



Climate Financing by Italy¹

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¹ Italy (2010). Fifth National Communication under the UN Framework Convention on Climate Change, Ministry for the Environment, Land and Sea, November 2009, 236 pp.

1. Provision of New and additional resources

In general terms, since 2001, Italian ODA has increased in absolute amount (up from 1,627 million. US\$) and relative to GNI (up from 0.15%). Over the period 2001-08, Italy's ODA volume increased by 173% in nominal terms. As a member of the EU, Italy has committed to give 0.33% of GNI by 2006, 0.51% of GNI by 2010, and 0.7% of GNI by 2015. According to OECD DAC estimates, this will equate to 10.9 billion US\$ by 2010.

In the years 2006 to 2008 the Italian Ministry of Foreign Affairs has disbursed around 30 million EUR in bilateral and multilateral cooperation with developing countries for climate change related activities. New and additional financial resources were initially provided by the Ministry for the Environment, Land and Sea (MATTEM) through the so-called "Carbon tax", or ecological tax N° 448/1998 "aimed at the reduction of carbon dioxide emissions". The incoming flows gained through this ecological tax have been used to finance bilateral and multilateral activities related to climate change until 2002. Since 2002, in order to meet the commitment under decisions FCCC/CP/2001/L.14, FCCC/CP/2001/L.15 (the so called "Bonn Declaration" of 2001), the Italian Ministry for the Environment and Territory, has been authorized by the law June 1, 2002, n° 120, to finance bilateral and multilateral activities in developing countries for 68 million EUR/year as of 2002, 59.5 million EUR/year as of 2007 and 55.1 million EUR/year as of 2008, in order to substantively contribute to the implementation of the United Nations Framework Convention on Climate Change and the Kyoto Protocol. This law was specifically created in order to respond to the "new and additional" requirement and to enhance the predictability of the available funds.

2. Multilateral cooperation on climate change

This paragraph details the cooperation on environmental issues that Italy carried out from 2006 to 2008 jointly with international multilateral organisations. Such cooperation has involved a wide range of activities, from the supply of financial resources, to the design and implementation of programmes and projects, the promotion of transfer of environmentally-sound technologies aiming at reducing the impacts of human activities on climate change, and support to adaptation measures.

In particular, the cooperation was performed with UNESCO, UNIDO, the Food and Agriculture Organisation (FAO), the Regional Environmental Centre for Central and Eastern Europe (REC), the Global Environment Facility (GEF), the World Bank (WB), IUCN, the United Nations Development Programme (UNEP) and the Mediterranean Action Plan (MAP).

The Italian Ministry for the Environment Land and Sea (MATTEM) together with UNESCO signed a Memorandum of Understanding (MoU) launching the partnership "Water Programme for Africa, Arid and Water Scarce Zones" (WPA). During the First Phase of the Programme (2005-2007), 1.3 million US\$ were allocated to carry out specific activities in five different countries (Algeria, Egypt, Eritrea, Vietnam, Yemen) in order to strengthen the technical knowledge of central authorities for the definition of policies and projects on water resources management in water scarce and arid areas. The Second Phase of the Programme (2007-2010) is entitled "Water Programme for Environmental Sustainability -

Towards adaptation measures to human and climate change impacts”. The aim here is to foster environmental sustainability through adaptation measures to remediate human and climate impacts on groundwater resources. MATTM allocated 3.1 million US\$ for the second Phase following the outstanding results of the first one.

Implemented in several areas (Algeria, Brazil, the Caribbean, Iraq, Montenegro, Morocco, Southern Africa, Tunisia, Vietnam) the projects provides a framework for bringing the different audiences of the water constituency together, including scientists, water resource managers and policy-makers in order to address locally defined climate and water challenges, global changes and environmental sustainability. In cooperation with the recipient countries the project develops methodologies for the sustainable management of coastal aquifer systems and for the protection of groundwater dependent ecosystems as well as for prevention of contamination of marine ecosystems.

Considering the important role that renewable energies are playing in tackling climate change, the Italian Ministry for the Environment Land and Sea supported the “Observatory for Renewable Energy in Latin America and the Caribbean” through the signature in November 2007 of a Trust Fund Agreement with UNIDO. The activities supported through the Italian contribution are mainly focused on biomass utilization in Uruguay and Brazil in order to reduce the methane emission and the GHGs’ climate change effects, promoting the utilization of bio-digester plants for the electricity production into the livestock farms, based on a local energy management distributed generation system.

In 2008, FAO and the Italian Ministry of the Environment Land and Sea have launched a joint project called Communication for Sustainable Development Initiative (CSDI), to support the application of communication strategies and approaches to Climate Change Adaptation and Food Security. CSDI aims at strengthening and up scaling communication services in selected countries, and to make available suitable methods and tools at the international level through knowledge networks and partnerships. Activities are being launched in Africa, Asia, Latin America, the Caribbean, and the Near East. The project seeks partnerships in communication with international and national development programmes, NGOs and local organizations, to address Climate Change Adaptation and Food Security.

In Central Eastern Europe, multilateral activities, as described in the Fourth National Communication, continue to be mostly implemented through the Italian Trust Fund (ITF), established in 2001 within the Regional Environmental Center for Central and Eastern Europe (REC CEE), located in Budapest.

To date, the contribution from MATTM amounts to roughly 12 million EUR; more than 100 projects have been implemented for the region and beyond aiming at supporting environmental protection and transboundary cooperation activities.

With particular reference to climate change and energy issues, several programs were carried out on training and capacity building, energy efficiency in small and medium-sized enterprises, public access to information and participation in climate decision-making processes, promotion of climate change mitigation and adaptation policies, development of solar passive and active systems and development of

national greenhouse-gas emission registries. From 2006 to 2008 the following specific projects have been developed within this framework:

- Promoting Climate Change Policies in Turkey (2006-2008). The project, co-financed by the European Community (LIFE - Third Countries) in cooperation with the Turkish Ministry of the Environment and Forestry and the Greek company Exergia, was launched in January 2006 and was completed in January 2008. Actions and plans were supported in Turkey aiming at reducing CO₂ emissions by developing climate change policies and by assisting in meeting UNFCCC obligations. In order to achieve these results, officers from the public administration were trained in the field of climate change, promoting cooperation, increasing awareness of climate hazards, fostering public participation and access to environmental information; several working groups were set up conducting research on climate change in Turkey, on mitigation and adaptation strategies in relation to the water resources, farming and health sectors.
- Adaptation to the Consequences of Climate Change Process: on 19 and 20 November 2007 a workshop on Climate Change took place in Budapest. The goal of this workshop was double-fold: the first objective concerned the dissemination of information on IPCC Fourth Assessment Report among adaptation stakeholders in Central and Eastern and South-Eastern European countries, in Belarus, Russia, Turkey, and Ukraine. The second objective focused on the analysis of the existing capacities for the adaptation process, identifying capacity building needs, sharing experiences and presenting case studies in the adaptation field.
- Zero CO₂ emissions Solar Building: in 2007 a new, state-of-the-art training, demonstration and conference centre has been opened at REC, aiming at zero emissions. Advanced techniques and technologies have been employed by the design team in order to fulfil the most demanding aesthetic, functional and comfort requirements while relying purely on solar and geothermal energy. The aim is to reduce fossil fuel consumption to zero, eliminating emissions of carbon dioxide.

ITF also supports capacity building and training courses for senior governmental officers and business leaders. The programs are developed through several modules, articulated in different topics and subjects, among which climate change. The training courses are carried out in cooperation with different stakeholders, among which academies, such as Venice International University, Bosphorus University, and Bilgi University.

As for the Italian contribution to the Global Environment Facility (GEF), in the period 2006-2008, it amounted to 38 million EUR for the activities related to climate change. In addition to the Italian contribution to the GEF replenishment, in 2007, the Italian Ministry for the Environment, Land and Sea supported the Special Climate Change Fund with 5 million US\$ and cofinanced with 600.000 US\$ the “Strategic Partnership for the Mediterranean Sea Large Marine Ecosystem” launched by GEF, UNEP and the WB. This Partnership aims at reducing pollution impacts on environment and human health, reaching sustainable fisheries and protecting coastal marine biodiversity and communities.

Climate benefits achieved by Italian Ministry of Environment, Land and Sea cooperation in the framework of the Multilateral Fund for the Implementation of the Montreal Protocol

The 1987 Montreal Protocol on Substances That Deplete the Ozone Layer is an international treaty designed to protect the ozone layer by phasing out the production, use and emission of a number of substances believed to be responsible for ozone depletion. The Multilateral Fund for the Implementation of the Montreal Protocol provides funds to help developing countries phase out the production and consumption of ozone-depleting substances (ODS).

Ninety seven per cent of all ozone depleting substances controlled by the treaty have been phased out and global observations have verified that atmospheric levels of key ozone depleting substances are going down and it is believed that with implementation of the Protocol's provisions the ozone layer should return to pre-1980 levels by 2050 to 2075. The Montreal Protocol is estimated to have prevented about 20, 5 million cases of cancer (melanoma and non-melanoma) and 130 million more cases of eye cataracts.

Due to its widespread adoption and implementation it has been hailed as an example of exceptional international co-operation with Kofi Annan quoted as saying that "perhaps the single most successful international agreement to date has been the Montreal Protocol".

Furthermore, as ozone-depleting substances are also greenhouse gases, the Montreal Protocol has helped both to reduce global warming and to protect the ozone layer. As of 2010, emissions reductions achieved by the Montreal Protocol are 5-6 times larger than the reduction target set for the first commitment period of the Kyoto Protocol and account for about 11Gt CO₂eq/year.

Italian bilateral cooperation under the Multilateral Fund

As of July 2009 the contributions made to the Multilateral Fund by some 49 industrialized countries totalled over 2.5 billion US\$. Italy contributes to the Fund according to the ratio of its contributions to the United Nations. Additionally, Italy provides similar assistance on a bilateral basis.

The following projects financed under the Italian bilateral contribution to the Multilateral Fund to protect the ozone layer have generated additional climate benefits³:

- Sector plan CFC final phase out (China): the project aimed to phase out ODS in sectors of domestic refrigeration and domestic refrigeration compressors by converting CFC-11 to cyclopentane technology and CFC-12 to isobutane (600a). It permitted to eliminate 181 ODP tonnes of ODS and 971,162 t of CO₂eq.
- Umbrella project for terminal phase-out of ODS in the solvent sector (DR Congo): the project implementation permitted to phase-out 16,5 ODP tonnes of CTC, 4 ODP tonnes of TCA and 6 ODP tonnes of CFC-113 consumption from the solvent sector. In addition it achieved a climate benefit of 53,713 t of CO₂eq.
- Conversion from CFC-11 to water-blown technology in the manufacture of flexible molded polyurethane foam (India): this programme was implemented through 4 different sub-projects and globally permitted to phase out 70,1 t ODP of CFC11, corresponding to 332,975 t of CO₂eq.
- National strategy for transition to non-CFC MDIs and plan for phase-out of CFCs in the manufacture of pharmaceutical metered dose inhalers MDIs (India): this project, recently approved, aims to replace 186,2 ODP t of CFC11 and 421, 9 ODP t of CFC12 with HFC-134a. Then it will permit to phase out a total of 608,1 ODP t. Although also the alternative gas, the HFC-134a, is a greenhouse gas, nevertheless, due to its lower GWP, the project implementation will permit to achieve a net reduction of 4,688,411 t of CO₂eq.
- Terminal CTC/CFC113 phase out project (Serbia): the consumption of these substances for laboratory uses will be phased out with a global ozone benefit of 2,35 ODP t and a climate benefit of 10,193 t of CO₂eq.
- Terminal phase-out management plan for CFCs (Senegal) : this plan aims to phase out the CFC12 consumption in Senegal in the refrigeration sector by 2010. When implemented it will permit to phase out 23,4 ODP t of CFC12 corresponding to a reduction of 254,826 t of CO₂eq.

Moreover Italy funded several projects for the phase out of Methyl Bromide in Cameroon, China, Mexico, Morocco and Romania for an additional reduction of 727,4 ODP t.

Thus, globally, throughout its bilateral cooperation under the Multilateral Fund, Italy contributes to phase out 1259, 8 ODP t of ozone depleting substances with an additional climate benefit of 6,311,280 t of CO₂eq reduction.

Since 2005 MATTM supported the preparatory phase of the GEF/UNDP Project "China Biodiversity Partnership Framework" and is currently supporting the development of the implementing action "Priority Institutional Strengthening and Capacity Development to implement the China Biodiversity Partnership and Framework for Action" with the amount of 250.000 EUR. The Project aims at developing a national policy and an institutional framework for biodiversity conservation in China, bringing it closer to international best practices.

As described in detail in the past national communication, in 2003 MATTM entered into a partnership agreement with the World Bank to participate in a number of funds aiming at purchasing emission reductions from projects that both benefit the global environment and transfer clean technologies for sustainable development in developing countries and countries with economies in transition. The activities in this framework are still ongoing.

The Global Bioenergy Partnership

As stated in the 4th National Communication on Climate Change, in the Gleneagles Plan of Action (July 2005), the heads of State and Government of the G8 decided to “launch a Global Bioenergy Partnership to support wider, cost effective biomass and biofuels deployment, particularly in developing countries where biomass use is prevalent”.

Following a consultation process among developing and developed countries, international agencies and the private sector, the Global Bioenergy Partnership (GBEP) was launched at the 14th session of the Commission on Sustainable Development (CSD-14) in New York on 11 May 2006, and in response to the 2005 G8 mandate (renewed in 2007, 2008 and 2009), GBEP initiated an international discussion on the issues related to bioenergy.

Three years after its establishment and at a time of intense debate on bioenergy, GBEP is actively working to advance bioenergy for sustainable development, climate change mitigation and food and energy security.

The Partnership is a forum where voluntary cooperation works towards consensus in the areas of the sustainability of bioenergy and its contribution to climate change mitigation. It brings together public, private and civil society stakeholders and focuses its activities in three strategic areas: Sustainable Development, Climate Change, Food and Energy Security.

GBEP membership expanded substantially, such that its Partners now comprise 18 countries and 10 organizations: all G8 countries (Canada, France, Germany, Italy, Japan, Russian Federation, United Kingdom, United States of America), Brazil, China, Fiji Islands, Mexico, Netherlands, Spain, Sudan, Sweden, Switzerland, Tanzania, FAO, IEA, UNCTAD, UNDP, UNEP, UN DESA, UNIDO, WCRE and EUBIA. A further 20 countries participate as observers (Angola, Argentina, Australia, Austria, Colombia, Gambia, Ghana, India, Indonesia, Israel, Kenya, Madagascar, Malaysia, Mauritania, Morocco, Mozambique, Norway, Peru, South Africa and Tunisia) along with the European Commission, the European Environment Agency (EEA), the World Bank and the World Business Council on Sustainable Development (WBCSD).

Chair of the Partnership is Corrado Clini, Director General, Ministry for the Environment Land and Sea, Italy; Co-Chair is André Aranha Corrêa do Lago, Director, Ministry of Foreign Affairs, Brazil. The GBEP Secretariat, hosted at FAO Headquarters in Rome with the support of Italy, is the principal coordinator of the Partnership communications and activities.

Since its launch in 2006, GBEP has made significant advances in its programme of work toward sustainable bioenergy. It published the Report “A review of the current state of bioenergy development in G8 +5 Countries” in 2007, and released the Report “The Global Bioenergy Partnership Common Methodological Framework for GHG Lifecycle Analysis of Bioenergy”, in June 2009. This Report is for use by policymakers and stakeholders, in assessing GHG impacts by which the results of GHG lifecycle assessments could be compared on an equivalent and consistent basis. The methodological framework is intended to be a practical product for the end user that, by facilitating this communication, fills an essential role for all stakeholders interested in transparent evaluation of GHG emissions associated with bioenergy.

GBEP Task Force on Sustainability is now working to develop a set of relevant, practical, science-based, voluntary criteria and indicators as well as examples of best practice to facilitate the sustainable development of bioenergy and collaboration on bioenergy field projects. Criteria and indicators will be presented in a report to be delivered at the 2010 G8 Summit in Canada.

In 2003, within the framework of the Mediterranean Renewable Energy Programme (MEDREP) Initiative, the Italian Ministry for the Environment Land and Sea signed a Memorandum of Understanding (MoU) with UNEP-DTIE in order to carry out projects helping the establishment of a regional RET market in the Mediterranean region. To this end four RE financial support mechanisms have been established in Tunisia, Egypt, Montenegro and Albania as the most promising “tools” for influencing RE sector investment. Until 2008 the Italian Ministry financial contribution amounts to 7.315.926 US\$. Starting from the successful result achieved in Tunisia with the PROSOL project, the Italian Ministry for the Environment Land and Sea has decided to launch the Mediterranean Investment Facility (MIF) initiative aiming to the development over the period 2007 – 2011 of several projects having an important impact on CO2 emissions by diversifying the use of small scale renewable energy and energy efficiency technologies by targeting different niche markets.

Moreover, the Italian Ministry of Foreign Affairs, is working on climate change cooperation initiatives through the collaboration of FAO and IUCN. The two global partnerships “for Sustainable Development in Mountain Regions” and for “Island biodiversity conservation and sustainable development” which were mentioned in the previous national communication are still ongoing. Other examples of multilateral initiatives which are relevant for the climate change context are the following:

- The Galápagos-Soqotra Type II Partnership, launched by the Ministry of Foreign Affairs in 2002, links the archipelagos of Soqotra (Yemen) and Galápagos (Ecuador) in the framework of a Programme for sustainable development and poverty alleviation on islands of high biodiversity value. The partnership was established upon the consideration that, regardless their geographical and cultural distance, those islands share similar natural resources management problems, similar socio-economic development pressures and similar climate change adaptation challenges.
- Aerosol Observatory Program in Karakoram and Himalaya mountain regions within the framework of the Atmospheric Brown Clouds (ABC) Programme: this project, implemented by UNEP, seeks to answer one of the major environmental challenges facing the Asia-Pacific region by specifically addressing climate changes and other environmental consequences of rising levels of aerosols and related air pollutants. The initiative focuses on regional capacity building in the monitoring of aerosols and its impacts. The collection of scientific data and the subsequent improvement in the understanding of the ABC will help identifying strategies for preventive and corrective measures to reduce such air pollution impact as agricultural productivity decline, rainfall decrease, and adverse effects on human health.
- Institutional Consolidation for the Coordinated and Integrated Monitoring of Natural Resources towards Sustainable Development and Environmental Conservation in the Hindu Kush-Karakoram-Himalaya Mountain (HKKH Partnership Programme): IUCN implements this Programme in close collaboration with the governments of Afghanistan, Bangladesh, Bhutan, China, India, Nepal, Myanmar and Pakistan, building on the contention that climate impacts on mountain areas can only be measured and managed effectively at regional and trans-boundary levels. The project contributes to consolidate the institutional capacity for systemic planning and management by developing decision support tools, with a particular focus on poverty reduction, biodiversity conservation, and ecosystems structures and services’ adaptive management.
- The Caribbean Challenge Initiative: this programme stems from a commitment by Caribbean Governments, alongside with bilateral and multilateral organizations, and international and local NGOs, to build political support and financial sustainability for protected areas in the region. Italy provides financial support to a component implemented by UNEP. The “Challenge” will drive the conservation of at least 3.2 million hectares of biologically important marine habitat and resources, and will support Caribbean countries to complete climate change adaptation modeling and the development of adaptation plans.

- Enhancing resilience to reduce vulnerability in the Caribbean: this initiative is implemented by UNDP in collaboration with the Italian Civil Protection Agency and CIMA Research Foundation. It adopts an integrated approach to vulnerability reduction and to enhancing resilience as to climate change, natural hazards and poverty. The project aims at consolidating the institutional capacity to develop early warning systems, disseminating information, and guaranteeing coordination for disaster management and response in CARICOM Member States.
- Water and environmental flows in the Mediterranean and Central Asia: the Italian Development Cooperation supports IUCN in this regional water programme where 24 countries are involved, from Morocco to Kazakhstan. Such countries share similar challenges in terms of climate change impacts on water, e.g. degradation of freshwater, fisheries and other resources, that could affect millions of people. The programme contributes to building the capacity of governments, communities and local authorities to implement sustainable management of river basins, aiming at enhancing the resilience of ecosystems and economies and improving water governance.
- Livelihood enhancement through trans-boundary natural resource management in the Limpopo corridor: IUCN, in collaboration with the Italian NGO CESVI, coordinates the implementation of this Programme in the Great Limpopo Trans-frontier Conservation Area, spanning such key national parks as: Kruger in South Africa, Limpopo in Mozambique and Gonarezhou in Zimbabwe, and their buffer zones over more than 100.000 km². The Initiative aims at promoting sustainable development through the rational use and management of the trans-frontier protected areas' fragile ecosystems. It emphasizes their role in increasing people's ability to adapt to climate change, and focuses on such impacts of climate change as water depletion, alien species' invasion and livelihood deterioration.
- IUCN Climate Change Initiative: this innovative pursuit builds upon the need to include biodiversity concerns in climate change mitigation and adaptation policies and practice. It brings together the environmental and the development communities, establishing large-scale conservation initiatives. To this end, the Initiative supports natural adaptation whilst contributing to sustainable livelihood by influencing policies at the international level, building regional capacity, and supporting field projects and expertise at the local level.

Finally, MATTM has decided to support the activities in 2008-2009 related to the Italian leadership of the Task Force on Extreme Weather Events, established under the framework of the Protocol on Water and Health to the UNECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes. The Task Force will share experience on, and identify relevant local/national good practices regarding the safe operation of water supply and sanitation facilities in urban and rural areas which are subject to the impact of short-term critical situations: it will prepare guidelines to respond to such short-term critical situations; besides it will prepare a strategy paper on how to cope with the potential impact of climate change, and on adaptation and mitigation programmes for water supply and sanitation.

3. Bilateral cooperation with developing countries

With the overall aim of reaching the Millennium Development Goals and supporting the implementation of the Multilateral Environmental Agreements, Italy is continuing many of the activities listed in the Fourth National Communication and implemented in the years 2006-2008 several new projects on climate change cooperation with developing countries. The geographical focus did not change from the previous years, with the main areas and countries addressed being Africa, China, India, the Mediterranean region, Central and Eastern European, Iraq, Latin America, Caribbean and Pacific islands.

Cooperation on climate change with Asian and Middle East countries

In particular China, Iraq, Thailand and India are the main beneficiaries of the efforts of MATTM specifically addressed to Asian and Middle East countries. As explained in the previous National Communication, MATTM started its environmental cooperation programme with the People's Republic of China in 2000. Under this programme, 85 projects have so far been developed for environmental monitoring and management, strengthening Chinese national and local institutions, protecting and conserving natural resources, water management, waste-to-energy, developing renewable energy sources, energy efficiency, sustainable urban planning and eco-building, environmental protection in the poorest regions, developing low-emission transport systems and technologies, sustainable agriculture, biodiversity protection and forest management. About 50 projects are strictly related to climate change activities and have been identified in terms of the objectives and programmes established in the United Nations Convention on Climate Change, while the others can also be considered useful to create and enabling environment for mitigation and adaptation measures.

Project formulation has been entrusted to a permanent Sino-Italian task force made up of experts from the Italian Ministry for the Environment Land and Sea, Chinese Ministries and Agencies, scientific Institutions, Italian and Chinese Universities. This task force constitutes the Program Management Offices (PMO) based in Beijing and Shanghai.

MATTM entrusted the Italian Trade Commission, Beijing and Shanghai Offices, as this task-force project manager. The Italian Trade Commission ensures the cooperation of Italian enterprises interested in joining the program design and co-funding.

Within this cooperation programme since 2001, MATTM has been co financing projects for 176 million EUR in the form of direct grants to Chinese institutions and the use of the Trust Funds established at the World Bank and with other Multilateral Funds. Chinese institutions, Italian businesses, the United Nations Foundation, the United Nations agencies - UNEP, UNDP, UNIDO, - the Global Environment Facility, the World Bank and the Multilateral Fund for the Implementation of the Montreal Protocol on Substances that Deplete the Ozone Layer have contributed with 160 million EUR. Projects for approximately 336 million EUR have so far been financed.

Under the Sino-Italian Cooperation Program for Environmental Protection, in 2004 MATTM and the Chinese Ministry of Science and Technology (MOST) established the Sino-Italian Facility aimed at

supporting joint projects for the development, transfer and promotion of technologies able to reduce GHGs emissions as well as capacity building actions for CDM projects development.

A specific activity line has been developed since 2005 in support of the Beijing Municipality's Program for 2008 Green Olympics. 17 projects have been implemented, focusing on low-emissions transport systems in Beijing, including a zero-emissions fleet in the Olympic Village; solar energy applications for the Olympic Village; air quality monitoring and atmospheric pollution control, including the establishment of 2 advanced laboratories; sustainable urban planning and energy efficiency, water resources recovery and management.

A broad capacity building action has been carried on since 2003 in cooperation with the Venice International University, aimed at providing a comprehensive training on sustainable development for key public officers and business experts. The Advanced Training Program on Sustainable Development and Environmental Management has trained so far around 5000 Chinese beneficiaries.

With regard to the cooperation with Iraq, as already described in the Fourth National Communication, MATTM started a cooperation in 2003 with the Free Iraq foundation (IF) for the environmental restoration and conservation of the water resources in the marshes of Southern Mesopotamia. The "New Eden" project was initiated with the collaboration of IF and the involvement of the Iraqi Ministries of Environment (MoE), Municipalities and Public Works (MMPW) and Water Resources (MWR). In June 2004, Nature Iraq/Iraq Foundation presented a detailed work plan to support the MWR, Centre for the Restoration of Iraqi Marshes (CRIM), and the MMPW and MoE in their endeavor to create a Strategic Plan for a sustainable restoration of the marshlands of southern Iraq. This project was called the "New Eden Master Plan for Integrated Water Resources management in the Marshland Areas" and its scope was agreed upon by the relevant Iraqi Ministries, as well as the international donor's community. Given that the New Eden Master Plan represents a leading edge kind of project, MATTM wished to avoid the study remain unused, and thus launched a new phase for the project that focused on implementing some of the recommendations presented in the study, with a focus on transferring technology and know-how so that the Iraqis themselves could then take over the long term implementation of the project, revising it as conditions change and following up by encouraging the adequate development of training curricula to prepare future environmental managers. The plan for the triennium 2006-2008 included several projects and activities that were developed under the framework of the New Eden Master Plan.

Another significant project was developed in Thailand after the tsunami of 2004 for the implementation of the "Coastal Risk Analysis of Tsunamis and Environmental Remediation –CRATER" project. The results of the project were presented in a final workshop held in Bangkok in May 2007. Town planning indications for the creation of safety areas in villages, and suggestions and calculations for the design of features aimed at increasing the resistance of buildings were provided.

As regards India, in December 2005, a Memorandum of Understanding on "Co-operation in the Area of Climate Change and Development and Implementation of Projects under the Clean Development

Mechanism of the Kyoto Protocol” was signed with the Indian Ministry of Environment and Forests (MoEF). In this framework, the Italian Ministry for Environment, Land and Sea has supported a project on Carbon Sequestration Potential Assessment with 150.000 EUR. The project was carried out in the State of Uttarkhand and completed with the installation and initial operation of an experimental station finalized to the study of the carbon flow through application of the Eddy Covariance technique.

On February 2007, the Italian Ministry for Environment, Land and Sea signed a Memorandum of Understanding on “Indo-Italian Renewable Energy Cooperation” with the Indian Ministry of New and Renewable Energy (MNRE), and established a “Working Group” with the aim of promoting Indo-Italian Renewable Energy Cooperation Programme.

Cooperation in the Mediterranean region and the African region on climate change

In the framework of the “Mediterranean Renewable Energy Programme (MEDREP)”, largely described in the past communication, the Italian Ministry for the Environment, Land and Sea has developed, in collaboration with Universities, Research Centres, Enterprises, International Institutions, local Agencies and Public Administrations, a cooperation program for the promotion of the renewable energy sources, energy efficiency, low-emission technologies and sustainable development strategies.

In order to strengthen this cooperation programme, the Mediterranean Renewable Energy Centre (MEDREC) has been established in September 2004 in Tunis in collaboration with the Ministry for Industry of Tunisia and the Tunisian National Agency for Energy Conservation.

MEDREC was indicated in 2006 as “the Northern African regional focal point” of the Renewable Energy and Energy Efficiency Partnership (REEEP), a voluntary multi-stakeholder partnership contributing to the implementation of agenda 21 and Johannesburg Plan of Implementation (JPOI), with an objective to expand the global market for renewable energy and energy efficiency.

MEDREC provided financial and technical assistance to the establishment and management of the Solar Water Heater Subsidy Facilities in Tunisia, Morocco and Egypt, with the aim to promote individual and collective solar water heating installations in the residential, tertiary and industrial sectors.

Furthermore the Center has contributed to the building of professional capacities in the region, in the field of the Kyoto Protocol and in other fields, such as Bio-Energies, organizing several training cycles aiming at addressing the topic of CDM projects development and the theme of Bio-Energies, under a practical and operational point of view. Participants, from major private and public institutions of the region, were provided with presentations of concrete experiences while addressing theoretical and technical issues.

In the framework of the MEDREP programme, MATTM, with the technical support of MEDREC, has been co financing projects in Algeria , Egypt, Israel, Tunisia and Morocco, aimed at:

- delivering electricity to isolated rural populations;

- addressing the global approach of renewable energy introduction in the building sector in coherence with the energy efficiency policy;
- disseminating cooling systems for the food conservation, powered by renewables,
- implementing innovative financial mechanisms to support the deployment of Renewable energies (Mediterranean Investment Facility-PROSOL);
- identifying and promoting project opportunities in the framework of the Clean Development Mechanism under the Kyoto Protocol, creating the suitable conditions of investment for Italian private sector.

In particular, as regards Morocco, MATTM signed a Memorandum of Understanding on 21 March 2005 with the Ministry of Energy, Mines, Water and Environment Kingdom of Morocco related to the 'Cooperation in the CDM as defined in Article 12 of the Kyoto Protocol', to support and enhance cooperation bilaterally". The main object of the MoU is to create the conditions necessary for the joint development of projects that reduce greenhouse gas emissions. On the basis of this MoU in 2007 has been approved a work plan in order to identify a list of potential CDM projects to be proposed to Italian or Italian-Moroccan operators for development and implementation. After scouting activities, performed by a joint "Italian-Moroccan" experts team, a list of potential projects have been identified on energy efficiency measures, generation of electricity from renewable sources, sequestration of carbon dioxide and methane capture. A call for expressions of interest has been launched for Italian and Italian-Moroccan companies for the realization of feasibility studies of the selected projects with a cofinancement of the Italian Ministry for the Environment Land and Sea.

The PROSOL project and the Mediterranean Investment Facility (MIF)

Within the framework of the Mediterranean Renewable Energy Programme (MEDREP), as already described in the past Communication, a financing mechanism to support the Tunisian market of Solar Water Heating (SWH) systems has been jointly implemented by the Tunisian Government and the United Nations Environment Programme - Division of Technology, Industry, and Economics (UNEP/DTIE), with the financial support of the Ministry for the Environment Land and Sea of Italy and the technical support of the Mediterranean Renewable Energy Centre (MEDREC).

Based on the Tunisian Government's strategy, PROSOL supports the solar water heating market and provides training for local SWH suppliers. The PROSOL has proved to be a great success: since February 2005 it has led to the installation of a value of 73.000 systems, for a total of 218.000 m2 of collectors; the whole turnover has reached 57 million EUR. The PROSOL project has been presented to the CDM Executive Board for registration as the first "Programmatic CDM" in the Mediterranean Region.

On the basis of the successful conclusion of Prosol, the Italian Ministry for the Environment Land and Sea, in collaboration with UNEP-DTIE, has decided to launch the Mediterranean Investment Facility (MIF) initiative aiming at the development, over the period 2007 – 2011, of several projects having an important impact on CO2 emissions by diversifying the use of small scale renewable energy and energy efficiency technologies by targeting different niche markets. New projects have been already started in Tunisia (Prosol Collective and Industrial), Egypt and Montenegro. In the coming years activities will begin in Morocco, Albania and Macedonia, with possibilities of further expansion at a later stage.

These projects will be implemented in the framework of the Mediterranean Investment Facility (MIF) initiative. The MIF will have the participation of public and private sector investors to:

- Provide support to market development: technical assistance to develop financing mechanism (ex: PROSOL), targeted capacity building, development of CDM (PROSOL)
- Provide incentives for commercial and development banks to lend to renewable energy and energy efficiency projects (soft interest rates, maturation, grace period, partial guarantees)
- Provide attractive financing conditions to residential sector (green appliances program, interest rate incentives, green mortgages)

Furthermore, cooperation projects are being implemented in the water management sector in order to prevent desertification processes and improve the supply, management and environmental conditions of water resources in the Mediterranean Region. In particular in Egypt, climate change impacts are critically undermining the sustainable development of arid areas like the Sinai due to problems of desertification and water scarcity. To this end, within the framework of the Memorandum of Understanding for environmental cooperation that MATTM signed in 2003 with Egypt, two projects were concluded successfully in 2008:

- Innovative Means of Increasing Water Resources in North Sinai: the project objective was to address the issue of water scarcity affecting the nomad communities living in the arid areas of North Sinai. A dual approach was adopted to identify short and long term measures to relieve the local population from water shortage
- IBISS project – “Italian-Egyptian Capacity Building in the Integrated Water Supply and Sanitation”: the project focuses on enhancing the capacity of Egyptian water engineers in reducing leakage from water distribution networks. Through this cooperation project Italian experts have transfer knowledge on state-of-the art equipment and international best practices for monitoring and detecting leakage in water networks.

Furthermore, several initiatives are being implemented by the Italian Ministry of Foreign Affairs. Some successful examples of projects are the following:

- Kenya - Sigor, Kerio Valley water management: Italian Cooperation has been supporting and providing technical assistance to this Project in the last ten years. The beneficiary farmers have formed an association to manage the whole project, including agricultural machinery and marketing of the goods produced. The sector’s revenues are increased by 15 times, stimulating the development of trades and of other related activities; and it has also assured a significant raise in scholarship level and health services’ demand. Project’s impact on life condition of the entire community has been so important that the project itself has won in 1999 the UNEP prize “success story” on controlling desertification. The current phase aims at further strengthening farmers’ association capacity to deal with desertification impacts and extending such benefits to neighboring communities.
- Kenya - Community conservation development of Lake Turkana: The project aims to contribute to the planning and management of biological diversity conservation of natural and cultural resources and to the development of sustainable livelihoods in the arid and semi-arid ecosystems of Lake Turkana area particularly affected by the impacts of climate change.
- Niger, Benin, Burkina - Regional Programme W/ECOPAS Park: Park W lies within the Biosphere Reserve of the W Region, within the UNESCO program Man and Biosphere (MAB) together with the protected areas Parc de la Pendjari and Parc d’Arly covering an area of 3.000.000 hectares.

The Initiative is implemented in collaboration with the West African Economic and Monetary Union and aims at improving the living standards of local communities surrounding the transboundary protected areas by promoting the biodiversity conservation and adaptation and the ecosystem sustainable management of these areas, whose recent evolution is linked to a strong demographic growth and to migrations caused by climate change effects such as drought events.

Cooperation with Central and Eastern European countries on climate change

The collaboration of the Italian Ministry for the Environment, Land and Sea in Central and Eastern Europe, as mentioned in the Fourth National Communication, started in 2002 with the former Ministry for Protection of Natural Resources and Environment of the Republic of Serbia and Montenegro, when the two Parties signed the Memorandum of Understanding (MoU) called “Environmental Protection Co-Operation”. This agreement was aimed at developing a programme of bilateral cooperation in the fields of sustainable development, institutional strengthening and harmonization to both International and European legislative standards according to funds available from the Italian Law 84/2001 on Balkans’ reconstruction. Since then, the cooperation program has expanded with more than 60 projects implemented in Albania, Bosnia, Croatia, Bulgaria, Serbia, Montenegro, Macedonia, Poland, Romania, Turkey, Hungary, Kyrgyzstan and Tajikistan mainly aimed at:

- strengthening local and national capacities on environmental governance,
- transferring know-how and technologies to prevent and control environmental pollution and water management,
- promoting renewable energy and energy efficiency.

More in detail, in the former Republic of Serbia MATTM is continuing the activities launched in 2003 and 2004 related to the sustainable requalification of the Municipality of Pancevo, considered as the heaviest polluted industrial areas as well as the legal and technical assistance programme to facilitate the Kyoto Protocol ratification and for the preparation of the “First National Communication”. Since October 2004 the Italian Ministry has been providing institutional building activities to promote the Green Certificates incentive mechanism, involving representatives of the Serbian Ministry of Energy and Mining and the Serbian Ministry of International Economic relations.

With Montenegro, a cooperation program with the Ministry for Tourism and Environmental Protection started in 2004, with the signature of a Memorandum of Understanding followed by three technical annexes.

The Italian-Montenegrin Cooperation has developed in the following areas:

- Technical and Legal Assistance for the Acquis Communautaire adaptation, for the Kyoto Protocol ratification, for the realization of “Clean development Mechanism” projects and for the Institution of Designated National Authority (DNA).

- Map of potential renewable energy resources (Solar, Wind And Biomass) officially presented in February 2007.
- Support to the preparation of the National Strategy for Sustainable Development in Montenegro (SNSS) and definition of the National Action Plan for its implementation.
- Eco-Master Plan Preparation and Eco-Efficient Building Design inside the University campus area, Podgorica.
- Support to the preparation of the Eco-Master Plan for the Sustainable Development of Kolasin.
- Projects like ADRICOSM-STAR; Water Utilities Reform Plan and Solar Water Heating Program.
- Identification and promotion of possible projects for the Sustainable Development of tourism and eco-tourism in Montenegro.
- Support for the realization of Mediterranean pollution control Program in Montenegro: MEDPOL Program
- Support to the preparation of the First National Communication to the UNFCCC, Montenegro
- Technical Assistance for the realization of the quality air management plan.

With the Republic of Albania, MATTM signed a Memorandum of Understanding on 31 May 2005 on “Cooperation in the field of the Clean Development Mechanism under article 12 of the Kyoto Protocol”, aimed at facilitating the implementation of the Kyoto Protocol through legal support to the national competent authority (DNA) and technical support for potential CDM project assessment in the field of renewable energy sources, energy efficiency, waste and forest management. Due to the high interest of the Albanian Government toward the management of coastal areas and river basin water quality, several projects are under implementation in these sectors. ADRICOSM-STAR (Integrated river basin and Coastal zone management system), started in 2007, aims at the development and partial implementation of an integrated coastal area and river and urban water management system that considers both observational and modelling components. Area of investigation are the Bojana river Delta between Montenegro and Albania, and the Montenegro coastal area which is naturally affected by Albanian marine waters.

Moreover, another project in this sector financed by the Italian Ministry for the Environment is the “Monitoring of water resources in the Erzeni river basin”. Its main objective is to collect environmental data regarding the water resources in the Erzeni river basin and, subsequently, to assess and elaborate the availability and quality of water resources at basin level, together with preliminary evaluations and recommendations on the water management systems.

Considering the Albanian air quality issue, MATTM has decided to supply technical assistance for the implementation of Air Pollutants Emission Inventories and for Air Quality Planning. The target of this assistance is first of all the support to the republic of Albania in the compilation of a national emission

inventory for the integration of Albania in Long Range Transboundary Air Pollution (LRTAP) Convention and then the support to the Albanian team to develop capacity to assess and plan air quality on local/urban scale, in particular in urban and industrial areas regulated in the frame of the EU Air Quality Framework Directive 96/92/CE and relative “daughters” Directives. These activities represent the core of the project “Technical support services for pollutant emissions inventories implementation and air quality planning in Albania”.

With the Republic of Macedonia MATM has been cooperating since August 2005, when a Memorandum of Understanding on “Cooperation in the field of Environment and Sustainable Development” was signed.

The Programme of Cooperation foresees different projects, particularly focused on legal and technical assistance toward the Implementation of the Kyoto Protocol and its Clean Development Mechanism. Moreover, MATM is engaged in several activities in the sectors of Capacity Building of national and local authorities, promotion of Renewable Energy’s use, improving of Energy Efficiency, remediation of industrial polluted sites.

In 2004, the Italian Ministry for the Environment Land and Sea has signed with the Ministry of the Environment and Water Management of the Republic of Romania, a Memorandum of Understanding on “Environmental Protection and Sustainable Development” and in 2006 has signed, with the same Ministry a Memorandum of Understanding on “Cooperation on Climate Change”, aimed at developing bilateral cooperation projects and facilitating the implementation of the Kyoto Protocol.

To this aim, a specific technical assistance was given to the Romanian side in specific sectors of the environmental protection through concrete projects.

Furthermore, in 2007, a technical framework of JI activities has been developed through technical workshops and capacity building activities, focusing the attention on appropriate opportunities and modalities to create favourable conditions for Italian and Italian-Romanian companies for a possible development of JI projects under the Kyoto Protocol, and for the enhancement of Romanian local capacities.

Cooperation on climate change in Latin America, the Caribbean and the Pacific Islands

Among its other bilateral activities MATM is promoting several projects in Latin America, the Caribbean and the Pacific Islands.

The support to the Caribbean Community Climate Change Centre based in Belize, which became fully operational in 2005 thanks to the financial contribution of the Italian Government, was confirmed also in 2007 allowing the Centre to gain recognition as the regional centre of excellence on climate change related matters.

In 2004, the “CDM Reforestation project”, was launched in Argentina and is still under implementation in the Province of Santiago del Estero, in the North of the country. The implementation of the project

activity will prevent desertification processes, improve the supply, management, sustainability, and environmental conditions of the forest resources in Santiago del Estero, conserve its biodiversity and mitigate climate change. The overall objective is to explore and demonstrate the technical and methodological approaches related to credible carbon sequestration and pilot the viability of enhancing the livelihoods of people and native biodiversity by facilitating reforestation activities in the Rio Dulce Basin, particularly in the Colonia El Simbolar and the Departamento Robles.

As regards Mexico, the Italian Ministry for the Environment, Land and Sea signed in 2004 an Agreement on “Co-operation in the field of the Clean Development Mechanism (CDM) under article 12 of the Kyoto Protocol with the Mexican Ministry of Environment and Natural Resources”.

In the framework of this bilateral cooperation, the Italian Ministry of the Environment has established an Office at Mexico City with the aim of promoting bilateral cooperation on environmental protection, energy efficiency, renewable energy and low carbon technologies.

In 2008, the Italian Ministry for the Environment also signed a Memorandum of Understanding with the National Forestry Commission on “Cooperation on afforestation, reforestation and bioenergy from forest resources”. This agreement also foresees the establishment of a Working Group with the objective of monitoring project activities on bioenergies.

First projects under bilateral cooperation are:

- Feasibility studies of solar industrial refrigeration in the food and agro industry in Mexico;
- Programmatic CDM on Solar Cooling in the Food and Agro Industry in Mexico;
- Feasibility studies on second generation biofuels: cellulosic ethanol.

In 2008, the Italian Ministry for the Environment, Land and Sea supported some capacity building activities for a “Low Carbon Society”. The “Low Carbon Society” concept was developed by Japan through studies and projects and has been endorsed by G8 Environment Meetings, it is based on the principles of carbon minimization; “quality of life oriented society”; coexistence with nature, maintaining and restoring the natural environment.

In Cuba, the Caribbean Risk Management Initiative (CRMI), co-financed by the Italian Ministry for the Environment in 2005, is still operational. The CRMI is designed to build capacity within the Caribbean region to adequately address the growing occurrence of natural hazards and environmental risks as well as to emphasize the concept of climate change and social vulnerability. The activities for the Initiative are implemented via the UNDPs’ offices in Cuba, Barbados, Dominican Republic, Haiti and Jamaica.

In Brazil the Italian Ministry for the Environment is supporting since 2007 the Amazon Keystone Initiative whose main aim is to provide the capital and expertise required to create 10 million hectares of additional, fully functional protected areas, and improve management of 20 million hectares of existing protected areas in the Amazon. The Italian contribution supports the Brazilian Government Protected

Areas Endowment Fund and implements 'on-the-ground' conservation in the Acre and Purus and Itenez Mamore conservation blocks.

Furthermore Italy is carrying out, since May 2007, a Cooperation Programme on climate change and environment with 14 countries of the South Pacific Small Islands Developing States (South Pacific SIDS), namely: the Cook Islands, the Republic of the Fiji Islands, the Republic of Kiribati, the Republic of the Marshall Islands, the Federated States of Micronesia, the Republic of Nauru, Niue, the Republic of Palau, the Independent State of Papua New Guinea, the Independent State of Samoa, the Solomon Islands, the Kingdom of Tonga, Tuvalu, and the Republic of Vanuatu.

The objectives of the programme, which reflect the priorities established by the Governments of the Pacific SIDS, are the development of measures to adapt to the adverse effects of climate change, the development of local renewable energy sources and biofuels as well as the wide dissemination of their use to address energy security while increasing access to energy services, reduce emission of greenhouse gases, and strive for sustainable transport. Moreover, the program is designed to strengthen national capacities for the establishment of national energy policies and strategies, as well as markets, and to ensure sustainability through the development and deployment of specialized human resources at both the national and community levels. The implementation of the program is designed to be carried out with the involvement and support of the beneficiary communities. Protection from and adaptation to the adverse effects of climate change as well as mitigation of harmful emissions generated by energy utilization, are priorities established by the governments of the Pacific Small Island States. Energy however is a key driver of economic growth, with a significant bearing on education, environment, health and social welfare; thus energy and sustainable development need to be integrated and prioritized in national strategic development plans. The Pacific Small Island States have recognized the need for all to have national energy policy and action plans in place to ensure that energy initiatives are in line with national expectations.

4. Scientific co-operation

Scientific and technological co-operation

The Italian Ministry for the Environment, Land and Sea is promoting and supporting programmes on scientific research and technological transfer in Asia, Balkan area and Mediterranean Region. These projects are addressing the R&D phase of key technologies in order to tackle the near-term mitigation and adaptation needs of these regions.

Since 2006, new scientific and technological initiatives have been implemented in China, Israel, Romania, Small Island Developing States, Tunisia and Serbia in collaboration with Universities, Research Centres and local Institutions.

The projects aim to develop, test and optimize new technologies, inter alia, in the following sectors:

- Solar thermal driven cooling system for the food and agro industry;

- Building Integrated Spherical Collector system (PV concentrator), providing electricity, heating and cooling, whose size and cost will be appropriate for urban areas;
- Mitigation of the effects of Climate Change and Desertification;
- Carbon sequestration;
- Air pollution prevention and control;
- Hydrogen innovative technologies.

In particular, in the Mediterranean region, the Italian-Israeli Cooperation in the Environmental R&D sector is an excellent case of partnership. Since the begin of this programme, promoted by the Italian Ministry for the Environment, Land and Sea and the Porter School on Environment Studies (Tel Aviv University) through a Memorandum of Understanding, signed in Rome on May 2003, the following projects - for a total cost of 6.113.796 EUR - have been financed bilaterally:

- Modelling System for Urban Air Pollution: the target achieved with this project might be implemented for the management of the emergency services like fire and the unwanted pollution by dangerous substances;
- Building Integrated Spherical Collector system (PV concentrator): the target of this project was to develop a new PV concentrator system whose size and costs will be appropriate for use in urban areas. The project has assessed the techno-economic and environmental feasibility of the concept and has developed an experimental model to validate the technology. Through the European financial assistance under the framework of the VI Programme of Research and Development, the project has received 1.000.000,00 EUR in order to adapt the photovoltaic collector for a possible production;
- Harnessing the Biodiversity of Mediterranean Plants for mitigating the Effects of Climate Change and Desertification: the project aims to identify some species of Tamerix and Pioppus for the production of biomass and carbon sequestration through forestation and afforestation in the salt and desert land;
- The Impacts of Biological Invasions and Climate Change on the Biodiversity of the Mediterranean Sea: the project aims to analyze the biological changes of the marine environment in the Mediterranean sea and identify impacts of the climate change at the sea level and develop sustainable policy.

In addition, thanks to the cooperation with the Euro-Mediterranean Centre for Climate Change (CMCC), other projects have been financed as part of an integrated, multi-disciplinary and frontier research for understanding, controlling and adapting to Climate Change.

CMCC is a national research centre, funded by the Italian Ministries for the Environment, Land and Sea, of Education, University and Research, and of Economy and Finance, that aims at furthering knowledge

in the field of climatic variability, including causes and consequences, through the development of high resolution simulations and impact models. It represents the most ambitious initiative undertaken in Italy, within the framework of the National Research Plan, and specifically the National Research Plan on Climate.

CMCC is a consortium of six Italian research institutions: Istituto Nazionale di Geofisica e Vulcanologia, Fondazione Eni Enrico Mattei, Università degli Studi del Salento, Centro Italiano Ricerche Aerospaziali, Consorzio Venezia Ricerche, Università degli Studi del Sannio.

Among the activities carried out by CMCC we hereby highlight the following main projects, programmes, and international multilateral agreements directly financed by MATTM and coordinated by CMCC:

- Italy-Rumania Cooperative Programme on Environment Research and Training
- Italy-Small Island Developing States (SIDS) Cooperative Programme on climate change impacts and on emission reduction policies
- Italian-Israeli Cooperation in the Environmental R&D sector
- Italy-USA Cooperative Programme on science and technology of climate change.

Furthermore CMCC is involved in several project financed by the European Commission. One of the most representative is CIRCE "Climate Change and Impact Research - the Mediterranean Environment", a European project financed under the Sixth Framework programme. With a duration of 4 years starting from 2007, CIRCE aims at predicting and quantifying physical impacts of climate changes in the Mediterranean area; evaluating the consequences of climate changes for the society and the economy of the populations located in the Mediterranean area; developing an integrated approach to understand combined effects of climate change; identifying adaptation and mitigation strategies in collaboration with regional stakeholders.

Sino-Italian scientific and technological cooperation

In the framework of the Sino-Italian cooperation several scientific and technological research projects have been implemented in collaboration with the Chinese Ministry of Science and Technology, major Chinese scientific institutions, Chinese Municipalities, companies and prestigious universities, such as Tsinghua University in Beijing, Tongji University in Shanghai and Jiaotong University in Shanghai.

New processes and technologies are being developed in the following sectors:

- Air pollution prevention and control (Suzhou, Beijing, Lanzouh, Shanghai, Urumqi): development of an innovative pollution source monitoring system aiming at reducing emissions through a programme to take action on traffic and industrial sources (2003-2009) including the establishment of an advanced chemical laboratory in Beijing under the Green Olympics Program.
- Sustainable transport: development of an advanced laboratory for vehicles emissions control and an "Intelligent Transport System" for the regulation of urban traffic and to reduce consumption and emissions (2005-2008), integrated by an Intelligent Bus Operation Control System (IBOCS), to optimize public transport fleet management. Additional R&D activities focus on biofuels and hybrid vehicles (2007-09). Technology transfer activities address low emission solutions for public transportation such as low emission CNG engines (2004) and anti-particulates filters (2008-09)
- Renewable Energies and Energy efficiency: testing of a diagnosis model for the evaluation of the energy and environmental performances in the Shanghai industrial sector (2005-06); design and testing urban and industrial energy saving plans in Jinan, Suzhou and Taiyuan (2006-2008); exploitation of geothermal energy with application of the re-injection technology in Tibet and the Tianjin area (2005-06); scientific cooperation in the field of clean coal, including carbon capture and storage and ultrasupercritical technologies (2008), in view of development of pilot actions (2009-10)

- Hydrogen innovative technologies: promotion of technologies to produce energy and hydrogen from waste in co-combustion with coal
- Sustainable Urban Planning and Eco-building: since 2004 various pilot experiences have been developed, among which: the design and building of the Sino-Italian Environment and Energy-efficient Building (SIEEB) at the Tsinghua University Campus (2006), the Environmental Conventions Building - 4C Building- (2009) the Program for GHGs reduction in the Residential Building Sector in China, including the development of related CDM methodology (2007-2010), the eco-building interventions in the Urban Best Practices Area at Shanghai World Expo Park (2008-10)
- Adaptation to climate change: sandstorm prevention and control in Beijing, development of sustainable agricultural techniques and optimisation water use and arid zones through the utilization of an Italian-designed system (Vallerani method) for the reforestation in Inner Mongolia (2005-2009)

A point of strength of the Sino – Italian R&D cooperation has been the establishment of the three following research centres:

- The Sino-Italian Sustainable Urban Mobility Research Centre, launched in 2005 together with Tongji University of Shanghai, is intended to study and implement environmentally friendly technologies. In this framework the first high-output micro-turbine for tri-generation has been installed on the campus of Tongji University, as an innovative and clean response to the increasing demand for energy in China. The Centre has also developed prototypes of hybrid vehicles and electric motorcycles.
- The Euro-Asian research and training on CLimate change MAnagement (CLIMA), launched in March 2006, has developed an integrated scientific/educational approach to the problems of climate change.
- The Green Energy Laboratory at Jiaotong University (under establishment), dedicated to the development of energy efficiency technologies and CDM methodologies for GHGs emissions reduction in the building sector. The Lab will be inaugurated in spring 2010.