

The wetlands of the Yucatan Peninsula in Mexico that once yielded fertile mangrove forests (The Project on the Coastal Wetland Conservation in Yucatan Peninsula)



Global Environment

Overview of the Global Environment Field/Natural Conservation/ Environmental Management (Pollution Control)/ Water and Disaster Prevention

Overview of the Global Environment Field

Trends in Environmental Cooperation

At the United Nations Conference on Environment and Development (UNCED) held in Rio de Janeiro in 1992, the seriousness of environmental issues was widely recognized throughout the world. Since then, the global environment sector, including local environmental issues as well as global environmental issues such as climate change, is becoming increasingly important.

At the summit, the agenda 21 was adopted as guidelines for an approach to global environmental issues, and achievement of sustainable development was determined as a common global goal. The United Nations General Assembly Special Session

(UNGASS) was held in June 1997, five years later, and the Millennium Development Goals (MDGs) adopted at the UN Millennium Summit, which was held subsequently in September 2000, also advocated “to ensure environmental sustainability.”

In the disaster prevention sector, under the basic recognition that societies resilient to disasters bring about sustainable economic growth, the Yokohama Strategy was formulated at the World Conference on Disaster Reduction held in 1994. In January 2005, the 2nd World Conference on Disaster Reduction was held in Kobe to sum up the ten-year activities, including the Yokohama Strategy, and create a new strategy.

The Japanese Government recognizes that environmental

Front Line

Pakistan

Capacity Building of Solid Waste Management Project

Efforts for improving the living environment of city residents and preventing global warming

Pakistan has many cities in need of prompt living condition improvements as city infrastructure cannot keep up with the rapid increase in population size. This is especially true for the city of Karachi, which boasts a population of 16 million. This project provides the regional government bodies of nine such cities with a technology transfer aimed at enhancing their comprehensive capacity to manage waste materials.

At a maintenance plant for waste collection vehicles in Rawalpindi, one of the project's target cities, a seminar was held on the role and basic techniques of the plant in order to improve collection efficiency. Stopgap repairs were made in the plant, and problems in basic areas were brought up including the lack of a long-term quality management concept. Japan Overseas Youth Volunteers were dispatched to the maintenance plant from this year, and they have begun efforts by first trying to ensure that the basic work necessary, such as plant organization, is understood.

Multan, another project city, is said to be one of the oldest current cities in the world, existing since the Indus Valley Civilization. While you can see ancient methods for waste collection are still used, such as donkeys and humped cattle, there are also various new efforts underway. These include the establishment of an “environment day” by a trainee that received training via this project in Fukuoka and who now provides

visiting lectures to schools on that day, as well as conditioning resident training in accordance with the commencement of door-to-door waste collection.

In addition, a landfill method was introduced that takes into consideration sanitation and the environment in order to control pests and leachates at landfill disposal sites. This method utilizes the semiaerobic landfill method, which is an effective technology for controlling the occurrence of methane gas, a significant cause for greenhouse gasses. It contributes to the global-scale environmental issue of preventing global warming.

(Pakistan Office)



Waste collection performed by a donkey (Multan)

issues in developing countries are of significant importance as they seriously impact the international community, and emphasizes environmental cooperation utilizing ODA. At the UNCED, the Japanese Government announced the increase and reinforcement of its environmental ODA from ¥900 billion to ¥1 trillion within five years starting in 1992, and subsequently announced the Kyoto Initiative (assisting developing countries in combating global warming) at the 3rd Conference of the Parties to the United Nations Framework Convention on Climate Change (COP3) in December 1997. In September 2002, the Japanese government announced the Environmental Conservation Initiative for Sustainable Development (EcoISD) at the World Summit on Sustainable Development in Johannesburg, designating (1) efforts to address global warming; (2) pollution control; (3) water issues; and (4) conservation of the natural environment as priority areas. Moreover, the Medium-Term Policy on ODA announced in February 2005 also places environmental conservation as a focal issue and specifies actively promoting the Kyoto Initiative.

In 2007, the Japanese Government drafted the Strategy for an Environmental Nation in the 21st Century, announcing its intent to provide international cooperation utilizing Japan's environmental

technologies along with its experience and wisdom in overcoming serious pollution with the aim of constructing a sustainable society based on the principles of a society in harmony with nature, a sound material-cycle society, and a low-carbon society.

JICA's Response

JICA has promoted international cooperation in the global environment sector based on these basic principles and strategies. JICA established the Global Environment Department in April 2004 thus creating a system for addressing the environmental issues of developing countries in a unified manner. Since then, JICA has extensively implemented cooperation for global environment problems, including cross-sectional issues such as climate change, based on efforts in the areas of: (1) natural conservation; (2) environmental management (pollution control); and (3) water, disaster prevention. At the same time, JICA accumulates know-how in the global environmental conservation field through international cooperation while utilizing its own experience to enhance cooperation focused on constructing a sustainable society.

Natural Conservation

Overview

Human societies have enjoyed a wide variety of blessings from nature, including forests, lakes, and oceans, and have at the same time pressed the natural environment to develop its own societies. However, in recent years, the natural environment has rapidly deteriorated due to excessive utilization of natural resources. This deterioration carries the risk of inciting serious social problems such as disrupting the foundation for human life for the next generation, poverty, famine, and regional conflicts. Therefore, it is time for human beings to reconsider their relationship with nature and to form and develop a society in harmony with the environment.



Fire extinguishing in peatlands (Indonesia) (Forest Fire Prevention Project by Initiative of People in Buffer Zone)

JICA's Efforts

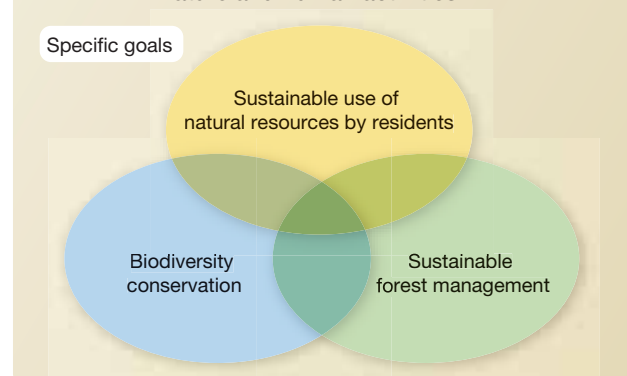
Considering nature conservation as an important area of international cooperation, JICA has provided cooperation in aim with its objective of maintaining the natural environment and achieving harmony between nature and human activities.

As specific objectives, JICA implements cooperation for sustainable use of natural resources by citizens, biodiversity conservation, and sustained forest management (Figure 3-6).

Sustainable Use of Natural Resources by Citizens

There are many people in developing countries that live on natural resources from the community (water, soil, trees, fruits, medical herbs, plants and animals, fish, etc.). However, rapid increases in population size have incited excessive use preventing nature from being able to regenerate, and there are cases where the same nature that serves as people's foundation for livelihood is deteriorating. It is vital that residents take the initiative to sustainably use natural resources while also maintaining and restoring them in order to preserve nature and protect the lives of community members. Therefore, JICA works to support

Figure 3-6 The Objective of Cooperation in Nature Conservation Achieving harmony between nature and human activities



sustained production activities for community residents, provide assistance for restoration and preservation activities for the natural environment, and improve administrative services for citizens.



Farmers proactively learn about agroforestry at farmer field school (FFS) (Intensified Social Forestry Project in Semi-arid Areas in Kenya)

Biodiversity Conservation

Our livelihood as humans is directly and indirectly supported by the diverse biological resources produced by the natural environment. The sustained use of various biological resources is necessary for people to live stable lives and it is important to protect the affluence of the nature that fosters these diverse living things. However, there are some developing countries that do not possess the structures needed to adequately maintain their precious nature. Therefore, JICA provides assistance for developing natural environment data, properly managing areas such as protected sectors and public parks, and environment education.

Sustainable Forestry Management

In addition to the value of their natural resources, forests possess multifaceted functions including the maintenance of water resources and preservation of soil. Forests also absorb CO2 and reduce the impetus of global warming. Therefore, it is important to sufficiently maintain and manage existing forests while also reforesting degraded lands. JICA works to assess the situation of forests by conducting surveys, restore forests by developing technologies such as for afforestation, and raise awareness of the importance of forests. In recent years, JICA has been providing

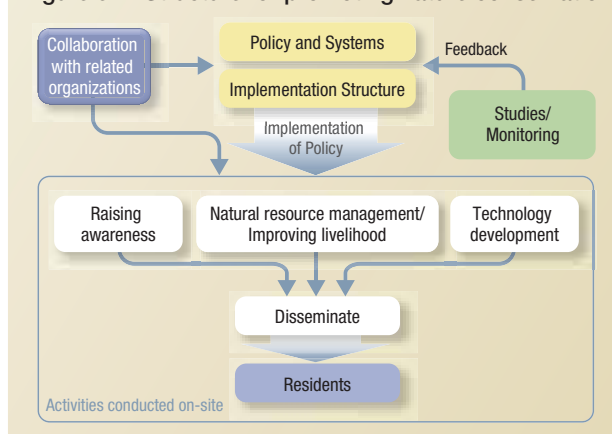
assistance for developing systems and enhancing the capacity of governments in order to implement Clean Development Mechanism (CDM) reforestation projects in developing countries as a countermeasure against global warming.

Towards Effective Nature Conservation

When implementing cooperation in nature conservation such as described above, it is important to build a system or capacity that allows developing countries to conserve the natural environment on their own (Figure 3-7). Accordingly, JICA provides comprehensive support for improvement of policies and institutions, enhancement of the implementation system, upgrading studies and monitoring, repairing the environment, improving livelihoods, and raising awareness.

When providing such support, JICA is looking to establish a system that promotes conservation activities in collaboration with related parties cross-cuttingly. This is because nature conservation requires efforts across various sectors other than the environment sector that takes into consideration the lives of people living in the target area. In addition, it requires collaboration and coordination with multiple parties related to the area to be conserved (such as local government, ministries and departments in charge of environment and agriculture, NGOs, companies, etc.).

Figure 3-7 Structure for promoting nature conservation



Participatory Forest Management Project in Belete-Gera Regional Forest Priority Area Phase II

The Belete-Gera region, located in southwest Ethiopia, is an important forest ecosystem that is host to black panthers and blue monkeys. Recently, however, its forests have attenuated and depleted each year due to the impact of agricultural development and illegal logging, and there is need for a swift response.

From a three-year period beginning in October 2003, JICA helped organize a forest management union composed of local residents. The union is called WaBuB in the local dialect, and JICA was able to develop a participatory forest management system that allows residents to protect the forests, use them in a sustainable manner, and improve their own lives into the future by concluding a forest management contract with the provincial government. Thereafter, JICA began activities for a four-year effort in October 2006 to spread this WaBuB participatory forest management system through the entire Belete-Gera region.

The project aims to establish a system where protecting the forests will improve the lives of citizens, and JICA is working to preserve the forests and raise the income levels of community residents. For example, focusing on coffee, which grows naturally in the Belete-Gera forest region,

assistance was provided in acquiring Forest Coffee Certification (Rainforest Alliance Certification) as a way to develop a structure that allows for producing quality coffee properly while preserving the forests. As a result, it was possible to sell the coffee at a price 25% higher than normal, leading to improving the income of community residents. Furthermore, there is increasing understanding of the necessity to take care in growing forest coffee while also taking the initiative to protect the forests.



An expert and community residents exchange views on the use of the forest's coffee and forest preservation

Environmental Management (Pollution Control)

Overview

With globalization and economic development, environmental issues that have negative impacts on our health and living conditions are becoming critical problems in both many developing and developed countries. Various environmental problems such as air pollution induced by industrial activities and road transportation, water contamination caused by inappropriate management of industrial and domestic waste water, and solid waste problems arising from urbanization and changes in consumption behavior, are becoming apparent in developing countries. Some of these environmental problems, such as acid rain and yellow sand, spread beyond national borders. Global environmental problems, such as the climate change issue, are rapidly creating a sense of crisis.

These environmental issues are considered to be a serious problem affecting not only present but also future generations. In response, developing countries have promoted various actions to solve these problems at their own initiative, such as establishment of environmental ministries or similar bodies and updating relevant laws and regulations. However, environmental problems are a relatively new issue and they have not been addressed satisfactorily due to lack of expertise, personnel, and financial resources. Taking actions after global ecosystems and people's health have already been damaged would be too late. Efforts in line with international frameworks based on the principle of prevention are therefore necessary.

JICA's Efforts

Environmental issues are widespread, involving many factors and stakeholders, and thus cannot be solved in a short period of time. Therefore, JICA is implementing cooperation projects that aim to improve the capacity for dealing with the environment (capacity development) so that the people and related organizations in developing countries can solve the problems on their own in a sustainable way. The focus is placed on graduated cooperation suitable for the development situations of partner countries, various types of participation in development, and the development of effective environmental management capacities based on environmental science and technology. In cooperation

for environmental centers that serve as the base of environmental analysis and human resource development in each county, South-South cooperation to support neighboring countries is implemented to spread the effects of cooperation efficiently and promote cross-border support for environmental issues. JICA's specific measures are as follows.

(1) Air environment (including climate change countermeasures)

JICA implements cooperation that aims to improve the capabilities of developing countries such as environmental monitoring capacity and countermeasure planning capacity for air pollution. Cooperation for establishing standards for air pollutants is also implemented. As for addressing climate change, JICA has started to provide support for promoting the spread of the Clean Development Mechanism (CDM) and for strengthening adaptability to climate change.

(2) Water environment

JICA provides support for measures to prevent the pollution of rivers, lakes, and seas, including improvement of water environment monitoring capacity, management planning, and policy advice capabilities. Cooperation for planning and capacity development to manage human sewage such as for sewage system development is also implemented.

(3) Waste management (including the promotion of forming a zero-waste society)

JICA implements cooperation that aims to enhance planning and management capabilities related to the collection, transport, and disposal of domestic and industrial waste. Recently, cooperation is also being actively provided for building a zero-waste society through 3R, including waste reduction, promotion of recycling, environmental education, and awareness raising activities.

(4) Other environmental management

Other than the above three areas, JICA implements cooperation for measures against mine pollution, soil contamination, and formulation of environmental management plans.

Project for Development of Environmental and Emission Standards of VOCs

Areas around the metropolis of Bangkok face significant air pollution problems due to the advancement of industrialization, urbanization, and modernization. JICA is working to tackle air pollution through efforts including monitoring via automatic monitoring stations. In recent years, Thailand has faced environmental problems suspected to be caused by Volatile Organic Compounds (VOCs). It has been pointed out that inhaling VOCs are hazardous air pollutants, which cause various acute health problems as well as carcinogenic risks. Under this situation, the Thai government considered VOCs as an important issue in ambient environmental matters, and recognized the importance of implementing countermeasures for VOCs.

JICA implemented a technical cooperation project for two years from March 2006 to March 2008, where it provided cooperation for developing the necessary capacity for instituting air pollution countermeasures such as the capability to establish environmental and emission standards for atmospheric VOCs.

JICA worked with Pollution Control Department of Thailand Ministry of

Natural Resources and Environment during the project to select candidate VOCs that should be addressed with priority, conducted an analysis utilizing past monitoring results, and created a pollution facts report that clarifies the current situation of air pollution by VOCs. In Thailand, a government ordinance was established in September 2007 that set environmental standards for nine priority compounds of VOCs. The formulation of emission standards for VOCs is expected through monitoring activities.



JICA expert and CP working together in placing sampling tubes at monitoring point for atmospheric VOCs.

Water and Disaster Management

Overview

Water shortage, water pollution, flood disasters, and other problems associated with water resources are becoming increasingly serious and diversified due to the rapid growth of population and economic development on a global-scale. At present, one-third of the world's population is facing water shortage and 1.1 billion people have no access to safe drinking water. Every eight seconds one child dies from water-borne diseases, and 80% of the causes of diseases in developing countries are reportedly linked to contaminated water. In addition, many problems in developing countries are associated with water resources, including flood damage and deterioration of the water environment caused by inappropriate water use and treatment. Various water-related problems are recognized as urgent global issues, and the deteriorating situation of water resources has further intensified global response.

In addition, various disasters occur every day throughout the world. Particularly in developing countries where social infrastructure is not fully developed, disasters directly affect people's livelihood, aggravating poverty. In order to improve these situations, support for systematically enhancing the capacity to deal with disasters, including the development and enhancement of system, structure, and capacity, is promoted as well as conventional measures centered on reinforcing physical structures. JICA is cooperating with community based disaster risk reduction, which focuses on disaster prevention activities by local communities and on strengthening their capacity to deal with natural disasters.

JICA's Efforts

Following the announcement of the basic policy of subsequent cooperation in the water sector in 2004, JICA participated in the 2nd World Conference on Disaster Reduction held in 2005. In response, JICA reinforced its measures in the disaster management sector. As the water and disaster prevention sector has gained importance in recent years, measures in the water and disaster management sector are increasingly discussed at international conferences, including summits and Tokyo International Conference on African Development (TICAD). Although the World Water Forum is a global conference in the water sector, from the suggestion made by the late former Prime Minister Ryutaro Hashimoto, a new Asia-Pacific Water Forum to solve water problems in Asia-Pacific was established. At the 4th World Water Forum held in Mexico in 2006, JICA again presented its project achievements in various countries. Furthermore, at the 1st Asia-Pacific Water Summit held in December 2007 for leaders of countries in the Asia-Pacific region, JICA announced the achievements of its cooperation in the region.

Water Resource Sector

In the water resource sector, the following goals are set out as specific measures.

- (1) Promoting integrated water resources management:** JICA proactively supports integrated and comprehensive water resource management systems, considering the multifaceted nature of water resources that includes flood control, water use, and the water environment. Specifically, JICA

Ethiopia Water Technology Center Project Phase II in Ethiopia

Case Study

Ethiopia has one of the lowest percentages of water supply in the world, where over 40 million people do not have the means of access to safe water and thus use the water from streams and springs which are regarded unfavorable in terms of the environment and sanitation (percentage of the population with access to safe water is 24%; average of sub-Saharan African nations is 57%).

Groundwater is the most important source of water supply for people in the rural and urban sectors, and the development of groundwater as well as the cultivation of human technicians involved in water supply are issues of vital importance to the government. Ethiopia is currently undergoing rapid decentralization and the management of groundwater businesses is being transferred to regional governments. However, these businesses are not being adequately implemented as there is a lack of technicians in the rural areas.

Under these circumstances, in order to improve capacity for developing groundwater and manage water supply facilities, the Ethiopian Government and Japan established the Ethiopia Water Technology Center (EWTEC), where projects have been implemented over ten years since 1998 that focus on groundwater development and human resource development in the water supply sector. The following undertakings are currently underway at EWTEC.

● Implementation of diverse training courses

EWTEC currently provides a wide variety of training courses in line with local needs, including for developing plans for water supply facilities, creating groundwater models, well and machinery management, and instruction for managing water supply facilities at the community level, in addition to training courses to educate Ethiopian technicians for well digging.

● Emphasis on Ethiopian ownership and diffusion to surrounding countries

Basic courses (drilling technologies, etc.) are being operated and implemented independently by the Ethiopia side under the nation's ownership. Furthermore, building on Ethiopia, technicians from 15 African countries have hitherto received training at EWTEC and share experiences from various countries in order to spread technologies to surrounding countries.

● Developing appropriate local technologies and studies

JICA implements studies for developing applicable technologies such as inexpensive and easily maintainable rope pumps (A rope pump with a simple construction where a piston tied with a rope lifts a column pipe (PVC) to draw groundwater and which is easily installed and maintained is inexpensive and costs between US\$200 and US\$300.) and for formulating groundwater resource management plans.



"Here comes up the water!" on-site digging training

supports developing systems for collection and analysis of water resource information, integrated water resource management planning in watershed areas, and building watershed management systems.

- (2) **Urban water supply:** JICA supports capacity development for forming plans for establishing water facilities in urban areas, management of water supply facilities in order to ensure their efficient operation, handling non-revenue water, and for water fee collection systems.
- (3) **Rural water supply:** JICA assists hydrogeological studies for building water supply facilities, formulation of facility improvement plans, enhancement of the maintenance and management system of existing water supply facilities, and dissemination and establishment of rural hygiene.
- (4) **Flood control:** JICA supports implementation of integrated flood control measures for the entire watershed from upstream to downstream in view of a combined approach with a focus on structural and nonstructural aspects, including facility development plans and capacity development of communities for flood prevention as well as the development of warning systems.
- (5) **Conserving the water environment:** JICA provides support for enhancing the framework for conserving the water environment through a range of activities, including establishment of environmental standards, monitoring, control measures for contaminated sources, and IEC (Information, Education and Communication). JICA provides cooperation for the water environment in collaboration with Environmental Management (pollution control).

Disaster Management

In disaster prevention, JICA has set the following three goals from a comprehensive viewpoint based on the disaster management cycle (DMC) (prevention -> emergency response immediately after the occurrence of a disaster -> recovery and reconstruction -> promotion of further prevention activities).

- (1) **Building disaster-resilient society:** As a step to prepare for disasters, JICA supports risk-assessment and awareness-raising of communities regarding disaster risks; formulation and upgrading of laws, systems, and plans regarding disaster management measures; establishment of early warning, and evacuation systems; improvement of mitigation capabilities by establishing disaster prevention facilities and measures; and improvement of regional disaster management capacity.
- (2) **Emergency response that reaches the victims quickly and effectively:** Immediately after the occurrence of a disaster, in order to save lives quickly and effectively, JICA provides life-saving and rescue operations, emergency medical care, and support for the victims (supply of food and drinking water, securing temporary housing, health and medical services, and mental care). These emergency relief activities are carried out by the Japan Disaster Relief Team (see p. 110). In parallel with this emergency relief, JICA conducts a needs assessment survey for recovery and reconstruction aiming at a seamless transition to recovery and reconstruction assistance.
- (3) **Transition to and implementation of accurate recovery and reconstruction:** In order for victims to be able to return to their normal daily lives from post-disaster chaotic conditions as soon as possible, JICA provides continuous support from emergency relief in the wake of a disaster to the recovery and reconstruction stages, including recovery of infrastructure, public utilities, and reconstruction of regional communities.

Front Line

Iran

Anzali Wetland Ecological Management Project

Addressing marsh conservation under the principle “Healthy Wetlands, Healthy People”^{*)}

The Anzali Wetland is situated on the southern coast of the Caspian Sea and is approximately 193 square kilometers in area, making it nearly the same size as the wetlands in Kushiro. Of that area, 150 square kilometers were designated as registered wetlands under the Ramsar Convention in June 1975, as it fulfills an important role as an area for migratory birds to reproduce and pass winter, and as an egg-laying site for sturgeons.

However, major deforestation activities conducted upstream send a flow of soil downstream causing the wetlands to become increasingly buried underground. These valuable wetlands are going through yearly environmental deterioration due to unprocessed wastewater from factories on the Caspian Sea coast, inadequately managed sewage flowing in from coastal urban areas, and other causes.

This project's objective is to revise organizations and environmental technologies for preserving the environment of this wetland and to introduce a new system. The central aim was to establish the Wetlands Management Committee, which combined all organizations that were related to the wetlands.

Various expectations surround this project. A women's organization (NGO) that conducts activities for preventing environmental destruction commented that, “It is difficult to resolve environmental issues through a single organization alone. We are looking forward to the introduction of

a participatory model into administrations for environmental preservation through the JICA project.” In addition, Mr. Sabouri, a member of a fisherman's union, said that, “Our lives rely on these wetlands, so I hope that the Wetlands Management Committee will return Anzali Wetlands to its previous state of richness.”

There are many cases of conflicts of interest with fishermen as their cooperation is vital to protect fish species in danger of extinction, making it sometimes difficult to accommodate all parties. Nevertheless, the government, environmental NGOs, and local residents come together in conducting activities for protecting these valuable wetlands. (Iran office)
* Slogan of the Ramsar Convention to 2008



The zoning validation survey to confirm the natural environment situation and land usage in order to consider details for preservation zoning borders for the Anzali Wetlands