

ITTO PD 334/05 Rev. 2 (I)
Demonstration and Application of Production and
Utilization Technologies for Rattan Sustainable Development
in the ASEAN Member Countries



Regional Rattan Conference Proceedings

Dusit Thani Hotel, Ayala Centre
Makati City, Philippines

August 29 - September 1, 2010

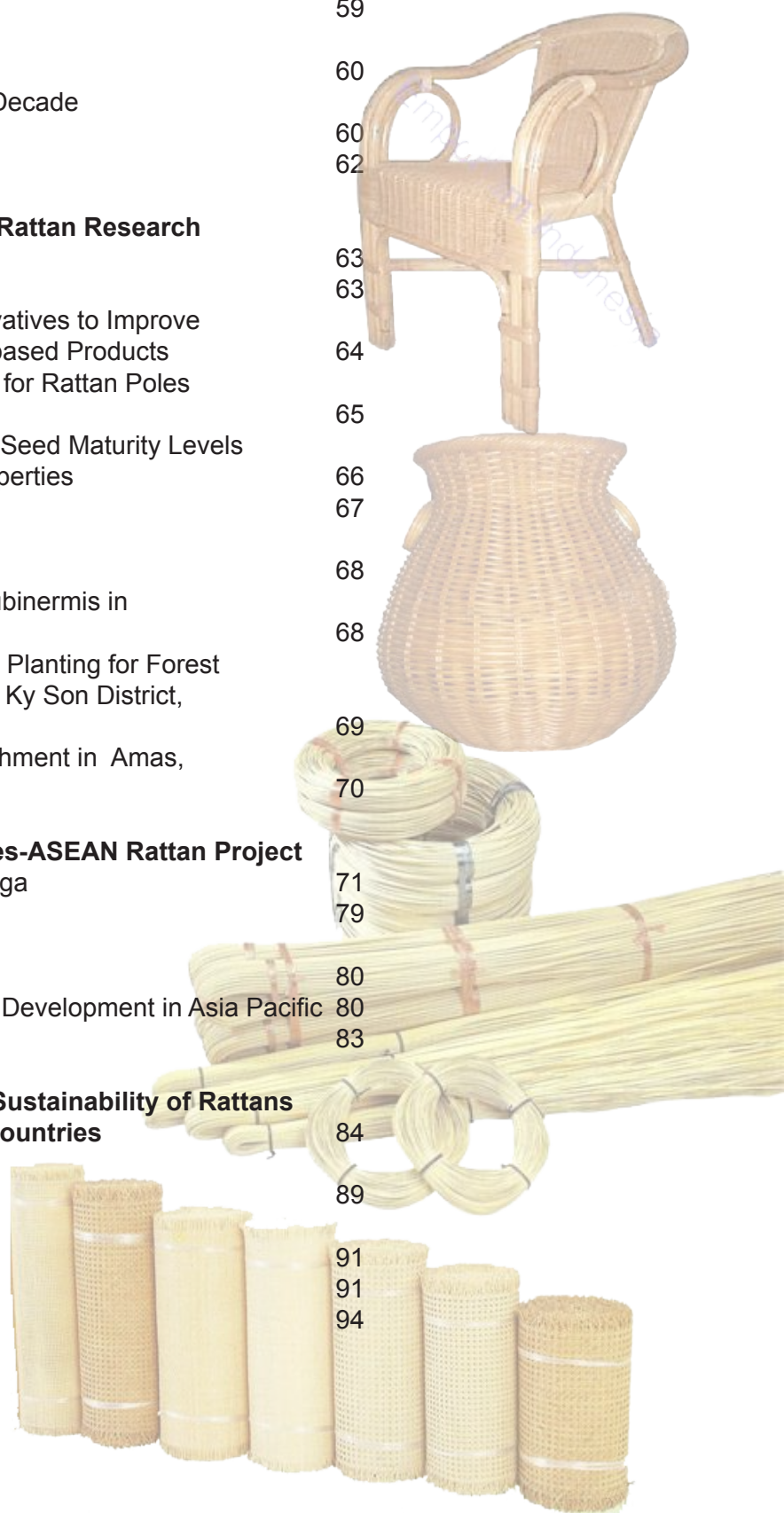


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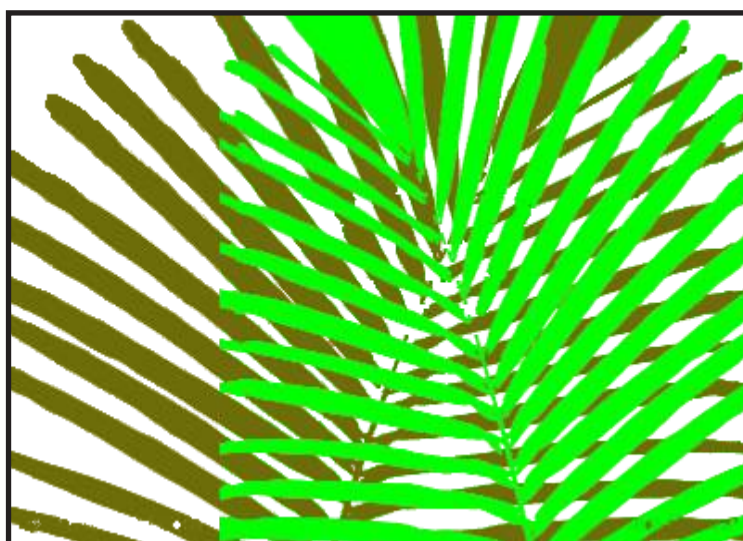


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LIST of ACRONYMS

APAFRI	Asia Pacific Association of Forestry Research Institutions
ASEAN	Association of Southeast Asian Nations
CFNR	College of Forestry and Natural Resources
DENR	Department of Environment and Natural Resources
DOST	Department of Science and Technology
ERDB	Ecosystems Research and Development Bureau
FASPO	Foreign-Assisted and Special Projects Office
FRC	Forest Research Center
FPRDI	Forest Products Research and Development Institute
has	hectares
IDN	Indonesia
IEC	Information, Communication and Education
INBAR	International Network on Bamboo and Rattan
ITTA	International Tropical Timber Agreement
ITTO	International Tropical Timber Organization
KHM	Cambodia
NAFRI	National Agriculture and Forest Research Institute
MYR	Myanmar
NTFPs	Non-Timber Forest Products
PHL	Philippines
PO	Peoples Organization
RDE	Research, Development and Extension
RRGP	Rattan Research Grant Program
RUP	Resource Utilization Permit
SEA	South East Asia
SRE	Small-hold Rattan Enterprise
UPLB	University of the Philippines Los Baños
USD	United States Dollars
Usec	Undersecretary
VNM	Vietnam



EXECUTIVE SUMMARY

The Regional Rattan Conference was held last August 29 - September 1, 2010 at Dusit Thani Hotel, Makati City, Philippines. Participated in by 29 rattan scientists, researchers and professionals from ASEAN and other countries, it was the culminating activity of the four-year project entitled "Demonstration and Application of Production and Utilization Technologies for Rattan Sustainable Development in the ASEAN Member Countries."

Funded by ITTO, the project is being implemented by ERDB-DENR, CFNR-UPLB, FPRDI-DOST in eight ASEAN member countries, namely: Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, Philippines, Thailand, and Vietnam. It aims to strengthen ASEAN collaboration on the development of rattan sector and thereby help reduce poverty at the community level as well as promote natural resource conservation. Pilot demonstration of rattan production and utilization technologies is the heart of the project. Hence, the conference served as the venue for sharing the successful strategies and experiences involving communities in the establishment and management of rattan plantations. Also highlighted in the conference was the presentation of research results on priority areas related to the improvement of rattan production and utilization.

To provide more direction to the future activities on rattan development in the region, technical presentations were made on three topics: rattan diversity and taxonomy; overall experience in the establishment of pilot demonstration in SEA; and RDE direction for rattan in the next decade.

Country experiences in rattan pilot demonstration were generally successful in several aspects: designated areas have been planted with appropriate rattan species, technologies for plantation establishment and management have been shared and demonstrated, and communities have been involved and deriving income for their efforts.

However, a number of issues have been brought up for consideration to improve future pilot plantation establishment: choice of rattan species be defined based on the by-products desired; impact of these other by-products on rattan value chain be explored; constraints to access, transport, and use of these by-products by the local communities be attended to; sustainability mechanisms for managing established plantations, including institutional arrangement, be ensured; and ownership or use right issue be clarified with the communities. Other concerns worth looking into are the effect of light on rattan growth; connection between rattan and biodiversity as well as rattan and climate change adaptation; and the opportunities and constraints in rattan seed exchange.

Studies under the small research grant focused on assessing rattan population diversity, preservatives to improve rattan durability, grading rules and standards, extraction method for dragon's blood extraction, rattan plantation establishment and management, and growth performance. Issues raised in this portion revolved around: determining length of time for rattan fruits to mature; finding out how much extract of dragon's blood is needed to be able to generate natural preservative without killing the plant; need for harmonizing rattan grading in the region; move towards certification of rattan; and possibility of using cryogenic facility for rattan seed storage and development.

An impact assessment of the project was also reported. While providing a good start, and based on the initial results, the body recommended that data gaps and sources be addressed and data accuracy and analysis be worked out further.

The ASEAN Rattan database was launched. It features the scientific name, local name of rattan species in the country, their distinguishing character, brief description and habitat, distribution, characteristics of plant parts and uses, among others.

A proposal on the development of small-hold rattan-based enterprises in Asia and Pacific was discussed for consideration in bringing forward the gains of the project. Suggested to be included to improve its content were the following: product design, quality control, marketing system, link with medium scale industries, and inventory of rattan stock in the country.

To seal off the agreements made during the conference, the participants signed the symbolic pledge of commitment to sustain the development of rattan in the ASEAN region. The commitment basically contains the various RDE efforts that member countries can participate in to further the cause of rattan development in the region.

Capping the various activities was the launching of two books on rattan: ***A Field Guide to Philippine Rattans and The ASEAN Rattans.***

PROJECT BACKGROUND

The four-year project entitled "Demonstration and Application of Production and Utilization Technologies for Rattan Sustainable Development in the ASEAN Member Countries" is being implemented by the Ecosystems Research and Development Bureau (ERDB), Philippines in collaboration with the College of Forestry and Natural Resources - University of the Philippines Los Baños (CFNR-UPLB) and Forest Products Research and Development Institute - Department of Science and Technology (FPRDI-DOST). It is funded by the International Tropical Timber Organization (ITTO) based in Japan. It has been extended until November 1, 2010 past its target completion of March 2010.

The project aims to strengthen ASEAN collaboration in reducing poverty at the community level and in promoting natural resources conservation through a network that supports, prioritizes, and supports the urgent needs in and concerns for the development of the rattan sector. This project also addresses the prioritized needs and concerns raised during the 2004 Regional Conference on Rattan in Asia held in Manila. It further aims to: (1) generate necessary information on the impacts of rattan production and utilization technologies particularly at the community

level; (2) conduct studies on different aspects of rattan development, (3) undertake training for upgrading the skills of various stakeholders, and (4) establish data/information network on rattan in the ASEAN region.

The ITTO rattan project is composed of five major components, namely: pilot demonstration, training, research, networking, and database. Rattan pilot demonstration serves as the heart and/or backbone of the project. This is because the project's success depends principally on how the disseminated technologies are applied and adopted through the establishment of pilot demonstration.

The rattan pilot demonstration showcases the mature, well-developed technologies on rattan seed technology and seedling culture in the nursery and rattan plantation development and management. This is to ensure the sustainable production of quality rattan poles for the rattan furniture and handicraft industries and other useful products from rattan such as edible shoots and dyes (dragon's blood) from fruits. Pilot demonstration areas, with emphasis on community participation, have been established at the village level.

The training component of the project aims to disseminate technologies on rattan production, processing, and utilization among the local communities. It, likewise, aims to determine the socio-economic impacts of the application of rattan production and utilization technologies in local communities among the participating ASEAN member countries.

The research component focuses on providing a small research grant in support of Rattan Plantation Development and Small and Medium Enterprise through the Rattan Research Grant Program (RRGP) of the project. The research covers relevant studies on improving the production and utilization of rattan with respect to priority areas common to participating countries.

Networking is considered a vital link among the various project components. It serves as a conduit for coordination, communication, and collaboration activities. Networking activities include international/national distance calls, fax messages, e-mails, text messaging, surface mail, and discussions in e-groups.

The database component establishes the data/information network on rattan in the ASEAN region. Information on production practices, processing, and utilization technologies have been incorporated in the ASEAN Rattan website (www.aseanrattan.org). This facilitates the stakeholders' access to information and provides the means for continuous exchange of information on rattan at the national, regional and global levels.

ABOUT THE CONFERENCE

The regional conference was deemed as a necessary culminating activity of the ITTO Rattan Project. It provided the venue for: (1) sharing successful strategies especially on pilot demonstration establishment involving communities, villages, and government agencies; and (2) presenting and discussing the outputs of the eight research studies under RRGF and the research gaps and other researchable areas on rattan production aspects and utilization technologies. Moreover, it provided the opportunity to present the strengths and weaknesses in the project implementation as well as insights from the experiences. The results of the different studies were presented by the respective project leaders.

For the pilot demonstration component, the Contact Persons presented and discussed their outputs and experiences. They represented the seven participating ASEAN member countries, namely: Cambodia, Indonesia, Lao PDR,

Myanmar, Philippines, Thailand, and Vietnam. The sustainability of rattan plantations established by the project was also discussed and action plans for future collaboration with other rattan producers and consumers were determined. The launching of the Philippine Rattan Field Guide and the Rattan ASEAN database was the highlight of the conference.

Objectives

The conference was organized to enable the participants to:

1. Share successful strategies, experiences, and achievements in pilot demonstration establishment involving communities, villages, and government agencies;
2. Present and discuss the outputs and achievements of the eight studies under RRGF;

3. Discuss the sustainability of the project through the establishment of interim Non-Timber Forest Products or NTFP (Rattan) Center in the Philippines and other ASEAN countries; and
4. Promote further collaboration among the participating ASEAN member countries and establish linkage/network with other countries in Asia-Pacific and Africa for the sustainability of rattan.

Schedule of Activities and Venue

The conference was held on August 29 to September 1, 2010 at Dusit Thani Hotel, Makati City, Philippines.

Day 1 was devoted to the arrival of participants and Day 4, to their departure. Hence, the conference proper was actually held on Day 2-3 on August 30-31 all together. The detailed activities of the conference are shown in Annex Table 1.

Participants

Participants to the conference were composed of the ASEAN Contact Persons, Project Steering Committee Members and representatives of donor agencies, Project Leaders under RRG, and invited rattan researchers. Their distribution is shown in Table 1.

Table 1. Distribution of participants

Country	Number of Participants
Indonesia	2
Lao PDR	1
Myanmar	1
Philippines	7
Thailand	1
Japan	1
Project Staff	10
PSC Members	3
Guest Speakers	3
Resource Speakers	2
Facilitators	3
Others	3
TOTAL	37

For detailed list and directory of participants, please refer to Annex 2.



OPENING PROGRAMME

Welcome Remarks

For. Marcial C. Amaro, Jr.

Director, ERDB

I welcome the experts and friends of rattan to this Regional Rattan Conference on behalf of the Department of Environment and Natural Resources (DENR) and Honorable Secretary Ramon Jesus P. Paje. This conference is the culminating activity of the ITTO-funded project on the demonstration and application of production and utilization technologies for rattan sustainable development in the ASEAN region.

I share the enthusiasm of the project staff composed of experts from CFNR-UPLB; FPRDI-DOST; ERDB, the research arm of the DENR and the executing agency of the project; the ITTO, as well as the national focal points of Cambodia, Indonesia, Lao PDR, Myanmar, Thailand, Viet Nam, and the Philippines. They have collaborated in the past four years to realize the objective of the project, which is to strengthen ASEAN collaboration in promoting the sustainability of rattan resources. The demonstration and application of rattan production and utilization technologies will hopefully contribute to poverty reduction at the community level. The project was scheduled to end last March but was granted an extension by ITTO until November 1, 2010 to enable the completion of activities which started late.

We expect to have the final reports and updates on the project's five major components, namely: pilot demonstration, training, research, networking, and database. We eagerly await the narration and sharing of experiences in rattan pilot demonstration establishment as these will serve as the barometer of success of the project.

Through this gathering, we will explore options to promote further and expand collaboration among ASEAN member states and establish linkage with other countries in Asia and the Pacific and in Africa for the sustainability of rattan. A research, development and extension (RDE) agenda for the development of the rattan sector in the next decade will be proposed. We



intend to map out meaningful strategies and actions for the sustainable development of the rattan sector at the end of this conference.

We will also stand as witnesses later today to the launching of two books, entitled "A Field Guide to Philippine Rattans" and "The ASEAN Rattans." There is no doubt that these books will enrich existing knowledge on rattan in this part of the world and will serve as important references in the conduct of further relevant studies and research undertakings. All participants will have a complete set of these books to bring home.

We are holding this conference in Makati City. For first-timers in the Philippines, Makati City is one of the 16 cities that make up Metro Manila, one of the most populous metropolitan areas in the world, with 12 million inhabitants. Makati City has a population of half a million and ranks as the 40th most densely populated city in the world with 18,654 inhabitants per square kilometer. It is the

financial center of the Philippines. We are located right in the business and commercial district where just across this hotel you will find a wide variety of shopping and entertainment complex and other places of interest. I suggest that you find time during your brief stay to visit the city splendor which are "connected under one roof." I'm sure that it will be a worthwhile experience.

We acknowledge with much appreciation the generous support of the ITTO, INBAR, the Asia-Pacific Association of Forestry Research Institutions (APAFRI), and the Foreign-Assisted and Special Projects Office (FASPO) of the DENR. Otherwise, this final major activity of the ITTO-Philippines-ASEAN Rattan Project will not materialize.

Let us conduct this conference with excitement. Let us commit our time, minds and energy for the success of this activity. For it will be us, our families and friends and the future generations who will benefit from sustainable rattan development.

Inspirational Message

Mr. Li Qiang

Representative, ITTO

Today's event is a culminating activity of ITTO project PD 334/05 Rev. 2 (I) entitled "Demonstration and Application of Production and Utilization Technologies for the Rattan Sustainable Development in the ASEAN Member Countries." This is currently being implemented by ERDB as the executing agency together with other participating ASEAN countries. The project aims to strengthen the ASEAN collaboration in promoting the sustainability of rattan resources through demonstration and application of rattan production and utilization technologies. At the same time, it seeks to contribute to reducing poverty and improving the socio-economic standard of local communities.

After four years of successful implementation, this project is approaching its completion. I congratulate the project team for their excellent work in conducting the project activities, including the demonstration and application of technologies, training for capacity building, research and studies, as well as information dissemination. We are pleased that almost all project outputs have been achieved according to the work plan, and we are also confident that the remaining works could be accomplished within the time frame in the coming few months.

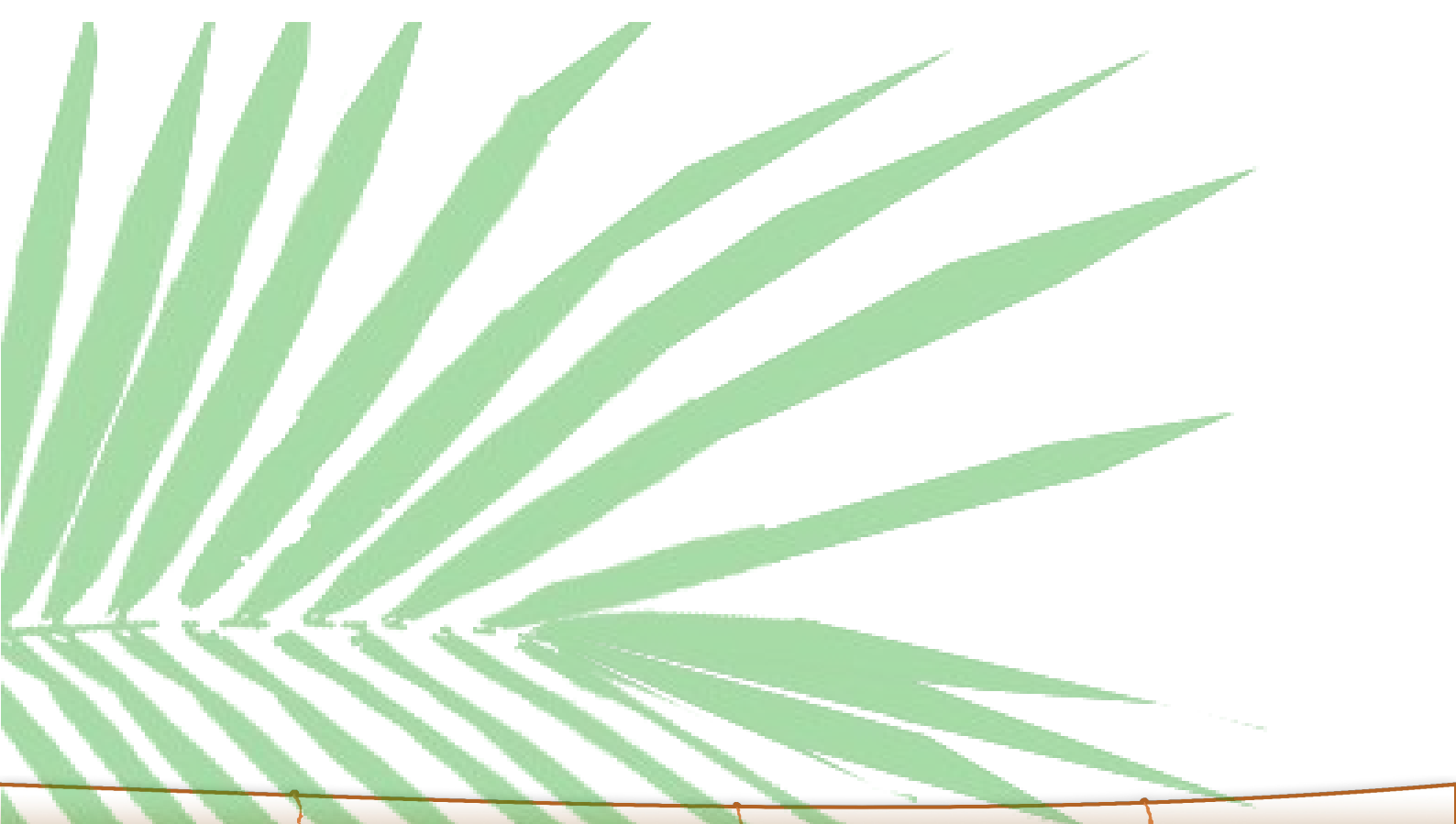


As we are all aware, rattan is an important non-timber forest product which provides a source of livelihood for the poor people and many other socio-economic and cultural benefits to different stakeholders. In the ASEAN Region, the rattan sector involves more than a million people who collect, cultivate, process, trade, and market rattan products. However, weaknesses such as limited information on production and utilization technologies, contribution to socio-economic aspects, as well as collaboration among ASEAN countries generated the urgent need and concern for the development of the rattan sector and collaborative action in this region.

During the last Asian Regional Conference on Rattan, which was also held in Manila in 2004, we identified the need for rattan research and development. Today's conference provides us the platform for sharing the achievements in pilot demonstration establishment; discussing the outputs of the research studies; and promoting collaboration among the participating countries in Asia-Pacific and Africa. Furthermore, it serves as the venue for exchange of knowledge and information on rattan commodity and industry, not only in the context of ASEAN project participating members, but also for all countries that stand to benefit from the development of rattan sector.

ITTO is an intergovernmental organization promoting the conservation and sustainable management, use and trade of tropical forest resources through international cooperation, policy work, and project activities. Since its establishment, ITTO has been promoting the sustainable development of NTFP such as rattan, among others. Both the ongoing 1994 International Timber Trade Agreement (ITTA) and new ITTA 2006 emphasize the importance of the contribution of NTFP to the sustainable management of tropical forests, and a number of activities and projects in this field have been conducted accordingly. It is in this context that ITTO approved and financed this project and its previous pre-project, including the convening of this conference. It shall endeavor to continuously support the executing agency in implementing the project towards its successful completion.

I hope that this important regional conference would be full of achievements. We look forward to benefiting from the lessons and recommendations learned from the experience. I thank FASPO of DENR, APAFRI of Malaysia and the International Network for Bamboo and Rattan (INBAR) for sponsoring this conference. My appreciation also goes to ERDB for their hospitality and the excellent arrangement.



Message

Dr. Coosje Hoogendoorn

Director General, INBAR

What makes us rattan heroes? That's what I will talk about in the next five to ten minutes.

I thank the ERDB team for organizing this particular meeting. It's been very difficult to gather us and this third time we succeeded in bringing you together to this conference. We could have not done it without the support of DENR. I also thank ITTO for its support to the project. It's been very visionary to support a project like this which brings together people working on rattan in the region. We are also talking about a million of people not directly involved in the rattan industry. It is estimated that rattan industry generates a yearly income of about USD 2 billion.

Hence, we have to face some challenges and we need to come up with innovations to make rattan last. One of the major issues is that in both Asia and Africa, rattan resources are now endangered. There is overharvesting. From the rattan point of view, there is little sustainable forest management practice being carried out. I hope to learn more during this conference about what's going on in terms of rattan in the different countries in this region. We need some real innovative thinking on how to go about it.

In INBAR, we work with both rattan and bamboo. And when I consider bamboo, a lot of innovations have occurred in the last 10-15 years to a point where bamboo is now being used for glades of the wind turbines. Probably, we need something like that with rattan also. Of course, there's the beautiful furniture as well as the beautiful basket. But what more can we do with it? I have this jewelry made of rattan that I bought in Ghana. It's very simple, yet very versatile and it goes with virtually everything.

The Philippines is famous for its design quality. And one of the products that can be introduced is rattan laminated sculpture. We have presented one of these in China as a gift from INBAR and nobody could believe that it was made of rattan.



There's this world expo in Shanghai. Here, the different countries have their pavilion showing off their best ideas. And one of the most amazing buildings there is the pavilion of Spain where woven structure of rattan was made part of the architectural design.

These are the sort of examples that I hope to see happening with rattan. We need to keep rattan in the eyes of the consumers; make it as a source of livelihood for people; use it as decorative materials, but make quality a part of it. Make sure that there are new products going into the market that are part of the 21st century, or of the urbanized society interested to decorate their homes, and make rattan add quality to their life.

Instead of only one country doing these things, let's do them all together. Only by sharing and working together as scientists can we help increase the value chain of rattan. As producing countries, we have a strategic role to stimulate and improve this value chain. As rattan heroes, these are the areas where we can have innovations: resource management, product development, and actually working together.

KEYNOTE ADDRESS

Hon. Manuel D. Gerochi

Undersecretary for Staff Bureaus and Project Management, DENR

We are celebrating National Heroes' Day today in the Philippines. It is a declared national holiday to commemorate the brave souls who stood up and sacrificed their lives to preserve our liberty and independence. But "heroes" and "heroism" have gained additional meanings through the years. Our overseas Filipino workers (OFWs), for instance, are treated as the country's new heroes.

I find this Regional Rattan Conference very relevant to our Heroes' Day celebration. I am honored to consider myself standing in front and addressing this conference of rattan experts in the ASEAN region – a gathering of heroes of sort who are in the thick of fight for the sustainability of rattan resources and rattan sector development under the ASEAN Rattan Project. This project is being implemented by ERDB in collaboration with CFNR-UPLB, FPRDI-DOST, with generous funding support from ITTO.

During this conference, we will stand witness to the reporting of brave acts by the project staff and national Contact Persons from Cambodia, Indonesia, Lao Peoples Democratic Republic, Malaysia, Myanmar, Thailand, Vietnam, and the Philippines, as well as the Project Steering Committee members. We will see how we fared in the continuing battle over the project life of four years to strengthen our collaboration in the ASEAN region in the demonstration and application of rattan production and utilization technologies. It is my wish that indeed we were able to promote the sustainability of rattan resources during this period. Eventually, we hope to win the war against poverty in the countryside starting with the communities that we involved in the implementation of this project.

Allow me to share some important issues and concerns related to the management and utilization of rattan resources in the world.



We have used rattans for many centuries. There are approximately 600 species of rattan but their distribution is limited to Asia Pacific and Africa. There are 10 of the 13 known genera that are endemic in tropical and subtropical Asia and the Pacific, and four genera with three endemic ones are found in equatorial Africa (Sastry, 2000). Since the mid-19th century, trading of rattan has grown rapidly into multimillion dollar business. Raw rattan trade worldwide is valued at USD 50 million. By the time rattan finished products reach the customers, their value would have increased to USD 1.2 billion. Overall global trading value is estimated at USD 4 billion while domestic trade is at USD 2.5 million (PT Rattanland Furniture, 2009).

According to the ITTO 2005 annual report, rattan and bamboo furniture's export value reached USD 1.22 billion in 2005 (ITTO, 2006). INBAR statistics show that in 2007, the export value of rattan-based basketworks, mats, screens, plaits, and plaited pods reached around USD 288 million only (INBAR, 2009).

The sad fact is that 90 percent of raw rattan comes from the wild. These natural stands face rapid depletion due to rampant timber harvesting, conversion of forest areas into other land uses, and the unregulated cutting of rattan which reduces regeneration in Southeast Asia (Lapis, 1998; Renuka, 2002 and 2004). In Africa, the increased demand for rattan has also led to a significant decline in wild stocks, but the commercial species are at present considered "not threatened" on a continent-wide basis (Sunderland and Dransfield, 2002). To date, there is no data available on the exact number of wild stocks of rattans across the world (Shineng, 2010). Taxa data (number of genera and species) and their rough geographic ranges of distribution have been used in numerous studies to represent the rattan "resource base." Most of the rattan growing countries have not conducted a resource inventory of rattans (Renuka, 2004). Data on stocking and productivity of plantations are still unavailable despite studies on growth rates of different species at different ages (Sunderland and Dransfield, 2002; Barizan and Rivera, 2004).

The International Union for the Conservation of Nature and Natural Resources or IUCN has listed 117 species of rattan as being threatened to some extent. Walter and Gillet (1998) recorded 21 species as endangered, 28 as vulnerable, 28 as rare, and 30 as indeterminate.

The sustainable management of rattan resources and the sustainable development of rattan industry require the attainment of a balance between resource use and conservation to ensure high levels of development. Given these issues and concerns, we certainly find ourselves in a very difficult situation. No less than our notable rattan expert and former DOST Undersecretary, Florentino Tesoro (2004), argued that the conservation and generation of rattan resources include taxonomic identification of species, inventory of resources, establishment of germplasm and gene banks, plantation development, and establishment of rattan gardens. I believe we now have to seriously look into these suggested actions.

For our part, DENR has prioritized the review of our national guidelines governing rattan resources promulgated in 1989 under DENR Administrative Order Nos. 04 and 04-1. There is an urgent need to revise and update these policies to ensure the

sustainable productivity, expanding availability, and access to the rattan resources. For only through these would the continuing support to dependent industries and the generation of employment opportunities and revenues be sustained. We also need to provide a system of rational harvesting, efficient utilization of the rattan resources, including the identification and delimitation of areas for harvesting of rattan, modes of disposition of these areas, inventory requirement, rattan processing and utilization, and rattan plantation establishment and development.

Related to this is the issuance of Executive Order No. 879 in May 2010 to prioritize the product development, promotion, and market access of our bamboo products through the creation of the Philippine Bamboo Industry Development Council. Rattan and bamboo are the most popular and widely used forest products after timber. Under this order, DENR through the Forest Management Bureau, Mines and Geosciences Bureau, and Laguna Lake Development Authority, shall use bamboo as the planting material for at least 20 percent of our annual target areas for reforestation and rehabilitation. Our research arm, the ERDB, is tasked with the continuous generation and dissemination of bamboo production technologies. Other line departments such as trade and industry, agriculture, education, and science and technology have been assigned specific roles as well.

There remain major and serious challenges ahead for sustainable rattan development. I am hopeful that we will gradually overcome these through our collaboration. It should continue even after this culminating activity of the ITTO-Philippines-ASEAN Rattan Project.

I congratulate ERDB, UPLB-CFNR, DOST-FPRDI, and the various organizations represented by our national Contact Persons in the participating ASEAN member countries for the successful holding of this Regional Rattan Conference and the completion of the project. I express our deepest appreciation to the ITTO for funding the implementation of this project. Our thanks also go to INBAR, APAFRI, and FASPO for helping sponsor this conference. Thank you for your support to this conference and project, as manifested by your presence and participation.

TECHNICAL PRESENTATION

Rattan Diversity: How much do we know and how much is there to be discovered?

Dr. John R. Dransfield
Honorary Research Fellow
Herbarium, Royal Botanic Gardens Kew
Richmond, Surrey, England

In Italy, the growing of artificial bone from rattan as implant is now a phenomenon. The tragedy, however, is that nobody knew what rattan species was used, so the technology cannot be transferred and worked out. This implies the need for a rigorous framework concerning information sharing on rattan.

Rattan species are apolitical, hence, their related technologies can be transferred if we know the species. The value of taxonomy is that knowledge of the species can facilitate information sharing and can help safeguard the resources for the future.

Rattans

1. Diverse
2. Old world tropical and subtropical
3. Often cited as being taxonomically poorly known because of difficulty of making specimens

Linnaeus in 1753 started with 9 genera of palms (of which 7 are still accepted), including first rattan genus Calamus.



Numbers of rattan genera recognised

1. Martius (1850) Hist. Nat. Palm.	5
2. Drude (1887) Engl. & Prantl Nat. Pflanzenfam.	7
3. Hooker (1883) Genera Plantarum	7
4. Burret & Potztl (1956) Syst. Übersicht	12
5. Satake (1962) New System	15
6. Moore (1973) Major Groups of Palms	13
7. Uhl & Dransfield (1987) GP1	13
8. Dransfield & Uhl (1998) Kubitski Fam. Gen. Mon .	13
9. Dransfield et al. (2008) GP2	12

Species

1. Number not easily obtained from Genera Palmarum ed. 2
2. World Checklist <http://apps.kew.org/wcsp/> requires some interpretation (also includes some accepted infra specific names), lists 613 accepted rattan species and infra specific taxa

The development of the World Checklist

1. Index Kewensis
2. In 1980s and 1990s ALICE database at Kew
3. Used as a partial basis for Govaerts and Dransfield's World Checklist of palms – hard copy printed in 2005, on-line version kept up to date

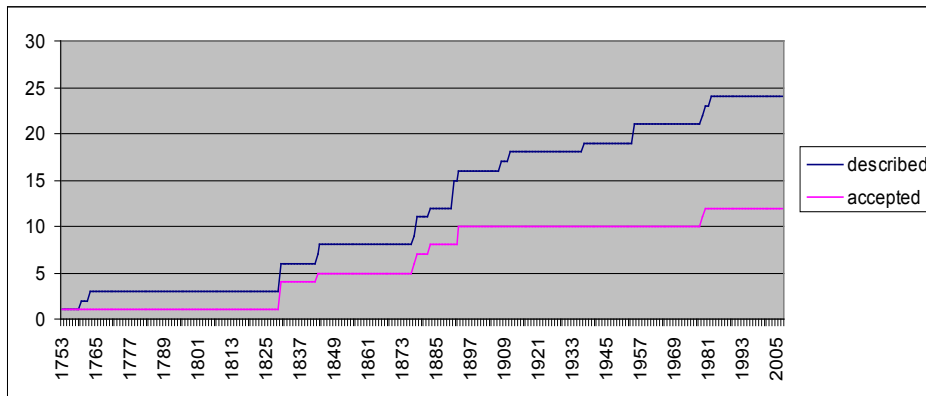
Sample output from the World Checklist – part of palm names published in 1956

Calamus holttumii Furtado, Gard. Bull. Singapore 15: 228 (1956)
Calamus kemamanensis Furtado, Gard. Bull. Singapore 15: 170 (1956)
Calamus koribanus Furtado, Gard. Bull. Singapore 15: 128 (1956)
Calamus mawaiensis Furtado, Gard. Bull. Singapore 15: 75 (1956)
Calamus moorhousei Furtado, Gard. Bull. Singapore 15: 207 (1956)
Calamus oreophilus Furtado, Gard. Bull. Singapore 15: 124 (1956)
Calamus oxleyanus var. *montanus* Furtado, Gard. Bull. Singapore 15: 86 (1956)
Calamus padangensis Furtado, Gard. Bull. Singapore 15: 62 (1956)
Calamus pandanosmus Furtado, Gard. Bull. Singapore 15: 217 (1956)
Calamus penibukanensis Furtado, Gard. Bull. Singapore 15: 79 (1956)
Calamus perakensis var. *gracilis* Furtado, Gard. Bull. Singapore 15: 155 (1956)
Calamus peregrinus Furtado, Gard. Bull. Singapore 15: 66 (1956)
Calamus riparius Furtado, Gard. Bull. Singapore 15: 103 (1956)
Calamus siamensis var. *malaianus* Furtado, Gard. Bull. Singapore 15: 215 (1956)
Calamus slootenii Furtado, Gard. Bull. Singapore 15: 79 (1956)
Calamus speciosissimus Furtado, Gard. Bull. Singapore 15: 198 (1956)
Calamus spectatissimus Furtado, Gard. Bull. Singapore 15: 64 (1956)
Calamus tanakadatei Furtado, Gard. Bull. Singapore 15: 225 (1956)
Calamus tumidus Furtado, Gard. Bull. Singapore 15: 105 (1956)

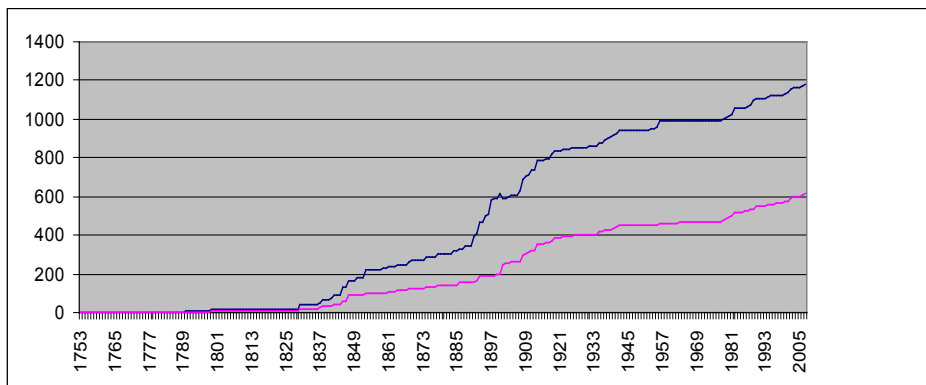
Sources of new species

1. New areas surveyed – new field discoveries
2. More careful field observations leading to reinterpretation of existing species
3. Reinterpretation of old herbarium material
4. New analytical methods – molecular, morphometrics

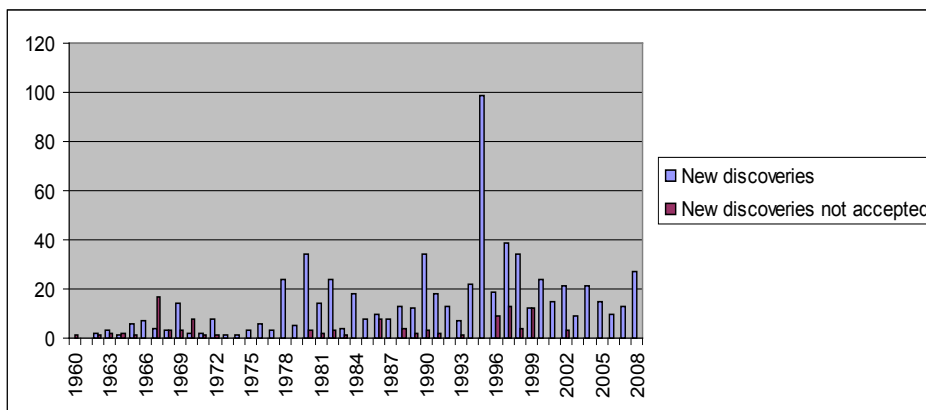
Rate of publication of new rattan generic names



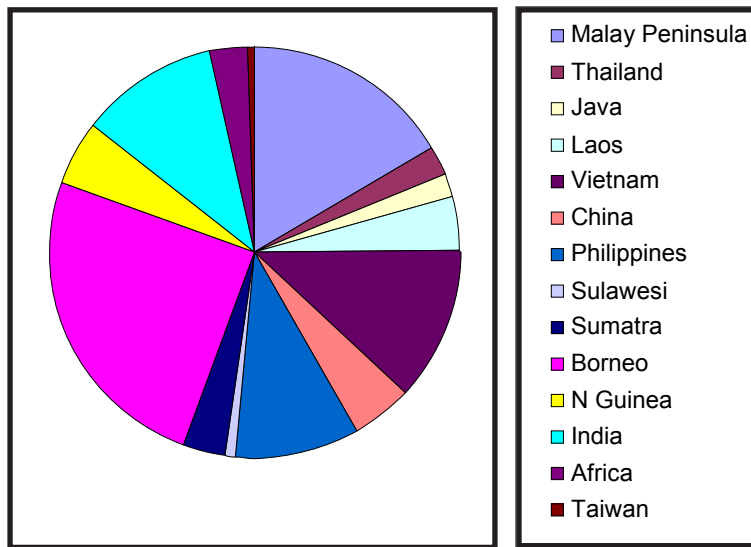
Publication of new rattan species names



New rattan discoveries made since 1960



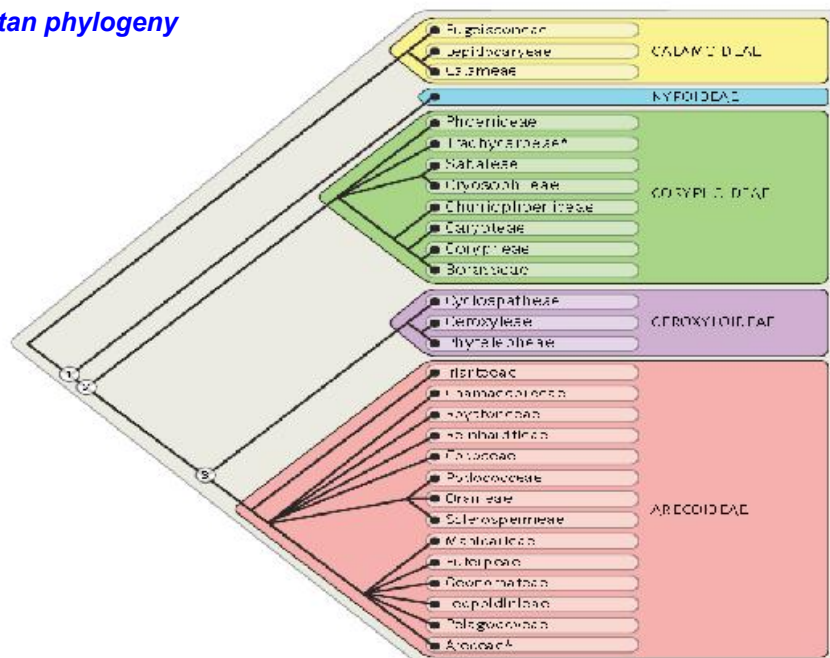
Where have new rattan discoveries been made since 1950?



Rate of discovery

1. Average of 2.7 new accepted discoveries per year
2. No decrease yet in this rate of discovery
3. Some major areas not yet catalogued
4. Vietnam actively studied at this moment by Henderson in NY and Vietnamese colleagues
5. Sumatra, Sulawesi, Maluku, Myanmar and New Guinea yet to be catalogued completely

Palm and rattan phylogeny





Problems in *Calaminae*

- *Calospatha* embedded in a small clade of *Calamus* including *C. conirostris*, *C. lobbianus* etc. (old *Cornera*). For GP2, *Calospatha* already sunk in *Calamus*
- *Daemonorops*, *Pogonotium*, *Ceratolobus* and *Retispatha* are all individually embedded in different parts of *Calamus*

Solution

- Sink all *Calaminae* genera into *Calamus*
- Premature to sink these genera
- More likely scenario will be further separation of monophyletic lines in *Calamus* as new genera
- Further phylogenetic work planned

Conclusions

- Still some way off a complete rattan census, if one is even achievable
- On-line World Checklist an essential tool in the cataloguing and organisation of rattan species names
- New initiatives such as Palmweb will play an increasingly important role in the dissemination of data on palm diversity
- Need for taxonomic survey work remains

Source for the future

- Palmweb www.palmweb.org/ already provides a vast amount of information on palm species including many rattans
- Uses World Checklist as nomenclatural base
- Protologues and illustrations, distributions, etc. all present on species pages – these will be added continually
- Some interactive keys are being developed
- Is already an unparalleled resource for palm research

OPEN FORUM

Issues in taxonomy

Dr. Manipula: In the growing or decreasing number of rattan species, is it not better to use the molecular level instead of morphology for rattan taxonomy?

Dr. Dransfield: Doing molecular work on closely related species can lead to having entities which do not match. Any species could be recognized morphologically instead. This should come first before doing work at the molecular or DNA level.

Mr. Kyaw Win Maung: In the identification of rattan, why not use the anatomical characteristics of rattan?

Dr. Dransfield: The anatomical characteristics are good for identification of rattans but not in all cases. Also, if mixed up with the 613 species, identification can be difficult. Besides, if one is tasked to identify rattan in the field, the morphological characteristics would be sufficient.

Progress on taxonomy of rattans

For. Diaz: How far are we from the global census of rattan species? In your estimate, have we passed the 50 or 75 percent?

Dr. Dransfield: We are now possibly at 85 percent. The number of species discovered in Vietnam surprises me. And in New Guinea, a number of species are yet to be described.

Status of known species

Dr. Hoogendoorn: How many of the 613 species are being used commercially or by communities? With regards to the determination of species based on herbarium, how many of these species are still around or are endangered?

Dr. Dransfield: It is very difficult to answer that, but it all depends on who's using the species. For example, nomadic indigenous peoples in Malaysia have names for 61 rattans in their area. But one species can even have four names. With proper taxonomy, one would know which rattan species can be used for basket weaving. IDRC has noted 15-20 priority species of rattan. No data suggests that certain species have been extinct. Some rattan species have strictly limited distribution patterns. Some are endangered but not really extinct. Others are even re-discovered.

Ever changing names

Dr. Sargento: Proper taxonomy is key to information transfer. In the case of sica and sica-sica, only the natives were able to differentiate the two because they seem to be the same. Sica is the better rattan species, while sica-sica is the poorer one.

Dr. Dransfield: Local names are sometimes inconsistently used.

Dr. Sargento: Foresters memorize names of plants. However, scientific names of these plants keep changing such as those in rattan. How long will it take before changing of rattan names stop?

Dr. Dransfield: Taxonomists are always seeking for the truth, which is a stable taxonomy. I hope that the name changing will stop, but it will take some time before it does. Besides, once new names get into use, the old names gradually disappear.

COUNTRY REPORTS

Pilot Demonstration Establishment and Management

(Executive Summary)

CAMBODIA

Mr. Chhang Phourin

*Forestry Division, Forestry Administration
#40 Norodom Blvd., Phnom Penh, Cambodia*

The pilot demonstration area is located at Kampot Province, Kampot District, Prek Tnout Commune. This commune is composed of four villages which are also involved in the WWF Rattan Project. In the ITTO-Philippines-ASEAN Rattan Project, only the Prek Tnout village was involved with 48 people participating in the actual site preparation and planting.

A 20-hectare area was planted with four species of rattan namely, *Plectocomia* sp., *Daemonorops jenkinsiana*, *Calamus palustris*, and *C. viminalis*. Linear planting on both sides of the creek going to the Bokor Natural Park and block planting at the lower portion of the park were done by the participating community people. Spacing depended on the distribution of the nurse trees. Only about 80 percent of the seedlings outplanted survived due to long drought. During the early rainy season, weeding and crown thinning of the existing vegetation were done. Care and maintenance activities and management of the plantation were also carried out. Protection against browsing animals was provided to the plantation.



INDONESIA

Dr. Bambang Wiyono

*Non-Wood Forest Products Division
Forest Products Research and Development
Center, Jl. Gunung Batu 5 Bogor, Indonesia*

The project established and managed demonstration plots on rattan production technologies at the village level in Indonesia for rattan sustainable development.

The planting of *Daemonorops draco* for dragon's blood (dye) production and *semambu* (*Calamus scipionum*) rattan for cane has clearly improved the consciousness of local farmers towards rattan cultivation. This was shown by the eagerness of local community to participate in rattan plantation development. Direct involvement of the local people in the pilot demonstration establishment and maintenance activities, from nursery to plantation establishment operations, helped enhance and improve their knowledge and skills. Likewise, this increased the interest of local people in rattan sustainable development. Participatory training has become an effective vehicle for building the capacity of local people in the management of rattan plantation development for their socio-economic benefit.



LAO PDR

Mr. Sounthone Ketphanh

*National Agriculture and Forestry Research
Institute (NAFRI)
Forestry Research Center, Vientiane, Lao PDR*

Lao PDR set aside 40 hectares as target for rattan pilot plantation during the four-year project period. This target was easily achieved given the budget allocated for the project. The demonstration sites were located in five villages of the central part of the country. The project involved 66 families. Four species of rattan were planted, namely: *Calamus solitarius*, *C. tenuis*, *C. gracilis*, and *C. siamensis*. Two additional species of *C. poilanei* and *Demonorops jenkinsiana* were also germinated lately. These were planted during the early onset of planting season in 2010.

To complete the 40-hectare rattan pilot demonstration, 58,000 out of the 65,117 seedlings produced were planted. This was done



to allot for mortality allowance in the field. At the start of the plantation establishment, the project provided 18,000 seedlings to the villagers. The rest of the seedling requirements were produced by the villagers themselves who were trained on rattan planting stock production and nursery establishment.

The rattan pilot demonstration was successfully completed through the active cooperation and participation of the local people. The growth performance of the rattan species was observed to vary depending on the geographic location where they were planted. This observation was

a lesson that should enable the researchers to make an adjustment in the formulation of technical guideline for adoption by local farmers and other interested rattan growers in Lao.

The project report was presented to the National Agriculture and Forest Research Institute (NAFRI). Likewise, the demonstration site was visited by the surrounding villagers, local authorities, concerned institutions, and officials from Districts, NAFRI and Forest Research Center. Monitoring of the growth and yield of rattans planted for both cane and shoot production, and study on properties and uses of rattan species were recommended.

OPEN FORUM

Rattan by products: economic and medicinal values and market prospects

Dr. Hoogendoorn: In both Cambodia and Lao PDR, shoots are one of the objectives for planting rattan. Are there potential for rattan shoots in other countries, especially in Indonesia? Generally, shoots can be harvested first because it takes a while to harvest the canes.

Dr. Li Qiang: Where is the market for shoots, local or foreign countries?

Dr. Palijon: In Indonesia, people don't relish the shoots. Rattan for shoots became popular in Thailand and Lao. The Thais have been canning and drying shoots as a delicacy.

Dr. Bambang: In Indonesia, the shoots are not part of the cuisine. In Lao PDR and Thailand, eating the shoots is part of their tradition. However, the growing of rattan for shoots is getting popular now. In Lao, rattan shoots are not for export, but for local consumption. Fresh shoots can actually be found in the market.

Mr. Sounthone: Rattan shoots, even bamboo shoots, taste bitter. The taste could differ for every species. There is no season for harvesting shoots in Lao PDR. They are raised and harvested any time.

Mr. Kyaw Win Maung: Can every rattan shoots be eaten? Which species of rattan shoots cannot be eaten?

Mr. Sounthone: Out of the 33 species in Lao PDR, shoots of 30 species can be eaten. Those of others are just too bitter for eating.

Dr. Lapis: In the Philippines, it is part of the tradition of the indigenous people to use edible shoots of *Calamus merrilli*. They are finding the beneficial element in *Calamus ornatus* var. *philippinensis*, which is said to be anti-carcinogen and anti-inflammatory and a cure for common diseases. It was observed that the Aetas are not suffering from malaria and diarrhea because they consume heavily *Calamus ornatus* var. *philippinensis*. This merits further studies.

Mr. Chudchawan: Thai people have been planting and producing rattan for more than 10 years. The shoots are used for eating. Some are canned and jarred for export to the Middle East.

Dr. Bambang: In Java, rattan shoots are not recognized for food, only the bamboo shoots. But in West Kalimantan, people eat shoots even

if these taste bitter. The more bitter they are, the better for them. These, however, are not sold on a commercial scale but only for local consumption.

Dr. Sargento: How long will it take for rattan to be harvested for shoots?

Mr. Sounthone: It will take two years in the case of *Calamus siamensis*.

Dr. Hoogendoorn: There is the viability of harvesting fruits, shoots, and canes from different rattan species. In China, they can have large ropes made of rattan. They also export rattan fruits to Japan. But in Malaysia, rattan plantations were destroyed to give way to oil palm. The point is that collecting from the wild to the plantation makes a big difference in the viability of rattan. So aside from the canes, and with the prospect of being able to collect from existing plantations, what is the future of the rattan plantations?

Dr. Palijon: In China, rattan is popular for edible fruit production. In Nueva Vizcaya, Philippines, rattan shoots are also popular. In fact, a person was able to earn a lot because the Land Bank of the Philippines had a project where the planting of rattan for edible fruits was promoted. From the fruits, wine and vinegar can also be produced. In Baguio City, fresh rattan fruits can be found in the market. Likewise, the *limuran* variety has been said to cure a number of illnesses including cancer and is now being tried in Bataan.

Mr. Li Qiang: Rattan shoots taste good, even better than bamboo shoots. They are very expensive in Beijing, China. Hence, more research needs to be done to evaluate their food value and determine the value chain. Rattan vs. bamboo products can be compared and their market demands determined.

Dr. Dransfield: Fruit production can take longer time. Only female rattan can also be raised for fruits. Fruit production may be considered but only as a by-product.

Rattan and biodiversity

Dr. Hoogendoorn: What other by-products can be produced from rattan? What is its livelihood potential? This year is the Year of Biodiversity. INBAR would like to demonstrate the role of

bamboo and rattan in biodiversity conservation. There is no known relationship between any mammal or major animal with rattan.

Dr. Dransfield: Rattan shoots are consumed by elephants in Borneo, Sabah that they are considered as pests of rattan.

Dr. Sargento: Research on tissue culture on rattan show that rattan shoots are being eaten by horses raised in Mt. Makiling.

Dr. Palijon: Palms are hosts of rhinoceros beetles. Despite the thorny parts of rattan, it hosts the beetles which are palatable insects, too, and are relished by people in Mindanao as aphrodisiac.

Rattan and climate change

For. Diaz: Aside from the issue of biodiversity, to what extent does rattan production contribute to climate change adaptation and mitigation?

Dr. Hoogendoorn: Similar to bamboos, rattan can also be used for climate change mitigation and adaptation. They are known to be fastest growing plant in the world and can help in carbon sequestration. Though they cannot compete with a virgin forest, they can compete with other plantation species such as Chinese pines and tropical bamboos. They also contribute against soil erosion due to their quick re-growth. Hence, mitigation and adaptation functions can be integrated with rattan development. Similarly, rattan and bamboo are the “wise men timber” or timber of small holders. They provide sustainable source of income because it can re-grow quickly.

After the demo project, what is next?

For. Diaz: Presentations of the demonstration plantation activities just end there. Are there no recommendations for ITTO or the countries to continue the project, and for the respective countries to adopt the plantation?

Mr. Sounthone: After the project, farmers learned well. ITTO may want to support the project for further research on taxonomy and on the growing years of rattan which have not been studied yet.

MYANMAR

Mr. Tint Khaing and Mr. Kyaw Win Maung

*Forest Research Institute, Forest Department
Ministry of Forestry, Nay Pyi Taw, Myanmar*

In Myanmar, there are many species of rattan found all over the country and are mostly distributed in various States and Divisions. There are five genera with 36 rattan species recorded as naturally occurring in the country. The rich bamboo and rattan resources are greatly used by rural people. From time immemorial, bamboo and rattan called locally as *Waa* and *Kyein*, respectively, are part of daily living of every household in Myanmar.

Despite the richness and diversity of these particular non-timber resources, efforts to establish bamboo and rattan plantations were very scanty. Establishment of rattan plantation as pilot demonstration was the first in Myanmar. Thus, being the heart of the ITTO Philippines-ASEAN Rattan Project, a 25-hectare plantation was successfully established with the active participation of local communities.

With the increased in population and improved technologies, rattan products with value added are becoming increasingly important. Nowadays, rattan has become one of the major export products and is gaining a leading role among non-wood forest products in providing livelihood to communities as well as in the conservation of environment.

Although Myanmar has been far behind in the development of rattan industries in the region, there is ample room for further development of rattan industry in the country. The rattan pilot demonstration in Myanmar established through this ITTO rattan project serves as a venue for showcasing the rattan production technologies. It will hopefully be instrumental in the successful dissemination of information and adoption of technologies by the local farmers. These are necessary to ensure the sustainable development and management of rattan plantation with species of promising economic values.



PHILIPPINES

Bicol Natural Park, Lupi, Camarines Sur For. Gregorio E. Santos, Jr.

*Ecosystems Research and Development Bureau
College, Laguna, Philippines*

A 30-hectare rattan plantation of *Calamus merrillii* (Palasan) was established as pilot demonstration at the multiple-use zone adjacent to the buffer zone of the Bicol Natural Park. This is situated at Brgy. San Jose, Lupi, Camarines Sur. The San Jose Rattan Pilot Plantation Organization, a people's organization (PO), was organized through the ITTO-Philippine-ASEAN Project as the participating local community in the establishment of rattan pilot demonstration.

The PO members were trained on the proper nursery propagation techniques for rattan. The training included seed collection and processing, pre-germination treatments and germination methods, nursery cultural operations, and plantation establishment and management. They were also trained in growth data collection, basic soil amelioration techniques, processing of rattan canes into furniture, baskets and other finished products, and record keeping.

Having trained the PO members on capacity building and social preparation, the success in production of planting materials required for the plantation and actual establishment of pilot plantation was easily achieved. Growth performance of the planted *Calamus merrillii* was observed as relatively outstanding. It is expected that in a few years more, the plantation will be a good source of raw materials not only for rattan canes but also for high quality seeds that can be used for the establishment of high quality plantation.



PHILIPPINES

Amas, Kidapawan City

Dr. Bighani Manipula

*ERDS-Region 12, Kidapawan City
Cotabato Province, Philippines*

The 30-hectare rattan pilot demonstration was community-based. It demonstrated and applied the technologies on the production of seedlings, plantation establishment, maintenance, and protection of the plantation and harvesting of canes of Palasan (*Calamus merrillii*). The establishment of the rattan pilot demonstration was conducted from January 2007 to December 2009 at Barangay Amas, Kidapawan City within the Cotabato Provincial Forest and Ecotourism Park. The Amas Community Based Rattan Growers Association was the PO tapped to play a major role in the actual establishment of the pilot plantation.

The project participants were trained on nursery planting stock production, rattan plantation establishment and management, and rattan processing and utilization technologies.

The data on socio-economic condition of the participants were gathered and analyzed. The plantation was principally maintained by the members of the association. Data on growth and percentage survival of the plantation were gathered and monitored.

The success of the project can be attributed to the collaboration among the Community Environment and Natural Resources Office, Provincial Environment and Natural Resources Office, and Ecosystems Research and Development Service of DENR.



OPEN FORUM

Length of time before communities can harvest

Dr. Dransfield: Participation of the local communities is amazing. So when, are they expected to harvest the cane?

Dr. Manipula: In around 10 to 14 years, the rattan plantation (of *Calamus merrillii*) is expected to be already mature.

For. Santos: Generally, it takes more than 10 years to harvest rattan. In Bicol, there were already existing rattan plantations, now about 12 years old, prior to the establishment of the 30-hectare new plantation. People tap these old plantations as sources of seedlings and canes for home-based livelihood. The said plantations were also used as seed source for the establishment of the new 30-hectare demonstration project.

Ms. Decipulo: When rattan harvest can start depends on the nurse tree and the shade received. *Calamus merrillii* when shaded bear no fruits but have many suckers. However, after seven or eight years, they start bearing fruits.

Dr. Hoogendoorn: It would take years longer than the project duration for the participating communities to harvest canes. How was this discussed with the community?

Dr. Manipula: The rattan plantation is within the experimental forest of DENR. So people know that there are prevailing policies concerning harvesting. They are allowed to access the plantations for their livelihood.

For. Santos: In Camarines Sur, plantations are in the buffer zones of the Bicol Natural Park. To make use of the resources in the plantation, the law requires that a resource utilization permit (RUP) be issued by DENR. It is also required that a plantation management agreement be done. Under this agreement, the community is allowed to harvest rattan within the area they planted but an inventory is required before the permit is issued to them. Hence, stakeholders are educated properly about the project.

Dr. Palijon: In one of our experiences, rattan and bamboo planting gave a lot of benefits to the community. For example, the community in Ilo-ilo, Philippines became the source of planting materials for rattan and bamboo. During the growing period, people were provided their source of livelihood. At the end of the project, participants were too happy of the income they got and so they bought more seeds and cuttings of giant bamboo.

Effect of light on rattan growth

Dr. Manipula: In the 1989 project of the DENR CARP-ISF, 50 hectares were established as rattan plantation using *Calamus merrillii* and *Calamus ornatus* as species in open area. After five years, rattans were bearing fruits already. It was observed that rattans grow faster in open areas than in forested areas.

Dr. Dransfield: An ample amount of light is needed for better growth of canes.

Dr. Sargento: We lack study on the ecological requirements for better growth of rattans. It was said that 60-70 percent of light is needed to insure good quality of cane poles cane growth. But what about the quality of canes under this lighting condition?

Dr. Irawan: Is it possible to plant rattan with fruit trees considering its light requirement and the fact that it takes years before they can be harvested for canes?

Dr. Dransfield: Most successful rattan plantations are grown under rubber and fruit trees such as rambutan. Rattan can grow under their canopy.

Species selection

Dr. Dransfield: Species behave differently in various areas. How were the seeds for the plantation selected?

Dr. Lapis: Selection of planting materials was based primarily on clumping ability. Those used for the project came from provenance of the

rattan plantation development in Zamboanga, Philippines. There was really no rigorous procedure on what species to plant considering the number of years it takes for rattan to bear fruits. Having undergone the pilot project, it is important to consider the end products each country prefers in determining the rattan species to be used in future projects.

Dr. Manipula: Behavior of planting materials from seeds tends to be very variable as compared to those from tissue culture.

Dr. Dransfield: It is suggested that some genetic work be done on the different species to shed light on the matter.

Dr. Lapis: A small attempt was done but using a crude methodology. This will be reported in the succeeding session.

Ownership of the plantation and sustainability

For. Diaz: With regards to the demo plantations established, who owns them after the project ends?

Dr. Palijon: The plantations are actually in government lands. Hence, the community cannot own the lands, but they have the right over the rattan resources in the plantations. Communities or POs will have to apply for RUP at DENR to be able to access the rattan resources.

For. Diaz: A specific structure for institutional arrangement concerning sustainability of the project must be put in place. ERDB should be one of the stakeholders. Based on experience, there is difficulty in putting into action collaboration with other organizations without identifying their specific roles, functions, and connections.

Seed exchanges

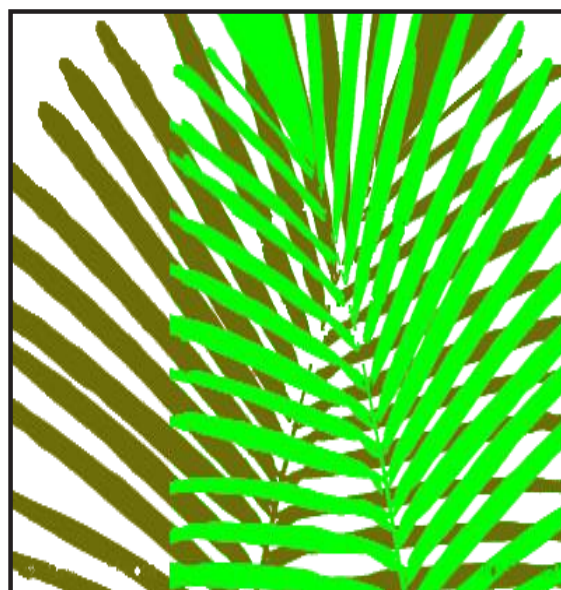
Dr. Hoogendoorn: Are the species used in Lao available also in the Philippines or are being tried out here? Do participating countries engage in seed exchanges?

Dr. Manipula: The seeds of *Calamus ornatus* var. *philippinensis* were brought to the area during the project training. There is no formal seed exchange yet as the project is into its second year only of planting that species.

Dr. Hoogendoorn: The exchange of planting materials between countries is intriguing. It is good to trace what planting materials go to where and find out where they grow better. In the exchange of rattan species, it is safe if the rattans come from seeds.

Dr. Dransfield: In 1973 in Indonesia, a community survived solely on rattan cultivation. Also, it is better to have open exchange of seeds but with proper control. In 1975, Malaysia have to get their seedlings from Indonesia. Then Prime Minister Mahathir swapped their oil palm with seedlings of *Calamus merrillii* with the Indonesian government. Likewise, China brought in rattan to its mainland and now it has a well established rattan estate.

Dr. Lapis: In 1982-1983, seed exchange was an open thing in the Philippines. The country was also a recipient of rattan seedlings from Malaysia and China. Laws and regulations such as on bioprospecting make the exchange more difficult. These have bearing on germplasm exchange also.



BOOK LAUNCHING

A Field Guide to Philippine Rattans

Dr. Aida B. Lapis (Author)

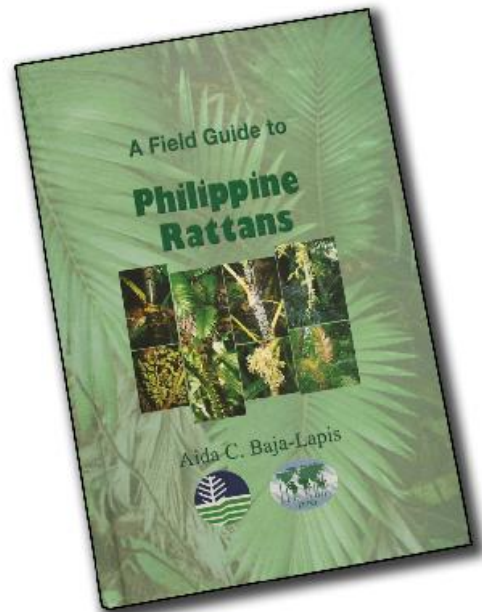
*Supervising Science Research Specialist
Ecosystems Research and Development Bureau (ERDB)
College, Laguna 4031 Philippines*

This book is a visual guide to identifying most of the Philippine rattans one may encounter. It is intended to support the improved management of rattans in our country.

Rattans are climbing palms that provide the raw materials for cane-furniture industry. Most are distinct from other palms in their consequent growth habit- not as trees but vine-like, scrambling through, over and above other vegetation. Enveloping the stem are sheathing leaf bases which are nearly always fiercely spiny. The spines are sometime arranged in neat rows and interlocking to form galleries providing extra protection to an already well-protected plant.

The rattan remains the most important source of material for making baskets and mats in South-East Asia and other tropical countries. However, as the resource from the wild becomes scarce, other non-timber forest species are being tapped as its replacement. In the Philippines, the export and even domestic use of the canes are not regulated, resulting in severe exploitation and endangering of rattan's existence.

This book is intended for people in need of a reference guide to identifying Philippine rattans for scientific research and technology generation, conservation and management, establishment of community forestry or for the furniture and handicraft industries. It may prove valuable to forest policy implementors to judiciously apply the rules and regulations for the sustainable development of rattans. Lastly, it is for nature lovers who can appreciate more the beauty of rattans particularly their morphologically unique architecture manifested by their intricate spine patterns and arrangements.



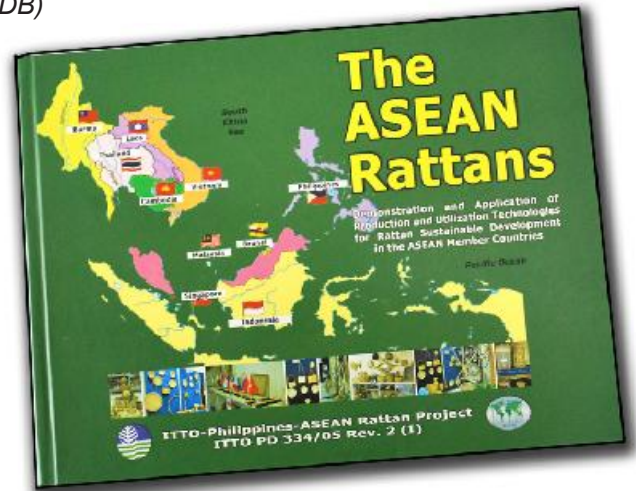
The ASEAN Rattans

For. Marcial C. Amaro, Jr., Dr. Aida B. Lapis,
For. Kharina G. Bueser, and Dr. Armando M. Palijon
(Authors)

ITTO-Philippines-ASEAN Rattan Project
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In the Southeast Asian region, and other tropical countries, rattan remains to be one of the most important non-timber forest products. Among the ASEAN nations, rattan is one of the traditional sources of materials for furniture and handicrafts that are highly in demand in the domestic and international market. Rattan is also important as a source of livelihood for the communities living near or adjacent to the forests. Despite its seeming prominence, not to mention its numerous commercial values, basic knowledge of this natural resource is still scanty.

The ASEAN Rattans intends to disseminate resource information about basic knowledge on rattan. It is an output of the photo-documentation activities undertaken during the implementation of the ITTO Rattan Pre-project in 2003-2004, and the ITTO-Philippines-ASEAN Rattan Project in 2006-2010. The book presents general information about each of the 10 ASEAN countries and showcases their non-timber forest products and rattan resources in terms of their taxonomy, distribution, ecology, and uses.



Recapitulation of Day 1 Conference Proper

Commendations and challenges

Messages and remarks during the opening program focused on a number of commendations for people and organizations doing work on rattan production and utilization in the region.

ERDB Director Marcial Amaro acknowledged the support of INBAR and ITTO to rattan development initiatives being undertaken in the ASEAN region.

Mr. Li Qiang, ITTO Representative, expressed ITTO's commitment to strengthen the rattan sector, it being the source of livelihood for many poor people. He commended ERDB for leading the collaborative work on rattan research and development in the region.

Dr. Coosje Hoogendoorn, INBAR Director General, congratulated the rattan "heroes," and also challenged them to engage in more innovative work that would enhance rattan products development. She exhorted rattan researchers to do things collaboratively and thereby enhance the rattan value chain.

Usec Manuel D. Gerochi of DENR noted the policy reviews and promulgations being undertaken by the DENR to ensure sustainable productivity and access to rattan resources.

Technical paper and country reports

Technical discussions started off with the paper of Dr. John Dransfield asking an intriguing question "how many rattans are there?" This triggered other questions such as "how far off are we from the global census of rattan species? how many of the known classifications are being used, endangered or extinct?"

Finally, the paper emphasized the value of taxonomy in facilitating the sharing of rattan technologies and in safeguarding the resource for the future.

Six country reports on pilot demonstration of rattan production and utilization technologies highlighted the strategies, experiences, and accomplishments involving the local communities as major stakeholders.

OPEN FORUM

Issues and clarifications taken up during the open forum focused on the following:

- Relatively longer time (10-12 years) before rattan canes can be harvested; hence, the need to consider the other by-products of rattan such as fruits, shoots, and canes and their impacts on rattan value chain.
- Connection between rattan and biodiversity as well as rattan and climate change adaptation
- Effect of light on rattan growth
- Criteria for species selection
- Issue on who will own the rattan plantation and sustainable institutional arrangement after the project period
- Opportunities and constraints in rattan seed exchange
- Community involvement in the rattan project

COUNTRY REPORTS

(continued)

THAILAND

Mr. Jerdpong Makaramani and Mr. Chudchawan Sutthisrisilapa

Department of National Park, Wildlife and Plant Conservation, Bangkok, Thailand

The Department of National Park, Wildlife, and Plant Conservation served as the agency coordinator in the project "Demonstration and Application of Production and Utilization Technologies for Rattan Sustainable Development in the ASEAN Member Countries [ITTO PD 334/05 Rev. 2(I)]." The establishment and maintenance of the pilot demonstration was managed by the Royal Forest Department of Thailand. There were four Silvicultural Research Stations selected as the units responsible for the pilot demonstration. The establishment of 25-hectare rattan demonstration plot was completed, of which 7 hectares were newly established rattan plantation and 18 hectares were old ones that were enhanced.

The new plantations are located in the provinces of Kanchanaburi, Krabi, Trang, and Songkhla. It was observed that newly planted seedlings need shade and high moisture content during the early period of planting. They also need more light/exposure after 2 to 3 years of establishment for better growth and development. Cultural treatments like weeding and fertilizer application two to three times a year were necessary. The new rattan plantation in the open areas have slower growth rate than those planted under trees in plantation. In the old rattan plantation, most of which are under tree plantations, improvement and management of the area were undertaken for good access and easy management.

The pilot demonstration sites in Thailand were conducted among the communities and students around or near the Songkhla Silvicultural Research Station. Seedlings were distributed to those



interested in planting rattan. The budget from the ITTO Rattan Project was distributed to the four stations to be able to fulfill the commitments to the project.

One of the problems encountered during the project implementation was difficulty in communication between country Contact Person and the chief of demonstration plots since they are working in different departments.

VIETNAM

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The project sites included Doan Ket and Quyet Tien villages located in Ky Son District, Hoa Binh province. The targeted size or area for pilot demonstration was 25 hectares. Two species of rattan, namely May nep (*Calamus tetradactylus*) and May nuoc (*Daemonorops pierre*) were produced in the nursery and used for field planting. A total of 44 households and local farmers of the ethnic minority of Muong participated in the project. Community management team supported by local consultants from Agro-Forestry Extension Station in Ky Son District was assigned to be the main institution in charge of the project with cooperation and assistance from the Department of Forestry Protection of the district.

The project aimed primarily to strengthen ASEAN collaboration and contribute to the reduction of poverty at the community level. This was done through a network that supported and prioritized the urgent needs/concerns for the development of the rattan sector. Rattan pilot demonstration was one of the important components of this project. The pilot demonstration was successfully established through community-based approach which somehow helped in making the development of rattan plantation sustainable. The pilot demonstration showcased the economic and financial viability of rattan plantation development in the commune.

Consequently, there will be sustained supply of raw rattan materials for the local communities and rattan-based industry. Adoption of utilization technologies may lead to the production of improved and high quality products that will be available in the market. All these will contribute to the enhancement of livelihood and employment opportunities among the stakeholders.



TECHNICAL PRESENTATION

Experience in the Establishment of Pilot Demonstration in SEA

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Introduction

The ITTO rattan project was implemented by ERDB, the research arm of DENR. It was a regional project covering some ASEAN member countries including Philippines, Cambodia, Indonesia, Lao PDR, Myanmar, Thailand, and Vietnam where rattan is one of the important non-timber forest products. Its implementation was done in close collaboration with FPRDI and CFNR-UPLB.

The project specifically entitled “Demonstration and Application of Production and Utilization Technologies for Rattan Sustainable Development in the ASEAN Member countries” (ITTO PD 334/05 Rev. 2 (1)) aimed at achieving sustainable development of rattan in the region. It had five main components, namely: networking and database management, research, training and most importantly, the pilot demonstration. The project specifically aimed to strengthen ASEAN collaboration to contribute to poverty reduction at the community level, biodiversity conservation, and environmental amelioration through a network that supported and prioritized the urgent needs and concerns for the sustainable development of rattan sector. To achieve its goals and objectives, the project included demonstration and application of production and utilization technologies, capacity building primarily of the local communities, research and information dissemination.



In this particular paper, the efforts of the ITTO rattan project in reaching out to the local communities and harnessing their participation for their own economic benefits notwithstanding the environmental concerns is presented. More especially, the pilot demonstration component of the IITO project is highlighted since this is the more direct community approach to promote rattan as an economic commodity and at the same time a potential contributory resource for environmental prosperity and biodiversity conservation.

The Rattan Pilot Demonstration

The rattan pilot demonstration component was considered as the heart and backbone of the ITTO Rattan Project. Its main ingredient was community participation primarily designed to uplift the socio-economic conditions of the target communities and to contribute to environmental enhancement. Primarily, it was intended to showcase technologies that would ensure sustainable production of quality rattan poles, shoots and dragon blood fruits for the industries in ASEAN member countries where such technologies are suitable. The rattan pilot demonstration included capacity building and application of rattan seed technology, seedling culture, and rattan plantation development and management. Likewise, it served and is continuously serving as site for rattan production research and socio-economic and environmental impact studies.

Memorandum of Agreement between the Project and the Participating Member Countries

Each of the participating member countries was given a free hand in setting the maximum area that can be developed and the budget that will be required. The rationale behind it was that the capability and the costs of labor and materials varied from one country to another due to differences in standard of living. Moreover, each participating country would be more knowledgeable when it comes to manpower, material, and other logistical requirements for the establishment of the pilot demonstration.

On the basis of the area and the corresponding budget submitted to the ITTO Project Management, a Memorandum of Agreement (MOA) was signed by the Head (mostly Director General) of each country's institution designated to implement the project and the ITTO Philippine- ASEAN Project Director who happened to be the Director of ERDB, the latter being the project implementing agency

Upon signing of the MOA, notice to proceed in the establishment of rattan pilot demonstration with initial fund release was forwarded to each of the participating countries. Succeeding releases of fund were based on accomplishments, financial reports, and request for the fund release.

Take-off Points for the Pilot Demonstration

Prior to the selection of the site and establishment of pilot demonstration, an organization for the Pilot Demonstration Component in each of the participating ASEAN member countries was considered very important. Aside from the Contact Person (CP), a Site Coordinator (SC) was designated as the focal person in the site to oversee, in tandem with the people's organization (PO), the establishment and management of the pilot demonstration at the site and plantation levels. The CP was responsible for coordination and monitoring of all activities pertaining to the establishment and management of nursery and pilot demonstration. The Component Leader provided the direction, monitored and evaluated the activities, and made sure that the establishment and management of pilot demonstration in the ASEAN were in order. The Deputy Project Director of the ITTO Rattan Project supervised and regulated the operation of the pilot demonstration in the ASEAN region. Figure 1 shows the organization for the Pilot Demonstration Component. Other participating ASEAN member countries adopted this organization with some modifications depending on existing socio-cultural and political situations in the locality.

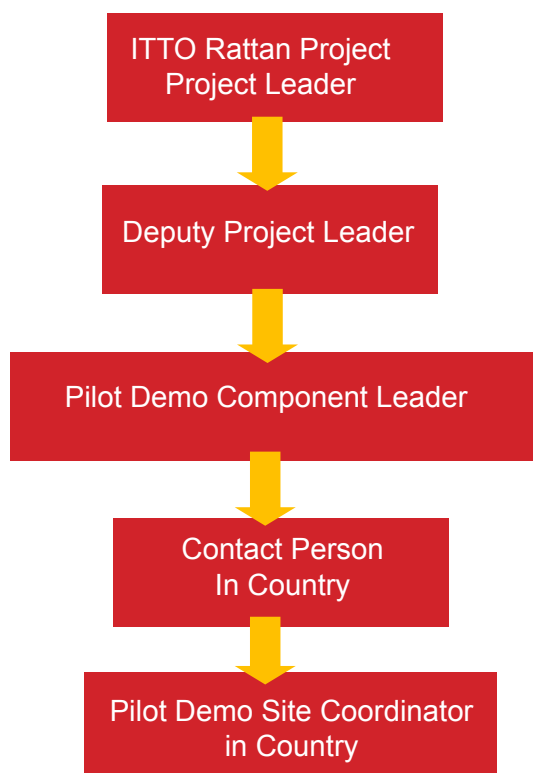


Figure 1. Organizational chart of the pilot demonstration in the Philippines

Selection of Sites for the Pilot Demonstration

A set of criteria for the selection of site for the establishment of rattan pilot demonstration included: (a) accessibility, (b) suitability of the bio-physical conditions, (c) receptivity of the community and/or social acceptability of the project, (d) acceptance and support of the concerned authorities, and (e) relevance of rattan to the socio-economic upliftment and conditions of the community. In the actual selection process, potential sites met majority, but not all, of these criteria. were satisfied.

Short Listing of Potential Sites for the Pilot Demonstration

In most ASEAN member countries participating in this ITTO Rattan Project, short listing of potential sites considering the criteria set for the selection was made. Two sites for the pilot demonstration were selected for the Philippines, one in Luzon Island and the other was in Mindanao Island.

For the pilot demo site in Luzon, a more rigorous selection was done. This was because a total of seven sites with potentials for the establishment of pilot demonstration were visited and screened. These sites mostly with established tree vegetation included (a) Gabriela Multi-Purpose Cooperative in Diffun, Quirino; (b) Spirit Woods also in Diffun, Quirino; (c) Sta. Maria, Laguna; (d) Angat Dam, Norzagaray, Bulacan; (e) Sta. Catalina, Atimonan, Quezon; (f) Mts. Palay-palay at Mataas na Gulod, Ternate, Cavite; and (g) Bicol National Park (BNP) in Lupi, Camarines Sur. The site selected was for the development of new plantation. The site in Mindanao has existing rattan stand hence only enhancement was done.

In other participating ASEAN member countries, the selection was not as rigorous as in the Philippines. This was because the potential sites listed met most of the criteria set for selection.

Activities Related to the Selection of Sites

Actual visits and coordination with the concerned agencies and LGUs including existing people's organization with stakes on rattan were conducted. In the case of the Philippines, where most potential sites were located in government-owned land, coordination with the local, provincial and even with the DENR regional offices was made as a standard operating procedure.

In other countries, coordination and acceptance of the project were not as complicated as in the Philippines. This was because of the uniqueness of political and institutional set-up in each of the participating ASEAN member countries. In the case





of Vietnam, some communes primarily involved in farming have their own forest allocations that were made easily available for integration of rattan. Only the concurrence of the leader of the commune or village with suitable forest allocations was solicited, hence, coordination and the site selection were a lot easier.

In Lao PDR, villagers own pieces of land that were suited for both cane and shoot production. Hence, the decision for the use of the land rested almost entirely on the landowners in the village. However, cooperation and support from village leaders in this kind of endeavor were likewise sought to make the rattan farming an acceptable economic activity either for cane, fruit or edible shoot production.

According to the village leader, it is important that the majority in the community are aware of the demo project and its objectives and relevance particularly to the local economy and to the environment.

In Cambodia, the lands available for rattan plantation development were also publicly owned. However, the village leaders have great influence on the project needing participation of community people.

In Myanmar, the land owned by government and managed by the Forest Research Institute was used for the pilot demonstration. Like Cambodia and the Philippines, the approval from head of government institutions was solicited.

In Thailand, lands that were also used for the pilot demonstration were those managed by the government institutions. Some had already existing rattan plantations that only needed enhancement. The lands were identified and the use for the establishment of rattan pilot demonstration was accordingly requested. Subsequently, approval from the concerned government institution was granted.

Final Selection of Site for the Pilot Demonstration

After the actual visits and coordination meetings with concerned agencies, LGUs and communities, each participating country made the final selection of the sites based on selection criteria and judgment. Table 1 shows the pilot demonstration sites, budget, and the organization and number of participant beneficiaries in each of the participating ASEAN member countries. Figure 2 shows the SEA member countries participating in pilot demonstration establishment.



Table 1. Pilot demonstration sites in the Philippines and other participating SEA member countries

SEA Countries/ Agencies	Target Area for Pilot Demo/ Project Cost	Site	Number of Participants	Remarks
Philippines	60 has			
ERDB/ CFNR- UPLB/ FPRDI	divided into: a.30 has new plantation USD 10,000	a. Barangay San Jose, Lupi Camarines Sur, Bicol Natural Park	30	Village people organized themselves into San Jose Rattan Pilot Project Organization (SANJORAPPO)
ERDS-DENR R-12	b. 30 has plantation for enhancement USD 3,000	b. Kidapawan, North Cotabato	22	Participants living adjacent to the plantation organized themselves into an association: Amas Community Based Rattan Growers Association (ACBRGA)
Vietnam	25 has	Phuc Tien commune, Ky Son District, Hoa Binh Province	16 for plantation:	Participants had their own forest allocations
Vietnam Forestry University (VFU) & Agro-Forestry Extension station (AFES) & Department of Forest Protection (DFP)	USD 25,000		11 in Tai Noi Area and 5 in Nong Mui Area 3 for nursery	
Lao PDR	40 has	Villages (5)	66	Utilized the lands formerly used for rice production but due to constant inundation alternative use of the land was sought
Forest Research Center (FRC) – National Agriculture Forestry Research Institute (NAFRI)	USD 24,200	a.Sopphouane b. Thadindeng c. Lingsan d. Xangnhai e. Paksoun	6 5 11 4 39	

SEA Countries/ Agencies	Target Area for Pilot Demo/ Project Cost	Site	Number of Participants	Remarks
Cambodia	20 has USD 16,780	Kampong Chhnang Province Anhchanh Rong Commune Prek Thnot Commune, Kampot Province		The village leader was commissioned to oversee the activities. Abandoned due to some social problems Substitute site with more cooperative village people and with experience on growing rattan
Indonesia Bogor Forestry Research Institute (BFRI)	25 has 18,800	Mekarsarj Village, Forest-Sub District, Taman Sari	10	Organized themselves into rattan (dragon blood) growers
Myanmar Forest Research Institute (FRI)- Forest Department Ministry of Forestry	25 ha USD 18,000	Compartment 7, Chaung Thar Forest Reserve Forest, Pathein Township, Ayeyarawdy Division	12 households	Started quite late since the contract and bank details were not finalized in time due to political and administrative constraints

SEA Countries/ Agencies	Target Area for Pilot Demo/ Project Cost	Site	Number of Participants	Remarks
Thailand	25 ha USD 23,205 a. 18 ha for enhancement b. 7 ha new plantation	a. Nai Chong Silvicultural Research Station, Trang Province and Song Khla Silvicultural Research Station Song Khla Province b. Khao Buntad Silvicultural Research Station, Trang Province and Song Khla Silvicultural Research Station Song Khla Province	Village community people were involved as laborers/ workers on daily wage arrangement.	The pilot demonstration was started even without the contract and bank details. After the project requirements were accomplished, the establishment of pilot demonstration proceeded in full swing.
Total	220 hectares			



Figure 2. Participating Southeast Asian member countries except Malaysia, Brunei and Singapore

Organizing and Training the Selected Community

To be able to proceed with the pilot demonstration establishment more efficiently, it was inevitable to provide adequate social and technical preparations. There really was a need to organize the participant beneficiary community so that the motivation, cooperation, commitment, active involvement of each and every member can be assured (See Table 1). More importantly, there is a need to train them so that establishment of the

pilot demonstration can be done successfully with the right technology. Table 2 shows the training conducted by the ITTO Rattan Project in the participating ASEAN member countries. It should be noted that the participants in this capacity building initiatives did not solely include the farmer participants but also the staff of the cooperating institutions and/or agencies.

Table 2. Training conducted in the Philippines and participating ASEAN member countries

SEA Countries	Venue	Date of Training	Number of Participants	Remarks
Philippines	Bicol Natural Park, Camarines Sur	October 26-27, 2006	48	Co-organized by the PENRO Camarines and PASU.
	A m a s Reforestation, Kidapawan, North Cotabato	August 7 – 11, 2007	33	
Vietnam	Phuc Tien Commune, Ky Son District	March 22-23, 2007	30	Co-organized by the Vietnam Forestry University
Lao PDR	N a m x u a n g Forestry Research Center	May 23- 27, 2007	15	Co-organized by the Forestry Research Center
Cambodia	Forest Research Institute	August 16-23, 2007	20	Co-organized by the Forest Research Institute
Myanmar	Forest Research Institute in Cambodia	August 16- 23, 2007	2	Joined the training in Cambodia
		April 2008 in Myanmar	32	Co-organized by Forest Research Center in Myanmar
Indonesia	Forest Research Institute	December 3-9, 2007	38	Co-organized by the Forest Research Institute in Indonesia
Thailand	Royal Forest Department	September 7-13, 2010	31	Co-organized by the Royal Forest Department

Community Action Planning Workshop

Action planning with the PO or with the participating members of the commune/village was deemed very necessary for the PO to chart the direction of the establishment of the pilot demonstration in their community. In the Philippines, the Site Coordinator spearheaded the action planning with the active involvement of the concerned units of agencies like the Provincial Environment & Natural Resources Officer (PENRO) and Protected Area Superintendent (PASu). However, whether it was in the Philippines or in other participating ASEAN member countries, the PO or participating members of the commune or village were emphasized as the main actors in action planning and implementation related to pilot demonstration.

In the action planning done in Philippines, the socio-demographic profile of the members of the community and the spot map of the community were gathered. The socio-economic data particularly of the participating members of the PO and/or community were needed for the assessment of the socio-economic impact of the project. The spot map of the community

in the pilot demonstration site in the Philippines that was prepared included the relative location of the various infrastructures (houses, barangay hall, church, schools and other natural landmarks (ravines, rivers, etc.) and more importantly the relative location of the home nursery for the rattan seedling. Example of this spot map is shown in Figure 3. In other participating ASEAN member countries, such information was likewise required. In the action plan, activities for one year period and the succeeding years of implementation including the responsibilities of each and every member of the participating PO or community were outlined.

Establishment of Rattan Pilot Demonstration

Prior to the actual establishment of rattan pilot demonstration, the following activities were undertaken: seed procurement and nursery seedling culture, locating, mapping and delineation of the area for the pilot demonstration, site preparation, planting, and maintenance. For the four-year period, participating ASEAN member countries have accomplished the following (Table 3):



Table 3. Accomplishments of the pilot demonstration for four years

	Target Size of Pilot Demo (Hectares)	Budget Allocation as Approved Prior to Project Implementation (In USD)	Accomplishments			Budget Released / Spent / Balance / % Budget Released (USD)	Remarks
			Location	Nursery produced	Area of Plantation Established / Enhanced / % Accomplishment		
1. Philippines	30 has	10,000.00	San Jose, Lupi, Camarines Sur	14,000 seedlings	30 hectares / 100%	10,000 100%	Area used part of the multiple/sustainable-use zone of the BNP. Allowed by PAMB through resolution.
			Bicol Natural Park (BNP). San Jose, Camarines Sur	9,000 seedlings outplanted			
			(San Jose Rattan Pilot Project Organization or SJRPO with 30 households/families as members)				
	30 has	3,000.00	Amas Refo Kidapawan, North Cotabato	10,000 seedlings	30 hectares / 100%	3,000.00 100%	Originally part of the research component. Considered to be the product of the institutional networking and linking. Adoption of technology.

Target Size of Pilot Demo (Hectares)	Budget Allocation as Approved Prior to Project Implementation (In USD)	Accomplishments			Budget Released / Spent / Balance / % Budget Released (USD)	Remarks
		Location	Nursery produced	Area of Plantation Established / Enhanced / % Accomplishment		
2 has 0.2 ha	None: Collaborative activity with Camarines Norte State College (CNSC) None: Collaborative activity with CNSC	Labo Campus, CNSC Labo Campus, CNSC	535 Palasan seedlings 217 Calamus tenuis seedlings	2 hectares / 100% 0.2 ha	None	Also a product of networking and linking with institutions. Adoption of technology. Training conducted prior to establishment. Same as above.

	Target Size of Pilot Demo (Hectares)	Budget Allocation as Approved Prior to Project	Accomplishments			Budget	Remarks
			Location	Nursery produced	Area of Plantation Established / Enhanced / %		
2. Vietnam	25 has		Phuc Tien Commune, Ky Son District, Hoa Binh Province		12.8 has (1 st phase)	25,000.00	The planting of 25 ha rattan (including Calamus tetradactylus and Daemonorop pierre) was fully completed after two years (2007-2008).
			20 households/ families in Doan Ket village		12.2 has (2 nd phase)	(100%)	In 2008 the planting was carried out earlier to take advantage of better weather (not so cold and more rains). That was really good for rattan growth and the rate of survival was high
			21 households/ families in Quyet Tien Village		100 %		

	Target Size of Pilot Demo (Hectares)	Budget Allocation as Approved Prior to Project Implementation (In USD)	Accomplishments			Budget Released / Spent / Balance / % Budget Released (USD)	Remarks
			Location	Nursery produced	Area of Plantation Established / Enhanced / % Accomplishment		
3. Lao PDR	40 has	24,200.00	Namxuang Thalindeng Village Sopphuane Vilalge Lingsan Vilalge Paksoun Village Sang Nhai		1 ha 10 has 7 has 11 has 4.5 has 5 has	24,200.00 (100%)	During this season 8,880 rattan seedlings were planted and the remaining 7,120 seedlings were distributed to farmers in the surrounding villages. The families there requested around 20-30 seedlings for each to be planted in their home gardens.
			Total (Chief or Deputy of the Village served as Leader of the Rattan Pilot Demonstration)		39.5 has / 99.5%		

	Target Size of Pilot Demo (Hectares)	Budget Allocation as Approved Prior to Project Implementation (In USD)	Accomplishments			Budget Released / Spent / Balance / % Budget Released (USD)	Remarks
			Location	Nursery produced	Area of Plantation Established / Enhanced / % Accomplishment		
4. Indonesia	25 has		Nursery: Tamansari Village Plantation: Tamansari II Village	>10,000 seedlings of D. draco and C. spicatum	25 has 100%	18,800 100%	Around 100 planted rattan of dragon blood were measured (height and number of leaves) Some plants have grown well, especially semambu rattan with the height reaching more than 100 cm. The heights of Dragon blood plant are mostly 70 cm up.
			Nursery: Tamansari Village	Available seedlings: 3,000 to 3,500 seedlings	Area that can be covered: 7.5 has		

5. Thailand	25 has: 7 has for new plantation	23,205.00	Kanchanaburi Silvicultural Research Station, Lumpao Lum Sai Silviculture Research Center	3,500 seedlings of C. viminalis	2 ha. New plantation of Rattan has been done, since August 2008 with 92 % surviving rate, and average height is 20.25 cm. and 9.38 m.m. diameter	23,205- ???	The plantation plot has been divided into 2 plots, connecting, 1 ha each. The first plot is using 3 m x 1.5 m. spacing, the area was well cleared weeding. The second plot is using 3 m x 3 m spacing, the area was prepared by keeping the weed between the space. The result of planting, the first plot grows well in the first period (4-5 months) after that the growth rate goes slowly. The second plot grows slowly in the first period and after that the growth rate increase weak. The new plantation has been planted under Hopea odorata, Dipterocarpus Altus, Azadirachta excelsa, Xylia xylocarpa and Acacia meguim old plantations. The old plantation, the rattan was grown under rubber tree and Acacia auriculaefarmis, the improvement has been done by weeding, ploughing at rattan base and fertilizing. The planting of rattan will be in raining season (start from July)
	18 has for enhancement		Songkhla Silvicultural Research Station, Hadyai, Rattabhum, Songkhla province, Southern		- 2 ha New plantation of Rattan has been done, since January 2009, with 95 % surviving rate, the height are about 50-90 cm. - 10 ha Improving old plantation of rattan have been done very well		
			. Trang Silvicultural Research Station, Khao Ban Tud, Trang province, Southern Thailand.		- 3 ha New plantation the area has been selected in the old plantation of Hopea odorata, Dipterocarp spp. With spacing 4 x 4 m. The seedlings have been prepared. - 5 ha Improving old plantation of rattans have been done very well		
			Krabi Silvicultural Research Station, Nai Chong, Krabi province Southern Thailand		=22 has (88%)		The old plantation has been planted Calamus rudentum and C. palustris, they had been planted under Azadirachta excelsa and Parashorea spp. with spacing 4 x 4 m.

	Target Size of Pilot Demo (Hectares)	Budget Allocation as Approved Prior to Project	Accomplishments			Budget	Remarks
			Location	Nursery produced	Area of Plantation Established / Enhanced / %		
6. Cambodia	20 has	16,780	Kampong Chhnang Province	6,000 seedlings of C. palustris and C. viminalis	5 has	16,780 -??? = (???)	Selected other site for pilot demo due to existing problems in this area. Destroyed by laborers of land speculators
			Anhchanh Rong Commune	2,500 seedlings	5 has / 25%		
			Prek Thnot Commune, Kampot Province	More than 4,000 seedlings are still cared and maintained	20 hectare planted to 4 species: Plectocomia sp., Daemonorops jenkensiana, Calamus palustris and C. viminalis. (with 80% survival)		Linear planting on both sides of the creek going to the Bokor Natural Park and block planting at the lower portion of the park were done by the participating community people.
					(100%)		

Target Size of Pilot Demo (Hectares)	Budget Allocation as Approved Prior to Project Implementation (In USD)	Accomplishments			Budget Released / Spent / Balance / % Budget Released (USD)	Remarks
		Location	Nursery produced	Area of Plantation Established / Enhanced / % Accomplishment		
7. Myanmar	18,000	Compartment 7, Chaung Thar Forest Reserve Forest, Patheingyi Township, Ayeyarawdy Division	10,000 seedlings of C. latifolia, C. floribindus and Let Mei Kyein (no botanical name)	62.5 acres (25 has) (100%)	18,000 – ?????= ??? (???)	About 62.5 acres were already planted. During our visit, we have noticed that under brushing of vegetation was conducted. Soil around the newly planted seedling was newly cultivated and mounded. Mulches were likewise provided on each of the newly planted seedlings.





Figure 3. Spot map of the participating community in the Philippines

Social, Economic and Environmental Benefits

At this stage of project implementation, it is still premature to provide the actual benefits accruing to the participating individual members of the PO or community and to the community as a whole. However, in the plan for the sustainability of the pilot demonstration in particular and the ITTO Rattan Project in general, there are a lot of driving forces identified that were related to the potential social, economic and environmental benefits for the community, namely:

- a. Potential of rattan for home/local industry and also medium and large scale industries - The Philippines is one of the producers of finely crafted high quality furniture and handicraft. The pilot demonstration serving as the model is starting to enhance the establishment of rattan plantations in each of the participating member SEA countries.

To cite examples in the Philippines, a plan to develop community based-rattan plantations in Bataan Natural Parks involving indigenous people (the Aetas) through the Marine Science Institute, Bataan Peninsula State University, UPLB and ERDB-DENR has been submitted for funding. Some other institutions like Camarines Norte State College (CNSC) and private individuals and corporations have become very interested on non-timber forest products particularly

rattan. CNSC through the ITTO rattan project has established rattan demonstration plots: 2 hectares for *C. merrillii* and ¼ hectares for *C. tenuis*. The Development Bank of the Philippines (DBP) has what is called DBP Forest Project in which rattan plantation for both cane and fruits using secondary forests and plantations is one of the major commodities being promoted.

It is expected that with the growing interest in the establishment of plantation in the region, augmentation of the supply of cane for the rattan-based furniture and handicraft industries; shoots for consumption and for local and export market; and dragon blood fruits for the textile and other dye using industries can be realized. All these will definitely add up to the economic potential sources of livelihood to many of the local artisans, manufacturers, and traders.

- b. Role in bio-diversity conservation and environmental amelioration - Establishing rattan plantations inside public forest areas, home gardens, and agro-forestry farms will definitely contribute to the maintenance and protection of the trees and forest ecosystem thereby helping in biodiversity, soil and water conservation and in sustaining landscape aesthetic and ameliorating the environment.

- c. Enhanced Community Involvement (Community Pride) - The success of the community in the establishment of rattan plantations as an economic activity and as strategy for ecological improvement is becoming known not only in their own community. It is starting to spread to other communities. Other farmers and neighboring communities may likely adopt the technologies that are being demonstrated and applied. Simply, the participating community will become *model* as far as rattan production whether for cane, edible shoot, fruit for dye is concerned. Being a *MODEL* will therefore be the pride of the community.
- d. Rewards and other incentives - As experienced in Panay Island, the success of the bamboo and rattan farming project has opened the doors to a lot of rewards and incentives for the implementing community (Catral and Palijon, 2000). The community becomes the major producers of planting materials of bamboo and rattan that provided sustained source of income to the community. The community people being organized were able to learn and apply efficient management of their community resources collectively. More livelihood projects were provided by LGUs, NGOs and other concerned groups/associations. More likely, the community engaged in rattan pilot demonstration plantations will reap the same rewards and incentives. This kind of reward is now being experienced by the participating communities in the Philippines, Vietnam, Lao PDR, and Indonesia.
- e. Presence of industries - One good thing about rattan production is the presence of industries utilizing cane, edible fruit, fruit for dye and edible shoots. These industries not only provide livelihood to the producers but also to processors and traders. As reported in Lao PDR, the shoots harvested during this early stage of plantation are for consumption. However, the production of shoots for the market will soon start.

Restraining Forces on the Sustainability of the

Pilot demonstration plantations

Many of the restraining forces that may adversely affect the sustainability of the pilot demonstration plantations include the following:

- a. Land-ownership/tenure - Since majority of the available tree-vegetated areas for rattan plantation development are public lands, the communities that develop the plantations should obtain tenure/right over the plantation area to ensure that the plantations will be protected and maintained and will reach harvestable stage.
- b. Ownership of rattan resources – In areas where the community that developed the rattan plantations do not have tenure over the plantation area, there is no assurance that the community will harvest the products when they become harvestable. It is therefore important that the tenure over the area or the ownership certificate for the rattan resources be obtained by the community.
- c. Long gestation period of rattan - One of the not-so-attractive features of rattan as a plantation crop is its long gestation period particularly if it is to be grown for cane production. For big diameter cane, it may take 9 to 15 years to grow and be ready for harvests while for small diameter, 7 to 8 years. In tree farms, this long waiting period is, however, overcome particularly if the planting can be timed so that harvesting of the tree crop and rattan can be done simultaneously. In this way production is maximized: timber from trees, cane from rattans. In publicly owned lands like reforestation areas, multiple-use zone of the protected areas, watershed areas, planting rattan may not be a problem particularly if adjacent communities are involved as long as they can be assured of the ownership of the rattans and that they have the rights to harvest the canes.
- d. Support of the concerned agencies/ LGUs - Support for rattan development from concerned agencies in many ASEAN countries is comparably less than for timber

and other non-timber producing species. In the Philippines for example, a lot of proposed bills on development of either bamboo or rattan and other NTFPs have been filed in both Congress and Senate. Until now, however, many of these proposed bills have not been acted upon. There are fresh efforts to revive these bills by new and old members of both houses.

- e. Facilities - There is no financing and credit facilities available in most ASEAN countries that are providing financial support particularly for the rattan production. For the rattan-based industry, however, these financing and credit facilities are available because this sector has the assets to be used as collateral.
- f. Protection and maintenance problems (poaching) -Growing rattans takes a long time. When rattan plants have grown and have produced canes and edible fruits and fruits for dye, even if they are not yet ripe for harvests, they become attractive to poachers. This is now being experienced in many parts of the country and in other participating SEA countries as well..
- g. Policies/administrative requirements on harvesting (RUP) and transport - Bureaucratic procedure in getting the resource utilization permit (RUP) from the DENR is one of the most tedious processes that any individual, group or community may experience. More discouraging is during transport of raw rattans from the farm to the market due to so many checkpoints manned either by DENR, LTO, police, mor other un-authorized groups. These raise the transaction costs in producing rattans.

The Need for Sustainability Plan for the Pilot Demonstration Plantation

To address the restraining forces enumerated above that may sacrifice the success of the ITTO Rattan Project, the following have been identified as the possible measures:

- a. ***Provision of tenure to participating communities or organizations***

Tenure on the use of public lands and ownership of rattans (not the trees used as supports) must be given utmost consideration. Right at the start, resolution as to the use of the public land for specified length of time and the right to harvest and utilize the rattan resources on sustainable basis should be very clear to both the government and community.

Philippine Case

The villagers in San Jose, Lupi, Camarines Sur as major stakeholders have organized themselves into San Jose Rattan Pilot Project Organization (SJRPPPO). Registering the PO to the Securities and Exchange Commission did not materialize because of the many requirements that were not accomplished. It was planned to register PO as a cooperative but the requirements were not also completed. This registration of PO could have been realized if the Site Coordinator of the Pilot Demonstration was not transferred to another ERDB project.



The PO has applied for a Protected Area Community-Based Resources Management Agreement (PACBRMA) with DENR. The tenure has a duration of 25 years renewable for another 25 years. This agreement will surely provide the PO the right to sustainably manage the rattans that have been planted in the Bicol Natural Park, a protected area.

In Kidapawan, South Cotabato, on the other, hand, villagers situated near the Amas Reforestation project which has rattan (specifically Palasan, *Calamus merrillii*) intercrop, have organized themselves into Amas Community Based Rattan Growers Association (ACBRGA) so they can participate in the enhancement of rattan in the area. This association was used in making their application for the right to manage the plantation not only for cane but also for seed production. The officials of the DENR- Region 12 have given the assurance that right over rattan resources for an acceptable tenure based on existing DENR policies will be provided to the organization.



therefore have the freedom to utilize their land for the establishment of the rattan pilot demonstration. The rattan growing is for edible shoot and cane production. Because of the high potential of rattan growing as alternative source of livelihood, the project was easily accepted by the villagers. Since the participating farmers own the land, almost all of the economic benefits will therefore accrue to them. As a matter of making the other farmers/villagers aware of the rattan growing in the area, coordination with the village leader was accordingly made.

Cambodia, Myanmar, Indonesia, and Thailand Cases

Similar with the case of the Philippines, the land available for the growing of rattan in these participating SEA member countries is owned by the government. Hence, permission on the use of the land for a specified period of time was sought from the concerned government agency. Moreover, the ownership of rattan resources that will be produced will be legally arranged in accordance with the country's existing rules, laws, and regulations.

Vietnam Case

Members of the commune who opted to participate in the establishment of pilot demonstration were not formally organized into an association. The arrangement in the use of the land only needs the concurrence of the commune leader. However, those in the commune that have common forest allocations were enlisted as participants. The bio-resources in these forest allocations are co-managed by the members of the commune and therefore the benefits accrue to each and every member of such commune.

Lao PDR Case

As previously mentioned, ownership or tenure of the land for rattan growing in Lao is not a problem. The participating farmers are the owners of the land and





d. *Integration of rattan plantation development project in the regular programs of the concerned agencies*

Philippine Case

The usual cycle of foreign-assisted projects of the government is that when the financial assistance terminates so does the project. To prevent this from happening, the ITTO rattan project should be integrated into the regular programs of ERDB, FPRDI, and ULB-CFNR. These institutions should set aside funds to continue the operation of the project. In the case of ERDB it should provide funds from its annual budget to monitor the progress of the plantations and that of the implementing organization. The project should also be integrated into the regular program of activities of the CENRO of the DENR. Discussions were made with the DENR Region V. During the PAMB meeting last March 2010, a resolution regarding the mainstreaming of the pilot demonstration into the programs of PAMB was formulated. This resolution was said to have been signed by Regional Executive Director of DENR R-5 already.

b. *Maintenance and monitoring of the plantation by the implementing PO*

The main sustainability strategy is for the PO to own the project. This would ensure that maintenance and monitoring of the plantation will be undertaken by the PO. This aspect of the project is being inculcated to the PO. The POs are very enthusiastic about the prospects of the project providing them opportunities for greater economic gains and this is a good sign that they will own the project.

c. *Integration of rattan plantation project in the development program of LGUs*

One strategy to sustain the rattan plantation component of the project is to have it integrated in the development/investment plans and in the comprehensive forest-land use plans of the municipality. In the Philippines, discussions have been conducted with the Municipal Government of Lupi, Camarines Sur to integrate the rattan plantation development project in the over-all development and investment plans of the municipality. This strategy should be duplicated in other participating ASEAN member countries whenever applicable.

FPRDI should allocate funds so that technical assistance and training needs of the PO can be sufficiently provided. Likewise, the UPLB-CFNR should provide funds to assist ERDB in monitoring and providing technical assistance to the PO. In the case of the project component in South Cotabato, a MOA between ERDB and the DENR Region XII will have to be forged so that this DENR regional office can take-over the responsibilities of managing the project after its termination. Initial discussions have been conducted with these organizations for their take-over of responsibilities after the termination of the assistance from ITTO.

Case of other Participating ASEAN Member Countries

Similarly, concerned agencies in these countries should include in their regular activities the monitoring of the rattan plantations and provision of further technical assistance to the communities after the termination of the ITTO project.

e. Inclusion of rattan plantation development in the national program of government

To develop the culture of planting rattan by various stakeholders particularly the upland farmers, the national government should embarked on a nation-wide rattan plantation development. The 2003 Revised, and the original, Master Plan for Forestry Development of the Philippines clearly include the establishment of rattan plantations to provide a sustainable supply of raw materials for the rattan-using industries. However, no such national program was established owing to the lack of funds for the purpose. Initial discussions have been made with some legislators, and in fact bills have been submitted in Congress, for the establishment of rattan and bamboo plantations on a national scale. Follow-ups are being made with the sponsoring legislators.

This strategy must also be adopted in other participating ASEAN member countries whenever applicable.

f. Generation of livelihood projects arising from the plantations

One of the means by which upland stakeholders can be weaned from dependency on the forest is to provide them with alternative livelihood that could provide sufficient income for the upland families. When the rattans from the plantations mature in 8

to 10 years, the stakeholders shall be capacitated to establish even, household or village, small scale industries out of the rattan raw materials that will be coming from the plantations.

g. Harnessing the potential of other NTFPs as base for community-based industries

The forest is rich in other NTFPs such as vines, climbing bamboos, resins and gums, herbal plants, and essential oil plants that can be the base for community industries. The POs shall be assisted in obtaining permits to gather and utilize these NTFPs. They shall be provided with the technologies and the training that will capacitate them to establish small scale industries.

h. Preparation and implementation of management plans for the pilot plantation

A management plan for the pilot rattan plantation shall be prepared. The ITTO Project will assist the Pos in preparing the management plans. The plans shall include the duties and responsibilities of the members of the PO, the sharing of tasks and benefits (a benefit sharing mechanism shall be prepared and adopted by all the members), maintenance of the plantation, monitoring systems and procedures.



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Policy issues

Dr. Hoogendoorn: In Thailand, it was mentioned that the execution of the project went well but it was hard to convince the people that the project would be beneficial. In Vietnam, it was upbeat and they are already planning for the next phase. In the Philippines, there are successes and constraints. In some countries, people are allowed to use the resources but not allowed to transport them. What needs should be addressed and what follow ups are needed to make sure that the project run smoothly?

Dr. Tesoro: Policies pertaining to collection, transportation, and sales of NTFP must be put in place. Such policies can be made more liberal and accommodating to address the needs of the people. On the need to maintain and sustain the supply of rattan because the habitat for rattan is reduced yearly, each country must address the issue on their own terms.

For. Diaz: With regards to policy concerns, DENR is now issuing the Industrial Forest Management Agreement (IFMA). A provision of this agreement is allowing the holder to plant 10 percent of the forest area with bamboo and rattan, aside from timber species. But there's no data indicating the extent by which IFMA holders are complying to this. Research is important to provide the basis for the needed policies.

Mr. Chudchawan: In Thailand, rattan is very easy to promote because villagers are willing to join. Farmers are informed during meetings about cane production. Though they know that rattan will take longer time to be harvested, if the political leader promotes it, then they follow. Sometimes politicians have more power than the natural resource officers in persuading the farmers.

Mr. Sounthone: In Lao PDR, there is a policy that allows certain forest cover to be planted with NTFP in line with the government biodiversity goal. Even in conservation and protection areas and any other kind of forest with land allocation, the government assists local people in introducing NTFP. Villagers can decide on the species they want to plant. They are also provided incentive to harvest. Because of this, there is food sufficiency and income in the village.

Dir. Amaro: USEC Gerochi in his speech mentioned the review of the omnibus guidelines on rattan, from production to utilization and which agencies and industries should be involved. Similar guidelines are now being tested for bamboo. There are some concerns on which key institutions should undertake the project and the full logistical support it. Of concern too is the tendency of not being able to sustain the project.

Dr. Palijon: In the Philippines, sustainability of rattan industry is being considered through the creation of Rattan Trust Fund. This will be elaborated by Dr. Tesoro in his presentation later.

Dr. Hoogendoorn: INBAR and ITTO would be interested on an overview of use right or similar permits in the different countries. The objective is to provide more benefits to the local people. There is also a need to make a difference in working with government and take rattan further from farm to the market.

Dir. Amaro: The Philippines has already this 21-year old guidelines embodied in DAO-1 and DAO-4 that grant rights to the local people to access and utilize natural resources and forest products. Perhaps, the issue is more on the "high transaction cost" involved in the implementation of these guidelines.

Cost efficiency of projects

Dr. Manipula: Based on Dr. Palijon's paper, the countries differed in their cost of developing the project. It is somehow high for Vietnam and quite cost-efficient for the Philippines. Can some standards on costing for development projects be set?

Dr. Palijon: In this project, the countries were given a free hand because the countries have variable living standards. But DENR has already existing cost guidelines for bamboo and rattan plantation development.

Use of proper scientific names

Dr. Dransfield: With regards to the country reports, particularly that of Vietnam, proper scientific names should be used.

TECHNICAL PRESENTATION

Rattan RDE Directions for the Next Decade

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Introduction

- Rattan – a major NTFP
- Contributes to local and global economy
- Significant to the livelihood in the uplands
- Source of subsistence and cash
- NTFPs particularly rattan attract considerable global interest.
- Value in global market:
 - 2002 = USD 69.64 B
 - 2003 = 83.49 B
 - 2004 = 79.52 B
- Increased recognition of the importance of rattan to the community:
- Improvement of rural livelihood: additional employment and income
- Opportunities for establishing business enterprises from production, processing, and utilization
- Contribution to foreign exchange earnings
- Relevance to biodiversity and environmental conservation

Research Areas

These were identified during the ITTO Rattan pre-project in 2003-2004.

a. Rattan production technologies

- Ecophysiology
- Planting system
- Genetic conservation
- Harvesting
- Manual/field guide

b. Rattan processing and utilization technologies

- Grading standards
- Post-harvest
- Product design

c. Marketing and socio-economic aspects

- Consumption patterns and market chain
- Indigenous knowledge system and gender roles
- Financial analysis (based on major products: cane, edible shoots)
- Policy advocacy and formulation
- Certification and labeling/fair trade practice

Eight research projects on plantation and utilization funded by ITTO-Philippines-ASEAN Rattan Project

Project code	Country	Project title
RPP- 1	Philippines	Isozyme analysis of Palasan (<i>Calamus merrillii</i> Becc.)
RPI – 2	Indonesia	Application of plant-derived preservatives to improve durability of rattan and rattan-based products
RPP – 3	Philippines	Grading rules for rattan in the ASEAN region
RPP – 4	Philippines	Community-based rattan plantation establishment and management
RPI – 5	Indonesia	Dragon blood extraction at various seed maturities level and their physico-chemical properties
RPM – 6	Malaysia	Growth performance of <i>Calamus subinermis</i> in Sabah, Malaysia
RPP – 7	Philippines	Production of a Rattan Field Guide
RPV - 8	Vietnam	Analysis of the roles of gender in planting rattans for forest enrichment in Doan Ket hamlet, Phuc Tien commune, Ky Son district, Hoa Binh province

Previous RDE Initiatives on Rattan

- Comprehensive studies of the structure and properties of rattans for effective utilization in China funded by ITTO in 1996
- Physical and mechanical properties of Philippine rattans and chemical applications to enhance cane quality by FPRDI
- Market situation of rattan: prices, demand, supply, marketing practices and flows by ITTO Rattan pre-project
- Information generated: inputs to ITTO-Philippines-ASEAN Rattan Project on utilization, plantation development, and technology transfer for adoption in the ASEAN

Concerns

- Inventory of rattan resources (supply and demand)
- Land allocation for rattan plantation development
- Policy in support of production and investments
- Enterprise and business development for livelihood and income generation
- Investment incentives
- Competitive marketing strategies

- Fusion of production and utilization
- Regulations on harvesting and transport of rattan canes and other products
- Institutional linkages and network
- Advocacy for environmental/ecological values

Desired RDE Actions for sustainability

- Prioritize list of key needs and strategies for sustainable development of rattan sector.
- Develop a general policy framework for integration in national forest policy.
- Discuss issues and desired actions for promoting rattan in terms of socio-economic benefits, processing and marketing, resource and environment, and institutional considerations.
- Disseminate and apply technologies in other ASEAN member countries.
- Conduct national survey and inventory.
- Undertake genetic evaluation and mapping.
- Propagate other potential rattans for commerce.
- Harness rattan as ornamental plant.
- Establish and manage rattan plantations for high quality cane production.
- Analyze geographical distribution of rattan vis-à-vis end product profitability.

- Download and expand extension activities to communities.
 - Diffuse rattan development and utilization technologies to the grassroots.
 - Transform rattan science to grassroots (IEC materials).
 - Sustain the regional collaboration in the ASEAN region.
 - Expand the collaboration, network, and linkage to other Asia Pacific and other tropical regions like Africa.
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Priorities

For. Diaz: Indeed, what we need to prioritize are the policy issues and research. We need to prioritize research and development areas for rattan in the next decade.

Dr. Li Qiang: There is a bright future for rattan and NTFP based on the presentation. The important points in different areas to be pursued were very clear. The framework can also be applied to other countries.

Dr. Tesoro: ITTO can play a big role in the rattan development in ASEAN. There is a need for stronger information sharing on rattan technologies among the different countries.

Need for certification

Dr. Hoogendoorn: Certification is really important. This has been tackled by the World Wildlife Fund (WWF) rattan project. In general, there are two existing systems. One is the forest stewardship council which makes certification impossible for small holders. The other one is a mere discussion where a country agrees to fully implement laws and policies no matter how imperfect. INBAR might need to look into the certification for bamboo and rattan.

Dr. Tesoro: In terms of certification, criteria and indicators which were developed earlier were not specific to bamboo and rattan, but to forest products in general. We want the certification process to be run by Filipinos and not by a foreign stewardship council. In other countries like Malaysia, Japan, and China, they have an agreement not to buy forest products without proper documentation.

Unstable policies

Dr. Manipula: Policies are very unstable. Hence, instead of giving lands for NTFP, people invest on banana plantations just like in Mindanao. Farmers would rather give up their lands to the Department of Agriculture because of unstable DENR policies.

Dr. Tesoro: DENR Secretary Paje has announced some changes in policies pertaining to forest and forest products. For example, for forest plants in private lands, products will be considered as agricultural products. Hence, permit to cut or to transport will not anymore be necessary; just a report to the DENR will suffice. The proposed law on sustainable forest management is still a pending legislation. It is better to have this passed rather than changing department orders endlessly.

PRESENTATION OF RESEARCH

Under Rattan Research Grant Programme

Isozyme Analysis of Palasan (*Calamus merrillii* Becc.)

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Genetic variability in Palasan (*Calamus merrillii* Becc.) from Legaspi, Albay; Malaybalay, Bukidnon; Nabunturan, Compostella Valley; and Pagbilau, Quezon was analyzed using starch-gel electrophoresis. Individuals of *C. merrillii* Becc. were sampled using their leaves as source of homogenates. Seven presumptive loci were observed encoding for three enzymes: two loci each for acid phosphatase (ACPH) and esterase (EST); and three loci for alkaline phosphatase (ALPH). Each locus was controlled by two alleles, slow (S) and fast (F).

The measures of intrapopulation variation involving proportion of polymorphic loci (P), average number of alleles per locus (A), and average heterozygosity (H) were highest in Bukidnon and lowest in Compostella Valley. These indicate that Compostella Valley population was the least diverse while Bukidnon population was most diverse. Measures of interpopulation variation involving genetic identity (I_N), genetic distance (D), and genotypic similarity (I) suggest that Quezon was the most distantly related population compared to other populations.



Application of Plant-derived Preservatives to Improve Durability of Rattan and Rattan-based Products

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Rattan is one of the most important NTFPs. It is a source of raw material for furniture, shopping and laundry baskets, and serving trays among the major products in urban areas. It is likewise a raw material for carrier and storage baskets among the main products in the rural areas. High starch content makes rattan vulnerable to infestation of fungi and insects. Infections by staining fungi and beetle attack can result to severe losses. Therefore, preservative treatments are required to improve durability of rattan and rattan-based products. This work aims to discover high efficacy and environmentally-benign preservative agents to improve durability and resistance of rattan and rattan-based products against biological deterioration agents.

From two villages in East Kalimantan, Indonesia, 32 plants were extracted with methanol. The plant extracts were applied to laboratory assays using *Schizophyllum commune*, *Aspergillus niger*, *Fusarium oxysporum* and *Penicillium* sp, that are known as rattan-degrading organisms. *Pterocarpus indicus* and *Caesalpinia sappan* were the most active plant extracts and selected for further investigation. Active substances from *P. indicus* (compound A) and *C. sappan* (compound B) were isolated by combination of various chromatographic methods and identified as flavonoid and neoflavonoid derivatives, respectively, by spectroscopic analyses.

Bioactive substances from *P. indicus* and *C. sappan* displayed potent activity against rattan-degrading fungi, while only compound A caused high mortality of post-powder beetle with relatively low concentration. In the field test of natural products in preserving the rattan and rattan



products, the results showed that the rattan treated with isolated compounds have good resistance against fungi and beetle attack in comparison with rattan treated with cypermethrin and with that of untreated rattan. Results displayed high potential of plant-derived preservatives in terms of *P. indicus* and *C. sappan*, when applied as rattan preservative.

Harmonized ASEAN Grading Rules for Rattan Poles and By-products

**Dr. Magdalena Y. Giron, Ms. Marciana R. San Pablo, C.C. Garcia,
Dr. Carlos M. Garcia, Dr. Florentino O. Tesoro,
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The project aims to harmonize the grading rules for unsplit and split rattan in the ASEAN region, and to classify the same based on diameter, quality, and other physical features of rattan and its derivatives. Data on rattan species and its basic properties like diameter size, color, presence or absence of blemishes, fungal or insect damage, cracks and splits were gathered from producers, suppliers, and manufacturers. Data were also obtained from country reports of ASEAN member countries and previously prepared grading systems. These were tabulated and analyzed for subsequent preparation of the draft harmonized grading system of rattan for the ASEAN region. The report also includes definition of terms, standard specifications as a basis for trading and acceptance, classification or grading of poles and their derivatives or by-products, process of inspection, and packaging and handling of the products. Other conditions for rattan and its by-products are also stipulated in the proposed grading rules for rattan derivatives.



Dragon's Blood Extraction at Various Seed Maturity Levels and their Physico-Chemical Properties

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In Indonesia, dragon's blood resin is produced from the rattan fruits of the genus *Daemonorops*, known locally as *djernang*. After collection of the fruits, the resin is extracted by breaking the layer of red resin covering the rattan fruit. To date, there is meager information or literature on the harvesting time of dragon's blood fruits.

The research aims to: develop an extraction method for dragon's blood production; determine the proper maturity of seed in producing resin; and identify the physico-chemical properties of the resin.

Research results showed that the methanol solvent extraction was the best technique to separate resin from the fruit skin for fruits collected from both Jambi and South Kalimantan provinces. The relationship between Jambi's rattan fruit age and resin content could be expressed in an equation: $Y = -0.4796X^2 + 6.4767X + 76.353$. From this equation, the best harvesting time was 6.8 months. This stage could produce the highest quantity of resin, with 0.29 percent ash content and 2.66 percent dirt content. Based on the dirt content, this resin can be classified as first grade based on the Indonesian National Standard requirement for dragon's blood resin.

The relationship between South Kalimantan's rattan fruit age and resin content could be expressed in an equation: $Y = -17.495X^2 + 190.39X - 439.52$. Based on this, the best harvesting time was 5.4 months and this could produce the highest quantity of resin with ash content at 15.57 percent and dirt content at 21.57 percent. Based on the dirt content, this resin has fulfilled the second grade requirement of the Indonesian National Standard for dragon's blood. Further, the main chemical composition of this resin was 10, 10-dimethyl-6-methylen-1-oxa-2-phenylspiro (4,5) decane (dracohordin).



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Dragon blood extraction

Dr. Palijon: In the dragon's blood extraction study, how long does it take for rattan fruits to mature from flowering to fruiting stage? Color of rattan fruits usually turns black when mature. This can be used as indicator of the fruit's age. Once fruits start falling, it is an indication that they are already mature.

Dr. Bambang: Rattan fruits usually produce good resin before full maturity. This is just an approximation of the fruits' age. It's difficult to tell the age of rattan fruits in the field.

Plant-derived preservatives

Dr. Lapis: On the application of plant-derived preservatives, how much extract from a given tree is needed to generate natural preservative?

Dr. Irawan : Definitely, care should be taken not to let the tree die when the isolate is obtained; biological considerations also get into the picture.

Grading rules for rattan

Dr. Hoogendoorn: On harmonizing ASEAN grading rules, indeed more information are needed to upgrade the rattan industry. INBAR is interested in the grading system all over the world. The current work on grading is very useful and this can be made part of INBAR research.

For. Diaz: How many countries have standard grading rules?

Dr. Giron: They include the Philippines, Malaysia, and Indonesia in ASEAN.

For. Diaz: What happens if there are no grading rules?

Dr. Giron: It would lead to waste of various rattan derivatives. Mixing up all rattans will waste the small diameter ones if the big ones are the preferred sizes. Grading also helps furniture makers determine how much they would need in terms of small or large rattans.

For. Diaz: Developing of ASEAN standards will have to pass through a higher body. In the Philippines, special laws are needed to adopt grading quality.

Isozyme analysis

For. Diaz: It's difficult to understand the chemistry of isozyme. If Bukidnon rattan (*Calamus merrillii*) would offer as good sources, this can affect the diversity in the area.

Ms. Delos Reyes: Planting materials can also be obtained from other sources or areas.

Dr. Manipula: What are the recommendations on the on the use of rattan population from Bukidnon? What are the advantages and disadvantages in selecting the population? There tends to be higher variability in quality if plants are heterozygous; less variability, if they are homozygous.

Dr. Delos Reyes: The selection process depends on what rattan end- products are desired. Based on this, the appropriate rattan species can be selected. A wider genetic base is more advantageous in terms of adaptability or the higher capability to evolve. But if a specific measurement is being targeted, it is better use homozygous.

Dr. Tesoro: Has the idea of developing rattan seeds and depositing them in cryogenic storage, like in IRRI and IPB, been considered?

Dr. Dransfield: Cryogenic storage is okay with rice but not with rattan because rattan seeds are recalcitrant and would require more complicated procedures.

Dr. Lapis: We don't have the cryogenic facility yet.

PRESENTATION OF RESEARCH (continued)

Growth Performance of Calamus subinermis in Sabah, Malaysia

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This study was carried out to assess the survival and growth performance of the 14-year old provenance *cum* progeny trials of *Calamus subinermis* in three different sites namely: Kolapis A (a logged-over forest), Segaliud Lokan (*Acacia mangium* plantation), and Sook (scrub dominated by *Baeckia frutescens*) in Sabah, Malaysia. High survival rate (more than 88%) was observed in Sook while high mortality rate (more than 60%) was observed in Kolapis A and Segaliud Lokan. The survival rate was significantly different between provenances in Kolapis A and Segaliud Lokan. The mean annual growth rate of *C. subinermis* was 1.47 m/y; 3.72 m/y and 4.09 m/y in Sook, Segaliud Lokan and Kolapis A, respectively.

The growth performance of *C. subinermis* was highly affected by surrounding environment and provenances. The interaction between genotype and environment was detected in these trials and the growth trait of *C. subinermis* was site specific. The best provenance for breeding in total stem length were Kota Marudu, Lawas, and Tandek in Sook; provenance Tamparuli, Tuaran, and Penampang in Segaliud Lokan; and provenance Kota Marudu, Tuaran, and Pulau Tiga in Kolapis A. The differences in growth rate between sites and provenances indicated that soil type, planting distance, and support tree at different sites affected the overall performance of *C. subinermis*.



Analysis of Gender's Role in Rattan Planting for Forest Enrichment in Doan Ket Village, Ky Son District, Hoa Binh Province

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The Doan Ket village, Phuc Tien commune, Ky Son district, Hoa Binh province has developed a linkage model of rattan planting for forest enrichment with participation of community members at various levels. This was done with support from the project "Demonstration and Application of Production and Utilization Technologies for Rattan Sustainable Development in ASEAN Member Countries" and ITTO. One of its objectives is to enhance the role of Muong women in forest protection and development at their household and community levels.

In order to assess the role of women in rural mountainous areas in the protection and management of forest areas allocated to their households, the research team selected Doan Ket village, Phuc Tien commune to carry out the research on "*Analysis of Muong women's role in rattan planting for forest enrichment in Doan Ket village, Phuc Tien commune, Ky Son district, Hoa Binh Province*". Research results shall form the basis for recommendations on how the Muong women's role may be enhanced in the protection and development of forest areas allocated to their households for management. This hopefully would gradually contribute to increased income from forest among the local people and a feeling of security in their forest protection efforts.



Rattan Pilot Demonstration Establishment in Amas, Kidapawan City

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*ERDS-Region 12, Kidapawan City
Cotabato Province, Philippines*

This is a community-based that demonstrated and applied the technologies on the production of seedlings, plantation establishment, maintenance and protection of the plantation and utilization of raw materials of Palasan species of rattan (*Calamus merrillii*). The project was conducted from January 2007 to December 2009 at Barangay Amas, Kidapawan City within the Cotabato Provincial Forest and Ecotourism Park. It was participated in by representatives from barangay local government unit, CENRO, PENRO, and members of Amas Community Based Rattan Growers Association. The project covers the establishment of 30 hectares rattan plantation.

The project participants were trained on rattan processing and utilization technologies, nursery and planting stock production, and rattan plantation establishment and management.

The data on socio-economic condition of the participants were gathered and analyzed. The plantation was maintained by members of the association. Data on growth and percentage survival of the plantation were also gathered and analyzed.



IMPACT ASSESSMENT

ITTO-Philippines-ASEAN Rattan Project and ASEAN Database

For. Imelda C. Pangga

*Networking and Database Component Leader
ITTO-Philippines-ASEAN Rattan Project
Los Baños, Philippines*

Why an impact assessment?

The project aims to strengthen ASEAN collaboration that would promote the sustainability of rattan resources. This was done through demonstration and application of rattan production and utilization technologies to uplift the socioeconomic status of local communities.

The basic question, therefore, dwells on whether the project has been effective and efficient in achieving its goal. What are the characteristics of the stakeholders? Is there any difference in their well-being before and after the project implementation? How did the research undertakings contributed to the improvement of rattan-related policy and governance status?

Objectives

The impact study is a self-evaluation initiative of the ITTO Rattan Project. Measurements were done before and after the project implementation to determine whether changes, either positive or negative, have been effected by the project's intervention.



Methodology

The study used both the qualitative and quantitative methods to assess the impact of the project and its components/activities as basis for better future project management. The quantitative method was complemented with key informant interviews.

Impacts of the project were assessed in terms of its contribution to socio-economic aspects, policy making, governance, and institutional development in the participating ASEAN countries, namely: Cambodia, Indonesia, Lao PDR, Myanmar, Philippines, Thailand, and Vietnam.

a. Organization and mobilization

The networking component spearheaded the preparation of questionnaires and the conduct of surveys and interviews with key informants. Surveys and interviews were conducted by the project staff in coordination with the field staff.

b. Sampling size by group/category of respondents

The study used purposive sampling and key informant interviews in collecting information for the household surveys. Heads of implementing agencies, principal and junior researchers, and

firm representatives composed the key informants. At least one country representative per informant group or category was targeted for the interview.

c. Data collection and analysis

Comparing and contrasting the baseline against the post-implementation data were used to determine changes. Frequency counts, percentages, ranges, and means were used for data analysis.

d. Impact indicators

The socio-economic indicators included a set of socioeconomic variables on households such as demography, income and employment, housing characteristics, facilities, household assets, expenditures, and land tenure.

Policy making indicators involved a set of questions related to identifying current sustainable management issues about rattan resources and what research can do to address them.

Governance indicators were made up of a set of questions related to improvement of rattan management by stakeholders.

Institutional development indicators dealt with questions about improving the linkage between and among stakeholders.

Findings

Table 1. Distribution of respondents

Respondents	BASELINE RESPONDENTS							POST-IMPLEMENTATION RESPONDENTS							
	KHM	IDN	LAO	MYR	PHL	VNM	TOTAL	IDN	LAO	MYS	PHL	THA	VNM	MYR	TOTAL
Survey respondents	2		11	3	80	53	149	10	9		28		10		57
Key informants															
Heads of implementing institutions		3	2		4	1	10	3	1		1	4	1		10
Principal and junior researchers	9		9	16			34			1	1		4		5
Firm representatives		7		10		4	21		1		3		1	3	8
Sub-total							214							81	
Total															295

a. Heads of Implementing Agencies

Baseline =14 (IDN, LAO, PHL, VNM)
 Post implementation = 6 (IDN, PHL, VNM)

Table 2. Policy impact

Item	Baseline	Post
All policies need to be revised.	71%	66% (Rp, Rh)
		17% (Rm)
		17% (other)
All agencies will use the project results in policy revisions in the country.	100%	100%

Table 3. Governance impact

Item	Baseline	Post
The project has positive results in the improvement of rattan production.	100%	100%
The project will result to clearer identification of persons/organizations responsible in rattan conservation.	93%	83%
The project will result to better monitoring and evaluation of rattan conservation/production.	93%	67%
Agencies are optimistic that their involvement will be sufficient in ensuring relevant rattan production/utilization in their country.	57%	33%

Table 4. Institutional impact

Item	Baseline	Post
The project results in changes in institutional structures.	57%	17%
The project results in better linkages between and among institutions engaged in rattan management at the site, national, or regional levels.	100%	50%
The project results in the identification of capacity building requirements of organizations.	93%	67%
The project results in the generation of resources for rattan.	100%	67%
The resources are sufficient to achieve the over all objectives of the project.	67%	50%

b. Principal and Junior Researcher

Baseline = 34 (KHM, LAO, MYR)
 Post implementation = 9 (MYS, PHL, MYR)

Table 5. Impact on principal and junior researchers

Regional solutions to rattan conservation issues	Baseline	Post
They knew about the project.	71% training	33% training and project involvement 33%
The project will address rattan production and conservation issues.	74%	67%
They will communicate/share with policy makers, LGUs, and relevant stakeholders the results of the study.	Training and consultations	Consultations and publications
Most important contribution of the project to rattan research theme	Studies on value of rattan resources and processing	Processing/ utilization

Table 6. Contributions of the project

Item	Baseline	Post
Important contribution of the project in the locality	Awareness on rattan conservation/production measures and programs	Awareness on rattan conservation/production measures and programs
Important contribution of the project at the national level	Development of management plan and product improvement	Awareness, database, and funding availability
Important contribution of the project at the regional level	Awareness of rattan conservation/production measures and program and database development	Awareness, development of management plan and funding availability
The project addresses the rattan conservation, production, utilization issues.	Yes - 92%	Yes - 66%
Does the project contribute to the development of new research methods?	Yes - 76%	Yes - 78%
Potential new method	Development of new technology/improve processing	Scientific writing, propagation, and plantation establishment

Item	Baseline	Post
Important contribution of the project at the regional level	Awareness of rattan conservation/production measures and database development	Awareness, development of management plan and funding availability
Benefit to the researcher	Facilitates comparability of results across countries	Facilitates comparability of results across countries
Trainings to be conducted by the project	Establishment of commercial plantation	Rattan plantation, treatment, bleaching rattan planting
Institutional arrangement The project results in changes in institutional structures at the site, national and regional level, better linkages, capacity building, generation of resources, streamlining of research methods	Yes	Yes
The project contributes to poverty alleviation in the area	Through community based plantation	Community plantations
Gender issues	Yes, provides jobs for women	Yes – provides jobs for women in the community

Table 7. Impacts of the project

Item	Baseline	Post
Policy Impact	Rattan species conservation and production and rattan marketing	Rattan harvesting and rattan marketing
Governance impact	Improvement in rattan production; identify persons/organizations responsible in rattan production; better monitoring and evaluation of rattan production schemes	Improvement in rattan production; identify persons/organizations responsible in rattan production; better monitoring and evaluation of rattan production schemes

d. Firm Level-Preservation, bleaching and finishing

Baseline = 22 (IDN, MYR, PHL, VNM)
 Post implementation = 8 (MYR, LAO, PHL, VNM)

Table 8. Profile of firms and their preservation, bleaching and finishing practices

Item	Baseline	Post
Number of years in the business	1-10 years (55%)	1-10 years (63%)
Product lines	Furniture and baskets	Baskets, furniture, trays
Market	Export = 76-100% of their products	Local = 40% Export = 25%
Gross sales	>90,001 USD MYR	200,000 USD LAO
Wood and non-wood materials used	Rattan poles, rattan splits	Rattan poles, wickers
No. of months in production	6-10 months	6-10 months
What do you use to bleach rattan?	Hydrogen oxide, thinner	thinner
How long do you boil or soak rattan in bleaching solution?	30 minutes	30 minutes; 3 hours
Finishing practices by the firm	Sand surface, apply sanding sealer, apply clear gloss lacquer	Apply stain, apply clear gloss lacquer
Drying technique	Sun drying	Sun drying
Adoption of technologies	Partial adoption (23%)	Partial adoption (40%)

e. Household Survey

Baseline = 149 (KHM, LAO, MYR, PHL, VNM)
 Post implementation = 57 (IDN, LAO, PHL, VNM)

Table 9. Socio-demographic characteristics

Item	Baseline	Post
Household size	PHL = less than 4 LAO = more than 7 VNM = 5-6 KHM = 5-7 MYR = no response	Same data except for LAO = 5-6
Number of children	0-3 = LAO,PHL,VNM 4-6 = MYR 0-3 and 7-9 = KHM	0-3 = VNM,IDN 4-6 = LAO,PHL

Household structure	Single type (LAO,PHL,VNM)	Nuclear (PHL,VNM)
Age, gender, civil status	Adult , males, married	Same
Educational level	Elementary (LAO, PHL)	Secondary education
Residency	Original residents	Original residents Phil - original residents and migrants
Annual income	0 - 1042 = KHM 1,042 - 2,084 = LAO 3,000 and above = MYR 0-1042 and 1042-2084=PHL No response =VNM	0-1042 and 1042-2084 =IDN 1,042-2,084 = LAO 0-1042 and 1042-2084 = PHL No response =VNM
Primary source of income	Farming and no secondary occupation	Farming and no secondary occupation
Home lot ownership	Owned	Owned
House types	Wooden houses (KHM, MYR) Wooden and concrete (PHL, VNM)	Same
Housing facilities	Source of drinking water= pipes (PHL) Electricity available except for KHM Toilet facilities Flush/water sealed = LAO Philippines = closed pit Vietnam = open pit	Same
Household assets	PHL-TV, electric fans, VCD/DVD, radio, washing machine, cell phone, karaoke, personal computer, component =PHL VNM =TV, ref, DVD/VCD, motorbike, video MYR =TV, Motorbike, Car LAO and KHM = tables and chairs	IDN-TV, Motorbike, Mebel LAO-motorbike, hand tractor PHL=the same VNM-TV, motorbike
Land tenure	Owner cultivator	Owner cultivator
Size of land cultivated	0-10 has	0-10 has
Land type	Private lands, government lands and ancestral	Same
Land classification	Irrigated low lands, rainfed lowlands, irrigated upland	Same
Cropping system	Mono-cropping	Multiple cropping

Awareness of rattan production/conservation/utilization	46% are aware	91% aware
Does rattan conservation, production and utilization have any effect on the individual?	Yes 33%	Yes 100%
Are there changes in production and utilization after being aware of the program?	Yes 36%	Yes 60%
Percentage of income attributed to rattan	0-30% (7%)	3%
	31%-60% (5%)	11%

e. Conclusions

e.1. Heads of implementing agencies

1. Majority of the respondents believe that the project has positive impact on the improvement of rattan production.
2. Baseline respondents believe that the project will effect changes in institutional structures. Post implementation respondents believe otherwise.
3. The project results in better capacity building and in generation of resources for rattan.
4. Majority of baseline respondents view that the project resources are enough while only 50 percent of post implementation survey respondents share the same view.

e.2. Principal and Junior Researchers

For this group of respondents, the project was noted to have contributed to the following:

1. Development of new research methods for improvement of rattan processing, scientific writing, propagation, and plantation establishment

2. Awareness of rattan production, database development, funding availability, and development of management plan at the regional level
3. Facilitated the comparability of results across countries
4. Institutional changes, better capacity building, generation of resources and streamlining of research methods
5. Poverty alleviation through community plantation
6. Positive impact on gender issues by providing jobs for women
7. Policy impact on rattan species conservation, production, and marketing
8. Positive impact on governance

e.3. Household Survey

Rattan conservation has positive impact on the individual. They believe that the project has positive impact on rattan production and utilization.

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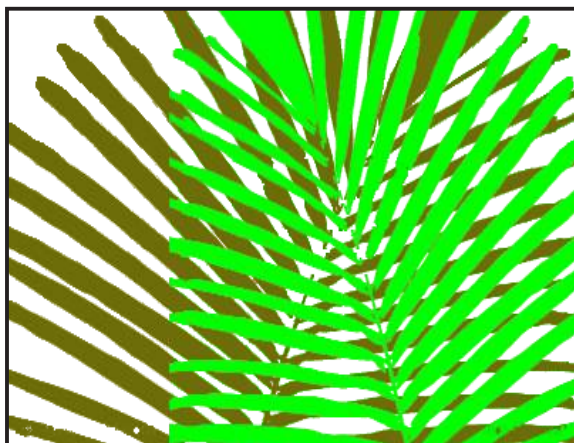
Data accuracy and analysis

Dr. Sargento: Some of the data presented need to be checked for accuracy, particularly in terms of the number of respondents before and after.

For. Diaz: Social researchers should be careful in analyzing data. To say that rattan caused the reduction in the number of children may be misleading as shown in the pre and post comparison. Ideally, the number of respondents in the pre and post should be the same; otherwise, it should be explained why it was not done. Another post evaluation after three years may be done to determine the impact better.

Dr. Hoogendoorn: The study is more of an outcome study rather than an impact study. It is intriguing to see a large number of households at the start, and then find only a few left at the end. Those who did not respond may not care about the project at all. The positive effect of the project on poverty reduction should not be claimed. Only the households involved can say this. Hence, the positive and negative effects of the project on their lives should be explored more and analyzed carefully.

Dr. Manipula: Most of the data made use only of frequency and descriptive analysis. Further statistical tests can be done to determine which socio-demographic variables have significant impact on rattan production and utilization technologies.



Data gaps and sources

Dr. Li Qiang: The data presented covered only seven out of 10 countries participating in the project. Why? How was the data obtained?

For. Pangga: More data have yet to be filled up. It will still be done. Data used were mostly from Dr. Lapis' research. A proposal may be submitted to INBAR or ITTO for more data collection.

Dr. Hoogendoorn: The work on database is a good start. It can serve as information hub for facilitating knowledge exchange. However, people will not just put in the missing data. They need prompting, facilitating, hosting to prod them to share. It may be better to try the Facebook. The database still needs a lot of work to make it a lot easier for the people to put data in it and to make them participate like in the Facebook.

For. Pangga: Consultations with users in other countries will be done so that the appropriate design and program can be developed. Other data such as list of rattan species will still need to be worked out

Dr. Dransfield: This is an impressive work. The Palmweb can be used also as a very useful source of completely verified information about rattan.

Sustainability of the database

Dr. Li Qiang: How do we ensure the sustainability of the website so that it will not disappear when the project ends?

For. Pangga: ERDB is willing to continue and sustain the website.

PROJECT PROPOSAL PRESENTATION

Small-hold Rattan-Based Enterprises Development in Asia and Pacific

ITTO Rattan Team:

Marcial C. Amaro, Jr., Aida B. Lapis, Magdalena Y. Giron, Imelda C. Pangga, Kharina G. Bueser, Gregorio E. Santos, Jr., and Armando M. Palijon

I. Relevance of the Action

Rattans have been traditionally used by Asians as instruments in arts, tools/implements in agriculture and fishing as well. Many commercial species of rattans have significantly contributed to local and national socio-economic development through the generation of livelihood opportunities and provision of raw materials required by village-level as well as commercial rattan-based industries. There is a continuously growing demand for rattan and rattan-derived products in both local and international markets. Rattan exports would, more likely, increase despite the economic recession. The current trade of rattan in the world is worth approximately 2.5 billion USD. The Philippines and Indonesia are the leading exporters of high quality rattan furniture and handicraft. Other SEA countries like Vietnam and Myanmar will eventually capture American and European markets for their rattan products. Sustainability of the rattan industry in the region has been given attention by regulating and preventing the export of raw canes and by encouraging processing into finished products in the country of origin so that there will be more value-added making the industry more economically rewarding. The dwindling supply

of rattans from the natural forests, however, had affected and is still affecting the rattan sector. Thus, the need to conserve and enhance the regeneration of the remaining rattan stocks in the natural forests and to establish artificial rattan plantation in order to ensure continuous supply of rattan has become a regional concern.

Upland communities living within or in close proximity with the forest are one of the most marginalised sectors of society. They normally rely on the forests as their source of livelihood. They gather non-timber forest products (NTFP) to either utilize them for their own consumption or sell them to augment their meagre cash income. Local rattan and other NTFP producers remain at the mercy of middlemen. They normally face the following problems: their area is remote and less accessible; they lack the knowledge of the kind of products the market wants and the capability to produce such products; very limited financial resources and inadequate business management skills for developing small-scale rattan-based enterprises; and, decreasing supply of rattan and other NTFP resources. There is therefore a

need for institutional interventions like provision of financial and material support, skills training in design and product development, access to market outlets and others. Classic success story is the INBAR's Action Research in Manipur Northeastern India where cane processing and sale of products became viable means of sustainable income generation for upland communities.

Popular rattan products are mostly semi-processed and processed. Other products of rattan such as edible shoots, fruits, wine, health drinks, medicine and other pharmaceutical products are still untapped and underdeveloped. This project envisions to develop the potential of other rattan products for household or village scale enterprises in tandem with cane-using industries in order to fully harness rattans as bio-resource for livelihood and economic upliftment of communities in Asia and Pacific.

As a sequel to the ITTO-Philippines-ASEAN Rattan Project, this proposed small-hold rattan-based enterprise will capitalize on the knowledge, insights and experiences gained from the 4-year ITTO rattan project that was implemented in ASEAN Countries. This project is proposed to sustain the support to the booming rattan industry in developing countries like Laos and Cambodia. The inclusion of Pacific Island countries is aimed at assisting them in the scientific management and utilization of non-timber forest products more importantly rattans while the industries are starting to develop in this region. The Philippines will serve as link as far as share of knowledge, information and technologies on production, processing, utilization and even marketing are concerned.

II. Objectives

Goal:

To develop small-hold rattan-based enterprises in Asia (Cambodia, Lao, Philippines) and the Pacific (Papua New Guinea and Fiji).

Objectives:

1. To identify potential and select the most suited small-hold rattan based enterprises in each of the participating countries.

2. To demonstrate through establishment of a pilot of the identified small-hold rattan based enterprises in each of the participating countries.

III. Project Components

- A. Identification of existing small-hold and/or village rattan-based enterprises

1.1. Site Selection

Project site will be identified in coordination with the counterparts of target countries.

1.2. Inventory of rattan species

The naturally existing species of rattan in target countries will be documented and their quantity and density will be determined. This information will be used in the resource utilization permit to be applied by the local communities involved in the project as interim source of raw materials while the plantation has yet to be harvested.

1.3 Inventory report publication

The inventory results will be published in scientific or technical journal.

2. Inventory of existing rattan industries per country

2.1 Inventory of rattan-based industries will be conducted. Information on profile, status, distribution of the rattan-based and related industries will be generated per country.

2.2 Rate of consumption and production of raw materials will be assessed

2.3 Impact of the industry on the socio-economic, including employment generation will be assessed.

- B. Identification of small-hold rattan-based industry for products unique in each participating country

1. Workshops to identify and determine the small-hold rattan-based industry for unique rattan products with highest socio-economic potential

2. Agreements on development of skills for design and product development will be settled thru participatory approach among stakeholders.
- C. Development of small-hold rattan based industry for unique rattan products in each participating country
1. Planting stock production
 - 1.1 Local community meetings/coordination
Meeting with the local communities with the assistance of the country counterparts will be conducted regarding the proposed planting stock production scheme. The scheme developed by the ITTO-Philippines-ASEAN Rattan Project will be implemented in this project. The pilot demonstration sites developed by the ITTO-Philippines-ASEAN Rattan Project will be tapped as initial source of planting stocks.
 - 1.2 Selection of communities to be involved in the project
Selection of and coordination with additional communities to be engaged in rattan plant stock production will be conducted in coordination with the country counterparts.
 - 1.3 Capacity building on planting stock production
Selected communities will be trained on recent technologies for planting and maintaining rattan seedlings or cuttings.
 - 1.4 Community planting stock production
Community rattan nurseries will be established plus more involvement of rural organizations will be encouraged. Incentive to the local communities to raise seedlings which will be used in the plantation will be provided. Locally available species of commercial value will be the priority choice materials to be reared. Introduction of other species will be done when necessary, particularly to Pacific Island countries with caution.
 - 1.5 Central nursery establishment
 - 1.5.1 Site identification
The site for the central nursery will be located within or adjacent to the project site.
 - 1.5.2 Nursery establishment
In support of the community nurseries a central nursery will be established to provide adequate supply of planting stock.
 - 1.5.3 Nursery maintenance
The nursery will be maintained by local staff hired by the project.
 2. Plantation development
 - 2.1 Community rattan plantation establishment/enhancement and management
Through the country counterparts, local communities will be enjoined to establish and maintain rattan plantation. Incentives will be provided to the local communities to maintain the plantations.
 - 2.2 Site and species compatibility
Based on the inventory conducted, the species to be planted will be identified using species indicator methodology.
 - 2.3 Outplanting Phase
The same communities will be involved in the out-planting of seedlings to establish plantations.
 - 2.4 Maintenance
Fertilization and weeding will be conducted by the communities. Incentive scheme developed by the ITTO-Philippines-ASEAN Rattan Project will be used in the entire plantation development phase.
 3. Harvesting
 - 3.1 Capability building on sustainable harvesting methods of rattan canes, fruits, and other utilizable parts of rattan
 - 3.2 Improvement of harvesting methods and innovation of cost effective devices in cutting rattan stems, fruits and shoots shall be developed vis-à-vis research results.
 4. Processing and Manufacturing
 - 4.1 Establishment of rattan terminal for primary processing for specific use and to improve the value added of raw material. Primary processing will be done for various products of desired end uses.
 - 4.2 Finished product development will also be harnessed for livelihood development. Appropriate skills for product choices will be enhanced by providing training, cross visits and related field exposures.

- 4.3 Capability building for primary processing, finished product development such as wine processing, medicinal plant processing, packaging and promotion, etc.
- 5. Marketing strategies/industrial survey
 - 5.1 Rate of consumption and production of raw materials will be assessed
 - 5.2 Market outlets/strategies in relation to product quality, design and acceptance will be developed. Local and international markets for primary processed and finished products will be sourced to augment the livelihood opportunity within the target countries.
- 5.3 Impact of the industry on the socio-economic, including employment generation will be assessed.
- 6. Coffee table book on rattan species including their socio-cultural and industrial use

Based on literature and inventory conducted on the existing rattan species found in the target countries, a coffee table book will be prepared and documented. Socio-cultural and industrial uses of these species will likewise be featured in the coffee table book. This will showcase the local rattan species found in the target countries. Likewise, the book will serve as valuable information to further the development of rattan and in crafting policy for conservation, management and sustainable use.

- 7. Dissemination of information to different stakeholders
 - 7.1 Website about the project and products developed will be launched and maintained.
 - 7.2 Production of information materials such as product brochures, etc.
 - 7.3 Participation in international and national trade fairs will be enjoined to promote the products.

IV. EXPECTED OUTPUTS:

1. Data base on rattan resources
2. Identification of existing rattan based industries in each participating country
3. Development of small-hold rattan based industries in each participating country.
4. Rattan plantation development in each participating country
5. Processing and manufacturing terminal established in each participating country
6. Marketing strategies developed
7. Coffee table book on rattan species including their socio-cultural use printed and distributed
8. Website developed
9. Participation in trade fairs
10. Printing of brochures and other information materials

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Change in title

For. Diaz: The title and content focus more on community. Can the title be changed instead from “small-hold” to “community-based” rattan enterprise?

Dr Lapis: It is agreed in as much as the project would focus really on poor communities.

Project focus and content

Dr. Irawan : If possible, the community should be introduced also to design, quality control, and improved marketing system for a competitive production. There is a need to campaign and encourage the people to use rattan. For example, government offices may be encouraged to use environment-friendly rattan furniture instead.

Dr. Lapis: The government once did a proclamation for offices to use native products. The suggestion will be incorporated in the proposal.

Atty. Gasgonia: Can the project also consider the transport of raw materials from the farms to the markets or the processing centers? From the community to the factories? There is also a problem on how to preserve the raw material.

Dr. Palijon : They shall be included in the post-harvest strategies.

Dr. Palijon: In the Philippines, there are already mature rattan plantations like those in Bicol. However, a national stock inventory should be undertaken by the project.

Dr. Manipula: The medium-scale rattan industries are already quite developed in the country. Rattan entities in the ASEAN region could also be working separately on the same thing.

Dr. Lapis: Medium-scale industries can be tapped for their facilities in this proposed project. At the ASEAN level, complementary tasking shall be done.

Don't start from zero; link up

Dr. Hoogendoorn: The issue is on the typical tendency to start from zero, which will take six to seven years before production. Participants should take stock of other on-going projects, identify the strengths and link together. The already existing plantations can be used as sources of materials.

2010 DECLARATION OF COMMITMENT

Participatory Exercise

As a prelude to the review of the draft Declaration of Commitment and using meta cards technique, participants were asked to provide individual answers to the question "How can you contribute to the sustainability of rattan in the SEA region?" This was meant to capture areas of collaboration and further include such in the draft commitment.

The participants' answers revolved mainly on the following: information sharing, production and conservation of rattan, and collaboration with different institutions.

For information sharing, participants indicated participation in information, education and communication campaigns with regards to the

different information about rattan such as proper planting and harvesting, different uses, and sharing of technologies. Some also mentioned advocating the use of rattan products.

In terms of production and conservation of rattan, participants mentioned about strengthening the policies concerning rattan such as on certification and on land tenure. Some also included establishment of more rattan plantations.

Lastly, participants also mentioned the need to continue working with the different institutions involved in the rattan project, which support the study, protection, and development of rattan.

Final Version of Pledge of Commitment

Below is the final version of the declaration of commitment agreed upon and signed by participants at the close of the conference.

Commitment to Sustainability of Rattans in the Region Among Participating SEA Member Countries 2010

Rattans, the climbing palms, are one of the natural resources that have high economic and environmental significance. Second to timber, they are the pride and wealth of the tropical region. Specifically, tropical Asia, being the natural habitat of rattans, is endowed with more than 600 rattan species representing 12 genera. For many centuries, the culture, traditions, and way of life in Southeast Asia have become inextricably linked with the use of natural resources such as rattans with multifarious uses, values, and benefits.

Traditionally, rattans have been popular natural materials for implements used in agricultural or farm production and for household and decorative items with plenty of domestic uses. Workability and versatility of rattans allow ethnic and modern articulated designs with a touch of Asian Tropics. This made rattan products, both furniture and handicraft, most sought after in both local and international markets. The rattan industries in the ASEAN have grown into a multi-billion dollar trade and have contributed in building the local, national, and regional economies.

Whereas, the ASEAN is home of rich traditions many of which can be traced on the uses and values of non-timber products like rattans.

Whereas, the ASEAN member countries recognize the contributions of rattans in the subsistence and livelihood of rural communities; in improving local and national economies; and in the growth of local and international trade of rattans and other non-timber forest products.

Whereas, the tropical Asia, more specifically the Southeast Asian region, is a major habitat of rattans, hence, renewal of the rattan resources through natural and artificial regeneration must be assured.

Whereas, rattans are important link to biodiversity and environmental conservation since they need support trees for their normal growth and development.

Whereas, rattans are important components of forest ecosystem because they contribute to the sequestration and storage of carbon dioxide (CO₂);

Whereas, rattans not only offer its pliant cane for furniture and handicraft but also other materials that are socio-economically important such as shoots and fruits for food, health drinks (juice and wine) and medicine; and fruits as source of natural dye and decorative items.

Now, therefore, having recognized the socio-cultural values of rattans and their contribution to the economy, ecology and environment, we, the rattan scientists, professionals, and practitioners of the participating ASEAN member states, commit to join hands and efforts to:

Promote rattans as eco-friendly raw materials for handicrafts, furniture, and other rattan-based related industries;

Protect and conserve the natural habitat of rattans to minimize the loss of rattan species;

Conduct relevant research, development, and extension activities to fully harness the potential of rattans in the production of other economically important natural products like food, health drinks, medicine, and others not only for local consumption but also for commercialization;

Adopt science-based generated technologies for rattan production and utilization;

Engage in plantation development in order to ease up the pressure on the remaining natural stands, to replenish the dwindling rattan resources, and augment the supply to the rattan-based industries; and

Support the exchange and/or sharing of information and technologies for the sustainability of rattan industry within and outside the region.

In the spirit of ASEAN mutual understanding, cooperation, collaboration, and solidarity, we the rattan scientists, professionals, and practitioners affixed our signatures as a sign of commitment to the sustainability of rattans in the region this 31st day of August, 2010 at Makati City, Philippines.



Commitment of Participating SEA Member Countries on Sustainability of Rattans in the Region 2010

Rattans, the climbing palms, are one of the natural resources that have high economic and environmental significance. Second to timber, they are the pride and wealth of the tropical region. Specifically, tropical Asia, being the natural habitat of rattans, is endowed with more than 600 rattan species representing 12 genera. For many centuries, the culture, traditions and way of life in Southeast Asia have become inextricably linked with the use of natural resources such as rattans with multifarious uses, values and benefits. Traditionally, rattans have been popular natural materials for implements used in agricultural or farm production and for household and decorative items with plenty of domestic uses. Workability and versatility of rattans allow ethnic and modern articulated designs with a touch of Asian Tropics. This made rattan products, both furniture and handicraft, most sought in both local and international market. The rattan industries in the ASEAN have grown into a multi-billion dollar trade and have contributed in building the local, national and regional economies.

Whereas, the ASEAN is the home of rich traditions many of which can be traced on the uses and values of non-timber products like rattans.

Whereas, the ASEAN member countries recognize the contributions of rattans in the subsistence and livelihood of rural communities, in improving local and national economies; in the growth of local and international trade of rattans and other non-timber forest products.

Whereas, the tropical Asia, more, specifically the Southeast Asian region, is a major habitat of rattans hence renewal of the rattan resources through natural and artificial regeneration must be assured.

Whereas, the rattans are important link to biodiversity and environmental conservation since they need support trees for their normal growth and development.

Whereas, the rattans are important components of forest ecosystem because they contribute to the sequestration and storage of carbon dioxide (CO₂);

Whereas, the rattans not only offer its pliant cane for furniture and handicraft but also other materials that are socio-economically important such as shoots and fruits for food, health drinks (juice and wine) and medicine; and, fruits as source of natural dye and decorative items.

Now, therefore, having recognized the socio-cultural values of rattans and their contribution to the economy, ecology and environment, we, the rattan scientists, professionals and practitioners of the participating ASEAN member states, commit to join hands and efforts to:

Promote rattans as eco-friendly raw materials for handicrafts, furniture and other rattan-based related industries;

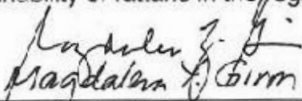
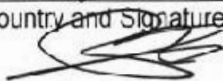
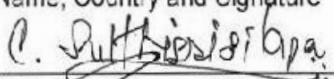
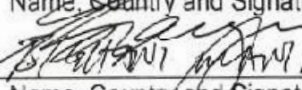
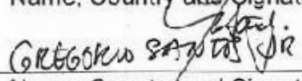
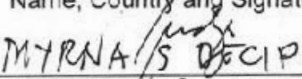
Protect and conserve the natural habitat of rattans to minimize the loss of rattan species;

Conduct relevant research, development and extension activities to fully harness the potential of rattans in the production of other economically important natural products like food, health drinks, medicine and others not only for local consumption but also for the commercialization;

Adopt science-based generated technologies for rattan production and utilization;
Engage in plantation development in order to ease up the pressure on the remaining natural stands, to replenish the dwindling rattan resources and augment the supply to the rattan-based industries; and

Support the exchange and/or sharing of information and technologies for the sustainability of rattan industry within and outside the region;

In the spirit of ASEAN mutual understanding, cooperation, collaboration and solidarity, we the rattan scientists, professionals and practitioners, affixed our signature as a sign of commitment for the sustainability of rattans in the region this 31st day of August, 2010 at Makati City, Philippines.

	PHILIPPINES
Name, Country and Signature	
	INDONESIA
Name, Country and Signature	
	THAILAND
Name, Country and Signature	
	PHILIPPINES
Name, Country and Signature	
	PHILIPPINES
Name, Country and Signature	
	PHILIPPINES
Name, Country and Signature	

Kyaw Win Maung
Name, Country and Signature

Sounthone, LAO PDR,
Name, Country and Signature

Irawan W Kusuma, Indonesia
Name, Country and Signature

Jose O. Sargent
Philippines
Name, Country and Signature

Ann Calinauan
NEVITA M. CALINAWAN
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IMELDA C. PARAGA, Philippines
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Aida B. Bajal Lapis
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Rolando B. Maguncod
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Name, Country and Signature

Kharina G. Buesed
Philippines
Name, Country and Signature

John Dransfield, UK,
Name, Country and Signature

Coosje Hoogendoorn, NL,
Name, Country and Signature

Li Qiang
Name, Country and Signature

CLOSING PROGRAMME

Message

For. Marcial C. Amaro, Jr.

Director, ERDB

The project completion is quite fulfilling. For this, we express our gratitude to the sponsors, participants, resource persons, and all others who have contributed to the project's success. We look forward to another phase of the project so we can sustain our efforts.

Rattan is a part of a bigger ecosystem so we also need to focus on it. We still have a lot to do; perhaps more heroic acts to fight the war against poverty. There is always this vicious cycle of natural resource degradation leading to poverty and vice versa. We need to tap rattan to address both.

This regional conference has been very productive. We hope to meet again, not just for rattan, but more for sustainable forest development and management.

Impressions

Dr. Bighani Manipula

Philippines

My impression of the conference is that it could be rated 100 percent in terms of participation, accommodation, food, and knowledge sharing. We could not ask for more.



Mr. Sounthone Ketphanh

Lao PDR

We surely miss other participants from Vietnam and Malaysia who were not able to make it to the conference. We learned a lot about rattan and also on the way we can organize meetings. I would like to do things like book launching in Lao also.

I am happy to meet old acquaintances again like Dr. Dransfield. I learned about rattan taxonomy and the correct way of collecting rattan specimen from him. I am happy to have met people from INBAR and other ASEAN countries.



Dr. Irawan W. Kusuma

Indonesia

My suggestions for similar future activities are as follows: translate the web information in various languages for the benefit of our peers; for accommodation, the aircon may be requested not to set too high as it was very cold for some participants.



Awarding of Certificates

Certificates of appreciation were handed out by Director Amaro, Dr. Li Qiang, and Dr. Hoogendoorn to sponsors and resource persons while certificates of completion were awarded to the participants.

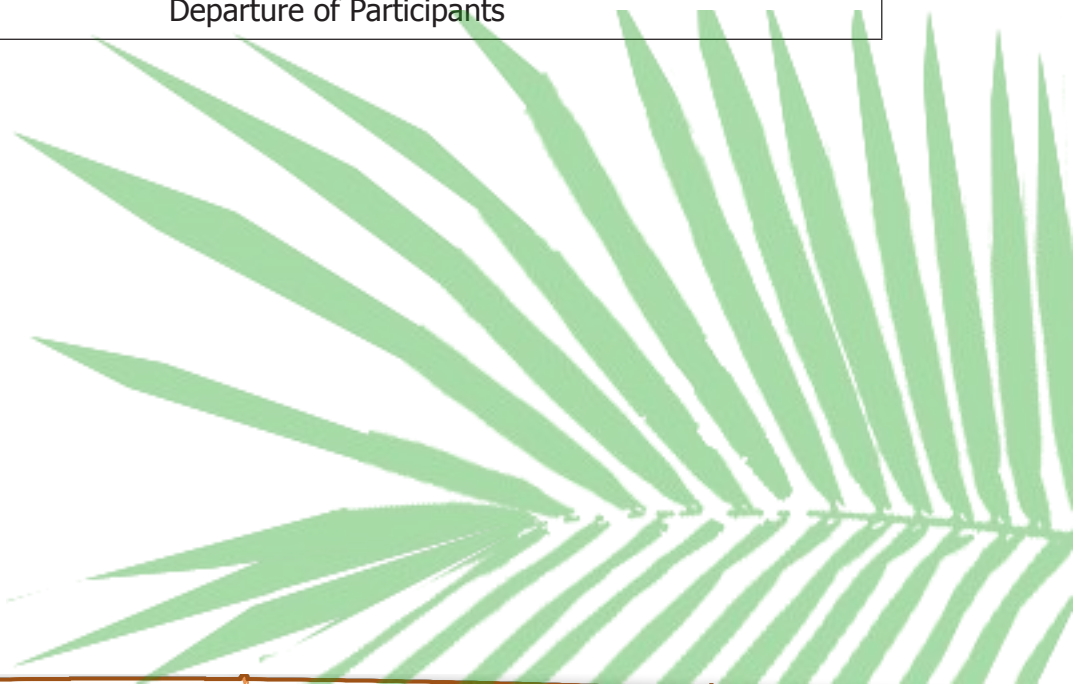
Annex 1

Schedule of Activities

Day 1		August 29 (Sunday)	
		Arrival of Participants	
Day 2		August 30 (Monday)	
8:00-9:00		Registration	
9:00-9:45		Opening Program	
9:45-10:00		Photo Session	
10:00-10:15		<u>Conference Proper</u> Rationale of the Conference Dr. Aida B. Lapis	
10:15-10:30		Presentation of Participants Dr. Armando M. Palijon	
10:30-11:30		<u>Technical Presentation</u> Rattan Diversity: How much do we know and how much is there to be discovered? Dr. John Dransfield	
11:30-12:00		Open Forum	
12:00-1:00		Lunch break	
1:00-3:00		Presentations (20 minutes each) Country Report of Cambodia Pilot Demonstration Mr. Chhang Phourin (Presented by Dr. Aida B. Lapis) Country Report of Indonesia Pilot Demonstration Dr. Bambang Wiyono Country Report of Lao PDR Pilot Demonstration Mr. Sounthone Ketphanh	
2:00-3:00		Open Forum	
3:00-4:00		Country Report of Myanmar Pilot Demonstration Mr. Kyaw Win Maung Country Report of Philippines Pilot Demonstration <ol style="list-style-type: none"> 1. Bicol Natural Park, Camarines Sur Mr. Gregorio E. Santos, Jr. 2. Amas, Kidapawan City Dr. Bighani Manipula 	

4:00-5:00	Open Forum
7:00 – 9:00	Book Launching (with Dinner/Socials): A Field Guide to Philippine Rattans The ASEAN Rattans
Day 3 August 31(Tuesday)	
8:00-8:15	Registration
8:15-8:30	Recap of the previous day activities
8:30-9:10	<u>Continuation of Presentations</u> Country Report of Thailand Pilot Demonstration Mr. Chudchawan Sutthisrisilapa Country Report of Vietnam Pilot Demonstration Ms. Do Thi Ngoc Bich (Presented by Dr. Armando M. Palijon)
9:10- 0:00	Open Forum
10:00-10:20	<u>Technical Presentation</u> Experience in the Establishment of Pilot Demonstration in the SEA Dr. Armando M. Palijon
10:20-10:40	<u>Technical Presentation</u> Rattan RDE Directions for the Next Decade Dr. Florentino O. Tesoro
10:40-11:40	<u>Presentations of Studies under the Rattan Research Grant Programme</u> (20 minutes each) RPP-1: Isozyme Analysis of Palasan (Calamus merrillii Becc.) Dr. Ma. Theresa Delos Reyes RPI-2: Application of Plant-derived Preservatives to Improve the Durability of Rattan and Rattan-based Products Dr. Irawan W. Kusuma RPP-3: Harmonized ASEAN Grading Rules for Rattan Poles and By-products Dr. Magdalena Y. Giron
11:40-12:00	Open Forum
12:00-1:00	Lunch break

1:00-2:00	<p><u>Continuation of Presentations</u></p> <p>RPI-5: Dragon Blood Extraction at Various Seed Maturity Levels and their Physico-chemical Properties Dr. Bambang Wiyono</p> <p>RPM-6: Growth Performance of Calamus subinermis in Sabah, Malaysia Ms. Chia Fui Ree</p> <p>RPV-8: Analysis of Gender's Role in Rattan Planting for Forest Enrichment in Doan Ket Village, Ky Son District, Hoa Binh Province Mr. Nguyen Huu Cuong</p>
2:00-2:30	Open Forum
2:30-3:30	<p><u>Presentation</u></p> <p>"Impact Assessment of the ITTO-Philippines-ASEAN Rattan Project and ASEAN Database For. Imelda C. Pangga</p>
3:30-4:00	Synthesis of Activities
4:00-5:00	2010 Declaration of Commitment of Participating SEA Member Countries on Sustainability of Rattans in the Region Dir. Marcial C. Amaro, Jr.
5:00-6:00	Closing Program
6:00	Dinner
Day 4	September 1 (Wednesday)
	Departure of Participants



Annex 2

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Forest Products Research and Development Institute
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International Tropical Timber Organization



International Network on Bamboo and Rattan (INBAR)



Asia Pacific Association of Forestry Research Institutions (APAFRI)

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