Global Environment

For the Termination of the Vicious Cycle of Poverty and Environmental Destruction

Of the eight Millennium Development Goals (MDGs), relevant goals are shown in color.

In developing countries, a vicious circle is occurred as the destruction of the environment, which is a basis for human life, causes the further escalation of poverty. Each passing moment brings the further destruction of the irreplaceable natural environment on which humanity depends, driving the need for the creation of a sustainable society based on the concept of harmony with the environment. JICA is implementing cooperation widely for the conservation of the global environment. Key initiatives focus on nature conservation, environmental management, water resources, disaster prevention and management, and climate change.

Nature Conservation

Overview of Issue

Over the past decades, large-scale development and excessive resource consumption have led to the rapid destruction of nature worldwide that includes deforestation, desertification and the extinction of species. It is reported that the area of forest land is declining by approximately 13 million hectares, equivalent to one-third of the land area of Japan, every year due to factors such as logging, forest fires, conversion to agricultural land, and excessive slash-and-burn cultivation. Moreover, more than 18,000 wildlife species are considered to be in danger of extinction.

Human life is ultimately dependent on the earth's ecosystem, which provides such essentials as food, water and air. Destroying the balance of the ecosystem has a huge impact on people's lives. In particular, since many of the poor in developing countries are relying on natural resources during their daily lives, the destruction of the natural environment results in the further deterioration of their lives.

We are faced with the need to conserve and sustainably manage the natural environment that forms the basis for the survival of humanity, including forests, wildlife, lakes, wetland and mangroves, etc., which are rapidly vanishing from the earth.

JICA Activities

In addition to conducting activities such as collecting forest data, formulating management plans and improving the lives of local residents, JICA is carrying out afforestation activities for forest restoration in many countries. In order to eliminate the vicious cycle of environmental deterioration and poverty, and to promote the formulation of a society in harmony with the environment, JICA provides cooperation on nature conservation in the following three areas, with the aim of facilitating harmony between the maintenance of the natural environment and human activities.

1. Sustainable Use of Natural Resources by Local Residents

In developing countries, many people use natural resources in their daily lives. A steep rise in population, however, has meant that the use of those resources exceeds nature's ability to recover, causing the deterioration of the environment that supports human life.

Aiming to both conserve nature and improve living standards, JICA provides assistance based on local requirements, including those for sustainable production, environmental restoration and conservation activities, and works to improve community services through administration.

2. Conservation of Biodiversity

The blessing of biodiversity sustains our daily life in forms such as food, clothing, medicine, and wood products. However,

Counterpart personnel filling out monitoring forms with data
(Capacity Enhancement Project for Coral Reef Monitoring in Palau)

because of such factors as the excessive utilization of natural resources due to deforestation, overgrazing, and the harvesting of firewood and charcoal materials, as well as to overhunting of wildlife, introduction of alien species, and the threat of climate change, it is considered that as many as 40,000 wildlife species, including unknown species that remain undiscovered, are becoming extinct every year, and the functions of the ecosystem are deteriorating all over the world.

With the aim of establishing a sustainable society in which human activities co-exist in harmony with the natural environment, JICA is providing various forms of support such as providing Technical Cooperation for improving the capabilities of administrative officers and researchers, raising awareness through environmental education for local residents, introducing eco-tourism, and developing and disseminating agricultural technologies that can help strike a balance between the improved productivity and environmental conservation. In particular, JICA is carrying out activities for the conservation of biodiversity hotspots such as mangrove forests and coral reefs in regions that are rich in biodiversity.

In October 2010, the tenth meeting of the Conference of the Parties to the Convention on Biological Diversity (COP 10) was held in Nagoya, Japan [➡ See the Case Study on page 10]. In keeping with the adoption at COP 10 of the Nagoya Protocol on Access and Benefit Sharing (ABS), or the fair and equitable sharing of benefits arising from the utilization of genetic resources, JICA is supporting the efforts of developing countries in protecting their biodiversity-related resources and also in connection with ABS, which plays an important role in the promotion of sustainable utilization.

3. Sustainable Forest Management

Forests are not only valuable natural resources, they also have the function of retaining water resources and conserving soil while absorbing CO_2 to mitigate climate change. Although it is critical to replace forests by planting trees, it is more important to make sure existing forests are not depleted above current levels via adequate maintenance and management.

JICA conducts surveys on the state of forests, develops reforestation technology to regenerate wooded areas, and works to raise awareness of the importance of forests and their maintenance and management. In addition, JICA is extending cooperation on the conservation of forests, with a view to contributing to the establishment of a system to reduce emissions from deforestation and forest degradation (REDD-plus), which has been advanced by the international community in recent years as part of the measures against climate change [➡ See the Case Study on page 13].

Environmental Management

Overview of Issue

Environmental issues such as water and air pollution and untreated solid waste, once considered the problems of developed countries, now extend to developing countries as well. This

A tree-planting activity being conducted by local residents as part of the Participatory Land and Forest Management Project for Reducing Deforestation (Laos)

threatens the health and life of humans and other life, and inhibits the sound development of economic activities. It will be too late to address environmental issues once our ecosystems and human health are tangibly damaged. What is needed is an effort emphasizing prevention, and to this end it is important to strengthen the capacity to respond to environmental issues.

JICA Activities

Because many environmental issues involve complex factors in a multilayered manner and are spread over a wide spatial area, it is difficult to find solutions in a short period of time. In order to minimize the scale of environmental damage while continuing development, "environmental management" is important as a means of reducing the overall burden of human activity on the environment and maintaining the environment in a healthy state.

JICA provides various forms of support in accordance with the development status of each developing country or region. In so doing, JICA recognizes that it is essential to enhance the capacity of the organizations and individuals involved in environmental management to respond to these issues. Accordingly, in recent years, JICA has been further strengthening its efforts on capacity development for environmental management.

1. Water Environment

JICA supports measures to prevent pollution in rivers, wetlands and oceans. This includes support for increasing the capability to monitor water quality, for drafting management plans and making policy proposals. JICA also provides support for the drafting of plans and the operation and management of facilities needed to treat waste water from households and industry and improve the hygienic environment, such as support for the improvement of sewage facilities.

2. Atmospheric Environment

JICA supports measures to prevent air pollution, such as increasing the capability to monitor air quality, and improving capacity for drafting management plans and making policy proposals. JICA is also providing support for the development of air pollutant removal facilities, and new methods to measure contaminants.

3. Waste Management

JICA supports measures for improving waste management,

such as increasing the administrative service capabilities for the collection, transportation, intermediate treatment and final disposal of waste, and improving capacity for drafting management plans and making policy proposals. Recently, JICA is increasing its support to create a sound material-cycle society by promoting the 3Rs (Reduce, Reuse, Recycle) of waste [➡ See the Case Studies on pages 42, 76 and below].

4. Other Areas of Environmental Management

JICA supports the formulation of a basic plan for environmental management.

Water Resources

Overview of Issue

One-third of the world's population faces water shortages, while over a billion people lack access to safe drinking water. Moreover, many children are dying from water-related diseases. In this way, developing countries are facing a multitude of water-related problems, including food shortages caused by floods and inappropriate water allocation.

JICA Activities

In conjunction with the 3rd World Water Forum, held in Japan in 2003, JICA announced its basic policies for cooperation in the water resources sector, centering on the expansion of supply of safe water, and has followed this up steadily. In addition, at the 4th Tokyo International Conference on African Development (TICAD IV) held in 2008, commitments were made to expand support regarding water and sanitation in Africa, and JICA has been promoting efforts to realize these. Through the construction of water supply facilities via Grant Aid, JICA increased the number of people with access to safe drinking water by roughly 22 million worldwide between 2005 and 2009.

It is also essential to identify the state of water resources in a particular country or region in order to provide support that meets local needs.

1. Promotion of Integrated Water Resource Management

In order to adequately manage and sustainably utilize the limited water resources, JICA provides support with an emphasis on integrated water resource management to comprehensively tackle water-related issues concerning flood control, water utilization and the water environment. Specifically, JICA supports the formulation of integrated water resource management plans for entire watersheds, the development of systems for the collection and analysis of water resource related information and the establishment of watershed management systems.

2. Urban Water Supply

In addition to providing support for the formulation of plans for water supply systems and the improvement of water supply facilities, JICA supports the enhancement of the management foundations of water supply utilities, through measures including ensuring adequate operation, maintenance and management of facilities, capacity development related to non-revenue water,

Case Study **Pacific Region Project for Promotion of Regional Initiative on Solid Waste Management**

To Reduce the Environmental Impact in Island Countries

The island nations of the Oceania region, where land areas are small and traditional land ownership systems remain intact, share the common issue of how to ensure the adequate treatment of solid waste. In order to disseminate the outcomes of the efforts on solid waste management that JICA has obtained through cooperation with the region's countries, JICA commenced region-wide Technical Cooperation in February 2011 in collaboration with the Secretariat of the Pacific Regional Environment Programme (SPREP), with which JICA had previously established the Pacific Regional Solid Waste Management Strategy 2010–2015.

Synergy Effects of Collaboration Expected

This project is characterized by its utilization of the experiences of Japanese local governments and of collaboration among various types of cooperation.

The project plans to promote the dissemination of the semi-aerobic landfill system (Fukuoka method) that can be built with locally available materials and waste materials, and is easy to maintain and manage, based on the experience of introducing the system in Samoa. Through active collaboration utilizing the activities carried out by volunteers dispatched to each country for environmental education and the management of final treatment plants, JICA plans to promote the 3Rs (Reduce, Reuse, Recycle) of waste while involving local residents.

In Kagoshima Prefecture, Japan, the Shibushi City Model has made possible the long-term use of final treatment plants by reducing the volume of solid waste as a result of thorough waste separation. JICA plans to provide grassroots Technical Cooperation to disseminate this model in the region while obtaining the cooperation of local governments. It is expected that collaboration between grassroots Technical Cooperation and this project will generate synergistic effects.

The project also plans to widely utilize the "Manual regarding Occupational Safety and Health in Waste Collection" produced by the International Labour Organization (ILO) and JICA as part of a Technical Cooperation project implemented in Fiji.

An official of Lautoka City, Fiji checks compost, which is being promoted for home use. Transfer of compost technology is also underway as part of the 3Rs.

A Japanese expert provides technical guidance at a laboratory (Water Quality Monitoring Techniques Project (Phase 2) in Panama)

and the establishment of water tariff collection systems.

3. Rural Water Supply

JICA assists hydro-geological studies for borehole construction, the enhancement of operation and maintenance systems in existing water supply facilities, and the improvement of sanitation in rural areas [➡ See the Case Studies on page 60 and below].

4. Flood Control

JICA supports the implementation of balanced flood control measures for the entire watershed, from upstream to downstream. This entails a multifaceted approach combining both structural and non-structural aspects. Projects include formulating plans to develop facilities for flood prevention, strengthening community organizations, and setting up flood-warning systems.

5. Conservation of Water Environment

JICA provides support for strengthening systems to conserve the water environment through a range of activities that include formulating environmental standards, monitoring, controlling sources of pollution and awareness-raising activities.

Disaster Prevention

Overview of Issue

The prevalence and damage of disasters has increased sharply in the past 30 years or so, as storm and flood damage, earthquakes, volcanic activities and other disasters occur across the globe almost daily. People in developing countries are particularly vulnerable due to urbanization, which accelerates the concentration of people in cities and delays the provision of social infrastructure. Natural disasters do more than claim life; they directly impact people's livelihood and aggravate the poverty cycle. Whereas the previous mainstreams of disaster assistance were centered more on structural measures such as construction of dams and levees, there is also a need for compound measures that emphasize non-structural assistance such as installation

Case Study **Burkina Faso Program for Improvement of Water and Sanitation Environment**

To Improve People's Lives through Intensive Support

The intensive support provided by JICA in the Central Plateau and South Central regions of Burkina Faso in the field of water and sanitation has led to many new wells and enabled approximately 450,000 people to gain access to safe water. In order to accelerate the efforts being made toward the achievement of the Millennium Development Goal of "to halve, by 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation," JICA is extending cooperation by achieving collaboration between Technical Cooperation projects, Grant Aid, dispatch of volunteers and Science and Technology Research Partnership.

Life with Access to Safe Water and Basic Sanitation

In order to facilitate the sustainable management of the wells constructed through Grant Aid, JICA aims to promote the "reform" system stipulated by the Burkinabe government, under which local residents and the local government play the central roles in maintaining and managing water supply facilities. To this end, JICA is supporting capacity development to enable administrative officers and local residents to establish rules on operation and maintenance, to set water tariffs, and so on.

At the same time, JICA is carrying out awareness-raising activities by selecting and fostering motivated people at the village level as promoters, who are tasked with considering and leading discussion about water-related diseases and hygienic behavior together with their fellow villagers and communicating correct knowledge. Furthermore, Japan Overseas Cooperation Volunteers (JOCVs), including the Water Action Team*, working in the field of health, medical care and education, is conducting activities to raise awareness of sanitation and hygiene at each activity site.

JICA is also providing cooperation to improve water and sanitation by utilizing science and technology. The International Institute for Water and Environmental Engineering of Burkina Faso, in cooperation with Hokkaido University and other research institutions of Japan, is trying to develop and apply to the local society a sustainable low-cost system.

Promoters carrying out activities to raise awareness on sanitation and hygiene to villagers using games and cards.

* The Water Security Action Team is an initiative to dispatch JOCVs, Senior Volunteers and others to African nations to provide technical guidance to enable people to use safe water in a stable manner. Launched at TICAD IV held in Yokohama in 2008, the initiative carries out a wide range of activities that include ensuring safe water, the operation and maintenance of water supply facilities, and improving the sanitation environment related to water use. The initiative plans to dispatch about 200 volunteers and others during the five-year period until 2013 in an effort to deliver safe water supplies in cooperation with local people.

of disaster warning systems, creation of hazard maps, and evacuation drills to improve the emergency response of people and society to disasters.

JICA Activities

Based on a disaster management cycle (DMC), which entails emergency response, recovery and reconstruction, and prevention and mitigation activities, JICA leverages its experience to provide assistance in the following areas.

1. Efforts toward a Safe and Secure Society

The risk of natural disasters is increasing in developing countries. JICA makes use of Japan's leading technical capabilities in disaster prevention to evaluate risk in developing countries, propose measures to mitigate existing risk and preventive measures for new risks so that people can live with peace-of-mind [➡ See the Case Study on page 65].

2. Supporting the Formulation of Integrated Disaster Management Plans

JICA supports the formulation of integrated Disaster Management plans and action plans that include improving the disaster management systems and capabilities of administrative institutions, establishing the relevant legal framework, identifying disaster-related hazards and risks, enhancing awareness and strengthening response [➡ See the Case Study on page 68].

3. Support from the Viewpoint of Human Security through Community-Based Disaster Risk Management

Japan's experience has highlighted the importance of "self-help" and "mutual-help" in addition to "public-help." Community-based measures are key in developing countries where the disaster management capabilities of administrative institutions remain insufficient. JICA therefore directs assistance toward strengthening such capabilities among communities and individuals, as well as linking these groups with public organizations [➡ See the Case Studies on page 73, 77,109].

Climate Change Measures

Overview of Issue

The issue of climate change has an impact on the entire infrastructure of human life, including the ecosystem, society and the economy. It is a global challenge that poses an enormous threat to equitable economic growth, poverty reduction and human security. Recently, phenomena considered as negative effects of climate change, such as the submersion of coastal lowlands due to rising temperatures and sea levels and increases in extreme weather and natural disasters including droughts, torrential rain, floods, and declines in food production and water resources, have been reported in various places. The impact of climate change is expected to seriously affect our lives more intensively and extensively in the future.

JICA Activities

1. Supporting the World's Concerted Efforts for the Reduction of Greenhouse Gases

In recent years, greenhouse gas emissions from developing countries have been increasing and are expected to exceed emissions from developed countries in the near future. In order to minimize the negative effects brought by climate change, it is essential that the ongoing efforts to reduce emissions of greenhouse gases or "mitigation measures," involve developing countries as well as developed countries.

For developing countries faced with a large number of issues including poverty reduction, it is important to take an approach that both reduces greenhouse gas emissions and bears benefits such as improvements in livelihood and economic development. JICA extends cooperation in areas including the introduction of renewable energy, promotion of energy saving, improvement of urban public transportation system, solid waste management, forest management and support for afforestation. JICA also provides extensive support for the formulation of policies and strategies, such as the establishment of energy-saving laws and low-carbon urban development.

2. To Protect People in Developing Countries from the Negative Impact of Climate Change

Developing countries, and the poor in particular, are extremely vulnerable to the impact of climate change. Therefore, it is vital to tackle this issue from the perspective of human security. To alleviate the negative effects of climate change at the most, it is necessary to review the society as a whole and establish a system that enables adaptation to the negative impacts of climate change.

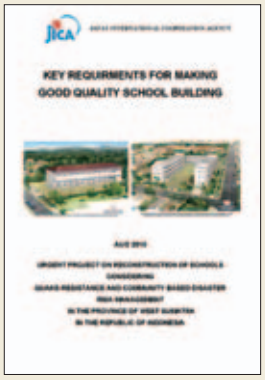
JICA provides support to adaptation measures in accordance with each country's needs. These include developing capacity in shore protection and embankments, the construction of drinking water supply facilities, the appropriate management of water resources, ecosystem protection, introducing and improving the quality of highly drought-tolerant crops, and efforts in the area of infectious diseases control. Furthermore, JICA is formulating and implementing adaptation measures tailored for each region and country based on meteorological observation, climate change prediction and impact evaluation. Such cooperation will become increasingly important in the future.

The climate change issue is closely related to a variety of issues faced by developing countries in such areas as energy, transportation, forests, water resources, disaster prevention, agriculture, and health and sanitation. For the developing countries, the climate change issue is inseparable from development.

By drawing on past experiences and achievements in supporting sustainable development, and on the basis of international discussions, JICA provides support for climate change measures in developing countries from a number of angles, from the policy level to implementation of projects, research, etc., while collaborating with concerned domestic and international organizations [➡ See the Case Study on page 14].

One Year After the Earthquake Disaster Sharing the Lessons Learned from Reconstruction

On September 30 and October 1, 2010, a year after a major earthquake struck West Sumatra Province, a memorial ceremony marking the one-year anniversary of the earthquake was held with the attendance of the governor of the province as well as representatives from the governments of Indonesia and Japan. At the ceremony, the disaster prevention efforts and the reconstruction plans made with the cooperation of JICA were introduced, and the concerned parties reconfirmed the importance of disaster prevention. In addition, the Declaration Marking the One-Year Anniversary of the Earthquake—for the Sharing of Lessons Learned from Reconstruction was adopted.



The quality control manual for the reconstruction of safe schools

Seamless Support for Recovery and Reconstruction

At 5:16 p.m. on September 30, 2009 (local time), an earthquake measuring magnitude 7.6 occurred off the coast of Padang, Indonesia. The earthquake precipitated a major catastrophe that claimed the lives of 1,200 people and injured nearly 3,000, resulting in total damage estimated at 229.8 billion yen.

Immediately following the earthquake, Japan dispatched the Japan Disaster Relief team comprising a rescue team and a medical team and provided emergency relief supplies. The needs assessment survey that was subsequently conducted to assess the needs in respect of support for recovery and reconstruction revealed that more than 2,000 school buildings, equivalent to one third of all school buildings in West Sumatra Province, close to the epicenter, were either completely or partially destroyed. In December 2009, JICA began the provision of Technical Cooperation and Grant Aid to reinforce the quake resistance of schools and reconstruct them as bases to which local residents could evacuate safely at times of disaster.

"Schools Serving as Evacuation Shelters at Times of Disaster" Transferring the Japanese System to Indonesia

In Indonesia, the Guidelines on the Construction of Public Buildings (established in 2002) make it compulsory to ensure that newly constructed public buildings are earthquake-resistant. Although there were already guidelines on the construction of schools issued by the Ministry of National Education, it had previously been difficult to adhere to these guidelines in rural areas due to technical and financial reasons.

Through a Technical Cooperation project, JICA supported the reviewing of the guidelines issued by the Ministry of National Education, and developed standard drawings for the construction of schools that would satisfy the earthquake-resistance standards. In addition, at the model schools to be completed under the project through pilot construction, JICA provided guidance on the essential points in supervising construction to the staff of local governments and schools and to representatives of the local residents, and created the a quality control manual Key Requirements for Making Good Quality School Buildings that included the results of the project.

A Japanese expert providing guidance on earthquake-resistant design to local workers at the construction site.

Rendering of school, SDN08 Sintuk Toboh Gadang, to be completed through pilot construction.

In this way, JICA advanced the construction of the model schools through Grant Aid, while providing technical support through pilot construction for the process from ensuring earthquake-resistant design to supervising construction. JICA also implemented disaster prevention activities for the community including disaster prevention education, evacuation drills, and a disaster prevention sports festival in the school districts of each of the model schools. In this way, JICA has emphasized and communicated to local teachers and residents the importance of communities that do not succumb to disasters, from the perspectives of "self-help," "mutual help," and "public help," based on the lessons learned from the Great Hanshin-Awaji Earthquake.

In the light of these accomplishments, West Sumatra Province decided to utilize the quality control manual, which was created for use in construction as part of this project, for the rebuilding and repair of public buildings such as hospitals that sustained major damage in a similar way as the schools. In the wake of this project, in order to ensure human safety and security, increased efforts are being made to improve the earthquake resistance of newly constructed public buildings.

From the Grassroots

Community leader in the neighborhood of SDN08 Sintuk Toboh Gadang Elementary School (Padang Pariaman District, a model school)

The building serving as the model school is of the highest quality in Padang Pariaman District and is earthquake resistant. We can also use it as an evacuation shelter for the neighboring communities, so I am happy as a resident as well.

Principal of SDN23/24 Padang Elementary School (Padang City, a model school)

A superb building has been completed, and people are saying that it will attract good teachers as an excellent school in the region. In the 2011/2012 school year, disaster prevention education will also be conducted. I would like to continue to carry out pioneering disaster prevention activities.