

Global Environment

Environmental Destruction: Meant for People, Yet Works against People

When people living in developing countries over-exploit natural resources to meet their day-to-day living requirements, they frequently damage the very environment vital to their very livelihoods. This degradation causes local productivity to decline, further increasing the severity of poverty. Each passing moment brings further destruction of the irreplaceable natural environment on which humanity depends, driving the need for a sustainable society based on the concept of environmental harmony. JICA provides various assistance for nature conservation. Key initiatives focus on environmental conservation, environmental management, water resources and disaster prevention.

Environmental Protection

Achieving for Harmony between Nature and Human Lives

Overview of Issue

Over the past decades, large-scale development and excessive resource consumption have led to rapid environmental degradation worldwide that includes deforestation, desertification and extinction of species. Good examples are tropical rainforests; it is estimated that forest land equivalent to one-third the area of Japan (approximately 129,000km²) is destroyed every year.

When a forest is destroyed, diversity of species will be lost as well as the balance of nature and the ecosystem. Deforestation also causes massive soil erosion and expansion of degraded land. The outcome is destruction of the natural environment.

Besides this, further land degradation and as much as 20% of global greenhouse gas emissions are estimated to originate from deforestation, manifesting the central importance of the world's forest resources to the mitigation of climate change.

JICA Activities

JICA recognizes the importance of eliminating the vicious cycle of environmental deterioration and poverty, and of developing a society that co-exists in harmony with nature. To this end, JICA provides assistance with environmental conservation in the following three areas to help ensure an environment where human progress and biodiversity are mutually supportive rather than destructive.

(1) Sustainable Use of Natural Resources

In developing countries, many people use natural resources (water, soil, trees and fruit, medicinal herbs, plants and animals, and aquatic life, etc.) 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 deterioration of the environment that supports human life. To conserve nature and protect the livelihoods of local communities, people themselves must take responsibility for maintaining and recovering resources by emphasizing the concept of sustainability.

Aiming to both conserve nature and improve living standards,

JICA provides assistance based on local requirements, including for sustainable production, environmental recovery and conservation activities, and works to improve community services through administration. Further, JICA helps identify the amount of forest resources and formulate management plans to support the sustainable use of forests and other natural resources in developing countries.

(2) Conservation of Biodiversity

JICA conducts various activities toward the conservation of biodiversity in developing countries. For example, JICA provides Technical Cooperation aimed at improving techniques for recovery of ecosystems and research capabilities of administrative officials and researchers. JICA also provides assistance to increase awareness among local citizens through environmental education, and develop and disseminate agricultural techniques with the objectives of raising productivity and conserving the environment. Other initiatives aim to enhance and improve policies, systems and the organizational structure necessary for the appropriate management of nature reserves and national parks.

The significance of biodiversity was underscored also by the Japanese government at the 10th Conference of the Parties to the Convention on Biological Diversity (COP10) when it hosted the conference in Nagoya in October 2010. As a governmental organization implementing Japan's official assistance, JICA will continue to disseminate the knowledge gained through its years of international cooperation activities and further promote biodiversity conservation in cooperation with other countries.

(3) Sustainable Forest Management

Forests are not only valuable natural resources, they also function to retain water resources and conserve soil while absorbing CO₂ to mitigate global warming. 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 research on the state of forests, develops forestation technology to regenerate wooded areas, and works to raise awareness of the importance of forests and their maintenance and management.

Collaboration for Promoting Biodiversity

In addition to providing assistance, it is vital that developing countries are given the tools to be able to conserve the environment under their own steam. JICA teamed up with players from various sectors (local government, ministries, local citizens, NGOs and companies, etc.) to create a system to promote conservation activities.

An example of such partnership is in Ethiopia, a country which suffers from serious forest degradation. JICA collaborates with private companies to assist the country to acquire certification from an environmental NGO for its wild coffee to be exported at a premium price. This activity helped farmers to increase their income while retaining their forest resources.

JICA also promotes joint research with Kyoto University in the Congo Basin in Africa, home to one of the three world-largest tropical rainforests, with a view to examining the way to encourage ecotourism for the conservation of the region's rich wildlife represented by gorillas.

Environmental Management (Anti-Pollution Measures) Drawing on Japan's Experience to Alleviate Serious Pollution Problems

Developing Capacity to Prevent Worsening of Pollution Problems

Overview of Issue

Environmental issues such as water and air pollution, once the problems of developed countries, now extend to developing countries as well. This threatens the health and life of humans and other life, and inhibits the sound development of economic activities. It is too late to address these issues after our ecosystems and human health are tangibly damaged. What is needed is an international movement emphasizing prevention.

JICA Activities

Environmental management aims to reduce the burden of all human activity on the environment and to maintain a healthy world for the next generation. Environmental issues are complicated and complex in space and time. These factors mean that it is difficult to find solutions in a short period.

In addition to collaborative projects aimed at capacity development in developing countries, JICA provides support that stresses practical environmental management capabilities based on step-wise cooperation in line with the state of progress in the partner country, participation of diverse development-related organizations, and environmental science and technology.

(1) Water Environment

JICA supports efforts to make policies to prevent pollution in rivers, wetlands and oceans. This includes drafting management plans and increasing monitoring capabilities for water environments and improving capacity for making policy proposals. JICA also supports drafting plans and strengthening capacity in treating wastewater

from households and industry, such as construction of sewage systems.

(2) Atmospheric Environment

JICA supports capacity for monitoring air pollution and making plans for pollution countermeasures. Also, JICA assists with the formulation of pollutant standards.

(3) Waste Management

JICA supports the formulation of public investment plans for the collection, transportation, intermediate processing and final disposal of household and industrial waste along with the transfer of technology to administrative officials. Recently, JICA has also been helping to promote the 3Rs (Reduce, Reuse, Recycle) to create a sound material-cycle society. This includes activities to reduce waste, promote recycling, promote environmental education and raise public awareness.

(4) Other Areas of Environmental Management

JICA supports the creation of an environmental management plan as well as soil contamination countermeasures and mine pollution countermeasures.

Adequate solid waste management services are not being provided in the West Bank region of Palestine due to financial difficulties at the government level and a shortage of human resources at numerous small-scale local governments.

For that reason, JICA initiated the Project for Capacity Development on Solid Waste Management in Jericho and Jordan River Rift Valley in 2005 to enhance the capabilities of waste management administrators.

Using Results from Model City in Other Areas

Solid waste is not collected regularly in the West Bank. It is often burned in fields or dumped, which has heightened concerns over the impact on people's health and the environment.

In 2004, the Palestinian Authority asked Japan to help create a model for solid waste management over an extensive area that involves numerous small local governments throughout Jericho and the Jordan River Rift Valley. The aim was for local governments to form a joint council for solid waste management to take over from small-scale local government treatment.

As part of the Technical Cooperation project, Palestine established a joint council that was

to function as the implementing agency for solid waste management in name and reality in the region. This was to be the pilot project. In response to the request, starting in September 2005, JICA sought to introduce a sustainable, sanitary solid waste management system for an extensive area, and sent a team of experts to Palestine, accepted trainees in Japan, worked to increase awareness among local citizens, contributed equipment for disposal sites such as rubbish trucks, containers and bulldozers, and helped improve landfills. The techniques used to make improvements became the model for other areas of Palestine.

Due to the impact of political and economic restrictions inside and outside Palestine coupled with delayed delivery of equipment from international organizations and the weak financial structure of the joint council, however, the project was extended by a year and a half to February 2010. Around 90% of residents are satisfied with the current state of affairs thanks to regular collection services. The joint council turned a profit in 2009 after strengthening management operations. The Palestinian government is reflecting the results of this project in 10 other regions of the West Bank.

JICA provides assistance for solid waste

management using Japanese expertise in various other cities around the world in addition to those in Palestine, including China, Indonesia, Viet Nam and certain countries of the Pacific. For example, JICA promotes the 3Rs of Reduce, Reuse and Recycle, and helps develop disposal sites using a semi-aerobic landfill method, a technology from Japan. Going forward, JICA will continue widely promoting environmental protection as a key theme.

A Grassroots View

Abdel Jabbar, Executive Director, Joint Council for Services, Planning and Development for Solid Waste Management in Jericho and Jordan River Rift Valley

This project is both extremely well planned and effective. It has become a model case for solid waste management. I am honored and proud to have been part of it. As I look around, however, I still see the need for development in other regions, and I hope my experience can be used as a good frame of reference.

A Grassroots View

Hiroshi Abe

Numerous citizen meetings were organized to provide much-needed understanding of the project prior to the start of services in January 2007. Once the services got underway, people became much more aware of the project and it gradually gained widespread approval.



Staff at a meeting of the joint council (Photo by Kenshiro Imamura)



Case Study

Making Use of Precious Water Resources

Brazil: The Project for Capacity Development on Non Revenue Water Control for Sanitation Company of the State of Sao Paulo (SABESP)

Non-revenue water refers to water that has been produced and is “lost” before it reaches the consumer through leaks, theft or metering inaccuracies. Thus, it does not result in revenue for the water supplier even though it has been purified and distributed. Eliminating this loss leads to more effective utilization of limited water resources and conservation of the water environment as well as reducing the cost of distributing purified water. It also promotes further introduction of water supply and sewage systems.

Japan boasts world-class results in measures against non-revenue water. Since 2007, JICA has provided support to Companhia de Saneamento Básico do Estado de São Paulo (SABESP, or the Basic Sanitation Company of the State of Sao Paulo), which is in charge of water supply and sewage in the state of Sao Paulo, through the provision of technology aimed at reducing non-revenue water. JICA is preparing to deliver ODA as well.

Improvement of Management Techniques to Reduce Non-Revenue Water

The state of Sao Paulo, the largest in Brazil, is home to around 40.5 million people, or 20% of the country's total population. It is not blessed with abundant water resources, however, and it is estimated that the state can access only 1.6% of Brazil's water. SABESP, the state's water utility in charge of 368 cities including the state's capital Sao Paulo City, is one of the world's leading water suppliers, delivering drinking water to no less than 25 million people.

More than 40% of the water being

distributed, however, is non-revenue water. SABESP has been working to minimize leaks and improve efficiency in water supply management in line with a leak management program for the state that was formulated in 1981. Results of the program have fallen short of expectations, however, and JICA was asked to lend a hand.

JICA sent specialists over in 2000, 2001 and 2003 to give advice on formulating and implementing plans to counter non-revenue water as well as analyze problems. As a result, it was determined that Japan's technology and know-how could be of use in the water project, which was then initiated for a three-year period from 2007 to 2010 to enhance the non-revenue water management capacity of SABESP.

Reviewing Possibility of ODA Based on Program Results

The project involved transferring technology regarding evaluation of old pipes as well as to detect leaks, repairing roads after construction to fix leaky pipes, guidance on appropriate installation and management of water meters, and control of water pressure. Specialists from Saitama, Kawasaki and Nagoya as well as Japanese consultants provided the technology so that SABESP personnel could manage non-revenue water more effectively based on a medium- to long-term plan.

SABESP devised a long-term plan covering from 2009 to 2019 to reduce non-revenue water and enhance energy efficiency based on the results of this project, and is making other concerted efforts to reduce non-revenue water. A request was made for ODA to finance the program between 2011 and 2013. The request

is currently under review.

The problem of non-revenue water is a serious one in developing countries around the world. JICA supports measures to reduce non-revenue water in Jordan, Egypt and El Salvador as well.

A Grassroots View

Masahiro Shimomura, Saitama City

Maintaining an optimum water cycle is the social responsibility of water and sewage companies, and a main priority is to stop excess water loss. The idea was not common in Brazil before, but the project encouraged a change in the mentality of SABESP employees.

A Grassroots View

Eric Cerqueira Carozzi, Operations Development Manager, Planning Center, SABESP

This project planted the seeds of change at SABESP. In addition to taking on new technology, it had the important effect of transforming our awareness of issues concerning non-revenue water management. Based on experience gained from the initiative, SABESP started a training system for workers and aims to spread knowledge to other South American countries by promoting support for third countries via a Japan-Brazil partnership program. We still have a long way to go before we achieve the same level of non-water revenue as Japan, but I am confident that we can make it with the financial assistance of Japan and ongoing efforts in training and organization.



Water leak and repair



At a pilot area

Water Resources

Over One Billion People Lack Access to Safe Drinking Water; Unsanitary Water Accounts for 80% of Disease in Developing Countries

Integrated Water Resource Management Helps Supply Safe Water

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, a child dies every eight seconds from a water-borne disease. Of the diseases found in developing countries, 80% are said to stem from unsanitary water. Food shortages caused by floods and inappropriate water allocation add to the multitude of water-related problems.

JICA Activities

JICA launched its basic policies for cooperation in the water sector at the 3rd World Water Forum held in 2003 and reported on its global initiatives related to water issues at the 4th World Water Forum in 2006, the First Asia-Pacific Water Summit in 2007 and the 5th World Water Forum in 2009. JICA also implements programs aimed at achieving the Millennium Development Goals and realizing the pledges made at the 4th Tokyo International Conference on African Development (TICAD IV). Through the construction of water supply facilities via Grant Aid, JICA increased the number of people with access to safe drinking water by roughly 27 million worldwide between 2004 and 2008.

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

(1) Promotion of Integrated Water Resource Management

JICA emphasizes integrated water resource management to tackle water-related issues concerning flood control, water utilization and water environment. Specifically, JICA supports the formulation of integrated water resource management plans for the entire watershed, 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

JICA supports the formulation of plans for water facilities, the operation and maintenance of water supply facilities to ensure efficient management of water supply entities, and capacity development related to non-revenue water and the establishment of water tariff collection systems.

(3) Rural Water Supply

JICA assists hydro-geological studies for well construction, the formulation of development plans for wells and other facilities, enhancement of maintenance and management systems in existing water supply facilities, and improvement of sanitation in rural areas.

(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 and strengthening community organizations for flood prevention, and setting up flood-warning systems.

(5) Conservation of Water Environment

From the standpoint of integrated water resource management for the effective use of limited water resources and the promotion of sustainable development, 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

Around 90% of the Victims of Natural Disasters Are from Developing Countries

Leveraging Japan's Experience, Technology and Know-how in Disaster Prevention to Build Disaster-Resilient Societies

Overview of Issue

The prevalence and damage of disasters has increased 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 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.

(2) Supporting the Formulation of Integrated Disaster Management Plans

JICA supports the creation of integrated Disaster Management plans and action plans that include identifying disaster-related hazards and risks, improving the disaster management systems and capabilities of administrative institutions, establishing the relevant legal framework, enhancing awareness and strengthening response.

(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.

Climate Change Measures

Creating a Low-Carbon Society Resilient to Climate Change

Promoting Measures against Climate Change in Developing Countries through Development Cooperation

Toward a Low-Carbon Society Resilient to Climate Change Risk

Climate change is becoming increasingly apparent and is expected to seriously affect our future. Tackling climate change is a global challenge. In response, in developing countries it is necessary to reduce greenhouse gas emissions (mitigation), a cause of climate change, in addition to implementing measures to prevent or reduce negative impacts caused by climate change (adaptation). Specifically, expectations are high that developing countries, currently emitting limited amounts of greenhouse gases, will pursue the path of low-carbon development. This entails curbing emissions while ensuring sustainable growth. Developing countries, and especially poor people, are the most vulnerable to climate change. It is therefore vital to work towards the creation of societies that are resilient to climate change from the standpoint of human security.

Promoting Measures against Climate Change in Developing Countries through Development Cooperation

Measures against climate change are closely related to development issues in developing countries and need to be implemented based on a long-term vision that also realizes sustainable development. JICA supports the formulation and implementation of policies that both tackle climate change and

drive sustainable development in developing countries by drawing on past experiences and results.

JICA provides assistance associated with low-carbon development in developing countries by leveraging Japan's experience and technology, including those of the private sector. Support efforts focus on stimulating sustainable development while reducing greenhouse gas emissions and include promoting the use of renewable energy, electrification in regions without electricity through clean energy, establishing low-carbon transport systems and forest conservation and forestation programs. JICA also helps link Clean Development Mechanisms (CDM) with poverty reduction by providing financial assistance for CDM registrations of development projects. By making use of the additional benefits afforded through CDM in poverty reduction programs, JICA can get developing countries to aim for both poverty reduction and sustainable growth.

Since the impacts of climate change differ by country, adaptation measures must align with the state of affairs in each country. For example, JICA supports the stable supply of clean drinking water and water for agricultural use in regions with serious water shortage problems. In regions where increased and concentrated rainfall and rising seas levels pose distinct risk, JICA supports the creation of a society that is resilient to climate change from non-structural and structural perspectives in disaster-related measures against floods and storm surges.