

JICA's Cooperation for Climate Change



Photo: Yasuhiko OKUNO, Akio IIZUKA, Kenshiro IMAMURA /JICA

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Japan International Cooperation Agency

JICA's Approach to Achieving a Low Carbon and Climate Resilient Society

Promoting integrated cooperation addressing climate change measures in development cooperation

The Japan International Cooperation Agency (JICA) is promoting integrated cooperation from a cross-cutting perspective based on the experience and good practice in previous development cooperation in order to reduce greenhouse gas (GHG) emissions and achieve economic growth in a compatible manner.

Aligning climate change and development based on the co-benefits and climate risk-based approach

Development cooperation, including financial and technical assistance, is critical to planning and implementing measures addressing climate change and sustainable development in

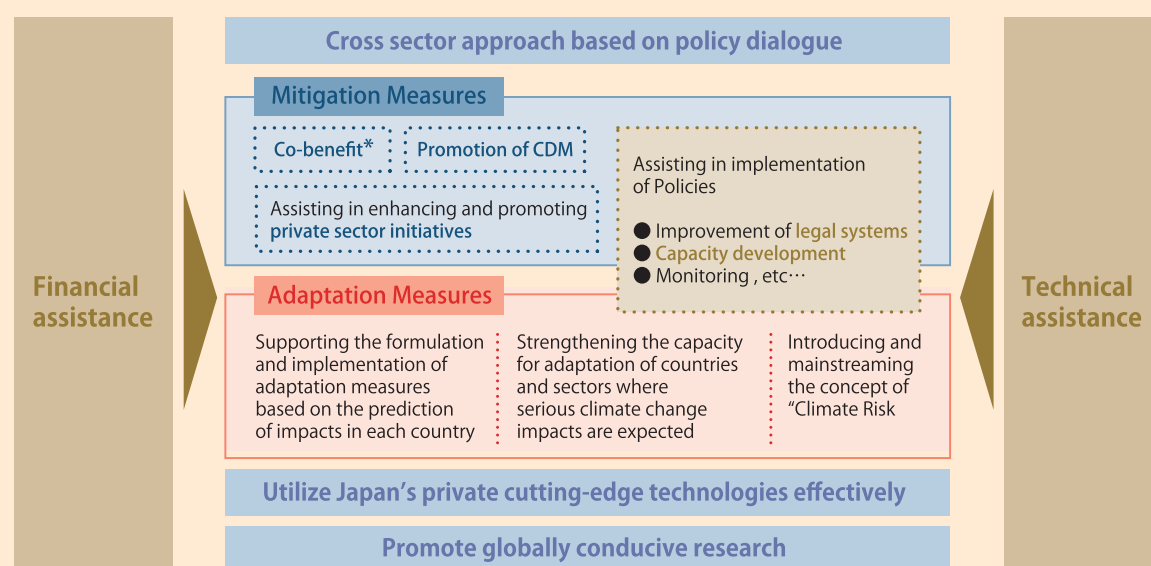
developing countries. JICA is conducting its development cooperation operations based on the co-benefits and climate risk-based approach to achieving low carbon and climate resilient development.

Realizing tangible development projects from the perspective of climate change mitigation and adaptation

Realizing the importance of formulating tangible projects in developing countries, JICA is conducting development cooperation to address both climate change measures and development by effectively utilizing Japan's cutting-edge technologies including those of the private sector. These activities are focused on the development needs of the respective developing countries.

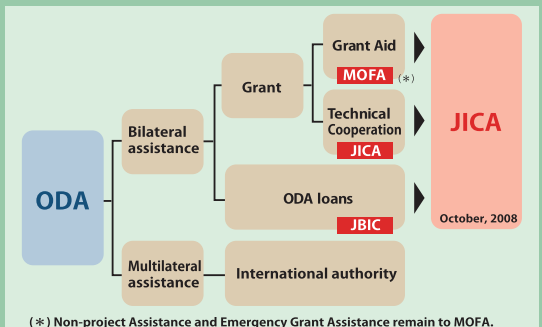
Direction of JICA Operation Addressing Climate Change

JICA is taking advantage of the expected synergistic effects of this merger and its taking actions to combat climate change are based upon the following principles.



(*) "Co-benefit" approach: Project or program which realize both developmental benefits for developing country and GHG emission reductions.

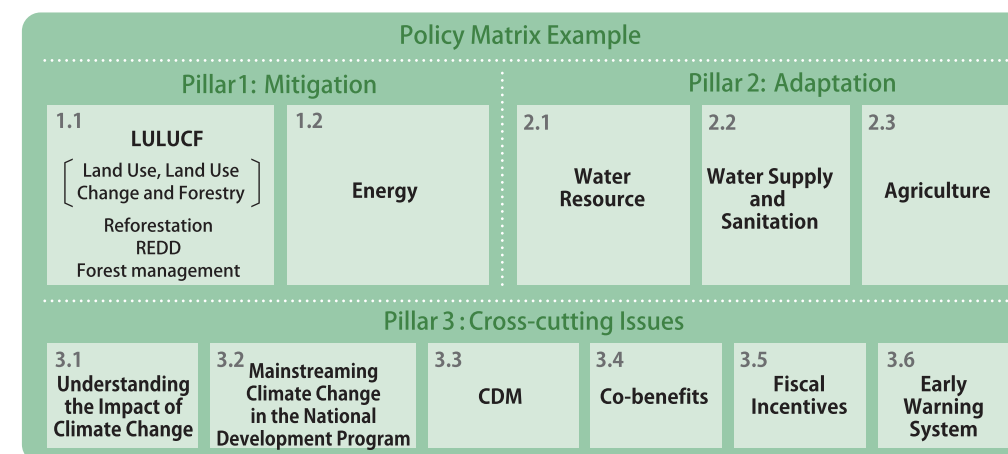
As an executing agency of Japan's official development assistance (ODA) and the largest bilateral development agency in the world with operating assets of around US\$10 billion annually, JICA undertakes many climate change and related projects and programs in developing countries through its three schemes for development assistance: technical cooperation, grant aid and ODA loans. JICA has been continuously tackling climate change including both mitigation and adaptation measures in developing countries as a critical part of development issues, based on the "Direction of JICA Operation Addressing Climate Change" announced on October 1, 2008.



Policy Based Assistance for Climate Change Policy in Developing Countries

Climate Change Program Loan (CCPL) is an innovative scheme to facilitate the implementation of climate change policies through financial and technical assistance for developing countries in alignment with their

national development policies and strategies. The initiation of a CCPL is by first formulating the policy matrix of multi-year policy pillars based on policy dialogues.

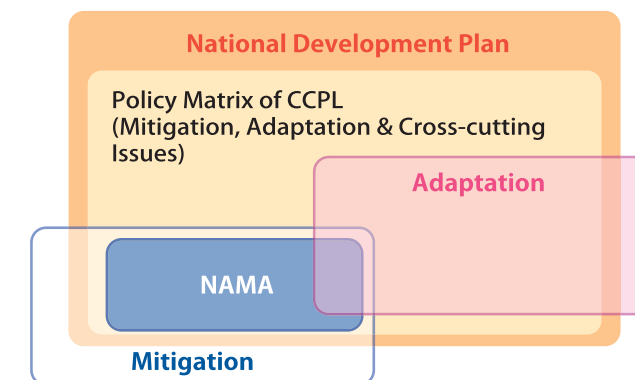


JICA signed a CCPL Agreement with Indonesia in September 2008 as its first case. Through the year 2008, JICA conducted monitoring and also provided advisory services to Indonesia to achieve the secure implementation of their National Action Plan addressing Climate Change. JICA and Indonesia signed their 2nd and 3rd agreements to finance CCPL after modification of the policy matrix to improve effective, feasible and tangible policy actions based on year-round monitoring.

JICA also signed the same type of program loan agreement with Vietnam in June 2010. The Support Program to Respond to Climate Change (SP-RCC) in Vietnam was elaborated through a series of policy dialogues covering 15 sectors between cross sectoral ministries and donors to support the implementation of climate change related policies and strategies based on the National Target Program to Respond to Climate Change (NTP-RCC).

JICA has been conducting a continuous series of dialogues to

elaborate CCPLs in additional countries to facilitate their action for both climate change mitigation and adaptation in alignment with their own national action plans including development plans. In addition, JICA will eventually conclude CCPL agreements with these countries in the light of international discussions regarding low carbon development in developing countries.



Carrying the future environment

India: Delhi, India Mass Rapid Transport System Project

CDM

By connecting central Delhi and its suburbs, the Delhi Metro will contribute to significant energy savings, restraining petrol consumption by motor vehicles, and consequently reducing pollution in urban areas and greenhouse gas emissions. Because the use of cutting edge "regenerative braking systems" saves energy, the project was registered as a CDM project activity and it became the first railway project in the world to earn carbon credits. According to our study, the Delhi Metro will reduce CO₂ emissions by 41,160 t/year. This amount of CO₂ can be absorbed by a natural forest of 12,500 ha (about 6 times the size of the Indira Gandhi International Airport) or the reforestation of 6,340 ha.



Utilizing the ultimate energy source

Nigeria: Master Plan Study for Utilization of Solar Energy



Seventy percent of Nigeria's total population lives in rural areas, 90% of whom have no access to electricity. Lack of electricity has also accelerated forest destruction due to dependence on firewood as the main source of energy. This study covering four states provides a Master Plan for Photovoltaic (PV) Rural Electrification designed to last until 2020. A pilot project was conducted in three villages where the necessary PV system was installed. All the necessary skills and technologies for its operation and maintenance were transferred. This project contributed to mitigating deforestation and possibly reducing GHG emissions through the utilization of solar energy. The project also contributed to achieving rural electrification and improving the quality of life in rural areas.

Eyes in space to protect pristine forest

Brazil: Utilization of ALOS Images to Support Protection of the Brazilian Amazon Forest and Combat against Illegal Deforestation

REDD+

Ground monitoring of illegal logging is extremely difficult in the vast Amazon area and that is why satellite monitoring comes into play in cracking down on this practice. In this project, JICA is assisting in the development of a system and the capacity to utilize satellite data for monitoring illegal logging.



Better life with clean energy

Zambia: Increased Access to Electricity Services Project



Based on the master plan on rural electrification whose introduction was supported by JICA, the project aims to extend the existing power grid for an additional 459 km in the Central, Eastern, Luapula, Northern, Southern and Western Provinces. The newly extended grid will replace carbon intensive energy sources widely used in these provinces, such as kerosene and charcoal, with cleaner energy sources, reducing the annual GHG emissions by 27,570 metric tonnes. Installation of a small scale hydroelectric power plant with a capacity of 1.4 MW in North-Western Province is also being planned. The plant will contribute another 2,749 metric tonnes of carbon emissions reduction according to our study.

Desert winds blow for Green Growth

Egypt: Zafarana Wind Power Plant Project

CDM

This project is to construct a wind power plant with a capacity of 120 MW in Zafarana, Egypt. The project will increase the power supply, alleviate air pollution by reducing the use of fossil fuels, and in turn reduce GHG emissions. In July 2007, this project was registered at the CDM Executive Board (CDM-EB) as the first large scale CDM project financed by an ODA loan and the estimated annual GHG emissions reduction is about 250,000 t CO₂ equivalent.

Egypt: Gulf of El Zayt Wind Power Plant Project

Upon completion, the Gulf of El Zayt wind farm will provide 220 MW of electricity, contributing to the mitigation of air pollution and GHG emissions reduction. Together with the Zafarana project, it will contribute to achieving the Egyptian target to derive 12 % of its total electricity generation from wind power plants by 2020.



Alleviate poverty not by logging but by conserving the forest

Ethiopia: Participatory Forest Management Project in Belete-Gera Regional Forest Priority Area

REDD+



The forests in Ethiopia are dwindling due to excessive logging and the conversion of forests into farmland. In the Belete-Gera Regional Forest Priority Area in the State of Oromia Region, where 174,000 hectares of valuable forest land is still preserved, JICA is cooperating with the local authorities and about 9,000 inhabitants to achieve the dual goals of forest conservation and poverty reduction. In the project, JICA has assisted its partners to acquire the certification and delivery of wild coffee that grows in the region's natural forests. As a result, the coffee grown in the area successfully gained certification from an environmental NGO, the Rainforest Alliance. The certification has enabled the locals to sell the coffee at high prices, and to realize both forest conservation and the improvement of their livelihood.

Kenya Adaptation

The Programme for Community based Flood Disaster Management to Adapt to Climate Change in the Nyando River Basin aims to establish a community-based disaster management system as well as to provide structural measures including eleven boreholes, four evacuation centres, nine toilets, two stores, 44 culverts, seven footbridges and one weir in an area particularly vulnerable to flood risk under climate change.



Egypt Mitigation

The Zafarana Wind Power Plant Project has constructed a 120 MW wind power plant, contributing to a CO2 emissions reduction of 250,000 t. (See page 5)

Ethiopia Mitigation Adaptation

In the Participatory Forest Management Project in Beleta-Gera Regional Forest Priority Area, JICA is cooperating with local authorities and 9,000 locals to achieve the dual goals of forest conservation and poverty reduction. (See page 5)

Kirgizstan Mitigation

The Biogas Technology Dissemination Support Project utilizes livestock manure to recover biogas for energy use, contributing both to improving the rural living conditions and reducing GHG emissions.



India Mitigation

The Delhi Mass Rapid Transport System Project aims to alleviate the world's worst urban pollution and traffic congestion as well as to reduce GHG emissions. (See page 4)

Bhutan Adaptation

The Study on Glacial Lakes Outburst Floods (GLOF) in Bhutan Himalaya will produce a hazard map for GLOF and propose optimal measures to mitigate flood impacts in the Mangde Chu valley. (See page 8)

Laos Mitigation Adaptation

In the Participatory Land and Forest Management Project for Reducing Deforestation, JICA has assisted the Lao government with forest management and community assistance projects in six provinces in the northern part of the country, contributing both to preservation of the forest and improving the living conditions in the rural areas. (See page 9)

Senegal, Mozambique, Niger, Ethiopia Adaptation

Programmes for Emergency Water Supply aim to improve people's access to safe drinking water and basic sanitation in addition to mitigating water-related disasters. (See page 9)

Nigeria Mitigation

The Master Plan Study for Utilization of Solar Energy contributes both to mitigating deforestation and reducing GHG emissions through the utilization of solar energy. The project achieves rural electrification and improves the quality of life in rural areas. (See page 4)

Zambia Mitigation

The Increased Access to Electricity Services Project aims to extend the existing power grid to replace carbon intensive energy sources by cleaner energy sources in six provinces, contributing to GHG emissions reduction by 30,000 t/yr. (See page 5)

Bangladesh Mitigation

The Programme for Improvement of Solid Waste Management in Dhaka City toward the Low Carbon Society will reduce carbon emission from garbage trucks by 60% and also contribute to improving the living environment for urban residents.



Bangladesh Adaptation

The Project for Construction of Multipurpose Cyclone Shelters, Emergency Disaster Damage Rehabilitation Project has established 91 shelters in the country which is especially vulnerable to tropical cyclones. The shelters serve as school buildings in ordinary times. (See page 8)

Indonesia Mitigation

Support on Forest Resources Management through Leveraging Satellite Image Information is using the Japan Aerospace Exploration Agency's land observation satellite "ALOS" to help manage forest resources.



Indonesia Adaptation

Aiming to conserve four beaches on the island, the Bali Beach Conservation Project is considered an effective adaptation measure to cope with a sea level rise due to climate change. (See page 8)

Solomon Adaptation

The Project for Strengthening of Malaria Control has provided assistance for the establishment of an effective malaria control system. (See page 9)

Paraguay Mitigation

The Yguaze Hydropower Station Construction Project aims to optimize the power supply in Paraguay by constructing a hydropower station with a facility output of 200 MW to meet peak demand, contributing to GHG emissions reduction.



Samoa Mitigation

The Power Sector Expansion Project will improve the power sector in Samoa by installing a new hydropower plant and improving existing power plants. The project will also upgrade the national grid system, making it more energy efficient, which in turn will contribute to GHG emissions reduction.



Brazil Mitigation Adaptation

Utilization of ALOS Images to Support Protection of the Brazilian Amazon Forest and Combat against Illegal Deforestation assists the development of a system and the capacity to utilize satellite data for monitoring illegal logging, which is one of the biggest problems in forest management in the Brazilian Amazon. (See page 4)

Vietnam Mitigation Adaptation

In the Development Study on Capacity Development for AR-CDM promotion, JICA cooperated with the Vietnamese government in carrying out capacity-building and in designing a pilot project to promote AR-CDM. The pilot project was registered as the first AR-CDM project in Vietnam and the fourth in the world.



Green-shaded countries are those where JICA supports projects targeting climate change.

Conserving beautiful beaches on the island of the gods

Indonesia: Bali Beach Conservation Project

This project started in 1996 with the aim of conserving four beaches on the island of Bali, the Republic of Indonesia, where coastal erosion is a growing concern due to the increasing impact of ocean waves caused by coral reef degradation. The project is expected to counteract the current and future problems, thus contributing to sound socio-economic development in the area. It is also considered an effective adaptation measure to cope with a sea level rise due to climate change. The project was completed in 2009.



A cyclone is coming! - No worries, we have shelters

Bangladesh: Project for Construction of Multipurpose Cyclone Shelters, Emergency Disaster Damage Rehabilitation Project



Bangladesh is a low-lying country with 80% of the national land lying less than 9 meters above sea level, and suffers extensive damage from floods and cyclones during the rainy season. In particular, the Bengal gulf area has been greatly affected by high tides as a result of cyclones over the years. After the damage caused by the cyclone in 1991, many bilateral and international donors jointly initiated the establishment of cyclone shelters, and JICA has cooperated in establishing 91 shelters through grant aid. In addition, after Cyclone Sidr in November 2007, JICA promptly provided emergency aid supplies and loans for the recovery of the infrastructure including roads, bridges, and sewerage systems in urban and rural areas, in cooperation with other donor organizations. The measures against current disasters are considered to be effective for alleviating damage even though risks will increase in the future due to climate change.

Managing growing glacial lakes in the Rooftop of the World

Bhutan: The Study on Glacial Lakes Outburst Floods (GLOF) in the Bhutan Himalayas

A Glacial Lake Outburst Flood (GLOF) is one of the greatest concerns among many possible climate change impacts in Bhutan. By collaborating with the Japan Science and Technology Agency (JST), this study aims to re-evaluate lakes in the Bhutan Himalayas for their potential to trigger GLOFs by conducting a field survey and using satellite data. It also plans to study the mechanism of GLOFs in the Mangde Chu valley, one of the least studied site in the country for the subject. By the end of the project, a hazard map of the river valley will be created and optimal mitigation measures including the installation of an early warning system will be proposed.



No Malaria outbreak, even under climate change

Solomon Island: The Project for Strengthening of Malaria Control in Solomon Islands



This project has provided assistance for the establishment of an effective malaria control system including the early detection of the alarming phenomenon of a rapid outbreak and a basic system for prompt countermeasures. Specific activities include (1) data collection for detecting a malaria outbreak and (2) the establishment of a system to accurately utilize the collected data for clinical practices. With the increased risk of malaria infection due to climate change, the establishment of the system and capacity development strengthens the protection of people's health and contributes to adaptation measures.

Water: The liquid of life

Senegal, Mozambique, Niger and Ethiopia : Programmes for Emergency Water Supply

These programmes aim to improve people's access to safe drinking water and basic sanitation in addition to mitigating water-related disasters in Senegal, Mozambique, Niger and Ethiopia. These four countries are suffering from floods and droughts and it is predicted that the frequency and severity of such extreme weather-related events will increase under future climate change scenarios. The purpose of the programmes is to provide the necessary machinery and equipment for well drilling, emergency water supply, flood management and other essential activities. The necessary soft-components are also provided in order to strengthen the capacities of central and local governments and communities so that they can sustain the operation of the machinery and equipment that they acquire.



Forest Management: Of the people, for the people, by the people

Laos: Participatory Land and Forest Management Project for Reducing Deforestation

REDD+



The forest coverage of Laos has declined from about 70 % in the 1960s to 41.5 % in 2002, mainly due to logging and the conversion of forest to agriculture and other land uses. The Government of Laos has begun implementing a programme to restore the forest coverage to its original state. To assist the government, JICA carried out a five-year forest management and community assistance project in six provinces in northern Laos beginning in 2004. The project resulted in the improvement of the livelihood of the residents and fewer incidents of slash-and-burn cultivation. The project continues to monitor the activities in the target villages and to establish a comprehensive deforestation prevention programme through participatory land and forest management.

Creating an Enabling Environment for a Low Carbon and Climate Resilient Society

JICA has conducted a variety of training courses under the technical training program over the years. Among various training courses, several focus on technologies and policies directly related to both adaptation and mitigation, such as "Adaptation for Climate Change" and "Development of Strategies on Climate Change". These courses are intended to transfer knowledge and technology to participants from respective

countries during their stay in Japan. JICA has also conducted a wide range of training courses in the fields of energy, health-care, agricultural development, rural development, water resource development, disaster management, forestry and preservation of natural environment and ecosystems, all of which include the perspective of climate change mitigation and / or adaptation.

Enhancing Research and Knowledge-sharing

JICA has been carrying out policy-oriented surveys and research to tackle problems faced by developing countries. JICA deals with climate change issues as one of its priority areas, and has been conducting a joint research program on climate change adaptation in Asian coastal mega-cities with ADB and the World Bank.

where relatively large socio-economic impacts are likely under future climate change scenarios. Taking several Asian coastal mega-cities, e.g. Manila, Bangkok, Ho Chi Minh City and Kolkata as case studies, the project aims to identify the impacts on the most vulnerable communities and urban infrastructure to assess the degree of induced economic and social impacts, and then to identify the policy needs for possible adaptation measures in each city. The project encompasses various methodologies in an integrated manner, including Earth Simulator climate simulation, urban hydraulic models, and socio-economic analysis.

Climate Impact Adaptation and Mitigation in Asian Coastal Mega-cities

This research project is jointly conducted by JICA, ADB and the World Bank. The project focuses on Asian coastal mega-cities

Initiative for Clean Development in LDCs

The purpose of the CDM under the Kyoto Protocol is to assist developing countries in achieving sustainable development and in contributing to the ultimate objective of the UNFCCC, and also to assist developed countries in achieving compliance with their quantified emission limitation and reduction commitments. Of the more than 2,300 CDM projects to date around the world, three-fourths are concentrated in only four nations - Brazil, China, India and Mexico - such that the majority of developing nations (particularly Least Developed Countries (LDCs)) have a limited number of CDM projects. JICA is providing cooperation to develop and

implement CDM activities in LDCs and other countries in a similar situation in order to facilitate and increase CDM activities, contributing to their sustainable development and GHG emissions reduction.

JICA has been continuously providing strong support to facilitate CDM with "on the ground" capacity development based on JICA financed projects. JICA is conducting a continuous series of dialogues with LDCs and other stakeholders to share and exchange views regarding CDM reform that will help facilitate CDM projects in LDCs and other countries as part of the "Initiative for Clean Development".



Japan's Leading Role in Cooperation for Climate Change and Development

Japan has been scaling up its assistance to developing countries to tackle sustainable development and climate change since the announcement of the Kyoto Initiative in 1997.

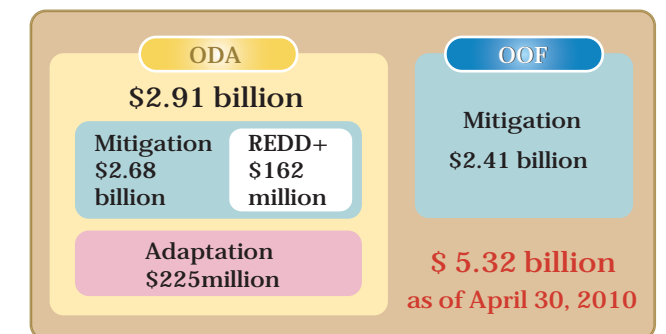


Japan announced its Fast-Start Finance of 15 billion dollars up to 2012, which represents around a half of global commitments under the Copenhagen Accord.

Japan's Fast-Start Finance is already flowing

Japan immediately began delivering resources through ODA and OOF to support both adaptation and mitigation actions in developing countries.

Japan's FSF is to assist developing countries, especially those making efforts to reduce GHG emissions and/or that are particularly vulnerable to climate change. The total amount 15 billion dollars has been channeled through ODA (around 7.2 billion dollars) and other official flows (OOF) (around 7.8 billion dollars) for both mitigation and adaptation.



Examples of Bilateral Support

- Climate Change Policy Program (1 country) (\$326 million)
- Wind Energy Project (1 country) (\$338 million)
- Geothermal Energy Projects (2 countries) (\$491 million)
- Solar Energy Projects (30 countries) (\$164 million)
- Forest Preservation Programme (14 countries) (\$111 million)
- Programme for the Improvement of Capabilities to cope with Natural Disasters caused by Climate Change (19 countries) (\$113 million)