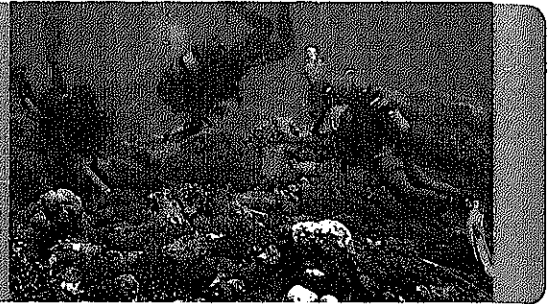


Global Environment

Natural Environment Conservation/Environmental Management
(Pollution Control)/Water, Disaster Prevention



Study on coral reefs for sustainable utilization of marine resources (Djibouti)

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. 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 adopted at the UN Millennium Summit, which was held subsequently in September 2000, advocated "to ensure environmental sustainability."

In the disaster prevention area, under the basic policy that societies resistant 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 Second 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.

In Japan, environmental issues in developing countries are recognized as important issues that have a serious impact not only on the developing countries concerned but also on the international community, and environmental measures through ODA have conventionally been emphasized. At the UNCED the Japanese government announced the expansion and enforcement of its environmental ODA from 900 billion yen to one trillion yen within five years starting in 1992, and subsequently announced the Kyoto Initiative (assisting developing countries in combating global warming) at the third session of the Conference of the Parties to the United Nations Framework Convention on Climate Change (COP3) in December 1997. Also the Medium-term Plan on ODA issued in August 1999 specifies environmental conservation as one of the primary issues, and refers to the proactive promotion of the Kyoto Initiative and more consideration for the environment when implementing assistance.

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) fresh water issues; and (4) conservation of natural environment as priority areas. As for the disaster prevention area, at the Second World Conference on Disaster Reduction in January 2005 the Japanese government announced its commitment to cooperation in disaster prevention suitable to stages such as disaster prevention, emergency relief, and subsequent rehabilitation and reconstruction assistance. Utilization of excellent disaster prevention techniques cultivated through Japan's past experience in disasters was expressed here as well.

JICA's Response

JICA has realized concrete plans in the environment field based on these basic principles and action plans. However, its past efforts took various forms of aid and crossed over several sectors. JICA established the Global Environment Department on April 1, 2004, to build a system that allows consistent effective and efficient operation, from identification of issues to formulation and implementation of a project, in order to address complicated problems in developing countries. In addition, the Guidelines for Environmental and Social Considerations targeting all the projects was formulated and implemented in fiscal 2004.

Recently, biodiversity conservation, desertification control, and global warming prevention measures such as clean development mechanism (CDM), acid rain control, preventive measure for earthquakes, and other disasters, have become major issues. To address these complicated environmental issues, JICA extensively implements cooperation for global environment problems based on a conventional approach consisting of (1) natural environment conservation; (2) environmental management (pollution control); and (3) water. At the same time, JICA accumulates know-how in the global environmental conservation field to develop and implement effective aid methods.

Natural Environment Conservation

Overview

Humans have derived many benefits from the natural environment, such as forests, rivers, lakes, and the sea, and at the same time we have developed society by acting on the natural environment. However, in recent years accelerating exploitation of natural resources has rapidly deteriorated the environment. The deterioration of the natural environment leads to the danger of damaging the foundation of the livelihoods of future generations and can, along with poverty and famine, trigger highly damaging regional conflicts that further damage the environment. Humankind now faces the urgent need to create and develop a society in harmony with the environment.

JICA's Efforts

JICA considers conservation of the natural environment to be an important area of international cooperation and is actively engaged in cooperation with the goal of contributing to the preservation of the natural environment and seeking harmony between human activities and the environment. To achieve the goal, a threefold approach is necessary: (1) a scientific and programmatic understanding of the current state of the natural environment (to know); (2) development of technologies and frameworks for resource utilization that will prevent environmental degradation (to protect); and (3) sustainable utilization (to use). To enable people in developing countries to carry out these activities, JICA provides various assistance such as improving study and research capacity, improving community awareness, improving policies and institutions, developing appropriate technology, improving operation capacity of implementing bodies of environmental conservation, and developing regional society in harmony with the environment.

JICA especially places importance on activities to promote understanding and participation of stakeholders, including the residents. Conservation of the natural environment is not attainable by the government alone, but understanding and proactive participation in activities for conservation by the stakeholders including the residents are essential. JICA aims to improve administrative capacities as well as promote participation of communities in order to establish a system to conserve the regional natural environment in cooperation with the stakeholders.

Figure 3-7 Concept of JICA's Cooperation in Natural Environment Conservation

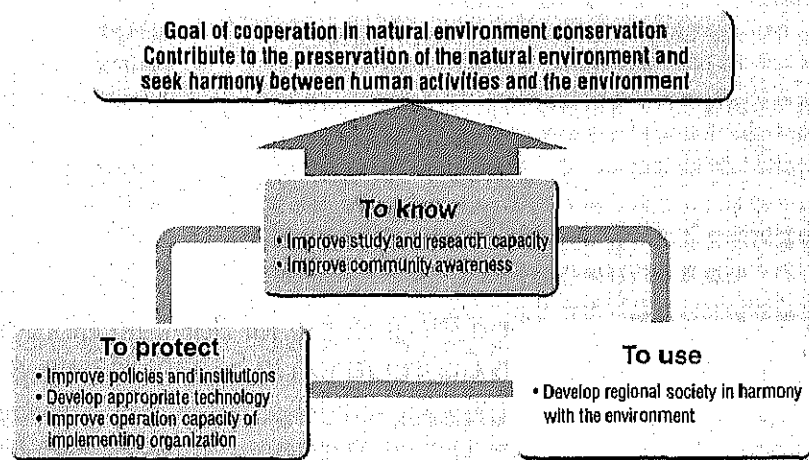


Figure 3-8 Three Types of Focused Regions and Major Activities

(1) Regions where the natural environment is deteriorating owing to utilization of the natural resources by the local residents

Support strengthening the management capacity of natural resources on the part of the residents with the aim of improving income and living situations of residents and conserving the natural environment

(2) Regions with rich biodiversity

Support collection of data regarding the natural environment, establishment of management system of national parks, environmental education, etc.

(3) Regions where development accelerates the destruction of the natural environment

Support development of appropriate technology and maintenance and management systems for the purpose of restoring degraded lands

Three Types of Priority Regions

In order to work on the conservation of natural environment in a strategic way, JICA provides cooperation by identifying three types of priority regions (Figure 3-8).

First, in regions where the natural environment is deteriorating owing to utilization of natural resources by the local residents, cooperation is given to residents so that they will be able to manage natural resources appropriately. The aim



The environmental conservation of the watershed is vital to secure the amount of water required for Panama Canal service: Planting plants in linear groups to prevent soil from running off. (Panama Canal Watershed Conservation in the Republic of Panama)

is to improve income and the living situation of the residents, as well as to conserve the natural environment.

Second, in regions with rich biodiversity, the collection of data regarding natural environment, the management of national parks, environmental education, etc., are all supported.

Third, in regions where the destruction of the natural environment has been accelerated by development without consideration given to the environment, development of appropriate technology and operation and management systems are supported for the purpose of restoring degraded lands.

Strengthening Cooperation in Natural Environment Conservation

To maintain the natural environment as the foundation

of human existence and harmonize it with human activities, JICA will seek effective approaches to implement cross-sectional cooperation. For that purpose, JICA is systemizing information and experience gained from earlier projects in natural environment conservation, examining aid policies and strategies, and building up a database so that its experience can be a benefit in future projects. Since a wide range of activities are necessary for conservation of the natural environment, JICA is making efforts to strengthen collaboration with related personnel by exchanging opinions with related organizations and individuals inside and outside the country and carrying out public relations activities about JICA's programs.

Technical Cooperation Programme for Bornean Biodiversity and Ecosystem Conservation in Sabah, Malaysia

CASE STUDY

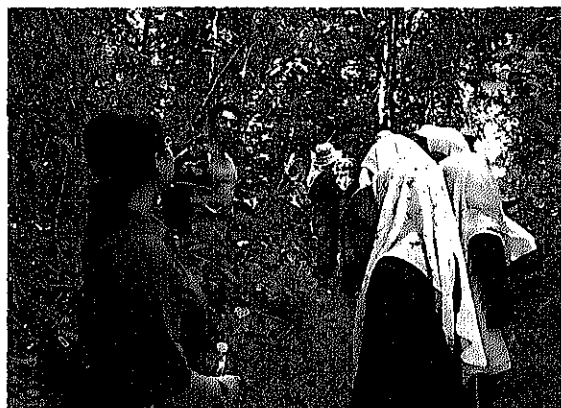
A typical example of JICA's cooperation in natural environment conservation is the Technical Cooperation Programme for Bornean Biodiversity and Ecosystem Conservation in Sabah, Malaysia. Malaysia is one of the countries with the largest numbers of living species in the world, and is home to many precious species including *Rafflesia arnoldii*, the world's largest flower, and Ornithoptera, in addition to orangutans and the Sumatran rhinoceros. However the forests are rapidly being reduced owing to tree cutting and plantation, threatening many species with extinction. At the same time, since the economy of Sabah Province, the target area, depends on forest resources, it is economically important to use them while maintaining them.

Out of concern for this situation, the Malaysian government made a request to Japan for cooperation to develop the system and a method for conserving the natural environment in Sabah Province, and develop human resources. In response, JICA launched a five-year cooperation program in February 2002.

The purpose of this program is to establish a comprehensive method and system for natural conservation that integrates education, research, administration, and environmental enlightenment in a sustainable way. It is expected that this will maintain the ecosystem in Sabah Province. JICA has dispatched experts to respective fields of education and research, provincial park management, management of habitats of wild animals, and environmental enlightenment, and

has accepted training participants from Malaysia to achieve the purposes of the program. Public relations have been promoted to raise awareness and motivation of the persons involved. As a result of cooperation, movements for formulation of the management plan of parks and sanctuary that are considerate of residents have been generated, and new sanctuaries have been installed, thus showing outstanding outcomes. Other outcomes have been recognized in enhanced collaboration among related organizations and improved awareness of the people in Sabah Province in the natural environment.

See the website of the program at
<http://www.bbec.sabah.gov.my/index.htm>.



Training for teachers at the environmental education center

Environmental Management (Pollution Control)

Overview

It is becoming apparent that air and water pollution and the problem of solid waste disposal resulting from globalization and growth in developing countries is having a deleterious effect on health and living conditions. There is now a strong sense of crisis about cross-border environmental problems, such as global warming and acid rain, resulting in multilateral treaties related to the environment that are ratified by many developing countries. Developing countries have promoted solutions to these problems at their own initiative by setting up environmental ministries or similar bodies and updating relevant legislation. However, environ-

mental problems are a relatively new area and they have not been addressed satisfactorily for lack of expertise, personnel, and financial resources. Taking action after global ecosystems and people's health have already been damaged would be too late. Efforts in line with the international framework based on prevention principles are therefore necessary.

JICA's Efforts

In response to the announcement of Our Common Future by the World Commission on Environment and Development in 1987 and the United Nations Conference on Environment and Development (UNCED) held in Rio de

Janeiro in 1992, JICA has strengthened its response to environmental management (pollution control). Environmental issues are widespread, involving many factors and people, so these problems 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 in developing countries and related organizations 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 the base of environmental analysis and human 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) Support for environmental centers: JICA indirectly pro-

vides assistance through environmental centers and similar facilities, helping developing countries provide the necessary expertise for environmental analysis and measures on a nationwide scale.

- 2) Air pollution countermeasures: JICA provides support to strengthen environmental-monitoring capacity and countermeasures planning capacity.
- 3) Water pollution countermeasures: JICA provides support for measures to prevent the pollution of rivers, lakes, and seas.
- 4) Solid waste disposal: JICA provides support for measures related to the collection, transport, and 3Rs (reduce, reuse, recycle) of general and industrial waste.
- 5) Global warming: JICA supports building a foundation for global warming measures, such as gathering information on designated national authorities (DNAs) and other relevant bodies that will play a pivotal role in fighting global warming.
- 6) Acid rain countermeasures: JICA supports training of personnel needed to operate the Acid Deposition Monitoring Network in East Asia (EANET).

Water, Disaster Prevention

Overview

Water shortage, water pollution, flood disasters, and other problems associated with water resources are becoming increasingly serious and varied due to such global develop-

ments as the rapid growth of the world population and economic development. At present, one-third of the world's population is facing a water shortage and more than one billion people have no access to safe drinking water. Every eight sec-

Front Line Institute for International Cooperation

Study Group on Future Direction for Cooperation to Developing Countries in the Solid Waste Sector As a Guidepost for More Effective Cooperation

Solid waste is "a mirror of society"

Solid waste is said to be "a mirror of society" because the flow from solid waste generation to disposal reflects various aspects of a society, such as economy, history, culture, and the environment. Therefore, there is no universal solution and it is necessary to analyze the problems for each case and examine the appropriate inputs and methodology. Also, based on the experience of aid in the past, it is clear that the capacity and ownership of the recipient of aid are critical factors in solving these problems.

Solutions with respect to ownership of the partner

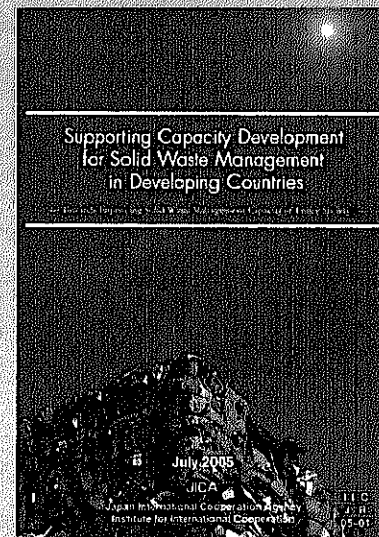
Under these circumstances, JICA set up a study group to examine the future direction and approach for effective and efficient implementation of technical cooperation in the solid waste management area, and summarized the results in a report.

The feature of this report examines

ways to contribute to the improved solid waste management capacity of the entire society of the partner country with respect to ownership with a focus on the concept of capacity development, which is becoming the most common approach. It explains recent aid cases and lessons learned from JICA's cooperation cases in an easy-to-understand way, and it also analyzes and interprets the capacities at different levels such as individuals, organizations, institutions, and societies in terms of solid waste problems, providing clues on how to support their capacity development with the people working in the aid field of a developing country. In addition, it contains a checklist and other tools to understand and evaluate the capacity of the partner country and their problems as attachment, which is actually utilized in each step (ex-ante evaluation, project formulation, examination of the content and ex-post evaluation, etc.) in JICA's projects associated with solid waste dis-

posal, and is being introduced into other fields associated with pollution control. (Institute for International Cooperation)

Report completed in November 2004



The Sino-Japan Friendship Center for Environmental Protection Project – CASE STUDY

In China, where the economy is rapidly growing, environmental problems such as air pollution, acid rain, and yellow sand are becoming serious and more than 60% of the cities have air pollution problems. Acid rain and yellow sand not only give substantial damage domestically but also affect neighboring countries, including Japan.

To address these worsening environmental problems, the Sino-Japan Friendship Center for Environmental Protection was built with grant aid from Japan and was opened in 1996. This center is a research and training implementation agency that directly belongs to the State Environmental Protection Administration of China (SEPA), equivalent to the Ministry of the Environment of Japan. Since 1992 Japan has provided technical cooperation including dispatch of experts to improve the capacity of the center so that it can play a leading role in national environmental management. It has also assisted in solving environmental problems in local areas. Cooperation for 15 years has resulted in improved skills of the staff and contributions to the development of environmental administration and institutions.

To improve the technical capacity, JICA supports analysis of source and data collection with regards to yellow sand, which is a common problem in East Asia today, and provides instruction in analysis and technical control for acid rain. In support of administration and systems, studies using Japan's pollution control manager system as a model and country-specific group training in relation to this system have been implemented. Presently this system is tentatively operating in five cities, and nationwide application is expected. This training is useful not only for administration but also for the establishment of the environmental control system of private enterprises. To respond to energy and resources problems that become aggravated along with economic development, JICA supports the establishment of a recycling society promoted as the national strategy by the Chinese government and promotes capacity development for personnel in charge of the practical work through assistance for studies on Japanese systems and policies and training programs

in Japan to deliver Japan's efforts. Additionally, JICA supports the creation of detailed regulations for an environmental impact assessment law (law to consider the environment while incorporating opinions of the local residents when implementing projects such as dams and highways) and revisions to the environmental protection law.

JICA is also trying to spread the outcomes of cooperation to citizens by applying them to local areas instead of keeping them inside the center. While providing training for personnel involved in local environmental protection, including training for directors of local environmental protection bureaus and technical training to cope with sulfur dioxide and acid rain, JICA has supported training for environmental education instructors at elementary and junior-high schools and the development of audio-visual materials for environmental education, as an approach to citizens.

As mentioned above, this project promotes cooperation by multiple approaches involving the administration, enterprises, and citizens to flexibly respond to changing environmental problems.



An expert and a staff member of the center trying to identify the source of yellow sand by analyzing sand collected from all over China. Photo by Katsumi Yoshida

onds one child dies of water-borne diseases, and 80% of the causes of diseases in developing countries are reportedly contaminated water. In addition, many problems are associated with water resources, including flood damage and food shortages caused by unfair distribution of water. Various water-related problems are recognized as urgent global issues, and a global response has intensified against the background of the deteriorating situation regarding water resources.

On the other hand, various disasters take place every day throughout the world. Especially in developing countries where social infrastructure is poorly developed, disasters directly affect the people's livelihood, aggravating poverty. Past support for disaster prevention was centered on reinforcing physical structures, but recently a combined approach that incorporates non-physical measures has gained greater importance. JICA is cooperating with community disaster prevention, which focuses on activities by local communities and on strengthening their capacity to deal with natural disasters.

JICA's Efforts

Synchronizing with the Third World Water Forum in 2003, JICA announced its basic policy of cooperation in the water field for the future, and reinforced measures in the disaster management field after participation in the Second World Conference on Disaster Reduction held in 2005.

As concrete measures, four goals are set for water and disaster management, respectively. The goals for water are as follows.

- 1) Promoting integrated water resources management: JICA proactively supports integrated water resources management, which is the most important goal, including flood control, water usage, and water environment.
- 2) Ensuring efficient and sustainable supply of safe water: JICA supports safe and stable water supply for all people.
- 3) Improving flood control to protect life and property: JICA supports implementation of balanced flood control measures for the entire watershed from the upstream to the downstream in view of a combined approach with the

focus on hardware and software aspects.

- 4) Conserving the water environment: JICA promotes assistance for the water cycle from the viewpoint of integrated water resources management for sustainable development while effectively utilizing limited water resources.

The goals for disaster prevention are as follow.

- 1) Addressing socioeconomic development incorporating the viewpoint of disaster prevention: JICA supports sustainable development including mitigation measures for existing risks and preventive measures for new risks.
- 2) Supporting study on disaster risks: JICA supports activities to identify disaster risks such as creation of a hazard map as well as sharing risk information at each level by utilizing the technology of Japan, which is an advanced country in disaster prevention.
- 3) Supporting planning for integrated disaster prevention: JICA supports the formulation of an integrated disaster prevention plan (master plan) based on identification of risks, improvement of disaster prevention system and capacity of the administrative organizations, modernization of related legal systems, improvement of disaster prevention awareness and strengthening the capacity to deal with disasters, and the formulation of related action plans.



Follow-up seminar held in the Philippines in 2004 inviting ex-participants in a training course in volcanology and sabo engineering that have been implemented since 1989

- 4) Support from the perspective of human security through education and diffusion activities to the residents: JICA supports direct activities to strengthen the disaster prevention capacity of the community and individuals, and coordinated activities for disaster prevention by the administration, communities, and individuals.

Project of Safe Water and Support of Community's Activities in Senegal—CASE STUDY

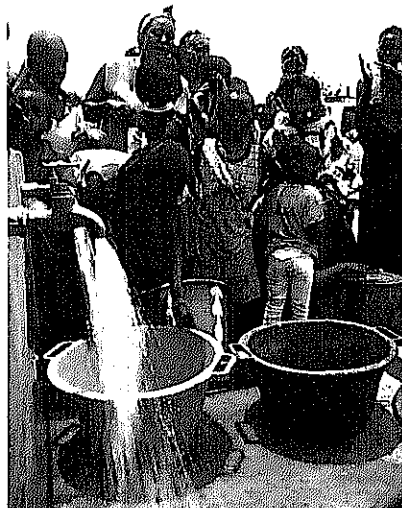
In order to supply safe water in rural villages, the Senegal government has long worked on a plan for boring deep wells in rural villages and constructing water supply facilities. In line with the policy of the Senegal government, the Japanese government has implemented cooperation with grant aid in the water supply field for more than 20 years. As a result, the water drawing labor of many women and children have been mitigated and villagers can live more hygienically.

In the villages where grant aid cooperation was implemented, the water control committee maintains and manages the water supply facilities and collects the water fees. In some areas, however, these activities were not carried out smoothly. In January 2003, JICA started a project targeting 109 villages where water supply facilities had been constructed with grant aid, to develop the maintenance and management system for the water supply facilities and establish the operating system of the water control committee in the villages.

It is expected that the water facility maintenance and management system is to be fully developed in a collaboration that includes the administration, the village, and the private sector. An operating method for the water control association in the village will be established, and know-how to spread water control association to villages will be accumulated in the administration in this cooperation. Additionally, JICA is supporting an attempt for the residents in the village to diversify the production activities by utilizing the know-how of organization operation cultivated in the water control association.

In operating the water control association, there are three fundamental principles: (1) democratic selection of committee members of the association and disclosure of water

supply operation information to the entire community; (2) water fee system based on the amount used; and (3) securing transparency in accounting management. If the practice of these principles improves the community's awareness for paying the water fees and facilitates collection of water fees, money can be saved for operation expenses of the water supply facility, including the fuel bill for the electric generator, as well as reserves required when equipment such as the pump is broken and equipment has to be replaced, ultimately leading to continuous supply of water. A Japanese expert and a counterpart on the Senegal side have put their heads together and visit the villages, repeating trial-and-error every day in order to realize sustainable water use.



People waiting their turn at a water supply facility installed with the help of Japanese grant aid

Rural Development

Poverty Reduction/Agricultural, Rural Development/Fisheries



Repairing an irrigation facility with the participation of all residents (Mozambique)

Overview of the Rural Development Field

The world's population rapidly increased in the latter half of the 20th century, and it exceeds six billion today. According to one forecast, it keeps increasing and will reach nine billion by 2050. A major concern is that various problems, such as food shortages and environmental deterioration due to heavy consumption of resources on a global scale, will become more serious.

Since the population increase is especially notable in developing countries, in order to stabilize people's living situations worldwide appropriate development in these countries is essential. Most of people in developing countries live in rural areas, and their living situations are deteriorating due to problems such as (1) overcultivation, overgrazing, and deforestation, (2) depletion of water resources caused by the previous three conditions, (3) a drop in agricultural productivity caused by soil erosion, etc., and (4) insufficient social services such as health care and sanitation, and basic education. Additionally, the disparities in the living standards between the urban area and the rural area generate new problems such as a population influx into the urban area and slum formation.

To bring about better living situations, it is necessary to promote comprehensive agricultural and rural development focusing on the lives of residents in rural areas while paying

attention to harmony with the environment and the relationship with the urban areas so that limited resources in rural areas can be continuously utilized.

Actively addressing these issues is in line with coordinated actions to achieve the New Development Strategy of the Development Assistance Committee (DAC) and the Millennium Development Goals (MDGs) of the UN (These strategy and goals clearly specify strengthening support for the poverty groups from the perspectives of human security and more stable development of the international community.)

Agricultural and rural development gains attention also as a priority field of post-conflict rural reconstruction. Specifically, there are activities such as stable food supply, and the promotion of settlement of refugees and ex-combatants. To respond to recent trends in poverty reduction, peacebuilding, and human security, the roles expected of agricultural and rural development are getting larger.

To address these issues, JICA has set up three sectors—poverty reduction, agricultural and rural development, and fisheries—and formulated thematic guidelines for project implementation. In poverty reduction and agricultural and rural development sectors, JICA formulated effective approaches for development issues.

Poverty Reduction



Children in a rural village in Timor-Leste: JICA supports regional reconstruction and development by improving the quality of and diversifying agricultural products.
Photo by Kenshiro Imamura

Overview

There are at present 1.3 billion people in the world who are considered to be living in poverty. That is one-fifth of the world's population, and one-third of the total population of developing countries.

Poverty reduction is a primary objective advocated in the MDGs. The term "poverty reduction" means not simply increasing income levels but rather creating conditions in which all humans lead healthy and creative lives with sufficient food, shelter, and clothing, and are guaranteed freedom, dignity, and self-esteem. It also means being free from unfair treatment by the government and the community and being able to participate in society.

Poverty has many dimensions. It can cause environmental degradation, and a poor environment in turn can aggravate poverty, thus giving rise to a vicious cycle. The

DAC Guidelines on Poverty Reduction published in 2001 defines poverty as the deprivation of political, socio-cultural, economic, human, and protective capabilities. It is internationally agreed that poverty reduction requires a comprehensive approach that will build up capabilities in these five areas.

It is also important to consider the fact that a lack of capabilities among the poor is not the only cause of poverty; conditions disadvantageous to the poor and structural factors, such as vested interests and discrimination, create socially vulnerable people and interactively cause and fix the situation. To reduce poverty, the capabilities of the poor must be strengthened by changing the environments that surround them and by breaking the vicious cycle of poverty.

JICA's Efforts

JICA defines poverty as a condition in which people are deprived of their opportunities to develop capabilities required to lead a basic human life and are being left out of society and development processes. JICA has two overall goals in its support for poverty reduction: enhancement of the capabilities of the poor; and reform of the social structures and institutions in which the poor live. JICA has also identified the following four strategic development goals aimed at reinforcing people's political, socio-cultural, economic, human, and protective capacities (since measures to reinforce political and socio-cultural capacities have many aspects in common, they are addressed as a single strategy).

- 1) Reinforcing the planning, institutional, and implementation framework for poverty reduction (political and socio-cultural capacities)
- 2) Maintaining and raising the incomes of the poor (economic capacity)
- 3) Securing minimum living standards for the poor (human

capacity)

- 4) Reducing external threats to the poor and strengthening their capacity to withstand shock (protective capacity)

The structures and other factors leading to poverty and the actual conditions in which the poor live are varied and complex, differing from country to country and from region to region. JICA consequently formulates its poverty-reduction support policies on a country-by-country and region-by-region basis. JICA is also addressing the issue by taking full advantage of the unique features of each aid scheme and by combining various individual projects in ways that give rise to synergy.

JICA produced a practical manual for poverty reduction entitled "Approaches for Systematic Planning of Development Projects: Poverty Reduction" in March 2004 to enable the above approaches to be applied in actual projects and is working to design and implement projects that will contribute to poverty reduction.



A farming family in Kokang Special Region who quit growing poppies and seeks a way to earn a living with other crops

Project for the Eradication of Opium Poppy Cultivation and Poverty Reduction in Kokang Special Region No.1

CASE STUDY

The Project for the Eradication of Opium Poppy Cultivation and Poverty Reduction in Kokang Special Region No.1, which started in fiscal 2004, directly encourages the poverty group to develop their potential capabilities by means of resident participation in cooperation, and takes into consideration the administration capability at both levels of the central and local (Kokang Special Region) governments in the process of project implementation. Also, from the per-

spective of human security, emergency activities were incorporated into the initial stage of the project to stop deteriorating living conditions. The capacity improvement of the administration and the community residents are taken into consideration to alleviate chronic poverty in the medium- and long-term. Thus JICA provides support to embody its approach for poverty reduction from various dimensions (refer to p. 17).

Agricultural and Rural Development

Overview

In many developing countries, over half of the population is employed in the agricultural sector, and a large share of the rural population lives in poverty. Because agriculture represents the core of the national economy of many of these countries, assistance for agricultural and rural development plays important role in addressing such concerns as food security, poverty reduction, economic growth, and other

major development issues.

The stable provision of food for the populace (food security) is a fundamental condition of economic and political stability. In many developing countries, food shortages pose an obstacle to people's health. Such shortages give rise to famine and the large-scale flight of refugees to neighboring countries, disturbing the regional social order and potentially leading to conflict. In countries that are net importers of food, the

stable production and supply of foodstuffs are economic issues of extreme importance, since they can reduce the outflow of foreign currency. Furthermore, stable food supply in developing countries is important from the standpoint of Japan's own food security.

JICA's Efforts

JICA perceives its two main tasks in agricultural and rural development to be: support for stable food production and supply (food security), and alleviation of poverty (rural development). These two tasks are intimately related. In order to implement effective cooperation, measures designed to achieve food security at both the macro (national) and micro (rural) levels must be closely coordinated with aid for rural development that addresses various development issues at the micro level.

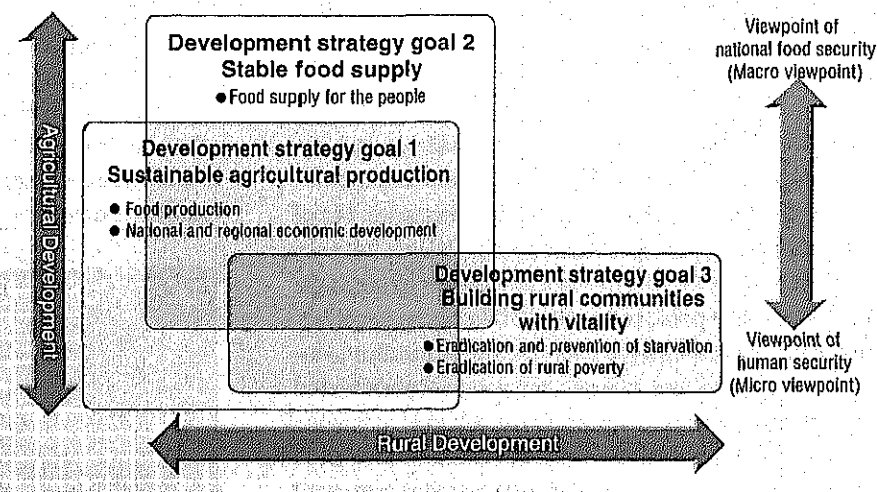
Thus the goals of assistance for agricultural and rural development are stable food supply for both the rural and urban populations, poverty reduction in rural areas, and national and regional

economic development. In abstract terms, the ultimate goal is the eradication of famine and poverty. The basis for a stable food supply is sustainable agricultural production. To realize these, JICA has identified the following three development strategies.

1) Sustainable agricultural production

To realize sustainable agricultural production is extremely important from the viewpoints of elimination of famine in rural areas and enhancement of means of economic activi-

Figure 3-9 Development Strategy Goals in Agricultural and Rural Development and Viewpoints and Purpose of Cooperation



Front Line Bolivia

Project for Development of Coffee Cultures as Agricultural Alternatives

Technical Guidance by a Japanese-Brazilian Expert Bears Fruit

Low-cost environment-friendly combined business of agriculture and forestry

In the coffee culture development project, a Japanese-Brazilian expert (who belongs to the Agronomic Institute of the State of Paraná) goes to Ichilo, Santa Cruz in Bolivia twice a year to introduce techniques that can be applied by poor farmers to technicians and disseminators of NGOs and farmers, who are practicing environment-friendly combined business of agriculture and forestry at low cost.

One example is drip irrigation using a PET bottle with small holes designed to supply water for 15 days, which helps nursery coffee trees survive the rainless dry season. The amount of shade for coffee trees is important for the growth of beans. Planting fruit trees allows for an adjustment of shade, humidity and air passage among coffee trees and fruits such as mandarin oranges and papayas diversify the agricultural operation. Weeds are planted among coffee trees and then plowed occasionally to be used as green compost. Keeping cows,

whose dung will be turned into compost, saves on the cost for fertilizer and transportation.

Technical instruction by weekly e-mail

While slash-and-burn cultivation yields about US\$70 profit per ha, profit from US\$700 to US\$800 can be expected from coffee culture. This is because sales not only of coffee but also of fruits and dairy products can be expected. Even if one crop is poorly harvested or the price drops, sales of other crops can compensate for it.

Indigenous people who moved from a mountainous area inside the country 50 years ago live in Ichilo and they cannot escape poverty. The expert continues technical instruction for the counterparts by e-mail once a week from Brazil, achieving steady results.

In the neighboring area, coca, which is a raw material of cocaine, is grown illegally, and coffee has gained attention as a substitute crop.

(JICA Bolivia Office)



Expert explaining the mechanism of drip irrigation using a PET bottle

ities as well as economic development in developing countries. It is also a precondition for stable food supply including supply in urban areas, and is an important factor in building rural communities with vitality.

As an approach for sustainable agricultural development, it is important to precisely understand the situation of the agricultural sector of the country at the macro level, and plan and implement agricultural policies appropriate for the situation while expanding agricultural production and improving productivity. In seeking acquisition of foreign currency and economic development by means of export promotion, it is necessary to strengthen activities related to export promotion such as development of an exporting system and enhancement of competitiveness in export. Consideration for the environment is essential for long-term continuous agricultural production. Additionally, in order to secure sustainable development of the overall agricultural sector for the future, human development through expanding education in agriculture and agricultural science at the high school, university, and graduate school levels is necessary.

2) Stable food supply

To supply a sufficient amount of food to all the citizens stably is one of the important objectives of agricultural and rural development. A large part of the population in rural areas is involved in agriculture and is a supplier of domestic food especially for the urban areas with the greater concentration of population. However, they are also consumers of domestically distributed agricultural products.

Stable food supply is possible only after securing the amount of supply at the macro level and fair distribution of food at the micro level are achieved. In order to secure the amount of supply at the macro level, it is necessary to understand the situation of the people and domestic agricultural production power first, and then to formulate a strategy on how to secure food as a nation. In the case that the required food cannot be secured inside the country, it is necessary to

develop a system of substitution by importing food from other countries. On the other hand, to achieve fair distribution at the micro level, development of the domestic distribution system centering on distribution among regions is essential.

3) Building rural communities with vitality

After the adoption of the MDGs, activities for poverty reduction in developing countries have gathered more attention than ever. Rural areas as targets of development and the significance of its promotion are in the public limelight again, from the recognition that weak prices for agricultural products caused by political factors, deterioration of living and production environment due to progressing desertification, increased dependence on urban areas such as migrant laborers, etc., all destabilize the lives of the people in rural areas.

To eradicate rural starvation and poverty and build rural communities with vitality, various measures are necessary, such as improving agricultural productivity, promoting the use and sale of agricultural products, promoting diversified economic activities including handicraft production and small business, and developing rural infrastructure represented by residential roads and secured drinking water. It is also important to empower residents through organizing groups and raising the health and education standards.

The relation of the above three development strategies is summarized as shown in Figure 3-9. In other words, agricultural development is aimed mainly at development strategy goal 2 with the basis of development strategy goal 1, and rural development is aimed at development strategy goal 3 while including development strategy goal 1.

Furthermore, agricultural and rural development must be addressed in line with the situation of the target area while considering various factors such as history, culture, natural environment, and ethnicity in the area.

The Capacity Building and Development for Smallholder Irrigation Schemes in Malawi

CASE STUDY

The Capacity Building and Development for Smallholder Irrigation Schemes, which was implemented from 2002 to 2005, aimed to establish appropriate techniques based on a facility that can be constructed, managed, maintained, and operated by farmers themselves for sustainable agricultural production. Instead of materials such as cement and reinforcing steel that is too expensive for farmers, material that can be procured in the rural area such as wood, bamboo, grass, and clay were used.

These techniques include techniques once utilized by

farmers in the Edo period in Japan as well as improved techniques that were utilized in a part of Malawi. The facility was not expected to last forever. But the farmers can reconstruct it when it is broken. Since the techniques were understandable to the farmers, they took the initiative in making a dam once these techniques were introduced. This irrigation facility enabled irrigated agriculture that is a labor opportunity during the dry season, contributing to regional stable food supply and production increases. These concepts and techniques shall be spread all over Malawi.

Fisheries

Overview

Fishery resources are an important source of animal protein for human beings. According to statistics published by the Food and Agriculture Organization of the UN (FAO), on

average developing countries depend on fishery products for nearly 20% of the intake of necessary animal protein of their populations. It is expected that by the year of 2050 the global population will have reached nine billion, and in order to

provide a stable food supply for future generations, sustainable management and utilization of fishery resources is vital. At the same time, about 180 million people are engaged in fisheries worldwide, and it is clear that the industry is very important, not only in the context of food supply but also from the viewpoint of employment and as a source of cash income as well as means to earn foreign currency. The number of people engaged in fisheries is growing year by year, and the industry is expected to be one that will enable women to play a more prominent role in society, particularly in developing countries.

Fishery resources can produce themselves naturally. This makes sustained fishing possible, provided that the resources are managed properly. In developing countries, though, fishery development is taking place in a disorderly manner, leading to their depletion or exhaustion. The reduction of fishery resources has a significant effect on the livelihoods of people in developing countries who depend largely on fishery products for their animal protein requirements. The decrease of fishery resources has also aggravated poverty. In developing countries where worsening economic conditions and civil conflicts have led to a rise in unemployment, unemployed people sometimes move to and concentrate on the coast to survive, resulting in over-fishing and the exhaustion of shellfish and shrimps. These circumstances lead to a further depletion of fishery resources. A framework for a proper management of fishery resources that enables their sustainable utilization is required on a global scale.

JICA's Efforts

Under such situations, JICA is conducting cooperation activities in accordance with the following four development strategies.

1) Effective utilization of fishery resources

It is necessary to create a fisheries infrastructure and improve fishing gear and methods so as to avoid catching fry (which would become a resource only later) with the aim of effectively utilizing fishery resources on a sustainable scale. Processing and quality-assurance technology must also be improved to enhance the safety of fishery products as food and at the same time promote the effective use of underutilized resources by raising the utilization ratio after catching or creating new values. Aquaculture as a stable source of animal protein also needs to be promoted.

2) Conservation and management of fishery resources

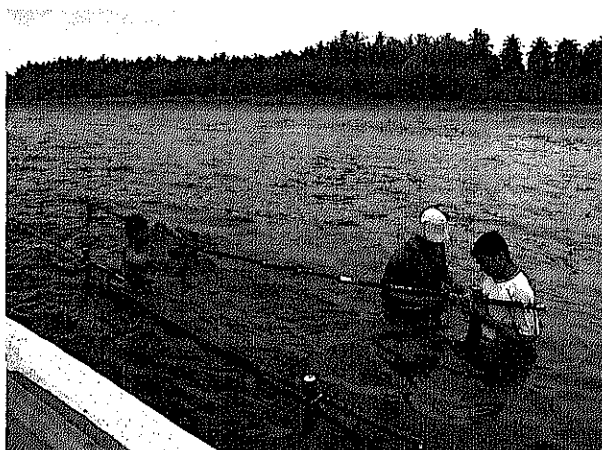
In order to prevent the exhaustion of fishery resources and carry out fishing activities continuously, it is necessary to develop appropriate fishing methods based on an accurate knowledge of the state of resources. In addition, steps must also be taken proactively to repair and maintain environments suitable for the nursing and spawning of various species of fish. Releasing artificially produced fry is also an effective means of promoting resource enhancement.

3) Poverty reduction in fishing communities

In order to raise the living standards of those engaged in fisheries and revitalize fishing villages, JICA works on organizing fishing groups, promoting cooperative operations, and establishing resource-management framework with local participation. JICA is promoting diversification of fishing households' incomes in addition to the cooperative operations, by adding value to their products with the introduction of simple processing technology and promoting extensive fish farming when necessary.

4) Capacity development

In order to realize sustainable utilization of fishery resources, it is important to change laws and regulations, administration measures and framework, activities at community level, and awareness of individuals, in addition to evaluation of fishery resources, processing, and aquaculture. JICA makes efforts to improve their problem-solving capacity and develop human resources so that the framework, society, organization, and individuals can play their own roles independently or jointly.



Setting up of a fish farm (The Project for Shellfish Aquaculture Development in El Salvador)

The Project for Shellfish Aquaculture Development in El Salvador — CASE STUDY

The Project for Shellfish Aquaculture Development in El Salvador, which started in 2005, aims to stabilize and improve the living situations of artisanal fishermen who are mostly shellfish pickers. JICA has introduced and disseminated simple and low-cost aquaculture to fishermen in order to increase shellfish resources that are their main source of income and stabilize catches.

Many women and children in the poverty group take part in picking shellfish. However, a decrease in resources in recent years makes them work longer. In addition, their dependence on shellfish picking for income leads to an

increase in migrant laborers, making the community unstable. Thus, this project introduces aquaculture for conservation of resources while organizing a fishermen's group, and also works on the introduction of business resulting in diversification of income such as chicken farming, flowers, ornamental plants cultivation, etc.

In the future it is expected that the success of such efforts will become a model of income improvement of fishing communities based on shellfish picking and will spread to other coastal areas in El Salvador.

Economic Development

Economic Policy and Finance/Private Sector
Development/Resources and Energy



Installation of solar panels in mountainous regions where electric transmissions are difficult (Thailand)

Overview of the Economic Development Field

Cooperation in the field of economic development comprises three areas: economic policy and finance, private sector development, and resources and energy. Recent discussions on development in the international community underline the importance of enhancing assistance for these issues from the perspective of reducing poverty through economic growth. It is also required to continue to review the focal points for efforts from the perspective of human security.

Target areas of cooperation on economic development projects have thus far been mostly in Asia, especially East Asia, with a view of promoting economic growth. However, recently, specific measures to create economic dynamism have been called for to reduce poverty in Africa. To this end, private sector efforts using markets and trading in combination with development assistance from the public sector are essential.

Economic Policy and Finance

Overview

The development of a fiscal and monetary infrastructure and the appropriate management of economic policies are vital to sustainable economic growth. If economic policies are not implemented and managed properly, hyperinflation or deflation will bring about fiscal and monetary collapse, causing a serious deterioration in people's assets and living standards. This type of situation emerges from time to time in developing countries. Achieving macroeconomic stability and growth through the development of robust and stable fiscal and monetary systems and the formulation and implementation of appropriate economic policies is a prerequisite for successfully overcoming development challenges.

The following two areas have become especially important in recent years in this context.

1) Preventing a Recurrence of the Asian Financial Crisis

Until the Asian financial crisis of 1997, the performance of the economies of ASEAN had been described as the "Asian miracle." The crisis robbed large numbers of people in these economies of both assets and jobs. The fragility of financial systems in ASEAN countries has been identified as

one of the causes of Asia's financial crisis. Financial systems need to be strengthened in order to prevent future crises.

2) Fiscal Management

In recent years, aid implementation agencies have recognized the importance of fiscal management in developing countries. The aim of improvements in this area is to increase revenues and ensure efficient resource allocation to strategic areas, such as poverty reduction, and to ensure that funds are spent effectively and efficiently, while maintaining fiscal order.

JICA's Efforts

Technical cooperation in the area of economic policy and finance traditionally centered on the provision of know-how, such as the introduction of Japanese fiscal and monetary systems and policies. However, two events in the 1990s prompted JICA to become more fully involved in the provision of support in this area. The first of these was the transition of former socialist countries to market economies in the late 1980s and early 1990s. The shift to market economies required radical changes in economic policies, systems, and organizations. Support for this process became a key priority for Japan's ODA. The second factor was the Asian financial crisis of 1997. Since the crisis, JICA has upgraded support for the reinforcement of financial systems through the improvement of institutions and the development of human resources.

With this background, JICA provides the following cooperation in the area of economic policy and finance.

1) Reinforcement and stabilization of fiscal systems (capacity building in the areas of taxation and customs, and capacity improvements in the areas of fiscal man-



A street scene in Ho Chi Minh City. JICA conducts a study on the improvement of economic statistics requested by economically fast-growing Viet Nam. Photo by Miwa Kudo

- agement and debt management)
- 2) Reinforcement and stabilization of financial systems (the reinforcement of financial intermediation functions, capital market development, capacity building in the area of financial administration and supervision, and improved financial systems for small and medium-sized enterprises [SMEs])
 - 3) Development of a macroeconomic management infrastructure (improvements in economic statistics, assistance in the creation of macroeconomic models, and the development of economic laws)
- Among the above, the number of projects in the area of

fiscal systems (taxation and customs, in particular) is the largest, accounting for approximately 50% of total projects, followed by projects in the area of financial systems at 30%. In addition to projects in specific areas, JICA extends economic policy support by making policy recommendations for economic improvement with a comprehensive view on economic issues of individual countries.

Countries in ASEAN and East Asia account for 80% of the target regions of cooperation in the area of economic policy and finance. However, there is a tendency to reinforce efforts in the African region, primarily in the area of fiscal management.

Private Sector Development

Overview

Private sector development is an approach to cooperation that contributes to the economic advancement of developing countries through the vitality of the private sector. Supporting the private sector of developing countries has the potential to stimulate economic growth, accelerate poverty reduction, and improve living standards in developing countries. Unless economic activities in the private sector advance, a lack of employment will cause incomes to decline and, as a result, poverty will persist. Private sector development is also extremely important in terms of tax revenue. Unless tax revenues are secured, the government will not be able to respond sufficiently to problems in areas such as education, welfare,

public health, and medical care due to budget constraints.

Various benefits can be expected to emerge when private businesses are established and become active. For example, the creation of employment opportunities for people living in rural villages will drive growth in household incomes. In urban areas, the development of various industries will result in the expansion of economic activity through growth in exports, imports, and investment. In today's business environment of economic globalization, it is also necessary to improve the industrial competitiveness of developing countries.

Accelerated development led by the private sector will expand economic activity and create employment, raise incomes, and improve living standards. The aim of JICA's

Front Line Thailand

Project for Technical Strengthening of the National Institute of Metrology

Technology Transfer of an Internationally Recognized Metrology System

Quality improvement in industrial products

The economy of Thailand has been recovering from the Asian economic crisis. The country's gross domestic product (GDP) was ranked fourth among ASEAN countries in 2003, following Brunei Darussalam, Singapore, and Malaysia. The major export products of Thailand traditionally comprised agricultural products such as food, rubber, and textiles. In recent years, however, the exports of electric appliances and automobiles have increased favorably, and the value of industrial exports is now more than twice that of agricultural products.

Though the economy develops smoothly today, in the past there were times when the quality of industrial products was poor and productivity was stagnating. In order to solve these issues and comprehensively develop economic and technical infrastructure, the government of Thailand formulated a plan to

establish a national metrology, the highest-level measuring standards set by the government. Based on this plan, the government of Thailand made a request for yen loans to the government of Japan, and a total of approximately three billion yen was agreed upon and provided in fiscal 1999 and 2000. With this, the National Institute of Metrology has been promoting the construction of a new facility and the acquisition of measurement standards devices.

Becoming an internationally recognized metrology institute

With the aim of making the National Institution of Metrology of Thailand (NIMT) internationally renowned, JICA has been implementing a five-year technology transfer project since October 2002. In this project, 40 crucial measurement standards are selected out of physics standards, electricity standards, and chemistry standards to establish measuring standards, transfer compari-

son techniques of standard devices, and support the formulation of operational manuals for calibration to provide accurate standard values to the industry (the establishment of low standards using high standards). Some of the measuring standards that were transferred technologically are regarded to be the equivalent of international standards with sufficient transparency by the International Accreditation Japan (IA Japan), and have been utilized for the economic development of Thailand.

(JICA Thailand Office)

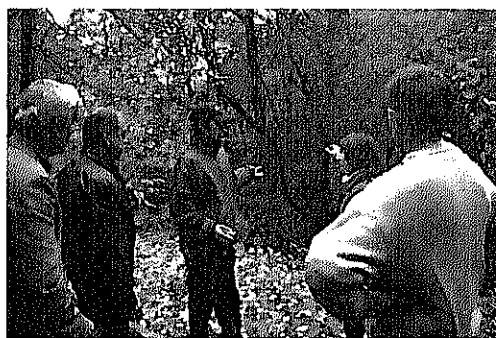


Technology transfer of standards on surface roughness

private-sector-development activities is to review the role of governments and provide support for the utilization of private sector vitality, leading to economic growth in developing countries.

JICA's Efforts

Approaches to cooperation in private sector development are centered on East Asia, which has achieved outstanding economic development in recent years, with a focus on vitalizing private corporations, main actors, and building an environment that facilitates private sector development. The following factors lie in the background of this policy: shift from the economic structure led by the public sector to one centered on economic activities of the private sector; an increasing need for a response to economic globalization due to regional progress of a horizontal relationship of economic dependency, such as WTO (World Trade Organization) and EPA (Economic Partnership Agreement). Also, support for promotion of SMEs has become more diversified, ranging from the promotion of micro and local enterprises to competitiveness enhancement through promotion of new industrial technology. A wide range of efforts are made for private sector development in developing countries, including those for the stabilization of social and economic infrastructure—for example, securing employment opportunities through the expansion of employment opportunities, improving competitiveness of SMEs, eliminating inter-regional income disparities, and considering gender balance in employment.



A JOCV visiting a local tourism site to collect information in support of regional promotion in Kazanlak City, central Bulgaria

Trade and Investment

In order to respond to economic globalization and stabilize and consolidate economic partnerships, JICA provides assistance with an emphasis on direct cooperation to implementing bodies (such as organizational and institutional enhancement of trade and investment promotion agencies in developing countries, and capacity development of working-level personnel), development of a relevant legal framework and establishment of institutional foundation as the basis of trade and investment promotion, and human resources development.

In fiscal 2004, JICA implemented technical cooperation projects targeting trade promotion agencies (such as a trade training center) in Indonesia and Egypt. JICA also cooperated in the capacity enhancement of investment promotion agencies such as the Ministry of Investment Promotion in central and eastern Europe and ASEAN countries, by dis-

Front Line Jordan

Tourism Development through Museum Activities

Development of Tourism Resources Centered on Museums

Cooperation in the construction and operation of four museums

Jordan is a nation with a paucity of natural resources, and counts on tourism as a means to obtain foreign currency. Although there are many attractive sites in Jordan, such as ancient ruins and rare natural environments, most of the country's attractiveness was unknown to the outside world, and not tapped as a tourism resource.

To address this issue, JICA undertook the Study on Tourism Development

(development study) in 1994, and proposed six model projects targeting Amman, Karak, Salt, and Dead Sea. The core of these projects was four museums. In 1998, the Overseas Economic Cooperation Fund (OECF, currently the Japan Bank for International Cooperation) decided on the provision of yen loans to make these projects a reality, and in 1999 JICA and OECF jointly designed the facilities in detail. Japan Overseas Cooperation Volunteers were dispatched to the museums to provide field-based cooperation as well.

Support for the development of organizations, human resources and activities

While the construction of museums and peripheral infrastructure with yen loans came close to completion, the issues intractable in the field became apparent, such as the operation system of museums and a lack of the

experience of curators. This technical cooperation project commenced to counter these problems in December 2004. When taking a comprehensive look at this cooperation, it is a good example of application of the results of the development study, mutual complementary form between JICA volunteers and technical cooperation, and organic coordination between yen-loan and technical cooperation.

The government of Jordan announced the National Tourism Strategy 2004-2010, extending more efforts in the promotion of tourism. Museums have the potential to reveal the hidden attractions of the regions. The project aims to tap the attractiveness of the regions in cooperation with the local people to feed tourism development through support for the development of organizations, human resources, and the activities of four museums.

(JICA Jordan Office)



A workshop for local primary school students at the Archaeological Museum in Karak

patching individual experts. Furthermore, in order to protect intellectual assets in China and ASEAN countries in preparing for the development of an environment for trade and investment, JICA supports enhancing systems and the capacity of agencies and personnel in charge of intellectual assets. JICA also cooperates in the capacity enhancement of agencies and personnel as well as institution building in order to create a standardized approval system, which is a prerequisite for trade promotion (such as harmonization of specification standards and enhancement of inspection capability). As cooperation related to legal systems for building a healthy business environment, development assistance in the execution capacity of competition and accountancy laws takes place in ASEAN countries.

In addition, though cooperation concerning trade and investment has thus far been implemented primarily in Asia, JICA has set about formulating concepts to implement trade promotion cooperation based on Asia-Africa Cooperation, so as to make use of the experience gained in Asia.

Tourism

JICA dispatches experts to tourism promotion agencies in many countries to develop and promote tourism policies and systems. A technical cooperation project has commenced in Jordan to develop community-based tourism based on the improvement of museum management.

SME Development and Promotion of Industrial Technology

Human resources who can lead the industry are in short

supply in developing countries, and policies and systems to foster SMEs are not sufficiently developed. These situations hinder the accumulation of technical know-how in the production field as well as management know-how. The lack of know-how has impeded the growth of SMEs and the expansion of new businesses. To overcome these obstacles formulation of SME development policies and a master plan that embodies the policies, and human resources development to implement the master plan are all essential. Support programs for SME development in recent years cover a wider range, from promotion of micro and local enterprises to improvement of competitiveness through promotion of new industrial technology. The promotional activities of a local industry, represented by the "Isson Ippin Undo" (the Campaign of One Village One Product) or the "Michino Eki" (Road Station), which are more like micro enterprises rather than SMEs, create local jobs, promote support for women entrepreneurs, and contribute to the correction of regional income disparities. Based on its experience in the promotion project of traditional handicrafts in Viet Nam (which terminated in fiscal 2003), in fiscal 2004 JICA launched the Campaign of One Village One Product in Thailand, support for women entrepreneurs through the support for the Women's Development Bank of Venezuela, and the Campaign of One Village One Product for in Malawi.

At the same time, promotion of industrial technology is an important task for developing countries in order to expand business opportunities and improve competition through technological innovation. In fiscal 2004, JICA set

Front Line Honduras

The Project for the Promotion of Self Management Enterprise of Women in Rural Areas

Support for Ceramic Production Using Local Resources

Aiming to improve women's livelihood in rural areas

Honduras, where approximately 70% of the population is poor and living on less than US\$2 a day, strives to reduce poverty while receiving assistance from international organizations and donor countries.

In order to support poverty control by the Honduras government, JICA launched the Project for the Promotion of Self Management Enterprise of Women in Rural Areas, designating the PRAF (the Family Allowance Program) as a counterpart agency. Targeting rural women's groups in western Honduras with a high concentration of poverty, the project supports the start-up of small-scale businesses using local resources, encourage women's empowerment, and promote self-help efforts to improve livelihoods. The cooperation period is three years from November 2003 to

October 2006.

Improving technical level with instruction from Japanese experts

The project has just completed forming groups and selecting business types, and is currently at the stage of technical training. At the meeting of a women's group in Blair village, Santa Rita City of Copan Province, desires to improve living standards by increasing income and to give children education were expressed. As a means to fulfill their desires, attention was given to bricks and tiles that had traditionally been produced locally, and it was decided to produce ceramic products using local clay.

Through training, the skills of these women were brought up to a level where their products could be sold in the market. Also, with the guidance of Japanese experts, women in the group took initiatives in market research and

started receiving orders for their ceramic products. One of the women who participated in market research seems to have discovered a new aspect of herself, and expressed her delight that she had never thought she was capable of researching the customers' tastes and conducting business negotiations. An accumulation of such experiences will lead to their confidence.

(JICA Honduras Office)



A Japanese expert teaching ceramic-making to local women

about to support the Technopark Plan in Tunisia and cooperation for the application of new technology (such as renewable energy, biomass, information and communication technology [ICT], etc.) to industrial technology in Thailand. Some of these projects are designed to establish a framework to support entrepreneurship (business incubation) through a partnership of business, education, and government. As an application of intellectual property and science and technology to industry, JICA has also participated in the TLO (Technical License Organization: a technology transfer organization by a partnership among business, education and government).

Fostering Supporting Industries

The presence of SMEs, which are called supporting industries, is vital to foster industries such as automobile and electric appliance manufacturing. SMEs support large corporations by providing components and parts. The increased technical power of SMEs improves overseas procurement of leading corporations, indirectly promoting overseas business opportunities, and at the same time, expands supporting industries and boosts employment opportunities in developing countries. In fiscal 2004, in order to foster supporting industries, JICA transferred technology such as metal processing and production of die and plastic molding goods in

Resources and Energy

Overview

Energy is an indispensable infrastructure component for the national development of industry and economies and improving living standards. Every country makes efforts to attain a stable supply of low-cost quality electricity.

In addition, the sustainable development and management of mineral resources is indispensable to industrial and economic activities, and is gaining importance in terms of supporting economic development in developing countries.

Power Supply and Renewable Energy

In the past, cooperation in this area focused mainly on feasibility studies for the construction of power stations and other electric power facilities and the training of personnel to operate electric power facilities. The aim of this approach was to facilitate the development of electric power resources in developing countries. More recently, however, there has been a global trend toward power sector reform, and in some developing countries the private sector now plays a leading role in the power business, which was formerly dominated by the public sector in such forms as government-owned electric power companies. The role of governments has changed, from direct implementation of electric power projects to the provision of guidance to ensure the appropriate development of electric power resources, and the implementation of policies to ensure access to reliable supplies of low-cost electric power. JICA has responded to this change by shifting the focus of its cooperation. Priority is now given to support for policy formulation and the improvement of

countries where Japanese corporations are expected to expand their presence, such as Thailand, Pakistan, Argentina, Egypt, and South Africa.

Securing Employment Opportunities

Many developing countries who face various problems in the areas of health, basic education, and social and economic infrastructure can not be made stable unless employment opportunities are secured. For instance, Bosnia-Herzegovina saw the end of civil wars and most of the problems in health, education and infrastructure have been solved; however, the unemployment issue remains unsolved, with an unemployment rate exceeding 50% in some areas. It is assumed that in many countries riots and ethnic conflicts stem from serious social unrest due to loss of employment opportunities. Unless such social unrest is solved, stability in regional communities cannot be attained, and therefore, efforts to solve employment issues are increasingly important. From this viewpoint, JICA has been working on the stability of social and economic infrastructure, such as securing employment opportunities, eliminating regional income disparities, and considering gender balance in employment, through enhancing the competitiveness of SMEs.

institutions.

In developing countries, the development of isolated mini-grids utilizing renewable energy is often a more economical method for rural electrification in areas without electric power services than the extension of power transmission lines and distribution networks. There has been growing interest in renewable energy resources in recent years, and increased use of these resources is seen as desirable because of their role in reducing carbon dioxide emissions from the viewpoint of global environment problems and also because of the need to diversify energy resources and reduce overdependence on fossil fuels.

Energy Conservation and Mining

Energy demand has expanded in recent years, especially in developing countries. This trend has triggered various problems on a global level, including the depletion of economically vital energy resources, such as oil, coal, and natural gas, as well as global warming resulting from emissions of greenhouse gases after the use of these resources. Dependence on imported energy has also created problems for individual nations. These include the impact of crude oil prices on national economies and the inability to ensure security in time of emergency. Energy conservation has emerged as one of the most effective approaches in response to these. For developing countries, Japan's experience is extremely valuable since it has achieved the highest standards of energy conservation in the world through two oil crises.

Furthermore, mineral resources are vital to economic

activities and will play an increasingly important role in the future economic growth of developing countries. Moreover, promotion of mining has extremely broad social and economic effects, including not only the creation of new industries but also the development of socioeconomic infrastructure and regional and economic development in marginal regions, affecting greatly the society and economy of the target country and region. Balanced mining development that contributes to the sustainable development of developing countries requires a comprehensive approach in cooperation between the public and private sectors, including measures to facilitate resource exploration, the training of technical personnel, the establishment of mining information resources, infrastructure development, the development of laws concerning foreign investment, and promotion of countermeasures against mining pollution.

JICA's Efforts

Power

Since power consumption increases in proportion to economic growth, a stable supply of power is indispensable to achieve sustainable economic development. Power is essential in terms of improving the living quality of the people. For example, when providing cooperation for rural electrification, it is important to develop the capacity of government organizations of developing countries and keep the perspectives of human security of local residents, the beneficiaries. Power supply to rural areas will improve the quality of living through better medical and educational service, promote poverty reduction, and correct regional disparities between rural and urban areas. In this regard, power plays an extremely significant role and the aid need for this area is paramount.

As previously mentioned, amid the global trend of power sector reform in recent years, the role of governments of developing countries is being shifted to policy formulation to secure low-cost and stable power supply. Accordingly, the focus of JICA's cooperation modalities is also being shifted to support for policy formulation and institutional development.

There are two priority issues to be addressed in the future in the areas of energy and power: stable power supply to secure sustainable economic development and promotion of rural electrification from the perspective of human security. Based on these, JICA intends to implement efficient and effective assistance, while continuing cooperation in the development of electricity infrastructure.

In addition, JICA will enhance the concept of country- and issue-specific approaches and program approaches, and formulate and implement environment-friendly projects according to the JICA Guidelines for Environmental and Social Considerations (see p. 86) while coordinating with related organizations. At the same time, JICA will review past cooperation outcomes to determine future directions.

Resources and Energy Conservation

Cooperation in the areas of resources and energy con-

servation, which comprises mining development, renewable energy, and energy conservation, is centered on the following activities.

1) Mining

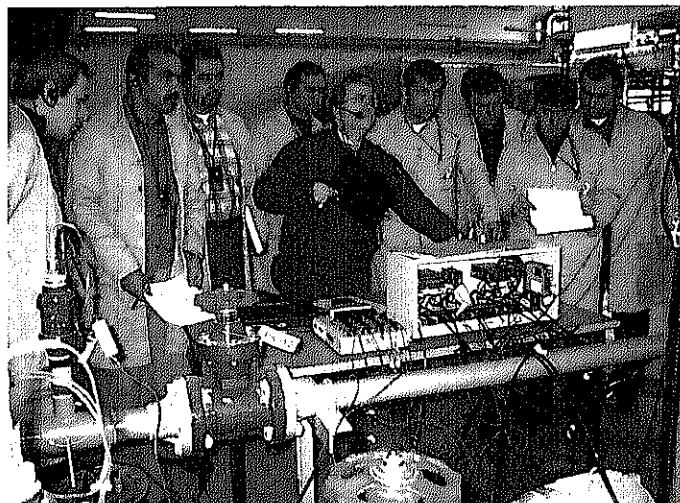
In order to support sustainable development of mineral and energy resources in developing countries, support for institution building, human resources development and technical improvement is being provided. For example, a survey for the formulation of a master plan for the development of mineral resources has been conducted in Mauritania, and remote sensing projects to improve resource exploration techniques using satellite images have been implemented in Argentina and Turkey. In the area of energy resources, JICA has implemented cooperation to improve coal mining techniques in Indonesia and to improve coal mining safety measures in Viet Nam.

2) Renewable Energy

In this area, various types of cooperation have been implemented in view of promoting the use of renewable energy for the conservation of the global environment, as an independent electricity source for the electrification of isolated rural areas. Recently implemented projects include development studies to formulate local electrification master plans using solar energy and small hydropower generation systems in Ghana and Cambodia, as well as a development study for geothermal development in China.

3) Energy Conservation

In the area of energy conservation, JICA has so far implemented cooperation activities making full use of Japan's knowledge and experience in a great number of countries through development studies, technical cooperation projects, and training programs. JICA is currently undertaking projects to disseminate and promote energy conservation in Thailand, Turkey, Iran, and Poland. Other ongoing cases are a project for improving the combustion efficiency of furnaces for the steel industry and disseminating environmental protection and energy conservation techniques in China, as well as a project for promoting the effective use of industrial water in Thailand.



Training for personnel in charge of the energy management of factories throughout the country at the Energy Saving Center of Turkey, with which JICA cooperates in training and factory analysis