture and refining of sugar
- oil and vegetable fats re-refining/ preparation
- production of butter, cocoa, fats of animal origin for food
- manufacture of ferment and yeasts
- manufacture of balanced rations and prepared food for animals
- manufacture of wine and vinegar
- manufacture of ales, beers and malts
- manufacture of non-alcoholic beverages, as well as bottled and mineral water gasification
- manufacture of alcoholic beverages

Smoking industry

- manufacture of cigarettes/cigars/cigarillos and other activities of tobacco processing

Miscellaneous industries

- concrete production plants
- asphalt plants
- electroplating services

Civil works

- highways, railways, waterways, subways
- dams and dikes
- channels for drainage
- grinding of watercourse
- opening bars, nozzles and channels
- watershed transposition
- other works of art

Utility services

- thermoelectric power generation
- electric power transmission
- water treatment plants
- interceptors, emissaries, pumping station and sewage treatment
- treatment and disposal of industrial waste (liquid and solid)
- treatment/disposal of special waste such as: of agrochemicals and their used packaging and health service, among others
- treatment and disposal of municipal solid waste, including those from septic sinks
- dredging and caving in water bodies
- recovery of degraded or contaminated areas

Transportation, terminals and depots

- transport of dangerous cargo
- pipeline transport
- marinas, ports and airports
- ore terminals, oil and oil products and chemical products
- deposits of chemicals and dangerous products

Tourism

- tourist and leisure complexes, including theme parks and sports venues

Diverse activities

- subdivision of land
- district and the industrial pole

Farming activities

- agricultural project
- animal husbandry
- colonization and settlement projects

Use of natural resources

- forestry
- economic exploitation of wood or wood and forest by-products
- management activity of exotic wildlife and wildlife nursery
- use of natural genetic heritage
- management of living aquatic resources
- introduction of exotic species genetically modified and/or
- use of biological diversity by biotechnology

This text does not replace the one published in the Official Gazette, of December 22, 1997.

CONAMA RESOLUTION 281, July 12, 2001
Published in Official Gazette 156-E on August 15, 2001, Section 1, page 86

Correlations:

- Complements CONAMA Resolution No. /686

Establishes provisions for the publication models for license requests

The NATIONAL ENVIRONMENTAL COUNCIL-CONAMA, pursuant to the powers vested on it by Law No. 6,938 dated August 31, 1981, regulated by Decree No. 99,274, of July 6, 1990, and in view of the provisions in its Internal Rules, ANNEX to Ordinance No. 326, of 15 December 1994²⁰⁶

Considering that the models of publication of applications for licensing, in all their modalities, their renewal and their granting, applies to licensing of any new developments or activities, regardless of their size or degree of their environmental impact;

Considering CONAMA Resolution No. 237, of December 19, 1997, related businesses or activities subject to environmental licensing because of its size, and apparent significant environmental impact;

Considering that it is not reasonable to subject to the same financial burden arising from the publication of license applications and their granting the larger ventures and polluting potential and those of less environmental impact;

Considering the powers to issue the environmental permit, resolves:

Art. 1 The models of publication of applications for licensing, renewal and grant, are required as established by CONAMA Resolution No. 6, of January 24, 1986, only for the projects and activities listed in article 2 of CONAMA Resolution No. 1, of January 23, 1986, or for those who, at the discretion of the competent organs, are identified as of significant environmental impact.

Art. 2 In other cases, where the environmental licensing is required, the competent organs may provide simplified models of publication of applications for licensing, its renewal and concession, to be made in an official newspaper, as well as in regional or local journal of wide circulation.

Sole paragraph. If the competent body omits itself, concerning the faculty described in this section's caput, the norms established in CONAMA Resolution No. 6 of 1986 will remain payable.

Art. 3. This Resolution shall enter into force on the date of its publication.

JOSE SARNEY FILHO – Council President

This text does not replace the one published in the Official Gazette, of August 15, 2001

²⁰⁶ Ordinance revoked by Ordinance MMA No. 499, of December 18, 2002

CONAMA RESOLUTION 306, July 5, 2002
Published in Official Gazette 138 on July 19, 2002, Section 1, pages 75-76

Correlations:

- Article 4 and ANNEX II amended by CONAMA Resolution No. 381/06

Establishes minimum requirements and references for the undertaking of environmental audits.

The NATIONAL ENVIRONMENTAL COUNCIL-CONAMA, pursuant to the powers vested on it by Law No. 6,938 dated August 31, 1981, regulated by Decree No. 99,274, of June 6, 1990, and in view of the provisions in its Internal Rules, ANNEX to Ordinance No. 326, of December 15, 1994²⁰⁷, and

Considering the potential environmental impact of the oil and gas industry, and their derivatives;

Considering that the oil industry, natural gas and their derivatives must enhance its culture of control and knowledge of the environmental aspects of their activities, and, to this end, management systems and environmental control;

Considering that the environmental audit is a tool that allows to evaluate the degree of implementation and effectiveness of plans and programs on the control of environmental pollution;

Considering that the results of the environmental audit should be motivating continuous improvement of the management system;

Considering the need to orient the provisions of CONAMA Resolution No. 265, of January 27, 2000, in respect of environmental audits;

Considering the need to discipline the fulfillment of art. 9 of Law n° 9,966, of April 28, 2000, which deals with the obligation of independent environmental auditing, resolves:

Art. 1 To establish the minimum requirements and the terms of reference for conducting environmental audits, in order to evaluate the environmental management and control systems in the organized ports and port facilities, platforms and their supporting facilities and refineries, with a view to the fulfillment of current legislation and environmental licensing

Art. 2 For the purposes of the provisions of this Resolution the definitions set out in ANNEX I are adopted.

Art. 3 Environmental audits must be independent and carried out in accordance with methodologies, scope and systematic and documented procedures, set out in ANNEX II.

~~Art. 4 Environmental audits must involve analysis of objective evidence to determine whether the entrepreneur's audited facility meets the criteria set out in this Resolution, in the legislation and in environmental licensing.~~

Art. 4 Environmental audits must involve analysis of objective evidence to determine whether the entrepreneur's audited facility meets the criteria set out in this Resolution, in the current environmental legislation and environmental licensing. *(new wording by Resolution No. 381/06)*

Sole paragraph. Findings of non-compliance should be clearly documented and substantiated by objective evidence and should be the object of an action plan.

Art. 5 The environmental audit report is the responsibility of the audit team.

Art. 6 The plan of action is the responsibility of audited entrepreneurs and must include corrective actions for nonconformities identified by the audit report.

Art. 7 The environmental audit report and the plan of action should be submitted at every two years by the competent environmental agency for incorporation to the environmental licensing process of the audited installation.

Sole paragraph. The competent environmental agency may establish additional guidelines that, by the peculiarities of activity and environmental characteristics of the area, are deemed necessary.

Art. 8. The Ministry of the Environment, by means of Ordinance, will define, within one hundred and eighty days, counted from the date of publication of this Resolution, the minimum requirements regarding the accreditation, registration, certification, qualification, qualification, experience and professional training that the environmental auditors must meet.

Art. 9 Environmental audits must be made compatible, when applicable, with other established risk management programs in other federal regulations.

Art. 10. This Resolution shall enter into force on the date of its publication.

JOSÉ CARLOS CARVALHO- Council President

ANNEX I
DEFINITIONS

I- Environmental aspect: element of the activities, products or services of an organization that can interact with the environment.

II- Environmental Audit: systematic and documented verification process, executed to obtain and evaluate, objectively, evidence to determine whether the activities, events, management systems and

²⁰⁷ Ordinance revoked by Ordinance MMA No. 499, of December 18, 2002

environmental conditions specified or the information related to these are in accordance with the audit criteria established in this Resolution, and to report the results of this process.

III- Audit findings: results from the evaluation of the evidence collected during the audit, compared to the established audit criteria.

IV- Conclusion of the audit: judgment or professional opinion expressed on the subject of the audit, based on and limited to the assessment of the audit findings.

V- Audit Criteria: policies, practices, procedures or requirements in respect of which the auditor compares the evidence collected on the object of the audit, it being understood that the requirements include relevant environmental legislation and environmental performance.

VI- Environmental performance: measurable results of environmental management relating to the control of a facility on its environmental aspects, based on its policy, objectives and environmental targets.

VII- Technical expert: professional who provides specific knowledge or skills to the audit team, but who does not participate as an auditor.

VIII- Audit Team: group of auditors or an auditor, and technical experts.

IX- Objective evidence: verifiable information, such as records, documents or interviews.

X- Environmental management: leading, direction and control of the use of natural resources, environmental risks and emissions into the environment, through the implementation of the environmental management system.

XI- Environmental Impact: any alteration of the physical, chemical and biological characteristics of the environment, caused by any form of matter or energy resulting from human activities that directly or indirectly affect the health, safety and well-being of the population, social and economic activities, the biota, esthetic and sanitary conditions of the environment and the quality of environmental resources.

XII- Environment: set of conditions, laws, and influence and physical, chemical, biological, social, cultural and urban planning interactions, that permits, shelters and governs life in all its forms.

XIII- Entrepreneur: company, corporation, firm, company or institution, or part or combination thereof, whether public or private, joint-stock company, limited or under another legal form, which has its own administrative structure and functions. For organizations with more than one operating unit, each individual unit can be defined as a facility.

XIV- Interested party: individual or group interested or affected by the environmental performance of a facility.

XV- Emergency plan: set of measures that determine and establish the responsibilities and actions to be triggered immediately after an incident, as well as define the human resources, materials and equipment suitable for the prevention, control and fight against environmental pollution.

XVI- Individual emergency plan: is the facility-specific emergency plan.

XVII- Area emergency plan: is the contingency plan agreed between the organization, the public authorities and other organizations located in the same area of influence.

XVIII- Environmental Management System: a part of the overall management system that includes organizational structure, planning activities, responsibilities, practices, procedures, processes and resources for developing, implementing, achieving, reviewing and maintaining the environmental policy critically.

ANNEX II

MINIMUM CONTENT OF ENVIRONMENTAL AUDITS

~~1- Criteria and scope of audit~~

~~Environmental audits have the purpose of verifying compliance with applicable environmental legislation and evaluating the performance of the environmental management of the activities laid down in Article 1^o of this Resolution.~~

~~1.1 As to the fulfillment of the relevant environmental legislation, the audit will involve, inter alia:~~

~~I- identification of federal, state and municipal environmental legislation, as well as existing environmental standards applicable to the installation of the audited organization;~~

~~II- The verification of compliance of the installation of the audited organization with the environmental laws and regulations in force;~~

~~III- The identification of the existence and validity of environmental licenses;~~

~~IV- The verification of compliance with the conditions laid down in the environmental licenses;~~

~~V- The identification of the existence of the agreements and commitments, such as terms of environmental commitment and/or conduct adjustment agreements and possible plans of action set out in this Resolution; and~~

~~VI- Verification of compliance with obligations in respect of item (V).~~

~~1.2 Regarding the evaluation of the performance of environmental management, the audit will involve, inter alia:~~

~~I- Verification of the existence of an environmental policy documented, implemented, maintained and disseminated to all the people who are working in the audited facility, including employees of contractors;~~

~~II- The verification of the appropriateness of environmental policy in relation to the nature, scale and environmental impacts of the audited facility, and about the commitment of the same with pollution prevention, continuous improvement and with the attendance of relevant environmental legislation;~~

~~III- The verification of the existence and implementation of procedure that will promote the identification and access to environmental legislation and other requirements;~~

~~IV The identification and care of environmental objectives and targets and checking whether they take into account environmental legislation and the principle of prevention pollution, where applicable;~~

~~V The verification of the existence and implementation of procedures to identify the significant environmental aspects of its activities, products and services, as well as the adequacy of the same;~~

~~VI The verification of the existence and implementation of procedures and records of the operation and maintenance of activities/equipment related to the significant environmental aspects;~~

~~VII The identification and implementation of technical inspection plans for evaluation of conditions of operation and maintenance of facilities and equipment related to the significant environmental aspects;~~

~~VIII The identification and implementation of procedures for internal and external communication with stakeholders;~~

~~IX Verification of monitoring records and measurements of emission sources to the environment or to the systems of collection and treatment of solid waste, liquid and gases;~~

~~X The existence of risk analyses to date of installation;~~

~~XI The existence of risk management plans;~~

~~XII The existence of individual emergency plan and record of training and simulations by him;~~

~~XIII The verification of records of accidents;~~

~~XIV The verification of the existence and implementation of mechanisms and records for the periodic review of the environmental performance and system of internal audits;~~

~~XV The verification of the existence of responsibilities concerning the definition of significant environmental aspects;~~

~~XVI The existence of records of training of staff whose tasks can result in a significant impact on the environment;~~

~~XVII The existence of document control mechanisms;~~

~~XVIII The existence of procedures and records in the event of non-compliance; and~~

~~XIX The verification of conditions of handling, storage and transport of products that could cause damage to the environment.~~

~~2 The audit plan should contain at least the following:~~

~~2.1 Scope: to describe the extent and the limits of physical location and the company's activities.~~

~~2.2 Preparation of the audit:~~

~~I definition and review of documentation;~~

~~II added installation preview;~~

~~III training the team of auditors;~~

~~IV. Definition of the responsibilities of auditors; and~~

~~V Schedule and work plans for the implementation of the audit.~~

~~2.3 Implementation of auditing:~~

~~I interviews with managers and those responsible for the activities and functions of the installation;~~

~~II inspections and surveys at the premises;~~

~~III analysis of information and documents;~~

~~IV analysis of observations and findings;~~

~~V definition of audit findings;~~

~~VI prior consultation with the competent environmental bodies to verify the history of environmental incidents, including its legal and administrative developments, and of environmental registers. AND~~

~~VII preparation of final report.~~

~~3 The audit report must contain at least the following:~~

~~I composition of the audit team and respective attributions;~~

~~II identification of the Organization and of the audited facility;~~

~~III description of the activities of the installation;~~

~~IV. Objectives, scope and the audit plan established;~~

~~V period covered by the audit;~~

~~VI summary and methodology of the audit process;~~

~~VII list of legal documents, reference standards and regulations;~~

~~VIII. list of documents examined and audited units;~~

~~IX list of persons contacted during the audit and respective attributions;~~

~~X findings of the audit; and~~

~~XI findings of the audit, including the findings of compliance and non-compliance in relation to the criteria and assessing the ability of the Organization to ensure the continued compliance with the criteria established.~~

~~4 Final products:~~

~~4.1 The audit report shall contain at least the following:~~

~~I composition of the audit team and respective attributions;~~

~~II administrative and functional description of company or company's sector and features of the facilities audited;~~

~~III methodology and criteria used;~~

~~IV period covered by the audit;~~

~~V list of legal documents, reference standards and regulations;~~

~~VI. list of documents examined and audited units;~~

~~VII list of persons contacted during the audit and respective attributions; and~~

~~VIII audit findings, including the findings of compliance and non-compliance in relation to the criteria and evaluation of the capacity of the installation audited to ensure continued compliance with the criteria laid down~~

4.2. The Action Plan shall contain at least the following:

~~I corrective and preventive actions associated with the non-conformities and deficiencies identified in the environmental audit;~~

~~II timetable for implementation of the actions foreseen;~~

~~III indication of the area of the organization responsible for compliance with the schedule established;~~
and

~~IV timetable of evaluations of compliance with the actions of the plan and their respective reports.~~

New wording by resolution No. 381/06

1- Audit Criteria and Scope

Environmental audits have the purpose of verifying compliance with applicable environmental legislation and to evaluate the performance of the environmental management of the activities laid down in Article 1 of this Resolution.

1.1- As to the compliance with the relevant environmental legislation, the audit will involve, inter alia:

I-identification of federal, State and municipal environmental legislation, as well as existing environmental standards applicable to the installation of the audited organization;

II. the verification of compliance of the installation of the audited organization with the environmental laws and regulations in force

III-the identification of the existence and validity of environmental licenses;

IV. the verification of compliance with the conditions laid down in the environmental licenses;

V-the identification of the existence of the agreements and commitments, such as terms of environmental commitment and/or environmental conduct adjustment agreements and possible plans of action set out in this Resolution; and

VI. verification of compliance with obligations assumed with regard to sub-item (V).

1.2- Regarding the evaluation of the performance of environmental management, the audit will involve, inter alia:

I-verification of the existence of an environmental policy documented, implemented, maintained and disseminated to all the people who are working in the audited facility, including employees of contractors;

II-the verification of the appropriateness of environmental policy in relation to the nature, scale and environmental impacts of the audited facility, and about the commitment of the same with pollution prevention, continuous improvement and with the fulfillment of environmental law applicable;

III-the verification of the existence and implementation of procedures to allow the identification and access to environmental legislation and other requirements;

IV-the identification and fulfillment of environmental objectives and targets and checking whether they take into account environmental legislation and the principle of pollution prevention, where applicable;

V-the verification of the existence and implementation of procedures to identify the significant environmental aspects of its activities, products and services, as well as the adequacy of the same;

VI-the verification of the existence and implementation of procedures and records of the operation and maintenance of activities/equipment related to the significant environmental aspects;

VII-the identification and implementation of technical inspection plans for evaluation of conditions of operation and maintenance of facilities and equipment related to the significant environmental aspects;

VIII-the identification and implementation of procedures for internal and external communication with stakeholders;

IX-verification of monitoring records and measurements of emission sources to the environment or to the systems of collection and treatment of solid waste, liquid and gases;

X-the existence of risk analyses to date of installation;

XI-the existence of risk management plans;

XII-the existence of individual emergency plan and record of training and simulations predicted thereby;

XIII-the verification of records of accidents;

XIV-the verification of the existence and implementation of mechanisms and records for the periodic review of the environmental performance and system of internal audits;

XV-the verification of the existence of definition of responsibilities relating to significant environmental aspects;

XVI-the existence of records of staff training, whose tasks can result in a significant impact on the environment;

XVII-the existence of document control mechanisms;

XVIII-the existence of procedures and records in the event of non-compliance; and

XIX-the verification of conditions of handling, storage and transport of products that could cause damage to the environment.

2- The audit plan shall contain at least the following:

2.1-Scope: to describe the extent and the limits of physical location and the company's activities.

2.2-Preparation of the audit:

I-definition and review of documentation;

II- visit prior to audited facility;

III-training the team of Auditors;

IV. definition of the responsibilities of auditors;

V-schedule and work plans for the implementation of the audit; and

VI-prior consultation with the competent environmental bodies to verify the history of environmental incidents, including its administrative and legal developments of environmental registers.

2.3 – Implementation of auditing:

- I-interviews with managers and those responsible for the activities and functions of the installation;
- II-inspections and surveys at the premises;
- III-analysis of information and documents;
- IV-analysis of observations and findings;
- V-definition of audit findings; and
- VI. preparation of final report.

3-The audit report must contain at least the following:

- I-composition of the audit team and respective attributions;
- II-identification of the organization and of the audited facility;
- III-description of the activities of the installation;
- IV. objectives, scope and the audit plan established;
- V-period covered by the audit;
- VI-summary and methodology of the audit process;
- VII-list of legal documents, reference standards and regulations;
- VIII. list of documents examined and audited units;
- IX-list of persons contacted during the audit and respective attributions;
- X-findings of the audit; and
- XI-findings of the audit, including the findings of compliance and does not

compliance in relation to the criteria and evaluation of the capacity of the organization to ensure continued compliance with the criteria laid down.

4. The Action Plan shall contain at least the following:

I-corrective and preventive actions associated with the non-conformities and deficiencies identified in the environmental audit;

II. timetable for implementation of the actions foreseen;

III-indication of the area of the organization responsible for compliance with the schedule established;

and

IV-timetable of evaluations of compliance with the actions of the plan and its reports.

(new wording by resolution No. 381/06)

This text does not replace the one published in the Official Gazette, of July 19, 2002.

RESOLUTION 378, October 19, 2006
Published in Official Gazette 202 on 10/20/2006, p. 175

Correlations:

- Amended by Resolution No. 428/2010

Defines enterprises that can potentially impact the national or regional environment in order to comply with the provisions of item IIID, § 1, art. 19 of Law 4.771 issued on Sept. 15, 1965 and makes other provisions

The NATIONAL ENVIRONMENTAL COUNCIL-CONAMA, pursuant to the powers vested on it by Law no 6,938, of August 31, 1981, regulated by Decree No. 99,274, of July 6, 1990, and in view of the provisions in its Internal Rules, ANNEX to Ordinance No.168 of June 10, 2005, 168; and

Considering need to define what are the ventures potentially causing national or regional environmental impact for the purposes of the provisions of sub paragraph III, § 1, art. 19 of Law No. 4,771, of September 15, 1965, as amended by art. 83 of Law No. 11,284, of March 2, 2006, establishing the responsibilities of federated entities to authorize the exploitation of forests and successor formations, resolves:

Art. 1 For the purposes of the provisions of sub paragraph III, § 1, of art. 19 of the Law on 4,771, of September 15, 1965, amended by art. 83 of Law no 11,284, of March 2, 2006, it is the responsibility of the Brazilian Institute of the Environment and Renewable Natural Resources - IBAMA the approval of the following ventures:

I- exploitation of forests and successor formations involving management or suppression of species listed in Annex II to the Convention on international Trade of Wild Flora and Fauna Species in danger of extinction – CITES, promulgated by Decree No. 76,623 of November 17, 1975, with the text adopted by Legislative Decree no 54, of June 24, 1975;

II. exploitation of forests and successor formations involving handling or removal of forests and successor formations in rural real estates covering two or more States;

III-suppression of forests and other forms of native vegetation in an area greater than:

the) two thousand acres in rural properties located in Legal Amazon;

b) one thousand acres in rural properties located in other regions of the country;

IV-suppression of forests and successor formations in the works or potentially polluting activities licensed by IBAMA.

V-forest management in the area of more than fifty thousand hectares.

Sole paragraph. The exploitation of forests and successor formations must respect the rules and limits arranged in specific rules for the biome.

Art. 2 The federated entities may sign cooperation instruments to exercise the powers provided for in art. 19 of Law No. 4,771, of 1965, with the wording given by art. 83 of Law No. 11,284, of 2006.

Art. 3 The authorization for management or suppression of forests and successor formations in buffer zone of conservation and Environmental Protection Areas-APAs

can only be granted by the competent body under prior manifestation of the body responsible for its administration.

~~Sole paragraph. The environmental agency responsible for the administration of the conservation unit should manifest itself within 30 days from the request of the body responsible for the authorization.~~

(Revoked by Resolution No. 428/2010)

Art. 4. The authorization for exploitation of forests and successor formations involving management or suppression of forests and successor formations in rural properties within ten kilometers in the vicinity of demarcated indigenous land must be preceded of georeferenced information to the National Indian Foundation FUNAI-except in the case of small rural or rural family possession property, defined in art. 1, § 2, paragraph 1 of Law No. 4,771, of 1965.

Art. 5 The requirements of CONAMA Resolution No. 237, of December 19, 1997 shall, as applicable, apply to this Resolution..

Art. 6 This Resolution shall enter into force on the date of its publication.

MARINA SILVA-Council President

This text does not replace the one published in the Official Gazette, of October 20, 2006.

CONAMA RESOLUTION 381 of December 14, 2006
Published in Official Gazette 240 on December 15, 2006, Section 1, page 155 and 156

Correlations:

- Changes art 4 and ANNEX II of CONAMA Resolution No. 306/02

Changes the provisions of Resolution 306 issued on July 5, 2002 and Annex II, which deals with the minimum demands for the realization of environmental audits

The NATIONAL ENVIRONMENTAL COUNCIL-CONAMA, pursuant to the powers vested on it by Law No. 6,938 dated August 31, 1981, regulated by Decree No. 99,274, of June 6, 1990, amended by Decree No. 3,942, of September 27, 2001, bearing in mind the provisions of its Internal Rules of procedure, ANNEX to Ordinance No. 168 of June 10, 2006, resolves:

Art. 1 Art. 4 and ANNEX II of Resolution No. 306, of July 5, 2002, shall take effect as follows:

"Art. 4 Environmental audits must involve analysis of objective evidence to determine whether the entrepreneur's audited facility meets the criteria set out in this Resolution, the current environmental legislation and licensing environment." (NR)

.....
"ANNEX II

MINIMUM CONTENT OF ENVIRONMENTAL AUDITS

1- Audit criteria and scope

Environmental audits have the purpose of verifying compliance with applicable environmental legislation and evaluating the performance of the environmental management of the activities laid down in Article 1 of this Resolution.

1.1- As to the compliance with the relevant environmental legislation, the audit will involve, inter alia:

I- identification of federal environmental, state and municipal legislation, as well as the existing environmental standards applicable to the installation of the audited organization;

II - the verification of compliance of the installation of the audited organization with the environmental laws and regulations in force;

III- the identification of the existence and validity of environmental licenses;

IV - the verification of compliance with the conditions laid down in the environmental licenses;

V- the identification of the existence of the agreements and commitments, such as terms of environmental commitment and/or environmental conduct adjustment agreements and possible plans of action set out in this Resolution; and

VI - verification of compliance with obligations assumed with regard to sub-item (V).

1.2- Regarding the evaluation of the performance of environmental management, the audit will involve, inter alia:

I- verification of the existence of an environmental policy documented, implemented, maintained and disseminated to all the people who are working in the audited facility, including employees of contractors;

II- the verification of the appropriateness of environmental policy in relation to the nature, scale and environmental impacts of the audited facility, and about the commitment of the same with pollution prevention, continuous improvement and with the attendance of relevant environmental legislation;

III- the verification of the existence and implementation of procedures to allow the identification and access to environmental legislation and other requirements;

IV- the identification and compliance with the environmental objectives and targets and checking whether they take into account environmental legislation and the principle of prevention of pollution, where applicable;

V- the verification of the existence and implementation of procedures to identify significant environmental aspects of its activities, products and services, as well as their adequacy;

VI- the verification of the existence and implementation of procedures and records of the operation and maintenance of activities/equipment related to SIGNIFICANT environmental aspects;

VII- the identification and implementation of technical inspection plans for evaluation of the conditions of operation and maintenance of facilities and equipment related to the significant environmental aspects;

VIII- the identification and implementation of procedures for internal communication and with external stakeholders;

IX- verification of monitoring records and measurements of emission sources to the environment or to the systems of collection and treatment of solid waste, liquid and gases;

X -the existence of updated risk analyses of facility;

XI- the existence of risk management plans;

XII- the existence of an individual emergency plan and record of training and simulations predicted thereby;

XIII- the verification of records of accidents;

XIV- the verification of the existence and implementation of mechanisms and records for the periodic review of the environmental performance and system of internal audits;

XV- the verification of the existence of definition of responsibilities concerning significant environmental aspects;

XVI- the existence of records of staff training, whose tasks can result in a significant impact on the environment;

XVII- the existence of document control mechanisms;

XVIII- the existence of procedures and records in the event of non-compliance; and

XIX- the verification of conditions of handling, storage and transport of products that could cause damage to the environment.

2- The audit plan should contain at least the following:

2.1-scope: to describe the extent and the limits of physical location and the company's activities.

2.2-Preparation of the audit:

I-definition and review of documentation;

II- prior visit to audited facility;

III-training the team of auditors;

IV. definition of the responsibilities of auditors;

V-schedule and work plans for the implementation of the audit; and

VI-prior consultation with the competent environmental bodies to verify the history of environmental incidents, including its administrative and legal developments of environmental registers.

2.3 – Accomplishment of auditing:

I-interviews with managers and those responsible for the activities and functions of the facility;

II-inspections and surveys at the premises;

III-analysis of information and documents;

IV-analysis of observations and findings;

V-definition of audit findings; and

VI. preparation of final report.

3-The audit report must contain at least the following:

I-composition of the audit team and their assignments;

II-identification of the organization and of the audited facility;

III-description of the activities of the facility;

IV. objectives, scope and the audit plan established;

V-period covered by the audit;

VI-summary and methodology of the audit process;

VII-list of legal documents, reference standards and regulations;

VIII. list of documents examined and audited units;

IX-list of persons contacted during the audit and respective attributions;

X-findings of the audit; and

XI-findings of the audit, including the findings of compliance and non-compliance in relation to the criteria and assessing the ability of the organization to ensure the continued compliance with the criteria established.

4. The Action Plan shall contain at least the following:

I-corrective and preventive actions associated with the non-conformities and deficiencies identified in the environmental audit;

II. timetable for implementation of the actions foreseen;

III-indication of the area of the organization responsible for compliance with the schedule established;

and

IV-timetable of evaluations of compliance with the actions of the plan and their respective reports. "(NR)

Art. 2. This resolution shall enter into force on the date of its publication.

MARINA SILVA-Council President

This text does not replace the one published in the Official Gazette of December 15, 2006

ENVIRONMENTAL LICENSING BY ACTIVITY

CONAMA RESOLUTION 1, March 5, 1985
Published in MDU Service Bulletin on May 3, 1985

Establishes provisions for the suspension of the granting of license for the implantation of new alcohol distilleries in watersheds located in the Pantanal Matogrossense.

The NATIONAL ENVIRONMENTAL COUNCIL-CONAMA, pursuant to the powers vested on it by article III item 71, of its Bylaws, resolves:

Determine that the Special Secretariat of the Environment ²⁰⁸and the state organs of Mato Grosso and Mato Grosso do Sul, responsible for the environment, suspend the granting license for deploying new alcohol distilleries in watersheds located in the Pantanal Matogrossense, until the plenary of the National Council for the Environment assumes a conclusive position on the subject.

PAULO NOGUEIRA NETO – Council President

NOTE: Published in Service Bulletin No. 956, of 03/22/85, of the Ministry of the Interior.
Republished in the Service Bulletin, of 05/03/85, of the MDU.

This text does not replace the one published in the MDU Service Bulletin No. 2, of May 3, 1985.

²⁰⁸ The Special Secretariat of the Environment – SEMA, linked to the Ministry of the Interior, was extinct by Law . 7.735, of February 22, 1989, which established the Brazilian Institute of the Environment and Renewable Natural Resources – IBAMA. The duties on environmental issues are of the Ministry of the Environment.

CONAMA RESOLUTION 5, November 20, 1985
Published in Official Gazette on November 22, 1985, Section 1, pages 17071-17072

Correlations:

- Approved by CONAMA Resolution nº 14/86

Establishes provisions for the licensing of transportation, storage and use activities of pentachlorophenol and sodium pentachlorophenol

THE PRESIDENT OF THE NATIONAL ENVIRONMENTAL COUNCIL, AD REFERENDUM OF THE NATIONAL COUNCIL ON THE ENVIRONMENT, pursuant to the powers vested on it by sub item I of article 8 and art. 10 of Law No. 6,938 dated August 31, 1981 and sub item II art. 7 and art. 18 of Decree No. 88,351, of June 1983²⁰⁹, and sub item XIV of art. 27 of the Internal Regulations;

Considering that pentachlorophenol and sodium pentachlorophenol, popularly known as "China's powder", after the accident in the port of Rio de Janeiro, has been generating fears in the population, and

Considering that the Ministry of Agriculture has banned the marketing, distribution and use of pentachlorophenol for the agriculture, through Ordinance No. 329, of September 2, 1985; resolves:

Art. 1 To include among potentially polluting activities the transport, storage and use of pentachlorophenol and sodium pentachlorophenol.

Sole paragraph. The implementation of the activities referred to in the caput of this article, shall depend on the prior licensing by a competent state licensing organ, member of the National Environmental System, or of the Special Secretariat of the Environment ²¹⁰in supplementary character, without prejudice to other licenses required.

Art. 2 The non-compliance with the present resolution, shall subject offenders to the penalties provided for in the laws in force.

Art. 3. This Resolution shall enter into force on the date of its publication.

FLÁVIO PEIXOTO DA SILVEIRA – Council President

This text does not replace the one published in the Official Gazette, of November 22, 1985

²⁰⁹ Decree revoked by Decree 99.274 from June 6, 1990

²¹⁰ The Special Secretariat of the Environment – SEMA, linked to the Ministry of the Interior, was extinct by Law 7.735, of February 22, 1989, which established the Brazilian Institute of the Environment and Renewable Natural Resources – IBAMA. The duties on environmental issues are of the Ministry of the Environment

CONAMA RESOLUTION 14, March 18, 1986
Published in Official Gazette on May 2, 1986, Section 1, page 6346

Correlations:

- Sanctions CONAMA Resolution No. 5/85

Establishes provisions for the referendum to Resolution No. 5/85.

The NATIONAL COUNCIL for the ENVIRONMENT – CONAMA, pursuant to the powers vested on it by article 48 of Decree No. 88,351, of June 1983²¹¹, resolves:

To sanction Resolution nº 5, of November 20, 1985, which includes among the potentially polluting activities the transport, storage and use of pentachlorophenol and sodium pentachlorophenol, approved by the Honorable Minister of State for Urban Development and Environment ²¹²and President of CONAMA, Flávio Peixoto da Silveira, as set out in its 8th ordinary meeting, held on March 18, 1986.

DENI LINEU SCHWARTZ- Council President

This text does not replace the one published in the Official Gazette of May 2, 1986.

²¹¹ Decree revoked by Decree 99.274 from June 6, 1990

²¹² The Ministry of the Urban Development and Environment was extinct by Law 7.739, of March 13, 1989. The duties on environmental issues are of the Ministry of the Environment.

CONAMA RESOLUTION 6, September 16, 1987
Published in Official Gazette on October 22, 1987, Section 1, page 17500

Establishes provisions for the granting of environmental licenses for the construction of electric energy generation plants.

The NATIONAL ENVIRONMENTAL COUNCIL-CONAMA, pursuant to the powers vested on it,

Considering the need to issue general rules for environmental licensing of large works, especially those in which the Union has a relevant interest as the electric power generation, in order to harmonize concepts and language among different actors in the process, resolves:

Art. 1 The concessionaires for the exploration, generation and distribution of electric power, when submitting their ventures to environmental licensing before the competent state organ, should provide the technical information about it, as set out in the terms of environmental legislation and the procedures set out in this Resolution.

Art. 2 If the venture needs to be licensed by more than one State, due to the scope of its area of influence, the state organs should keep a prior understanding in order to, to the extent possible, standardize the requirements.

Sole paragraph. The Special Secretariat for the Environment-SEMA ²¹³will oversee the understandings set out in this article.

Art. 3 The competent state organs and the other members of SISNAMA involved in licensing process, shall lay down specifications and stages adequate to the characteristics of the ventures object of this Resolution.

Art. 4 In the case of hydroelectric facilities, with the fulfillment of the peculiarities of each case, the Previous License (LP) must be requested at the beginning of the study on the plant's viability; the Installation License (LI) should be obtained prior to the bidding for the construction of the venture and the Operating License (LO) shall be obtained before the closing of the dam.

Art. 5 In the case of thermo power plants, the LP should be applied at the start of the feasibility study; the LI before the start of the effective implementation of the venture and the LO after the tests performed and before the effective placement of the plant in commercial power generation.

Art. 6 In the licensing of substations and transmission lines, the LP should be applied at the beginning of the planning of the venture, before the definition of its location, or final submission, the LI, once completed the executive project and prior to the commencement of the works and the LO, before the entry into commercial operation.

Art. 7 The required documents for licensing referred to in articles 4, 5 and 6 are those listed in the ANNEX.

Sole paragraph. State licensing environmental bodies, are liable for requesting supplementary information, deemed essential to licensing.

Art. 8. If the venture is included in the activities exemplified in article 2 of CONAMA Resolution No. 186, the environmental impact study should be initiated, so that, upon request of the LP and the concessionaire have conditions of presenting to the state organ (s) responsible a report on the planning of studies to be carried out, including tentative schedule, in order to allow additional instructions to be laid down provided for in the first paragraph of article 6 of CONAMA Resolution No. 186

§ 1 The information contained in the inventory, if any, should be transmitted to the state organ(s) responsible for licensing.

§ 2 The issuance of LP will only be made after review and approval by RIMA

Art. 9. The environmental impact assessment, the preparation of the RIMA, the detailing of the environmental aspects deemed relevant to be developed in the various stages of licensing, including the follow-up program and monitoring of impacts, will be accompanied by experts appointed for this purpose by the state organ(s).

Art 10. RIMA should be accessible to the public, in accordance with article 11 of CONAMA Resolution No. 186.

Sole paragraph. The RIMA intended specifically to the public clarification of the benefits and environmental consequences of the venture should be drawn up in such a way to effectively achieve this goal, met the provisions of the first paragraph of article 9 of CONAMA Resolution No. 186.

Art. 11. Other technical data of the environmental impact assessment should be transmitted to the state competent organ(s) responsible with the form and the timeline established in accordance with article 8 of this Resolution.

Art. 12. The provisions of this Resolution will be applied, considering the planning or implementation stages of the project.

§ If the stage scheduled for obtaining the LP or LI is already overdue, the same will not be issued.

§ 2 The expedition of LP or LI, according to the previous paragraph, does not relieve the competent state bodies of stream environmental studies carried out under due to the needs of planning and execution of the venture.

§ 3 Even when the stage is overdue for obtaining the LI, the RIMA should be drawn up according to the information available, in addition to the additional ones required by the competent environmental organ(s) for

²¹³ The Special Secretariat of the Environment – SEMA, linked to the Ministry of the Interior, was extinct by Law 7.735, of February 22, 1989, which established the Brazilian Institute of the Environment and Renewable Natural Resources – IBAMA. The duties on environmental issues are of the Ministry of the Environment

licensing, in order to make public the characteristics of the venture and its likely environmental and socio-economic consequences.

§ 4 For the venture which came into operation from February 1, 1986, its regularization will occur from the obtaining of the LO, for which it will be require the submission of RIMA containing at least the following information: description of the venture; positive and negative environmental impacts caused in its area of influence; description of environmental protection measures for mitigating negative environmental impacts and adopted or in the process of adoption, as well as other environmental studies already carried out by the concessionaire.

§ 5 For the venture that went into operation before February 1, 1986, its regularization will occur from the obtaining of the LO without the need for presentation of RIMA, but with concessionaire forwarding to the state organ(s) the general description of the venture; the description of the environmental impact caused and measures for protection adopted or in the process of adoption.

Art. 13. This Resolution shall enter into force on the date of its publication.

DENI LINEU SCHWARTZ-Council President

**ANNEX
DOCUMENTS NEEDED FOR LICENSING**

TYPES OF LICENSE	HYDROELECTRIC PLANTS	THERMOELECTRIC PLANTS	TRANSMISSION LINES
Previous License (LP)	<ul style="list-style-type: none"> • Application for the Previous License • MME Ordinance authorizing the Feasibility Study • Report on Environmental Impact (RIMA), concise and complete, when needed • Copy of the publication of the application in LP 	<ul style="list-style-type: none"> • Application for Previous License • Copy of the publication of the application in LP • MME Ordinance authorizing the Feasibility Study • Permit for research or plough of DNP, when applicable • Opinion from the City Hall • RIMA (succinct and complete) 	<ul style="list-style-type: none"> • Application for Previous License • Copy of the publication of the application in LP • RIMA (succinct and complete)
Installation License (LI)	<ul style="list-style-type: none"> • Report on Feasibility Study • Application for Installation License • Copy of publication of granting of LP • Copy of publication of LI application • Copy of Decree approving the granting of hydroelectric use • Basic Environmental Project 	<ul style="list-style-type: none"> • Application for Installation License • Copy of publication of granting of LP • Copy of publication of LI application • Feasibility Report approved by DNAEE • Basic Environmental Project 	<ul style="list-style-type: none"> • Application for Installation License • Copy of publication of granting of LP • Copy of publication of LI application • Basic Environmental Project
Operation License (LO)	<ul style="list-style-type: none"> • Application for Operation License • Copy of the Publication of LI grant • Copy of the Publication of LO application 	<ul style="list-style-type: none"> • Application for Operation License • Copy of the Publication of LI grant • Copy of the Publication of LO application • DNAEE Ordinance approving Basic Project • MME Ordinance authorizing the venture's establishment 	<ul style="list-style-type: none"> • Application for Operation License • Copy of the Publication of LI grant • Copy of the Publication of LO application • Copy RIMA (succinct and complete) of DNAEE Ordinance approving Project • MME Ordinance authorizing the venture's establishment

This text does not replace the one published in the Official Gazette of October 22, 1987.

CONAMA RESOLUTION 5, June 15, 1988
Published in Official Gazette on November 16, 1988, Section 1, page 22123

Establishes provisions for the environmental licensing of sanitation works

The NATIONAL ENVIRONMENT COUNCIL-CONAMA, pursuant to the powers vested on it by paragraph III of article 7 and article 48 of Decree n^o 88,351, of June 1, 1983²¹⁴ and,

Considering that the sanitation works can cause environmental changes;

Considering that these modifications can be assessed by technical and scientific criteria;

Considering that the sewerage works are also subject to licensing;

Considering that the sanitation works are directly linked to problems of preventive medicine and public health, resolves:

Art. 1 The sanitation works for which it is possible to identify significant environmental changes shall be subject to licensing.

Sole paragraph. For the purposes of this Resolution, are considered to be significant and, therefore, subject to licensing, the works which by their size, nature and peculiarity are so regarded by the licensor and the related works and activities in article 3 of this Resolution.

Art. 2 In design of the project, the entrepreneur must meet the criteria and parameters previously established by the competent environmental agency.

Art. 3 The works of water supply systems, sewage systems, drainage systems and urban cleaning systems specified below shall be subject to licensing:

I-In Water Supply Systems.

a) collection works whose flow rate is above 20% (twenty percent) of the minimum flow of the source of supply at the point of collection and which modify the physical and/or biotic conditions of water bodies.

II- In Sanitary sewage systems:

a) trunk collector works;

b) interceptors;

c) lifts;

d) treatment plants;

e) emissaries and,

f) final disposal;

III- In Drainage Systems:

a) effluent release works of micro drainage systems;

b) channel works, dredging and rectification in macro-drainage systems.

IV- Urban Cleaning Systems.

a) transfer unit works, treatment and final disposal of solid waste from domestic, industrial and public sources;

b) activities and works for the collection, transportation, treatment and final disposal of solid wastes of hospital source.

Art. 4 The provisions of this Resolution, apply where applicable to the works already deployed or in deployment, in compliance with the other requirements of the environmental legislation in force by not exempting them, however, of licensing in the cases of expansion.

Art. 5 The criteria and standards for licensing provided for in art. 3 shall be laid down by the competent environmental agency.

Art. 6 The licensing provided for in this Resolution will only become payable after the establishment of criteria and standards by the competent environmental agency who shall have the maximum period of 180 (one hundred eighty) days.

Art. 7. This resolution shall enter into force on the date of its publication, withdrawn otherwise.

JOÃO ALVES FILHO - Council President

This text does not replace the one published in the Official Gazette, of November 16, 1988.

²¹⁴ Decree revoked by Decree 99.274 from June 6, 1990

CONAMA RESOLUTION 9, December 6, 1990
Published in Official Gazette on December 28, 1990, Section 1, pages 25539-25540

Establishes provisions for specific rules for environmental licensing of mineral extraction, classes I, III to IX.

The NATIONAL ENVIRONMENTAL COUNCIL-CONAMA, pursuant to the powers vested on it by article 7, item II, of Decree No. 99,274, of June 6, 1990, for the effective exercise of the responsibilities conferred on it by article 17 of the same Decree, and

Considering the need to edit specific rules for the Environmental Licensing of Mineral Extraction of classes I, III, IV, V, VI, VII, VIII and IX (Decree-Law No. 227, of February 28, 1967)²¹⁵, and bearing in mind the provisions of article 18 of Decree No. 98,812, of 01/09/90, resolves:

Art. 1 The carrying out of mining research, when involving the employment of user guide, shall be subject to licensing by the competent body.

Sole paragraph. The entrepreneur must apply to the competent environmental agency the operating license for mineral research, in the cases referred to in the caput of this article, showing the mineral research plan, with the environmental impact assessment and the mitigating measures to be adopted.

Art. 2 For the entrepreneur to exercise the activities of mining and/or mineral processing of classes I, III, IV, V, VI, VII, VIII and IX, excepted the mining prospecting permission scheme, it shall submit its application for environmental permit to the state environment agency or to IBAMA, when applicable, providing all the technical information about the venture, as provided for in the current environmental legislation, and also meet the provisions of this Resolution.

§ 1 The entrepreneur, when submitting the Report of Mineral Research to DNPM, should be guided by the competent environmental agency on procedures for enabling the environmental licensing

§ 2 The requests for Prior license -LP, Installation License-LI and Operating License – LO should be accompanied by the documents listed in ANNEXes I, II and III of this Resolution, in accordance with the phase of the project, except other additional guarantees from the competent environmental agency.

Art. 3 If the venture needs to be licensed by more than one State, given its location or scope of its area of influence, the state organs should keep prior understanding to, as far as possible, unify requirements.

Sole paragraph. IBAMA is the coordinator between the understandings set out in this article.

Art. 4th The Previous License must be requested to the competent environmental agency, when the entrepreneur should submit the Environmental Impact Studies with the respective Environmental Impact Report, according to CONAMA Resolution No. 1/86, and other necessary documents.

Sole paragraph. The competent environmental body, after examination of relevant documentation, shall decide on the grant of LP.

Art. 5th The Installation License must be requested to the competent environmental agency, when the entrepreneur should submit the Environmental Control Plan-PCA, which will contain the executive projects of minimization of environmental impacts assessed in the phase of LP, accompanied by the other required documents.

§ 1 The competent environmental agency, after the PCA analysis of the venture and of the relevant documentation, shall decide on the granting of LI.

§ 2 The competent environmental agency, after the adoption of the PCA of the venture, shall grant the license.

§ 3 The competent environmental organ shall ask the entrepreneur the authorization of clear-cutting, when applicable.

Art. 6 The granting the mining Ordinance will be subject to the presentation to the DNPM, by the entrepreneur, of the installation license.

Art. 7. After obtaining the mining Ordinance and the implementation of the projects contained in the PCA, approved at the grant of the license, the entrepreneur must apply for the license of operation, presenting the necessary documentation.

§ 1 The competent environmental agency, after checking the implementation of the projects contained in the PCA and the examination of relevant documentation, shall decide on the grant of IT.

§ 2 The competent environmental agency, after verifying the implementation of the projects of the PCA, will grant the operating license.

Art. 8. The competent environmental agency, when denying the granting of the License, in any of its forms, shall notify the fact to the entrepreneur and the DNPM, stating the reasons for the refusal.

Art. 9. Failure to comply with the provisions in this Resolution will impose to offenders the penalties provided for in Law No. 6,938, of 08/31/81 and 7805 of 07/18/89, regulated by Decree 99.274 from 06/06/90 and 98.812, of 01/09/90 and other specific laws

Art. 10. this resolution shall enter into force on the date of its publication, revoking the provisions to the contrary.

JOSÉ A. LUTZEMBERGER – Council President

TÂNIA MARIA TONELLI MUNHOZ-Executive Secretary

²¹⁵ The mineral classification included in the Resolution does not exist anymore since art. 5 of Decree-Law 227 from February 28, 1967, was revoked by Law 9.314, of November 14, 1996

Minerals of classes I, III, VI, V, VI, VII, VIII and IX

ANNEX 1

TYPE OF LICENSE	DOCUMENTS REQUIRED
<p>PREVIOUS LICENSE – LP (planning and feasibility stage of the venture)</p>	<p>1 – Application for LP 2 – Copy of the publication of the application for LP 3 – Certificate from the City Hall 4 – Environmental Impact Studies – EIA and the respective Environmental Impact Report – RIMA, as per CONAMA Resolution 1/86</p>

ANNEX II

TYPE OF LICENSE	DOCUMENTS REQUIRED
<p>INSTALLATION LICENSE – LI (mine development stage, installation of the mining complex, including the mill, and deployment of the environmental control projects)</p>	<p>1 – Application for LI 2 – Copy of the publication of the application for LI 3 – Copy of the publication of the LP granting 4 – copy of DNPM communication considering satisfactory the PAE – Economic Use Planning 6 – License for deforestation issued by the competent agency, when applicable</p>

ANNEX III

TYPE OF LICENSE	DOCUMENTS REQUIRED
<p>OPERATION LICENSE – LP (stage of mining, improvement and monitoring of environmental control systems)</p>	<p>1 – Application for LO 2 – Copy of the publication of the application for LO 3 – Copy of the publication of LO granting 4 – Certified copy of the mining</p>

This text does not replace the one published in the Official Gazette of December 28, 1990.

CONAMA RESOLUTION 10, December 6, 1990
Published in Official Gazette on December 28, 1990, Section 1, page 25541-25540

Establishes provisions for specific rules for licensing mineral extraction, environmental class II.

The NATIONAL ENVIRONMENTAL COUNCIL-CONAMA, pursuant to the powers vested on it by law No. 6,938 dated August 31, 1981, amended by law No. 8028, of April 12, 1990, regulated by Decree No. 99,274, of June 6, 1990, and in view of the provisions in its Internal Rules, and

Considering the need to set out specific criteria for the Environmental Licensing of mineral extraction of Class II²¹⁶ (Decree-Law No. 227, of 02/28/1967), aiming at the better control of this activity as provided for in Laws No. 6.567/76, 6.938/81, 7.804/89 and 7.805/89, as well as in the Presidential Decrees, resolves:

Art. 1 The exploitation of mineral goods of Class II should be preceded by environmental licensing from state environmental agency or from IBAMA, when applicable, in accordance with current legislation and this Resolution.

Sole paragraph. For the application of the Prior License -LP- of installation - LI and Operation – LO the documents listed in ANNEXes I, II, III of this Resolution should be submitted, according to the type of venture and its stage.

Art. 2 If the venture needs to be licensed by more than one State, given its location or scope of its area of influence, the state organs should keep understanding that, to the extent possible, unify the requirements.

Sole paragraph. IBAMA will be coordinator between the understandings set out in this article.

Art. 3 At the discretion of the competent environmental agency, the venture, because of its nature, location, size and other peculiarities, it may be exempted from presentation of the Environmental Impact Studies - EIA and environmental impact report - RIMA.

Sole paragraph. In the case of exemption from submission of EIA/RIMA, the entrepreneur should submit an Environmental Control Report - RCA, prepared in accordance with guidelines to be established by the competent environmental agency.

Art. 4 The Previous License must be requested to the competent environmental agency, at which time the entrepreneur should submit the Environmental Impact Studies with the respective Environmental Impact Report or the Environmental Control Report and other necessary documents.

Sole paragraph. The competent environmental body, after examination of relevant documentation, shall decide on the grant of the LP.

Art. 5 The Installation License must be requested to the competent environmental agency, at which time the entrepreneur should submit the Environmental Control Plan-PCA, which will contain the executive projects of minimization of environmental impacts assessed in the phase of LP, accompanied by the other required documents.

§ 1 The competent environmental agency, after the PCA analysis of the venture and of the relevant documentation, shall decide on the granting of LI.

§ 2 The entrepreneur shall ask the competent environmental agency authorization of clear-cutting, when appropriate.

§ 3 The competent environmental agency after analysis of approval of the Environmental Control Plan - PCA, shall issue the Installation License-LI, communicating to the entrepreneur, who must request the Operating License - LO.

Art. 6 The entrepreneur must present to DNPM the Installation License, for obtaining the Licensing Registration.

Art. 7 After obtaining the Licensing Registration and deployment of the projects included in the PCA, approved at the time of the granting of the License of Installation, the entrepreneur should require the Operation License, presenting the necessary documentation.

Sole paragraph. The competent environmental agency, after checking and verifying the implementation of the projects contained in the PCA and the examination of relevant documentation, shall decide on the granting of the LO, shall decide on the grant of the LO.

Art. 8. The competent environmental agency when rejecting the granting of the permit, in any of its forms, shall notify the fact to the entrepreneur and DNPM, stating the reasons for the rejection.

Art. 9. The failure to comply with the provisions in this Resolution will impose to the offenders the penalties provided for in Law 6.938, of 08/31/81 and No. 7.805, of 07/18/89, regulated by Decree No. 99,274, of 06/06/90 and No. 98,812, of 01/09/90 and other specific laws.

Art. 10. This Resolution shall enter into force on the date of its publication, repealed the provisions to the contrary.

JOSÉ A. LUTZEMBERGER – Council President
TÂNIA MARIA TONELLI MUNHOZ-Executive Secretary

Minerals of Class II

²¹⁶ The mineral classification included in the Resolution does not exist anymore since art. 5 of Decree-Law 227 from February 28, 1967, was revoked by Law 9.314, of November 14, 1996

ANNEX I

TYPE OF LICENSE	DOCUMENTS REQUIRED
PREVIOUS LICENSE – LP	<ul style="list-style-type: none"> • Application for LP • Copy of the publication of the application for LP • Presentation of Environmental Impact Study – EIA and its respective Environmental Impact Report – RIMA or Environmental Control Report

ANNEX II

TYPE OF LICENSE	DOCUMENTS REQUIRED
INSTALLATION LICENSE – LI	<ul style="list-style-type: none"> • Application for the Installation License - LI • Copy of the publication of LI • Copy of the authorization for deforestation issued by IBAMA • License from the City Hall • Environmental Control Plan – PCA • Copy of the publication of the application for LI

ANNEX III

TYPE OF LICENSE	DOCUMENTS REQUIRED
OPERATION LICENSE – LP	<ul style="list-style-type: none"> • Application for Operation License - LO • Copy of the publication of the application for LI • Copy of the publication of LO • Copy of the license registration

This text does not replace the one published in the Official Gazette of December 28, 1990.

CONAMA RESOLUTION 16, December 17, 1993
Published in Official Gazette 250 on December 31, 1993, Section 1, page 21541

Correlations:

- Determines the republication of CONAMA Resolutions No.6, 7 and 8/93
- Ratifies demands contained in CONAMA Resolution No. 18/86

Establishes provisions for the compulsory environmental licensing to specifications, manufacturing, marketing, and distribution of new fuels, and makes other provisions.

The NATIONAL ENVIRONMENTAL COUNCIL-CONAMA, pursuant to the powers vested on it by Law No. 6,938 dated August 31, 1981, amended by law No. 8028, of April 12, 1990, regulated by Decree No. 99,274, of June 6, 1990, and Law n° 8,746, of December 9, 1993, Considering that the provisions of law No. 8,490 of November 19, 1992²¹⁷ and bearing in mind the provisions of its Internal Rules, and

Considering that Law n° 8,723, of October 28, 1993, which provides for the reduction of emission of pollutants by motor vehicles in its article 2, § 9, assigns to the National Council of the Environment - CONAMA the competence to supplement and amend the terms and emission limits for light and heavy vehicles, resolves:

Art. 1 To ratify the emission limits, deadlines and other requirements contained in the CONAMA Resolution No. 18/86, establishing the Program for the Control of Air Pollution by Motor Vehicles-PROCONVE, complemented by CONAMA Resolutions No. 3, of June 15, 1989, no. 4, of June 15, 1989, No. 6, of August 31, 1993, No. 7, of

August 31, 1993 and No. 8, of August 31, 1993, and by IBAMA Ordinance No. 1937, of September 28, 1990.

Art. 2 To determine the republication of Resolutions Nos. 6, 7 and 8, of August 31, 1993, for having been published with inaccuracies.

Art. 3 To make mandatory the Environmental Licensing before IBAMA, for the specifications, manufacturing, marketing and distribution of new fuels and their final formulation for use throughout the country.

Art. 4. This Resolution shall enter into force on the date of its publication.

RUBENS RICUPERO-Council President
SIMÃO MARRUL FILHO -Executive Secretary

This text does not replace the one published in the Official Gazette of December 31, 1993.

²¹⁷ Law revoked by Law 9.649, of May 27, 1998

CONAMA RESOLUTION 23, December 7, 1994
Published in Official Gazette 248 on December 30, 1994, Section 1, pages 21345 21346-

Establishes specific procedures for licensing of activities related to the exploration and mining of liquid fuels and natural gas fields.

The NATIONAL ENVIRONMENTAL COUNCIL-CONAMA, pursuant to the powers vested on it by Law No. 6,938 dated August 31, 1981, regulated by Decree No. 99,274, of June 6, 1990, amended by Decree No. 1,205, of August 1 1994 ²¹⁸and its ANNEX I, and in view of the provisions in its Internal Considering that the need to set specific criteria for environmental licensing in order to better control and environmental management of activities related to the exploration and mining of deposits of natural gas and liquid fuels, in accordance with the legislation in force.

Considering that the activity now called EXPROPER (exploration, drilling and production of Oil and Natural Gas), is of intense dynamism, the time lapse between one phase and another, sometimes imperceptible, resolves:

Art. 2 It is considered as an activity of exploration and mining of deposits of natural gas and liquid fuels:

I- The drilling of wells for identification of quarries and their extensions;

II- The production for research on the economic viability;

III- The effective production for commercial purposes.

Sole paragraph. For the purpose of this Resolution, activity is the deployment and or operation of venture or set of related ventures, located in a defined geographical area.

Art. 3 The exploration and mining of deposits of natural gas and liquid fuels will depend on prior environmental license in accordance with this Resolution.

Art. 4 The venture shall articulate with the official indigenous body, which will issue guidelines for the development of activities, when they are planned for areas near the indigenous areas.

Art. 5 The State Environmental Bodies and IBAMA, when appropriate, when exercising their powers of control of the activities described in article 2, shall issue the following licenses:

I-PRELIMINARY LICENSE FOR DRILLING-LPper, authorizing the drilling activity and introducing, the entrepreneur, to the provision of this act, the Environmental Control Report - RCA, of the activities and the demarcation of the area of intended operation;

II-PRODUCTION LICENSE FOR RESEARCH-LPpro, authorizing the production for research of the economic viability of the field, by introducing, the entrepreneur, to the provision of this act, the Environmental Feasibility Study-EVA;

III-INSTALLATION LICENSE-LI, authorizing, after the approval of EIA or RAA and contemplating other environmental studies in the area of interest, the installation of units and systems necessary for production and outflows;

IV-OPERATING LICENSE - LO, authorizing, after the adoption of the Environmental Control Project-PCA, the beginning of the operation of the venture or of units, facilities and systems composing the activity in the area of interest.

Art. 6 For the issuance of the licenses described in the previous article, the competent environmental agency shall use the following instruments:

I-ENVIRONMENTAL IMPACT STUDY - EIA and respective RIMA, in accordance with the general guidelines established by CONAMA Resolution n° 1, of January 23, 1986;

II-ENVIRONMENTAL CONTROL REPORT - RCA, prepared by entrepreneur, containing the description of the drilling activity, environmental hazards, identification of impacts and mitigating measures;

III-ENVIRONMENTAL FEASIBILITY STUDY-EVA, prepared by the entrepreneur, containing production development plan for the desired search, with environmental assessment and control measures to be adopted;

IV-ENVIRONMENTAL ASSESSMENT REPORT - RAA, prepared by the entrepreneur, containing environmental diagnosis of the area where the activity is already deployed, description of new developments or extensions, identification and evaluation of environmental impacts and mitigating measures to be adopted, considering the introduction of other ventures;

V-ENVIRONMENTAL CONTROL PROJECT-PCA, prepared by entrepreneur, containing the executive projects of minimization of environmental impacts evaluated in stages of LPper, LPpro and LI, with their respective documents.

Art. 7 The documents required for licensing referred to in article 5 are:

I-PRELIMINARY LICENSE FOR DRILLING-LPper:

- Application for Prior License for Drilling -LPper;
- Environmental Control Report - RCA
- Authorization of clear-cutting, when applicable, issued by IBAMA.
- Copy of the publication of the application for LPper.

II-PRIOR LICENSE FOR PRODUCTION FOR RESEARCH-LPpro:

- Application for a Production Prior License for Research-LPpro;
- Environmental Feasibility Study-EVA;
- Authorization for clear-cutting, when applicable, issued by IBAMA.
- Copy of the publication of the application for LPpro.

III-INSTALLATION LICENSE-LI:

²¹⁸ Decree revoked by Decree 2.619 from July 5, 1998

- Application for Installation License-LI;
- Environmental Assessment Report-RAA or Environmental Impact Assessment - EIA;
- Other relevant environmental studies, if any;
- Authorization of clear-cutting, when applicable, issued by IBAMA.
- Copy of the publication of LI's application.

IV-OPERATING LICENSE - LO:

- Application for Operating License - LO;
- Environmental Control Project-PCA;
- Copy of the publication of the application for LO.

Art. 8. The competent environmental agency, in conjunction with the entrepreneur will set Terms of Reference for the preparation of the RCA, EIA or RAA.

Art. 9 The entrepreneur shall request to the competent environmental agency, the authorization for deforestation, when applicable

Art. 10. The installation license must be requested to the competent environmental agency, when the entrepreneur should submit the EIA and the respective RIMA, if the venture is being planned for the area where the activity is not deployed, or RAA for the area where the activity is already deployed.

Art. 11. If the deployed activity is subject to regularization, the RAA should also contemplate all ventures located in the area, the existing environmental impact and the control measures adopted so far.

Sole paragraph. The approval of RAA, in the form described in the caput of this article, shall be sufficient for the competent environmental agency give the LO of the deployed activity, which shall equally apply to each of the ventures involved.

Art. 12. The licenses described in article 5 shall contain the expiry date, after which the competent environmental agency may renew them at the request of the entrepreneur.

Art. 13. This Resolution shall enter into force on the date of its publication.

Art. 14. The provisions to the contrary are hereby revoked.

HENRIQUE BRANDÃO CAVALCANTI-Council President
ROBERTO SERGIO STUDART WIEMER-Deputy Executive Secretary

This text does not replace the one published in the Official Gazette, of December 30, 1994.

CONAMA RESOLUTION 264, August 26, 1999
Published in Official Gazette 54 on March 20, 2000, Section 1, pages 80-83

Regulates the licensing of rotation ovens for the production of clinker and the co-processing of wastes

The NATIONAL ENVIRONMENTAL COUNCIL-CONAMA, pursuant to the powers vested on it by Law No. 6,938 dated August 31, 1981, regulated by Decree No. 99.274, of June 6, 1990, changed by Decree No. 2,120, of January 13, 1997²¹⁹ and bearing in mind the provisions of its Internal Rules, and

Considering the need to define procedures, criteria and specific technical aspects of environmental licensing for the co-processing of waste in rotary kilns of clinker, for cement manufacturing cement, resolves:

CHAPTER 1
General Provisions

Art. 1 This Resolution applies to licensing of rotary kilns, clinker production for co-processing of waste, except the raw household waste, health care waste, the radioactive, explosive, organ chlorides, pesticides and the like.

Art. 2 The co-processing of waste must meet the technical criteria set out in this Resolution, complemented, where necessary, by the competent Environmental Bodies, in order to meet the regional and local peculiarities.

Art. 3 The license applications for o the waste co-processing in cement factories already installed will only be considered if these are properly licensed and environmentally adjusted.

Art. 4 The amount of waste generated and/or stocked, should be enough to justify its use as partial substitute of raw material and/or fuel, in clinker production oven system, after the completion and approval of the Burning Test.

Art. 4 The amount of waste generated and/or stocked, should be enough to justify its use as partial substitute of raw material and/or fuel in clinker production oven system, after the completion and approval of the Burning Test.

Art. 5 Waste co-processing in kilns for clinker production is expected to be done in order to ensure the maintenance of environmental quality, prevent damage and health risks and meet the emission standards laid down in this Resolution.

Art. 6 The final product (cement) resulting from the use of waste in the co-processing in clinker kilns, must not add substances or elements in such quantities that can affect human health and the environment.

Art. 7 Imported clinkers and cements must comply with the provisions in the caput of art. 5 and in sub item VIII of art. 15, of this Resolution.

CHAPTER II
On The Procedures

Section I
The basic criteria for the use of waste

Art. 8, Wastes that can be used as a substitute for raw material and or fuel are considered, for the purposes of co-processing in kilns, clinker production, provided that the conditions of the process ensure compliance with technical requirements and the parameters set out in this Resolution, from proven from practical results of the proposed Burning Test plan.

§ 1. The waste can be used as a raw material substitute for provided that it has characteristics similar to those of the components normally used in the production of clinker, including in this case the mineralizers and/or melting materials.

§ 2 The residue can be used as a substitute fuel for reuse of energy, provided that the energy gain is proven.

Section II
Environmental Licensing

Art. 9 The Previous, Installation and Operation Licenses for the waste co-processing in kilns for clinker production will be previously requested to the competent Environmental Agencies, following the criteria and procedures laid down in the legislation in force.

§ 1 For the new sources, Prior, Installation and Operation licenses may be issued covering together the activities of production of cement and the co-processing of waste in the kilns for clinker production..

§ 2 For existing sources, already licensed for the production of cement, the particular environmental licensing for co-processing will only be granted when the industrial unit, where the clinker kiln is located, has run all the control measures provided for in its Operating License.

§ 3 The licensing process will be technically well founded on the basis of studies listed below, which shall be submitted by the person concerned:

²¹⁹ Decree revoked by Decree 3.942 from September 27, 2001

- I Feasibility Study of Burns EVQ;
- II- Blank Test plan;
- III- Blank test report;
- IV- Burning test Plan-PTQ;
- V- Burning Test Report; and
- VI- Risk Analysis.

Section III Burning Feasibility Study - EVQ

Art. 10. The EVQ will be submitted to the Environmental Agency and shall contain at least the following information:

- I- data on cement plant (name, address, status with respect to the environmental licensing);
- II. purpose of use of waste; and
- III-data on waste:
 - a) short description of the process that generates waste and simplified flowchart indicating the point of its generation;
 - b) quali-quantitative characteristics of waste containing:
 - 1. physical state of waste;
 - 2. quantity generated and stored;
 - 3. lower calorific value;
 - 4. viscosity, in case of liquids;
 - 5. likely composition of the waste;
 - 6. content of heavy metals, total chlorine, and sulphur chlorides;
 - 7. ash content and moisture;
 - 8. classification of the waste according to Standard ABNT-NBR-10,004; and
 - 9. description of the waste storage system;
 - IV-description of process/equipment, including:
 - a) description of the production process inherent to the oven and productive process flowchart with indication of the feeding points (raw material and fuel), as well as profile of temperatures;
 - b) features and specifications of the equipment used in the production of clinker;
 - c) lay-out of equipment;
 - d) description of the proposed system of waste feeding;
 - e) oven selected for burning;
 - f) residence time for gases and solids, with memory of calculation;
 - g) features and specifications of the equipment that will be modified or added to those initially existing;
 - and
 - h) schematic design including modifications, with indication of the sampling points and parameters to be monitored.
 - V-in relation to raw material:
 - a) list of raw materials used in the production of clinker and its physical and chemical characteristics;
 - b) description of feeding systems and homogenization of raw materials;
 - c) feed rate (t/h); and
 - d) description of the process for refeeding/discarding of particulate retained in air pollution control equipment.
 - VI-in relation to fuel:
 - a) characterization of fuels (type, lower calorific value and sulphur content) and consumption (t/h); and
 - b) description of fuels feeding systems, as well as an indication of the proportion of fuels in the primary and secondary burners.
 - VII-as regards pollution control equipment-ECP:
 - a) description of ECPs for gaseous effluents;
 - b) description of the monitoring system of gaseous emissions; and
 - c) description of sampling and monitoring procedures, including frequency and listing of all monitored parameters.
 - VIII. other information that are deemed necessary.

Section IV Blank test

Art. 11. After approval of the Burning Feasibility Study - EVQ, the environmental agency will examine the Blank Test Plan and will approve the Blank Test to evaluate the environmental performance of the cement plant without the co-processing of waste.

Art. 12. Prior to the Blank Test, the interested undertaking shall submit for approval to the Environmental Agency, the Blank Test Plan, including the minimum requirements for test execution, covering the following items:

- I-period predicted for the Blank Test, with the monitoring by the technicians of the Environmental Agency;
- II-description and effectiveness of air pollution control equipment;

III-description of the self-monitoring plan of the process including inter alia the location of sampling points, parameters sampled in these points, periodicity of sampling;

IV-methods of sampling collection and analysis to be employed, with the respective limits of detection: the collections should be made in triplicate, and the minimum time of collection for particulate matter of two hours;

V-operation capacity of the unit during testing: the plant should operate at the capacity planned for co-processing, which must be maintained for the duration of the Blank Test and, subsequently, those of burning of waste, with an acceptable variation of up to ten percent;

VI-operational parameters that will be monitored in the process: includes feeding rates (of fuel, raw materials and recirculated particulate matter), operating control equipment, with the respective limits of detection (continuous pressure and temperature monitors of the oven and temperature system at the entrance of air pollution control equipment, CO and O₂ emissions);

VII. evaluation of air emissions for the following parameters: particulate matter, SO_x, NO_x, HCl/Cl₂, HF and inorganic substances and elements listed in arts. 28, 29 and 30 of this Resolution; and

VIII - qualitative-quantitative analysis of the elements and inorganic substances present in the dust retained in pollution control equipment.

Art. 13. After the Blank Test, the company shall submit to the Environmental Agency the conclusive report of the test, including the verification of the items laid down in the Blank Test Plan.

Sole paragraph. The Blank Test approval means that the facility meets the requirements of the Environmental Agency and is qualified to submit a Burning Test Plan – PTQ and the company is not authorized to burn waste and even to submit it to Burning Tests.

Art. 14. If the facility does not meet the requirements laid down in the Blank Test, the burning of any residue is forbidden.

Section V The Burning Test Plan-PTQ

Art. 15. The following must be included in the content of the Plan:

I-the objective of the test;

II-production process flowcharts, with indication of the feeding points, description and capacity of feeding systems (raw material, fuel and waste), as well as the temperature profile of the system;

III-description of the oven's equipment system:

a) manufacturers' names;

b) types and description of the components of the system; and

c) maximum capacity of design and rated capacity;

IV-description of each power supply current:

a) raw materials:

1. list of raw materials;

2. physical and chemical characteristics;

3. basic compositions including organic matter and ash content; and

4. feeding rates

b) residue:

1. origin, amount produced and stocked;

2. lower calorific value, probable composition, elementary composition and identification and quantification of substances eventually present, evaluated based on process

That generated waste and included in four and five and six lists of ABNT NBR-10004;

3. desired feed rate;

4. the levels of metals;

5. total chlorine/ chloride levels;

6. levels of fluorides, sulfur, ash and moisture;

7. selection of the "Main Hazardous Organic Compounds-PCOPs"; and

8. description of procedures for mixture of wastes prior to burning.

c) fuels:

1. type;

2. Lower Calorific Power -PCI;

3. sulphur, ash and moisture content; and

4. consumption (mass/time).

V-Proposed operating conditions for the Burning Test, including residence time for gases and solids, with memories of calculation;

a) for the case of waste feeding in a point that is not the end of the highest temperature of rotary kiln, it must be shown that there will be conditions suitable and sufficient of residence time, temperature and O₂ concentration, at the route of the gases from the waste feeding point, to ensure the level of destruction efficiency of PCOP(s) set;

b) for the feeding of waste in batch scheme (in cans, canisters, packages, or without prior communication of larger quantities-as, possibly, in the case of tyres), the volume of each batch and the frequency of its feedings should be established to ensure that the rapid volatilization of compounds introduced into the system does not promote reductions in concentrations of O₂, below of which it is committed the process efficiency of thermal destruction of these compounds.

VI - description of the system of control of air emissions, its equipment and their operational conditions;

VII-description of the final destination of the waste generated in the air emission control system: if there are steps of treatment of this system that generate liquids effluents, describe their equipment and operations, their parameters and operating conditions and their proposed monitoring for these wastewater treatment systems. The same applies to the liquid effluents generated in floor cleaning operations and equipment as well as contaminated rainwater;

VIII-description of the analysis and quality control of cement clinker under the environmental point of view;

IX-description and schematic drawings of location of all metering and collecting points of samples for unit monitoring and emission control systems and description of these data management systems;

X-list of parameters to be monitored in the operation of the oven system, at all stages of co-processing, equipment used in monitoring;

XI-list of parameters to be monitored at all stages of the process, including, inter alia, methodologies and data collection and analysis equipment, its detection limits, frequencies of sampling data collection and measurements to: fuels, raw materials, waste and recycling and disposal flow (particulate matter, solid waste generated, waste gases and liquid effluents);

XII-interlock system description of the conditions in which occur the interruption and resumption of feeding of waste;

XIII-estimation of emission levels resulting from the adoption of the desired feed rate, based on mass balance, contemplating the input data (raw material, fuel, waste and recycles) and outlet (clinker, exhaustion gases, particulate matter retained in the ECP and particulated in gases emitted into the atmosphere);

XIV-burning test schedule;

XV-identification of the technicians involved in the test, including responsibilities and qualifications, and all documents submitted must be signed by authorized professional, indicating the number of the registration with the Professional Class Council.

Art. 16. After the adoption of the PTQ the interested shall fix the date for the Burning Test, in common agreement with the Environmental Agency, who will monitor all operations of the test as well as the control and inspection for the release of lots of waste and transport of these lots

Art. 17. The waste cannot have its composition and its contaminant concentrations changed, either by addition or replacement of residue and/or contaminant or, if applicable, new EVQ and PTQ, relating to the new condition, must be drawn up.

Art. 18. It may be predicted the holding of a "burning pre-test", which must be approved by the Environmental Agency, so that the necessary adjustments are made regarding conditions of waste food to be tested.

Art. 19. At the end of the period requested for the pre-test, the Environmental Agency must be notified of possible changes in the Burning Test Plan.

Section VI The Burning Test

Art. 20. At the beginning of the Firing Test the interlocking system should be tested to automatically interrupt the waste feeding.

Art. 21. During the Burning Test, the installation should operate under the same operating conditions verified during the Blank Test, as per item V of art. 12.

Art. 22., The same pollutants evaluated in the Blank Test should be sampled in the gaseous effluent, in addition to the Main Hazardous Organic Compounds-PCOPs.

Art. 23. Collections shall be carried out in triplicate, with the minimum time of collection for the particulate matter of two hours, and the emission limits for waste gases, according to arts. 28, 29 and 30 of this Resolution.

Art. 24. The prerequisites for the test of Burning are:

I – to have the Burning Test plan approved by the competent Environmental Agency;

II- the Burning Test should not present a significant risk of any kind to public health and the environment;

III-to have installed, calibrated and in working condition, at least, the following continuous monitors and their recorders: CO, O₂, temperature and system pressure of furnace system, waste feed rate and operational parameters of ECPs;

IV- to have installed and in operating condition an interlocking system to automatically interrupt the waste feeding, in the following cases:

a) emission of pollutants continuously monitored, above the limits laid down in this Resolution;

c) positive pressure on oven;

d) power failure or sudden drop in voltage;

e) fall of the O₂ content in the system;

f) malfunction of the monitors and recorders of temperature, O₂, CO or THC and interruption of the functioning of the ECP; or

g) electrostatic precipitator inlet temperature exceeding two hundred degrees Celsius.

V- to have installed and running a waste feeding system, under conditions of security and operability.

Section VII

Criteria for the Selection of the Main Hazardous Organic Compounds - PCOPs

Art. 25. The selection of PCOPs should be based on the degree of difficulty of destruction of organic constituents of the waste, its toxicity and concentration in the waste.

Art. 26. The Destruction and Removal Efficiency-EDR of PCOPs, must be at least ninety-nine, ninety-nine percent.

Art. 27. For confirmation of EDR, the feed rate of the PCOP (s) selected should be compatible with the detection limits of the methods of sampling and analysis of atmospheric emissions.

Section VIII Emission limits

Art. 28. The waste co-processing in clinker kilns must observe the ceilings of air emission ceilings laid down in table 1, respecting the following:

I-maximum emissions of clinker kilns for co-processing, both in the Blank Test and in the Burning Test, shall not exceed the Emission Ceilings in of Table 1.

II-the limit of 100 ppmv may be exercised provided that the measured values of THC do not exceed 20 ppmv, in terms of hourly average and that the top limit of CO of 500 ppmv is not exceeded, corrected to seven per cent of O₂ (dry basis), in any Instant; and

III-the CO limit for the waste feeding interlock shall be set from the Burning Tests established on the basis of hourly averages and continually corrected at seven percent of O₂ (dry base gas).

Table 1-Emission Ceilings

Pollutant	Emission Ceilings
HCL	1,8 kg/h or 99% of reduction
HF	5 mg/Nm ³ corrected at 7% of O ₂ (dry base)
CO*	100 ppmv corrected at 7% of O ₂ (dry base)
MP	70 mg/Nm ³ dry flour corrected at 11% of O ₂ (dry base)
THC (expresses as propane)	20 ppmv corrected at 7% of O ₂ (dry base)
Mercury (Hg)	0,05 mg/Nm ³ corrected at 7% of O ₂ (dry base)
Lead (Pb)	0,35 mg/Nm ³ corrected at 7% of O ₂ (dry base)
Cadmium o (Cd)	0,10 mg/Nm ³ corrected at 7% of O ₂ (dry base)
Thallium (TI)	0,10 mg/Nm ³ corrected at 7% of O ₂ (dry base)
(As+Be+Co+Ni+Se+Te)	1,4 mg/Nm ³ corrected at 7% of O ₂ (base dry base)
(As+Be+Co+Cr+Cu+Mn+Ni+P b+Sb +Se+Sn+Te+Zn)	7,0 mg/Nm ³ corrected at 7% of O ₂ (dry base)

*Concentrations of CO in the chimney may not exceed 100 ppmv in terms of hourly average.

Art. 29. The emission limits of pollutants may be more restrictive, at the discretion of the local Environmental Agency, on the basis of the following factors:

I-atmospheric pollutants dispersion capacity, taking into account climatic and local relief; or

II-industrial occupation intensity and values of air quality in the region.

Art. 30. The emission limits for SO_x and NO_x parameters must be set by the competent Environmental Agencies taking into account the regional peculiarities

Section IX Environmental Monitoring

Art. 31. self-monitoring reports will be forwarded to the competent Environmental Agency in accordance with the frequency required.

Art. 32. The waste feed rate, set in the Burning Test must be controlled through systematic evaluation of the monitoring of emissions from clinker production furnaces that use waste as well as the environmental quality in the area of influence of the project.

Art. 33.The following parameters should be monitored on an ongoing basis: internal pressure, temperature system oven and gas at the entrance of the electrostatic precipitator, power flow of waste particulate material (through the opacimeter), O₂, CO, NO_x and/or THC when necessary.

Art. 34. The following parameters should be monitored, on a non-continuous way: SO_x, PCOPs, HCl/Cl₂, HF, elements and inorganic substances listed in arts. 28, 29 and 30 of this Resolution. And

Art. 35. The monitoring of any other pollutants with emission potential may be required at the discretion of the competent Environmental Agency.

Art. 36. The control of the characteristics of the waste must be done through non continuous sampling, based on the analysis of the following parameters: PCOPs, inorganic substances and elements, sulfur, fluorine, nitrogen and chlorine series.

Art. 37. The monitoring of effluents should obey the parameters laid down in the relevant legislation.

Art. 38. Environmental monitoring of the area surrounding should be defined on a case by case basis, based on the evaluation of risks to human health, the environment and the resulting from non-accidental emissions.

Section X

Mixing Units and Preconditioning of Waste

Art. 39. The Mixing and Preconditioning Unit of Waste are subject to licensing by the competent Environmental Agency and, thus, should present the following information:

I-name (business name), address and location of the facility;

II-description of the main products or services rendered;

III-plan, to scale, showing the location of reception areas, laboratories, storage, handling and/or waste disposal, as well as the locations for future areas of handling, storage and disposal;

IV - description of procedures for reception, sampling and analysis, storage, handling and disposal of waste generated;

V-characterization and classification of incoming waste, quantification of each residue and a general description of the procedures for each one;

VI - reports of chemical and physical analyses of each residue and copy of the analysis plan, which must be duly signed by a technician;

VII-description of the safety equipment and procedures;

VIII-contingency plan;

IX-description of the procedures, structures or equipment to be used in the unit to prevent:

a) discharging operations risks;

b) leaks in the areas of handling of hazardous waste to adjoining areas or to the environment;

c) risks of flooding;

d) effects caused by equipment failures and interruption of electricity supply;

e) undue exposure of people to solid wastes; and

f) release of gases into the environment.

X-description of measures for prevention of accidental ignition or inflammable waste reactions, reactive or incompatible;

XI-description of internal transport of waste, including indication in internal traffic routes plant;

XII-closure plan of activities and, if applicable, after-closure; and

XIII-projects of liquid effluent treatment systems, if applicable.

Art. 40. The responsible for the unit should register all abnormality involving spillage or leakage of waste, as well as providing, at the discretion of the Environmental Agency competent, study for evaluation of potential damage to the environment.

Art. 41. The reception of waste should be documented, with records that will be made available to the competent Environmental Agency.

Section XI

Personnel Training Plan

Art. 42. The personnel involved with the operation of the mixing units, preconditioning and co-processing of waste should receive specific periodic training with regard to the processing, handling and use of waste, as well as on procedures for emergency and abnormal situations during the process.

Section XII

Procedure for Waste Reception Control

Art. 43. The wastes to be received by and/or mixing unit by installation responsible for its use must be previously evaluated for determination of its physicochemical properties and record the following information:

I-the origin and the characterization of waste;

II-methods of sampling and analysis used, with respective detection limits, According to the current regulations;

III-the parameters analyzed at each residue; and

IV-incompatibility with other wastes.

Art. 44. the tests must be repeated, as necessary, to ensure the reliability of the characterization of waste.

Section XIII

Storage and Transport of Waste and Risk Analysis

Art. 45. The waste should be stored in accordance with the legal provisions in force.

Art. 46. The transport of waste of mix of waste for co-processing units should be carried out in accordance with the legal provisions in force.

Art. 47. The Risk Analysis Study will integrate the Environmental Licensing Process and will be carried out by the entrepreneur according to the procedures and standards set by the competent Environmental Agency, including assessment of the risks arising from accidental emissions as emissions are not accidental.

Section XIV

Final Provisions

Art. 48. For the purposes of the provisions of this Resolution the definitions set out in ANNEX I are adopted.

Art. 49. This Resolution shall be reviewed within three years from its publication.

Art. 50. This Resolution shall enter into force on the date of its publication.

JOSE SARNEY FILHO – Council President
JOSÉ CARLOS CARVALHO-Executive Secretary

ANNEX I DEFINITIONS

Clinker: cement basic component, basically made of tricalcium silicate, dicalcium silicate, tricalcium aluminate and tetracalcium ferro-aluminate

Primary fuel: fuel fed by main oven torch/burner in the primary combustion area, being commonly used coal, oil

or gas.

Secondary fuel: fuel fed into the secondary combustion zone, and may be used, in addition to the primary fuels, other alternatives, such as: rice husk and sawdust, among others.

Co-processing waste into clinker production ovens: use of industrial solid waste from processing such as partial substitute of raw material and fuel system or furnace clinker production in cement manufacturing

Pollution control equipment-ECP: equipment intended to control atmospheric emissions from industrial operations.

Feasibility study of Burning-EQV: theoretical study that seeks to assess the compatibility of the residue to be co-processed with the operational characteristics of the process and the environmental impacts of this practice.

Flour: intermediate product for the production of clinker, composed primarily of calcium carbonate, silica, alumina and iron oxides, obtained from raw materials such as limestone, clay and others.

Rotary kiln for clinker production: rotating cylinder, inclined and internally coated with refractory material, internal flame, used to convert basically calcium compounds, silicon, aluminum and iron mixed in proportion final product called clinker.

Environmental monitoring: Continuous assessment of emissions from clinker production ovens that co-process waste, as well as of the environmental quality in the area of influence of the project.

Burning Test Plan - PTQ: Plan that includes data, calculations and procedures related to the operations of co-processing proposed for waste.

Pre-heater: Oven system site comprising a set of cyclones, where the flour is fed, being preheated and partially burned by the stream of hot gases from the rotary kiln in counterflow.

Pre-calcination: Secondary burning device where occurs a pre-calcination of raw material.

Major hazardous organic compounds-PCOPs: Hazardous organic substances of difficult thermal destruction.

Waste: Those in solid, semi-solid states and those liquids not susceptible of conventional treatment, resulting from human activities. It is also established that the term waste comprises a single type of residue or mixture of various for co-processing.

Oven system: System composed of a set of equipment involving the steps of heating, roasting and final production of clinker, consisting basically of rotary kiln, preheater, pre-calcinatory and cooler.

Burning test: Set of measurements performed in the operating unit with waste feeding, to assess the compatibility of the operating conditions of the clinker production facility meeting the emission limits set out in this Resolution and with the technical requirements laid down by the Environmental Agency.

Blank test: Set of measurements performed in the oven in normal operation, operating without waste feeding, for assessment of the operational conditions of clinker production unit and the technical requirements laid down by the Environmental Agency.

Mixing units and preconditioning of waste: The Units for the preparation and or mixture of various waste, resulting in a product with certain characteristics, to be used for co-processing.

Primary combustion zone: Rotary kiln where primary fuel burning occurs, in order to provide the temperature of the material in kilns, in the order of 1500° C-1400° c.

Secondary combustion zone: Oven system site where it occurs the secondary fuel burning in the temperature range of 850° C to 1200° C, pre-calcination.

Burning zone: Place of the oven where the reactions of kilns occur.

This text does not replace the one published in the Official Gazette, of March 20, 2000.

CONAMA RESOLUTION 273, November 29, 2000
Published in Official Gazette 5 on January 8, 2001, 5, Section 1, pp. 20-23

Correlations:

- Amended by CONAMA Resolution No. 276/01 (amends article 6 § 1)
- Amended by CONAMA Resolution No. 319/02 (amends articles 3 and 9)

*Establishes directives for the granting of environmental licenses to fuel service stations and
Establishes provisions for the control and prevention of pollution.*

The NATIONAL ENVIRONMENTAL COUNCIL-CONAMA, pursuant to the powers vested on it by law No. 6,938 dated August 31, 1981, regulated by Decree No. 99,274, of July 6, 1990, and bearing in mind the provisions of CONAMA Resolution No. 237, of December 19, 1997 and in its Internal Rules, and

Considering that all storage systems and installation of petroleum and other fuels, are potentially ventures or partially polluters and generators of environmental accidents;

Considering that the leaks of petroleum products and other fuels may cause contamination of surface and underground water bodies, soil and air;

Considering the risks of fire and explosion arising from these leaks, mainly, by the fact that part of these establishments are located in densely populated areas;

Considering that the occurrence of leaks has significantly been increasing in recent years because of inadequate or insufficient maintenance, system and equipment obsolescence and the lack of staff training;

Considering the lack and/or use of reliable systems for the detection of leaks;

Considering the inadequacy and ineffectiveness of responsiveness to these occurrences and, in some cases, the difficulty of implementing the necessary actions, resolves:

Art. 1 The location, construction, installation, modification, expansion and operation of reselling stations, gas stations, retail systems facilities and floating fuel stations will depend on prior licensing by the competent environmental agency, without prejudice to any other legally required licenses.

§ 1. all projects of construction, modification and expansion of the enterprises referred to in this article shall, obligatorily, be conducted according to technical standards issued by the Brazilian Association of Technical Standards-ABNT and by directives established in this Resolution or by the competent environmental agency.

§ 2 In the case of deactivation, establishments are required to submit a closure of activities plan to be approved by the competent environmental agency.

§ 3 Any change in ownership of the enterprises mentioned in the caput of this article, or in their equipment and systems, should be reported to the competent environmental agency, with a view to update the information in the environmental license.

§ 4 For the purposes of this Resolution, are exempted from licensing the air facilities with a total capacity of storage of up to fifteen m³, inclusive, intended exclusively for the supply of the owner of the premises, and shall be constructed in accordance with the Brazilian technical standards in force, or in the absence thereof, internationally accepted standards.

Art. 2 For the purposes of this Resolution, the following definitions are adopted:

I- Reseller Station-PR: facility where resale retail activity of petroleum liquid fuels, derivatives from petroleum, alcohol and other automotive fuels is performed, containing equipment and systems for automotive fuels and meter equipment storage.

II-Gas station-PA: facility with equipment and systems for the storage of automotive fuel, with volume recorder suitable for the supply of mobile equipment, land motor vehicles, aircrafts, watercraft or locomotives; and whose products are intended solely for the use of the owner of the premises or of closed groups of individuals or legal entities, previously identified and associated companies in the form of condominiums, cooperatives, companies, clubs or the like.

III-Retail System Facility - ISR: facility with tanks for storage of diesel oil, and/or fuel oil, and/or illumination kerosene, intended for the exercise of the activity of Carrier Retail Dealer.

IV-Floating Station - PF: Every unpowered vessel used for the storage, distribution and sale of fuels that operates on a fixed and determined location.

~~Art. 3 Equipment and systems intended for the storage and distribution of automotive fuels, as well as their assembly and installation should be evaluated as to their compliance under the Brazilian System of Certification.~~

Art. 3 Equipment and systems intended for the storage and distribution of automotive fuels, as well as their assembly and installation should be evaluated as to their compliance, in the context of the Brazilian System of Conformity Assessment.

(new wording given by Resolution No. 319/02)

~~Sole paragraph. Prior to start-up and at intervals not exceeding five years, the equipment and systems, referred to in the caput of this article, shall be tested and tried for evidence of the absence of flaws or leaks, according to standardized procedures, in order to enable evaluation of their compliance, under the Brazilian Certification System.~~

Sole paragraph. Prior to start-up and at intervals not exceeding five years, the equipment and systems, referred to in the caput of this article shall be tested and tried for evidence of the absence of flaws or leaks, according to standardized procedures, in order to enable evaluation of their compliance, under the Brazilian System of Conformity Assessment.

(new wording given by resolution No. 319/02)

Art. 4 The competent environmental agency will require the following environmental licenses:

I-Prior License-LP: granted in the preliminary stage of planning of the enterprise by adopting its location and design, certifying the environmental sustainability and establishing the basic requirements and conditions to be met in the coming phases of their implementation;

II-Installation License-LI: authorizes the installation of the venture with the specifications contained in the approved plans, programs and projects, including environmental control measures and other conditions which constitute reason determinant;

III- Operating License- LO: authorizes the operation of the activity, after the verification of effective compliance with the previous licenses, with the environmental control measures and conditions determined for the operation.

§ 1 The Prior and Installation licenses may be issued at the discretion of the competent environmental agency.

§ 2 The establishments defined in art. 2 that are in operation on the date of publication of this Resolution, are also obliged to obtain operating license.

Art. 5 The competent environmental agency will require for the environmental licensing of establishments referred to in this Resolution, at least the following documents:

I-For issue of Prior and Installation Licenses:

a) basic project which must specify equipment and monitoring systems, protection, leak detection system, drainage systems, storage tanks of petroleum and other fuels for automotive purposes and accessories according to ABNT standards and guidelines set by the environmental agency jurisdiction;

b) Statement from the municipal government or the Government of the Federal District that the location and the type of venture or activity are in accordance with the master plan or similar.

c) sketch of the location of the project, indicating the situation on the ground in relation to the receiver body and watercourses and identifying the effluent release point of domestic water and residual after treatment, types of vegetation and its surroundings, as well as contemplating the characterization of existing buildings within a radius of 100 m with emphasis on the existence of medical clinics, hospitals, road system, multifamily dwellings, schools, industries and merchants;

d) in the case of floating station, submit certified true copy of the document issued by the port authority, authorizing its location and operation and containing the geographical location of the station in the respective watercourse;

e) hydrogeological characteristics with definition of the direction of groundwater flow, identification of recharge areas, location of capture wells intended for public or private supply registered with competent organs until the date of issue of the document, in a 100 m radius, considering the possible interference of the activities with surface and underground water bodies;

f) geologically characteristics of the region's ground where the venture is located with soil analysis, including soil permeability and the potential for corrosion;

g) classification of the surrounding area of establishments that use the Underground Fuel Storage System-SASC and framing of this system, according to NBR-13,786;

h) detailing the type of treatment and effluent control from tanks, pump areas and areas subject to leakage of oil or oily waste;

i) estimates, in the project, of materials for meeting CONAMA Resolution No. 9, of 1993²²⁰, which regulates the collection and proper disposal of lubricating oil used.

II-for issuing operating license:

a) equipment maintenance plan and operational systems and procedures;

b) incident response plan containing:

1. statement of occurrence;
2. immediate actions envisaged; and
3. institutional coordination with the competent organs;

c) certificate of inspection of the Fire Department;

d) personnel training program in:

1. operation;
2. maintenance; and
3. incident response;

e) registration of the application for authorization for use in the National Petroleum Agency-ANP;

f) certificates issued by the National Institute of Metrology, Standardization and Industrial Quality-INMETRO or an entity accredited thereby, attesting conformity as for manufacturing, assembling and commissioning of equipment and systems provided for in art. 4 of this Resolution;

g) for installations in operation defined in art. 2 of this Resolution a certificate issued by INMETRO or by an entity accredited thereby, certifying that there are no leaks.

§ 1. The establishments defined in art. 2 that are in operation on the date of publication of this Resolution. For the obtaining Operating License. must submit the documents referred to in this article, in its section I, sub items "a" to "b" (which could be replaced by License to Operate), "d", "g", "h," i ", and sub item II, and the outcome of the investigation of environmental liabilities, when requested by the environmental licensing organ.

§ 2 The establishments covered by this Resolution are prohibited from using tanks recovered in underground installations-SASCs.

Art. 6 It is up to the competent environmental agency to set the agenda for the environmental licensing of ventures identified in art. 1 in operation on the date of publication of this Resolution.

²²⁰ Resolution revoked by Resolution No. 362/05

§ 1. All ventures must, within six months from the date of publication of this Resolution, register itself with the competent environmental agency. The minimum information for the registration are those contained in ANNEX I of this Resolution.

(deadline extended for a further 90 days by Resolution No. 276/01)

§ 2 When the period of registration expires, the competent organs will have six months to draft their schedules and environmental licensing criteria, resulting from the assignment of priorities based on the registration information.

Art. 7 It will be up to the environmental licensing agency exercise supervision of the ventures activities in accordance with its competence established in the legislation in force.

Art. 8. In the event of accidents or leaks that pose a hazard to the environment or people, as well as in the occurrence of environmental liabilities, owners, leaseholders responsible for the establishment, by the equipment, by systems and fuel suppliers that supply or have supplied the unit will respond jointly and severally, for the adoption of measures to control the emergency situation, and the sanitation of the impacted areas, in accordance with the requirements formulated by the environmental licensing agency.

§ 1 The occurrence of any accidents or leakings should be reported immediately to the competent environmental agency after finding and/or knowledge, severally or jointly, by those responsible for the establishment and by equipment and systems.

§ 2 Those responsible for the establishment, and for the equipment and systems, regardless of the communication of the occurrence of accidents or leaks, should adopt the emergency measures required by the event, in order to minimize the risks and impacts to people and the environment.

§ 3 The owners of establishments and equipment and systems should promote the training of their employees, aiming at orienting the accident prevention measures and appropriate immediate actions to control emergency situations and risk.

§ 4 Underground tanks that have leaking should be removed after their cleaning and degassing and prepared according to the requirements of the competent environmental agency. After proving the technical impossibility of their removal, these should be degassed, cleaned, filled with inert material and sealed.

§ 5 Owners, renters or those responsible for the establishment and/or equipment and systems, from the date occurrence shall be answerable for the compensation for damage from accidents or fuel leaks,

~~Art. 9 Certificates of conformity within the Brazilian Certification System referred to in art. 3 of this Resolution, will have their enforceability in force from January 1, 2003.~~

Art. 9 Certificates of conformity within the Brazilian System of Conformity Assessment, as referred to in art. 3, will have their enforceability in force from January 1, 2004 for reseller stations and July 1, 2004 for the remaining establishments.

(new wording by Resolution No. 319/02)

~~Sole paragraph. Until December 31, 2002, the competent environmental agency responsible for issuing of licenses, may require, as a replacement to the certificates referred to in the heading of this article, technical reports, attesting that the manufacturing, assembly and installation of equipment and systems and tests mentioned in this Resolution are in accordance with the technical standards required by ABNT and, in the absence thereof, by the competent environmental agency.~~

Sole paragraph. Until December 31, 2003 for reseller stations and until June 30, 2004 for the remaining establishments, the competent environmental agency responsible for the issue of licenses, may require, as a replacement to the certificates referred to in the caput of this article, technical reports, attesting that the manufacturing, assembly and installation of the equipment and systems and testes mentioned in this Resolution are in accordance with the technical standards required by ABNT and, in the absence thereof, by the technical regulations of the Brazilian System of Conformity Assessment, or by directives defined by the competent environmental agency. *(new wording by Resolution No. 31902)*

Art. 10. The Ministry of the Environment should formalize, in up to sixty days, counted from the date of publication of this Resolution, with the National Institute of Metrology, Standardization and Industrial Quality-INMETRO, a list of equipment, systems and services that should be subject to certification under the Brazilian Certification System.

Art. 11. Every year, in the second quarter, from 2003, the Ministry of the Environment should provide to CONAMA information on the evolution executions of the measures provided for in this Resolution, by State, accompanied by the relevant analyses.

Art. 12. The failure to comply with the provisions of this Resolution will subject violators to the sanctions provided for in Laws Nos. 6,938 of August 31, 1981, 9,605, of February 12, 1998 and Decree No. 3,179 of September 21, 1999.

Art. 13. This Resolution shall enter into force on the date of its publication.

JOSE SARNEY FILHO – Council President

ANNEX I

1. identification of the one responsible for the project:

NAME:			
I D c a r d :		Issued by	State: CPF:
Address.:			No:
District	CEP:	Municipality	State
Telephone f/ contact:	Fax:	E-mail:	

()	(
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2. Identification of venture:

NAME / CORPORATE NAME:		TRADE NAME	
Address:			
District:	CEP:	Municipality:	State:
CNPJ nº:		State reg.	
		Municipal reg.:	
Mailing address:		Nº	
District:	CEP:	Municipality:	State:
Contact Name:		Cargo:	
Telephone; contact	Fax:	E-mail:	
()	()		
Reg. with ANP Nº:		Previous reg. with ANP:	
Geographic coordinate (Lat/Long)			

3. Data on distributor/supplier(s)

Corporate Name:		Name f/contact	
Mailing address		no:	
District:	Telephone	E-mail:	
CEP:	Municipality:	State:	

4. Owner of equipment and systems

Corporate name:		Name f/contact:	
Mailing address		no	
District:	Telephone	E-mail:	
CEP:	Municipality	State:	
CNPJ or CPF:			
Important Remark:			

Note: If there are different owners for the equipment and systems, inform here as per the example: "the tanks No.3 and 4 belong to XY distributor, tanks 1, 2 and 3 belong to the station".

5. List/status of tanks

Tank nº	Fuel (1)	Tank Volume (liters)	Type of tank (2)	Year of tank installation	Sealing test (3)	Was leakage noticed in the tank?	In operation	
							Y	N
01								
02								
03								
04								
05								
06								
07								
08								
09								
10								

(1) Fuel type: it is a code, see attached table. If the tank has three compartments, adapt the symbology, for example: gasoline, alcohol and gasoline, use the symbol GAG.

(2) Type of Tank: is a code, see attached table.

(3) and (4) If a tightness test has been carried out or if there were leaks, inform the time in the format "month/year", for example: 08/97.

6. List/status of lines/pumps

7. Volume of fuel traded/month: (average of last six months)

Type of fuel	Volume operated/month(liters)
Gasoline	
Alcohol	
Diesel	
Kerosene	

8. Questions:

(Whenever necessary, fill in the attached sheet not forgetting to sign it at the end)

a) Tanks have already been replaced)? If the answer is Yes, inform: reason, number and date:

b) Are there groundwater monitoring wells? If so, inform the date of last collection, test result:

c) Is there a gas recovery device of the tank (s)? If so, describe:

d) What are the methods of leak detection in tanks adopted by post?

e) Is there cathodic protection for the fuel storage system?

f) If there is cathodic protection, how often and last date of anti-corrosion system maintenance?

9. Area of the venture:

Total area of plot	m ²	Built areas	m ²
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Note: Include all areas of administration and services linked to the owner or lessor of the venture, retail trade of fuels.

10. Activities performed (please select all that are the responsibility of the owner or lessor of the retail trade of fuels):

10.1. VEHICLE WASHING Yes no

If positive, report average vehicles/day washing

10.2. OIL CHANGE Yes no

If positive enter:

a) has splitter box water/oil Yes no

b) final destination of oil collected

10.3. TIRE REPAIR Yes no

10.4. There are facilities for the supply of natural gas vehicles Yes no

*If positive, describe the equipment/systems on an attached sheet.

10.5 There are sale or supply of canisters of liquefied petroleum gas (GLP) Yes no

10.6 OTHER (cafeteria, convenience store, restaurant, bar, etc.) YES NO

Specify:

11. Location of the activity according to as municipal legislation

11.1 URBAN ZONE:

YES NO

If positive, is Residential Commercial

11.2 COUNTRYSIDE:

YES NO

11.3 FLUVIAL ZONE:

YES NO

11.4 SEA ZONE:

YES NO

11.5. OTHER:

YES NO

If positive on item 11.5 mention what.

12. Mark according to the environment around the project within a 100 m radius

	YES	NO
- Street with water spillway gallery	()	()

- Street with sewage or service gallery	()	()
- Sanitary sewage in sinks in urban areas	()	()
- Multifamily building w/out underground garage up to 4 floors	()	()
- Multifamily building with underground garage with more than 4 floors	()	()
- Slum in the same or inferior quote	()	()
- Commercial offices buildings with more than 4 floors	()	()
- Garage or tunnel built underground	()	()
- Artesian or non-artesian water well for domestic consumption	()	()
- Show building of religious temples	()	()
- Hospital	()	()
- Metro	()	()
- Surface Railway Transport	()	()
- Risk industrial activities as per NB-16	()	()
- Groundwater used for the city's public consumption	()	()
- Water surface natural bodies for:	()	()
a) Domestic supply	()	()
b) Protection of water communities	()	()
c) Primary contact recreation	()	()
d) Irrigation	()	()
d) Natural and/or intense breeding of species for human feeding	()	()
e) drainage	()	()

13. Water sources used for supply

()	Public network:	
()	Tub well:	Inform depth, if possible
()	Spring(s):	
()	Lake/lagoon(s):	Name(s):
()	Stream(s):	Name(s):
()	River(s):	Name(s):

14. Release of sanitary domestic effluent (mark)

14.1 – Treatment system:	
14.2 – Receiving Body (release site)	

15. Solid waste

Indicate the destination of the following solid waste (do not leave any field in blank, inform “non-existing activity” when applicable)

Type of Waste	Final destination (agent/site)
Lubricating oil packaging	
Oil filters	
Other packages (shampoo, glass cleaner, removers etc.)	
Tire repair shop waste	
Sludge sand from bottom of separator(s), water/oil and sand boxes	
Other waste (administration, restaurant etc.)	

16. Control equipment and systems

Stocks control	() hand operated Yes	() automatic No
- Automatic inter sectoral monitoring	()	()
- Wells for the monitoring of ground water	()	()

- Wells for monitoring steam	()	()
- Retention valve close to pumps	()	()
- Protection against leakage	()	()
Chamber of access to the hole of the tank	()	()
Contention of leakage under the supplying unit	()	()
Channel for containing the cover	()	()
Box to separate water from oil	()	()
- Protection against overflow	()	()
Sealed discharge	()	()
Chamber to contain discharge	()	()
Valve for protection against overflow	()	()
Valve for retention of floating sphere	()	()
Overflow alarm	()	()
- Other (describe)		

17. Floors

Floors	Types of Floors
Supply area	
Area for changing oil	
Discharge area	
Washing area	
Other	

18. Place, date, name, post and signature

Corporate Name:		
Mailing address:		n°
District:	Telephone)	e-mail:
CEP:	Municipali	State:

Signature:
(Initial each page)

Table – Type of Tank

CODE	TYPE OF TANK	VOLUME
1	Unknown tank	
2	Carbon steel tank– ABNT – NBR-190	10.000
3	Ditto	15.000
4	Ditto	20.000
5	Thermofix resin underground tank reinforced with glass– single wall– ABNT – NBR-13212	15.000
6	Ditto: non-compartmentalized tank	30.000
7	Ditto: compartmentalized tank (15.000 + 15000 l)	30.000
8	Thermofix resin underground tank reinforced with glass– double wall– ABNT – NBR-13212	15.000
9	Ditto: non-compartmentalized tank	30.000
10	Ditto: compartmentalized tank (15.000 + 15000 l)	30.000
11	Atmospheric underground carbon steel tank - ABNT – NBR-13312 – single wall with coating	15.000
12	Ditto	30.000
13	Ditto: compartmentalized tank (15.000 + 15000 l)	30.000
14	Atmospheric underground carbon steel tank, double metallic wall– ABNT – NBR-13785	15.000
15	Ditto	30.000
16	Ditto: compartmentalized tank (15.000 + 15000 l)	30.000
17	Atmospheric underground carbon steel tank, double non-metallic wall – ABNT – NBR-13785 (jacketed tank)	15.000

18	Ditto	30.000
19	Ditto: compartmentalized tank (15.000 + 15000 l)	30.000
20	Aerial	
21	OTHER – Specify in the form - in the case of storage equipment not included in the above list, exhibit copy of certification issued by certifying official agency (even a foreign one)	

ANNEX II

Pump No.	Linked to tank No.	Line material	Date of installation of line	Does it have a filter?	Retention valve		Date of sealing test	Remarks
					Tank bottom	Pump base		

This text does not replace the one published in the Official Gazette of January 8, 2001.

CONAMA RESOLUTION 279, June 27, 2001
Published in Official Gazette 125-E on June 29, 2001, Section 1, pages 165-166

Establishes the procedures for the granting of simplified environmental licenses to electrical enterprises with low pollution environmental impact

The NATIONAL ENVIRONMENTAL COUNCIL-CONAMA, pursuant to the powers vested on it by Law No. 6,938 dated August 31, 1981, regulated by Decree No. 99,274, of June 6, 1990, and bearing in mind the provisions of its Internal Rules, and

Considering the need to establish a simplified procedure for the environmental licensing, with a maximum period of sixty days for processing, of the ventures with small environmental impact, necessary to increase the supply of electricity in the country, in accordance with art. 8, § 3, of Provisional Measure No. 2,152-2, of June 1, 2001;

Considering that the power crisis and the need to meet the speed established by provisional measure No. 2,152-2, of 2001²²¹;

Considering the difficulty of defining itself, a priori, small environmental impact before analyzing the environmental studies that subsidize the licensing process and, considering the regional peculiarities and diversities, as well as the complexities of assessing the effects on the environment resulting from the implementation of electric power projects;

Considering the situations of constraint, provided for in laws and regulations, such as, indirect use conservation units, indigenous lands, public health issues, species endangered of extinction, sites of historical and archaeological heritage, among others, and the need for compliance with the requirements governing other related activities with the environmental licensing process;

Considering the constitutional devices, in particular article 225, concerning the guarantee of an ecologically balanced environment and essential to quality of life, by imposing to the public power and to the collectivity the duty to defend it and preserve it for future generations;

Considering the principles of efficiency, advertising, participation and caution;

Considering the current environmental licensing procedures are set out in CONAMA Resolutions No. 1, of January 23, 1986, and 237, of December 19, 1997 and, for electric industry ventures, on a supplementary form, in CONAMA Resolution No. 6, of September 16, 1987, resolves

Art. 1 The procedures and deadlines set out in this Resolution apply, at any level of jurisdiction and the simplified environmental licensing ventures with small potential of environmental impact, including:

- I- Hydroelectric plants and associated systems;
- II- Thermoelectric plants and associated systems;
- III- Electric power transmission systems (transmission lines and substations);
- IV- Wind farms and other alternative sources of energy.

Sole paragraph. For the purposes of application of this Resolution, the associated systems will be analyzed jointly to major ventures.

Art. 2 For the purposes of this Resolution, the following definitions are adopted:

I- Simplified Environmental Report - RAS: studies on the environmental aspects related to location, installation, operation and expansion of an activity or venture, presented as allowance for the granting of the requested license, which will contain, among others, the information concerning the environmental assessment of the project's insertion region, their characterization, identification of environmental impacts and control measures of mitigation and compensation

II- Report on Details of Environmental Programs: is the document that presents, in detail, all corrective and compensatory measures and environmental programs proposed in RAS.

III- Informative Technical Meeting: meeting promoted by the competent environmental agency at the expense of the entrepreneur for presentation and discussion of the Simplified Environmental Report, Report on Details of Environmental Programs and other information, to the public consultation and participation.

IV- Systems Associated to Electric Ventures: electrical systems, small lines of pipelines and other infrastructure are demonstrably necessary for the implementation and operation of ventures.

Art. 3 When applying for the License to the competent environmental agency, according to this Resolution, the entrepreneur will present the Simplified Environmental Report, meeting at least with the contents of ANNEX I to this Resolution, as well as the registration with the National Electric Energy Agency-ANEEL, when appropriate, and appropriate demonstrations of the bodies involved.

§ 1. The application for the license shall contain, among other requirements, the statement of framing of the venture to this Resolution, signed by the technician responsible for RAS and by the main responsible for the venture, as well as presentation of the physical-financial schedule from the granting of the license, with emphasis on the date of beginning of works

§ 2 The Previous License will only be issued on presentation, when applicable, of the granting of right of water resources or water availability reservation.

Art. 4 The competent environmental agency shall, on the basis of Simplified Environmental Report, the framing of the electrical venture in the environmental licensing procedure, through a decision based on technical advice.

²²¹ Provisional Measure republished in Provisiona Measure No. 2198, of July 28, 2001

§ 1. The ventures that, after analysis by the competent environmental agency, do not meet the provisions in the caput shall be subject to the non-simplified licensing, in accordance with the legislation in force, which shall be communicated within ten working days, to the entrepreneur.

§ 2 The studies and documents attached to the RAS can be used in a Prior Study on Environmental Impact, with or without supplementation, after demonstration in favor of environmental agency.

Art. 5. When applying for the license to the competent environmental agency, in the form of this Resolution, the entrepreneur shall submit proof of meeting the conditions of the Previous License, the Report of Detailing of Environmental Programs, and other information, when applicable.

Sole paragraph. The Installation License will only be issued upon proof, when applicable, of the Declaration of Public Utility of the venture, by the entrepreneur

Art. 6 The deadline for issuing the Previous License and the Installation License will be of a maximum of 60 days from the date of recording of the application for licenses.

§ 1 When required, at the discretion of the competent environmental agency, by means of technical justification, further studies, the counting of the period term shall be suspended until its delivery.

§ 2 The period of suspension will be up to 60 days and may be extended by the environmental body based upon request of the entrepreneur.

§ 3 The non-submission of additional studies within the deadline referred to in the previous paragraph will result in the cancellation of the licensing process.

§ 4 The installation license will lose its effectiveness if the venture does not start its implementation within the time limit indicated by the entrepreneur according to the schedule presented, and its extension may be made by the environmental agency by means of justified provocation.

Art. 7 The ventures already in the process of environmental licensing on the date of publication of this Resolution and already fall in its assumptions, it may be applied the simplified environmental licensing as long as required by the entrepreneur.

Art. 8. Whenever it deems it necessary, or when prompted by civil authority, by the public prosecutor, or by fifty people over eighteen, the Environment Agency will hold a Technical Informative Meeting.

§ 1 The request for Informative Technical Meeting must occur within twenty days after the date of publication of the application of the licenses by the entrepreneur.

§ 2 The Technical Informative Meeting will be held within twenty days from the date of request for its holding and is expected to be disseminated by the entrepreneur.

§ 3 In the Informative Technical Meeting it will be mandatory the attendance of the entrepreneur, the teams responsible for the preparation of Simplified Environmental Report and the Report on Detailing of Environmental Programs, and representatives of the competent environmental agency.

§ 4 Anyone can manifest itself in writing within forty days of the publication of the application for a permit in accordance with this Resolution and the environmental agency shall join the manifestations to the environmental licensing process and consider them in the grounds for the issuance of the environmental license.

Art. 9 The Operating License will be issued by the competent environmental agency within 60 days of its request, provided all conditions of the license have complied with, at the time required before the entry into operation of the venture, including, when appropriate, through the pre-operational tests required, authorized in advance.

Art. 10. The requirements and the strictly technical constraints of environmental licenses are a requirement of relevant environmental interest.

Art. 11. The entrepreneur, during deployment and operation of the venture shall inform to the competent environmental agency the identification of the environmental impacts not described in the Simplified Environmental Report and in the Report on Detailing of Environmental Programs, for the required actions.

Art. 12. The competent environmental agency by decision motivated, by ensuring the adversarial principle, subject to emergency or urgency may at any time modify the conditions and the measures of control and adequacy of the enterprise, suspend or cancel the license issued, upon the occurrence of :

I-infringement or inadequacy of any constraints or breaching of laws; or

II-the onset of serious environmental or health risks.

Sole paragraph. It is legally void the license issued based on false, misleading information or data or capable of leading to mistake, not generating the nullity any civil responsibility to the Public Power on behalf of the entrepreneurs.

Art. 13. The publications referred to in this Resolution shall be made in the Official Gazette and in a newspaper of wide circulation or other means of communication widely used in the region where the venture is to be installed and must bear the identification of the entrepreneur, the range and the type of project, as well as the address and telephone of the competent environmental agency.

§ 1 The entrepreneur must forward a copy of the publication referred to in the caput of this article to the competent Environment Council.

§ 2 The dissemination through radio, when determined by the competent environmental agency or at the discretion of the entrepreneur, must occur at least three times a day for three consecutive days from 6AM to 8PM.

Art. 14. The application of this resolution will be assessed by CONAMA's Plenary one year after its publication.

Art. 15. This Resolution shall enter into force on the date of its publication.

JOSE SARNEY FILHO, Council President ²²²

**ANNEX I
PROPOSAL FOR MINIMUM CONTENT FOR THE SIMPLIFIED
ENVIRONMENTAL REPORT**

A- Project Description

Goals and justifications, as related to compatibility with the sectoral policies, plans and government programs; and

Description of the project and its technological and locational alternatives, considering the hypothesis of failure, specifying the area of influence.

B- Environmental Diagnosis and Prognosis

Environmental Diagnosis:

Description of the likely socio-economic and environmental impacts of the deployment and operation of the activity, considering the project, its alternatives, the time horizons of incidence of impacts and indicating the methods, techniques and criteria for their identification, quantification and interpretation; and

Characterization of future environmental quality of the area of influence, considering the interaction of the different environmental factors.

C- Mitigating and Compensatory Measures

Mitigating and compensatory measures, identifying impacts that cannot be avoided;

Recommendation regarding more favorable alternative. and

Accompanying, monitoring and control program.

This text does not replace the one published in the Official Gazette, of June 29, 2001.

CONAMA RESOLUTION 284 , August 30, 2001
Published in Official Gazette 188 on October 1, 2001, Section 1, page 153

Establishes provisions for the granting of environmental licenses to irrigation enterprises

The NATIONAL ENVIRONMENTAL COUNCIL-CONAMA, pursuant to the powers vested on it by law No. 6,938 dated August 31, 1981, regulated by Decree No. 99,274, of July 6, 1990, and in view of the provisions in its Internal Rules, ANNEX to Ordinance No. 326, of December 15, 1994²²³, and

Considering the provisions laid down by CONAMA Resolutions Nos. 1, of January 23, 1986, and 237, of December 19, 1997;

Considering that the irrigation projects can cause environmental changes and, therefore, are subject to environmental licensing; and

Considering the need to edit specific rules for the environmental licensing in irrigation ventures, resolves:

Art. 1 For the purposes of this Resolution, the irrigation projects will be classified into categories, according to the effective size of the irrigated area, by individual property, and the irrigation method used, according to the following table:

Classification table of irrigation ventures by the method employed and effective size of irrigated area, by individual property

IRRIGATED AREA/ CATEGORY A					
Method of irrigation used	Area < 50 ha	50 ha to 100 ha	100 ha to 500 ha	500 ha to 1000 ha	Area > 1000 ha
Aspersión	A	A	B	C	C
Located	A	A	A	B	C
Superficial	A	B	B	C	C

§ 1. The irrigation methods employed include:

I- Sprinkling - central-pivot, self-propelled, conventional and others;

II- Located- dripping, micro sprinklers, *xique-xique* and others; and

III – Superficial - groove, flood, strip and others.

§ 2 It is understood as irrigation venture the set of works and activities that make it up, such as: reservoir and catchment, adduction and distribution of water, drainage, internal roads and farming itself, as well as any other action necessary to achieve the final product of the irrigation system.

Art. 2 The irrigation ventures should be licensed by the competent environmental agency and should be provided all relevant technical information in the form of current environmental legislation and the provisions of this Resolution.

Sole paragraph. The entrepreneur, at the time of the intention to develop irrigation venture should be guided by the licensor on the environmental agency procedures

To be eligible to the respective environmental licensing.

Art. 3 The irrigation ventures should be registered with the licensor environmental agency.

Sole paragraph. The environmental licensing agency shall establish, with the participation of representative organizations of entrepreneurs, the criteria and procedures for the registration, referred to in the caput of this article.

Art. 4 The environmental licensing agency, in the exercise of its jurisdiction and control, shall issue a Previous License-LP, Installation License-LI and the Operation License , for

The irrigation ventures.

§ 1. Environmental licenses may be issued individually or in succession, according to the nature, characteristics and stage of venture.

§ 2 License applications established in the caput of this article shall be accompanied by the documents listed in ANNEXes I and II of this Resolution, in accordance with the category of the irrigation venture.

Art. 5 The environmental licensing agencies may define different criteria for enforceability and alternative procedures for licensing, taking into account, besides the size , the technical characteristics of the venture, location, water consumption and regional specificities, as well as the compatibility of the licensing process through the steps of planning, implementation and operation.

Sole paragraph. Priority will always be granted to projects that incorporate equipment and more efficient irrigation methods, compared to less consumption of water and energy

Art. 6 The terms of reference for the preparation of environmental projects and studies needed to initiate the licensing process corresponding to the license being sought,

shall be defined by the environmental licensing agency, with the participation of entrepreneurs, in accordance with the legislation in force.

²²³ Ordinance revokes by OPrdinance MMA No. 499, of December 18, 2002

Art. 7 A single process of environmental licensing for small ventures and similar activities and neighbors may be admitted, or to those members of plans Development adopted previously by the licensor, provided that environmental agency set the legal responsibility by undertakings or activities.

Art. 8. The ventures that are located in two or more States, or who manage direct environmental impacts beyond the territorial limits of the country or State in which they are located, must be licensed by the Brazilian Institute of the Environment and Renewable Natural Resources -IBAMA, after hearing the environmental agencies of the States involved.

Art. 9. In case of refusal of the application for licensing, in any of its forms, the environmental licensing agency shall formally communicate the fact to the entrepreneur, stating the reasons for the refusal.

Art. 10. The provisions of this Resolution will be applied considering the categories and the stages of planning, implementation or operation of the venture.

Sole paragraph. If the planned step to obtain LP or LI has already been surpassed, its license will not be issued.

Art. 11. The entrepreneur should submit the relevant environmental studies, even after the stage of obtaining the LP and LI is surpassed, which shall be drawn up in line with the requirements set forth by the environmental licensing agency, without prejudice to the legal obligations and the application of penalties.

Art. 12. Those responsible for projects in operation, on the date of issuance of this Resolution should regularize their situation, in line with the competent environmental agency, by getting LO in accordance with the legislation in force, for which will be required the submission of relevant environmental studies, containing:

I-General description of the venture;

II-evaluation of the environmental impacts caused;

III-mitigating measures and environmental protection adopted or in the process of adoption; and

IV-management instruments available or envisaged to ensure implementation of the measures advocated.

Sole paragraph. The ventures in operation on the date of publication of this Resolution, should fit hereto within a maximum period of two years.

Art. 13. Category A irrigation ventures may have their simplified licensing procedures, subject to the approval of the Board of the Environment.

Art. 14. The environmental licensing agencies should observe the current environmental legislation, in particular the CONAMA Resolution No. 237, of December 19, 1997, where applicable.

Art. 15. This Resolution shall enter into force on the date of its publication.

JOSE SARNEY FILHO – Council President

ANNEX I CATEGORY B PROJECTS

TYPES OF LICENSE	HYDROELECTRIC PLANTS
Previous License (LP)	1 - Application for the LP 2 - Copy of the publication of the application for LP 3 - Copy of the application for granting of use of water 4 - MME Ordinance authorizing the Feasibility Study 5 - Certificate of approval by the City Hall of the Government of the Federal District; and Pertinent Environmental Studies
Installation License (LI)	1 - Application for LI 2 - Copy of the publication of the application form LI 3 - Copy of publication of granting of LI 4 - Copy of the document of Granting for the use of water or other document that replaces it 5 - Authorization for deforestation or suppression of natural ecosystems issued by the competent body, when applicable 6 - Environmental and Engineering Projects; and 7 - Plan for the Environmental Control containing, at least: I - Program for soil and water control and protection; and II - Program for the monitoring of soil and water
Operation License (LO)	1 - Application for LO 2 - Copy of the Publication of LO 3 - Copy of the Publication of LO granting

CATEGORY C PROJECTS

TYPES OF LICENSE	HYDROELECTRIC PLANTS
Previous License (LP)	<ul style="list-style-type: none"> 1 - Application for the LP 2 - Copy of the publication of the application for LP 3 - Certificate of approval by the City Hall of the Government of the Federal District; 4 - Technical , Economic, Social and Environmental Technical feasibility studies, including EIA/RIMA, when applicable; and 5 - Copy of the request for granting of use of water
Installation License (LI)	<ul style="list-style-type: none"> 1 - Application for LI 2 - Copy of the publication of the application form LI 3 - Copy of publication of granting of LI 4 - Environmental and Engineering projects; 5 - Authorization for deforestation or suppression of natural ecosystems issued by the competent body, when applicable 6 - Copy of the document of Granting for the use of water or other document that replaces it; and 7 - Environment Control Plan involving all stages of the venture, containing, at least: I - Environmental education and mobilization Program; II - degraded areas recovery program; III - Program for the control and use of explosive at the work site; IV - Program for the control, protection and monitoring of water resources and soils; V - Program for the management of solid waste and use of agrototoxic substances; and VI - Measures for flora and fauna protection
Operation License (LO)	<ul style="list-style-type: none"> 1 - Application for LO; 2 - Copy of the Publication of the application for LO;and 3 - Copy of the publication of LI granting

This text does not replace the one published in the Official Gazette of October 1, 2001.

CONAMA RESOLUTION 305, June 12, 2002
Published in Official Gazette 127 on July 4, 2002, Section 1, pp. 81-82

Establishes provisions for Environmental Licenses, Environmental Impact Studies and Environmental Impact Report for activities and enterprises that include Genetically Modified Organisms and derivatives.

The NATIONAL ENVIRONMENTAL COUNCIL-CONAMA, pursuant to the powers vested on it by law No. 6,938 dated August 31, 1981, regulated by Decree No. 99,274, of July 6, 1990, and due to the provisions in its Internal Rules, ANNEX to Ordinance No. 326, of December 15, 1994²²⁴; and

Considering the environmental guidelines set out in arts. 225, 170, item VI, and 186, item II, of the Federal Constitution;

Considering the constitutional and legal guidelines that protect the health and safety of work, fundamental legal and unavailable assets;

Considering the provisions of law No. 6,938 of 1981, and in other environmental protection standards;

Considering the provisions of the Consumer Defense Code, as well as bio-security standards set out in law No. 8,974 of January 5 1995²²⁵, with amendments introduced by Provisional Measure No. 2,191-9, of August 23, 2001²²⁶;

Considering the principles of public participation, of advertising and of assurance of access to information;

Considering the precautionary principle, crystallized in the Principle 15 of the Rio Declaration, reaffirmed by the Convention on Biological Diversity, the Cartagena Protocol on Biosafety, and in art. 225 of the Federal Constitution;

Considering the lack of awareness of the potential impacts of genetically modified organisms to the environment and health, resolves:

CHAPTER I
General Provisions

Art. 1 This Resolution regulates the criteria and procedures to be observed by the competent environmental agency for the licensing of activities and developments making use of Genetically Modified Organisms-GMO and derivatives, effectively or potentially polluters, pursuant to art. 8 of law No. 6,938 dated August 31, 1981, and, when applicable, for the preparation of environmental impact studies-EIA and its Environmental Impact Report - RIMA, without prejudice to other resolutions or rules applicable to the matter.

Art. 2 For the purposes of this Resolution, it is understood as:

I- Genetically Modified Organism: the organism whose genetic material (DNA/ RNA) has been modified by any technique of genetic engineering, as per definition contained in art. 3 of Law No. 8,974 of January 5, 1995²²⁷

II- GMO derivatives: products obtained from a GMO, which do not have replication or that do not contain viable forms of GMOs, in accordance with the law on biosafety in force.

Sole paragraph. It is also adopted, for the purposes of this resolution, the definitions contained in art. 3 of Law No. 8,974, of 1995, in addition to the definitions in the glossary in ANNEX I of this Resolution.

CHAPTER II
Environmental Licensing For Research In Confined Area

Art. 3 Installation and operation of laboratory, vivariums and vegetation house, for research purposes under confinement, are subject to registration in the technical and environmental supervision, without prejudice of the licensing requirement, when there is a risk of significant degradation of the environment.

§ 1. Requirements for registration are provided for in the caput of this article:

I- designation of the legal person concerned; and

II- Quality Certificate in Biosecurity-CQB of the applicant issued by the National Technical Biosafety Commission – CTNBio, as provided for in current legislation on biosafety.

§ 2 The facilities that are already in operation must conform to the provisions of this article within three months from the date of publication of this Resolution.

CHAPTER III
Environmental Licensing For Field Research

Art. 4 The entities responsible for the areas of field research, or other not provided for in the previous article, with GMO and its derivatives, should apply to the competent environmental organ, for the Operating License for Research Areas-LOAP.

§ 1. The license request provided for in this article may include one or more research areas.

²²⁴ Ordinance revoked by Ordinance MMA No. 499, of December 18, 2001

²²⁵ Law revoked by Law 11.105, of March 24, 2005

²²⁶ Provisional Decision revoked by Law 11.105, of March 24, 2005

²²⁷ Law revoked by Law 11.105, of March 24, 2005

§ 2 The research areas referred to in the caput of this article which are already in operation shall comply with the provisions of this Resolution within three months from the date of its publication.

§ 3 The risk assessment of GMO is the responsibility of CYNBio and will be considered by the competent environmental agency as part of the process of environmental risk analysis, which should be complemented with the management and communication of risk, considered as requirements and additional procedures of legal and private competence of the competent environmental agency.

§ 4 The following are requirements for the licensing provided for in the caput of this article:

I- Quality Certificate in Biosecurity-CQB of the applicant issued by CTNBio, as provided for in current legislation on Biosafety;

II- description of areas, facilities and containment measures, as stated in the request for documents required by CTNBio for the issuance of CQB.

III- preliminary description of the area of influence of the project;

IV - identification of GMO with which to work and research and development activities envisaged, as described in the request for documents required by CTNBio for the issuance of the CQB; and

V- contingency plan for eventual escape situations of GMO of the area object of licensing.

§ 5 Any unforeseen change in the original venture's licensing process or activity that modify the relevant elements of environmental risk management, must be preceded by analysis and authorization of Licensor environmental agency.

CHAPTER IV Environmental Licensing For Commercial Release

Art. 5 The release into the environment of GMO or derived material, subject to the provisions of art. 1, except for the cases provided for in art. 3 and 4, will depend on a Special Operation License for Commercial Release of GMO to be obtained by the company owner of technology for each gene construct in a species, to:

I- multiplication of product and other pre-commercial scale activities; and

II- commercial use of the product.

§ 1. The product derived from GMO, with the same gene construct in the same species licensed, is exempted from environmental licensing

§ 2 The Brazilian Institute of the Environment and Renewable Natural Resources -IBAMA will make the environmental licensing, defined in item II of the caput of this article, by means of environmental macrozoning of the areas for the release of the GMO, considering the relevant socio-economic and biogeographic specificities, according to law No. 6,938, in 1981, and the technical examination carried out by the states, if any.

§ 3 IBAMA must request a technical manifestation to the competent agencies involved with the licensing in question, which shall be provided within sixty days from the date of receipt of the request. If there is no manifestation within the time limit set, IBAMA will give continuation to the licensing process.

§ 4 The requirements for the licensing requirement, laid down in item I of this article are: I- prior technical conclusive opinion CTNBio, as provided for in current legislation on biosecurity;

II- environmental diagnosis and identification of areas where it is intended to make the release into the environment;

III- contingency plan for situations of possible environmental damage caused by GMO;

IV- environmental studies that may be justified in environmental impact assessment-EIA and Environmental Impact Report - RIMA, as set out in arts. 7 and 8 of this Resolution.

§ 5 The requirements for the licensing requirement, laid down in item II of this article are as follows:

I- prior technical conclusive opinion of CTNBio, as provided for in current legislation on biosafety;

II- identification of the geographic regions where the release into the environment is intended;

III- contingency plan for possible environmental damage caused by GMO and derivatives;

IV- Environmental Impact Study – EIA and Environmental Impact Report - RIMA, which may be replaced by other environmental studies, when indicated by the competent environmental agency that must consider the environmental licenses and studies previously carried out in the country.

§ 6 The competent environmental agency may request to CTNBio pursuant to § 2 of art. 7 of law nº 8,974, of 1995²²⁸, additional explanations, through a new opinion or meeting with the sectoral Commission or Subcommittee. With the purpose of elucidating issues related to the activity object of licensing.

CHAPTER V Licensing In Areas With Restriction

Art. 6 Activities and ventures in the area with the restrictions predicted on environmental licensing laid down in environmental legislation and, when available, in areas with restrictions for certain GMO and their derivatives referred to in environmental macrozoning, will depend on environmental licensing, as provided for in paragraph 2 of art. 5 of this Resolution.

§ 1 The following are licensing requirements as laid down in this article, subject to other legal requirements:

I- registration of GMO to be used in the venture, as provided for in current legislation on Biosafety;

II-information about the origin of the GMO;

III-venture's project with description of its area of influence;

²²⁸ Law revoked by Law 11.105, of March 24, 2005

IV-environmental impact assessment - EIA and environmental impact report - RIMA, pursuant to arts. 7 and 8 of this Resolution; and

V- contingency plan for possible environmental damage caused by GMO.

§ 2 The competent environmental agency may ask to CTNBio pursuant to § 2 of art. 7 of law n° 8,974, of 1995²²⁹, additional explanations, through a new opinion or meeting with the sectoral Commission or Subcommittee, for the elucidation of specific issues related to the activity object of licensing.

§ 3 The environmental license referred to in the caput of this article shall be valid for a given gene construct in the same species, in the same location.

CHAPTER VI

The Preliminary Study Of Environmental Impact And Report of Impact In The Environment

Art. 7 The competent environmental agency, when requiring EIA/RIMA, as provided for in subitem IV of § 1 of art. 225 of the Federal Constitution and by law No. 6,938, of 1981, will take into account, among others, the following elements:

I- the prior conclusive technical opinion of CTNBio;

II- specific location of the activity and or venture;

III- the potential degradation of environmental quality;

IV. the effect of the venture on the social and economic activities;

V- the size and characteristics of the enterprise;

VI- the presence or proximity of wild relatives of GMO;

VII- local environmental vulnerability;

VIII- the existence of a license or request of environmental license prior to activity or venture involving the same gene construct in that species or variety; and

IX- the technical advice provided by the stakeholders legally authorized, in accordance with law No. 9,784, of January 29, 1999.

Art. 8. Whenever the elaboration of EIA/RIMA is required for licensing of the activity or venture involving GMO and derivatives, a specific Term of Reference should be elaborated, in compliance with the guidelines contained in ANNEX II of this Resolution

CHAPTER VII

Infractions And Penalties

Art. 9. In the event of an accident, the environmental license does not exempt its beneficiaries from the requirement to retrieve and indemnify the environment and third parties, in accordance with art. 14, § 1, of law No. 6,938 dated 1981 and in art. 14 of law No. 8,974, of 1995, without prejudice to the duty to inform, immediately to the competent authorities and to the communities that may be affected.

Art. 10. The breach of the provisions of this resolution shall subject the violator to the penalties provided for in law No. 8,974, of 1995, in law No. 9,605, of February 12, 1998, and other relevant legal provisions.

Art. 11. Without prejudice to any criminal penalties and administrative remedies, the competent environmental agency by decision motivated, can change the conditions and the control and adequacy measures, including suspending provisionally the license issued, among other necessary measures, upon the occurrence of :

I- breach or improper fulfillment of the conditions laid down in the license, or disobedience of the applicable legal standards, by the holder of the license;

II - providing false, dubious or misleading information, even by omission, at any stage of the licensing procedure or during the period of validity of the license;

III- unexpected occurrence of additional information about risks to the environment, to health, and to socio-economic and cultural heritage, which have direct or indirect relationship with the object of licensing, after hearing CTNBio.

CHAPTER VIII

Final Provisions

Art. 12. The environmental license for activities or ventures involving GMO will be granted without prejudice to the requirement of permits, records, registers, among others, in compliance with legal provisions in force.

Art. 13. The competent environmental agencies shall issue authorizations and registrations provided for in art. 7 of Law 8,974, of 1995²³⁰, of their original jurisdiction, for products and activities that use GMO and their derivatives intended for use in natural environments, in bioremediation, forests, fisheries and related fields, in accordance with the legislation in force.

Art. 14. The competent environmental agency will observe the following deadlines, counting from application and registration of application and delivery of documentation required for licensing and registration, up to the date of issuance of the license, registration or notification of refusal of the application:

I- fifteen days for the registration provided for in art. 3;

²²⁹ Law revoked by Law 11.105, of March 24, 2005

²³⁰ Law revoked by Law 11.105, of March 24, 2005

II- sixty days for licensing provided for in art. 4;
III- one hundred and twenty days for licensing referred to in item I of art. 5;
IV- one hundred and eighty days for licensing referred to in item II of art. 5, and for licensing provided for in art. 6; and

V- three hundred and sixty days for licensing that depend on EIA/RIMA and public hearing.

§ 1 The request for complementary information by the licensing organ stops counting the time until the full compliance with the request on the part of interested in licensing.

§ 2 The deadline for licensing provided for in art. 4 may be extended in function of the quantity of different places for experimentation within each license application.

§ 3 The increase in deadlines for grant of license or notification of rejection, when required, should be technically justified by the licensor.

Art. 15. CTNBio shall be communicated of any issuance, suspension and cancellation of environmental license issued according to this Resolution.

Art. 16. This resolution shall enter into force on the date of its publication.

JOSÉ CARLOS CARVALHO-Council President

ANNEX I GLOSSARY

Analysis of environmental risk - Analysis, management and communication of risks to human health and the environment, directly or indirectly, either immediately or after some time has elapsed, from the deliberate release or placing on the market of GMO and their derivatives.

Direct area of influence- Area required to the deployment of works/activities, as well as those involving the operation of testing infrastructure, plantations, storage, transport, distribution of products/inputs/water, in addition to the administration area, residence of those involved in the project and surrounding areas.

Indirect influence area- Set or part the municipalities involved, having as base the watershed covered. In the socio-economic analysis, this area may exceed the municipal boundaries and even those of the river basin.

Pre-commercial activities-Multiplication operations of GMO and derivative and complementary activities necessary to have GMO and derivate in the market under patterns accepted for quality and presentation.

Biosafety- Safety regulations and enforcement mechanisms on the use of genetic engineering techniques in the construction, farming, transportation, handling, marketing, consumption, release and disposal of genetically modified organism (GMO), in order to protect the life and health of man, animals and plants, as well as the environment.

Gene construct - Recombinant DNA fragment, consisting of certain genetic sequences expressed (gene) linked to certain genetic sequences that regulate such expression (regulating genes), providing a species a new feature or a set of new features, which are manifested in accordance with the properties of regulatory elements.

Degradation of environmental quality- Pollution or adverse change of the characteristics of the environment.

Ecosystem - Means a dynamic complex of plant, animal and communities of microorganisms communities and their inorganic environment interacting as a functional unit.

Gene Escape - Gene dispersion of a population intercrossing to another, which can present some degree of kinship, migration, or the possible modification of alleles.

Environmental studies- Any and all studies related to environmental aspects, related to the location, installation, operation and expansion of an activity or project presented as subsidy for the analysis of the environmental license required.

Gene expression - Expression of a specific characteristic of the gene that is introduced in the host.

Insert- DNA/RNA sequence inserted into the recipient organism by means of genetic engineering

Environmental Macro zoning - Zoning in the national territory that may cover one or more ecosystems, taking into account the socio-economic and geographic specificities, that can indicate suitability or restriction for release of the commercial use of GMO.

Environment - Set of conditions, laws, influences and interactions of physical, chemical and biological order, which allows, shelters and rules life in all its forms.

Recipient or parental organism (host)- Original microorganism transformed by the process of genetic engineering, to be used in the experiment of genetic engineering.

Pollution- Environmental quality degradation resulting from activities that directly or indirectly: a) adversely affect the health, safety and well-being of the population, b) create conditions for social and economic activities, c) affect unfavorably the biota, d) affect aesthetic or sanitary conditions of the environment, e) cast materials or energy in disagreement with the established environmental standards.

Environmental resources- Air, surface and groundwater, inland waters, estuaries, territorial sea, soil, subsoil, elements of the biosphere reserve, fauna and flora.

Risk- Measure of uncertainty.

Containment work- Activity with the GMO under conditions which do not permit their escape or release to the environment.

Vector- Insert carrier agent

ANNEX II GUIDELINES FOR PREPARATION OF ENVIRONMENTAL STUDIES WITH GMO

These guidelines are intended to establish general procedures for the preparation of environmental studies, including environmental impact assessment - EIA and its Environmental Impact Report -RIMA, to the environmental licensing for the use of genetically modified organisms-GMOS and their derivatives.

1- Identification of the entrepreneur:

Identify the entrepreneur, its legal representatives and contact person.

2- Presentation of the venture or activity:

-Description;

-Objective; and

-Justification.

3- Technical and legal Standards:

Mention the main legislation, technical standards and the legal procedures adopted in the country for joint ventures involving GMOS, the legal provisions relating to the use, protection and conservation of environmental resources and authorizations or previous releases in other countries, including restrictions.

- 4- Locational and technological Alternative:
Consider the advantages and disadvantages of each technological and locational alternative, confronting it with the hypothesis of non-execution of the activity or undertaking.
- 5-Environmental Studies:
See the following topics:
- Methodology;
 - Characterization of the GMO;
 - Areas of Direct Influence - AID and Areas of Indirect Influence - AII;
 - Environmental assessment covering: diagnosis of the physical environment; diagnosis of biotic environment; diagnosis of the socio-economic environment;
 - Integrated Analysis;
 - Prognosis and Impact Assessment;
 - Risk analysis;
 - Mitigating and compensatory measures;
 - Environmental plans and programs.
- 5.1- Methodology:
Describe the procedures used for the preparation of environmental studies.
- 5.2.- Characterization of GMO;
- 5.2.1.- Characteristics of the donor and recipient organism or parental organisms:
- Taxonomic data;
 - Biological data;
 - Geographic data;
 - Ecological Data, including population trends of the receiver;
 - History of socio-economic use of the receiving organism
- 5.2.2.-Gene Construct and General Characteristics of the GMOs;
It Aims to provide information about construction of the GMO and their general characteristics.
- Characteristics of the vector;
 - Insert characteristics;
 - Insert Transfer to the receiving organism;
 - Characteristics of the GMO;
 - Ecological characteristics of the GMO;
 - Effects of GMO on human health, animal, plant and microorganism.
- 5.3.- Direct Influence Areas - AID and Indirect Influence Areas -AII;
Define the boundaries of the geographic area to be directly or indirectly affected by impacts, considering, in all cases, the water catchment area in which it is located.
- 5.4.- Environmental diagnosis;
- Characterize the current environmental conditions and where appropriate, to consider the implementation of future projects in the area. Encompasses the physical, biotic and anthropic media, and interactions between these, before and after the implementation of the activities
 - Highlight, among the abiotic factors addressed, those that may result in the unintentional dissemination (escape) of released GMO, such as the winds and floods.
- 5.4.2.- Characterization of biotic environment;
- Characterize the ecosystems from the faunistic and floristic composition of the areas subject to venture interventions, permanent preservation areas and centers of genetic diversity.
- 5.4.3. Characterization of socio-economic environment;
- The characterization of the socio-economic environment should include, among others: the spatial distribution of human populations present in the areas of direct and indirect impact of the venture; the qualitative and quantitative population studies; the expectations of the community in relation to the type of the intended activity; the forms of use and occupation of the soil in urban and rural areas of urban sprawl; the service infrastructure in the cities involved by the enterprise; the proximity to indigenous areas and with other population settlements.
- 5.5.-integrated analysis
- Perform analysis of current environmental conditions and evolutionary trends, highlighting the interrelationships between the physical, biotic and socio-economic means in order to allow understanding the structure and dynamics of environmental influence.
- 5.6.-Prognosis and evaluation of environmental impacts;
- Elaborate environmental prediction, considering the positive or negative effects on the physical, biotic and socio-economic activity arising from the activity or of the venture.
- The identification and assessment of positive and negative environmental impacts should primarily focus on the changes in the environment resulting from the insertion of the venture. The impacts will be described, quantified, qualified and classified, according to the magnitude, relevance, duration, time of occurrence and reversibility.
- 5.6.1.- Evaluation of the environmental impacts arising from environmental releases of GMO- Aspects of physical and biotic environment;
- 5.6.2.- Evaluation of the environmental impacts arising from environmental releases of GMO or derived products- Aspects of the socio-economic medium;
- Regarding the environmental impacts of the socio-economic environment, information should be provided to anticipate the socio-economic impacts that can occur in the short, medium and long term, considering the human population that can be affected by direct or indirect use of GMO.

-The entrepreneur must also make comparative analysis between the proposed venture and the alternative technologies for sustainability, impacts on the environment and human health and socio-economic consequences.

5.7.- Environmental risk analysis;

-Carry out risk assessment, risk management and communication, which are the three components required to set up a risk analysis.

5.7.1.- Risk assessment;

The risk assessment should consider, on a case by case basis, each organism/gene construct (for example, transgenic cultivar).

5.7.2.- Risk Management;

Contextualize specific issues of the Risk Assessment with the socio—economic aspects; considering the various mitigation options available, the constant and continuous form of the release of GMOs into the environment; and plan for mitigation of the negative effects.

5.7.3.- Risk communication;

- Establish schedule for conducting public hearings to discuss the project with communication deadlines compatible, so that society can program participation.

Identify options to characterize and report on the GMO and its constraints.

5.8.- Mitigating measures;

-These measures will be deployed to both the recovery, preservation and conservation of the environment.

5.9.- Environmental plans and programs;

- Environmental plans and programs must be presented covering basic aspects of evaluation, taking into account the sustainable management of natural resources.

6.-Bibliography;

-Updated the bibliography must be included for the achievement of the environmental studies, specified by knowledge area. In addition to the bibliographical references (primary bibliography) references should also be included of national and international magazines. The documentation should quote the source.

7.- Technical team;

The multidisciplinary technical team responsible for the preparation of the Environmental Impact Assessment - EIA and Environmental Impact Report - RIMA must be submitted to Indicate the registration number in the "Federal Technical Register of Activities and Environmental Defense Instruments" by IBAMA (registration of individuals and legal entities); the professional area; the record number in the respective Class Council of professionals involved, as well as the record of the company responsible for the studies, as per CONAMA Resolution No. 1, of January 23, 1986

8.-Glossary;

- Include listing of technical terms used in the study.

9.- Environmental impact report - RIMA;

-The technical information generated in the case of Environmental Impact Assessment Study -EIA, should be submitted through the Environmental Impact Report - RIMA objectively and in a language accessible to the public.

-The RIMA should be drawn up in accordance with the provisions of CONAMA Resolution No. 1, of 1986, including, necessarily, the topics listed in art. 9.

Note: the documentation submitted to the newsletter should compose the documents of environmental studies for the environmental licensing.

NOTE: Republished for containing inaccuracies (original version in the Official Gazette of the Union No. 119, of June 24, 2002, pages 103 to 105, made void by Ordinance No. 317, of June 25, 2002, published in the Official Gazette No. 121, of June 26, 2002, p. 98)

This text does not replace the one published in the Official Gazette, of July 4, 2002

CONAMA RESOLUTION 312 of October 10, 2002
Published in Official Gazette 203 on October 18, 2002, in Section 1, pages 60-61

Establishes provisions for the granting of environmental licenses to shrimp cultivation enterprises on the coastal zone.

The NATIONAL ENVIRONMENTAL COUNCIL-CONAMA, pursuant to the powers vested on it by law No. 6,938 dated August 31, 1981, regulated by Decree No. 99,274, of June 6, 1990, amended by Decree No. 3,942, of September 27, 2001, and bearing in mind the provisions of CONAMA Resolutions No. 237, of December 19, 1997, no. 1, of January 23, 1986 and in its Internal Rules, and

Considering that the Coastal Zone, pursuant to § 4, art. 225 of the Federal Constitution, is the national heritage and that its use should be sustainable and in line with the criteria laid down in law No. 7,661, of May 16, 1988;

Considering that the fragility of coastal environments, in particular mangrove ecosystem, permanent preservation area in accordance with Law No. 4,771 of September 15, 1965, with the definition specified in section IX, art. 2 of CONAMA Resolution No. 303, of March 20, 2002, and the need for an orderly system of planning and control to preserve them;

Considering the social and environmental function of property, provided for in articles 5, subparagraph XXIII, 170, item VI, 182, 186, § 2, paragraph II and 225 of the Federal Constitution;

Considering the Precaution, Prevention, User-Payer and the Polluter-Payer Principles;

Considering that the need to edit specific rules for the environmental licensing of shrimp farming ventures in the coastal zone;

Considering that the activity of shrimp farming can result in environmental impacts on coastal ecosystems;

Considering the importance of mangroves as co systems exporters of organic matter to coastal waters which have a fundamental role in maintaining biological productivity;

Considering the areas of mangroves, already degraded by shrimp farming projects, are recoverable;

Considering the provisions of the forest code, established by Act No. 4,771 of 1965, of the Federal Decree No. 2,869, of December 9, 1998, of Ecologic-Economic Zoning, Coastal Management Plans, and the CONAMA Resolution No. 303, 2002, resolves

Art. 1 The environmental licensing procedure of shrimp farming ventures in the coastal zone will abide by the provisions of this Resolution, without prejudice to any other requirements set out in federal, state and local standards.

Art. 2 It is forbidden the activity of shrimp farming in mangrove forest.

Art. 3 The construction, installation, expansion and operation of ventures of shrimp farming in the coastal area, defined by Law No. 7,661, 1988, and the National Plan for Coastal Management, in accordance with this resolution, shall depend on environmental licensing.

Sole paragraph. The installation and the operation of shrimp farming projects shall be without prejudice to the traditional activities of local communities ' survival.

Art. 4 For the purposes of this Resolution, the individual ventures of shrimp farming in coastal areas are classified into categories, according to the effective dimension of area flooded, according to the following table:

SIZE	ARE EFFECTIVELY FLOODED
Small	Less or equal to 10.0
Medium	Greater than 10.0 and smaller or equal to 50.0
Large	Greater than 50.0

§ 1. The ventures with an area less than or equal to 10 (ten) ha can be licensed through simplified licensing procedure, provided this procedure has been approved by the Environmental Council.

§ 2 The licensing process will considered ecologically the potential of ecologically sustainable production of the estuary or river basin, defined and limited by ZEE.

§ 3 The ventures with an area greater than 10 (ten) ha, are subject to the environmental licensing process.

§ 4 The ventures located in the same estuary can perform the EPIA/RIMA jointly.

§ 5 In the expansion of shrimp farming projects environmental studies requested will be referring to the new size on which the venture will be ranked.

Art. 5 The following ventures shall be subject to presentation of EPIA/RIMA, technically justified in licensing process:

I- with area greater than 50 (fifty) ha;

II- with less than 50 (fifty) ha, when potentially cause significant degradation of the environment;

III- to be located in areas where there is the effect of densification by enterprises whose impacts affect common areas

Art. 6 Areas conducive to the activity of shrimp farming will be defined in the ecologic-economic zoning, after hearing the state and municipal councils for environment and in accordance with national, state and municipal Plans of Coastal Management.

Art. 7 In the environmental licensing processes, the licensing agency shall require from f the entrepreneur, the allocation of the area corresponding to at least 20% of the total area of the venture, for full preservation.

Art. 8. The entrepreneur when applying for the Previous License-LP, Installation License-LI and Operating License – LO for shrimp farming ventures must present in at least the documents specified in ANNEX I.

Art. 9 The licensing should require mandatory licensing or settlement of shrimp farming enterprises the granting of right of use of water resources.

Sole paragraph. It is forbidden to install ventures in areas of areas of the Union in which there is no record of previous occupation or leasing before February 1997, in accordance with article 9 of law No. 9,636, of May 15, 1998

Art. 10. The Environment Licensing Agency shall inform the respective Environmental Council, within thirty days, the Environmental Licenses issued for shrimp farming.

Art. 11. At the time of the stage of Installation License-LI an Environmental Control Plan - PCA will be required, containing at a minimum what is set out in ANNEX II of this Resolution.

Art. 12. At the time of the stage of Operating License an Environmental Monitoring Plan – PMA will be required, containing at a minimum what is set out in ANNEX III to this Resolution.

Art. 13. This Resolution also applies to ventures already licensed, which should fit thereto.

Sole paragraph. The ventures in operation on the date of publication of this Resolution shall require the adequacy of environmental licensing, within 90 days from the date of publication of this Resolution, and set within a maximum of three hundred and sixty days of that request.

Art. 14. Shrimp farming projects, at the discretion of the licensor, shall observe, among other measures of control and treatment of effluents, the use of basins sedimentation as intermediate steps between the movement or the dewatering of wastewater or, when necessary, the use of water in recirculation system.

Sole paragraph. The water used by shrimp farming ventures should return to the body of water of any class meeting the conditions laid down by CONAMA Resolution No. 20, of June 18, 1986 ²³¹.

Art. 15. the violation of the provisions of this Resolution shall subject the violator to the penalties provided for in Law No. 8,974 of January 5 1995²³², in law No. 9,605 of

February 12, 1998, and other relevant legal provisions.

Art. 16. Without prejudice to any criminal and administrative penalties, the licensing jurisdiction, by decision motivated, can change the conditions and the measures control and suitability, including suspending provisionally adopt the license issued, among other necessary measures, when applicable:

I- the breach or improper fulfillment of the conditions laid down in the license, or disobedience of the applicable legal standards, by the holder of the license;

II. provision of false, dubious or misleading information, even by omission, at any stage of the licensing procedure or during the period of validity of the license;

III- the onset of additional information about risks to the environment, health, and socio-economic and cultural heritage, which have direct or indirect relationship with the object of licensing.

Art. 17. The environmental license for activities or projects of shrimp farming will be granted without prejudice to the requirement of permits, records, registers, among others, in compliance with legal provisions in force.

Art. 18. In the environmental licensing process, subscribers of studies, documents , opinions and technical reviews are considered experts, for all legal purposes.

Art. 19. This Resolution shall enter into force on the date of its publication.

JOSÉ CARLOS CARVALHO-Council President

²³¹ Resolution revoked by Resolution No. 357/05

²³² Law revoked by Law 11.105, of March 24, 2005

**ANNEX I
MINIMUM DOCUMENTS REQUIRED TO PROCESS
LICENSING**

TYPE OF LICENSE	MINIMUM DOCUMENTS REQUIRED
Prior License – LP	1 – Proof of ownership, possession of assignment of use of the venture’s area 2 – Application for LP; 3 – Copy of the publication of application for LP; 4 – Certificate of approval by the City Hall and the Union Heritage Secretariat, when applicable 5 – Technical, Economic, Social and Environmental Feasibility Studies, including EIA/RIMA or EA 6 – Copy of the approval for the right of use of water resources; 7 – Record with the Federal Technical Register of potentially pollutant activities and/or using natural resources, issued by IBAMA 8 – Certificate on the non-existent of financial debts of environmental nature and certificate on the nonexistence of environmental violation administratively unappeasable
Installation License – LI	1 - Application for LI 2 - Copy of the publication of application for LI 3 – Copy of the publication of the granting of LP 4 – Environmental projects, including those for the treatment of effluents, engineering and on the technological and methodological aspects of all stages of planting e pre-processing and processing, in this case, when applicable 5 – Registration of the fish farmer issued by the Ministry of Agriculture and Supply; 6 – Environmental Control Plan – PCA 7 – Copy of the authorization for the right of using water resources; 8 – Authorization for deforestation or suppression of natural ecosystems, issued by the competent environmental agency, when applicable.
Operation License – LO	1 – Application for LO 2 – Copy of the publication of application for LO 3 – Copy of the publication of granting of LI; 4 – Environmental license from each of the laboratories supplying the post-larvae 5 – Environmental Control Plan – PCA

**ANNEX II
ENVIRONMENTAL CONTROL PLAN PARAMETERS**

1. identification of the entrepreneur Venture

Name/Corporate Name:

Address:

CPF/CNPJ:

2. Description of the project

- Locational information of the Enterprise Integration;
- Description of the direct and indirect influences of the venture;
- Justification of the venture in terms of the importance of the socio-economic context of the region;
- Locational justification;
- Description and flowchart of the cultivation process;
- Type of equipment used (justification);
- Detail of existing vegetation, wetlands and wetable lands and watercourses

3. Environmental diagnosis

- Characterization of the direct and indirect influence of the venture containing the detail of the qualitative and quantitative aspects of water to capture and release;
- Characterization of the surrounding area including access roads, villages, agricultural, industrial, among others;

-Characterization of the biological and physical environment including geology, pedology, geomorphology, flora and fauna (terrestrial and aquatic), of the area in question.

4. Assessment of environmental impacts

-Identify, measure and assess the significant environmental impacts in the phases of planning, implementation, operation and decommissioning of the project, among others;

Possible impacts due to the deployment of the venture:

- Landscape and ecosystem degradation;
- Loan areas to landfill (construction of slope);
- Risk of remobilization of sediments to the water column during deployment;
- Loss of vegetative cover;
- Reduction of the capacity parameter of future impacts;
- Reduction of native species/protection/nursery areas;
- Reduction of protection areas / autochthon/native species nursery;
- Risk of change of migratory birds wildlife refuges;
- Commitment of the transit corridors of native species;
- Impact of the waste resulting from cultivation processes, preprocessing and processing;
- Physico-chemical and biological changes of receivers of effluents;
- Impacts on the aquifer and consequent increase of the saline wedge;
- Recovery of abandoned areas by cultivation;
- Risk of introducing exotic species.

5. Proposal of control and mitigation of impacts

-Indicate and elaborate measures through technical projects and activities aimed at the mitigation of impacts.

ANNEX III ENVIRONMENTAL MONITORING PLAN MINIMUM PARAMETERS

1- COLLECTING STATIONS

1.1 Deploy at least the following installation plan of water collection stations, which must be presented in plan, with geographical coordinates, compatible with the project, establishing the frequency for collection of samples in the areas of direct and indirect influence of the venture.

In nurseries in production, being at least 1 (one) station for the small farmer; 2 (two) for the average farmer; and 3 (three) for the great farmer;

At the pumping site (collection point);

At the drainage channel;

At 100 m downstream of the effluent release point of the drainage of nurseries;

At 100 m upstream of the effluent release point of the drainage of nurseries.

2-COLLECTION PARAMETERS

Determine the variation of physico-chemical and biological parameters, which should be collected at low tide and high water:

2.1- Hydrobiological parameters, on a minimum quarterly collection frequency.

Material in suspension (mg/l); Transparency (Secchi Disk-m); Temperature (° C);

Salinity (ppt); OD (mg/l); DBO, pH; Ammonia-N; Nitrite-N; Nitrate-N (mg/l); Phosphate-P (mg/l) and Silicate-Si, Chlorophyll "a" and total coliforms.

2.2- Biological parameters, at a minimum quarterly frequency, considering the dry and rainy seasons to identify qualitative-quantitative structure of the plankton community, describing the methodology to be applied.

Introduce internal monitoring of nurseries on the eve of harvest, at the presentation of reports;

Note 1: The data of monitoring of nurseries must be available when requested;

Note 2: Depending on the analysis of the data presented, the biological parameters can be the object of appropriate specifications for each case.

3-SCHEDULE

Present schedule of implementation of the monitoring plan during the period of validity of the operating license.

4-TECHNICAL REPORT

Present technical reports of hydrobiological parameters and of biological parameters within thirty days after each collection, and annual report with all data analyzed and interpreted, which shall state the major environmental changes resulting from the project, as well as make comparisons with previous analyses.

This text does not replace the one published in the Official Gazette , of October 18, 2002

CONAMA RESOLUTION 319 of December 4, 2002
Published in Official Gazette 245 on December 19, 2002, Section 1, pages 224-225

Correlations:

- Changes CONAMA Resolution n° 273/00 (amending articles 3 and 9)

Provides a new text for the provisions of Resolution 273/00 which Establishes directives for the granting of environmental licenses to fuel service stations and the prevention and control of pollution

The NATIONAL ENVIRONMENTAL COUNCIL-CONAMA, pursuant to the powers vested on it by Law no 6,938, of August 31, 1981, regulated by Decree No. 99,274, of June 6, 1990, bearing in mind the provisions of its Internal Rules, ANNEX to Ordinance No. 326, of December 15, 1994 ²³³resolves:

Article 1 Art. 3 and its sole paragraph and art. 9 and its sole paragraph, both of CONAMA Resolution No. 273, of November 29, 2000, shall take effect as follows:

"Art. 3 equipment and systems intended for the storage and distribution of automotive fuels, as well as their assembly and installation should be evaluated as to its compliance, in the context of the Brazilian System of Conformity Assessment

Sole paragraph. Prior to start-up and at intervals not exceeding five years, the equipment and systems, referred to in the caput of this article shall be tested and tried for evidence of the absence of flaws or leaks, according to standardized procedures, in order to enable evaluation of its compliance, in the Brazilian System of Conformity Assessment. " (NR)

"Art. 9 The Certificates of Conformity in the context of the Brazilian System of Conformity Assessment, as referred to in art. 3, will have its enforceability in force from January 1, of 2004 for resellers stations and July 1, 2004 for the remaining establishments.

Sole paragraph. Until December 31, 2003 for resellers stations and until June 30, 2004 for the remaining establishments, the competent environmental agency responsible for the issue of licenses, may require, as a replacement to the certificates referred to in the caput of this article, technical reports, attesting that the manufacturing, assembly and installation of the testing equipment and systems alluded to in this resolution are in accordance with the technical standards required by ABNT and, in the absence thereof, by the technical regulations and conformity assessment system, or by the competent environmental agency-defined guidelines. " (NR)

Art. 2. This Resolution shall enter into force on the date of its publication.

JOSÉ CARLOS CARVALHO-Council President

This text does not replace the one published in the Official Gazette , of December 19, 2002.

²³³ Ordinance revoked by Ordinance MMA No. 499, of December 18, 2002

CONAMA RESOLUTION 334, April 3, 2003
Published in Official Gazette 94 on May 19, 2003, Section 1, pp. 79-80

Establishes provisions for processes related to the granting of environmental licenses to enterprises that collect/store empty agrotoxic packages.

The NATIONAL ENVIRONMENTAL COUNCIL-CONAMA, pursuant to the powers vested on it by law No. 6,938 dated August 31, 1981, regulated by Decree No. 99,274, of June 6, 1990, and bearing in mind the provisions of its Internal Rules, Annexed to Ordinance No. 499, of December 18 2002²³⁴; and

Considering that it is necessary to give appropriate destination to empty packages of agrotoxic substances and similar products as establish by Law No. 6,938, of 1981, Law No. 7,802, of July 11, 1989, Law No. 9,974, of June 6, 2000, and Decree No. 4,074, of January 4, 2002;

Considering that the inadequate disposal of empty containers of pesticides and related products cause damage to the environment and human health;

Considering that the commercial establishments, service stations and centers are the places where the user must return the empty packaging of agrochemicals;

Considering that the station and central receiving empty packages of agrotoxic substances and suchlike are potentially polluting ventures;

Considering that CONAMA Resolutions No. 1, of January 23, 1986 and No. 237, of December 19, 1997, establish the activities or enterprises subject to the environmental licensing, referring the latter to CONAMA to define the criteria for specific environmental licenses; and

Considering that art. 12 of CONAMA resolution No. 237 of 1997, allows for the establishment of criteria to streamline and simplify the procedures for environmental licensing of activities and ventures of potential small environmental impact, aiming at continuous improvement and the improvement of environmental management; resolves:

Art. 1 This Resolution rules, without prejudice to any other regulations applicable to the subject, the minimum technical criteria and requirements necessary for the environmental licensing, by competent bodies, of units receiving empty packages of agrotoxic substances and related materials .

Art. 2 For the purposes of this Resolution the following definitions shall be adopted:

I- **station**: unit intended for receipt, control and temporary storage empty packages of agrotoxic substances and the like, until they are transferred to the central, or directly to environmentally appropriate final disposal;

II- **central**: unit that is intended for the receipt, control, volume reduction, packing and temporary storage of empty packages of agrotoxic substances and like, that meets the users, businesses and jobs, until the withdrawal of packaging to environmentally appropriate, final disposal;

III- **mobile unit** : vehicle intended for the regular collection of empty containers of chemicals and the like for later delivery by post, central or local, environmentally appropriate final disposal;

IV- **commercial shop**: place where the pesticide and the like are marketed, responsible for the receipt, control and storage of empty packaging of pesticides on it sold.

Art. 3 The location, construction, installation, modification and operation of post and receive central empty packages of agrotoxic substances and the like will depend on competent environmental agency licensing notice, in accordance with ANNEX I, without prejudice to any other legally required licenses.

§ 1. Mobile units are subject to specific legislation for the transport of hazardous cargo.

§ 2 The criteria of adequacy of commercial establishment to receive operations and temporary storage of empty packages of agrotoxic substances and the like will be defined by the competent environmental agency.

§ 3 In case of termination of the activities, the entrepreneur must first apply for Authorization of Deactivating, attaching the Closedown of Activities Plan including on it measures for recovery of the affected area and possible compensation of victims.

Art. 4 The competent environmental agency will require the following environmental licenses:

I- Preliminary License-LP: granted in the preliminary stage of planning of the venture by adopting its location and design, certifying the environmental sustainability and establishing the basic requirements and conditions to be met in the next phases;

II- Installation License-LI: authorizes the installation of the venture with specifications in the approved plans, programs and projects, including control measures environmental and other constraints;

III- Operating License - LO: authorizes the operation of the activity, after the verification of effective compliance with the previous licenses, that of environmental control measures and their conditions.

Sole paragraph. The stations and centrals already in operation should apply for IT, upon presentation of appropriate plan, within 60 days from the date of publication of this Resolution

Art. 5 The competent environmental agency will require for the environmental licensing of station and central, at least the items listed below, requiring them, at its discretion, in each one of its stages:

I- basic design that should follow at least the building specifications set out in ANNEX II, including the drainage system;

II - statement by the Municipal City Hall or the Government of the Federal District, of which the location and type of development are in accordance with the master plan or similar;

III- sketch of the location of stations and power stations, renting the same within the river basin, sub-basin or, with drainage network, permanent preservation areas, buildings, vegetation, on a minimum radius of 500 m.

²³⁴ Ordinance revoked by Ordinance MMA No. 168, of June 10, 2005

IV- term of commitment entered into by the company and related pesticide registrant, or by their representative body, ensuring the collection, transportation and disposal of empty containers received, with daily, fine forecast as relevant legislation;

V- identification of possible risks of contamination and associated control measures;

VI- employee training program;

VII – toxicological staff monitoring program, with periodic medical examinations, with research of pesticide in blood;

VIII- monitoring program of soil and water in the fields of stations and reception centrals;

IX- program of internal and external media warning on risks to the environment and health;

X- control system for the receipt and disposal of empty containers; and

XI- technician responsible for the operation of stations and receiving centers.

Art. 6 It will not be allowed the installation of sheds in watershed areas.

Art. 7 Stations and centrals will not be allowed to receive packages of leftovers of products, products in disuse, or unsuitable for marketing and use.

Sole paragraph. The products referred to in the caput of this article should have their destination in accordance with the provisions laid down in Law No. 7,802, of July 11, 1989, and in the Decree, 4,074 of January 4, 2002.

Art. 8. The breach of the provisions of this Resolution, in accordance with the terms and conditions of licenses issued, and of any Conduct Adjustment Term shall subject the offender among other penalties, to those provided for in law no 9,605, of February 12, 1998, in particular in articles 54, § 3, and 56, without prejudice to the obligation to recover damages caused to the environment according to art. 14, § 1, of law No. 6,938 dated August 31, 1981.

Art. 9. In addition to the appropriate administrative and criminal sanctions, as well as the daily fine and other obligations provided for in the Conduct Adjustment Term and in the current legislation, the competent environmental agency by decision motivated, may require the immediate repair of the damage caused and the risk mitigation, eviction, isolation and/or recovery of the venture's area.

Art. 10. The subscribers of studies, technical assessments, opinions and documents used in the licensing procedure and concluding the Conduct Adjustment Term are considered experts, for criminal purposes.

Sole paragraph. The obligations laid down in the environmental licenses and Conduct Adjustment Term are considered to be of relevant interest.

Art. 11. This Resolution shall enter into force on the date of its publication.

MARINA SILVA-Council President

ANNEX I
MINIMUM TECHNICAL CRITERIA REQUIRED FOR THE
ENVIRONMENTAL LICENSING OF STATIONS AND RECEPTION CENTRALS OF EMPTY
PACKAGES OF AGROTOXIC SUBSTANCES.

I- Location: preferably in rural or industrial zone, in an area easily accessible at any time.

II- The land must be preferably flat, not subject to flooding, and storm water control system and soil erosion, adequate to the land features.

III- The area chosen for the construction of the station or central for the reception of empty agrochemical packages and the like should be or have:

a) distant from water bodies, such as lakes, rivers, springs, water collection points, flood areas, etc., so as to reduce the risk of contamination in the event of accidents;

b) safe distance from homes, schools, health clinics, hospitals, shelter pets and food deposits, so that they are not contaminated in case of accidents;

c) duly identified with signposts, warning about the risk and access restricted to authorized persons; and

d) from courtyard allowing the operation of vehicles transporters of packages.

IV- The entrepreneur or responsible for the station or central must submit a management plan, establishing and providing, at a minimum:

a) educational program aimed at awareness of the surrounding community about the operations of reception, temporary storage and gathering for final disposal of empty containers of pesticides and related returned by users;

b) specific training program) for employees with certification, relating to activities on these sites;

c) periodic toxicological monitoring staff plan;

d) preventive action and plan for possible accidents; and

e) input and output control system of the incoming empty containers, capable of issuing periodic reports with the identity of the owner of packages, quantity, type and final destination.

V- The entrepreneur or responsible shall, together with the manager or supervisor of the station or central, a protocol containing the procedures to be adopted for the reception, sorting, temporary storage and gathering for final disposal of empty containers

VI- The entrepreneur or the person responsible should provide the user, at the time of return, a proof of receipt of empty containers and should bear at least the following data:

a) name of packages' owner;

b) name of venture/address; and

c) quantity and type (plastic, glass, or metal) of packages received.

VII- The practice of visual inspection is required and must be performed by trained professional, in rigid packaging, to separate those washed from the contaminated, and the must be stored separately.

VIII- The entrepreneur or the person responsible for the receiving unit should provide individual protective equipment suitable for the handling of empty containers of pesticides, and take care of their maintenance.

IX- Minimum conditions required for the installation and operation of stations and centrals for the reception of empty packages of agrototoxic substances and the like.

ANNEX II
MINIMUM REQUIREMENTS FOR FACILITIES

Item	Needs	Reception Station and Central
I	Area needed	In addition to the area of the warehouse, include ten more meters in each side of each warehouse, for the movement of truck
II	Surrounded area	Surround the whole area with a minimum height of two meters
III	Double-leaf door:	Adequate to the trucks access
IV	Areas for the movement of the vehicle	With gravel or similar material or sealed
V	Covered area specific for temporary storage of contaminated packages (apart from the washed ones)	Yes, and it can be segregated, in a specific area in the same warehouse
VI	Channels for rain water	Yes.
VII	Boxes for contention of rain waters	Yes.
VIII	Minimum area for each warehouse	Station = 80m ² ; Central = 160m ² or adequate to the amount of empty packages generated I the region
IX	Number of warehouses	Adequate to the amount of empty packages generated in the region
X	Ceiling height	Station= 3.5m – 4.00 m; Central = 4.5 m – 5.0 m, with an opening in the upper part to assure ventilation
XI	Foundations	Yes.
XII	Structure:	Material at the regional discretion,; metallic, masonry, wood etc.
XIII	Cover	Material at the regional discretion, with eave with a minimum of one meter.
XIV	Sealed floor	Cement floor (minimum of five centimeters with iron mesh)
XV	Side small wall	Two meters (masonry or aluminum)
XVI	Roof above small wall:	Yes
XVII	Contention box for leakage/ floor washing	Yes
XVIII	Sidewalk, one meter wide	Yes
XIX	Power installation	Central: yes; Station: alternate
XX	Hydraulic installation – water collection/distribution	Yes
XXI	Vertical press:	Only in the centrals
XXII	Scale	Optional in the station and at least one in the central
XXIII	Individual protection equipment compatible with the activity	Mandatory for all employees
XXIV	Sanitary facilities with external access to the warehouse or through the office	Yes.
XXV	Signaling of the whole area	Yes
XXVI	Office with external access to the warehouse	

This text does not replace the one published in the Official Gazette of May 19, 2003.

CONAMA RESOLUTION 335, April 3, 2003
Published in Official Gazette 101 on May 28, 2003, Section 1, pages 98-99

Correlations:

- Amended by CONAMA Resolution No. 368/06 (changed arts. 3 and 5, repealed item III of paragraph 3, art. 3)
- Amended by Resolution No. 402/08 (changed arts 11 and 12)

Establishes provisions for the environmental licensing of cemeteries.

The NATIONAL ENVIRONMENTAL COUNCIL-CONAMA, pursuant to the powers vested on it by Law No. 6,938 dated August 31, 1981, regulated by Decree No. 99,274, of June 6, 1990, and bearing in mind the provisions of its Internal Rules, Annexed to Ordinance No. 499, of 18 December 2002²³⁵, and

Considering the need of regulation of essential aspects relating to the process of environmental licensing of cemeteries;

Considering the respect for religious and cultural values and practices of the population; and

Considering that CONAMA Resolutions No. 1, of January 23, 1986 and 237, of December 19, 1997, indicate the activities or ventures subject to environmental licensing and refer to the competent environmental agency the task of defining the criteria for enforceability, the detailing, by observing the specificities, environmental hazards and other features of the activity or venture, in order to obtain an environmental license

Considering that art. 12, of CONAMA Resolution No. 237, of 1997, allows the creation of criteria to streamline and simplify the procedures for environmental licensing of activities and similar ventures, aiming at continuous improvement and the improvement of environmental management, resolves:

Art. 1 The horizontal and vertical cemeteries, hereinafter called cemeteries, shall be submitted to the environmental licensing process under this Resolution, without prejudice to any other regulations applicable.

Art. 2 For the purposes of this Resolution the following definition shall be adopted:

I- cemetery: area for burials;

a) horizontal cemetery: is the one located an uncovered area comprising the traditional ones and those of park or garden type;

b) park or garden cemetery: is that predominantly covered by gardens, free from grave constructions, and in which the graves are marked by a headstone, at ground level, and of small dimensions;

c) vertical cemetery: is a building of one or more decks fitted with compartments for burials; and

d) cemeteries of animals: graveyards for burials of animals.

II- to bury or inhumate: is the act of putting a decedent person, amputated limbs and remains in proper place;

III- grave: unitary space, intended for burials;

IV- tomb building: is a building erected in a grave, with or without compartments for burial, comprising:

a) tombstone: is the compartment for contained burial;

b) *carneiro* or drawer: is the unit of each of the compartments for existing burials in a tomb; and

c) crypt: the burial compartment inside of buildings, temples or its facilities.

V- Lucullus: is the compartment for contained burial in vertical cemetery;

VI- colligation product: is the biodegradable liquid from the process of decomposition of the bodies, or parts thereof;

VII- to exhumate: remove the deceased person, parts or remains from he where is buried;

VIII – to reburial: reintroducing the deceased person or his remains after exhumation, in the same grave or in another;

IX- urn, casket or coffin: is the box with proper format to contain deceased person or parties thereof;

X- ossuarium: is the appropriate size container to contain bones or pieces of bodies exhumed;

XI- ashes urn: is the container for the ashes of cremated bodies;

XII- ossuarium or ossuary: is the place for accommodation of bones, contained or not in an ossuarium;

XIII- cinder: is the location for accommodation of the ashes urn;

XIV- Columbarium: is the place to save ash urns and funeral homes, arranged horizontally and vertically, with covered access or not, adjacent to the bottom, with a wall or another set of burial vaults;

XV- niche: is the location to place urns with funeral ashes or bones; and

XVI- transfer: the act of removing buried or skeletal remains from one place to another.

Art. 3 During the stage of Previous License of environmental licensing, the following documents shall be presented, among others::

I- characterization of the area in which the venture will be implemented, including:

a) technically identified location in the municipality, with indication of access, road system, occupation and improvements in its surroundings;

b) planialtimetric and cadastral topographic survey, including the mapping of restrictions contained in environmental legislation, including mapping and characterization of the vegetation cover;

c) study demonstrating the maximum level of the water table aquifer (groundwater), at the end of the most rainfall season; and

²³⁵ Ordinance revoked by Ordinance MMA No. 168, of June 10, 2005

d) mechanical characterization of underground drilling in appropriate number to the area and land features considered.

II- deployment plan and operation of the venture.

~~§ 1. It is forbidden to install cemeteries in Permanent Preservation Areas or in others that require deforestation of primary or secondary Atlantic Forest, in the middle or advanced stage of regeneration, predominantly featuring karst caves, sinks or underground rivers, watershed areas for human supply, as well as those that have their use restricted by current legislation, subject to the legal exceptions listed.~~

§ 1. It is forbidden to install cemeteries in Permanent Preservation Areas or in others that require deforestation of primary or secondary Atlantic Forest, in the middle or advanced stage of regeneration, predominantly featuring karst caves, sinks or underground rivers, as well as those that have their use restricted by current legislation, subject to the legal exceptions listed. *(new wording by Resolution No. 368/06)*

§ 2 At the competent environmental agency's discretion, the stages of Prior License and Installation Licenses can be combined.

§ 3 Horizontal cemeteries are excepted from the previous paragraph of this article, which:

I- occupy an area greater than 50 hectares;

II- are located in areas of Environmental Protection-APA 's, within the protection strip of Full Use Conservation Units, Private Reserves of Natural Patrimony and Natural Monuments;

~~III- are located in predominantly karstic lands, with caves, sinks or underground rivers; (revoked by Resolution No. 368/06) and~~

IV- are located in spring areas for human supply.

Art. 4 At the stage of Installation License of environmental licensing, the following documents must be submitted, among others:

I - venture's design containing plants, memorials and documents signed by professional enabled; and

II- executive project contemplating the mitigation measures and environmental control.

Art. 5, The following requirements for horizontal cemeteries shall be met, inter alia:

~~I- the background area of the graves must keep a minimum distance of one meter and a half of the maximum level of the water table aquifer;~~

I- the lower level of the graves must be at a distance of at least one and a half meter above the highest level of the water table, measured at the end of the flood season. *(new wording by Resolution No. 368/06)*

II- in the grounds where the condition laid down in the preceding subparagraph cannot be met, the burials must be made above the natural ground level;

III - techniques and practices that allow gas exchange, shall be adopted, providing, thus, the conditions appropriate to the decomposition of the bodies, except in the specific cases provided for by legislation;

IV- the burial area shall maintain a minimum setback of five meters in relation to the perimeter of the cemetery, that should be expanded, if necessary to the hydrogeological characteristics of the area;

V- document proving registration of Legal reserve provided for by law; and

VI- fauna and flora studies for projects above 100 (one hundred) hectares.

§ 1. For horizontal, cemeteries in watershed areas for human supply, due to the special characteristics of these areas, the following should be met, in addition to the requirements of items from I to VI.: *(paragraph added by Resolution No. 368/06)*

I- the area planned for the construction of the cemetery should be at a safe distance from bodies of water, surface and underground, in order to ensure their quality, in accordance with studies presented and the licensing criteria; *(paragraph added by Resolution No. 368/06)*

II - the perimeter and the inside of the cemetery should be equipped with a suitable and efficient drainage system designed to capture, forward and safely dispose the seepage of rainwater and prevent erosion, flooding and earth movements; *(paragraph added by Resolution No. 368/06)*

III- the subsoil of the area of interest to the cemetery should consist of materials with coefficients of permeability between 10^{-5} and 10^{-7} cm/s, in the range of between the background of the graves and the groundwater level, measured at the end of the flood season.

For larger permeabilities, the lower level of the reservoirs is ten meters above the level of the water table. *(paragraph added by Resolution No. 368/06)*

§ 2 At the competent environmental agency's discretion, information may be requested and additional documents in line with specific legal requirements of local character. *(paragraph added by Resolution No. 368/06)*

Art. 6 The following requirements for vertical cemeteries must be met:

I- the loculi must consist of:

a) materials that prevent the passage of gases for the movement of visitors and workers;

b) accessories or constructive characteristics that prevent the leaking of fluids from colliquation;

c) device enabling the gas exchange in all loculi, providing the right conditions for the decomposition of the bodies, except in the specific cases provided for by legislation; and

d) environmentally suitable treatment for eventual waste gases.

Art. 7 The columbaria intended for the burial of bodies shall meet the provisions of arts. 4 and 5, as applicable.

Art. 8. The bodies buried may be surrounded by blankets or urns made of biodegradable materials, and it is not recommended the use of plastics, paints, varnishes, heavy metals or any material harmful to the environment.

Sole paragraph. It is forbidden the use of impermeable material that prevents the gas exchange of the body buried with the environment that surrounds it, except in the specific cases provided for in legislation.

Art. 9. Non-human solid wastes resulting from exhumation of bodies must have sanitarly adequate and environmental disposal.

Art. 10. The procedure of this Resolution can be simplified at the discretion of the competent environmental agency, after approval by the respective Boards of Environment, after meeting all of the conditions below:

I- cemeteries located in municipalities with population of less than 30,000 inhabitants;

II- cemeteries located in isolated municipalities, not members of conurbation or metropolitan area; and

III- cemeteries with a maximum capacity of five hundred burial vaults

~~Art. 11. The existing cemeteries and licensees, in disagreement with the requirements contained in arts. 4 and 5, shall, within one hundred and eighty days, counted from the date of publication of this Resolution sign with the competent environmental agency, a term of commitment for adequacy of the venture.~~

~~Sole paragraph. The cemetery that, on the date of publication of this Resolution, is operating without proper licenses, should request the regularization of their business next to the competent environmental body, within one hundred and eighty days from the date of publication of this Resolution.~~

Art. 11. State and municipal agencies environment shall establish by December 2010 criteria for adequacy of existing cemeteries in April 2003.

(new wording by resolution No. 402/08)

~~Art. 12. in case of termination of the activities, the entrepreneur must first apply for leave, joining the Activity Plan, including measures recovery of the affected area and possible compensation of victims.~~

Art. 12. the closure plan of activities should be included in the environmental licensing process, including measures for the recovery of the affected area and possible compensation of victims. (new wording by resolution No. 402/08)

Sole paragraph. In case of deactivation of the activity, the area should be used primarily for public park or public utility undertakings or social interest

Art. 13. Whenever it is deemed necessary, or when prompted by civil authority, by the public prosecutor, or by fifty citizens, the competent environment authority will promote Technical Informational Meeting.

Sole paragraph. In the Informative Technical Meeting it is mandatory the presence of the entrepreneur, the team responsible for the preparation of the environmental report and representatives of competent environmental agency.

Art. 14. The non-compliance with the provisions of this Resolution, pursuant to the terms of Environmental Licenses and eventual Environmental Conduct Adjustment Term, shall subject the offender to the penalties provided for in law no 9,605, of February 12, 1998, and in other relevant regulatory devices, without prejudice to the obligation to recover the environmental damage caused, in the form of art. 14, § 1, of law No. 6,938 dated August 31, 1981.

Art. 15. In addition to the appropriate administrative and criminal sanctions, as well as the daily fine and other obligations provided for in the Conduct Adjustment Term and current legislation, the competent environmental agency by decision motivated, may require the immediate repair of the damage caused and the risk mitigation, eviction, isolation and or recovery of enterprise's area.

Art. 16. Subscribers of studies, technical assessments, opinions and documents used in the licensing procedure and concluding the Conduct Adjustment Term are considered experts, for all legal purposes.

Art. 17. The obligations specified in environmental permits and Conduct Adjustment Term are considered to be of relevant interest.

Art. 18. This Resolution shall enter into force on the date of its publication.

MARINA SILVA-Council President

This text does not replace the one published in the Official Gazette of May 28, 2003.

CONAMA RESOLUTION 349, August 16, 2004
Published in Official Gazette 158 on August 17, 2004, Section 1, pp. 70-71

Establishes provisions for the granting of environmental licenses to low environmental impact railway enterprises and the regularization of operational enterprises.

The NATIONAL ENVIRONMENTAL COUNCIL-CONAMA, pursuant to the powers vested on it by Law No. 6,938 dated August 31, 1981, regulated by Decree No. 99,274, of June 6, 1990, bearing in mind the provisions of its Internal Rules, Annexed to Ordinance in 499, of 18 December 2002²³⁶, and

Considering the environmental guidelines from the Ministry of Transport which establishes as one of its principles, the suitability of the sector to the principle of sustainable development;

Considering the peculiarities of rail ventures, their peculiarities and the complexity of their activities, works and operations, which are characterized as inherently dynamic, in order to meet the regional and /or national demands of cargo and products;

Considering that this dynamic refers to the need for constant adaptation of the venture, which may require, among other activities, extensions of yards and terminals, adaptations of layouts, building extensions and deviations, and so on;

Considering that the safe operation of the railways depends on the systematic and periodic activities of maintenance, upgrade and repair the permanent way;

Considering that these developments or activities imply the carrying out of pruning and removal of existing vegetation in the right-of-way, grind and dormant replacement, among other activities;

Considering that the objective of the detailed criteria and procedures of environmental agencies, for licensing of railway undertakings;

Considering that most of the Brazilian railway network was built almost a hundred years ago;

Considering that legislation requires regularization of existing railways, through the competent environmental licensing process;

Considering need of standardization of criteria that guide the requirements being demanded by several environmental agencies, in the course of environmental licensing process, in compliance with the specific features of each project, resolves:

Art. 1 To establish criteria and procedures for:

I- the environmental licensing of railway works of small environmental potential impact, as referred to in § 1, art. 12, CONAMA Resolution No. 237; of 1997;

II- the environmental regularization of railway ventures in operation until the date of entry into force of this Resolution by the competent licensing environmental correction.

Sole paragraph. The activities to be performed in the permanent way, within the limits of the right-of-way, which are not subject to licensing;

Art. 2 For the purposes of this Resolution, the following definitions are adopted:

I- rail venture: set of activities, works and projects developed or deployed by the Railway Administration for construction, operation or exploration of commercial railroads;

II- railway administration: the private company, the agency or competent public entity that already exists or may be created, for construction, operation or commercial operation of railways;

III- railway work: construction work, duplication, expansion or any other intervention of the permanent way and support units

IV- railway operation: railway composition training activities, loading and unloading and movement of trains, in addition to the maintenance activities, repair and improvement of permanent way;

V- permanent way: bed of the railroad, including the trunks, branches and rail diversions, consisting also of:

a) infrastructure: deployment and maintenance works, such as foundation, earthwork, drainage, works of art, special art works (bridges, viaducts, tunnels, underpasses and overpasses) and additional works;

b) superstructure: part of the permanent way, such as, sub-ballast, ballast, sleepers, rails and accessories;

VI- particular railway deviation: excerpt from permanent way built in the area of third parties;

VII- support unit: unit required for the railway operation, such as:

a) courtyards for training, maneuvers, transshipment and train crossings;

b) workshops and maintenance of rolling stock (locomotives and wagons);

c) dormant plants;

d) equipment maintenance workshops of permanent way;

and filling stations);

f) yard welding of rails;

g) traffic control stations, passenger stations, control stations, loading and unloading;

h) electrical substations and communication;

i) cargo terminals;

VIII- right-of-way: land of variable width in relation to its length, in which the railways and other railroad facilities, including areas acquired by the railway administration adjacent to railroad expansion purposes;

IX- environmental report: document on the environmental aspects related to the implementation of railway projects of small environmental impact and potential for the operation of the support units arising out of

²³⁶ Ordinance revoked by Ordinance MMA No. 168, of June 10, 2005

such works, including the characterization of the undertaking, the identification of environmental interventions provided for, their actions to control and associated mitigation and its execution schedule;

X- cross courtyard: standby location technique of crossing two compositions in railway line, at the same level;

XI- bypass: is the line adjacent to the main line or other line diverted, for intersections, overtaking and formation of trains;

XII -rail branch line is a secondary line that derives from the trunk line.

Art. 3 For the purposes of this Resolution, it is considered a railway venture or activity of small potential environmental impact the railway works undertaken within the limits of the pre-existing domain, that do not involve:

I-removal of population

II- intervention in permanent preservation areas, protected areas or in other territorial spaces specially protected;

III- removal of vegetation subject to special legal protection, as well as of the species referred to in art. 7, of law No. 4,771, of September 15, 1965.

§ 1. In addition to railway works provided for in this article, may also be considered small rail undertakings or activities potential environmental impact, when so assessed by the competent environmental agency:

I- the expansion or construction of railway extensions of up to five kilometers long;

II- the expansion or construction of yards for transshipment and maneuvers;

III- the expansion or construction of terminals for loading, unloading and transloading, whose products are not classified as hazardous by current legislation.

§ 2 The ventures and activities referred to in this article shall be subject to environmental licensing based on simplified procedure pursuant to art. 12 of CONAMA Resolution No. 237, of 1997.

§ 3 CONAMA Resolution No. 237 of 1997 and, when applicable, CONAMA Resolution No. 1, of 1986 shall apply to ventures and activities that are not considered to be of little environmental potential impact.

§ 4 It is forbidden the fragmentation of projects and activities referred to in the preceding paragraph for the purpose of classification in this Resolution.

§ 5 The environmental licensing of a set of small railway activities potential environmental impact, planned for a same railway undertaking and with execution scheduled within the period of validity of the license may, at the discretion of the competent environmental body be effected by means of a single environmental licensing procedure, being considered mandatory the cumulative environmental impacts.

Art. 4 Storage and fuel supply integrated to the railway venture must be licensed as set out in CONAMA Resolution No. 273, of 2000 and other related standards.

Sole paragraph. The application for environmental licensing of the reseller activity of fuels in gas stations, as defined in art. 2, II, of CONAMA Resolution No. 273, of 2000, it's up to the entrepreneur responsible for the design, deployment, operation and maintenance of the stations.

Art. 5 The environmental licensing for railway ventures or activities of small environmental potential impact, dealt with in art. 3, caput, will be integrated by stages of installation license and operating license and must comply with the terms and periods set out below:

§ 1. The application for the Installation License must be accompanied by:

I- technical report containing the location, description, the basic design and the implementation timetable of the railway works;

II- required documents and/or legal authorizations, as the case may be, pursuant to federal, state and municipal standards applicable;

III- environmental report, as defined in item IX of art. 2.

§ 2 The environmental licensing of railway ventures and planned activities in paragraph 1 of art. 3rd, held outside the right-of-way, will be integrated through the steps of previous license, installation and operation.

§ 3 Within 90 (ninety) days, counted from the date of the application's protocol of the Previous License installation and License, the environmental agency will manifest itself on the request based on the technical opinion containing:

I- in case of acceptance, the motivation of the conclusion by the environmental viability of the works, from the documentation that has been instructed in the request, as well as the constraints to its implementation, which should be included in the respective license;

II-in the event of rejection, the explanation of the reasons justifying the decision.

§ 4 The counting of the time limit referred to in the first subparagraph shall be suspended during the elaboration of additional environmental studies or preparation of clarifications by the entrepreneur.

§ 5 The time limits stipulated in the heading may be changed, provided they are motivated and with the agreement of the entrepreneur and of the competent environmental agency.

§ 6 The license requirement of operation must be accompanied by the proof of compliance with the conditions laid down in the installation license and analyzed by

The environmental agency within forty-five days from the date of protocol of the respective application.

Art. 6 In small rail ventures of small potential environmental impact on environmental licensing process, on the date of publication of this Resolution may be adopted the simplified environmental licensing procedure, upon request of the railway administration.

Art. 7, The following maintenance, repair and improvement activities of the permanent way, when carried out within the limits of the right-of-way Integrate the operating license

I- removal of native or exotic vegetation, excepted the vegetation in areas of permanent preservation and Legal Reserve areas, as defined in law No. 4,771, of 1965 and its amendments; in protected areas, as defined in law

No. 9,985, of 2000; in any other legally protected areas, or vegetation subject the special scheme of legal protection;

II- native or exotic tree pruning which put at risk the railway operation;

III. control of invasive plants of the permanent way, including with the use of specific herbicides, duly registered before the competent bodies, in compliance with the regulations relevant to the use of toxic products;

IV- cutting and landfill slopes stabilization, which are independent of suppression of existing vegetation in areas registered as Legal Reserve and permanent preservation areas, according to current legislation;

V- cleaning and repair drainage systems, storm drains, channels and diversion channels;

VI- signaling works;

VII- deploying of fences, metal guard rails or similar;

VIII-replacement of ballast, dormant and rails;

IX-repairs and maintenance of works of art;

X-works for geometric stabilization and installation of catwalks, walkways and/or level gap, since outside of relocation of human population or intervention in permanent preservation areas, Legal reserve areas and within protected areas, according to current legislation;

XI - improvements and/or modernizations in existing support units that do not involve expansion of these units;

XII-grinding and welding of rails;

XIII-maintenance of communication system for own use of the railroad;

XIV-works to change the railway line on the yards and cargo terminals.

Sole paragraph., The activities provided for in this article, are hereby authorizes without prejudice to other licenses and authorization , until the environmental regularization of existing railways.

Art. 8. The implementation of emergency measures in situations that endanger the environment, the health and safety of the population and of the employees of the railroads, as well as the progress of railway operations, and must immediately be communicated to the competent environmental agency.

Art. 9 Claims and ongoing processes of corrective environmental licensing should be instructed with the following environmental studies and other studies at the discretion of the competent environmental agency:

I- environmental assessment including the characterization of items in non-compliance with legal requirements;

II- Basic Environmental Plan or Environmental Control Plan;

III- analysis of risk of accidents or environmental risks, when applicable; and

IV- Prevention Plan and Service of Accidents.

§ 1. The studies referred to in items III and IV of the caput shall be required only for the transport of dangerous goods, as defined in Decree No. 98,973, of 1990, which provides for the regulation for the transport of dangerous goods by railway.

§ 2 The corrective environmental licensing will be done without prejudice to the administrative, civil and criminal responsibilities.

Art. 10. The procedures set forth in this Resolution shall be deemed to be obligations of the relevant environmental interest.

Art. 11. This Resolution shall enter into force on the date of its publication.

MARINA SILVA-Council President

This text does not replace the one published in the Official Gazette of August 17, 2004

CONAMA RESOLUTION 350, July 6, 2004
Published in Official Gazette 161 on August 20, 2004, 161, Section 1, pages 80-81

Establishes provisions for specific environmental licenses for maritime seismic data collection activities in transition zones.

The NATIONAL ENVIRONMENTAL COUNCIL-CONAMA, pursuant to the powers vested on it by law No. 6,938 dated August 31, 1981, regulated by Decree No. 99,274, of June 6, 1990 and

Considering that the exploitation of oil and natural gas, as well as the development of strategies related to the increase, to the optimization and sustainability of its production, depends on the acquisition of seismic data;

Considering the legal provisions established by the National Petroleum Agency-ANP, available on definitions for the acquisition of data applied to the exploitation and production of oil and natural gas;

Considering the activities of marine seismic data acquisition and transition zones are potentially causing environmental impacts on marine and coastal ecosystems and on activities such as fishing and aquaculture, among others;

Considering the non-permanent nature and mobility of marine seismic data acquisition and transition zones;

Considering that the activities of marine seismic data acquisition and in transition areas are carried out in areas with different levels of environmental sensitivity;

Considering the need of regulation of the environmental licensing process specific of activities of marine seismic data acquisition and transition zones, resolves:

Art. 1 The activities of marine seismic data acquisition and transition zones will be object of environmental licensing for activities potentially causing environmental impacts that will comply with specific rules due to their temporary character, their mobility and the absence of fixed installations.

Art. 2 For the purposes set out in this Resolution, the following terms shall have the following meanings:

I- seismic data: set of information obtained by means of geophysical method of seismic refraction or reflection, consisting on the elastic wave recording during a period of time between triggering an artificial sound source and the return of the sound wave generated after they have been reflected and refracted in interfaces of different rocky subsurface layers;

II- transition zones: areas that include shallow water and the adjacent land area, if they incorporate the same seismic data collection;

III- framing: establishment of the class activities in relation to environmental licensing, based on the Characterization Card of Activities -FCA;

IV- characterization of activities card -FCA: document presented by entrepreneur, in accordance with the sample set out by the Brazilian Institute of the Environment and Renewable Natural Resources -IBAMA, in which are described the main elements that characterize the activities and their insertion area and are provided information regarding the background of the implementation of the project, its size and the technology employed, the main environmental aspects involved and the existence of studies and environmental licenses issued by other government bodies;

V- term of reference-TR: document provided by IBAMA to the entrepreneur, which established the guidelines, the minimum content and the scope of environmental studies needed²³⁷ to the licensing of seismic data acquisition activity;

VI- seismic vessel: vessel equipped with seismic source, registration unit, seismographic cables and accessory equipment, used specifically for the seismic data acquisition activities;

VII- assistant vessel: vessel joining the seismic vessel in order to avoid possible interference with other vessels that are operating in the region;

VIII- support vessels: vessels used in the transport of personnel and material in support of the operation of seismic vessel at sea;

IX- environmental sensitivity area: area of concentration of marine and coastal species of ecological, social, cultural and economic importance;

X- plan for seismic environmental control - PCAS: document prepared by the entrepreneur that provides environmental control measures of seismic data acquisition activity;

XI- environmental study of seismic activity- EAS: document prepared by the entrepreneur that presents the assessment of the non-significant environmental impacts of the data acquisition seismic activity in the marine and coastal ecosystems;

XII- environmental impact report of seismic activity -RIAS: document prepared by the entrepreneur that presents the synthesis of EAS in language accessible to the persons concerned, demonstrating the environmental consequences of the implementation of the activities of seismic data acquisition.

XIII-Seismic Research License-LPS: the administrative act by which the IBAMA authorizes and establishes conditions, restrictions and environmental control measures that must be followed by an entrepreneur for carrying out of seismic data acquisition activities;

XIV- public hearing: public meeting to explain to interested parties on the seismic data acquisition activity, aiming at settling questions and collect criticisms and suggestions on the subject.

Art. 3 The activities of marine seismic data acquisition and transition zones depend on obtaining the Seismic Research License-LPS.

Sole paragraph. IBAMA is responsible for the environmental licensing of activities referred to in the caput, after hearing the competent state environmental agencies, when appropriate.

²³⁷ Corrected in DOU number 69, of April 11, 2007, Page 61

Art. 4 The environmental licensing of marine seismic data acquisition and transition zones must comply with the following steps:

I-submission of the FCA by the entrepreneur;

II-framing of activities by IBAMA, considering the following classes:

a) Class 1- Surveys in depths less than 50 m or in areas of environmental sensitivity, subject to development of PCAS and EAS/RIAS;

b) Class 2- surveys in depths between 50 and 200 m, subject to development of PCAS and EAS/RIAS;

c) Class 3- surveys in depths of more than 200 m, subject to development of PCAS;

III- issue of TR by IBAMA, within 15 (fifteen) working days from the date of the protocol request;

IV - delivery of documentation by the entrepreneur, together with the application of LPS;

V- clarifications and additional information by the entrepreneur, if requested, within no more than 4 (four) months counted from the receipt of the notification, within deadline may be extended, since justified, agreed with IBAMA and required up to 30 (thirty) days prior to its expiration;

VI- IBAMA manifestation for the acceptance or rejection of the LPS.

§ 1 The competent environmental agency will have 6 (six) months from the registration of the application until its acceptance or rejection, without prejudice to cases in which there is Environmental Impact Study –EIA and its Environmental Impact Report -RIMA, when such a period is 12 months.

§ 2 The count of the period provided for in § 1 shall be suspended during the elaboration of additional environmental studies or preparation of clarifications by the entrepreneur.

§ 3 ²³⁸The TR is established by IBAMA, in conjunction with the entrepreneur, with detail consistent with the framework classes provided for in item II.

§ 4 ²³⁹The information presented during the licensing process should be systematized in database coordinated by IBAMA.

§ 5 ²⁴⁰When seismic activity is considered by IBAMA as potentially causing significant environmental degradation should be required, so motivated, presentation of EIARIMA.

Art. 5 In the case of seismic activities not potentially causing significant environmental degradation, IBAMA, whenever it deems necessary, or when requested by civil entity, by the public prosecutor, or by 50 (fifty) citizens over eighteen, shall promote an informative technical meeting.

§ 1 The request for technical Informatics meeting must occur within twenty days after the date of publication of the application of the licenses by the entrepreneur.

§ 2 The technical informational meeting will be held within twenty days from the date of request for their achievement and should be published by entrepreneur in the local press.

§ 3 The attendance at the informative technical meeting of the entrepreneur by the teams responsible for the preparation of EASRIAS, and of representatives of competent environmental organ is mandatory.

§ 4 Anyone can manifest himself in writing within forty days of the publication of the application for a license in accordance with this Resolution and the environmental agency shall attach the manifestations to the environmental licensing process and consider them in the grounds for the issuance of the environmental license.

Art. 6 The costs relating to the licensing process, including the possible holding of a public hearing or informative technical meeting, are paid by the entrepreneur.

Art. 7 In the presentation by the entrepreneur of the TR for the elaboration of EAS/RIAS or EIA/RIMA, IBAMA should consider the exclusive competence of the Navy of Brazil to

Conduct the inspection of the security conditions for navigation and environmental pollution prevention of seismic vessel, the assistant vessel and other support vessels involved in the activities provided for in this Resolution.

Art. 8. IBAMA must define by means of administrative act the areas and periods of periodic, temporary or permanent restriction for the conduct of acquisition of marine seismic activities data and transition zones.

Art. 9 Seismic vessels and other vessels involved in the activities provided for in this Resolution may use in its operations any ports or terminals recognized by the competent authority.

Art. 10. The renewal of LPS should be requested with the advance to be established in the respective license.

Sole paragraph²⁴¹. If the deadline is insufficient to complete the assessment of the request for renewal of LPS by IBAMA, this must be communicated to the entrepreneur the time required to complete the assessment of the application, as well as an extension of the duration of the LPS.

Art. 11. The procedure laid down in this Resolution is an obligation of relevant environmental interest.

Art. 12. This Resolution shall enter into force 90 (ninety) days from the date of its official publication, when IBAMA and entrepreneurs must adapt to the procedures provided for in this Resolution.

MARINA SILVA-Council President

This text does not replace the one published in the Official Gazette of August 20, 2004 Environmental Licensing.

²³⁸ Corrected in DOU number 69, of April 11, 2007, Page 61

²³⁹ Corrected in DOU number 69, of April 11, 2007, Page 61

²⁴⁰ Corrected in DOU number 69, of April 11, 2007, Page 61

²⁴¹ Corrected in DOU number 69, of April 11, 2007, Page 61

CONAMA RESOLUTION 368, March 28, 2006
Published in Official Gazette 61 on March 29, 2006, Section 1, pages 149-150

Correlations:

- Changes CONAMA Resolution No. 335/03 (changes arts. 3 and 5, revoking paragraph III, § 3, art. 3)
- Art. 3 revoked by CONAMA Resolution No. 402/08

Changes the provisions of Resolution 335 from April 3, 2003, which provisions the granting of environmental licenses for cemeteries.

The NATIONAL ENVIRONMENTAL COUNCIL-CONAMA, pursuant to the powers vested on it by Law No. 6,938 dated August 31, 1981, regulated by Decree No. 99,274, of July 6, 1990, and in view of the provisions in its Internal Rules, ANNEX to Ordinance No. 168, of June 10, 2005, and

Considering the need to revise Resolution No. 335, of April 3, 2003, which provides for the environmental licensing of cemeteries, on the basis of existing particularities in watershed protection areas located in metropolitan areas, resolves:

Art. 1st The arts. 3 and 5 of Resolution No. 335, of April 3, 2003, shall read as follows:

"Art. 30

§ 1. It is forbidden to install cemeteries in permanent preservation areas or in others that require deforestation of primary or secondary Atlantic Forest, in the middle or advanced stage of regeneration, predominantly in karst lands, with caves, sinks or underground rivers, as well as those that have their use restricted by current legislation, save the legal predicts exceptions...

(NR)

"Art. 50

I- the lower level of the graves must be at a distance of at least one and a half meter above the highest level of the water table, measured at the end of the flood season.

§ 1. For horizontal, cemeteries in watershed areas for human supply, due to the special characteristics of these areas, the following should be met, in addition to the requirements of items from I to VI:

I- the area planned for the construction of the cemetery should be a safe distance from bodies of water, surface and underground, in order to ensure its quality, in accordance with studies presented and at the discretion of the licensing agency;

II - the perimeter and the inside of the cemetery should be equipped with a suitable and efficient drainage system designed to capture, forward and safely dispose the seepage of rainwater and prevent erosion, flooding and earth movements;

III- the subsoil of the area of interest to the cemetery should consist of materials with coefficients of permeability between 10⁻⁵ and 10⁻⁷ cms, in the range of between the background of the graves and the groundwater level, measured at the end of the flood season.

For larger permeabilities, the lower level of deposits is 10 m above the level of the water table

§ 2 At the discretion of the competent environmental agency information and additional documents may be requested in line with specific legal requirements of local character.

(NR)

Art. 2 Item III, § 3 of art. 3 of Resolution 335, of 2003 is hereby revoked.

~~Art. 3 Existing cemeteries on the date of publication of the Resolution No. 335, of 2003, will have a period of up to two years for adequacy to the rules contained in this Resolution, counted from the date of its publication. (revoked by Resolution No. 402/08)~~

Art. 4. This Resolution shall enter into force on the date of its publication.

MARINA SILVA-Council President

This text does not replace the one published in the Official Gazette of March 29, 2006

CONAMA RESOLUTION 377, October 9, 2006
Published in the Official Gazette 195 on October 10, 2006, Section 1, page 56

Establishes provisions for the granting of simplified environmental licenses for Sanitary Sewer Systems.

The NATIONAL ENVIRONMENTAL COUNCIL-CONAMA, pursuant to the powers vested on it by Law No. 6,938 dated August 31, 1981, regulated by Decree No. 99,274, of June 6, 1990, and in view of the provisions in its Internal Rules, ANNEX to Ordinance No. 168, of June 10, 2005, and

Considering the terms of art. 12, § 1, of CONAMA Resolution No. 237, of December 19, 1997, which provides for the possibility to establish specific procedures for the simplified licensing considering the nature, characteristics and peculiarities of the activity of small environmental impact;

Considering that the sanitation works are directly linked to public health and to the mitigation of sewage treatment activity;

Considering the current situation of water resources in the country, whose polluting load is largely from domestic sewage release without prior processing;

Considering the need to integrate the procedures of the instruments of Law No. 6,938, of August 31, 1981, establishing the National Environment Policy and Law No. 9,433 of January 8, 1997, establishing the National Water Resources Policy, resolves:

Art. 1 The units for transport and treatment of sanitary sewage, separately or jointly, of small and medium-sized businesses shall be subject to simplified procedures of environmental licensing.

Sole paragraph. The simplified procedures referred to in the caput of this article shall not apply to projects located in areas declared by the competent body as environmentally sensitive.

Art. 2 For the purposes of this Resolution:

I- small sewage transport units: interceptors, emissaries and sewage lift stations with rated design flow less than or equal to 200 l/s;

II- units of small sewage treatment: sewage treatment plant with a nominal design flow less than or equal to 50 l/s or with capacity to supply up to 30,000 inhabitants, at the discretion of the competent environmental agency;

III. medium sized sewage transport units: interceptors, envoys and sewage lift stations with rated design flow greater than 200 l/s and 1,000 l/or less;

IV-medium size sewage treatment units: sewage treatment plant with a nominal design flow greater than 50 l/s and less than or equal to 400 l/s or with capacity to supply more than 30,000 and less than 250,000 inhabitants, at the discretion of the competent environmental agency

V- sanitary sewage system: the collection, transport and treatment of sanitary sewage; and

VI- Single Environmental License for Installation and Operation -LIO or equivalent administrative act: single administrative act which authorizes the deployment and operation of the venture.

Art. 3 The entrepreneur when applying for the simplified licensing for the medium size units for transport and treatment of sanitary sewage, shall submit a study in the form defined by the competent environmental agency, through a term of reference, containing at least:

I- general information;

II- technical data;

III – project description;

IV- information about the project area;

V- characterization of vegetation;

VI- characterization of water resources;

VII- characterization of socio-economic environment;

VIII- monitoring plan of the unit body and receiver; and

IX- mitigating measures and compensatory payments.

Sole paragraph. The prior and installation licenses may be required and, at the discretion of the environmental agency, issued at the same time.

Art. 4 Transport units and small sewage treatment, except where those located in environmentally sensitive areas, are subject only to the LIO or administrative act equivalent,, provided they are regulated by State Environmental Council.

§ 1. The LIO or equivalent administrative act cited in the caput of this section will be required upon presentation of the following documents:

I- general information about the project and other information considered relevant by the competent environmental agency;

II- statement of civil liability and its Technical Responsibility- Note - ART;

III – consent to removal of vegetation, when applicable;

IV- Grant of Right to use water resources for effluent release; and

V- location in accordance with the municipal spatial planning instrument or the Federal District

§ 2 The deadline for issuance of LIO or equivalent administrative act shall be not more than thirty days from the date of receipt of the application protocol.

Art. 5 The environmental organs shall define the criteria for the classification of sanitary sewage systems for small and medium ventures, according to the parameters of nominal flow or population served.

Art. 6 The environmental agencies responsible for the environmental licensing process will be simplified the analysis and decision period counted from the date of receipt of the request.

§ 1 The granting of specific licenses should meet the following deadlines:

- I- 90 days for the Previous License;
- II- 90 days for the Previous and Installation Licenses;
- III- 90 days for Installation License; and
- IV- 60 days for Operating License.

§ 2 The count of the deadlines referred to in this article shall be interrupted on the date of requested documents, data and complementary information, restarting from the date of their receipt.

§ 3 The interruption of the analysis will be up to thirty days, which may be extended by the environmental agency, based upon request by the entrepreneur.

§ 4 The non-submission of additional studies requested within the period provided for in § 3 will result in the filing of the licensing process.

Art. 7 Projects that are in the process of environmental licensing on the date of publication of this resolution and that meet the requirements laid down therein may be framed as simplified environmental licensing, or LIO, provided it is requested by the entrepreneur.

Art. 8. Before the beginning of the operation, pre-operational tests may be conducted, through information to the competent environmental agency.

Art. 9. This Resolution shall enter into force on the date of its publication.

MARINA SILVA-Council President

This text does not replace the one published in the Official Gazette of October 10, 2006.

CONAMA RESOLUTION 385 , December 27, 2006,.
Published in Official Gazette 249 on December 29, 2006, Section 1, page 665

*Establishes the parameters to be adopted for the granting of environmental licenses
agro-industries with small and low environmental impact*

The NATIONAL ENVIRONMENTAL COUNCIL-CONAMA, pursuant to the powers vested on it by Law No. 6,938 dated August 31, 1981, regulated by Decree No. 99,274, of June 6, 1990, and bearing in mind the provisions of its Internal Rules, and

Considering the need to establish procedures that expedite the environmental licensing of small and low environmental impact; agroindustries

Considering that small and low environmental impact agroindustries produce reduced volume of effluents;

Considering that waste generated by these agroindustries may be in many cases used feed animal and/or as organic compound in the production of raw materials, as well as an alternative source of income;

Considering that the small size agroindustry is an important tool for the generation of employment and income;

Considering the terms of art. 12, §§ 2 and 3 of CONAMA Resolution No. 237, of December 19, 1997;

Considering the parameters established by the current health law, resolves:

Art. 1 To establish procedures to be adopted for the environmental licensing of small and low environmental impact potential agroindustries.

Art. 2 For the purposes of this Resolution, small and low environmental impact potential agroindustries is every establishment which:

I- has a built area of up to 250 m²;

II- benefits and/or transforms products coming from farms, livestock, aquaculture, fisheries, non-timber forest and extractive, ranging from simple processes such as drying, sorting, packing and cleaning up processes that include physical, chemical or biological operations, low impact on the environment.

§ 1. The slaughterhouses should not exceed the following maximum daily capacity of slaughter:

I- large animals: until 03 animals/day;

II-medium-sized animals: up to 10 animals/day;

III-small animals: up to 500 animals/day.

§ 2 For establishments that process fish, the maximum capacity of processing shall not exceed 1,500 kg of fish per day.

Art. 3 The entrepreneur should submit at least the following documentation to the environmental agency responsible for licensing:

I-application for environmental license;

II-project containing description of the project, including its location, as well as the details of the pollution control system and effluent, accompanied by the Technical Responsibility Note -ART;

III - land use certificate issued by the municipality; and

IV - proof of legal source when the source is raw material extraction, when applicable.

Art. 4 The slaughterhouses must present obligatorily, in addition to the documentation listed in art. 3 of this Resolution, descriptions of:

I- the maximum daily capacity of slaughtering;

II- the collection and destination system of the blood from the bleeding; and

III- the evisceration section operation.

Art. 5 The competent environmental agency, after analyzing the documentation, shall issue an express manifestation about the viability of the venture's location and, if there is evidence of low environmental impact and reduced production of effluents and wastes, it shall grant the corresponding environmental licenses.

§ 1. The slaughterhouses and establishments that process fish will be licensed in two steps:

I-preliminary license and installation-LPI, authorizing the installation and location of the activity; and

II-Operating License - LO, authorizing the operation of the activity.

§ 2 Other small agro-industrial and low environmental impact activities will be licensed in just one step when the competent environmental agency will provide single an Installation License and Operation License -LIO.

Art. 6 The small and low environmental impact existing agroindustries should take into account the provisions of art. 3 of this Resolution, for the regularization of the activity or venture and obtaining the environmental permit, in the form of art. 5 of this Resolution.

Sole paragraph. It is established the period of eighteen months, renewable for an equal period, at the discretion of the competent environmental agency for entrepreneurs to promote the settlement provided for in this article.

Art. 7. This Resolution shall enter into force on the date of its publication.

MARINA SILVA-Council President

This text does not replace the one published in the Official Gazette of December 29, 2006

CONAMA RESOLUTION 387 , December 27, 2006
Published in Official Gazette 249 on December 29, 2006, Section 1, page 665-668

Correlations:

- Revokes CONAMA Resolution Bo. 289/01

Established the procedures for the granting of Environmental Licenses for Agrarian Reform Settlement Projects and makes other provisions.

The NATIONAL ENVIRONMENTAL COUNCIL-CONAMA, pursuant to the powers vested on it by Law No. 6,938 dated August 31, 1981, regulated by Decree No. 99,274, of July 6, 1990, and in view of the provisions in its Internal Rules , and

Considering the provisions of Law No. 4,504 of November 30, 1964, and of CONAMA Resolutions No. 237, of December 19, 1997 and 286 of August 30, 2001;

Considering the need to lay down specific rules for the environmental licensing of projects in Agrarian Reform Settlements, with a view to the social relevance of the National Agrarian Reform Program;

Considering the need to address social injustice and serious conflicts over land ownership, occurring in almost all regions of the country, preventing social tension to lead to episodes that endanger human life and the environment;

Considering that the reduction of social inequalities by widening access to land is a fundamental objective of the country under the Federal Constitution, in priority and national commitment contained in the Chart of Rio, of Agenda 21 and other documents arising from the Rio-92;

Considering the importance of establishing guidelines and procedures for control and environmental management to guide and discipline the use and exploitation of natural resources, ensuring the effective protection of the environment in a sustainable way in Agrarian Reform Settlements projects; and

Considering that the main function of the environmental licensing is to avoid risks and damage to humans and the environment on the basis of the precautionary principle, resolves:

Art. 1 This Resolution establishes guidelines for the environmental licensing of Agrarian Reform Settlements Projects, as well as the procedures and deadlines needed to be applied at any level of competence.

Art. 2 For the purposes of this Resolution, the following definitions are adopted:

I- land reform: a set of measures aimed at promoting better distribution of land, through modifications in its possession and use, in order to meet the principle of social justice, to increase productivity and compliance with social and environmental function of property;

II- Agrarian Reform Settlements Project: set of actions planned and developed in the area destined to the agrarian reform, of interdisciplinary and multisectoral nature, integrated to the territorial and regional development, defined on the basis of accurate diagnostic about the beneficiary and public areas to be worked, geared for rational use of physical spaces and natural resources, aiming at the implementation of systems of sustainable production and experience, with a view to fulfilling the social function of land and promoting economic, social and rural worker's cultural and of their families;

III- Prior License -LP: license granted during the preliminary planning stage of Agrarian Reform Settlements Projects approving their location and design, its environmental sustainability and establishing the basic requirements to be met in the next stage of licensing;

IV Installation and Operation License- LIO: license authorizing the deployment and operation of Agrarian Reform Settlements, in compliance with the technical feasibility of the proposed activities, the environmental control measures and other conditions specific to its operation;

V- Environmental Feasibility Report- RVA: set of data and information submitted to the competent environmental agency to subsidize environmental feasibility analysis on the application for prior licenses of an Agrarian Reform Settlements Project, containing the characterization of property intended for its deployment and its adjacent area of influence, and should contain at least the information set out in ANNEX II of this Resolution;

VI- Basic Project -PB: a collection of data and information submitted to the environmental licensing agency to subsidize environmental the technical feasibility analysis of the request for LIO to implementation and development of projects in Agrarian Reform Settlements, and the information presented should have an appropriate precision level to characterize the activities to be developed and to ensure technical feasibility and relevant treatment of environmental impacts, and must contain, at a minimum, what is provided for in ANNEX III to this Resolution;

VII-Simplified environmental report-RAS: simplified survey of the possible environmental impacts arising from the operation of an activity on the project area and the neighboring range which, at the discretion of the licensor, may be used for licensing of Agrarian Reform Settlements Projects should contain, at a minimum, what it provided for in ANNEX IV of this Resolution;

VIII- Settlement Development Plan -PDA: a plan that brings together the essential elements for the development of Agrarian Reform Settlements Projects, in strict observance of the diversity of cases understood by different biomes that exist, highlighting the aspects of physiographic, social, economic, cultural and environmental, being basic instrument for the formulation of technical projects and all activities to be planned and implemented in the areas of settlements a critical piece to the monitoring and evaluation of these actions, and that it must contain, at a minimum, set out in ANNEX III to this resolution;

IX-Settlement Recovery Plan – PRA: set of planned actions complementary to the PDA, or the reformulation or replacement thereof, to assure to the Agrarian Reform Settlement Project the desired level of

sustainable development in the short and medium terms, and shall contain, at a minimum, what is provided for in ANNEX V of this Resolution

Art. 3 The competent environmental agency will grant the Prior License-LP and the Installation and Operation License – LIO for the Projects of Agrarian Reform Settlements.

§ 1. Environmental licenses may be issued individually or in succession, according to the nature, characteristics, location and deployment stage of the Agrarian Reform Settlements Projects.

§ 2 The LP is a mandatory document and which precedes the act of creating an Agrarian Reform Settlement Project, with a deadline for its shipment, upon its application, up to ninety days.

§ 3 The LIO should be required during the validity of the LP and after fulfilling its requirements, except in the licenses provided for in arts. 8 and 9 of this Resolution.

§ 4 The deadline for issuance of LIO will be of a maximum of one hundred and twenty days after its request application.

§ 5 The requirements of licenses by the executing agency of the Agrarian Reform Settlements Projects referred to in this article shall be accompanied by the documents provided for in ANNEX I of this Resolution.

§ 6 Subject to additional guarantees, at the discretion of the competent environmental agency, the environmental studies required for licensing are those contained in the Environmental Sustainability Report -RVA and the agronomic report may be accepted, provided it fulfill with ANNEX II of this Resolution for the purpose of granting of the LP, and the Basic Design-PB or Settlement Development Plan - PDA, in case it meets the list contained in ANNEX III to this Resolution, for the issuance of the LIO

§ 7 The Agrarian Reform Settlement Projects, whose implementation requires clear-cutting, cannot be created in areas with forests and other vegetation protected by legal rules.

Art. 4th At the discretion of the competent environmental agency, by a decision based on technical advice, a simplified environmental licensing procedure can be admitted for Agrarian Reform Settlement Projects , considering, among other criteria, their location in terms of ecosystem, the availability of water, proximity to protected areas, indigenous lands, the remaining areas of the quilombos and other territorial protected spaces, the number of families to be settled, the size of the project and of the parcels and the technological basis of production.

Sole paragraph. To meet the provisions in the caput of this article, the RAS should be used, as contained in ANNEX IV of this Resolution.

Art. 5th It may be admitted to a single process of environmental licensing for contiguous Agrarian Reform Settlements Projects , whose impacts affect common areas at the discretion of the competent environmental agency.

§ 1 The competent environmental agency must require a unique environmental study for Agrarian Reform Settlements Projects, whose impacts are cumulative or synergistic.

§ 2 In the cases specified in this article, it may be admitted the granting of permits for each Agrarian Reform Settlements Project.

Art. 6 The competent environmental agency in exceptional cases, when requested by the executing agency of the Agrarian Reform Settlements Project, can expedite authorization for removal of vegetation or alternative use of soil for subsistence agricultural production and deployment of minimum infrastructure essential to the survival of the families settled, prior to granting of LIO, in a previously identified area, after fulfilling the restrictions of current environmental legislation.

Art. 7 In the case of rejection of the application for licensing, in any of its stages, the competent environmental agency shall communicate such fact to the executing agency of the Agrarian Reform Settlements Project, stating the grounds for the decision.

Sole paragraph. The executing agency of the Agrarian Reform Settlements Project may make new license application, guided by the competent environmental agency.

Art. 8. For the projects of Agrarian Reform Settlements being implanted or implemented until December 2003, the executing agency shall require from the competent environmental agency, the respective LIO for regularization of its environmental situation, upon presentation of the PRA.

§ 1. The executing agency of the Agrarian Reform Settlements Project should register, in up to 60 days from the date of publication of this resolution, together with the competent environmental agency, the list of projects to be regularized.

§ 2 It is up to the competent environmental agency, in conjunction with the executing agency of the Agrarian Reform Settlements Project, to set, up to twelve months, the agenda and the environmental studies required to stabilize the environmental situation of the settlement

§ 3 At the discretion of the competent environmental agency and as provided for in art. 4 of this Resolution, the RAS may be admitted for the regularization of the project.

Art. 9 For the Agrarian Reform Settlements Projects to be created in areas occupied by traditional peoples, as they are the only beneficiaries, it will be required only to LIO.

Art. 10. The period of validity of the LP will be up to five years, and of the LIO four to ten years fulfilling the schedule of implementation and consolidation of Agrarian Reform Settlements.

Art. 11. In the case of Agrarian Reform Settlements Projects situated in the Legal Amazon, the executing agency of the project is expected to request to the Secretariat of Health Surveillance, of the Ministry of Health-SVSMS or an organ for her delegate evaluation of malarious potential of the area and its sanitary condition certificate.

§ 1 The evaluation of the malarious potential of the area should be requested in the initial stage of environmental licensing.

§ 2 The sanitary condition certificate should be submitted after obtaining the LIO.

§ 3 The SVSMS or organ delegated thereby must present these documents in time limits compatible with the established for the respective licensing procedure.

§ 4 In case of occurrence of other significant epidemiological diseases it , will be required a prior evaluation by the SVSMS or organ delegated thereby.

§ 5 The SVSMS or delegated organ and the executing agency of the Agrarian Reform Settlements Project will act together to provide minimum structure for surveillance, prevention and control of malaria in agrarian reform settlements

Art. 12. In each Agrarian Reform Settlements Project, a Committee of representatives of the beneficiaries of the project may be established, which will follow the licensing process, maintaining permanent dialogue with the competent environmental agency and the executing agency of the project.

Art. 13. The competent environmental agency should give priority in examining and granting environmental licenses of Agrarian Reform Settlements, in view of their urgency and relevance.

Art. 14. The actions inherent to the environmental licensing of Agrarian Reform Settlements Projects, shall, on the basis of the characteristics and peculiarities of the agrarian reform activities, developed in an integrated manner among the member agencies and entities of the National System of Environment- SISNAMA, with the participation of social organizations.

Art. 15. This Resolution shall enter into force on the date of its publication.

Art. 16. It is hereby revoked CONAMA Resolution No. 289, of October 25, 175 of 2001²⁴².

MARINA SILVA-Council President

²⁴² Corrected in DOU No. 22, of January 31, 2007, page 84

ANNEX I
DOCUMENTS REQUIRED TO THE ENVIRONMENTAL LICENSING PROCESS

TYPE OF LICENSE	DOCUMENTS NEEDED
Previous License – LP	<ol style="list-style-type: none"> 1. Application for LP; 2. Copy of the publication of the application for LP; 3. Environmental Feasibility Report – ANNEX II or agronomic report complying with ANNEX II; 4. Statement from the municipality that the venture is inconformity with the legislation for use and occupation of soil; 5. Copoy of the updated registration of the real estate or compatible document 6. Copy of the Request for Evaluation of the potential Malarígen, when the settlement is located within the Legal Amazon
Installation and Operation License – LIO	<ol style="list-style-type: none"> 1. Application for LIO; 2. Copy of the publication of the application for LP; 3. Copy of the publication of the LP granting; 4. Authorization for the suppression of vegetation or alternative use of soil issued by the competent agency, when applicable. 5. Approval of the right to use water resources or the reserve of water availability granted by the water resources manager, when applicable; 6. Basic Settlement Project – ANNEX III or Settlement Development Plan – PDA; 7. For the cases of regularization: Recovery Plan for the Settlement – ANNEX V; 8. Simplified Environmental Report – RAS, for the settlements included in art. 4.

ANNEX II
ENVIRONMENTAL FEASIBILITY REPORT

1- CHARACTERIZATION OF THE ARE OF INFLUENCE OF THE PROPERTY, FROM SECONDARY DATA, THEMATIC MAPS AND OTHER RESOURCES

1. a. Location of the property(ies) in the municipality(ies) in which it is inserted (presentation of maps and plans): cartographic boundaries, location of the municipality(ies) in the State, neighboring municipalities, presence of protected areas and other areas protected by legal rules. In case of existence of economic-ecological zoning of the state, of the micro region or municipality, identify and list the characteristics of the area where is located the area of the property.

1. b. Descriptive diagnosis of physical environment: geomorphology/relief, soils, geology, water resources (identification and cartographic representation of the basin or sub-basin and analytical description of conservation/degradadation of environmental conditions) and climate.

1. c. Descriptive Diagnosis of biotic environment: vegetation (describe the major phytophisionomic aspects of native vegetation and the main endemic species already identified and wildlife).

1. d. Descriptive Diagnosis of socioeconomic and cultural environment: institutional resources, comprising health services (infrastructure and access of the population of the region to existing health system), education (check for official network and/or private schools in urban and rural areas, the series met and adult education courses), transportation, storage and marketing, communication, sanitation, electrification and water supply (existence of indoor plumbing, sewer, septic tanks, etc.), housing (general characteristics of dwellings in the region and, when possible, indicate the materials most used), lending agencies and support bodies – research and technical assistance. Discriminate the main existing economic activities – highlight for extraction and specify the type; regional and municipal development projects/programs, existence of the Council and/or Municipal Plan of Rural and Environmental Development etc. Land structure. Indicate domestic animals most found, characterization of the region as restrictions of federal, State and municipal zoning, existing settlements projects in the region. Check if there are endemic diseases in the region (schistosomiasis, malaria, Chagas disease, leishmaniasis, yellow fever, among others). Verify the occurrence of tourist interest sites (caves, waterfalls, ponds relevant areas, natural scenic beauty). Verify the occurrence of places of cultural interest; (sites of archeological, historic, recreational etc interest).

2-PROPERTY IDENTIFICATION

name, area, perimeter, district, municipality, State., geographical coordinates, hydrographic basin/sub-basin, georeferenced project plan, number of fiscal modules, the minimum parcel size, code in the National System of Rural Land Register-SNCR, access roads, approximate number of beneficiary families, neighbors properties and limits of the activities developed.

3-CHARACTERIZATION OF THE PROPERTY AREA

3. a. Vegetation: describe the characteristics of the vegetation in the area of the building, highlighting the potential economic value of species, as well as those protected under current legislation. The current state of conservation of the existing native vegetation should be described and if it is occurring regeneration of altered areas. Register the occurrence of Legal Reserve, its conservation status and distribution.

Inform about the existence of vegetation of permanent preservation (riparian forests along water courses, tops of hills etc.) and their state of conservation

3. b. Water resources: express the distribution of existing watercourses, besides explaining characteristics such as durability, basic physico-chemical parameters (when applicable) and irrigation potential. Check for the existence of springs and water holes in the area of the property, specify its use and conservation status. The use restrictions on the need of protection of sources in the area of the property, the peculiarities of the use of hydromorphic soil and the grant of use of water should be considered in this topic. Report on the potential of groundwater use (in the case of the existence of wells, inform the number, the flow and depth). Types of existing water use upstream and downstream of the property and, when possible, those laid down. Indicate the main forms of water supply.

Check for the existence of slaughterhouses, polluting industries in the vicinity of the property.

3. c. Relief: it should be described the prevailing landforms (mountains, hills, plateaus, and others).

Technologies such as Global Positioning System-GPS planimetric maps, charts, aerial photos, satellite imagery and other available materials should be used for illustration. Relief classification must be submitted detailing the relevant class, the percentage of the property corresponding to that class and the approximate area (hectares), and Table 1 can be used. If it is not possible to draw up a map of slope classes, the level curves may be digitalized and a map can be produced with them, in order to indicate the area's relief.

Table 1. Relief and Slope Classes that Exist in the Property

Classes of Relief	Classes of Declivity		Percentage of Real Estate Area
	Description	Percentage	
Flat	0-5	0-2,9	
Gentle wave	5-10	2,9 - 5,7	
Waved	10 -15	5,7 - 8,	
Much Waved	15-25	8, -14	
Strong Waved	25-47	14-25	
Areas of Restrict Use	47- 100	25-45	
Areas of Permanent Preservations	> 100	> 45	

3. d. Soils: soil classification (types and percentages of occurrence).

3. e. Fauna: predominant animal species, including fish and potential for use, main problems of survival of fauna with their causes. Noteworthy endemic species, predatory species, and those who are at risk of extinction.

3. f. Land use capacity class: must be presented the classification of land use carried out describing the potential and factors constraints of each class in area of the property, and can be used in table 2:

Table 2. Classes of usability

Class of Capacity of Use of Lands (I to VIII)									
Area (%)									
Soil Classification									
RESTRAINING FACTORS	Natural Fertility								
	Effective Depth								
	Internal Drainage								
	Surface outflow								
	Stoniness								
	Risk of flood								
	Declivity %								
	Erosion								
	Texture								
	Edaphologic drought								
	Legal Soil Restriction								

3.g. Use of the area of the property: map of current land use and vegetation cover. Must be exhibited the land use distribution, quantifying the areas according to their use, considering also the protected areas or with use restrictions.

4 – ENVIRONMENTAL PROBLEMS OBSERVED IN THE ARE OF THE PROPERTY

- Erosion: specify types, causes and intensity;
- Compression of soil;
- Siltation: specify location, cause and intensity;
- Soil salinization;
- Desertification;
- Flooding of the soil (saturation);
- Obstruction of watercourses: observe if there are effects on the intensity of floods, fishing, navigation and drainage patterns;
- Floods;
- Reduction of the flow of water to critical levels;
- Impairment of groundwater flow;
- Conflict by use of water upstream or downstream;
- Surface water Pollution (by pesticides fertilizer wastewater other-specify
- Water reception sources containing pesticides. Discriminate the sources and its location;
- Water reception sources containing pesticides. Discriminate the sources and their location;
- Groundwater pollution: for pesticides wastewater other-specify
- Occurrence of vectors (snails, mosquitoes) and other diseases;
- Deforestation of areas of permanent preservation and Legal Reserve;
- Logging without approved management plan;
- Planting in the direction of the slope, without the adoption of appropriate conservation practice;
- Lack of appropriate practices of fertilization and liming supporters or reclaimers of soil quality;
- Improper use of the lands in respect of their vocation;
- Use of uncontrolled fires;
- Occurrence of plant extractivism, predatory hunting and fishing;
- Death of wild animals (terrestrial or aquatic) for contamination with pesticides;
- Human poisoning by pesticides;
- Packaging disposal of pesticides and pesticide wastes and garbage; and
- Other. Specify:

ANNEX III BASIC DESIGN

1-TEAM CONSTITUTION

The basic design of the settlement will be prepared by a multidisciplinary team composed of professionals whose spectrum of qualifications involves the physical, biotic media fields and socioeconomic status, among them at least one Engineer, in addition to the effective participation of the representative(s) of the association of settlers, to be processed by the project. The multidisciplinary team may be assisted by experts of peculiar characteristics of tuned profiles area and the benefited group.

2-IDENTIFICATION OF SETTLEMENT PROJECT

- a) settlement's name;
- b) date of the Ordinance;
- c) total area;
- d) location and access;
- e) number of families settled;
- f) average area per family;
- g) entity representative of settlers (name, CNPJ, address, fax etc.).

3-DIAGNOSIS OF THE SETTLEMENT AREA PROJECT

3.1- Diagnosis of the Natural Environment:

3.1.1 Soils;

3.1.2: Relief

Planialtimetrical survey in a scale compatible for determining the best type of occupation to be carried out in each part of the property, as well as to the identification of permanent preservation areas, Legal Reserve area rentals and road structure;

3.1.3 Water resources:

Surface water availability (to provide in the basic map the rivers, streams, dams, lakes etc.) and underground, current use and potential for economic exploitation, conservation status and main problems of degradation and their causes;

3.1.4 Fauna;

3.1.5 Use of soil and vegetation cover:

a) Emphasize on a map the existing vegetation types, including the current situation of native vegetation cover; the predominant plant species, conservation status and main problems of degradation with respective causes. Emphasize the species endemic and protected by legal rules;

b) In this thematic map of current land use theme, the following will be identified:
1- annual and perennial cultivation areas,, of pastures, forests etc.;

2- primary, secondary, or early or intermediate stages of regeneration indigenous vegetation areas, specifying the phytophysionomy;

3- existing road and electrical network;

4-water resources;

5-buildings and installations; and

6-public forests, areas of permanent preservation and legal reserve, identified, quantified and classified according to their status (conserved, run down etc.). Confront the reality of these areas with the requirements of environmental legislation. Relate the problems of degradation of areas of permanent preservation and Legal Reserve and point out the causes of possible non-compliance with environmental legislation;

3.1.6 Environmental Stratification of Agroecosystems:

Identify, in accordance with the previous items, the agri-environmental units (or landscape units), in order to synthesize soil/relief/water/vegetation relations that characterize them, relating them to their potential and their production limitation;

3.1.7 Climate and weather data.

3.2-Diagnosis of the Socio-economic and Cultural Environment:

3.2.1 Settling Project History:

Describe the history of creation of the settlement, the origin of the settlers and the socio-economic situation;

3.2.2 Population and Social Organization:

To characterize and analyze the total population by age, gender, educational level, main economic activities carried out. Estimate the percentage of households with access

To the benefits, annuity and retirement pensions, disability or dependency. Describe the various forms of organization of existing population (associations, cooperatives etc.) as well as the degree of effectiveness of its functioning and the level of participation of women and young people;

3.2.3 Physical infrastructure, social and economic issues:

Identify the equipment and facilities for community use, such as: schools, buildings that might serve for the installation of community centers, stables, pastures, dams and other infrastructure that can be leveraged for community use;

3.2.4 Production System:

Analyze production systems and their internal and external joints (in the local, regional context etc.), with enlarged view of dynamics and predominant productive logic;

3.2.5; Health

3.2.6 Education;

3.2.7 Culture: cultural context.

4-THEMATIC PROGRAMS

The project is materialized in the form of thematic programs, identified with the settlers and in tune with the situation seen in diagnosis.

4.1-Territorial Organization Program:

The Territorial Organization Program must obey the agrarian and environmental legislation, specifying:

a) total area and perimeter;

b) individual farm plots and group exploration areas (agricultural, livestock, forestry etc.), specifying the area of each plot or community exploration;

c) urban areas (community center or urban nucleus, urban when plots are foreseen for the settlers), specifying the total areas, whose buildings and facilities will be scaled according to needs and according to the number of families of the project and village system;

d) Legal reserve (existing or projected), specifying the total areas;

e) leasing of Permanent Preservation Areas, with respective sizes;

f) water resources (hydrographic network, water holes, ponds, artesian wells etc.);

g) existing roads, to be restored and projected (feeding and penetration), as well as the municipal, state and federal roads, specifying their total length;

h) trunk electrical network, projected or existing

i) areas unsuitable for agrossilvopastoral exploration , not classified under other categories (domain areas of electrical networks, pipeline crossings etc.).

4.2 Production program:

Specify the production activities provided for in the timeline, identifying: the type of activity, the technological basis, the necessary infrastructure, the productive goals and environmental control measures required.

4.3 Social Program:

Presentation of the project integrated health, education, culture, housing, sanitation and social conviviality.

4.4 Environmental Program:

4.4.1 Environmental program should be integrated into the logic of territorial organization, with an emphasis on sustainability of the productive plan, viability of family farming, conservation and sustainable use of natural resources, protection and preservation of the forest remnants (forest fires) and of the areas protected by law, adoption of measures mitigating or reclaimers (when applicable), quality of life and developing a more comprehensive and consistent environmental awareness (environmental education), final disposal of solid waste and packaging of agrochemicals and sewage disposal;

4.4.2 The activities with the greatest potential for impact, such as the removal of native vegetation, use and grant of water for irrigation, soil movement shall be clearly defined, as well as the necessary measures to deal with environmental problems diagnosed, which may include environmental education actions, investments in degraded areas, sustainable management of resources forms and others

5-PROGNOSIS OF ENVIRONMENTAL IMPACTS OF THE PROJECT
6-MITIGATING AND COMPENSATORY MEASURES

ANNEX IV
SIMPLIFIED ENVIRONMENTAL REPORT
MINIMUM CONTENT

I-PROPERTY IDENTIFICATION

Name of property
Name of the owner
Municipality
Total area
Registered area
Registration mode
Connection or not of project/license/authorization with the competent environmental agency
Status of the property:
 operated by the owner
 abandoned
 occupied by landless farmers

II-VEGETATION

1. Biome and associated ecosystems:
2. Legal reserve
Existing _____ ha _____ %
Missing _____ ha _____ %
State of preservation:

3. permanent preservation areas
Existing _____ ha
Missing _____ ha
Status of conservation
4. Sequential Stages of Forests
Initial stage (ha)
Conservation status and other comments
Middle stage (ha)
Conservation status and other comments
Advanced stage (ha)
Conservation status and other comments
5. Meadows (ha)
6. Public forests (ha)
*Observe the applicable legal rules.

III-SOILS

Restrictive aspects for agricultural use
Relief
Erosion (visually detectable)-laminar, grooves, gully
*Observe the applicable legal rules.

I

V-WATER RESOURCES

Watershed
Watercourses (name, width etc.)
Occurrence of springs
The presence of dams
Water availability (quantity/quality)
Other observations
*Observe applicable legal rules

V-OTHER ENVIRONMENTAL ASPECTS

Trash
Destination of pesticide packaging
Fire
Fauna
*Observe the applicable legal rules.

VI. EXISTING INFRASTRUCTURE IN THE PROPERTY AND IN THE SURROUNDINGS

VII-EXISTENCE OF CONSERVATION UNITS IN THE SITE AND IN THE SURROUNDINGS

VIII-PRODUCTION ACTIVITIES IN THE PROPERTY AND IN THE SURROUNDINGS

IX-ENVIRONMENTAL DIAGNOSIS AND PROGNOSIS

Environmental assessment;

Description of the likely socio-economic and environmental impacts of the deployment and operation of the activity, considering the project, its alternatives, time horizons incidence of impacts and indicating the methods, techniques and criteria for their identification, quantification and interpretation;

Characterization of future environmental quality of the area of influence, considering the interaction of the different environmental factors

X - MITIGATING AND COMPENSATORY MEASURES

Mitigating and compensatory measures, identifying impacts that cannot be avoided;

Recommendation regarding more favorable alternative.

Accompanying program, monitoring and control.

XI-CONCLUSIONS AND RECOMMENDATIONS

Approximate percentage of the area subject to agricultural and forestry use, recommendation of Legal Reserve location, location of areas

Permanent, indicating existing and missing, etc.

XII-DOCUMENTS ANNEXED

Appropriate scale maps, aerial photographs, satellite images, covering items from I to VII of this ANNEX

ANNEX V

RECOVERY PLAN OF THE SETTLEMENT

1-TEAM COMPOSITION

The recovery plan of the settlement will be prepared by a multidisciplinary team, composed of professionals whose spectrum of qualifications involves the fields of physical, biotic and socioeconomic resources, among whom there must be at least one Engineer, in addition to the effective participation of the representative (s) of the association of settlers to be benefited by the project.

2- IDENTIFICATION OF PROJECT OF SETTLEMENT

- a) settlement's name;
- b) date of the Ordinance;
- c) total area;
- d) location and access;
- e) number of families settled;
- f) average area per family;
- g) entity representative of settlers (name, CNPJ, address, fax etc.).

3-DIAGNOSIS OF THE PROJECT AREA OF SETTLEMENT

3.1-diagnosis of the Natural Environment;

3.1.1 Soils:

Including the Classes Survey of Usability and Suitability;

3.1.2: Relief

Including the Map of Slopes;

3.1.3 Water Resources:

Surface water availability. Include in the basic map the rivers, streams, dams, lakes etc.;

3.1.4 Fauna;

3.1.5 Use of Soil and Vegetation Cover:

Maps of land use and vegetation cover, which should have scale compatible with the requirements of the environmental licensing agencies and in digital format:

a) Emphasize on map the existing vegetation types, including the current situation of native vegetation cover; the predominant plant species, its status of conservation and the main problems of degradation, with their causes. Emphasize the endemic and protected by legal rules;

b) Current themed map of the use of the soil should identify:

1-growing areas (annual and perennial), pastures, forests, etc.;

2-existing water resources;

3-buildings and installations; and

4- Areas of Permanent Preservation and Legal Reserve identified, quantified and according to their status (conserved, degraded etc.). Confront the reality of these areas with the requirements of environmental legislation. Relate to the problems of degradation of areas of Permanent Preservation and Legal Reserve and point out the causes of possible non-compliance with environmental legislation;

3.1.6 Climate and weather data.

3.2- Diagnosis of the socio-economic and Cultural Environment;

3.2.1 Settling Project History:

Describe the history of creation of the settlement, the origin of the settlers and their socio-economic situation;

3.2.2 Population and Social Organization:

Characterize and analyze the total population by age, gender, educational level, main economic activities performed. Estimate the percentage of households with access to the benefits, annuity and retirement pensions, disability or dependency. Describe the various forms of organization of existing population (associations, cooperatives etc.), as well as the degree of effectiveness of its functioning and the level of participation of women and young people;

3.2.3 Physical, Social and Economic infrastructure:

a) Identify the equipment and facilities for community use, such as: schools, office buildings that can serve for community centers, stables, pastures, dams and other infrastructure that can be leveraged for community use;

b) Identify the current status of the road system, electricity, and water supplies;

c) Identify the situation of sanitation and solid waste; and

d) analyze the production systems and their internal and external joints (in the local, regional etc. context), with expanded view of predominant productive logic and dynamics;

3.2.4 Health;

3.2.5 Education;

3.2.6 Territorial Organization.

4 – DESCRIPTION OF SOCIAL AND ECONOMIC ENVIRONMENTAL IMPACTS

5-PRESENTATION OF MITIGATING MEASURES FOR THE SETTLEMENT

5.1- The Recovery Plan of the Settlement materializes in the form of thematic programs and/or presentation of actions and mitigating measures, identified with the settlers and attuned to the situation observed in diagnosis, as well as a timeline of implementation (physical and financial, including the partners share responsibility for action). If applicable, actions should be presented relating to:

5.1.1 The Restoration of Areas of Permanent Preservation and Legal Reserve Recovery and their registration;

5.1.2 Land and Water Conservation and Recovery of Degraded Areas;

5.1.3 Sustainability of production systems;

5.1.4 Identification and use of areas of environmental sensitivity, gullies and degraded areas. Environmental Education.

6-TERM OF COMMITMENT

6.1-It should be included in the Recovery Plan of the Settlement, the Minutes of the Assembly for its presentation, containing the approval and commitment of the settlers, the executing agency of the project, and others involved with the measures provided for.

This text does not replace the one published in the Official Gazette , of December 29, 2006

CONAMA RESOLUTION 402, November 17, 2008
Published in Official Gazette 224 on November 18, 2008, Section 1, page 66

Correlation:

- Changes arts 11 and 12 of CONAMA Resolution n° 335/03
- Revokes art. 3 of CONAMA Resolution n° 368/06

Changes articles 11 and 12 of Resolution 335 issued on April 3, 2003, which provisions the granting of environmental licenses for cemeteries.

The National Environmental Council-CONAMA, pursuant to the powers vested on it by Article 8, of Law No. 6,938 dated August 31, 1981, and in view of the provisions in its Internal Rules, and;

Considering the need to revise Resolution No. 335, of April 3, 2003 and Resolution No. 368, of March 28, 2006, which provided for environmental licensing of cemeteries, depending on the particularities of existing cemeteries on the date of the publication of Resolution No. 335, of April 3, 2003; resolves:

Art. 1 Articles 11 and 12 of Resolution No. 335, of April 3, 2003, shall enter into effect with the following wording:

.....
"Art. 11. State and municipal environmental agencies must establish until December 2010 criteria for adequacy of cemeteries existing in April 2003. "

"Art. 12. The closure plan of activities should be included in the environmental licensing process, including measures for the recovery of the affected area and indemnity of possible victims. "

.....
Art. 2 It is hereby revoked art. 3 of Resolution No. 368, of March 28, 2006.

Art. 3. This Resolution shall enter into force on the date of its publication.

CARLOS MINC – Council President

This text does not replace the one published in the Official Gazette, of November 18, 2008

CONAMA RESOLUTION 404, November 11, 2008
Published in Official Gazette 220 on November 12, 2008, Section 1, page 93

Correlations:

- Revokes CONAMA Resolution No. 308/02

Establishes criteria and directives for the granting of environmental licenses for small sanitary embankments of solid urban wastes.

The NATIONAL ENVIRONMENTAL COUNCIL-CONAMA, pursuant to the powers vested on it by art. 8, item I, of law No. 6,938 dated August 31, 1981, and taking into account the provisions in its Internal Rules, and considering that the inadequate solid waste disposal constitutes a threat to public health and exacerbates environmental degradation, compromising the quality of life of populations;

Considering the difficulties that small municipalities face in the deployment and operation of solid waste landfill, to meet the requirements of the environmental licensing process;

Considering that the implementation of landfill of municipal solid waste should be preceded by Environmental Licensing by the competent environmental agency, in accordance with the legislation in force;

Considering provisions of article 12 of CONAMA Resolution No. 237, of December 19, 1997, which allows for the adoption of simplified procedures, after meeting the nature, characteristics and peculiarities of the activity or venture, resolves:

Art. 1 To establish that the environmental licensing procedures for small landfills are conducted in simplified form in accordance with the criteria and guidelines defined in this Resolution.

§ 1 For the purposes of this Resolution small landfills are those with daily provision of up to 20 t (20 tons) of solid waste.

§ 2 In locations where there is a significant increase in waste generation by floating or seasonal population, this situation should be provided for in the project, which should contemplate the additional control measures for the operation of the landfill.

§ 3 The provisions in the caput are limited to a single unit by the municipal or district headquarters.

Art. 2 For the landfills included in this Resolution it will be exempted the presentation of EIA/RIMA.

Sole paragraph. The competent environmental agency, noting that the proposed landfill is potentially causing significant degradation of the environment, will require the EIA/RIMA.

Art. 3 In the small landfills covered by this Resolution it is admitted the final disposal of household solid waste, wastes from urban cleaning services, health care waste, as well as solid waste from small commercial, industrial and service providers establishments.

§ 1 The provisions in the caput shall only be applied to non-hazardous waste, as defined in the specific legislation, and which have characteristics similar to those generated in households, as well as waste from health services that do not require treatment prior to final disposal and those who by their ratings require treatment prior to final disposal, in accordance with the technical regulations of the health and environment agencies, as per Anvisa RDC 306/2004 and CONAMA Resolution no. 358/2005.

§ 2 At the competent environmental agency's discretion, may be admitted to the disposal of non-hazardous dry sludge from water treatment systems and sewage, provided the viability of this provision be proven in specific technical analysis, after meeting the environmental standards on health and safety.

§ 3 The hazardous waste which, because of its characteristics of flammability, corrosivity, reactivity, toxicity, carcinogenicity, teratogenicity, mutagenicity and sharp objects, present risk to public health and the environment, as well as construction waste, from agrosilvopastoris activities, services mining, transport health classified in Anvisa RDC 306/2004 and CONAMA Resolution 385/05 with special disposal requirement cannot be disposed in landfills dealt with in this resolution.

Art. 4 In the environmental licensing of small landfills contemplated in this Resolution it shall be required, at a minimum, the following conditions, criteria and guidelines:

I- access roads to the site with good traffic conditions throughout the year, even during heavy rains;

II- the minimum distances set out in environmental legislation and technical standards;

III- the minimum distances set out in environmental legislation relating to permanent preservation areas, protected areas, fragile ecosystems and resources groundwater and surface water;

IV. use of areas with geological, geographical and geotechnical characteristics suitable for the intended use, proven through specific studies;

V-use of areas that meet the municipal law on Use and Occupation of Soil, provided they meet the provisions of art. 5 and 10 of CONAMA Resolution No. 237, of December 19

in 1997, with preference to those occupied by man and with minimal potential incorporation into the urban area of the headquarters, districts or villages and low real estate valuation;

VI. use of areas that guarantee the implementation of ventures with a life of more than 15 years.

VII – impossibility of use of areas considered at risk, such as those susceptible to erosion, except after the technical interventions capable of ensuring stability of the soil.

VIII. impossibility of use of environmentally sensitive areas and environmental vulnerability, as those subject to floods.

IX- , monitoring and control plan;

XIV- presentation of environmental studies, including the proposed landfill project accompanied by note of technical responsibility;

XV- presentation of participatory environmental education program, which prioritize the waste generation and not encourage the separate collection, based on the principles of reduction, reuse and recycling of municipal solid waste, to run concurrently with the implementation of the landfill;

XVI- closing description of the population benefited and qualitative and quantitative characteristics of the waste to be disposed in landfill;

X- proposed operational capacity for the venture

XI- characterization of the site:

XII- methods for the prevention and minimization of environmental impacts;

XIII- operation project presentation, retrieval and monitoring of degraded area by former dumpsite (s) and future use of the area, with its schedule of implementation;

XVII- closure plan, recovery, monitoring and future use planned for the area of the landfill to be licensed;

XVIII- presentation of municipal or regional integrated management plan of solid waste or sewage, when existing, or commitment to development in accordance with Federal Law No. 11.445/2007;

Sole paragraph. The competent environmental agency may at any time, taking into account local characteristics, include new requirements.

Art. 5 The competent environmental agency may define additional procedures for the environmental licensing, contemplated in this Resolution, which must be approved by the Board of Environment.

Art. 6 This Resolution shall enter into force on the date of its publication.

Art. 7 It revokes Resolution No. 308 of March 21, 2002.

CARLOS MINC-President of CONAMA

This text does not replace the one published in the Official Gazette of November 12, 2008

RESOLUTION 412, May 13, 2009
Published in Official Gazette 90 on 05/14/2009, pp. 75-76

Establishes criteria and directives for the granting of environmental licenses to new enterprises engaged in the construction of Social Interest housing.

The NATIONAL ENVIRONMENTAL COUNCIL-CONAMA, pursuant to the powers vested on it by art. 8, item I, of Law no 6,938, of August 31, 1981, and having in view the provisions laid down in its Internal Rules, and the provisions of Process No. 02000.000562/2009-25, and

Considering the need to establish a simplified procedure for the environmental licensing of new ventures for the construction of Social Interest Housing;

Considering the constitutional devices, in particular art. 225 of the Constitution concerning the guarantee of an ecologically balanced environment and essential to the healthy quality of life, and to the Government and the community the duty to defend it and preserve it for future generations, as well as art. 6 establishing the universality of the right to housing; and given the provisions of state and local laws, in particular to those established in the plans of the municipalities;

Considering that the main function of the environmental licensing is to avoid risks and damage to humans and the environment on the basis of the precautionary principle;

Considering the situations of constraint, provided for in laws and regulations, such as, permanent preservation areas, protected areas, public health issues, sites of historical and archaeological heritage, among others, and the need for compliance with the requirements governing other related activities with the environmental licensing process;

Considering the need to relocate housing units located in hazardous areas;

Considering the provisions of art. 12 of CONAMA Resolution No. 237, of December 19, 1997, which allows for the adoption of simplified procedures of environmental licensing,

When meeting the nature, characteristics and peculiarities of the activity or project, resolves:

Art. 1 It is hereby established that the environmental licensing procedures for new ventures for the construction of social housing schemes with small environmental impact potential in urban or under expansion area, under the legislation in force, be made in simplified way, in accordance with the criteria and guidelines set out in this Resolution.

Sole paragraph. The procedures referred to in the caput may be applied to soil parceling ventures with up to 100 (one hundred) ha intended for social interest housing, including contiguous areas.

Art. 2 The competent environmental agency should establish technical objective criteria for framing in the simplified procedure, within 30 days from the date of publication of this Resolution.

Sole paragraph. The competent environmental agency will define the framework of the project on environmental licensing procedure by decision based on simplified technical opinion, after meeting the requirements of the current legislation, in particular law No. 6,766, of December 19, 1979.

Art. 3. The procedures established in this resolution apply to environmental licensing of new ventures for the construction of social interest houses, and licensing procedures already disciplined by the states, the municipalities and the Federal District on specific standards, considering the aspects local environmental, what do not contradict the provisions of this resolution may be adopted.

Art. 4 For the purposes of this Resolution the following concepts are herein adopted:

I- Ventures for the Construction of Social Interest Houses:

Housing complex intended for low-income population dwellings, as provided for in the laws in force;

II- Simplified Environmental Report (RAS): studies on the environmental aspects related to installation, location and operation of new housing developments, including the activities of basic sanitation, road infrastructure and energy, presented as allowance for granting the required license, which will contain, among others, the information concerning the environmental assessment of the project's insertion region, their characterization, identification of environmental impacts and control measures, mitigation and compensation; and

III-Environmental entailing Report on Environmental Programs: document that presents, in detail, all mitigating and compensatory measures and environmental programs proposed in RAS.

Art. 5 The environmental licensing of new housing projects of social interest, from small environmental impact potential, shall be by means of a single license, comprising the location, installation and operation

§ 1 The maximum period for concluding analysis about the environmental license application is 30 (thirty) days from the submission of all required documentation.

§ 2 The period shall be interrupted, in the case of need to complement the technical information upon grounded order.

Art. 6 The simplified environmental licensing for new housing ventures of social interest, at least the following documents: should be submitted to the environmental licensing agency:

I- application for environmental license;

II- positive manifestation of the body responsible for issuing licenses for the removal of vegetation;

III- grant of water resources, when applicable;

IV- municipal declaration of compliance of the project with the municipal legislation applicable to the use and occupation of the soil;

V- technical report containing the location, description, the basic design and the physical deployment schedule of works with the relevant note of technical responsibility;

VI- Simplified Environmental Report-RAS; and

VII - Report on the Detailing of Environmental Programs, when applicable, at the environmental licensing agency's discretion.

Art. 7 For the simplified environmental licensing for new social interest housing ventures should be met, at least the following criteria and guidelines:

I- implementation of the drinking water supply systems, sewage collection and treatment in non-local public sanitation and proper disposal;

II- the proper collection and disposal of solid waste and storm water management that contemplates the retention, fundraising, infiltration and appropriate release of these waters; and

III-destination of movement areas, urban and community equipment deployment, green areas and open spaces of public use, guaranteeing the quality and environmental safety of the enterprise, compatible with the master plan and municipal law of soil use and occupation for the zone in which they are situated.

Sole paragraph. The environmental agency discretion licensor, additional requirements may be made to the environmental licensing provided for in heading, when the new

housing projects are located in areas subject to occupancy restrictions established by specific legislation.

Art. 8. The simplified environmental licensing procedure will not be applied when the venture:

I- implies in intervention in Permanent Preservation Areas, except in the cases provided for in CONAMA Resolution No. 369, of March 28, 2006;

II- is located in:

a) risk areas, such as those susceptible to erosion;

b) wetlands or subject to flooding;

c) landfills with materials harmful to health and areas suspected of contamination; and

d) areas with slope equal to or greater than 30%, unless they meet specific requirements of the competent authorities.

Art. 9. The authorization for removal of vegetation, when applicable, must follow the criteria established by CONAMA Resolution No. 369, of 2006, which provides for exceptional cases of public utility or social interest, low environmental impact, allowing the intervention or suppression of vegetation in APP.

Sole paragraph. The removal of vegetation can only be performed at the start of civil works for the implementation of the venture.

Art. 10. The entrepreneur, during the deployment of the enterprise, shall communicate immediately to the environmental licensing agency, identifying environmental impacts incidental to the RAS, for the manifestation of this organ and adoption of measures that may be required.

Art. 11. The environmental licensing agency by motivated decision, assuring the contradictory and subject to emergency or urgency situations, may, at any time, modify the conditions and the measures of control and adequacy of the venture, suspend or cancel the license issued, when:

I- infringement or inadequacy of any constraints or violation of laws occur;

II- the onset of serious environmental or health risks; and

III- destination of the social and economic venture's destination.

Art. 12. This Resolution shall enter into force on the date of its publication.

CARLOS MINC-Council President

This text does not replace the one published in the Official Gazette of 05/14/2009

RESOLUTION 413, June 26, 2009
Published in Official Gazette 122 on 06/30/2009, pp. 126-129

Establishes provisions for the granting of agricultural environmental licenses as well as other provisions

The NATIONAL ENVIRONMENTAL COUNCIL-CONAMA, pursuant to the powers vested on it by art. 8, item I, of law No. 6,938, of August 31, 1981, and bearing in mind the provisions of its Internal Rules annexed to Ordinance No. 168 of June 10, 2005, and the provisions of Process No. 02000.000348/2004-64, and

Considering the social and environmental function of property provided for in arts. 5, item XXIII, 170, item VI, 182, § 2, 186, sub item II and 225 of the Federal Constitution;

Considering that the granting of rights of use of water resources, according to Law No. 9,433 of January 8, 1997, aims to ensure quality control and the amount of water uses and the effective exercise of rights of access to water;

Considering that it is the common responsibility of the Union, States, Federal District and municipalities to promote agricultural production and organize food supplies as per item VIII of art. 23 of the Federal Constitution;

Considering the provisions of Decree No. 4,895, of 2003 and its regulations, which provide for the procedures relating to the authorization of use of physical spaces of water bodies owned by the Union for aquaculture purposes;

Considering the provisions of CONAMA Resolution No. 357, of March 17, 2005, which provides for the classification of water bodies and environmental guidelines for their framing, as well as laying down the conditions and standards for effluent release, and other matters;

Considering the provisions of CONAMA Resolution No. 369, of March 28, 2006, which establishes guidelines for the exceptional cases of intervention or suppression of vegetation in permanent preservation areas;

Considering CONAMA Resolution No. 312, of October 10, 2002, which deals with environmental licensing of shrimp farming in the coastal area, does not include the other segments of aquaculture in its scope;

Considering that CONAMA Resolution No. 237, of December 19, 1997;

Considering the nutritional, social, environmental, and economic benefits, that are usually associated with the orderly and sustainable development of aquaculture

Considering the need for planning and control of aquaculture activity on the basis of environmentally correct production with all the care in the protection of forest remnants and water quality, including in existing ventures, resolves:

Art. 1 This Resolution has as its object the setting of standards and criteria for the environmental licensing of aquaculture.

§ 1 The provisions of this Resolution shall not apply to ventures relating to shrimp farming in coastal area, object of CONAMA Resolution No. 312, of October 10, 2002.

§ 2 In the case of the environmental licensing of aquaculture enterprises located in the area of the Union, in addition to the provisions in this Resolution, specific rules must be followed to obtain authorization for use of physical spaces of water bodies of the Union.

§ 3 The prior license or single environmental license must be submitted to the body responsible for obtaining the authorization referred to in § 2 of this Resolution.

Art. 2 the procedures established in this resolution apply, at any level of jurisdiction and the environmental licensing of activities and aquaculture enterprises, without prejudice to the licensing process as governed by the States, Federal District and Municipalities on specific legislation, considering the environmental aspects.

Art. 3 For the purposes of this Resolution the following concepts are adopted:

I- Aquaculture: the farming or creation of organisms whose life cycle, under natural conditions, takes place wholly or partly in the aquatic environment;

II- Aquaculture Area: continuous physical space in the aquatic environment, delimited, intended for aquaculture projects, individual or collective;

III- Allochthonous or exotic Species: species that do not occur or did not occur naturally in the UGR considered;

IV- Native or indigenous species: species of origin and natural occurrence in the waters of the UGR considered;

V- Juvenile forms: fingerlings, tadpoles, treehopper imagines, larvae, algae plants intended for cultivation, nauplii, eggs, post larvae and seeds of bivalve mollusks;

VI- Prior manifestation of the organs and bodies of water resources: any administrative act issued by the competent licensing authority, entered in the procedure of obtaining the grant of right to use water resources, which corresponds to the preventive grant, defined in Law No. 9,984, of July 17, 2000, designed to allow flow subject to grants, enabling investors to plan ventures that need those resources;

VII- Aquaculture Park: continuous physical space in the aquatic environment, enclosed, comprising a set of related aquaculture areas, in whose physical intermediaries spaces can be developed other activities compatible with the practice of aquaculture;

VIII- Size of aquaculture venture: classification of aquaculture projects using as a criterion the area or volume effectively occupied by the enterprise, with definition of classes corresponding to small, medium and large companies;

IX- Severity potential of species: criterion based on the ecological characteristic of the species and cultivation system to be used;

X- Potential of environmental impact: criterion of classification of aquaculture enterprises in terms of its size and severity of potential species

XI- Cultivation system: set of characteristics or production processes used by aquaculture ventures, being divided into Intensive, semi-intensive and extensive modes;

XII- Extensive Cultivation System: production system that mainly depends on grown specimens of natural food available, and can receive as a supplement artificial food and which has its feature density the medium or low density of specimens, varying according to the species used.

XIII- Intensive Farming System: production system in which the specimens grown fully depend on the supply of artificial food, having as one of its features a high density of specimens, varying according to the species used;

XIV-Semi-intensive Cultivation System: production system in which the cultivated specimens mainly depend on artificial food supply, and may seek additionally available natural food, and having as medium or low density characteristic of specimens, varying according to the species used;

XV- Referential Geographical Unit-UGR: the area covered by a river basin district, or in the case of marine and estuarine waters, coastal waters between tracks two points along the Brazilian coast, listed below

a) UGR of continental waters, hydrographic regions defined in the Resolution of the National Water Resources Council-CNRH No. 32, of October 15, 2003, listed below:

1. Amazon Hydrographic Region;
2. Tocantins-Araguaia Hydrographic Region;
3. West-East Atlantic Hydrographic Region;
4. Parnaíba Hydrographic Region;
5. Eastern North-East Atlantic Hydrographic Region;
6. São Francisco River Hydrographic Region;
7. East Atlantic Hydrographic Region;
8. South-East Atlantic Hydrographic Region;
9. South Atlantic Hydrographic Region;
10. Uruguay Hydrographic Region;
11. Paraná Hydrographic Region;
12. Paraguay Hydrographic Region;

b) UGR of estuarine waters and Brazilian navies:

1. North - from the State of Amapá to Cabo Frio (Lat. 22° 52 ' 46 " -long 42° 01 ' 07. "), in the State of Rio de Janeiro; and

2. South – from Cabo Frio (Lat. 22° 52 ' 46 " - long 42° 01 ' 07. "), in the State of Rio de Janeiro, to the State of Rio Grande do Sul.

Art. 4 The Size of Aquaculture Ventures will be set according to their area or volume, for each activity, as shown in table 1 of ANNEX I.

Art. 5 The severity Potential of the species used by the venture will be defined as the relationship between the species used and the type of growing system used by the venture, following the criteria set out in table 2 of ANNEX I to this Resolution:

§ 1. In aquaculture ventures with cultivation of various species will prevail, for purposes of classification, in the chapeau, the most restrictive environment.

§ 2 The enterprises that use multiple cropping or integrated systems that demonstrate the best use of resources and the reduction of solid and liquid waste, as well as those which have systems for treatment of effluents or have biosafety systems can be framed in one of the lowest-impact classes.

Art. 6 For the definition of environmental licensing procedures, the aquaculture ventures will be framed in one of nine classes defined in table 3 of ANNEX I to this Resolution, as the relationship between the size of aquaculture development and the severity potential of the species used in the venture, included, respectively, in tables 1 and 2 of ANNEX I of this Resolution.

§ 1. The small aquaculture projects, regardless of the severity of potential species (PB, PM and PA) and mid-sized enterprises with low potential for severity of the species (MB) may, at the discretion of the environmental licensing agency be licensed through the environmental licensing procedure, as minimum documentation referred to in ANNEX II of this Resolution, provided that:

I - they are not in condensing aquaculture crop regions, defined by the environmental licensing agency;

II- the capacity of freshwater aquatic environments of public support is not exceeded;

III- does not require the construction of new watercourses collection systems; and

IV- are not in the stretch of water that has recurring cyanobacteria blooming above the limits laid down in the CONAMA resolution No. 357, of 2005, and that can influence the quality of raw water for public supply.

§ 2 In the cases of small aquaculture ventures and low severity of potential species (PB), at the discretion of the environmental licensing agency licensing can be done by single license, including the location, installation and operation of the enterprise, or equivalent document provided for by the legislation of the environmental agency, and provided that it complies mandatorily with the criteria referred to in the preceding paragraph.

§ 3 The small ventures with medium and high severity potential of species (PM and PA) and mid-sized ventures with low severity of potential species (MB) framed as a subject of environmental licensing procedure, according to § 1, shall, in addition to the documents mentioned in ANNEX II of this Resolution, submit the minimum documentation referred to in ANNEX IV of this Resolution.

§ 4 The ventures of other categories (MM, MA, GB and GM and GA) will be licensed through the ordinary procedure of environmental licensing and should present at least the documents listed in ANNEX V of this Resolution.

Art. 7 The small size ventures that are not potentially cause significant degradation of the environment may, at the discretion of the environmental licensing agency, provided that they are registered in that organ, be exempted from environmental licensing.

Art. 8. A single process of environmental licensing may be admitted for small ventures in densely populated regions with similar activities, provided that it is defined the legal responsible for the set of ventures or activities.

Art. 9 The environmental licensing of fish farms will be effected on single administrative process and its environmental license will encompass all aquaculture sites.

Art. 10. The initial statement of the environmental licensing process of aquaculture enterprises should include the following requirements:

I- presentation by the entrepreneur of the environmental licensing requirement;

II- review of aquaculture venture by the environmental licensing agency, as per Table 3 in ANNEX I to his Resolution; and

III- submission of documents and relevant information referred to in ANNEXes II and III to this Resolution, in accordance with the framing of the venture as to the type of environmental licensing to be use.

Art. 11. The environmental licensing agency shall require, within the framework of the environmental licensing process, the following documents issued by the body managing the water resources, when applicable:

I- preliminary manifestation in the stage of prior environmental license; and

II- grant of right of use of water resources, at the stage of environmental operating license or single-step environmental licensing.

Sole paragraph. The grant of right to use water resources may be required at the stage of environmental installation license, if there is the use of water in this stage

Art. 12. In the expansion of aquaculture venture environmental studies should be presented relating to its new framework, on the basis of this Resolution.

Art. 13. The building up of complementary or additional facilities of the venture, as well as staying in the place of the required equipment will only be permitted when previously characterized in the project description and duly authorized by the competent bodies.

Art. 14. The aquaculture activity will only be permitted when there is the use of indigenous or native species, or, in the case of exotic or alien species, when they are included in specific federal normative act authorizing their use.

Art. 15. The use of young forms in aquaculture will only be allowed:

I- when provided by laboratories registered with the federal agency as regard sanity and duly licensed by the competent environmental agency;

II- when extracted from the natural environment and approved in the form set out in the relevant legislation; and

III- in the case of bivalve mollusks obtained through natural setting in artificial collectors, duly authorized by the competent bodies.

§ 1 The hypothesis predicted in item II shall only be permitted in the case of live bivalve mollusks, macrophyte algae or, when exceptionally authorized by the environmental agency other competent bodies.

§ 2 The fish farmer is responsible for attesting the origin of young forms introduced in crops.

§ 3 In case of bodies from outside national borders it must be observed the specific legislation and it is not required environmental licensing from the laboratory of origin.

Art. 16. For the environmental licensing stages of producing units of young forms of aquatic organisms the provisions of the terms of reference prepared by the environmental licensing agency must be complied, after meeting the minimum information listed in ANNEX VII of this Resolution, in accordance with their relevance, without prejudice to any other information that is considered relevant.

Art. 17. The environmental licensing of aquaculture ventures in coastal area must observe the criteria and limits defined in the Coastal Ecologic-Economic Zoning, the National Coastal Management Plan, the State Coastal Management Plan and Local Plans for the development of Mariculture (PLDM), without prejudice to other normative instruments use of fisheries resources.

Sole paragraph. The lack of criteria and limits defined in the instruments listed in the caput of this article shall not preclude the environmental licensing of aquaculture ventures.

Art. 18. Aquaculture operations, when needed, should establish mechanisms for treatment and control of effluents to ensure compliance with the standards laid down in the current environmental legislation.

Sole paragraph. The ventures in which it is technically necessary any mechanism for wastewater treatment or control must submit to the environmental licensing agency a project compatible with the provisions in the caput of this section.

Art. 19. The environmental licensing agency may require from the entrepreneur the adoption of economic and technologically feasible measures for the prevention and control of escape of cultivated species, and these measures are required as conditions for licenses issued

Art. 20. The environmental licensing agency will require the adoption of viable construction standards that reduce the chances of erosion and slope break in case of aquaculture ventures in terrestrial environment .

Art. 21. At the closure of aquaculture activities it must be submitted to the environmental body a Plan for Decommissioning and Restoration, with execution schedule.

Art. 22. The ventures in operation and those that do not have an environmental license on the date of publication of this Resolution, shall regularize their situation in accordance with the environmental licensing agency.

§ 1 The regularization of the situation will be done by obtaining the Operating License – LO in accordance with the legislation in force, for which will be required the presentation of the appropriate documentation, containing at least:

I- general description of the project, as per ANNEX III to this Resolution;

II- relevant environmental studies and mitigating and environmental protection measures, at the environmental licensing agency discretion; and

III- existing or planned management instruments to ensure the implementation of the proposed measures;

§ 2 The ventures referred to in the caput of this article shall apply for regularization next to the competent environmental agency within 365 days, counted from the date of publication of this Resolution.

Art. 23. The environmental license for aquaculture ventures or activities may be granted without prejudice to compliance with other legal provisions in force.

Art. 24. This Resolution shall enter into force on the date of its publication, by applying its effects to licensing procedures in progress at the competent environmental agencies, including the cases of renewal, which have not yet been issued any licenses required.

CARLOS MINC-Council President

This text does not replace the one published in the Official Gazette of 06/30/2009

ANNEX I CRITERIA OF SIZE AND SEVERITY OF POTENTIAL OF SPECIES FOR CLASSIFICATION OF AQUACULTURE VENTURES

Table 1- Size of aquaculture venture

Activity						
		Freshwater shrimp farming and Pisciculture in excavated breeders Area(ha)	Freshwater shrimp farming and Pisciculture in net tanks or coated tank Volume (m ³)	Frog breeding Area (m ²)	Malaco-culture Area (ha)	Alga breeding Area (ha)
Size	Small(P)	< 5	< 1.000	< 400	< 5	< 10
	Median(M)	5 a 50	1.000 a 5.000	400 a 1.200	5 a 30	10 a 40
	Large (G)	> 50	> 5.000	> 1.200	> 30	> 40

Table 2 – Severity potential of species

Ecologic characteristics of species					
		Autochthonous or native		Alochthonous or exotic	
		Non-carnivorous/ carnivorous/ autotrophic	Carnivorous	Non-carnivorous/ omnivorous/ autotrophic	Carnivorous
Farming system	Extensive	B	B	M	M
	Semi-Intensive	B	M	M	A
	Intensive	M	M	A	A

Legend: Severity Potential of species B=low; M=average; A=high

Table 3-Environmental impact potential

Severity potential of species				
		Low (B)	Average(M)	High(A)
Size	Small(P)	PB	PM	PA
	Median(M)	MB	MM	MA
	Large(G)	GB	GM	GA

Legend:

PB = small size with low severity of potential of species;

PM = small size with medium severity of potential of species;

PA = small size with high potential severity of species;

MB = average size with low severity of potential species;

MM = average size with medium severity of potential species;

MA = average size with high potential severity of species;

GB = large size with low severity of potential species;

GM = large size with medium severity of potential species;

GA = large size enterprises with high potential severity of the species.

ANNEX II

MINIMUM DOCUMENTATION REQUESTED FOR THE SIMPLIFIED PROCEDURE OF ENVIRONMENTAL LICENSING WITH UNIQUE ENVIRONMENTAL LICENSE (ventures classified as PB)

- Environmental licensing requirements of the venture.
- Registration of the venture, correctly filled out by the applicant (ANNEX III).
- Certificate of Registration in the Federal Technical Cadastre of Polluting Activities (Brazilian Institute of the Environment and Renewable Natural Resources– IBAMA).
 - Copy of the identification of the corporation (CNPJ), and the articles of association or of the natural person (CPF).
 - Certificate of registration of the legal reserve, when applicable.
 - Proof of ownership, possession or cession of the area of the venture.
 - Proof of payment of environmental licensing fee, when applicable.
 - Grant of right to use water resources, when applicable.
 - Consent by the organ managing the preservation unit, when applicable.
 - Certificate of municipal administration stating that the location and type of project or activity are in accordance with the legislation applicable to the use and occupation of the soil, when applicable.
 - Authorization from IBAMA for introduction or translocation and reintroduction of species only in cases of specimens from outside national borders.

MINIMUM DOCUMENTATION REQUESTED FOR THE SIMPLIFIED PROCEDURE OF ENVIRONMENTAL LICENSING (ventures classified as PM, PA and MB).

- Environmental Licensing Requirements of the venture.
- Directory of the project, correctly filled out by the applicant (ANNEX III).
- Certificate of Registration with the Federal Technical Directory of Polluting Activities (IBAMA).
- Copy of identification of the corporation (CNPJ), accompanied by the articles of association or of the natural person (CPF).
 - Certificate of registration of the legal reserve, when applicable.
 - Proof of ownership, possession or cession of the area of the venture.
 - Proof of payment of environmental licensing fee, when applicable.
 - Grant of right to use water resources, when applicable.
 - Environmental Report-RA as per ANNEX IV,
 - Consent of managing agency of preservation unit, when applicable.
 - Certificate of municipal administration stating that the location and the type of undertaking or activity are in accordance with the legislation applicable to the use and occupation of the soil, when applicable.
 - Authorization from IBAMA for introduction or translocation and reintroduction of species only in cases of specimens from outside national borders

MINIMUM DOCUMENTATION REQUESTED FOR THE ORDINARY ENVIRONMENTAL LICENSING

PRIOR LICENSE

- Environmental Licensing Requirements of the venture.
- Certificate of Regularity in the Federal Technical Directory of Polluting activities (IBAMA).

- Copy of identity of the corporation person (CNPJ), accompanied by the articles of association , or of the natural person (CPF).
- Copy of publication of the prior license request.
- Certificate of municipal administration stating that the location and the type of undertaking or activity are in accordance with the legislation applicable to the use and occupation of the soil, when applicable.
- Certificate of registration of the legal reserve, when applicable.
- Proof of payment of license fee.
- Location plan of the area of the venture, in an appropriate scale, with indication of the interventions in the areas of Permanent Preservation.
- Technical Draft of the venture, accompanied by note or record of technical responsibility.
- Environmental study of the project, according to ANNEX V
- Consent of the managing organ of the preservation unit, when applicable.
- Authorization of IBAMA for introduction or translocation and reintroduction of species only in cases of specimens from outside national borders.

MINIMUM DOCUMENTATION REQUESTED FOR THE ORDINARY ENVIRONMENTAL LICENSING

INSTALLATION LICENSE

- Application for Installation License of the venture.
- Copy of the Prior License and the publication of its granting in regional newspaper and in the Official Gazette of the State.
- Copy of the publication of the Installation License request
- Certificate of regularity of Federal Technical Directory of Polluting Activity (IBAMA).
- Certificate of registration of the property or lease or rental, the case has not been presented at the previous stage.
- Proof of payment of environmental licensing fee, when applicable.
- Authorization of deforestation or vegetation suppression, issued by the competent environmental agency, if applicable.
- Proof of ownership, possession or transfer of the business area

MINIMUM DOCUMENTATION REQUESTED FOR THE ORDINARY ENVIRONMENTAL LICENSING

OPERATING LICENSE

- Application for Operating License of the venture
- Proof of payment of the fe environmental fee regarding the operating license or for its renewal.
- Certificate of registration of the property or lease or rental, the case has not been presented at the previous stage.
- Copy of the publication of the grant of the Installation License.
- Copy of the publication of the application of the Operating License.
- Certificate of regularity of Federal Technical Directory of Polluting Activities (IBAMA).
- Copy of the operating license for the project, granted by the municipal government.
- Proof of payment of environmental licensing fee, when applicable.
- Environmental monitoring program-ANNEX VI

ANNEX III

REGISTRATION OF THE VENTURE - MINIMUM INFORMATION TO BE PRESENTED IN ENVIRONMENTAL LICENSING APPLICATIONS OF AQUACULTURE VENTURES

1. Register data		
1.1. Name of Corporate Name:	1.2. CPF/CNPJ:	
1.3. Address (name of street followed by the number):		
1.4. District:	1.5. P.O.Box:	
1.6. Zip Code:	1.7. Municipality:	1.8. State:
1.9. Telephone:	1.10. Mobile phone:	1.11. Fax:
1.12. e-mail:		1.13. Site (URL):
1.14. Name of legal representative	1.15. No. of Federal Technical Register / IBAMA:	

1.16. Representative -mail		1.17. Position:
1.18. CPF:	1.19. ID card:	1.20. Issued by/ State:

2. Register's data of the technician responsible for the project			
2.1. Full name :		2.2. CPF:	
2.3. Home address (street/ number):		2.4. District:	
2.5. P.O. Box:	2.6. Zip Code:	2.7. Municipality:	2.8. State:
2.9. Telephone:	2.10. Mobile phone:	2.11. Fax:	
2.12. E-mail:			
2.13. Professional Record:		2.14. No. of Federal Technical Register / IBAMA	
2.15. ID number:		2.16. Issued by/ State:	

2.17 Type of link of Technician Responsible: Employee.Consultant.Colaborator

3. Project's Localization		
3.1. Name of Site:	3.2. Municipality:	3.3. State:
3.4. Type: () River() Reservoir/ Dam() Lake/ Natural Lagoon () Estuaries () Sea()farming in land area		
Coordinates of vortexes of the area's external perimeter		
3.5. Reference geographic coordinate, Datum: () SAD 69 or () WGS-84 (except the licensing simplified licensing cases)		

4. Farming system Items 4.3.3 a 4.3.6. are not applied in the cases of extensive farming	
4.1. Farming will be performed in systems: () intensive() semi-intensive () extensive	
4.2. Activity	
() Fish farming in excavated / built tank	() Agriculture
() Fish farming in Net tank	() Frogs breeding
() Malacoculture	() Ornamental fishes breeding
() Fresh water shrimp farming in excavated / built tank	() Production of young forms
() Fresh water shrimp farming in net tanks	() Paid fishpond
()Other:	
4.3. Fattening	

4.3.1. Code of Specie* (see manual for completion):	4.3.2. Farming area (m ²) or useful volume (m ³):	
4.3.3. `Production (t/year):	4.3.4. Food Conversion (CA):	
4.3.5. No. of cycles/year:	4.3.6. Amount of phosphorous contained in the food (kg/t):	
4.4. Production of Young Forms		
4.4.1. Code of Specie	4.4.2 Farming area (m ²) or useful volume(m ³)	4.4.3. Production (thousands/ year)

5. Characterization of farming structures to be installed	
5.1 Specifications	
5.1.1. Type of device* (code of equipment used)	5.1.2. Amount
5.1.3. Form	5.1.4. Dimensions
5.1.5. Area (m ²)	5.1.6. Useful volume (m ³)
5.1.7 Materials used in the preparation	

Date:
Signature

FILLING OUT MANUAL

4.3.1 Code of Specie – Inform code of specie according to list below					
Code	Common name	Scientific name	Ode	Common Name	Scientific name
PO1	African catfish.	Clarias gariepinus	PO2	Catfish	Ictalurus punctatus
PO3	Bighead carp	Aristichthys nobiis	PO4	Common carp/hungarian	Cyprinus carpio
PO5	Grass carp	Ctenopharingodon idell	PO6	Silver carp.	Hypophthalmichthys sp
PO7	<i>Curimatá/curimatá/curimatã.</i>	Prochiodus sp	PO8	<i>Jundiá</i>	Rhamdia sp
PO9	Red-tailed brycon	Brycon cephalus	PO10	<i>Pacu caranha.</i>	Piaractus mesopotamicus
PO11	<i>Piauçu.</i>	Leporinus sp	PO12	<i>Piau verdadeiro</i>	Leporinus sp
PO13	<i>Pintado/surubim</i>	Pseudoplatystoma fasciatum / coruscans	PO14	<i>Pirapitinga</i>	Colossoma bidens
PO15	<i>Pirarucu</i>	Arapaima gigas	PO16	<i>Tambacu</i>	Colossoma macropomum x Piaractus mesopotamicus
PO17	<i>Tambaqui</i>	Colossoma macropomum	PO18	<i>Tilápia do Nio</i>	Oreochromis nioticus
PO19	Other tilapias		PO20	Trout	Oncorinchus mykiss
PO21	Other ornamental fishes		PO22	Ornamental fishes	
C23	Gian shrimp frpm Malasia	Macrobrachium rosenbergi	C24	Sea shrimp	Litopenaeus vannamei
C25	Other sea shrimp		C26	Other crustaceans	

M27	Clam	Perna perna	M28	Pacific Oyster	Crassostrea gigas
M29	Mangrove oyster	Crassostrea rhizophorae	M30	Other oysters	
M31	Vieira	Nodipecten nodosus	M32	Othr crustaceans	
A33	Algae	Gracilaria sp.	A34	Algae	Kappaphycus sp.
A35	Other algae		R36	Rã-touro	Rana catesbi-ana
R37	Other amphibious		R38	Other invertebrates	

OBS: In the case of farming of species not listed in the above table., use one of these codes (PO19, PO21, C25, C26, M30, M32 A35 e R37) and inform the common and scientific name e of the specie on field 4.3.1, in addition to the code used

4.3.2	Farming area (m ²)	Inform total area intended to the farming of the specie in suare meters, talen also into account the space between the structures
4.3.3	Production(t/year)	Informa the annual production of the specie farmed in tons
4.3.4	Food Conversion(CA)	Inform the food conversion expected for the specie in question.
4.3.5	N° of cycles/year	Inform the number of cycles per year expected for the specie in question.
4.3.6	Amount of phosphorous contained in the food (kg/t):	Inform the amount of phosphorous contained in the food in kilos per ton.
4.3.7	Level of genetic change of the individuals to be farmed as related to the wild ones	Note the alternative(s) corresponding to the level of genetic change of the individuals farmed as related to the wild ones.
4.4	Production of Young Forms	Fill out the fields as per individual specification
4.4.1	Code of Specie	Inform the code of the specie as per item item 4.3.1
4.4.2	Farming area(m ²)	Inform the total area to be used for the production of young forms of the specie in question in square meters, considering also the spaces between the structures.
4.4.3	Production (thousands/year)	Inform the value of production of young forms of the specie in question in thousand per year
4.4.4	Total	Inform the area and the total production expected for the farming.
4.5	Forms to be used to minimize the losses of food for the environment	Inform the forms to be used to minimize the losses of food to the environment during the farming period.
4.6	Approximate amount of solid wastes generated by ton of organisms farmed (faces, food leftovers and others that may be required)	Inform the approximate amount of solid wastes to be generated by tons of farmed organisms (faces, food leftovers and other that may be required)

4.7	Method for the control of the dissemination of exotic and alloctone species to be used during the farming (when applicable)	Inform the methods for controlling the dissemination of the exotic and alloctone species to be used during the farming (when applicable)
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4.8	Use of substances of prophylactic or therapeutical value, with legal registration	Inform on the use of substances of prophylactic and therapeutical value, with legal registration during the farming.
4.9	Allocation techniques to control plagues and diseases	Inform the allocation techniques to control plagues and diseases that will be used in farming.
5. Characterization of devices to be installed		
5.1	Farming Structure	Mark the type(s) of structure(s) that will be use in farming.
5.2	Specification	Fill out the field as per individual specification
5.2.1	Type of device	Fill out with the name of the device mentioned in item 5.1
5.2.2	Quantity	Inform the quantity of devices used
5.2.3	Shape	Inform the shape of the device to be used (square, round, rectangular, etc.)
5.2.4	Dimensions	Inform the dimensions of the devices n meter (length X with X height).
5.2.5	Area (m ²)	Inform the area of the device use in square meters
5.2.6	Useful Volume (m ³)	Inform the useful volume of the device in cubic meters.
5.3	Material used in the production	Inform the material used in the production of the device
5.3.1	Type of device	Fill out with the name of the device mentioned in item 5.1
5.3.2	Structure	Inform the material to be used in the production of the structure of the device (wood, steel, PVC, etc.), com with respective measurements. In the case of long-lines, inform the material used in the production of the master cord with its measurement.
5.3.3	Network / mesh	Inform the material that will be used in the preparation of the device (PVC, polypropylene, etc.), with the respective measurements of the mesh. In case of de long-lines inform the material that will be used in the production of lanterns (with the number of levels and type of tray) and of cords with respective
5.3.4	Floating structure	Inform which will be the type of floating structure and material used .
5.3.5	Anchorage structure	Inform which will be the type of anchorage structure used and the material used
OBS: In the case the specifications are very extensive, attach the information in an extra page.		

ANNEX IV

MINIMUM CRITERIA OF THE ENVIRONMENTAL REPORT OF AGRICULTURAL VENTURES	
1	Identification of the venture and the technician responsible for the venture
2	Sketch of the localization of the venture, indicating APP, water bodies, accesses and traditional

population nucleus
3 – Technical characteristics of the venture (simplified description of the whole productive handling)
4 – Simplified description of the location of the project including: the topography of the site; soil prevalent types; predominant vegetation; present use of soil; among other things.
5 - Describe the possible environmental impacts generated by the venture, indicating the respective corrective measures required when applicable
6 - Attach to environmental report at least four photographs of the location of a venture that will enable a broad view of their conditions.

ANNEX V

MINIMUM CRITERIA FOR THE ENVIRONMENTAL STUDY OF AGRICULTURAL VENTURES
1 –Identification of the venture and the technician responsible for the venture
2- Location of enterprise For medium and large sized ventures: location plan of the project, defining its polygonal in geographic coordinates (admitted error of up to 30 m), with indication of APP, Water Bodies management and access.
3 - Technical characteristics of the project (describe any productive management) -Description and justification of the distribution and number of crop proposed structures; -Description of the productive process adopted; -Control Methods of dissemination of the specimens maintained under farming, when applicable
4 - Description of associated infrastructure being used by producers -access roads; -support constructions; -storage depots and production; -among others
5 - Description of the socio-economic environment: current use and occupation of the proposed area and surroundings, as well as potential conflicts of use
6 - Environmental impacts 6.1. For small ventures Describe the potential environmental impacts generated by the venture , indicating the respective mitigating and compensatory measures. 6.2. For medium and large sized ventures I-Identify, measure and assess the environmental impacts in the phases of installation, operation and decommissioning of the venture, among others; II - Mitigating and compensatory Measures: on the basis of the assessment of the possible environmental impacts of the venture measures should be proposed which will minimize them, maximize them, compensate or eliminate them, and may be embodied in environmental programs
7 - Attach to environmental report at least four photographs of the location of a venture that will enable a broad view of their conditions.

ANNEX VI

PROGRAM FOR ENVIRONMENTAL MONITORING MINIMUM PARAMETERS
1 –Collection stations Submit monitoring plan of water and wastewater, setting collection points in geo-referenced plants, in A scale compatible with the project and establishing the frequency of sampling. 1.1-For VENTURES located on land bases; -At the point of collection; -Of the effluent, at their point of delivery; -Downstream of the effluent release point; -The amount of the effluent release point. 1.2-For venture located directly in the water body. Central point of aquaculture area and monitoring along the predominant direction of the currents, before and after the midpoint.
2 - Collection parameters 2.1-hidrobiológicos Parameters. -minimum parameters: material in suspension (mg/l); Transparency (Secchi Disk-m); Temperature (°C); Salinity (ppt); OD (mg/l); BOD, pH; Ammonia-N; Nitrite-N; Nitrate-N (mg/l); Phosphate-P (mg/l) and Silicate-Si, chlorophyll a and termotolerantes coliforms. Note 1: The monitoring data must be available when required by the competent bodies;

Note 2: depending on the analysis of the data presented, other hydrobiological parameters can be added or removed from the monitoring plan at the discretion of the competent environmental agency
3 - Timeline Present schedule of implementation of the monitoring plan during the period of validity of the Operation License
4 - Technical Report Present technical reports of hydrobiological parameters with all the data analyzed and interpreted, according to the frequency established by the competent environmental agency, which should bear the major environmental changes resulting from the project, as well as make comparisons with previous analyses

ANNEX VII

MINIMUM INFORMATION FOR ENVIRONMENTAL LICENSING OF UNITS PRODUCING YOUNG FORMS OF WATER ORGANISMS LABORATORIES
1 – Identification of the entrepreneurs and the Technician Responsible for the venture
2 - Location of venture Location sketch or plan of the venture, with a geographical coordinate point (admitted error of up to 30 m) reference center, and indication of APP, and water bodies.
3 - Technical characteristics of the project (describe the whole production process and facilities) -Description and justification of the distribution and number of crop proposed structures; -Description of the productive process adopted; -Methods of controlling the spread of non-native and alien species, when applicable
4 - Environmental Diagnosis 4.1-Characterization of the physical environment including Description of the physical environment including: (i) description of the topography of the site; (ii) physicochemical variables and biological, based on CONAMA Resolution No. 357, 2005: pH, temperature, transparency, oxygen dissolved, total phosphorus, nitrogen compounds, BOD, coliforms termotolerantes; among other things. Description of the biotic environment: identification of aquatic fauna; characterization of the flora of the place and surroundings; statement of operations in APP; among other things. Description of the socio-economic environment: current use and occupation of the proposed area and surroundings, as well as possible conflicts of use.
5 - Environmental impacts Describe the potential environmental impacts generated by the venture, indicating the respective mitigating and compensatory measures

RESOLUTION No. 428, December 17, 2010
Published in Official Gazette 242 on 12/20/2010, page. 805.

Correlations:

- Revokes Resolutions No. 11/1987, No. 10/1988, No. 12/1988, No. 13/1990;
- Change Resolutions No. 347/2004 and No. 378/2006.

Establishes provisions, in respect to environmental licenses regarding permits issued by the organ responsible for the administration of the Conservation Unit (UC) that is the subject of § 3 of art. 36 of Law 9.985 from July 18, 2000, as well as on the awareness of the organ responsible for the administration of the Conservation Unit (UC) in respect to environmental licenses for enterprises that are not subjected to EIA-RIMA and makes other provisions.

The NATIONAL ENVIRONMENTAL COUNCIL-CONAMA, pursuant to the powers vested on it by art. 8 of Law No. 6,938 dated August 31, 1981, regulated by Decree No. 99,274, of July 6, 1990 and in view of the provisions in its Internal Rules, annexed to Ordinance MMA No. 168, of June 13, 2005, and:

Considering the need to regulate the environmental licensing procedures of significant environmental impact ventures that affect specific Conservation Units or their damping zones, resolves:

Art. 1 The licensing of events with significant environmental impact that may affect the Conservation Unit (UC) or its Buffering Zone (ZA), considered by the, environmental licensing agency pursuant to the Study on Environmental Impact and respective Environmental Impact Report (EIA/RIMA), may only be granted after authorization by the body responsible for administering the UC or, in the case of Private Reserves of Natural Patrimony (RPPN), the body responsible for its creation.

§ 1. For the purposes of this Resolution, body responsible for administration of the UC, means the executing agencies of the National System of Conservation Units (SNUC), as defined in paragraph III, art. 6 of law No. 9,985 of July 18, 2000.

§ 2. During the period of 5 years, counted from the date of publication of this Resolution, the licensing of significant environmental impact venture located in a strip of 3 thousand meters from the edge of UC, whose ZA is not established, will be subject to the procedure laid down in the caput, with the exception of RPPNs, Environmentally Protected Areas (APAs) and Consolidated Urban Areas.

Art. 2 The authorization referred to in this Resolution should be requested by the environmental licensing agency before issuing the first predicted license, the body responsible for the administration of UC that will manifest itself conclusively after evaluation of the studies required within the environmental licensing procedure, within 60 days from the receipt of the request.

§ 1. The authorization must be requested by the, environmental licensing agency within 15 days from the acceptance of the EIA/RIMA.

§ 2 The environmental licensing agency shall, before issuing the terms of reference of EIA/RIMA, formally consult the authority responsible for the administration of the UC on the need and the required content of specific studies on the impact of the project at UC and in ZA, which will manifest itself within 15 working days from the receipt of the request.

§ 3. The specific studies to be requested should be restricted to the assessment of the impacts of the project on UC or its ZA and objectives of its creation.

§ 4 The body responsible for administering the UC will facilitate access to information by the person concerned.

§ 5 The existence of the UC Handling Plan, duly published, must be observed in order to guide the assessment of impacts on specific UC or its ZA.

§ 6 In the event of non-observance of the time limit referred to in the caput, the body responsible for administering the UC should forward to the licensing and the central body of the SNUC, the justification for the non-compliance.

Art. 3 The body responsible for administering the UC will decide on a motivated way:

I – for issuing of the authorization;

II – for the requirement of additional studies, provided they are predicted under the terms of reference;

III – for the incompatibility of the alternative presented to the venture with UC;

IV – for the refusal of the request.

§1 The authorization integrates the environmental licensing process and shall specify, if necessary, the technical conditions that should be considered in licenses.

§ 2 The additional studies must have all its scope defined once, and it is prohibited, after this time, the request of new demands, except when resulting from additions requested.

§ 3 The non-submission of specific complementary studies, within the time limit agreed with the entrepreneur for reply, provided it is not justified, shall lead to the archiving of the authorization request.

§4 The counting of the period for manifestation of the body responsible for administering the UC will be interrupted during the elaboration of specific complementary studies or preparation of information, being resumed, plus more 30 days, compared to the original deadline, if necessary.

§ 5 In the event of refusal of authorization, the entrepreneur shall be communicated by the licensor and the environmental agency may request review of the decision.

§ 6 In the event of sub paragraph III, the entrepreneur, may submit alternatives to the project under analysis that seek to reconcile the venture with UC and its ZA.

Art. 4 If the venture of significant environmental impact affects two or more distinct domains of UCs, licensing will consolidate the manifestations of bodies responsible for the administration of their UCs.

Art. 5 In the environmental licensing processes of ventures not subject to EIA/RIMA the environmental licensing agency should inform the body responsible for the UC administration, when the venture:

-can cause direct impact in UC;

II – is located in its ZA;

III – is located in the limit of up to 2 thousand meters of UC, whose ZA has not been established within 5 years from the date of publication of this Resolution.

§ 1. The licensors shall make available on the world wide web information about the licensing process in progress.

§ 2 In the case of the consolidated urban areas of APAs and RPPNs, the provisions of paragraph III shall not be applied.

§ 3 In case of RPPN, the licensing agency must inform the body responsible for its creation and the owner.

Art. 6. The state and local environmental licensing agencies may adopt additional standards, in compliance with the general requirements of this Resolution.

Art. 7 This resolution shall apply to UCs created prior to the date of application of the environmental license.

Art. 8 CONAMA Resolutions No. 10, of December 14, 1988, CONAMA No. 11, of December 3, 1987, CONAMA n° 12, of December 14, 1988, CONAMA No. 13, of December 6, 1990; as well as item II of art. 2 and paragraph 1 of art. 4 of CONAMA resolution No. 347, of September 10, 2004, and the sole paragraph of art. 3 of CONAMA resolution No. 378, of October 19, 2006 are hereby revoked.

Art. 9. This Resolution shall enter into force on the date of its publication.

IZABELLA TEIXEIRA-Council President

This text does not replace the one published in the Official Gazette of 12/20/2010

ENVIRONMENTAL LICENSING BY REGION OR PLACE OF ACTIVITY

CONAMA RESOLUTION 4, March 31, 1993
Published in Official Gazette 195 on October 13, 1993, Section 1, page 15264

Establishes provisions for the compulsory licensing for activities, projects, plans and projects to be installed in the areas of sandbank.

The NATIONAL ENVIRONMENTAL COUNCIL-CONAMA, pursuant to the powers vested on it by law No. 6,938 dated August 31, 1981, amended by Law No. 8028, of April 12, 1990, regulated by Decree No. 99,274, of June 6, 1990, and in view of the provisions of Law 8,490 of 19 November, 1992²⁴³, and its internal regulations;

Considering the Ecosystems Technical Chamber proposition, established by CONAMA resolution CONAMA No. 391, resolves:

Art. 1 For the purposes of zoning and protection, all areas of native formations of resting become of emergency character, as laid down by the vegetation map of Brazil, IBGE-1988, and by the RADAM –Brazil Project.

Art. 2 The activities, works, plans and projects to be installed in the areas of sandbank will be compulsorily subject to licensing by the competent state body.

Sole paragraph. An exception to the provisions in the caput of this article are the activities, projects, plans and projects to be installed in the range of 300 (three hundred) meters considered of permanent preservation dealt with in art. 3, paragraph "b" of CONAMA Resolution No. 4/85²⁴⁴.

Art. 3 The non-compliance with this Resolution will subject violators to penalties provided for in current legislation.

Art. 4. This Resolution shall enter into force on the date of its publication, and revokes the provisions to the contrary.

FERNANDO COUTINHO JORGE-Council President
HUMBERTO JR L-Executive Secretary

This text does not replace the one published in the Official Gazette, of October 13, 1993

²⁴³ Law revoked by Law 9.649, of May 27, 1998

²⁴⁴ Resolution revoked by CONAMA Resolution No. 303/02

CONAMA RESOLUTION 4, October 9, 1995
Published in Official Gazette 236 on December 11, 1995, Section 1, page 20388

Institutes Airport Safety Areas (ASAs).

The NATIONAL ENVIRONMENTAL COUNCIL-CONAMA, pursuant to the powers vested on it by item II of article 2, of law No. 6,938 dated 31 August, in accordance with article 18 of Decree No. 1,205, of August 1, 1994²⁴⁵, and in accordance with article 1 of Decree No. 97,802, of June 5, 1989, and

Considering that article 43, section V, chapter II, title III, of law No. 7,565, of December 19, 1986, stipulates that the neighboring properties of aerodromes and air navigation aid facilities are subject to special restrictions;

Considering that paragraph 1 of article 46, chapter IX, of Ordinance No. 1,141/ GM5, of December 8, 1987, establishes the concept of "Dangerous Nature Deployment" and determines their ban in the Areas of Approximation and Transition Areas of Aerodromes and Heliports;

Considering that that even with the decrease in the total number of incidents and/or air accidents in recent years has increased the incidence of aircraft collision with birds;

Considering the growing proliferation of degraded areas and with the deficiency of basic sanitation close to airports provides the incidence and permanence of birds in these areas;

Considering the need for specific legislation to protect the surrounding areas of the aerodrome regarding the deployment of dangerous nature activities that serve as focus of attraction of birds;

Considering that the International Civil Aviation Organization-ICAO recommends that activities attracting birds should not be established in areas surrounding airports, resolves:

Art. 1 "Area of Airport Security-ASA" are the areas covered by a given radius from the "geometric center of the aerodrome", according to its type of operation, divided in 2 (two) categories:

I- 20 km radius for airports operating in accordance with instrument flight rules (IFR); and

II- 13 km radius to other aerodromes.

Sole paragraph. In the event of a change of category of the aerodrome, the radius of ASA must fit into the new category

Art. 2 Within ASA it will not be allowed deployment of dangerous nature activities, understood as "a focus of attraction of birds", as for example, slaughterhouse, tannery, garbage dumps, agricultural crops that attract birds, as well as any other activities which may provide similar risks to air navigation.

Art. 3 The activities of existing dangerous nature within ASA should tailor their operation so as to minimize their attractive and/ effects in accordance with the regulatory and/or environmental safety requirements, in a period of 90 (ninety) days from the date of publication of this Resolution.

Art. 4 According to the special characteristics of a particular aerodrome the ASA area can be changed by the aeronautical authority.

Art. 5. This Resolution shall enter into force on the date of its publication.

GUSTAVO KRAUSE-Council President
RAUL JUNGSMANN-Executive Secretary

This text does not replace the one published in the Official Gazette, of December 11, 1995

²⁴⁵ Decree revoked by Decree 2.619 from July 5, 1998

CONAMA RESOLUTION 10, October 24, 1996
Published in Official Gazette 217 on November 7, 1996, Section 1, page 23070

Regulates the granting of environmental licenses for beaches where turtles spawn.

The NATIONAL ENVIRONMENTAL COUNCIL-CONAMA, pursuant to the powers vested on it by law No. 6,938 dated August 31, 1981, amended by law No. 8028, of April 12, 1990, regulated by Decree No. 99,274, of June 6, 1990, and in view of the provisions in its Internal Rules , and

Considering the need for protection and handling of sea turtles that exist in Brazil: *Dermochelys coriacea*; *Chelonia midas*; *Eretmochelys imbricata*. *Lepidochelys olivacea* and *Caretta Caretta*;

Considering that, the Brazilian Institute of the Environment and Renewable Natural Resources -IBAMA, through the Center for Conservation and Handling of Sea turtles - TAMAR Center, develops activities for conservation and handling of sea turtles in these areas;

Considering that in some beaches primordial for the maintenance of the populations of sea turtles are deploying urban development projects;

Considering the legal responsibilities of the Secretariat of the Union's Heritage and the Ministry of the Navy ²⁴⁶ ;

Considering that it is the duty of the Government to maintain, through the specialized bodies of the public administration, the permanent control of potentially or effectively polluting activities, in order to match them with existing environmental protection criteria, resolves:

Art. 1 The environmental licensing, provided for in Law on 6.938/81 and Decree No. 99.274/90, on beaches where occurs the spawning of sea turtles can only occur after evaluation and recommendation of IBAMA, after hearing the Sea Turtles Center -TAMAR.

Sole paragraph. For licensing, the licensor shall consult the Secretariat of the Union's Heritage and the Ministry of the Navy.

Art. 2 The areas referred to in article 1 are:

a) in the State of Rio de Janeiro, from Farol de São Tomé beach (Municipality of Campos) to the boundaries with the State of Espírito Santo;

b) in the State of Espírito Santo, from the Portocel (Municipality of Aracruz) to the boundaries with the State of Bahia;

d) in the State of Sergipe, from the boundaries with the State of Bahia to the Pontal of Mangues (municipality of Pacatuba) and from the beach of Santa Isabel (Municipality of Pirambú) to the boundaries with the State of Alagoas;

e) in the State of Alagoas, from the boundaries with the State of Sergipe to the end of the coastal strip of the municipality of Penedo;

f) in the State of Pernambuco, in Fernando de Noronha District, the beaches of Boldro, Conceição, Caieira, Americano, Bode, Cacimba do Padre and Baía de Santo Antônio; and

g) in the State of Rio Grande do Norte, in the whole extension of Pipa beach (municipality of Alagoinhas).

Art. 3. Failure to comply with the provisions of this Resolution implies the invalidity of the environmental licensing effected, without prejudice to any other penalties provided for in specific legislation.

Art. 4. This Resolution shall enter into force on the date of its publication, and revokes the provisions to the contrary.

GUSTAVO KRAUSE GONÇALVES SOBRINHO-Council President

EDUARDO DE SOUZA MARTINS-Executive Secretary

This text does not replace the one published in the Official Gazette of November 7, 1996.

²⁴⁶ The Ministry of the Navy was changed to Navy Command, linked to the Ministry of Defense, established by Provisional Decision Number 1799-6, of June 10, 1999, reedited by Provisional Decision number 2236-37, of August 31, 2001

CONAMA RESOLUTION 286, August 30, 2001
Published in Official Gazette 239 on December 17, 2001, Section 1, page 223

Establishes provisions for the granting of environmental licenses to enterprises in malaria infested regions.

The NATIONAL ENVIRONMENTAL COUNCIL-CONAMA, pursuant to the powers vested on it by law No. 6,938 dated August 31, 1981, regulated by Decree No. 99,274, of July 6, 1990, and in its Internal Rules, and

Considering the need to avoid the development of risk factors for occurrence of cases of malaria in endemic regions arising from actions and works of developmental projects;

Considering the need of regulations for the environmental licensing of development projects to avoid the increase in morbidity due to communicable diseases related to environmental biological factors, especially malaria; and

Considering the need to provide a socio-economic policy integrated into development projects, resolves:

Art. 1 The projects subject to environmental licensing, provided for in CONAMA Resolutions Nos. 1 of January 23, 1986 ²⁴⁷and 237, of December 19, 1997, whose

activities potentially increase the risk factors for the occurrence of cases of malaria in endemic regions, shall develop, in accordance with guidance from the National Foundation for Health-FUNASA, epidemiological studies and conduct programs for the control of illness and its vectors, to be implemented in the various stages of the project.

Sole paragraph. It will be up to FUNASA the definition of municipalities belonging to the areas of risk or endemic for malaria, whose relationship is updated at every twelve months and forwarded to the competent environmental bodies.

Art. 2 The environmental licensing provided for in CONAMA Resolution No. 237, of 1997, when related to ventures and activities located in malaria-endemic areas, should consider prior to the evaluation and recommendation by FUNASA, about the impact on the risk factors for occurrence of cases of malaria.

Art. 3 It will up to FUNASA:

- a) identify the municipalities located in areas of endemic malaria;
- b) participate in environmental licensing process with regard to risk factors related to transmission of malaria; and
- c) monitor the implementation of the recommendations and measures of prevention and control of malaria.

Art. 4. This Resolution shall enter into force on the date of its publication.

JOSE SARNEY FILHO – Council President

This text does not replace the one published in the Official Gazette, of December 17, 2001.

²⁴⁷ Date of Resolution No. 1/86 was corrected, due to an error in the original

ENVIRONMENTAL EDUCATION

RESOLUTION 422, March 23, 2010
Published in Official Gazette 56 on 03/24/2010, p. 91

Establishes directives for the campaigns, actions and projects related to Environmental Education according to the provisions of Law 9.795, issued on April 27, 1999, and makes other provisions.

The NATIONAL ENVIRONMENTAL COUNCIL-CONAMA, pursuant to the powers vested on it by art. 7, subparagraph XVIII of Decree on 99,274, of June 6, 1990, and bearing in mind the provisions of art. 2, subparagraph XVI, and 10, paragraph III, of the internal regulations of the National Environment Council-CONAMA, annexed to Ordinance No. 168 of June 13, 2005, and in process No. 02000.000701/2008-30, and Considering that educommunication as social intervention which aims to promote the democratic access by citizens ' to the production and dissemination of information, involving the communicative action in formal or non formal educative formal;

Considering the need to ensure that environmental policies dealing with environmental education in line with the National Environmental Education Policy-PNEA, established by law No. 9,795, of April 27, 1999 and by arts. 2, caput, and 3, subitem II, Decree No. 4,281, of June 25, 2002, as well as the National Program of Environmental Education-ProNEA, resolves:

Art. 1 Establish guidelines for content and procedures on actions, projects, campaigns and information programs, communication and environmental education in the formal and non-formal education, carried out by public, private institutions and civil society.

Art. 2 The following are guidelines of campaigns, communication and environmental education projects:

I- as for the language:

a) adapt to the public involved, providing easy access to information and understanding to socially and environmentally vulnerable groups; and

b) promote access to information and knowledge of environmental and scientific issues in a clear and transparent way.

II- as to approach:

a) contextualize environmental issues in its historic, economic, cultural, political and ecological dimensions and in different individual and collective scales;

b) focus on the social and environmental issue in addition to the command and control actions, avoiding merely utilitarian or behavioral perspectives;

c) adopt principles and values to build sustainable societies in its various social, environmental, political, economic, ethical and cultural dimensions;

d) valuing the worldview, knowledge, culture and practices of local communities, traditional people and originating;

e) promoting educommunication, providing the construction, management and dissemination of knowledge from the experiences of social-environmental reality of each location;

f) highlight environmental impacts caused by human activities and human responsibilities in the maintenance of environmental safety and quality of life.

III- as to synergies and articulations:

a) mobilize communities, educators, social movements, networks, groups and institutions, encouraging participation in public life, in decisions on access to and use of resources and the exercise of social control in articulated actions;

b) promote interaction with the Brazilian System of Information on Environmental Education-SIBEA, aiming to support the virtual exchange and dissemination of educational productions; and

c) seek integration with actions, projects and environmental education programs developed by the PNEA's Managing Body and by States and Municipalities.

Art. 3 For the purposes of this Resolution, environmental education campaigns are the activities of public disclosure of information and social communication, with education intent, produced by audiovisual and virtual graphics means which, for critical understanding about the complexity of socio-environmental problems:

I-promote the strengthening of citizenship; and

II-support processes of transformation of values, habits, attitudes, and behaviors to improve the quality of life of people in relation to the environment.

Art. 4 Environmental education actions referred to formal education, implemented in all levels and forms of education, with or without the involvement of the school community, will be performed in compliance with the provisions of educational and environmental legislations, including the deliberations of State and municipal councils for education and the environment, and should:

I- be articulated with the competent educational authorities, as the scope of these actions and the public to be involved; and

II- follow the curriculum, pedagogical political project and the social function of schools as well as school calendars and school and university autonomy is granted to them by law.

Art. 5 The actions of communication, environmental education and dissemination of information contained in the deliberations of the National Environment Council-CONAMA and other agencies members of the National System of Environment-SISNAMA should be geared to promote the active participation of society in the protection of the environment.

Sole paragraph. The provisions in the caput of this article shall apply also to revisions and updates of the resolutions and other legal instruments in force.

Art. 6 This resolution shall enter into force on the date of its publication.

CARLOS MINC-Council President

This text does not replace the one published in the Official Gazette of 03/24/2010

DATA AND INFORMATION SYSTEMS REGISTRIES

CONAMA RESOLUTION 1, June 13, 1988
Published in Official Gazette on June 15, 1988, Section 1, page 10845

Establishes provisions for the Federal Technical Register of activities and environmental protection instruments

The NATIONAL ENVIRONMENTAL COUNCIL-CONAMA, pursuant to the powers vested on it by art. 27 of Decree No. 88,351, of June 1983²⁴⁸, and

Considering the need to lay down the basic criteria and procedures for the implementation of the FEDERAL TECHNICAL REGISTER OS ACTIVITIES AND ENVIRONMENTAL DEFENSE INSTRUMENTS provided for in art. 17 of law No. 6,938 dated August 31, 1981, resolves:

Art. 1 the FEDERAL TECHNICAL REGISTER OF ACTIVITIES AND ENVIRONMENTAL DEFENSE INSTRUMENTS aims the registration, with mandatory character, of individuals or entities involved in the provision of services and advice on eco-environmental problems, as well as the elaboration of the design, manufacturing, marketing, installation or maintenance of equipment, apparatus and instruments for to the control of actual or potentially polluting activities.

Art. 2 The Special Secretariat for the Environment-SEMA²⁴⁹ and environmental agencies shall, within 90 days from the date of publication of this resolution, only accept, for purposes of analysis, technical pollution control projects or environmental impact studies, whose makers are professionals, businesses and civil societies regularly registered in the register contemplated in art. 1.

Art. 3 The period of validity of registration is 2 (two) years, and the individuals and legal entities registered the application for renewal.

Art. 4 The registration contemplated in this Resolution is free of any charge to the entity requesting the registration.

Art. 5 For the purpose of Registration it will be required of individuals and corporations concerned only the data necessary for their characterization and legal responsibility, as well as assessing the technical capacity and the effectiveness of the products or services offered, on these data to be collected through proper form, and the informant shall be responsible under the penalties of the law at any time, for the veracity of the information presented.

Art. 6 The inclusion of individuals and corporations in the FEDERAL TECHNICAL REGISTER will not imply on the part of SEMA and third parties, in certification of quality, nor judgment value of any kind.

Art. 7 SEMA, acting as the manager of the FEDERAL TECHNICAL REGISTER, shall approve additional acts necessary for the implementation of the present Resolution.

Sole paragraph. The FEDERAL TECHNICAL REGISTER will be accessible to interested parties.

Art. 8. This Resolution shall enter into force on the date of its publication.

JOSÉ LUIZ DE SANTANA CARVALHO-Council President

This text does not replace the one published in the Official Gazette, of June 15, 1988.

²⁴⁸ Decree revoked by Decree 99.274 from June 6, 1990

²⁴⁹ The Special Secretariat of the Environment – SMA, linked to the Ministry of the Interior, was extinct by Law 7.735, of February 22, 1989, which established the Brazilian Institute of the Environment and Renewable Natural Resources – IBAMA. The duties related to environmental duties are actually with the Ministry of the Environment

CONAMA RESOLUTION 6, June 15, 1989
Published in Official Gazette on August 25, 1989, Section 1, page 14714

Correlations:

- Amended by Resolution 292/02 (revoked art. 2, 3, 4, 5 and ANNEX I)

Establishes provisions for the National Register of Environmentalists Entities - CNEA

The NATIONAL ENVIRONMENTAL COUNCIL-CONAMA, pursuant to the powers vested on it by article 48 of Decree No. 88,351 of 06/01/83 ²⁵⁰and in accordance with subitem 1 of § 2 of article 8 of its Internal Rules, resolves:

Art 1 Establish a National Register of Environmental Entities-CNEA, aiming to keep in databases, registration of non-governmental Environmental Organizations in the country, which have as their main purpose the protection of the environment.

~~Art 2. The registration with CNEA is voluntary and will be made by filling out the form in ANNEX, submitted to the Executive Secretariat of CONAMA, via registered mail.~~

~~(revoked by Resolution No. 292/02)~~

~~Sole paragraph. It is up to the registered entities registered the responsibility for the information provided. (revoked by Resolution No. 292/02)~~

Art. 3 It is up to the Executive Secretariat of CONAMA to keep information in databases and publish annually a list of registered entities. (revoked by Resolution No. 292/02)

~~Art. 4 The Executive Secretariat will have 120 (one hundred twenty) days to deploy the National Register of Environmentalists Entities (CNEA). (revoked by Resolution No. 292/02)~~

~~Art. 5. This Resolution shall enter into force on the date of its publication. (revoked by Resolution No. 292/02)~~

JOÃO ALVES FILHO – Council President

FERNANDO CÉSAR DE MOREIRA MESQUITA – Executive Secretary

²⁵⁰ Decree revoked by Decree 99.274 from June 6, 1990

ANNEX I
FORM FOR REGISTRATION IN THE NATIONAL REGISTER OF ENVIRONMENTAL ENTITIES

I IDENTIFICATION CORPORATE NAME _____ ACRONYM _____ LEGAL STRUCTURE _____
II ADDRESS STREET _____ DISTRICT _____ MUNICIPALITY _____ STATE _____ ZIP CODE _____ PHONE: _____ TELEX: _____ P.O. BOX: _____
III REGISTRATION DATE OF ESTABLISHMENT _____ CGC NUMBER: _____ No. AND DATE OF REGISTRATION OF ESTABLISHMENT: _____ No. AND DATE OF REGISTRATION OF BY LAWS: _____
IV OBJECTIVE AND PURPOSE
V LEGAL RESPONSIBLE PERSON(S) FOR THE ENTITY NAME _____ POSITION _____ ADD./TEL. _____ DATE AND SIGNATURE _____

ANNEX II
INSTRUCTIONS FOR FILLING OUT THE FORM FOR REGISTRATION IN THE NATIONAL REGISTER OF ENVIRONMENTAL ENTITIES

I-IDENTIFICATION

- Put the full name of the Entity as per legal registration;
- the symbol (if any);
- the operating structure (the Presidency, the General Secretariat, Departments etc.).

II-ADDRESS

Fill in the fields with the relevant information.

III-REGISTRATION

Enter the requested data.

IV-AIM AND PURPOSE

Inform in brief the main object and the purposes of the organization.

V-LEGAL REPRESENTATIVE

Enter the name, address and telephone number of the legal representative, indicate his/her position (President, Treasurer, Director etc.);

Sign and date.

This text does not replace the one published in the Official Gazette, , on August 25, 1989.

CONAMA RESOLUTION 292, March 21, 2002
Published in Official Gazette 87 on May 8, 2002, Section 1, pages 330-331

Correlations:

- Changes Resolution No. 6/89 (revokes art. 2, 3, 4, 5 and ANNEX I)
- Revokes CONAMA Resolutions in 22/94 and 234/97

Regulates the registration and re-registration of Environmental Entities in the CNEA

The NATIONAL ENVIRONMENTAL COUNCIL-CONAMA, pursuant to the powers and competences conferred by law No. 6,938 dated August 31, 1981, regulated by Decree No. 99,274, of June 6, 1990, and bearing in mind the provisions of its Internal Rules and,

Considering the need to regulate, improve and streamline the registration process of environmentalist organizations which have as their main purpose the protection of the environment in all its aspects;

Considering that the National Register of Environmentalist Entities-CNEA, has been used as a reference for various activities involving non-governmental environmentalist organizations -NGOs, resolves:

Art. 1 For the purposes of this Resolution, environmentalist entities are non-Governmental non-profit organizations- NGOs that have as main objective, in their bylaws and through their activities, the defense and protection of the environment.

Sole paragraph. The following are not liable to registration as environmental entities, even engaged in any way to environmental causes:

- I- commercial companies;
- II- trade unions, associations or professional category representation;
- III- service clubs;
- IV - religious institutions or those aimed at dissemination of creeds, cults, devotional and confessional views and practices;
- V- party and related organizations, including foundations;
- VI - mutual benefit entities to provide goods or services to a restricted circle of associates or partners;
- VII- the entities and companies that sell health plans and the like;
- VIII- free private hospitals and their supporters;
- IX- private schools dedicated to non-free formal education and its supporters;
- X- social organizations;
- XI- cooperatives;
- XII-public foundations;
- XIII- foundations, civil society or private law associations established by public agency or by public foundations;
- XIV- credit organizations that have any type of binding with the national financial system referred to in art. 192 of the Constitution;
- XV- those formed by set of people who mostly have a corporate bond of employment with the same and/or public or private organization;
- XVI- residents ' association;
- XVII- foundations which in their direction or deliberative body have most components with a corporate link employment with the same organization and/or conglomerate, whether public or private.

Art. 2 Only legally registered entities with CNEA shall participate in the electoral processes of CONAMA and FNMA.

Art. 3 It is hereby established the Permanent Committee of the CNEA, with the purpose of carrying out the registration, re-registration and the environmentalists entities at CNEA.

Art. 4 The Standing Committee will be composed of Directors of CONAMA and will have the following composition:

- I- one representative from the environmentalist entities from each of the five geographic regions;
- II- one representative of environmentalist entities nationwide.

§ 1 The substitution will be performed by other representatives from geographical regions and national environmentalist entities in CONAMA.

§ 2 The members and alternate members of the Committee shall be elected annually.

§ 3 The Committee shall be assisted by the Executive Secretariat of the Ministry of the Environment.

Art. 5 The registration registration renewal for the purposes of registration with CNEA is voluntary and will be performed by filling in the registration form, set out in the ANNEX to this Resolution, duly signed by the legal representative, accompanied by the following documents:

- I- copy of the bylaws of environmental entity, duly registered in accordance with law, with the identification of the registry and the transcript of records in the document itself or a certificate;
- II-in the case of a foundation, it shall produce a copy of the deed of establishment, duly registered with the registry of the municipality of its headquarters and proof of approval
Of its bylaws by prosecutors;
- III- copy of minutes of the election of the directors in office registered with a notary public;
- IV- copy of updated enrollment in the National Registry of Legal Entities (CNPJ), of the Ministry of Finance;
- V-brief report of activities undertaken in the last year;

VI-a certificate or declaration that the entity is in full and regular functioning, provided by judicial authority or a member of the public prosecutor, or by three environmentalist entities in the region registered with CNEA;
 VII-information of the number of associated and/or affiliates.

§ 1 The leader of the environmentalist entity who request registration or re-registration is responsible for the information provided.

§ 2 The requesting environmentalist entity should have at least one year of existence;

Art. 6 The request for registration, re-registration and/or data updating will be sent to the Executive Secretariat of the Ministry of the Environment, after the proceeding, will be referred to the Standing Committee of CNEA, for deliberation.

Art. 7 The environmentalist entity, registered re-registered, after the approval by the Permanent Commission of the CNEA, will have its registration approved by the President of the CONAMA through ministerial ordinance, published in the Official Gazette ..

Art. 8. The Standing Committee of CNEA will have sixty days from the date of publication of this Resolution, to establish the procedures for registration and re-registration.

Art. 9 The environmentalist entities' re-registration with CNEA will start on April 30, 2002.

Art. 10. For specific purposes, the registration of the register with CNEA will be considered indeterminate term.

Art. 11. Environmentalist entities registered with CNEA shall lose their registration when they do not update the data referred to in items I to IV art. 5 of this Resolution.

§ 1 The proposal of cancellation of registration shall be submitted to the Standing Committee of CNEA, which must notify the entity on which it is requested the cancellation of the registration.

§ 2 The environmentalist entity against which it is requested the cancellation at the registration will have sixty days from the date of receipt of the notification, to present its defense.

§ 3 After the period for defense has elapsed, a date for deliberation shall be scheduled on the request of cancellation at the registration, and the environmentalist entity invited to participate in the meeting of the Standing Committee at least ten days in advance.

§ 4 The cancellation of the registration referred to in this article shall be approved by the President of CONAMA and published in a ministerial ordinance in the Official Gazette.

§ 5 The entities currently registered with CNEA and which are listed in the sole paragraph of article 1 of this Resolution, will have their registration cancelled from April 30, 2003.

Art. 12. The environmentalist entity which had its registration cancelled may only apply for a new registration two years after the publication of the cancellation of its registration.

Art. 13. Omitted cases in this Resolution will be adopted by the Standing Committee of the CNEA.

Art. 14. This resolution shall enter into force on the date of its publication, and revokes art. . 2, 3, 4, 5 and ANNEX I of the CONAMA Resolution No. 6, of June 15, 1989, and CONAMA Resolutions No.22, of December 7, 1994 and 234, of December 17, 1997.

JOSÉ CARLOS CARVALHO-Council President

ANNEX

FORM FOR REGISTRATION IN THE NATIONAL REGISTER OF ENVIRONMENTALIST ENTITIES

1 – IDENTIFICATION	
CORPORATE NAME	ACRONYM LEGAL STRUCTURE
11 – ADDRESS	
STREET DISTRICT MUNICIPALITY	
STATE ZIP CODE PHONE: TELEX: P.O. BOX:	
III – REGISTRATION	
DATE OF ESTABLISHMENT CGC NUMBER:	
No. AND DATE OF REGISTRATION OF ESTABLISHMENT:	
No. AND DATE OF REGISTRATION OF BY LAWS:	
IV – OBJECTIVE AND PURPOSE	
V – LEGAL RESPONSIBLE PERSON(S) FOR THE ENTITY	
NAME	POSITION
ADD./TEL.	DATE AND SIGNATURE

This text does not replace the one published in the Official Gazette on May 8, 2002.

CONAMA RESOLUTION 379, October 19, 2006
Published in Official Gazette 202 on October 20, 2006, Section 1, 175 and 176 pages

Creates and regulates the data and information system on forest management by the National Environment System (SISNAMA).

The NATIONAL ENVIRONMENTAL COUNCIL-CONAMA, pursuant to the powers vested on it by Law no 6,938, of August 31, 1981, regulated by Decree No. 99,274, of July 6, 1990, and in view of the provisions in its Internal Rules, annexed to Ordinance No. 168 of June 10, 2005; and

Considering the need to integrate the activities of the organs of the National System of Environment-SISNAMA in implementing the country's forestry policy;

Considering the need to regulate the procedures and criteria of standardization and integration of systems, instruments and control, transport documents and forest products and by-products storage by the Union, the States and the Federal District, especially for the efficiency of environmental surveillance procedures;

Considering the provisions of the Laws No. 4,771, of September 15, 1965, No. 6,938, of August 31, 1981, and 11,284, of March 2, 2006;

Considering, moreover, the provisions of Law No. 10,650, of April 16, 2003, which provides for public access to data and information contained in the member agencies and entities the SISNAMA, resolves:

Art. 1 The members of the National System of Environment-SISNAMA shall make available on the World Wide Web- INTERNET information about forest management, within one hundred and eighty days, in compliance with the current forest regulations and, in particular:

I- authorizations from the Sustainable Forest Management Plan-PMFS, their georeferenced location and the results of technical inspections;

II- authorizations for the suppression of the natural arboreal vegetation for alternative use of the soil, which must be georeferenced, in accordance with the legislation in force as well as the location of the property, the areas of permanent preservation and legal reserve;

III- Integrated Forest Plan and Industry- PIFI or similar document;

IV. forest replacement with regard to:

a) concession transfer operations and compensation claims;

b) calculation and offsetting of debts;

V- document for the transport and storage of forest products and by-products of native origin;

VI. information relating to the applications of administrative sanctions, in the form of art. 4 of Law at 10,650, of April 16, 2003 and 61 of Decree No. 3,179 of September 21, 1999, including the processing of respective administrative processes, as well as the information contained in the reports of monitoring, control and surveillance of forestry activities;

VII- geo-referenced images and identification of conservation units are part of the National System of Conservation Units - SNUC, quilombo and indigenous lands demarcated and, when information is available, the Areas of Permanent Preservation - APPs;

VIII- forestry legislation;

IX- social evaluation and control mechanisms related to forest management; and

X- type, volume, number, and destination of seized forest products and by-products.

§ 1 Is waived georeferenced indication of location of the property, the areas of permanent preservation and legal reserve the item (II) of this article, the small country estate or rural family possession, pursuant to art. 1, § 2, item I of law No. 4,771, 1965.

§ 2 The bodies belonging to SISNAMA shall make available the information referred to in the caput of this article, to the National Information System on the Environment

-SINIMA, established in the form of art. 9, subitem VII of law No. 6,938, of 1981.

§ 3 In addition to the information referred to in this article it shall be made available each year for advertising purposes those pertaining to forest management concerning:

I- institutions responsible for forest management;

II- human resources involved in forest management;

III- budgetary resources provided for and effectively applied to forest management;

IV. infrastructure and equipment used in forest management; and

V- endorsements for the institutional strengthening of the bodies.

§ 4 The members of SISNAMA shall prepare yearly an evaluation report on the performance related to licensing, control and monitoring of forest activities, that will be made available on the INTERNET.

§ 5 CONAMA shall, within one hundred and eighty days after the publication of this Resolution, define the criteria and procedures for monitoring and evaluating the process of shared forest management, after hearing the National Forest Commission-CONAFLO.

§ 6 The environmental councils shall be responsible for the monitoring and assessment of forest management, without prejudice to any other existing forest management.

Art. 2 The Brazilian Institute of the Environment and Renewable Natural Resources -IBAMA will make available immediately, free of charge to the or members of SISNAMA, the system and issuance control of documents related to forestry activities, and support capacity building for its implementation, by signing of cooperation agreement with the interested Federation members.

Art. 3. It will be up to the members of SISNAMA responsible for forest management:

I- to facilitate and provide to all the federation entities access to systems and control documents of forestry activity, in particular those required for environmental monitoring activities;

II. to make available to the public, via the INTERNET, the information necessary to verify the origin of forest products and by-products;

III- to adopt the criteria set out in this Resolution and the minimum content of information on dispatch of documents for the control of the transport of forest products and by-products;

IV- to publish and keep updated and available on the INTERNET the list of forest products and by-products exempted from coverage of the transport document, within their jurisdiction.

§ 1. The compliance with the provisions of this article shall be within one hundred and eighty days from the date of publication of this Resolution.

§ 2 The electronic systems and document templates to control the transport and storage of forest products and by-products of native origin shall be registered with IBAMA.

Art. 4 the Ministry of the Environment and IBAMA will keep updated an INTERNET portal, which integrates and makes available the information about the control of forestry activity, in order to comply with the provisions of environmental legislation, in particular those dealing with the Interstate flow of forest products and by-products.

§ 1 The portal methodology should consider the identification and standardization of data and information, with a view to integrated operationalization, without prejudice to the systems and instruments adopted by the Federation's entities.

§ 2 The information concerning authorizations, in particular on native vegetation suppression, licenses and documents for the transport and storage required to the inspection of forestry activities, in particular the flow of forest products and by-products, will remain available on the Web in an integrated system.

§ 3 The documents for cover, transport and storage of forest products and by-products of native origin issued by environmental agencies, in the form of the ANNEX of this Resolution will be valid throughout the national territory.

Art. 5 The information relating to authorizations, licenses and documents for the transport and storage of forest products and by-products of native origin shall comply with the following minimum guidelines:

I - guarantee of the control of the origin, destination and the respective transformations of forest products and by-products of native origin;

II- the guarantee of access to users, the Union, States, Federal District and municipalities and the general public to information through the INTERNET;

III- generation, issuance and control of documents via electronic and computerized system;

IV- issue, use and contents of the user's responsibility;

V-transparency of the information made available on the INTERNET.

Art. 6 The documents for the transport and storage of forest products and by-products of native origin, imposed by the Union, States, Federal District and municipalities, shall contain the information and minimum requirements contained in the ANNEX to this Resolution.

§ 1. All information listed in the ANNEX to this Resolution shall contain electronic format and be available for consultation on the INTERNET in a system allowing for assessing their validity.

§ 2 The States, whose control of documents storage and transport of forest products comply with the ANNEX to this Resolution, may continue to use these instruments with validity throughout the country.

Art. 7. This Resolution shall enter into force on the date of its publication.

MARINA SILVA-Council President

This text does not replace the one published in the Official Gazette October 20, 2006,

ANNEX IDENTIFICATION OF THE INSTITUTION ISSUING THE DOCUMENT FOR TRANSPORT

A) Issuer's Data

18 – Issuer/Addresser/Seller	19 – CTF/CTE
29 – Address	
21 – District	22 – Municipality

A) Issuer's Data: refers to all data of who is issuing the document for transport.

1. Issuer: name of the person or entity responsible for issuing the document for transport. Usually is the one who is selling the product or referring it to the recipient;

2. CTF: Issuer's registration number in the Federal Technical Register and **CTE:** Issuer's registration number in State Technical Register;

3: Address: Issuer's full address (e.g. company headquarters);

4. District: supplement to the issuer's address;

5. Municipality: municipality where Issuer is located.

B) Data on the Origin of Transported Product

6 – Origin	7 – Coordinates
8 – Address	
9 – District	10 – Municipality

11 – Access Map	
12 – Authorization	13 - Type

B) Data on the Origin of the Transported Product:

6. Origin: name of place of origin of the cargo. If the cargo comprises logs, it must indicate the location of the PMFs or the Authorized Deforestation. In the case of transshipment, indicate location of transshipment yard. In the case of processed product indicate the courtyard or depot of origin;

7. Coordinates: geographical coordinates of the place of origin;

8. Address: address of the place of origin;

9. District: complement of the address of the place of origin;

10. Municipality: municipality of place of origin;

11. Access Roadmap: Roadmap for logical access to the place of origin;

12. Authorization: authorization number (cutting, handling or removal of vegetation) that gave rise to the product. Only applicable in the case of raw product;

13. Type: type of authorization (delete, cut and handling).

C) Data on the Transported Products

14 – Product / Kind	15 – Qty	16 – Unit	17 - Amount

C) Data on the Transported Products:

14. Product Specie: name of the species and/or transported product;

15. Quantity: quantity transported;

16. Unit: unit of measurement of quantity;

17. value: value of the product.

D) Receiver's Data

18 – Receiver/Addressee/Buyer	19 – CFT/CTE
20 – Address	
21 – District	22 - Municipality

D) Receiver's Data: refers to the data of who will receive the product transported.

Normally the buyer:

18. Receiver/Addressee/Buyer: name of *receiver* (person or entity);

19. CTF: record number of *Receiver in the* Federal Technical Register and **CTE:** number of the *Receiver's* registration in the State Technical Register;

20. Address: full address of the *Receiver* (for example, company headquarters);

21. District: complement to receiver's address;

22. Municipality: municipality where the *Receiver* is located.

E) Data on Destination of the Forestry Product

23 – Destination	24 – Coordinates
25 – Address	
26 – District	27 – Municipality
28 – Access Roadmap	

E) Data on Destination of the Forestry Product:

23. Destination: where the product or by-product of forest will be delivered;

24. Coordinates: coordinates of the *destination*;

25. Address: full address of *destination*;

26. District: complement to the address of the *destination*;

27. Municipality: municipality of *destination* ;

28. Access Roadmap: roadmap for logical access to the place of destination.

F) Additional Data

29 – Means of Transport	30 – Plate/Registration	36 – For use of the inspection ____, fiscal and other agencies
31 – No. of Fiscal doc.	33 – Date of validity:	
34 – Route of Transport		
35 – Code of Control		

Bars code		
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F) Additional Data:

29. Means of Transport: type of vehicle used in the transportation of forest products;

30. Plate/Registration: identification of the vehicle (e.g. cars' plate, registration for vessel);

31. Tax Doc No.: number of the tax document that accompanies the product;

32. Issue Date: date of issue of the transport document;

33. Expiration Date: date of validity of the transport document (defined by that issuer of the document);

34. Transport Route: logic transport route logic between the point of origin and destination;

35. Control Code: code issued by the system (with a barcode);

36. For use of Inspection: field observations of supervision

RESOLUTION 411, May 6, 2009
Published in Official Gazette 86 on 05/08/2009, pp. 93-96

Establishes provisions for inspection procedures related to industries that consume or process natural forest products and sub-products, as well as setting the respective nomenclature standards and volume yield coefficients, including vegetal coal and saw mill wastes.

The NATIONAL ENVIRONMENTAL COUNCIL-CONAMA, pursuant to the powers vested on it by art. 8, subitem VII of Law No. 6,938 dated August 31, 1981 and in view of the provisions of its internal rules, annexed to Ordinance No. 168, of June 10, 2005; and

Considering the need of establishing naming patterns for forest products and by-products that enables the integration of electronic control systems, provided for in the resolution of the National Environment Council-CONAMA No. 379, of October 19, 2006, and enforcement actions throughout the national territory, Considering that the need to define minimum technical inspection procedures in industries that utilize forest materials of native origin, resolves:

Art. 1 The object of this Resolution is to define procedures for consumer industries or manufacturing inspection of forest timber products and by-products of native origin, as well as their respective naming standards and volumetric efficiency coefficients, including charcoal and sawmill waste.

Sole paragraph. The inspection referred to in the caput of this article aims to prove the information declared to the competent environmental agency.

Art. 2 The environmental agency should establish routine of inspection criteria from mesh criteria defined by the environment agency or by public draw.

§ 1. The conduction of the public draw may be from stratification by region and size of the companies.

§ 2 The Brazilian Institute of the Environment and Renewable Natural Resources –IBAMA and the other agencies of the National System of Environment-SISNAMA may provide procedures for conducting the draw, based on technical cooperation agreements signed among themselves.

Art. 3 For the conduction of the inspection, the technicians of the environmental agency must raise information for the period of review established as per the script of ANNEX I of this Resolution.

§ 1. For the conduction of the inspection, technicians of the environmental agency shall prepare the respective opening and closing terms.

§ 2 The environmental agency will establish specific act for establishing deadlines for the presentation of required documents.

Art. 4 The environmental agency may, as applicable, require of the industries under inspection:

I- space suitable for the checking of documents;

II- the presence of a full-time representative to monitor all stages of the work;

III- presentation of the documentation listed in ANNEX I to this Resolution;

IV-detailed information of equipment regarding the ability to pitsawing/ consumption of raw material in the period of study;

V-detailed information about the electric energy consumption of the industrial unit in the period of study;

VI-forklift, tractor or other equipment, if necessary, with operator for moving logs and or batches of sawn or milled wood in the deposits;

VII-team free access both in the office and in the production line and storage yards, respecting the safety regulations; and

VIII-separation of logs by species, with batch properly identified.

Sole paragraph. The competent environmental agency should perform inspection during the hours of operation of the company.

Art. 5. During the inspection, the technicians of the environmental agency must accompany all conversion processes of wood, firewood or charcoal.

Art. 6 The conversion of forest products or by-products by industrial processing must be informed on the System-DOF or in the state electronic integrated system, respecting the volumetric coefficient of each industry

§ 1. For the purposes of the conversion dealt with in the caput, the competent environmental agency will adopt the volumetric efficiency coefficient table set out in ANNEX II within 180 days of the publication of this Resolution.

§ 2. The period referred to in paragraph 1 may be extended only once for an equal period, when duly justified.

§ 3. For yield coefficients lower than the set out in ANNEX II, the entrepreneur must present technical study according to simplified Term of Reference (ANNEXes V and VI), with the immediate adoption by the competent environmental agency.

§ 4. For yield coefficients above the set out in ANNEX II the entrepreneur must present technical study according to the standard Term of Reference (ANNEXes III and IV), with the immediate adoption by the competent environmental agency.

§5 For yield coefficients other not predicted in this Resolution, the competent environmental agency may establish a specific term of reference for the study.

§ 6 The environmental agency will consider the coefficient of volumetric efficiency as laid down in ANNEX II in cases of non-submission of specific studies.

§ 7 The entrepreneur may, at any time, submit a new technical study for modification of the yield coefficient.

§ 8 The conversion must indicate the transformation to the main product at the limit of the yield coefficient provided for in ANNEX II, including by-products of timber obtained from the trimmings, borders, chips and other debris from processing and industrialization of wood.

§ 9 Whenever there is processing, the conversion must be reported, including when it occurs on the farm.

§ 10. The conversion must be informed on the system, a maximum of 5 working days after processing, unless by force majeure duly justified.

§ 11. The conversion of products and by-products, including when in the operating area, will be allowed only for entrepreneurs duly licensed for that activity.

§ 12. Technical inspection should consider the current yield coefficient at the time of processing, as indicated in the system.

Art. 7 The proof of yield coefficients

§ 8 The conversion must indicate the transformation to the main product at the limit of the yield coefficient provided for in ANNEX II, including by-products of timber obtained from the trimmings, borders, chips and other debris from processing and industrialization of wood.

§ 9 Whenever there is processing, the conversion must be reported, including when it occurs on the farm.

§ 10. The conversion must be informed on the system, a maximum of 5 working days after processing, unless by force majeure duly justified.

§ 11. The conversion of products and by-products, including when in the operating area, will be allowed only for entrepreneurs duly licensed for that activity.

§ 12. Technical inspection should consider the current yield coefficient at the time of processing, as indicated in the system.

Art. 7 The proof of volumetric yield coefficients shall occur by inspection

Sole paragraph. If proven volumetric yield coefficient other than that used by the company, considered the confidence interval set out in the study, the competent environmental agency will apply the sanctions provided for in the environmental legislation and promote the change of coefficient as detected during the inspection.

Art. 8 the competent environmental agency will promote training of its technicians to carry out the technical inspections.

Art. 9. The forest products and by-products registered loggers electronic control systems shall observe the glossary of technical terms as ANNEX VII.

§ 1. The classification of wood products and by-products shall comply with the scientific name of the species concerned and the member states should adopt the standardized and updated list by IBAMA.

§ 2 The competent environmental agency can forward the IBAMA list update request cited in the previous paragraph.

§ 3 the environmental agency, in line with the business sector, may subclass the products and by-products according to the degree of processing, without prejudice to the classification established in this Resolution.

§ 4 During the inspection of the environmental agency or the technical inspection, products classified in the electronic control system non-compliant with the technical glossary will be subject to the penalties provided for in the environmental legislation.

§ 5 The penalties provided for in the preceding paragraph shall not apply in cases of sub-classifications.

§ 6 IBAMA, in conjunction with the competent environmental agencies and the business sector, will establish definition for products and by-products other than those referred to in ANNEX VII of this Resolution

Art. 10. Technical cooperation agreements between IBAMA and other agencies members of SISNAMA, may be signed in the area of forest management and inspection, with the aim of joint actions, exchange of information, especially those relating to the environmental licensing and monitoring developments.

Art. 11. This Resolution shall not apply to forest products and by-products from plantations.

Art. 12. The environmental agency must draw up inspection manuals from the guidelines contained in this Resolution.

Art. 13. This Resolution shall enter into force on the date of its publication.

CARLOS MINC-Council President

This text does not replace the one published in the Official Gazette of 05/08/2009

**ANNEX I
INDUSTRIAL INSPECTION GUIDANCE ROADMAP.**

**1 ITEMS TO BE COLLECTED BEFORE the INDUSTRIAL TECHNICAL INSPECTION
A FOREST-BASED INDUSTRY**

1.1 Environmental licenses

1.1.1. Data to be observed in the environmental license

- Conditions in the environmental permit;
- Duration, objectives and if contains erasure;
- Start date of the operation;
- Operational capacity installed.

1.2 Federal Technical Register-CTF

1.2.1. Data to be recorded

- Annual report presented by the company;
- Start date of the operation;
- Installed operational capacity;
- Size of the company;
- Consumption of forest raw material;
- Quantity of product produced;
- Data on production of the analysis period established;
- Certificate of regularity.

1.3 Electronic System for Forest Control

1.3.1. Data to be recorded in the report of forest product source for the analysis period established.

- Input Volume of forest products (log, firewood, charcoal) in the courtyard of the company;
- Forest products output volume (if applicable);
- Volume Balance of forest products at the industrial inspection date;
- Sales Volume of forest byproducts (milled wood by degree of industrialization, charcoal etc.);
- Balance of forest byproducts in industrial inspection date.

1.3.2. items to be observed in the electronic control system of forest products

- Amount of electronic control instrument received by the company;
- Amount of electronic control instrument issued by the company.

**2. ITEMS TO BE OBSERVED IN INDUSTRIAL INSPECTION
IMPORTANT**

-When arriving in the company the team should identify, request the presence of the owner or responsible for the same.

-He should not perform work of cubage and production line inspection, as well as collecting data outside of the area of the office, without the presence of the company representative, except in situations where it does not designate a responsible.

Documents to be requested and the items to be observed in the office

-Request the Environmental Licenses for data crossing, item 1.1 with the CTF listed in item 1.2.
-Specifically how much the environmental license check compliance with the conditions in the environmental permit, if the environmental license is within its validity period, so as your goals and if it contains erasure and if the activity is being carried on in accordance with the documentation.

-Provide electronic control instruments reports issued and received, as well as Invoices and schedule for the purpose of cross-checking information with each other, taking into account the data of the items 1.3.1 and 1.3.2, constants in this electronic control instrument (for the period under study).

-Observe whether there has been the marketing of species with restriction of use (e.g. chestnut and mahogany).

-Request data on energy consumption (light accounts, fuel consumption etc.) for the intersection of information between monthly energy consumption and monthly production.

-Check if the size of the company matches the production company to make sure that it is compatible with what is described in CTF.

3. SURVEY of STOCKYARD of FOREST PRODUCTS

3.1 Conduct the Cubage of firewood, coal and the whole timber in logs of the industry yard by species.

3.2 Formulas for cubing of wood logs

The environmental agency must adopt the geometric method for log space, using Smalian's formula.

Formula:

$$V = [(d_b^2 \cdot p/4) + (d_t^2 \cdot p/4)]/2; L \text{ or } V = 0.7854 \cdot [(D_b + D_t + 1)/2]^2 \cdot L$$

Where:

V = volume in m³

L = Length of the log in meters

D_b = base diameter of the log in meters (obtained from the average of the largest and smallest diameter in cross-section).

d_t = top diameter of the log in meters (obtained from the average of the highest and lowest diameter in cross-section).

Note: the volume will be calculated with or without bark according to control established by the competent environmental agency.

3.3 Individual measurement of sawn timber. The competent environmental agency, in line with the business sector, will establish procedures for storage and metering of forest products.

3.4 Tolerance

The competent environmental agency will admit variation in total volume of up to 10 more or less.

4. COEFFICIENT of VOLUMETRIC EFFICIENCY

4.1 Find in the electronic control system the volumetric efficiency coefficients adopted.

4.2 Verify that the coefficient of volumetric yield of the company conforms with the technical study presented, respecting the confidence interval.

4.3 Raise data about industry production, in order to confront with the yield coefficient for the product in question (ex: wood Stereo consumed for each thousand of bricks, mdc of coal for every ton of pig iron etc.)

5. PRODUCTION LINE

-Check if there is a control input measurement of forest products (logs, firewood, charcoal) at the time of pitsawing/consumption and request data or spreadsheets.

-Check if there is a measurement of production control in relation to the pitsawing of the log and request data or spreadsheets.

-Check if there is a control of the measurement of production of products from the consumption of sawn benefitted timber (furniture, construction etc.). Compare with the yield coefficient of the company.

-Check if there is a control of the measurement of production of products from the firewood consumption (tiles, bricks, tons of dried beans etc) and request data or spreadsheets.

Compare with the coefficient of efficiency of the company.

-Check if there is a control of the measurement of production of products from coal consumption (pig iron, industrialized/bagged coal etc.) and request data or worksheets. Compare with the coefficient of efficiency of the company.

- Observe closely the whole machinery for annotations in the forestry inspection form.

6. CONSIDERATIONS TO BE PERFORMED AFTER THE INDUSTRIAL INSPECTION OF A LOGGING COMPANY

Finally, after crossing all related data and obtaining the results and conclusions, present the detailed report of the work carried out in the company with the appropriate recommendations forwarding a copy to the company.

ANNEX II

Volumetric Yield Coefficient (CRV)				
Raw material	Unit	Product	Unit	CRV (%)
Firewood	St	Charcoal	MDC	33.33
Sawmill waste	M ³	Charcoal from waste	MDC	50
Log / Small Log	M ³	Sawn wood	M ³	45
Log / Small Log	M ³	Sliced wood	M ³	45
Log / Small Log	M ³	Turned wood	M ³	55
General wood	M ³	Charcoal	MDC	50

ANNEX III

STUDIES TO DETERMINE THE HIGHEST VOLUMETRIC YIELD COEFFICIENT OF COMMERCIAL LOG IN SAWN TIMBER VALID FOR YIELD COEFFICIENT GREATER THAN THE ONE SET OUT IN ANNEX II

STANDARD TERM OF REFERENCE

1. OBJECTIVE

Presenting roadmap for technical-scientific studies with a view to changing the volumetric yield coefficient determined by the present resolution, to the transformation of commercial log into sawn timber..

2. JUSTIFICATION

The volumetric yield coefficient (CRV) determined by this Resolution will be adopted by the competent environmental agency for the conversion of wood logs of tropical hardwood species into sawn timber. The CRV varies according to the species, the quality of the raw material, the kind of industrial process, the technology level of industry, type and quality of the final product, the realization of commercial use.

Due to the uniqueness in the establishment of a CRV that complies with specifically all industries, this Resolution provides that the competent environmental agency can accept, through technical analysis, specific CRVs, provided that the applicant companies submit satisfactory scientific studies.

3. METHODOLOGY of the STUDY

3.1 Characterization of the company

3.1.1 General information

3.1.1.1 Industry Name

3.1.1.2 Geographical coordinates

- 3.1.1.3 Postal address, telephone, fax and e-mail
- 3.1.1.4 Name and function of contact person
- 3.1.1.5 IBAMA Registry
- 3.1.2 Equipment
 - List equipment (platform of logs, saw logs, carriage-of-tape, circular saw, circular saw, Planer, greenhouse, cross and others), and the related quantities, year of manufacture, power and other technical specifications.
- 3.1.3 products generated
 - 3.1.3.1 List the main final products produced in the last 12 months
 - 3.1.3.2 List the byproducts sold by company (pre-cut, short, blockboard, packaging and other) within the past 12 months.
 - 3.1.3.3 List the types of waste generated and used by the company
- 3.2 Selection of species and logs for the study to justify the selection of the species included in the study. The selection of logs for the study should be done by species, according to the method of simple random sampling.
- 3.3 Cubage of logs processed. Information about the logs processed should be grouped into spreadsheets for each of the studied species. The worksheets for each species should be included in the ANNEX to the technical-scientific report presented.
 - 3.3.1 Wood species to identify the species studied by common and scientific name.
 - 3.3.2 Dimensions of logs
 - 3.3.2.1 Diameter: Determine the crossed diameters (larger and minor), without considering the shell at both ends of the log. Cubing log sheets must present the four values of diameters determined for each log, using the meter (m) as the unit of measure.
 - 3.3.2.2 Length: determine the smallest and largest length of the log . These values should appear on the cubage sheets presented, using the meter (m) as the unit of measure.
 - 3.3.3 Determining the volume of the log
 - The volume of logs must be determined by the geometric method, i.e. using Smalian's equation. The average of the diameters and the average of the lengths should be used to the computation.
- 3.4 Determination of the volume of sawn timber
 - The information on the volume of sawn timber, obtained from the processed logs, should be grouped into spreadsheets for each of the studied species. These worksheets should be included in the ANNEX to the technical-scientific report presented.
 - 3.4.1 Dimensions of parts produced
 - For each sampled log, inform the dimensions (length, width and thickness) of parts produced and the quantities.
 - 3.4.2 Sawn timber volume
 - For each sampled log, determine the volume of sawn timber obtained from the amount of pieces.
- 3.6 Determination of the volumetric yield coefficient (CRV)
 - The CRV is determined by the ratio between the volume of logs processed and the volume obtained from sawn timber properly marketed.
 - Should be determined by the average of the CRV species determined individually for each log.
- 3.7 Statistical analysis
 - 3.7.1 Descriptive statistics
 - Determine the mean, variance, standard deviation and coefficient of variation for each species studied.
 - 3.7.2 Determination of optimal size of the sample for the CRV determined is representative of the species and its product, should be given the optimal size of the sample, assuming a 10% error on the average value of the CRV. The number of studied logs should always be equal to or greater than the number given to the optimal size of the sample.
 - 3.7.3 Determination of confidence interval
 - Determine the confidence interval at the 95% level of probability with lower and upper bounds that the CRV may entail for certain species.
- 3.8 Coordination, supervision and conduct of work
 - The technical-scientific study should be signed by legally qualified professional with due note of technical responsibility and legal representative of the company.

ANNEX IV
STUDIES FOR DETERMINATION OF THE VOLUMETRIC YIELD COEFFICIENT OF COMMERCIAL LOG IN LAMINATED WOOD FOR A COEFFICIENT GREATER THAN THE ONE ESTABLISHED IN ANNEX II

STANDARD TERM OF REFERENCE

1. OBJECTIVE

Exhibit roadmap for technical-scientific studies with a view to changing the volumetric yield coefficient determined by the present Resolution, for the transformation of log in laminated wood (blades).

2. JUSTIFICATION

The volumetric yield coefficient (CRV) determined by this Resolution will be adopted by the competent environmental agency for the conversion of wood logs of tropical hardwood species in laminated wood. The CRV varies according to the species, the quality of the raw material, the type of manufacturing process, the level of technology

industry, the type and quality of the final product, the realization of commercial use.

Due to the uniqueness in the establishment of a CRV that meets specifically all industries, the Resolution provides that the competent environmental agency can accept, through technical analysis, specific CRVs, provided that the applicant companies submit satisfactory technical and scientific studies.

3. METHODOLOGY OF THE STUDY

3.1 Characterization of the company

3.1.1 General information

3.1.1.1 Industry Name

3.1.1.2 Geographical coordinates

3.1.1.3 Postal address, telephone, fax and e-mail

3.1.1.4 Name and function of contact person

3.1.1.5 IBAMA Registry

3.1.2 Equipment

List the equipment (platform of logs, logs carrier, multiple circular saw, circular saw, *destopadeira*, blades dryer, mill, *faquedeira*, guillotines, presses, stove, planer, and others), and the quantities, year of manufacture, power and other technical specifications.

3.1.3 Products generated

3.1.3.1 List the main final products produced over the last 12 months

3.1.3.2 List the byproducts sold by the company over the past 12 months.

3.1.3.3 List the types of waste generated and used by the company

3.2 Sampling of logs/short logs for the study Justify the species included in the study. Sampling of logs/short logs for the study must be made by cash, in accordance with the simple random sampling method.

3.3 Cubage of logs/short logs processed

Information about the logs/short logs processed should be grouped into spreadsheets for each of the studied species. The worksheets for each species should be according to the ANNEX to the technical-scientific report presented.

3.3.1 Wood species to identify the species studied by common and scientific name.

3.3.2 Dimensions of logs

3.3.2.1 Diameter: determine the cross diameters (larger and minor), without considering the shell at both ends of the log . Cubing log sheets must present the four values of diameters determined for each log, using the meter (m) as the unit of measure.

3.3.2.2 Length: determine the smallest and largest length of log. These values should appear on the cubage sheets presented, using the meter (m) as the unit of measure.

3.3.3 Determining the volume of the log

The volume of logs must be determined by the geometric method, i.e. using Smalian's equation. Should be used to calculate the mean of the diameters and the average of the lengths.

3.4 Determination of wood laminated in a lathe The information on the volume of laminated wood, obtained from the logs/short logs processed, should be grouped into spreadsheets for each of the studied species. These worksheets should be included in the ANNEX to the technical-scientific report presented.

3.4.1 Amount of rolling logs/short logs

Inform the number of sampled rolling logs/short logs.

3.4.2 Dimensions and volume of rolling logs/short logs

Determine the average diameter at both ends, the length and the volume of each of the logs/short logs.

3.4.3 Dimensions of blades produced

For each sampled log/short log, inform the dimensions (length, width and thickness) of the blades and the quantities produced.

3.4.4 Volume of wood laminated in a lathe

For each sampled log/short log, determine the laminated wood volume obtained

3.4.5 Volume of *rolo-resto*

Inform the final diameter and volume of the *rolo-resto* resulting from each of the sampled logs/short logs.

3.5 Determination of laminated wood in *faquedeira*

Information about volume of laminated wood, obtained from the processed logs, should be grouped into spreadsheets for each of the studied species. These worksheets should be included in the ANNEX to the technical-scientific report presented.

3.5.1 Quantity of rolling logs/short logs

Inform the rolling log/short logs number obtained for each sampled log.

3.5.2 Size and volume of rolling logs/short logs

Determine the average diameter at both ends, the length and the volume of each of the logs/short logs taken from the sampled log.

3.5.3 Dimensions of blades produced

For each sampled log/short log, inform the dimensions (length, width and thickness) of the blades and the respective quantities produced.

3.5.4 Laminated wood volume in *faqueadeira*

For each sampled log/short log, determine the volume of laminated wood obtained from the processing of respective log/short log.

3.6 Determination of products and by-products

Products and by-products shall be those resulting from the processing of logs/short logs dimensions and quality does not meet the requirements for the product but they are marketed by the company.

3.6.1 Dimensions and volume of products and by-products

For each sampled log, inform the dimensions (length, width and thickness), volume and quantities of the products and by-products resulting from the primary processing that do not meet the requirements of the main product and the marketing of which is subject to verification.

3.6.2 Cutting leftover: inform the dimensions of cutting leftover resulting from each of the sampled logs/short logs.

3.7 Determination of Volumetric Yield Coefficient (CRV)

The CRV is determined by the ratio between the volume of logs processed and the volume obtained from blades, plus, when applicable, the volume obtained with products of utilization, provided they are properly marketed. Should be determined by the average of the CRV species determined individually for each log.

3.8 Statistical analysis

3.8.1 Descriptive statistics

Determine the average, variance, standard deviation and coefficient of variation for each species studied.

3.8.2 Determination of optimal size of the sample

In order for the CRV to be representative of species and respective product, the optimal size of the sample should be determined, assuming a sampling error of 10%. The number of logs studied must always be equal to or greater than the number given to the optimal size of the sample.

3.8.3 Determination of confidence interval

Determine the confidence interval at the 95% level of probability with lower and upper bounds that the CRV may entail for certain species.

3.9 Coordination, supervision and conduct of work

The technical-scientific study should be signed by legally qualified professional with due note of technical responsibility and legal representative of the company.

ANNEX V

SCRIPT FOR DETERMINING THE VOLUMETRIC YIELD COEFFICIENT OF COMMERCIAL LOG IN SAWN TIMBER VALID FOR a COEFFICIENT LOWER THAN THE ONE LAID DOWN IN ANNEX II

SIMPLIFIED TERM OF REFERENCE

1. OBJECTIVE

Submit script for determining the volumetric yield coefficient, in order to increase the weighting established by this Resolution, for the transformation of commercial sawn timber.

2. JUSTIFICATION

The volumetric yield coefficient -CRV determined by this Resolution will be adopted by the competent environmental agency for the conversion of wood logs of tropical hardwood species in sawn timber. The CRV varies according to the species, the quality of the raw material, the type of manufacturing process, the level of industry's technology, the type and quality of the final product, the realization of commercial use.

Due to the uniqueness in the establishment of a CRV that meets specifically all industries, this Resolution provides that the competent environmental agency can accept, through technical analysis, specific CRVs, provided that the applicant companies submit technical and scientific studies.

3. TECHNICAL ASSESSMENT METHODOLOGY

3.1 Characterization of the company

3.1.1 General information

3.1.1.1 Industry name

3.1.1.2 Geographical coordinates

3.1.1.3 Postal address, telephone, fax and e-mail

3.1.1.4 Name and function of contact person

3.1.1.5 IBAMA Registry

3.1.2 Equipment

List the equipment (platform of logs, logs carriage, tape saw, multiple circular saw, circular saw, destopadeira. oven, plane and others), and the respective quantities, year of manufacture, power and other technical specifications.

3.1.3 products generated

3.1.3.1 List the main final products produced in the last 12 months.

3.1.3.2 List products of utilization produced and marketed by the company (pre-cut, short, plywood, packaging and other) within the past 12 months.

3.1.3.3 List the products produced and consumed by the company over the past 12 months.

3.1.3.4 List the types of waste generated and used by the company.

3.2 Cubage of logs processed

The information about the logs processed should be grouped into spreadsheets for each of the studied species. The worksheets for each species should be included in the ANNEX to the technical-scientific report presented.

3.2.1 Wood species

Identify the species studied by common and scientific name.

3.2.2 Size of logs

3.2.2.1 Diameter: determine the cross diameters (larger and minor), without considering the shell at both ends of the log . Cubing log sheets must present the four values of diameters determined for each log, using the meter (m) as the unit of measure.

3.2.2.2 Length: determine the smallest and largest length of log . These values should appear on the cubage sheets presented, using the meter (m) as the unit of measure.

3.2.3 Determining the volume of the log

The volume of logs must be determined by the geometric method, i.e. using using Smalian's equation. It should be used to calculate the mean of the diameters and the average of the lengths.

3.3 Determining the volume of sawn timber

The information on the volume of sawn timber, obtained from the processed logs should be grouped into spreadsheets for each of the studied species. These worksheets should be included in the annex to the technical-scientific report presented.

3.3.1 Dimensions of items produced

For each sampled log, inform the dimensions (length, width and thickness) of items produced and the respective quantities.

3.3.2 Volume of sawn timber

For each sampled log, determine the volume of sawn timber obtained from the amount of items.

3.4 Determination of the volume of secondary or products for exploitation.

The products resulting from the processing of logs whose dimensions and quality does not meet the requirements for the main product, but they are marketed by the company should be considered products for exploitation.

3.4.1 Dimensions and volume of by-products or waste

For each sampled log, relate the dimensions (length, width and thickness), volume and quantities of products resulting from the primary processing that do not meet the requirements of the main product and the marketing of which is subject to verification.

3.5 Determination of the volumetric yield coefficient (CRV)

The CRV is determined by the ratio between the volume of logs processed and the volume obtained from sawn timber, plus, when applicable, the volume obtained with products for exploitation, provided they are properly marketed. It should be determined by the average of the CRV species determined individually for each log.

3.6 Coordination, supervision and conduct of work

The technical-scientific study should be signed by legally qualified professional with due note of technical responsibility and legal representative of the company.

ANNEX VI
ROADMAP FOR DETERMINATION OF THE VOLUMETRIC YIELD COEFFICIENT OF
COMMERCIAL LOG IN LAMINATED WOOD VALID
FOR A COEFFICIENT LOWER THAN THAT LAID DOWN IN ANNEX II

SIMPLIFIED TERM OF REFERENCE

1. OBJECTIVE

Presenting roadmap for technical-scientific studies with a view to amendment of volumetric yield coefficient determined by the present Resolution, for the transformation of log in laminated wood (blades).

2. JUSTIFICATION

The volumetric yield efficiency-CRV determined by this Resolution will be adopted by the competent environmental agency for the conversion of tropical logs hardwood wood species in laminated wood. The CRV varies according to the species forestry, the quality of the raw material, the type of manufacturing process, the level of technology industry, the type and quality of the final product, the realization of commercial use.

Due to the uniqueness of the CRV that specifically meets all industries, the resolution provides that the competent environmental agency can accept, through technical analysis, specific CRVs, provided that the applicant companies submit satisfactory service scientific studies.

3. METHODOLOGY of the STUDY

3.1 Characterization of the company

3.1.1 General information

3.1.1.1 Industry Name

3.1.1.2 Geographical coordinates

3.1.1.3 Postal address, telephone, fax and e-mail

3.1.1.4 Name and function of contact person

3.1.1.5 IBAMA Registry

3.1.2 Equipment

List the equipment (platform of logs, logs carriage, band saw, multiple circular saw, circular saw, *destopadeira*, blades dryer, laminating mill, *faqueadeira*, guillotines, presses, planer, and others), and the quantities, year of manufacturing, power and other technical specifications.

3.1.3 Products generated

3.1.3.1 List the main final products produced in the last 12 months

3.1.3.2 List the byproducts sold by the company over the past 12 months

3.1.3.4 List the types of waste generated and used by the company

3.3 Cubage of logs/short logs processed

Information about the logs/short logs processed should be grouped into spreadsheets for each of the studied species. The worksheets for each species should be included in the ANNEX to the technical-scientific report presented.

3.3.1 wood species

Identify the species studied by common and scientific name.

3.3.2 Dimensions of logs

3.3.2.1 Diameter: determine the cross diameters (larger and minor), without considering the shell at both ends of the log. The spreadsheets of cubage of log must present the four values of diameters determined for each log, using the meter (m) as the unit of measure.

3.3.2.2 Length: determine the smallest and largest length of the log. These values should appear on the cubage spreadsheets presented, using the meter (m) unit of measure.

The volume of logs must be determined by the geometric method, that is, using the Smalian's equation. It should be used to calculate the mean of the diameters and the average of the lengths.

3.4 Determination of wood laminated in a mill

The information on the volume of laminated wood, obtained from the logs/short logs processed, should be grouped into spreadsheets for each of the studied species.

These worksheets should be included in the ANNEX to the technical-scientific report presented.

3.4.1 Amount of rolling logs/short logs

Inform the number of sampled cold rolling logs/short logs.

3.4.2 Dimensions and volume of rolling logs/short logs

Determine the average diameter at both ends, the length and the volume of each of the logs/short logs.

3.4.3 Dimensions of blades produced

For each sampled log/short log, inform the dimensions (length, width and thickness) of the blades and the quantities produced.

3.4.4 Volume of wood laminated in a mill

For each sampled log/short log, determine the volume of laminated wood.

3.4.5 Volume of *rolo-resto*

Inform the final diameter and volume of *rolo-resto* resulting from each of the sampled logs/short logs.

3.5.1 Amount of rolling logs/short logs

Inform the number of rolling logs/short logs obtained for each sampled log.

3.5.2 Size and volume of rolling logs/short logs

Determine the average diameter at both ends, the length and the volume of each of the logs/short logs taken from the sampled log.

3.5.3 Dimensions of blades produced

For each sampled log/short log, inform the dimensions (length, width and thickness) of the blades and the quantities produced.

3.5.5 Volume of wood laminated in *faqueadeira*

For each sampled log/short log, determine the volume of laminated wood obtained from the processing of the respective log/short log.

3.6 Determination of volume of products and by-products

Products and by-products shall be those resulting from the processing of logs/short logs whose dimensions and quality do not meet the requirements for the main product, but which are marketed by the company.

3.6.1 Dimensions and volume of products and by-products

For each sampled log, list the dimensions (length, width and thickness), volume and quantities of the products and by-products resulting from the primary processing that do not meet the requirements of the main product and the marketing of which is subject to verification.

3.6.2. Cutting leftover

Inform the dimensions of cutting leftover resulting from each of the sampled logs/short logs.

3.7 Determination of volumetric yield coefficient (CRV)

The CRV is determined by the ratio between the volume of logs processed and the volume obtained from blades, plus, when applicable, the volume obtained with products of exploitation, provided they are properly marketed. It should be determined for species by the average of the CRV determined individually for each log.

3.8 Statistical analysis

3.8.1 Descriptive statistics

Determine the mean, variance, standard deviation and coefficient of variation for each species studied.

3.8.2 Determination of optimal size of the sample

In order for the CRV to be representative of species and given its product, should be given the optimal size of the sample, assuming a sampling error of 10%. The number of studied logs should always be equal to or greater than the number given to the optimal size of the sample.

3.8.3 Determination of confidence interval

Determine the confidence interval at the 95% level of probability with lower and upper bounds that the CRV may entail for certain species.

3.9 Coordination, supervision and execution of the work.

The technical-scientific study should be signed by legally qualified professional with due note of technical responsibility and legal representative of the company.

ANNEX VII GLOSSARY OF WOOD PRODUCTS

1-Charcoal

Combustible substance, solid, black, resulting from carbonization of wood (logs, branches, and roots), and may have various shapes and densities.

Combustible substance, solid, black, resulting from carbonization of wood processing residue and may present various shapes and densities.

3-Shoring

Piece of wood, usually a section of trunk, thin and elongated, manageable, also called handspile, prop, *estronca*, or rod, generally used in works and constructions to strut or temporarily halt scaffolding, tops, sloped, coated, retaining works and emergency support buildings.

Usual dimensions:

Diameter of smaller section greater than 6 cm

Length longer than 260 cm

4-Stake

Elongated piece of different sizes, usually a section of trunk which spikes into the ground with structural purpose to convey it the load of a construction, as part of support and others.

5- Milled Blade

Refers to the wooden blade or flat and slender fragment obtained by rotating or milling processing method, resulting from continuous turning of the log on a cutting mechanism.

6- *Faqueada* blade

Refers to the wooden blade or flat and slender fragment, obtained by processing of the log in the longitudinal direction or rotational through continuous and repetitive lamination method.

7-Splinter

Name on the piece of wood or piece of trunk, obtained by disruption in the longitudinal direction, forced from cracks and crevices in wood, usually of dimensions that enable handling and with two sides forming a vertex and generally intended to be used as stake and wire fence post.

Usual dimensions:

Length up to 220 cm

Variable thickness

8- Firewood

Portion of branches, roots and trunks of trees and wood knots, normally used in direct burning or for charcoal production.

9- Sawn timber

It results directly from sawing of logs or short logs, consisting of pieces cut lengthwise through the saw, regardless of its size, of rectangular or square section. The sawn timber will be classified according to the following dimensions:

Name	Thickness (cm)	Width (cm)
Block, square or fillet	>12	>12
Planks	>7,0	>20,0
Boards	4,0- 7,0	>20,0
Beam	>4,0	11,0- 20,0
Small beam	4,0- 8,0	8,0- 11,0
Rafter	4,0- 8,0	5,0- 8,0
Plank	1,0- 4,0	>10,0
Fillet	2,0- 4,0	2,0- 10,0
Path	<2,0	<10,0

10-Fence

Piece of wood, usually part of the trunk, manageable, normally resistant to degradation and mechanical forces, used as tutorial agricultural mainstay as a pillar firmly fixed for immobilization of large animals, as a support structure of boards, wire, fence, wiring or at the edge of rivers where they hold light vessels.

Usual dimensions:

Lengths up to 220 cm

Variable diameters

11-Post

Wooden rod, or part of the trunk, to be used spiked vertically into the soil to support structures, transformers and insulators on which rely electricity and telegraphic, telephone cords and others, or as support for lamps.

12-Finished product

Product obtained after the industrial processing of wood that is ready for use and does not include any additional processing.

13-Sawmill residue

Set of residual pieces, in various formats and sizes, resulting from industrial processing of wood.

14-Rolo-Resto or Roller

Piece of round wood, long, cylindrical and manageable, resulting from lamination of logs by milling.

Usual dimensions:

Length of 150 to 330 cm

15-Log

Part of a tree, its trunk's sections or its main part, in a round format intended for industrial processing.

16-Short log

Profitable sections of the tree originated from the branches, or sections of the log, intended for the production of sawn timber.

ANNEXES

ACRONYMS CITED IN CONAMA RESOLUTIONS

ABEMA-Brazilian Association of Environmental State Entities
ABES-Brazilian Association of Sanitary and Environmental Engineering
ABNT-Brazilian Association of Technical Standards
ABPA-Brazilian Association of Tyres and Rims
ACAPRENA-Santa Catarina Association of the Preservation of Nature
ADEMASP-Association of Environmental Protection – Sao Paulo
DNA-Deoxyribonucleic Acid
AFT-Technical Function Note
AGAPAN-Rio Grande do Sul Association of Protection of the Natural Environment
AID-Areas of Direct Influence
AII-Areas of Indirect Influence
ANAMMA-National Association of Environmental Municipal Agencies
ANEEL – National Electric Energy Agency
ANP-National Petroleum Agency
APA-Environmental Protection Area
APEDEMARJ-Permanent Assembly Environmental Entities for Environmental Defense – Rio de Janeiro
APHA-AWWA-WPCF-Standard Methods for the Examination of Water and Wastewater
APM-Wellspring Protection Areas
APP – Permanent Preservation Area
APREMAVI- Alto Vale Itajaí Association for Environment Preservation
APROMAC-Environmental Protection Association of Cianorte
ARGONAUTS-Environmental Association of the Amazon
ARIE-Areas of Relevant Ecological Interest
ARL-Registration of Legal Reserve
ART- Technical Responsibility Annotation
ASA-Airport Security Area
ASPOAN-Potiguar Association of Nature Friends
ASTM-American Society For Testing and Materials
ATPF-Authorization for Forest Product Transport
BAR-Bureau of Automotive Repair
CAC-Certificate of approval of the Vehicle Configuration or Engine
CAETE-Caeté Association -Culture and Nature
CAGN-Environmental Certificate for use of Natural Gas in Motor Vehicles
CANIE-National Speleological Information Registry
CAP-Commission for Monitoring and Evaluation of PROCONVE
CAP-Circumference at Breast Height
CAS-Chemical Abstracts Service
CEBRAC-Brazilian Center Foundation and Cultural Support
CEDRO-Effective Daily Capacity of Oil Collection
CEE-European Economic Community
CEPRAM-State environmental Council of the State of Bahia
CETESB-Environmental Sanitation Technology Company
CDB-Convention on Biological Diversity
CDI-National Council of Industrial Development
CEE -European Economic Community
CF-Federal Constitution
CFC-Chlorofluorocarbons
CFR-Cooperative Fuel Research
CGC-General Register of Taxpayers
CHO-Total Aldehydes
CIPAM-Environmental Policy Integration Committee
CITES-International Trade in Species of Wild Flora and Fauna under Danger of Extinction
CNA-Confederation of Agriculture
CNAE-National Classification of Economic Activities
CNC-Confederation of Trade
CNCG-National Council of General Commanders of the Military Police and Firefighters
CNEA-National Register of Environmentalists Entities
CNEN-National Commission of Nuclear Energy

CNI-National Confederation of Industry
 CNJB-National Commission of Botanical Gardens
 CNM-National Confederation of Municipalities
 CNP-National Petroleum Council
 CNT-National Confederation of Transport
 CNPJ-National Register of Corporations
 CNRH - National Water Resources Council
 CNTP-Standard temperature and pressure conditions
 CO-Carbon Monoxide
 COMEX-Executive Commission of Our Nature Program
 CONAFLOR-National Forests Commission
 CONAMA-National Environment Council CONDEMA-State Council for the Environment
 CONMETRO-Council of Metrology, Standardization and Industrial Quality
 CONTAG-National Confederation of Agricultural Workers
 CONTRAN - National Transit Council
 COT -Total Organic Carbon
 CPF-Register of Individuals
 CQB-Quality Certificate in Biosecurity
 CRA-Environmental Resource Center
 CTC-Cationic Exchange Capacity
 CTC-Carbon Tetrachloride
 CTB-Brazilian Transit Code
 CTE-State Technical Register
 CTF-Federal Technical Register
 CTNBio - National Technical Commission on Biosecurity
 CU – Conservation Unit
 DAP-Diameter Breast Height
 DAP-Diamonic Phosphate
 DBO -Biochemical Oxygen Demand
 DDF-Forest Development Department
 DECEX-Department of Foreign Trade Operations
 DER-Department of Highways
 DMTE-Diesel Oil with Lower Sulphur Content
 DNAEE-National Department of Water and Power
 DNC-National Department of Fuels
 DNPM-National Department of Mineral Production
 DOU-Official Gazette
 DVPF-Declaration of Sale of Forest Products
 EAS-Environmental Study of Seismic
 ECP-Pollution Control Equipment
 EDR-Destruction and Removal Efficiency
 EEC-European Economic Community
 EGR-Exhaust Gas Recirculation
 EIA-Environmental Impact Assessment
 EIA-RIMA-Environmental Impact Assessment-Environmental Impact Report
 ELETROBRÁS – Centrais Elétricas Brasileiras S.A. (Brazilian Central Electricity Plants Ltd.)
 PPE-Personal Protective Equipment
 EPIA-Preliminary Study of Environmental Impact
 ERT-Total Reduced Sulphur
 ESC-Cycle of Constant Regime (European Stationary Cycle)
 ETC-Transient Regime Cycle (European Transient Cycle)
 ETE-Sewage Treatment Station
 ETP-Evapo-Transpiration Potential
 USA-United States of America
 EVA-Environmental Feasibility Study
 EVQ-Burning Feasibility Study
 EXPROPER-Exploration, Drilling and Production of Oil and Natural Gas
 FAO-United Nations Food and Agriculture Organization
 FBCN-Brazilian Foundation for the Conservation of Nature
 FCA-Characterization of Activities Card
 FEEMA-State Foundation of Environmental Engineering
 FGEB-Grupo Esquel Brasil Foundation
 FISPQ-Material Safety Data Sheet for Chemical Products
 FM-Fractions of Mineralization
 FMPM-Multilateral Fund for the Implementation of the Montreal Protocol
 FNMA-National Environmental Fund
 FTEQ-Equivalence Factors of Toxicity
 FUNAI - National Indian Foundation
 FUNASA - National Health Foundation
 FURNAS-Central Electric Furnaces

GEIPOT-Brazilian Transportation Planning Enterprise
 GERC-Rio das Contas Ecological Group
 GFI – Manufacturer/Importer Group
 GLP-Liquefied Petroleum Gas
 GN-Natural Gas
 GNC-Non-Condensable Gases
 GPS-Global Positioning System
 GRAMA-Group of Resistance to Aggressions to the Environment
 GT - Working group
 HC-Hydrocarbons
 HSU-Hartridge Smoke Unite (smoke opacity)
 IBAMA-Brazilian Institute of Environment and Renewable Natural Resources
 IBGE – Brazilian Institute of Geography Statistics
 IBS-Brazilian Steel Institute
 ICASALS-International Centre for Arid and Semi-Arid Land Studies
 ICID-International Conference on Climate Changes and Sustainable Development in the Semi-Arid Region
 ICV-Centro de Vida Institute
 IESB-Institute of Environmental Studies of Southern Bahia
 IFR-Instrument Flight Rules
 ILAC-International Laboratory Accreditation Cooperation
 IM inspection and Maintenance Program for Motor Vehicles in Use
 IMAC-Institute of Environment of the State of Acre
 IMAFLORA-Brazilian Institute of Agricultural and Environmental certification
 IMARH-Maranhão Institute of the Environment and Water Resources
 INCRA-National Institute for Colonization and Agrarian Reform
 INMETRO-National Institute of Metrology, Standardization and Industrial Quality
 INPE-National Institute of Spatial Research
 IPEA-Institute for Applied Economic Research
 IPHAN-Institute for the National Historical Artistic Heritage
 ISO-International Standards Organization
 ISR-Retail System installation
 ITFC-Institute of Cartography, Land and Forests
 ITR-Rural Land Tax
 JBRJ- Jardim Botânico Research Institute of Rio de Janeiro
 KANINDÉ Association of Ethno-Environmental Defense
 LCM-License for use of Mopeds, Motorcycles and the Like
 LCVM-License for use of the Vehicle or Engine Configuration
 LDM - Method Detection Limit
 LE Individual Emission Limit
 LEres - Resulting Emission Limit
 LI-Installation License
 LIO-Installation and Operation License
 LO-Operating License
 LOAP-Operating license for Areas of Research
 LP-Prior License
 LPI-Preliminary License and Installation
 LPper- Prior License Required for Drilling
 LPpro-Prior License of Production for Research
 LPS-Seismic Research License
 LQA -Sample Quantification Limit
 LQP Workable Quantification Limit
 MAB-Man and Biosphere Program (UNESCO)
 MAP-Monoammonium Phosphate
 MDI-Measuring Dose Inhalers
 MDU-Ministry of Urban Development
 MDF - Medium Density Fiberboard- Medium Density Fiber
 MERCOSUL - Southern Common Market
 MI-Ministry of the Interior
 MICT-Ministry of Industry, Trade and Tourism
 MINC – Ministry of Culture
 MINTER-Ministry of the Interior (extinct by law 8028, of April 12, 1990)
 MMA-Ministry of the Environment
 MME – Ministry of Mines and Energy
 MP-Particulate Matter
 MP-Provisional Measure
 MPO-Ministry of Planning and Budget
 MS-Dry Matter
 MT-Ministry of Transportation
 N.A.- Not Applicable

NBR-Brazilian Technical Standard
 NCM-Mercosur Common Nomenclature
 Ndisp-Nitrogen Available
 NO₂ - Carbon Dioxide
 NO_x-Nitrogen oxides
 NMHC-Non-Methane Hydrocarbons- (Non-Methane Hydrocarbons)
 NMP-Most Probable Number
 OBD - On-board Diagnosis System
 OCA BRAZIL
 OCDA- Fuel Oil Derived from Tar
 OECD-Organization for Economic Co-operation and Development
 OD-Dissolved oxygen
 OEMA-State Environmental Agencies
 GMO-Genetically Modified Organisms
 WHO-World Health Organization
 NGO-Non-governmental Organization
 OTN-National Government Bonds
 PA-Filling Station
 PACD-Plan of Action to Combat Desertification
 PAHs – Polycyclic Aromatic Hydrocarbons
 PBCO-Brazilian Program for the Elimination of the Production and Consumption of Substances that Deplete the Ozone Layer
 PBT-Total Gross Weight
 PCA-Environmental Control Plan or Project
 PCAS-Seismic Environmental Control Plan
 PCBs- Biphenyl Polychlorates
 PCI-Lower Calorific Value
 PCOs-Major Hazardous Organic Compounds
 PCPV-Pollution control Plan by Vehicle in Use
 PCS-Higher Calorific Value
 PDA-Settlement Development plan
 PEI-Individual Emergency Plan
 PETROBRAS-Petróleo Brasileiro S.A. (Brazil Petroleum Ltd.)
 PF-Floating Station
 PGRSS-Waste Management Plan of Health Services
 PIFI-integrated Plan Forest and Industry
 PMA-Environmental Monitoring Program
 PMFS-Sustainable Forest Management Plan
 PN-Nominal Thermal Power
 PNCD-National plan for Combatting Desertification
 PNGC-National Plan for Coastal Management
 PNMA-National Environment Plan
 UNDP-United Nations Development Program
 PNUMA-United Nations Environment Program
 POPs-Persistent Organic Pollutants
 PR-Reselling Station
 PRA-Settlement Recovery Plan
 PRAD-Degraded Area Recovery Plan
 PROCONVE – National Program for the Control of Pollution from Motor Vehicles
 PROMOT-Program for the Control of air Pollution by Motorcycles and Similar Vehicles
 PRONACOP-National Program of Industrial Pollution Control
 PRONAR-National Program for Air Quality Control
 PRONEA National Environmental Education Program
 PTB-Total Gross Weight
 PTQ-Burning Test Plan
 RAA-Environmental Assessment Report
 RADAM-Amazon Radar
 RAS-Simplified Environmental Report
 RBC-Brazilian Calibration Network
 RCA-Environmental Control Report
 RCQE-Quality Emission Control Report
 RCS-Application for Selective Cutting
 REDESERT-Information and Documentation Network on Desertification
 RG-General Registry (identity card)
 RIAS-Seismic Environmental Impact Report
 RIMA-Environmental Impact Report
 RVA-Environmental Feasibility Report
 RVEP-Production Emission Values Report
 RVTF-Typical Values Report Of Smoke At Free Acceleration
 SAE-Secretariat of Strategic Affairs of the Presidency of the Republic

SASC-Underground Fuel Storage System
 SDO-Substances that Deplete the Ozone Layer
 SEAMA-State Secretariat for Environmental Affairs
 SEAPPR- Special Secretariat of Aquaculture and Fisheries of the Presidency of the Republic
 SECEX-Foreign Trade Department of the Ministry of Industry and Trade
 SEMA-Special Secretariat for the Environment (extinct)
 SINDEC - The National Civil Defense System
 SFP-Secretariat For Formulating Policies and Environmental Standards
 SILÊNCIO-National Program of Education And Control Of Noise Pollution
 SINDEC - The National System of Civil Defense
 SINGREH-National System of Water Resources Management
 SINIMA-National Environment Information System
 SIP-Secretariat For Implementation Of Environmental Policies (extinct)
 SISNAMA-National Environment System
 SNUC - National System of Conservation Units
 SO₂-Sulphur dioxide
 SOUR-Specific Oxygen Uptake Rate
 SOPEP-Shipboard Oil Pollution Emergency Plan
 SPVSEA-Society for Research in Wildlife and Environmental Education (currently SPVS)
 SRF (MF)-Internal Revenue Service
 SRH- Water Resources Secretariat (currently SRHU)
 SS-Simple Request
 SSP - Superphosphate
 ST-Total Solids
 STI-Department of Industrial Technology
 SUDENE-Northeast Development Superintendence
 SUPES-State Oversight of IBAMA
 SV-Volatile Solids
 SVS/MS-Health Surveillance Secretariat of the Ministry of Health
 TAC – Conduct Adjustment Term
 TAMAR-National Centre for Management And Conservation Of Sea Turtles
 TCFA-Environmental Monitoring and Control rate
 TEC-Common External Tariff
 THC-Total Hydrocarbons (Total Hydrocarbons)
 TR – Terms of Reference
 TRMFM-Maintenance Liability Term for maintenance of Handled Forest
 TSP-Triple Superphosphate
 UB-Bosh Unit
 UFF-Focus-forming Unit
 UFP-Plate Forming Unit
 UGL-Sludge Management Unit
 UNCED – United Nations Conference on Environment and Development
 UNESCO-United Nations Educational, Scientific And Cultural Organization
 UNT-Nephelometric Turbidity Unit
 URE-Sulfur Recovery Unit
 UTM-Transverse Mercator Drive
 VIDAGUA-Vidágua Environmental Institute
 VMP-Maximum Allowed Value
 VMPr-Maximum Allowed More Restrictive Value
 VMPr- -Maximum Allowed Less Restrictive Value
 VRQ-Quality Benchmark
 ZEI-Strictly Industrial Zones
 ZEIS-Special Area of Social Interest

CONAMA
 MINISTRY OF THE ENVIRONMENT

