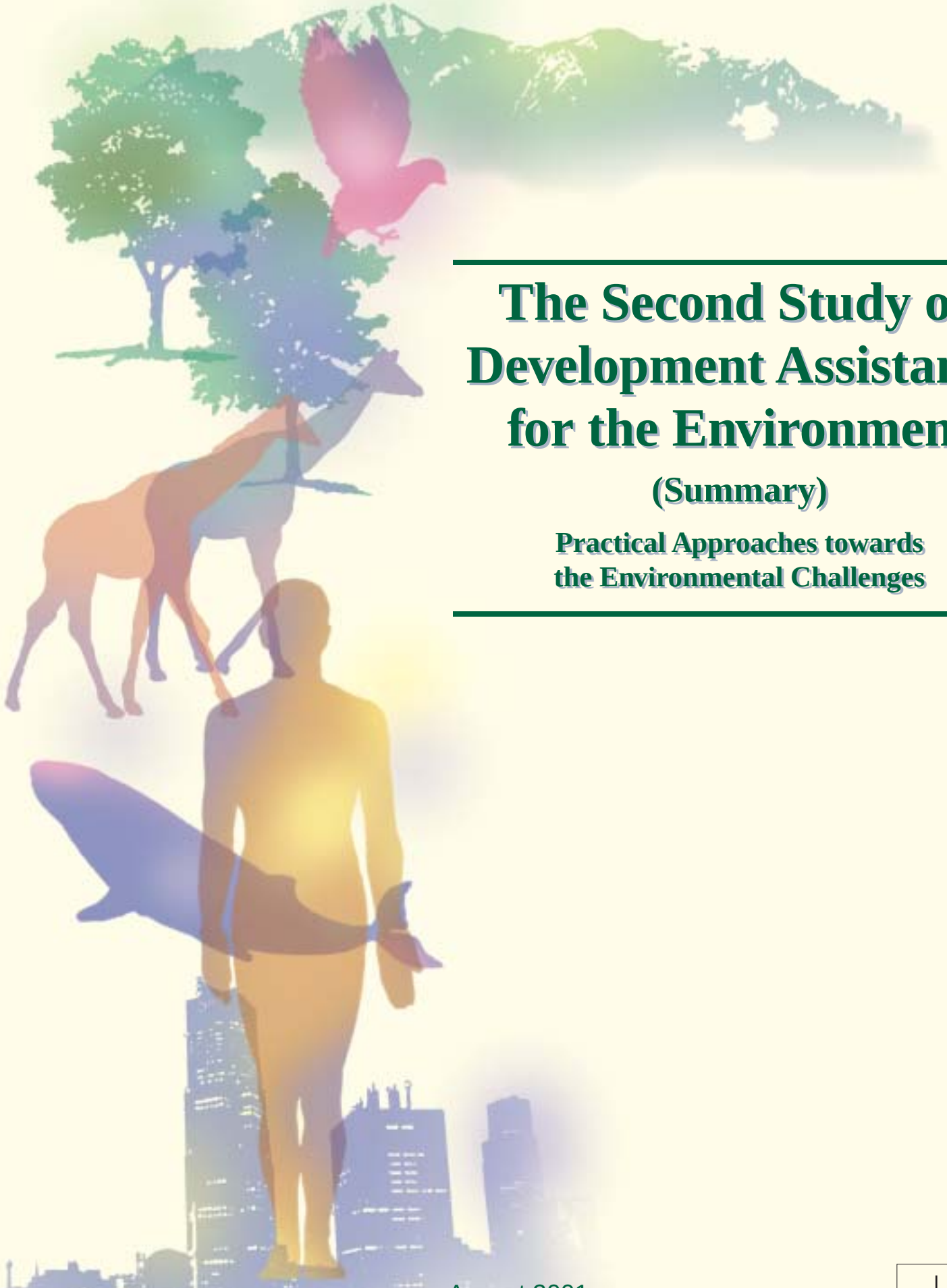

The Second Study on Development Assistance for the Environment

(Summary)

Practical Approaches towards the Environmental Challenges

August 2001
Institute for International Cooperation
Japan International Cooperation Agency

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This report is based on the discussion and findings of the Second Study Committee on Development Assistance for the Environment organized by the Japan International Cooperation Agency (JICA). The views expressed in the report are those of the members of the Study Committee and do not necessarily reflect those of JICA.

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Foreword

August 2001

As the extent of environmental problems in developing countries became clearer in the second half of the 1980s, environmental cooperation projects began through Official Development Assistance (ODA). Along with this, guidelines on environmental cooperation were required to ensure that assistance projects were environmentally sound. In response, JICA established an Aid Study Committee on Environment, which held meetings during 1988 and submitted a report. Based on this report, not only JICA, but also the Japan Bank for International Cooperation (JBIC), the successor of the Overseas Economic Cooperation Fund (OECF), carried out environmental impact assessments in relation to the implementation of development cooperation projects.

Environmental problems, however, have become more serious, diverse and complex in developing countries, despite the increase in environmental assistance from international agencies and other donors since the second half of the 1980s.

JICA thus established the Second Aid Study Committee on Environment in October 1999. The purpose of this study committee was to formulate policies for new directions in environmental cooperation, taking account of the changes in the global environment. The main theme for dealing with world environmental problems has become the realization of the need for "sustainable development" since the United Nations Conference on Environment and Development (UNCED) held in Rio de Janeiro, Brazil in 1992. It has also been over ten years since the first study committee submitted its report.

This study committee consisted of the Chairperson, Professor Hisakazu Kato of the Nagoya University graduate school of law, and eight other members, together with a task force of JICA staff. The study committee held a total of fifteen meetings.

This report is the accomplishment of the study committee. It will be fully utilized by JICA in preparing and implementing Japan's cooperation projects, and at the same time, I hope that other relevant agencies will find this report useful for a wide variety of purposes.

I would like to express my deepest appreciation to Chairperson Kato, the eight other members and the task force, and also to all the others who participated in the discussions of this study group.

Kunihiko Saito
President
Japan International Cooperation Agency

Preface by the Chairperson

August 2001

To: Mr. Kunihiko Saito
President
Japan International Cooperation Agency

Global environmental problems seem to have become much more serious at the beginning of the 21st century. These problems, such as the depletion of the ozone layer and global warming, already threaten the basis of human existence. These global problems add further stress to the particular environmental problems of most developing countries, which are focusing their efforts on economic development in order to overcome underdevelopment and poverty.

In 1992, the action plan Agenda 21 was adopted to achieve sustainable development, which was agreed to as a common goal for the world at the United Nations Conference on Environment and Development (UNCED), or Earth Summit, held in Rio de Janeiro, Brazil. Agenda 21 represents cooperation based on the principle that "States have common but differentiated responsibilities." It includes the principle that developed countries should offer new and additional funds to developing countries together with increased financial help and technical cooperation through existing channels, including official development assistance (ODA).

In actuality, however, local conflicts have proliferated around the world since the end of the cold war, which had been expected to consolidate peace. In addition, the world total of ODA funding has been declining, and the disparities between developed and developing countries, and among developing countries themselves, have become greater.

A reconsideration of assistance to developing countries has resulted in the emphasis becoming placed mainly on 1) the linkages between human security, environmental problems and poverty, though the first priority is being given to poverty reduction, 2) capacity development in environment in developing countries, and 3) improvement of governance through the creation of partnerships among all the stakeholders in society.

Since the middle of the 1980s, Japan's environmental ODA has developed into a full-fledged programme and is currently playing a pivotal role in Japan's overall ODA. The first Aid Study Committee on Environment, formed in 1987, recommended that environmental impact assessment should be applied in all of Japan's assistance projects, based on the principle of sustainable development. This recommendation was incorporated into *Japan's Official Development Assistance Charter*, which was

formulated at almost the same time as the Earth Summit in 1992. Since then, it has been serving as a guideline for Japan's ODA.

Japan has been ranked the top country in the world in terms of ODA disbursements for the past ten years and there has been no increase in the amount recently. As a result, the following are required: 1) more effective and efficient implementation, 2) strengthening of partnerships and cooperation with local communities and nongovernmental organizations (NGOs), 3) enforcement of policies and laws on equal opportunity and greater transparency in decision-making and the establishment of institutional frameworks for preliminary assessment and post evaluation, and 4) greater information dissemination and accountability to the public.

Environmental problems, including global ones, cannot be solved without the countries or communities concerned making their own efforts towards solutions, since all environmental problems are caused by human activities that involve the development and utilization of local resources. Environmental ODA should be implemented based on a clear recognition of the need to promote and complement the self-help efforts of the developing countries. In implementing environmental ODA, consideration should be given to the international debate over ODA in general.

This study committee formulated strategies and tactics for the more effective and efficient implementation of environmental ODA through cooperation among all the relevant agencies in Japan. The study committee identifies many underlying causes of local environmental conditions and prioritizes and specifies the needs in developing countries in reviewing Japan's environmental ODA, supported by an analysis of the latest international trends in ODA.

This report was prepared though intensive discussions in meetings held over a period of one and a half years from the autumn of 1999. The contribution of the task force established in the Institute for International Cooperation of JICA, and cooperation provided by the Ministry of Foreign Affairs, JICA, JBIC and other Ministries, Agencies and assistance organizations were highly valued.

I hope that the recommendations of this report will serve as a useful guideline for the effective and efficient implementation of Japan's long-term environmental ODA, as well as contribute to the promotion of international cooperation for the realization of sustainable development throughout the world.

Hisakazu Kato
Chairperson
Second Aid Study Committee on Environment

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I. Introduction

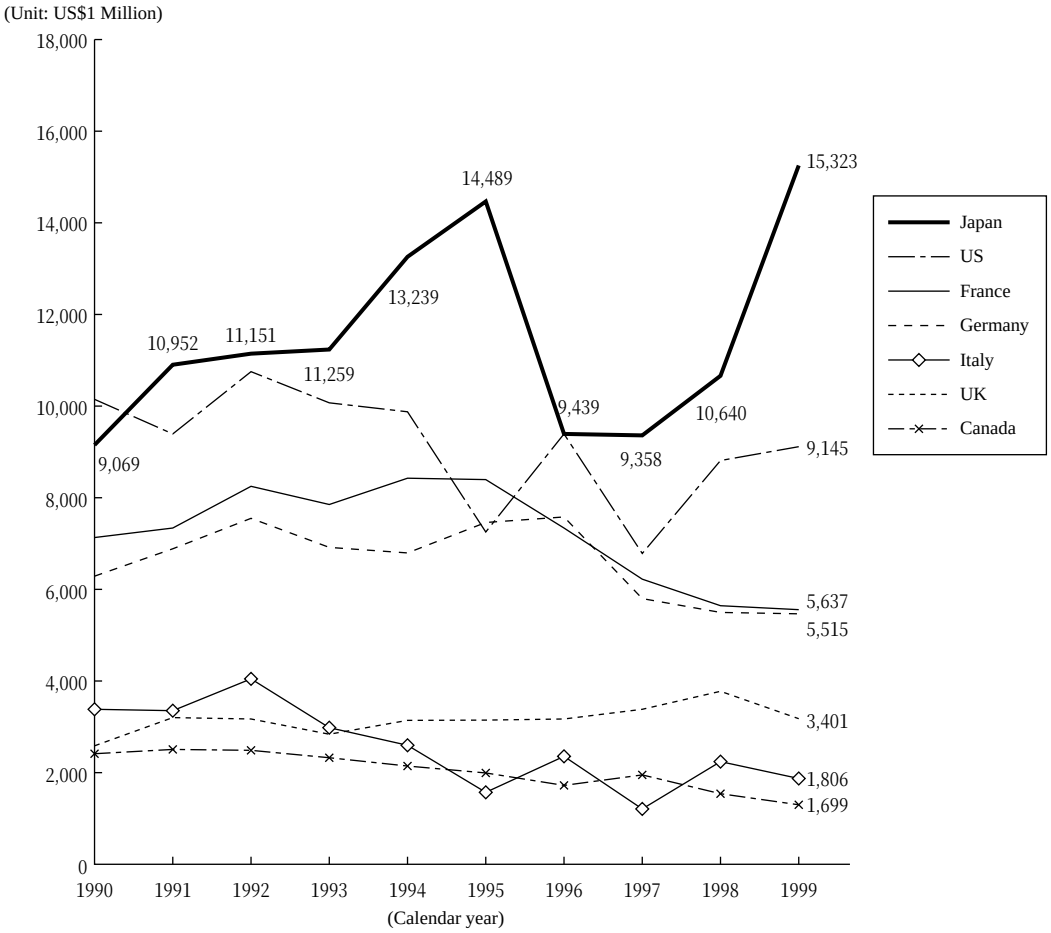
Japan's Official Development Assistance (ODA)

Japan has provided official development assistance (ODA) to many developing countries. The fundamental reasons for providing ODA are summarized as following: 1) from a humanitarian point of view, Japan can ill afford continuation of the plight of many people in developing countries who still suffer from malnutrition and poverty; 2) global problems such as environmental conditions, population growth, and food supplies are tasks that both developed and developing countries must work together to tackle; 3) assisting developing countries can be expected to benefit Japan through better ties with these countries, which will enhance Japan's reputation in the international community and contribute to ensuring the stability and prosperity of Japan; 4) ODA can contribute to the Japan's economic interests as Japan is highly dependent on developing countries as suppliers of natural resources, energy, and food.

Japan's ODA began as reparations for World War II and has been strengthened as Japan's economy has developed. Since 1989, Japan has become the world's top donor country in terms of net ODA disbursements, except for 1990.

The Cabinet of the Government of Japan adopted a resolution entitled *Japan's Official Development Assistance Charter* at its meeting in June 1992, which formed the basic policy for ODA. This Charter states that, "Recognizing that it is important for developed and developing countries to cooperate in tackling global problems such as environmental degradation and population growth, Japan will support efforts being made by developing countries to overcome these problems," which points to environmental protection as one of the most important issues to be tackled in the implementation of Japan's ODA. In addition, in *Japan's Medium-term Policy on Official Development Assistance* announced in August 1999, environmental problems are listed as an issue of high priority. The *Initiatives for Sustainable Development (ISD) toward the 21st Century* (ISD), which was announced at the United Nations 19th Special Session of the General Assembly to Review and Appraise the Implementation of Agenda 21 (UNGASS) held in June 1997, also indicates the major policies to be followed in the environmental field.

As mentioned above, Japan's commitment to environmental problems is also evident from the fact that the government of Japan officially pledged to disburse 900 billion yen to one trillion yen over five years for environmental ODA at the United Nations Conference on Environment and Development (UNCED) held in Rio de Janeiro in 1992, and achieved this goal one year ahead of schedule. The disbursement of Japan's environmental ODA reached 535.7 billion yen, 33.5% of the total ODA in fiscal year 1999.



Reference: DAC (Development Assistance Committee) Chairman's Report for 2000
Note 1) Excluding aid for Part II (Aid to Countries and Territories in Transition)
2) Net disbursement basis

Figure 1 Trends in the ODA of major DAC countries
(Japan, US, France, Germany, UK, Italy, Canada)

Source: "Japan's Official Development Assistance - Annual Report 2000" by the Economic Cooperation Bureau, Ministry of Foreign Affairs

On the other hand, many problems have arisen even while Japan has expanded its economic cooperation in the environmental field. Japan has tended to put emphasis on the transfer of environmental conservation technology to technicians in the recipient countries rather than providing long-term and general assistance for the promotion of sustainable development, which is the central concept of Agenda 21. As a result, the performance of support for policy-making as a central issue in assistance to environment-related fields and the level of participatory cooperation with many local communities have been poor in the project planning stage, resulting in a much less visible benefit to these local communities. In addition, Japan has neither adequately recognized the disparities between developing countries and Japan, nor fully understood the importance that it should give to aid programs that are fully in accordance with the capacity of the recipient developing countries. For example, the success of environmental management

in Japan is attributable to a combination of the following factors: 1) the existence of customary systems to strictly control natural resources use in the traditionally resource-poor society of Japan; 2) aggressive regulatory regimes enforced by local governments to establish environment management; 3) the huge investments made by private corporations to control pollution; 4) active participation by researchers, the mass media, and non-governmental organizations (NGOs) in raising public awareness of the importance of environment management; and 5) the large scale of investment in infrastructure for environmental conservation. In contrast, developing countries usually do not have sufficient financial resources to invest heavily in environmental management and local governments do not have the power to implement proactive measures, while the mass media and NGOs are not mature enough to play a significant role. It is therefore important to consider these factors when providing ODA. Another constraint is that in the Japan Bank for International Cooperation (JBIC) and the Japan International Cooperation Agency (JICA), both of which are responsible for Japan's bilateral assistance, the number of staff relative to ODA disbursements is less than that of other major DAC countries.

Establishment of the Second Aid Study Committee on Environment

JICA established an Aid Study Committee on Environment in 1988 to discuss the basic policy on Japan's aid in the environmental field. At that time, Japan did not have sufficient experience in providing environmental aid and was struggling to find concrete directions to address this issue. The environmental aid study committee therefore mainly focused on how to provide aid to tackle environmental problems in a more systematic and comprehensive manner. Among the issues considered was the serious concern that Japan's aid programs could cause a deterioration in the environment of the recipient countries and result in adverse effects on the life of local people whose interests were not taken into account in the project design phase. The study committee discussed the environmental considerations that should be taken in the implementation of ODA. The report of the study committee pointed out that it was necessary 1) to develop appropriate human resources in developing countries, 2) to establish institutional frameworks for environmental management, 3) to prepare basic environmental conservation plans, 4) to find ways of identifying environmental problems, and 6) to systematically gather and compile environment-related information.

Upon this recommendation of the study committee, the Overseas Economic Cooperation Fund (OECF), the predecessor organization of the JBIC, and JICA established guidelines on the consideration of environmental problems for the implementation of environmental impact assessment in ODA programs. In addition, JICA established a new section for environmental problems (Global Issues Division of the Planning and Evaluation Department) which enabled JICA to tackle environmental problems in a more comprehensive manner. The first Aid Study Committee on Environment thus significantly contributed to promoting Japan's environment-related ODA.

It has been fourteen years since the first Aid Study Committee on Environment issued its report and environmental problems have become increasingly serious year by year throughout the world. Since then, various environmental problems have become widely acknowledged, including the degradation of renewable natural resources such as forests, soil, and grasslands; deteriorating urban environments due to rapid urbanization and population growth; the need for controlling pollutants and hazardous wastes caused by industrialization; and health problems due to pollution. Global environmental problems such as global warming, desertification, and the reduction in biodiversity are now fully recognized by both developed and developing countries from a scientific point of view. The environmental problems of developing countries have thus become more serious and complex.

Under these circumstances, as there has been a shift in the environment-related aid requirements of developing countries and development banks, such as the World Bank, UN agencies, and bilateral assistance organizations in various countries have had to introduce more sophisticated and diversified methods and techniques to provide financial and technical cooperation. As the world's top donor country, a second Aid Study Committee on Environment was established to identify the role that Japan should play in tackling environmental problems, and also propose basic directions for the implementation of more effective and efficient environment-related assistance with the cooperation of interested parties in Japan. The study committee considered not only increases in the value of disbursements, but also the provision of a higher quality of environmental ODA with greater efficiency. At the same time, in order to provide comprehensive assistance to developing countries, it made a study of the means of establishing cooperative relationships and networks with the private sector, such as with private companies and citizen's groups that have recently increasingly played an important role in international cooperation in environment-related fields.

JICA plays a leading role on technical cooperation in environment-related fields and is responsible for efficiently providing assistance that responds to the needs of developing countries. One of the important objectives of the study committee has, therefore, been the preparation of recommendations for JICA's future technical cooperation in environment-related fields.

In effect, the objective of the Second Aid Study Committee on Environment was to present specific strategies for Japan's environmental ODA and for JICA's technical cooperation in environmental fields.

Organization of the Second Aid Study Committee on Environment

The Second Aid Study Committee on Environment consisted of nine members. All of them have long experience of working in JICA or UN agencies for technical cooperation in environmental fields and have also provided leadership in the establishment of environmental management and conservation technology in Japan.

There were also 23 staff members of JICA who joined the group to make presentations and prepare parts of the draft reports.

Staff of the Ministry of Foreign Affairs and JBIC participated in every meeting and commented on the proceedings, while officers of JICA participated in the meetings depending on the theme, and their participation contributed to the wide-ranging discussions.

The study committee held fifteen meetings, and the last meeting (the 15th meeting) was held as a seminar open to the public to discuss issues with many people from various fields.

Report of the Second Aid Study Committee on Environment and this Summary

The original report of the Second Aid Study Committee on Environment, which is written in Japanese, is divided into the following five sections.

Chapter I	Changing needs of developing countries in environmental economic cooperation and the donor's responses
Chapter II	Environmental conditions and needs by region
Chapter III	Environmental issues by sector
Chapter IV	Overview of Japan's environmental cooperation
Chapter V	Recommendations for Japan's environmental cooperation

Since the original Japanese report totals about 400 pages, a summary version is provided here with a focus on the Chapter IV: Overview of Japan's environmental cooperation and the Chapter V: Recommendations for Japan's environmental cooperation.

This report consists of the following chapters. Chapter II provides a summary of the original Japanese report. Chapter III presents strategies for Japan's future environmental ODA. Chapter IV presents the features of Japan's environmental cooperation. Chapter V presents practical tactics for JICA's technical cooperation in the environmental field.

II. Summary of the original Japanese report

Chapter I Changing needs of developing countries in environmental economic cooperation and the donor's responses

The Second Aid Study Committee on Environment had two objectives. One was to propose the basic direction of environmental cooperation for the future in order for Japan to implement effective cooperation with all the relevant agencies working together. It was expected that this objective could be achieved through discussions on what role Japan's environmental ODA should play in the light of the increasing severity of global environmental problems. In future, besides increasing the overall level of conventional ODA, the effectiveness and quality of environmental ODA needs to be raised. The other objective was to recommend measures for the improvement of technical cooperation in the environmental field. The reason for this was that JICA, which is currently playing a key role in technical cooperation within Japan's environmental ODA, is responsible for the efficient implementation of support for developing countries to respond to their needs.

The members of the study committee held discussions over a period of one and a half years, working together with a task force and a secretariat, in order to present strategies for the promotion of Japan's environmental ODA and to propose tactics to strengthen technical cooperation in the environmental field. This report presents the results of this work.

The Aid Study Committee on Environment was first established in 1988, with Mr. Michio Hashimoto as Chairperson. The study committee discussed the promotion of a systematic approach to environmental ODA. In those days, recipient countries were concerned about the adverse impacts of ODA projects on environmental conditions and the living situation of communities that were unforeseen before implementing the projects. In response to this concern, the discussions focused particularly on environmental considerations in the promotion of Japan's ODA in general. As a result, JICA and JBIC (then OECF) prepared and put into practice guidelines for environmental considerations as well as establishing sections to systematically deal with environmental problems, thus initiating the strengthening of environmental ODA. At present, the relevant section of JICA corresponds to the Global Issues Division of the Planning and Evaluation Department, and the relevant section of JBIC corresponds to the Environment and Social Development Department.

Environmental problems have become more severe globally and are perceived to be serious in both developed and developing countries. International discussions on these global problems started at the United Nations Conference on the Human Environment (UNCHE) held in Stockholm in 1972, under the

slogan “Only One Earth”. The public awareness of global environmental issues had been enhanced due to a series of reports, including *“The Limits to Growth”* by the Club of Rome, the *“Global 2000 Report to the President”* submitted to US President Jimmy Carter in 1980, and *“Our Common Future”* by the World Commission on Environment and Development, and these formed a part of the buildup to the United Nations Conference on Environment and Development (UNCED) in 1992.

At this epoch-making conference held in Rio de Janeiro, Agenda 21 was born. Agenda 21 specified the basis for and objectives of actions and measures to be taken in every environmental field. The specification of implementation measures, in particular, has served as a guideline for assistance to developing countries in the environmental field.

Significant environmental problems have continued to emerge in developing countries over the decade since UNCED was held in Rio. Some countries in Southeast Asia and East Asia have achieved rapid economic growth, resulting in urban environmental problems, industrial pollution, and air pollution due to exhaust gas emissions from automobiles. They are facing an urgent need to implement measures to solve these problems. Other developing countries have remained poor. Their arid or semi-arid lands with few forest resources have become eroded and desertified through the gathering of household fuel wood and feed for livestock. Many communities in these countries are threatened with collapse.

In actuality, these environmental problems are too serious for developing countries to deal with themselves, so assistance from development banks, UN agencies and many other donors is required. The problems cannot be solved through raising public awareness alone, and the amount of funds required to provide solutions is far greater than the limited resources available to developing countries.

At UNCHE held in Stockholm, Japan proposed the establishment of World Environment Day. Since then, many countries have held events for World Environmental Day on June 5 every year. Japan also proposed the establishment of an ad hoc commission at an extraordinary session of the Governing Council of the United Nations Environment Programme (UNEP) in 1982. Based on this, the World Commission on Environment and Development was established with Ms. Brundtland as chairperson. The commission published *“Our Common Future”*, the core concept of which is “sustainable development,” which became the conceptual basis for the development of Agenda 21. In addition to these contributions, Japan committed to disbursing 300 billion yen in ODA over three years at the G7 Arche Summit in 1989, and 900 billion to one trillion yen over five years at UNCED in 1992. Thus, Japan’s contributions have led to its emergence as a leading donor in the environmental field.

Chapter II Environmental conditions and needs by region

Chapter II was designed to ascertain assistance needs for the solution of environmental problems and the amelioration of severe environmental conditions by classifying the world into eleven regions, since the need for environmental ODA differs according to the region and country. Among the regions, however, the political, economic and social circumstances vary, they are at diverse stages of economic development, and have different legislative institutional frameworks, organizations and institutions for environmental management. The needs also vary considerably between countries and between local communities. With such a variety of needs in mind, the study committee strived to determine assistance requirements by analyzing the geographical, social, and economic characteristics, the current condition of environmental problems, the causes of deterioration, and the problems of environmental management systems in each region. A summary of this study is provided in Chapter II, and details of the particular needs of each region are described in Appendix 1. in the original report.

Identification of regional assistance needs is the most important aspect of formulating plans for the implementation of environmental ODA. The perspectives taken with regard to identifying regional environmental needs were varied. Therefore, a variety of perspectives are listed and explained.

Appropriate identification of regional assistance needs alone does not always ensure the efficient provision of assistance. The primary obstacle is to decide who will share the burden of the substantial cost of dealing with environmental problems. For example, assuming that in order to promote appropriate management of natural resources, the country concerned and local governments establish field offices across the country, allocate competent field officers, formulate plans for resource management, and establish a system for the relevant local community to carry out the plan, the country concerned and local governments have to bear the cost of preparing the system including a wide range of training costs for the field officers. If buses that do not generate or at least mitigate pollution are employed to replace old diesel-fueled buses that emit black smoke while in operation, then bus fares have to rise. If desulfurizing equipment is installed in thermal power stations, electricity charges necessarily rise. An increase in individual income will be needed to balance the cost of improving the environment.

Some cases of developed countries indicate that even if the economy of a country continues to develop with increasing energy consumption, total pollutant emissions decline at a certain point through appropriate environmental policies that provide incentives to companies and other organizations to introduce clean technologies. It sometimes happens, however, that donors implement projects that are formulated without proper research on the actual economic conditions of the recipients, which has resulted in requiring far larger amounts of investment than the recipients can afford. The recipient countries can neither bear the cost of management and maintenance for the projects nor can they manage and maintain

the facilities and equipment themselves. In projects provided through loan aid, that is, ODA loans, and technical cooperation, it is essential to consider the financial capacity of the recipient countries and organizations in order to achieve the objectives of the projects.

Chapter III Environmental issues by sector

Environmental problems are the result of various factors: 1) inadequate management of renewable natural resources; 2) disorderly urban expansion due to rapid population growth and economic development; 3) the emission of pollutants from factories and other facilities due to industrialization; and 4) damage to human health in polluted environments. These problems differ in their seriousness, causes, and the countermeasures required.

Chapter III looks at the nature of each problem, the effectiveness of measures taken in the past, and future issues. This chapter is aimed at providing an indication of the directions for promoting environmental ODA by dealing with technical issues, which was necessary for donors to carry out more efficient assistance measures.

These environmental problems should be solved by the people in the developing countries. Their solution, however, is difficult because the causes of environmental problems that seriously damage affected local communities are complex, and solving these problems requires substantial expenditures. Therefore, the strong determination of communities to find solutions is vital to any improvement in the situation. The central governments of the countries have also to formulate policies for poverty reduction and social development, as well as to improve governance, including democratization, decentralization and freedom of expression.

Environmental issues include the management of natural resources and biological diversity, the management of urban environments, and the control of industrial pollution, global warming, the depletion of the ozone layer, desertification, and the transboundary movement of hazardous wastes. To cope with these issues at the international level, many countries have concluded multilateral treaties on the environment. It has become necessary to design efficient measures to deal with global environmental problems in consideration of international trade, investment, economic cooperation, including ODA, and the ripple effects of environmental policies.

Chapter IV Overview of Japan's environmental cooperation

Japan's first environmental ODA policy was the "Green Peace Corps Initiative" announced at the G7 Economic Summit held in Bonn in 1985. This was announced when the summit discussed measures

to combat desertification, and later it was renamed the "Green Promotion Cooperation Project." Japan Overseas Cooperation Volunteers and JICA experts were dispatched to Senegal, Tanzania and Niger to carry out the project.

Japan's full-fledged policy for environmental ODA, called the *Environmental ODA Policy*, was announced at the G7 Economic Summit in Arche, France in 1989. At the summit, Japan committed to disbursing 300 billion yen over three years to implement this policy. At the London Summit in 1991, Japan announced its *New Environmental ODA Policy*, which strengthened the previous *Environmental ODA Policy*. The new policy included the principles that 1) both developed and developing countries should cooperate in dealing with global environmental problems, 2) the policy should also deal with the problems of poverty and population growth through a combination of various forms of assistance according to the stage of economic development of the recipient countries, 3) the focus should be placed on cooperation in forest conservation and forestation, energy saving, technology for clean energy, pollution prevention, wildlife protection, land conservation, and capacity development in environment for developing countries, and 4) a system for dealing with environmental considerations should be established and put into practice to avoid deterioration of the environment in the recipient countries when assistance projects are carried out. This new ODA policy is highly regarded as one involving a long-term perspective for the future, since it incorporated many of the measures that were being discussed in developed countries at the time and many parts of the policy are still valid.

Based on the recommendations of the first Aid Study Committee on Environment, JICA formulated and implemented guidelines covering twenty sectors from 1990 through 1992, including *Guidelines for the investigation of environmental impacts concerning dam construction plans*, *Guidelines for environmental considerations concerning investigations for agricultural development*, and *Guidelines for investigations on environmental impacts concerning socioeconomic infrastructure improvements*. In addition, the Social Development Study Department of JICA is reviewing these guidelines to give further consideration to the environment at the project design phase. In this review, a close working relationship with JBIC is necessary since JICA's development studies require an effective tie-up with loan aid, including ODA loans. OECF, the predecessor of the present JBIC, formulated and implemented its *OECF Guidelines for environmental considerations* in 1989, and revised the guidelines in 1995 in order to promote environmental impact assessment in the recipient countries, utilizing accumulated experience.

The then Prime Minister Hashimoto announced the *Initiatives for Sustainable Development (ISD) toward the 21st Century* at the United Nations 19th Special Session of the General Assembly to Review and Appraise the Implementation of Agenda 21 in 1997. This initiative has become well known as the policy for Japan's environmental ODA. Subsequently, the Kyoto Initiative was announced at the 3rd Session of the Conference of Parties to the United Nations Framework Convention on Climate Change

(COP3) in 1997. In addition, the Japan-China Environment Model Cities Plan for Environmental Development was formulated through discussions on policy with China, involving the Ministry of Foreign Affairs, relevant Ministries and Agencies and learned persons.

The system of promoting policies on environmental ODA consists of loan aid, including ODA loans, grant aid, technical cooperation and contributions to the UN and other international agencies. In addition, local governments, private companies that have extended their business operations to developing countries, and NGOs have been actively assisting developing countries in the environmental field.

Coordination between these cooperating organizations has been required because they are numerous and diverse. This coordination, however, has been delayed for various reasons. The Basic Law Concerning the Reform of Central Government of Japan, which came into force in January 2001, stipulated that the Ministry of Foreign Affairs is to play a pivotal role in coordination within the government, that JICA is to be responsible for technical cooperation, and that the relevant Ministries and Agencies are to closely cooperate with JICA.

Japan has accomplished its disbursement of environmental ODA funding as it has pledged. Japan pledged 300 billion yen over three years at the Arche Summit, and actually disbursed 407.5 billion yen. In addition, Japan's commitment of 900 billion to 1 trillion yen over five years at UNCED was fulfilled through the disbursement of 1,440 billion yen. JICA has offered technical cooperation in fourteen sectors including air pollution control, water contamination prevention, waste management, natural resources conservation, energy saving, and reinforcement of environmental administration. The loan aid or total ODA loans of 54.1 billion yen in 1989 increased to 318.8 billion yen in 1996 and to 461.9 billion yen in 1999. The center-oriented aid packages provided by Japan are unique and noteworthy in terms of their scale. JICA established environmental centers in Thailand, Indonesia, China, Egypt, Chile, and Mexico with the aim of improving the capacity of the respective governments to tackle local environmental problems. In order to directly contribute to the fostering of environmental staff, JICA has provided 80 training courses a year, inviting trainees from developing countries and cooperating with the relevant Ministries and Agencies, local governments, private companies and NGOs.

Japan's ODA tends to implement a few projects that directly impact on the environmental policies of the recipient countries, which is a key factor in ensuring environmental protection. Emphasis has been placed on the transfer of technology to leading technicians in the recipient countries rather than on projects that are aimed at long-term and comprehensive assistance from the perspective of "sustainable development," which is the philosophy of Agenda 21. In addition, the benefits to recipient communities have not been specific because these communities have rarely participated in formulating the projects.

Japan owes its success in environmental management to the fact that 1) natural resources are limited so that they have been strictly managed through a system of traditional social codes in the local communities, 2) local governments have actively cooperated with relevant organizations and invested in environmental management, 3) companies have invested substantially in measures to control pollution, 4) academics, the mass media and NGOs have played active roles, and 5) large scale investment has been made to improve the environmental infrastructure. In contrast, many developing countries have limited financial resources, their local governments are weak and have limited mandates and power, and the mass media and NGOs are insufficiently developed. The difference between Japan and the developing countries should be taken into consideration, so that the projects that are effective in responding to the needs of the recipient countries could be formulated. In addition, JICA and JBIC have proportionally fewer staff members than other donors. More experts and technicians are required to promote effective cooperation in solving environmental problems.

Chapter V Recommendations for Japan's environmental cooperation

Strategies to promote Japan's environmental ODA are a major part of this report. The recommendations are designed to help the Ministry of Foreign Affairs, JICA, JBIC, and numerous other relevant agencies and organizations to implement Japan's environmental ODA. The recommendations will also help other agencies and organizations to cooperate with developing countries to solve environmental problems.

Many environmental problems are very local in a sense because the problems always cause damage to specific communities. While the extent of some environmental problems has expanded across borders, many other problems are confined to particular areas, severely impacting on local inhabitants. In order to tackle these local environmental problems, assistance has to target improvements in the living situation of communities.

Donors, such as the developed countries and development banks, put priority on support for poverty reduction. When poverty is studied from an environmental perspective, it is clear that in most cases this poverty is closely linked to environmental degradation.

Furthermore, democratization, stable governance, and freedom of expression have to be secured through the reform of political, economic and social institutions, since these are prerequisite conditions for the solution of environmental problems.

In promoting Japan's wide spectrum of ODA, the relevant agencies and organizations need to understand that the agricultural sector, the industrial sector and the sector for improving infrastructure

are closely related to the environmental sector. When formulating projects in each sector, they need to integrate sustainable development with poverty reduction. They also need to pay attention to ensuring the independence of the affected communities, improvement of the living conditions of the inhabitants, and sharing of the benefits among the maximum number of people. To achieve these goals, the agencies and organizations responsible for Japan's ODA are required to be fully aware of the global trends in assistance and to promote their activities to assist clearly targeted beneficiaries.

Environmental problems have emerged in many countries and some of them are global, for example desertification and deforestation. The depletion of the ozone layer and global warming have adversely affected every region on earth. To cope with environmental degradation on a global scale, numerous multilateral treaties on the environment have been concluded and many developing countries are parties to these treaties. To effectively achieve the objectives of these treaties, it is desirable that more developing countries ratify and abide by them. This is, however, sometimes difficult for the developing countries. In the case of the Basel Convention, which restricts the transboundary movement of hazardous substances, many developing countries do not have the capacity to scientifically identify hazardous wastes, so assistance to these countries is required for more effective enforcement of the convention.

Development banks, including the World Bank, and many UN agencies are responsible for promoting assistance to the developing countries. Japan is a party to most multilateral treaties on the environment, and at the same time, has provided finance and contributed in various ways to the World Bank and the Asian Development Bank (ADB). Japan's contributions to UN agencies account for 20% of their funding. Consequently, Japan has become a major voice for the expansion and promotion of effective cooperation in the environmental sector. Japan should, however, play a more active role.

Cooperation related to the environmental sector requires the formulation of broad and comprehensive measures. Specifically, agencies and organizations need to formulate plans that will aim at capacity development in environment among a wide range of targeted groups, from a long-term perspective, mobilizing all of Japan's relevant agencies, and in cooperation with many other assistance agencies. The measures formulated must also encourage the recipient countries to take action on their own to solve environmental problems.

The above three issues: maximizing social welfare and reducing vulnerability, providing active support for international environmental legal frameworks in the local community, and environmental assistance to create a broader and more comprehensive institutional framework indicate the basic direction of cooperation for the future. At the same time, the direction of technology transfer was discussed so that environmental assistance can be more directly beneficial.

The following are particularly emphasized in carrying out these measures: 1) The specific effects on the environment are the objective of environmental assistance. Research and studies alone cannot solve the problems. 2) More effective assistance should be provided based on an accurate analysis of the needs of the recipients according to the local conditions. Problems and solutions differ between regions, countries and local communities. 3) Optimum policies and technologies should be introduced to the recipient countries. Attention should be paid to avoiding the introduction of Japanese policies and technologies unless their applicability to developing countries is verified. 4) When assistance measures are planned, it is necessary to accurately assess the situation of the recipient countries, to prepare detailed project plans in both Japanese and English, to hold full discussions with the recipient agencies, to examine whether the recipient agencies are competent to carry out their role in the project, and to confirm the responsibilities of the recipient agencies in writing. 5) High level experts are required to formulate the project plans and to ensure that each project provides the expected benefits.

Many agencies have been implementing environmental ODA and local governments and NGOs also have been providing assistance to deal with environmental problems in developing countries. For more effective and efficient cooperation, the aggregation of these efforts, that is, the formation of partnerships between these entities has become essential.

Strengthening partnerships between Japan's development cooperation agencies and NGOs in the developing countries is also required. Environmental ODA has been provided by the governments of Japan for the recipient countries. Cooperation between governments, however, has sometimes been insufficient to solve the problems because the environmental sector covers a broad spectrum of interests and it is difficult to cooperate to directly contribute to local communities. Cooperation with NGOs should therefore be strengthened.

It is important to open up the decision-making processes to all stakeholders and improve public access to environmental information in both Japan and the recipient countries to cope with environmental problems.

The discussions went into detail over key issues in promoting technical cooperation in the environmental field. The key issues included 1) the formulation of projects tailored to local conditions, 2) capacity development in environment, and 3) securing and training human resources.

1) The formulation of projects tailored to local conditions

In order to respond to the needs of recipients countries, projects must be formulated according to the conditions in the region, country and sector, and in addition, broad and comprehensive frameworks

must be established by sub-sector in the environmental field. In formulating projects, an accurate assessment of the stage of economic development of the recipient countries is essential. Publicizing the necessity and the outline of the projects is important to ensure transparency. Activities required in the formulation of projects include i) requesting coordination, tie-ups and cooperation with other assistance-related agencies, ii) building linkages between grant aid cooperation and technical cooperation, and iii) gathering information from local offices.

2) Capacity development in environment

The need for capacity development in environment was incorporated into the "principles for the formulation of a new direction in technical cooperation," which was agreed at the High-Level Meeting of the Development Assistance Committee (DAC), Organization for Economic Cooperation and Development (OECD), in December 1991. The principles were designed to improve technical cooperation in every sector. This issue was also the key concept of Japan's *New Environmental ODA Policy* announced at the London Summit in 1991. This concept, however, has not necessarily been regarded as the most important issue when JICA has provided technical cooperation in the environmental sector. Therefore, the importance of this issue is being emphasized again. This report specifies the direction and methodology, the actual activities of technical cooperation, the role of donors, and the means to strengthen JICA's cooperation in the environmental sector. At the same time, a new project was proposed concerning Overseas Environmental Cooperation Centers, including assistance on policies.

3) Securing and training human resources

The need to secure and train human resources involved in work concerning ODA is not a critical issue limited to the environmental sector, but is common to all sectors. In the environmental sector, in particular, dispatched experts are required to have broad knowledge, experience and technical skills since assistance is usually required not only for the transfer of technology in a specified field but also for the transfer of a wide range of technologies for environmental management. The study committee analyzed the role of experts, identified the abilities required of these experts, and analyzed the current situation of dispatching experts in the environmental sector. The study committee recommended a mid- and long-term training system for human resources management based on an analysis of domestic human resources and existing systems to secure human resources. One of the reasons for this recommendation is that although JICA has been requested to dispatch many experts in the environmental field, it has been difficult to respond to all requests due to the insufficient human resources available for environmental cooperation. The recommendation also covered the utilization of JICA staff members who specialize in the environment.

The section that is particularly important for JICA in Chapter V is Section 5: The improvement of JICA projects. Recommendations in this section roughly cover three aspects: 1) the improvement of technical cooperation, including the active role of Regional Departments, which were established in 2000, the study of the framework for assistance from a long-term perspective, and the preparation of project documents to formulate more detailed assistance schemes, 2) improvements in every cooperation scheme, such as in relation to the dispatch of technical cooperation experts, development studies, project-type technical cooperation, and cooperation in research, 3) acceptance of technical training participants, the more active utilization of private consultants, strengthening cooperation between relevant agencies, cooperation with other assistance organizations, and cooperation with NGOs.

These recommendations by the Second Aid Study Committee on Environment will bear fruit when they are carried out. The keen expectation that the recommendations will contribute to the enhancement of environmental ODA is expressed in the last section on the implementation of environmental ODA strategies.

III. Strategies for Japan's future environmental ODA

Environmental problems have become serious in many developed and developing countries. The problems are particularly severe in developing countries where the population has been growing rapidly. Diverse and serious environmental problems have been adversely affecting the living conditions of people in these countries. Environmental problems have arisen all over the world, threatening the quality of the environment of the earth.

The national governments should deal with national environmental problems by themselves, and with regard to global environmental problems, all countries concerned should deal with them together. The problems, however, have already become too serious for developing countries to solve by themselves. Development banks, UN agencies, other international organizations, developed donor countries, and NGOs in developed countries have provided development assistance over the 30 years since UNCHE, held in Stockholm in 1972. Despite this assistance, environmental problems have become more serious in developing countries. To tackle this situation, the efforts of the developing countries themselves have been required, and since UNCED in 1992 new institutional frameworks have been established so that donors can cooperate more efficiently. To tackle global problems that are expected to become more serious, it is necessary to ensure the efficiency of assistance through linkages between relevant organizations. For example, the problem of water supplies requires more effective cooperative assistance, including assistance to deal with water contamination in rivers that flow across national borders and in lakes and marshes that lie across borders, as well as water shortages and water management problems.

Japan has been contributing to efforts in the environmental field through the expansion of ODA covering grant aid, loan aid, technical cooperation, and donations to international organizations. In recent years, the Ministries and Agencies of Japan's central government have actively allotted ODA-related budgets to the environmental field. In addition, local governments have invited administrative staff members of developing countries to participate in training courses and dispatched Japanese staff members to the developing countries in return. Japanese private organizations have also assisted other private organizations in developing countries to improve living conditions in their local communities.

In this chapter, the study committee presents the strategies for Japan's environmental ODA and related agencies to respond to the keen expectations of people who are suffering from environmental problems in developing countries.

1. Efforts to deal with complex global environmental problems

It has become necessary for developing countries to change their understanding of global environmental problems. It has also become necessary for donor countries to change their assistance approaches so that they are better at responding to the needs of developing countries. While donors have discussed the means to implement assistance more efficiently, the recipients feel a sense of crisis in that they cannot solve the increasingly serious problems themselves, although the public in these countries is urgently demanding solutions.

On the one hand, the focus of environmental problems is towards their global aspects, including global warming and desertification. On the other hand, the focus is on their local aspects, including the impacts of water contamination, air pollution, deforestation, soil degradation, automobile exhaust gas emissions, and hazardous wastes. These local problems have a direct adverse impact on the living conditions of local inhabitants, thus aggravating poverty. Consequently, as a matter of priority, Japan's environmental cooperation must be considered in terms of its contribution to local communities through the provision of benefits to the local inhabitants who are suffering from the ongoing degradation of the environment. This is discussed below in 1) Maximizing the social welfare of local communities and reducing vulnerability at the local level.

With respect to global problems, some developing countries have concluded multilateral treaties to contribute to the solutions. The roles of the UN and multilateral development banks have come under review. Supporting developing countries that are the parties to the treaties and promoting such reviews are, therefore, regarded as part of the strategies to deal with diverse global problems. These are discussed in 2) Providing active support for the international environmental legal framework.

In order to satisfy the needs of developing countries in dealing with diverse environmental problems, a broad and comprehensive framework for assistance is required. This is discussed in 3) Environmental assistance under a broad and comprehensive institutional framework.

1) Maximizing the social welfare of local communities and reducing vulnerability at the local level

The purpose of environmental ODA is to assist the governments of developing countries that have been striving to solve environmental problems which they cannot solve alone due to the complicated nature of the causes. This assistance should be designed to benefit the maximum number of inhabitants. Specifically, this deterioration in living conditions includes a lack of safe drinking water, shortages of household fuel due to excessive wood gathering, resulting in the use of dried livestock dung, making fish supplies inedible due to contamination from industrial wastewater, and

suffering from bronchial asthma due to automobile exhaust gas emissions. Such problems cause deterioration in the living conditions of local community members, and sometimes even force them to leave the area.

With regard to the sustainable management of natural resources, with forest resources, for example, management by the communities themselves is the best solution, since the laws and regulations prepared by their governments are hardly enforced. The inhabitants of these communities have no alternative but to depend on the remaining minimal resources to live. In order to establish sustainable management, therefore, alternative means of livelihood must be developed. The role of ODA is to help establish sustainable management in parallel with the preparation of alternative means of livelihood. In addition, assistance should be designed so that the benefits from sustainable management are received directly by the communities.

Measures to alleviate poverty in urban communities, such as in slums, are also difficult to formulate. The activities of ODA should be linked with those of local NGOs as well as Japan's NGOs to contribute to the improvement of living conditions in urban communities.

The relationship between the environment and poverty has become a major issue of concern to many donors. *Shaping the 21st century: The Contribution of Development Co-operation* (commonly referred to as the DAC's New Development Strategy) was adopted by the OECD DAC Member Development Ministers and Heads of Aid Agencies at their high-level meeting in May 1996. Since then, the development banks, UN agencies and many other donors have begun to focus on poverty reduction and social development, sustainable use of natural resources, and the regeneration of degraded resources. The Development Assistance Committee (DAC) of the OECD has also formulated the *DAC Guidelines on Poverty Reduction.*

The International Monetary Fund (IMF) and the World Bank held a joint meeting in September 1999, and decided to request the governments of heavily indebted countries and 72 countries financed by the International Development Association (IDA) to prepare a Poverty Reduction Strategy Paper (PRSP), which is an economic and social development plan that focuses on poverty reduction. If the developing countries formulate a PRSP and establish a system to carry out the PRSP, they will be exempted from the repayment of multilateral debt.

The World Bank compiled its *World Development Report 2000/2001* with the theme of poverty problems. It has also publicized the drafts of its environmental strategies, including strategies for the improvement of health, the improvement of the living situation of poor people who directly depend on natural resources, and the reduction of vulnerability to natural disasters. These strategies

emphasized the close relationship between environmental conservation and poverty reduction.

Governance is another major issue of discussion among donors. However, there are various interpretations of the concept of governance. In *"Japan's ODA White Paper 1999"*, it is defined as a concept encompassing national politics, economics and social management. The paper expressed the view that consideration should be given as to whether the government strives to promote development in parallel with improving national welfare, whether it functions effectively and efficiently, whether it exercises power properly, whether it is legitimate, and whether it upholds human rights.

The World Bank focuses on strengthening governance by strengthening the management of the public sector, ensuring accountability, a legal framework, and transparency, which are prerequisites for proper economic management. In recent years, the World Bank has also focused on public participation, military expenditures, and human rights. The United Nations Development Programme (UNDP) counts community participation, the rule of law, transparency, and equality as factors of governance.

Solutions to environmental problems require the building of basic national institutional frameworks and legislative frameworks, information disclosure, transparency in decision-making related to policies, and community participation in the developing countries. When a broad spectrum of environmental assistance is carried out based on these principles, this assistance will lead to a reinforcement of governance as well as capacity development in environment in the developing countries.

Environmental cooperation through Japan's ODA is expected to contribute to the developing countries based on the discussions on the philosophy of worldwide development assistance and its methods of implementation. Environmental problems are closely related to agriculture, industry, and the establishment of infrastructure. When project plans are formulated in various sectors, environmental consideration should be given to the integration of sustainable development and poverty reduction, ensuring the independence of communities, the improvement of people's living conditions, and with the benefits to be distributed among the maximum number of people. Japan's agencies related to the environmental cooperation need to understand this worldwide trend and promote Japan's environmental ODA with a clear identification of the beneficiary groups.

2) Providing active support for the international environmental legal framework

The World Summit on Sustainable Development, commonly referred to as Rio plus Ten, is to be

held ten years after UNCED to follow up this epoch-making conference. At UNCED in 1992, Agenda 21 was adopted and it also led to the ratification of the Framework Convention on Climate Change and other multilateral treaties on the environment. International organizations and research institutes related to the environment, environmental NGOs, and other organizations in various sectors are preparing for the coming World Summit. Japan needs to actively develop policy proposals as well as cooperate in the preparations so that Rio plus Ten will be successful.

Japan needs to play a leading role in improving the serious state of the global environment through promotion of the enforcement of multilateral environmental treaties. These multilateral treaties have been adopted on the basis that every country must strive to improve the global environment. It is necessary for every country to abide by the articles of treaties promoting environmental conservation, through which global environmental problems can be alleviated.

Multilateral treaties have become more important as a means of dealing with global environmental problems. As more countries ratify multilateral treaties, and abide by them, this will expedite solutions to environmental problems.

Under each treaty a conference of the parties is held periodically, to which Japan sends its delegation. It is widely expected that Japan's delegations will play an active role in the decision-making necessary to achieve the objectives of the treaties, and contribute to the success of these conferences and the promotion of environmental conservation.

Some developing countries, even though they have ratified these treaties, cannot abide by them due to a lack of knowledge, technology or experience. The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), for example, restricts the import and export of endangered species of wild fauna and flora in order to protect wildlife populations, and through these trade restrictions poaching in countries where the wildlife originate can be controlled. The convention is also designed to close markets for furs and other wildlife products by regulating their import and export. If valuable furs or other wildlife products are traded for high prices in the markets of developed countries, poaching in the originating country will significantly increase as a means to obtain money. To establish effective restrictions in the developing countries, agencies that approve exports and customs officers who monitor exports are required to be well informed of the list of species specified in the annexes to this convention, the presence and status of the species in their country, the countries that the species might be exported to, and the methods employed to evade the regulations.

In the case of the Basel Convention, which regulates the transboundary movement of hazardous

wastes and their disposal, the staff members of relevant agencies are required to master techniques to distinguish the various types of waste industrial materials from other imported and exported materials, and to identify the difference between hazardous and non-hazardous wastes. In actuality, some developing countries have difficulty in enforcing the convention due to the lack of broad knowledge, experience, and techniques as well as the high level of technology for the analyses that are necessary to abide by this convention.

The developed countries and convention secretariats are in a position to assist developing country parties that cannot directly contribute to enforcement for various reasons. The measures by which these developing countries can be assisted have been discussed at the conferences of parties to these treaties. Japan ought to play a pivotal role in these conferences since Japan has accumulated considerable experience through the implementation of wide-ranging economic and technical cooperation with developing countries.

Many UN agencies have been promoting various projects for environmental conservation, including UNDP, UNEP, the World Health Organization (WHO), the Food and Agriculture Organization of the United Nations (FAO), and the United Nations Industrial Development Organization (UNIDO). These agencies hold general assemblies, executive council meetings, or other similar meetings every year to approve their annual programme based on the opinions of member countries. Members of Japan's delegation are dispatched from the Ministries and Agencies responsible for the sectors related to these UN agencies because of the technical aspects, and participate in discussions on the priorities for carrying out activities and programmes. Japan's delegations should play a pivotal role in these meetings for formulating effective environmental programs. Japan's delegations are also expected to lead future-oriented discussions that will create prospects and ideas for future programmes concerning long-term global issues related to the environment, such as energy saving, renewable energy development, the recycling of waste, and water resources conservation.

The World Bank, Asian Development Bank (ADB) and other development banks give priority to assistance for environmental conservation. In addition, the World Bank, UNDP and UNEP have jointly established the Global Environment Facility (GEF), which is a new institutional arrangement for international environmental cooperation, to help developing countries finance the incremental costs of new environmental investments with global benefits. Specifically, GEF helps developing countries in four areas: climate change, preservation of biodiversity, protection of international waters, and protection of the ozone layer. Japan contributes about 20% of the total multilateral assistance provided by these banks and agencies. However, Japan's cooperation should not be limited to such financial assistance. Many relevant agencies in Japan are expected to play an active role, including a technical role, when the development banks and UN agencies formulate effective

assistance policies and programmes and establish appropriate measures to implement them in developing countries.

To improve the effectiveness of the operations of international organizations, it is important to utilize Japan's experience in formulating the programmes of the development banks and UN agencies, since Japan has also accumulated considerable experience in its assistance to developing countries through JBIC and JICA and other organizations. In addition to playing an active role in such cooperation, Japan needs to enhance the environmental cooperation to which Japan gives first priority, and at the same time improve the quality of this environmental cooperation.

It should be recognized that UN agencies, the development banks, and other organizations and multilateral environmental agreements alone cannot solve all the environmental problems in developing countries. Therefore, Japan's cooperation such as loan aid, grant aid and technical cooperation is essential to solving environmental problems.

3) Environmental assistance under a broad and comprehensive institutional framework

Environmental conditions in developing countries cannot be improved only through assistance to specific governmental agencies or through short-term assistance. The reason for this is that environmental problems have arisen from complex and diverse political, economic and social causes. In addition, unless the recipient countries formulate and implement their own national policies to solve their environmental problems, there will be no improvement despite the provision of financial and technical assistance by donors.

Projects that target a specific objective will hardly be successful. The problems have resulted from the social background, such as poverty, the collapse of communities, distrust of administrations, weak administrative systems, and weak property registration systems.

Consequently, a broad and comprehensive framework for environmental assistance is needed. The following provides an outline of such a framework.

① Analysis should be carried out for appropriate assistance from a long-term perspective according to the seriousness of the environmental problems, the condition of the damage to local communities, and the level of establishment of environmental management systems. In order to establish environmental management systems, the conditions in each country should be properly assessed. Individual consideration is necessary to determine which actual aid programs should be selected or combined and in what sequence they should be implemented in the

relevant developing country in accordance with its initial economic, social, and political conditions and the stage of people's participation in its development.

② Given the diversity of developing countries, it would be impossible for every conceivable type of aid to be fully covered by a single program. In some cases, different projects of aid need to be integrated simultaneously. Therefore, the dispatch of JICA experts, development studies, project-type technical cooperation, various forms of training, and assistance to communities by Japan Overseas Cooperation Volunteers should be combined more systematically when necessary.

In addition, Japan's ODA implementation methods should be designed to support the self-help efforts of local communities for participatory development with the target group at each stage of the development cycle.

③ Financial economic cooperation such as grant aid offered by JICA and loan aid, or ODA loans, offered by JBIC and technical cooperation by JICA should be effectively combined together.

④ Environmental assistance activities should be closely linked with assistance activities in the agricultural, forestry, industrial and other sectors.

⑤ Japan's assistance activities should be promoted in coordination with UN agencies, the development banks, and other donor organizations of developed countries, when appropriate.

In the formulation of long-term assistance plans, the following actions are required: studies on the targeted environmental problems from various perspectives, the selection of target groups for capacity development, the establishment of an assistance framework based on specific social analysis of the level of the available environmental management, and consideration of the current and future plans of other donors, paying attention not only to Japan's ODA schemes but also to cooperation by the relevant Ministries and Agencies, local governments, and NGOs. In this process, studies need to be made on ways of securing human resources dedicated to providing assistance to developing countries by implementing projects formulated in Japan.

The following figures show examples of such a broad and comprehensive framework. Figure 2 shows an approach utilizing a close relationship between individual projects, such as projects for household sewage, industrial wastewater, municipal waste, and industrial waste. The individual projects are not necessarily carried out synchronously. They may be carried out consecutively. The approach shown in Figure 3 is designed so that the overall project maximizes the effects of the

individual projects through cooperation by different donors in a specific region. The approach shown in Figure 4 is carried out over a long time frame. The projects are carried out successively, expanding their target areas to achieve a specified objective. Figure 5 shows an approach where small projects, including NGO activities for local communities and the training of human resources, have a greater impact through linkages between them.

Approaches employed should promote multilevel, continuous and cooperative assistance, and contribute to solving environmental problems while producing the maximum impact on target countries and regions. The candidates of the target regions include those with severe poverty due to a rapid decline of natural resources, cities and towns where environmental problems are serious due to rapid population growth, and regions where industrial pollution is critical due to the agglomeration of factories. The priority objectives of the projects should be the improvement of the living conditions of local communities and local people. Experts who are dispatched to implement projects should not only dedicate themselves to their own projects but also pay attention to related projects and cooperate to reinforce these projects. In other words, they should play a catalytic role.

In order to implement broad and comprehensive assistance, it is necessary to have a thorough understanding of the economic, social and, if necessary, political background to the target sectors and areas. Research on the social analysis of target communities is also required. The survey team should allot sufficient time for discussions with the recipient countries and other donors in preparing their projects. The survey team should consist of members who have superior knowledge, experience and technical skills, since the teams will discuss with high-ranking governmental officials as well as leading technicians of the recipient countries when assistance is related to the recipient country's policies.

It is difficult to design such broad and comprehensive assistance involving many factors when the projects and programs are fully designed before implementation. It is, therefore, recommended that, when necessary, sub-projects be added to ensure implementation in a flexible way during the course of carrying out the project in order to achieve the targets.

Japan is expected to act as one of the world's leading donors. Agencies concerned with Japan's ODA should understand the need for broad and comprehensive assistance and provide assistance through the perspectives described above.

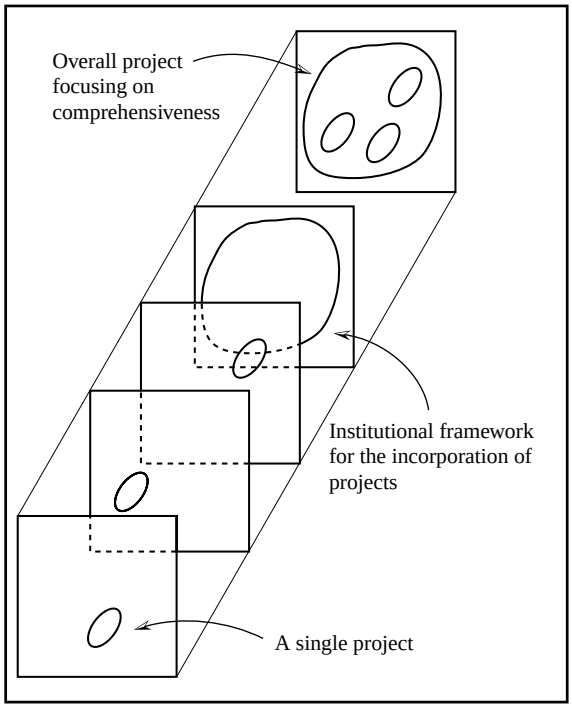


Figure 2 Cooperation between related projects and a comprehensive approach

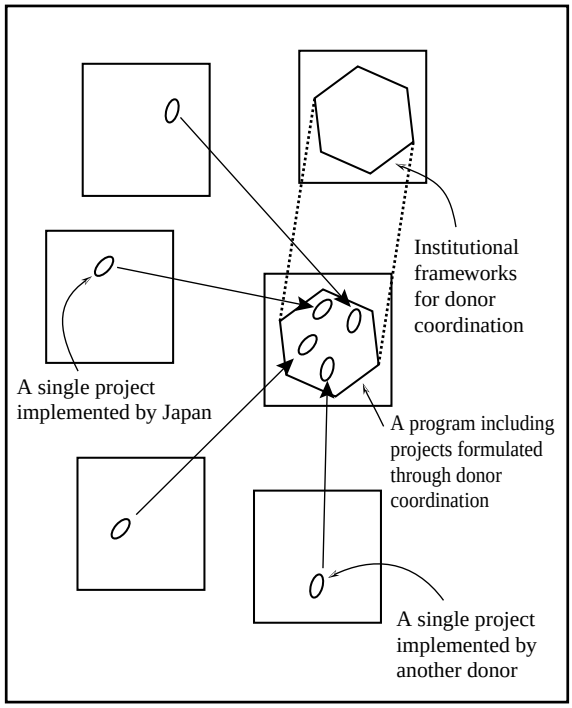


Figure 3 Cooperation between projects carried out by different donors and the introduction of a comprehensive approach

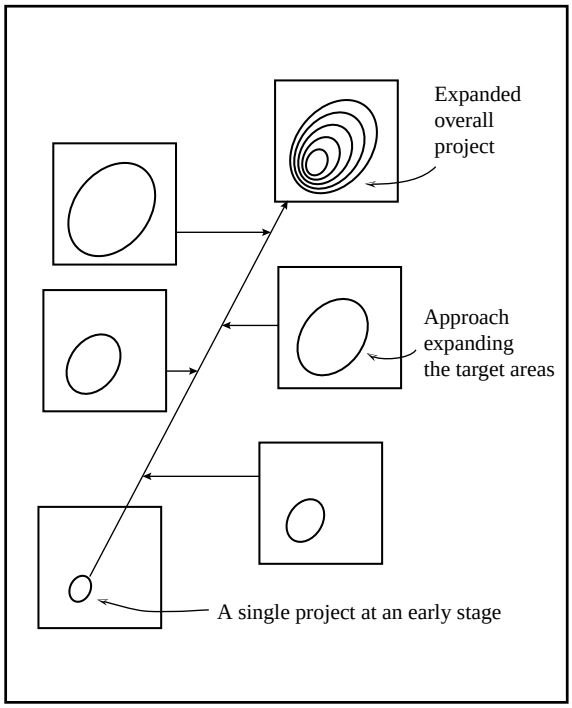


Figure 4 Continuous assistance to environmental projects in specified areas or fields

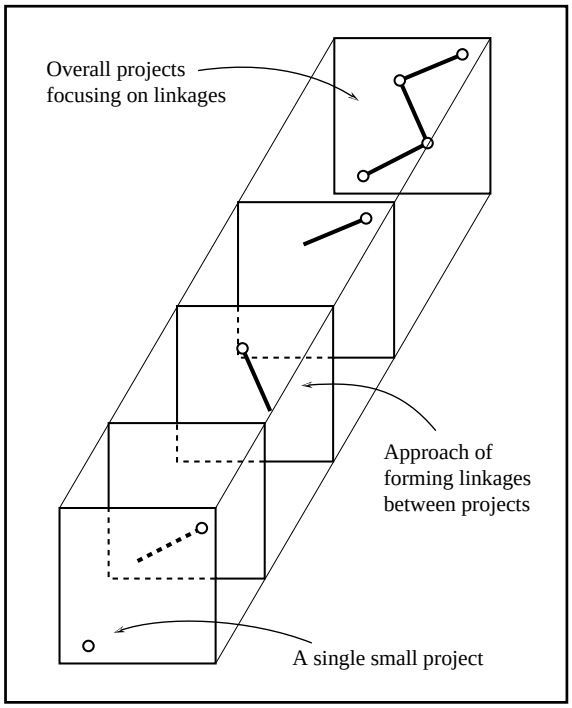


Figure 5 A gradual and comprehensive approach focusing on the linkages between small projects, including NGO projects

2. Assistance focused on outcomes

Ten years have passed since Japan established a full-fledged programme of assistance in the environmental field. During this period, a large amount of contributions have been disbursed to many sub-sectors in the environmental field. For more effective and efficient environmental cooperation, assistance should be implemented with the focus on results and with specified targets set by both Japan and the recipient countries in formulating and implementing projects. To achieve assistance focused on results, five strategies have been devised: 1) Assistance that directly leads to the solution; 2) Region-specific and country-specific assistance based on their characteristics and economic levels; 3) Assistance concerned with achieving most favorable environmental policy and technology; 4) Specifying the detailed activities and outcome of projects; and 5) Mobilizing excellent human resources effectively.

1) Assistance that directly leads to solutions

Research alone cannot solve environmental problems, however much research is compiled specifically on the pollution of water in rivers, the edibility of fish in rivers, air pollutants, the extent of air pollution, and the extent of pollution damage to human beings. Planning themselves cannot improve the environment without implementing them as planned, even though relevant agencies monitor the environment, survey pollutants, and formulate programmes to improve the environment throughout the area.

In the technical cooperation field, projects have been carried out with the aim of transferring the technology necessary for monitoring the environment to technical personnel in the developing countries. Specifically, this monitoring was designed to assess the extent of environmental pollution, the causes of the pollution, and the sources of pollution. Projects have also been carried out with the aim of formulating programmes to present methods of improving the urban environment conditions. The critical factor, however, in ensuring the visible outcome of donor assistance depends on the ability of the recipients to facilitate development of the infrastructure and implement environmental management programmes. Without these abilities on the part of the recipients, feasibility studies required for preparing the infrastructure for specified environmental improvements and the formulation of environmental management programmes will have no effect on the improvement of conditions of environmental degradation in developing countries.

When donors execute a feasibility study or formulate a master plan, the donors should train high-ranking governmental officials and technical personnel, including providing them with training on the policy measures required for the implementation of the development programme, the reinforcement of the organization, the establishment of the system, and other related policies and

technologies during the project implementation period. By providing this education and training, the recipient country personnel can start the programme as soon as the feasibility study is completed or when the master plan has been formulated.

Comprehensive institutional frameworks are essential for projects that directly target the beneficiaries. The comprehensive approach includes i) dividing the project into several phases from a long-term perspective, ii) systematically developing a wide range of activities: for example, combining JICA's dispatch of experts, development studies, project-type technical cooperation, and training courses, iii) combining technical cooperation through JICA with financial aid from JBIC, that is, loan aid or ODA loans, iv) implementing projects and programs in coordination with the other projects and programs carried out by Ministries, Agencies and NGOs, if necessary, v) implementing projects in cooperation not only with Japan's agencies and organizations but also UN agencies, development banks, and the donor agencies of developed countries, and assistance to the developing countries at the international level.

Enhancing the capacity of recipients to deal with problems of the environment is referred to as "Capacity Development in Environment." Capacity development in environment is targeted at a wide spectrum of groups such as government departments responsible for environmental management, relevant ministries and agencies, local offices responsible for the implementation of projects, local governments, private companies, target communities, and local NGOs. In assistance to the government departments and their local offices, for example, a wide range of activities are required, including i) assistance for the formulation of legislative frameworks, regulations, and standards, ii) assistance for the formulation and implementation of government action plans, iii) reinforcement of local offices and local governments responsible for project implementation, iv) the transfer of technology necessary for project implementation, v) assistance in designing and implementing training projects targeted at relevant groups, NGOs, etc. vi) assistance for securing facilities, equipment and materials, and vii) activities for raising public awareness.

In the environmental field, particularly in the management of renewable natural resources, assistance is aimed at management by the communities themselves to ensure ownership of the process by the developing countries as well as defining the responsibilities of the governmental agencies of the developing countries.

In order that people in the local communities can participate in designing and implementing projects in their society, consideration should be given to the social structure and the cultural background of the recipient communities and countries. Assistance for the development of communities, in particular, needs to include measures for economic self-reliance, elementary education and adult

literacy programs, primary health care, the empowerment of women, and other activities to improve the living conditions of the community members as well as the environmental conditions.

When pilot projects and demonstration projects are implemented nationwide, development banks and donor agencies specializing in technical fields should cooperate from a variety of perspectives and contribute to environmental improvement and the sustainable use and management of renewable natural resources of the recipient countries. Also, assistance for the solution of complicated urban environmental problems, which requires cooperation between many government agencies, should be implemented targeting at a group of government agencies rather than at a specific agency.

Japan's ODA needs to directly contribute to the solution of problems caused by complex and diverse factors through assistance to the government agencies and private organizations in developing countries.

2) Region specific and country specific assistance based on their characteristics

The Ministry of Foreign Affairs, JICA and JBIC have established a system in which region-specific assistance guidelines are formulated based on the conditions of the regions, and country-specific assistance designs are then formulated for more appropriate assistance to respond to the needs of the regions and countries concerned.

Before formulating and carrying out projects, it is important to clearly assess whether the recipient countries are sufficiently prepared to accept the assistance projects. The situation of developing countries varies in terms of capacity to deal with environmental problems. There are: i) countries that have developed environmental management to some extent and have a high level of capacity to accept assistance, ii) countries that have established laws concerning environmental management but have been unable to promote environmental management due to weak organizations, iii) countries that have insufficient facilities, machinery, materials, and engineers and the technicians required for environmental monitoring and on-site inspection at factories due to poor finances, and iv) countries where the government has committed to promoting environmental conservation but has been unable to perform.

Based on the conditions in the recipient countries, the short-term dispatch of experts is recommended for some countries to participate in discussions on the basic national policies for promoting environmental management; and the long-term dispatch of experts is recommended for other countries to transfer technology for environmental management to the staff members of recipient organizations. For countries where the government has committed to promoting environmental conservation but

has been unable to perform, assistance is needed to strengthen the basis of environmental management based on development studies, including comprehensive and simultaneous establishment of legal systems, organizations, project implementation systems, environmental monitoring systems, and information gathering systems. In this case, emphasis should be placed on the training of human resources by transferring technology rather than formulating plans. In subsequent phases, it is recommended that this should be followed up through the dispatch of two or three experts, project-type technical cooperation on a larger scale, and/or simultaneous implementation of various different types of ODA schemes.

It is inefficient to try to respond to all the needs of developing countries, even though the requests are pressing. To implement assistance projects through a comprehensive framework, it is necessary to dispatch more experts and provide more equipment and materials, training, and technology, not only in terms of the quantity, but also the quality of which should be increased. In addition, the experts and consultants involved have to be highly qualified. On the other hand, the recipient countries should possess the capacity to receive these projects. The capacity required of recipient countries includes sufficient engineers and technicians, a specified level of technology, equipment and materials, and sufficient budget allocations to implement the projects.

The developing countries themselves have to work to solve environmental problems, since they are ultimately responsible for dealing with them. Assistance from development banks, UN agencies and donor countries alone cannot solve the problems, however carefully it is designed and implemented. The extent to which countries can deal with their national environmental problems depends on their national income and their economic and social conditions.

Most countries of the Association of Southeast Asian Nations (ASEAN) and Newly Industrializing Economies (NIEs), other moderately developed countries, and countries that are in transition to a market economy in Eastern Europe have legal and institutional frameworks for environmental management, and the frameworks are enforced.

In most other developing countries, on the other hand, the main obstacle to successful environmental management is that the enforcement of the environmental management frameworks is not sufficient. In this case, assistance should be aimed at preparing systems necessary for implementing environmental management rather than reinforcing the management. At the same time, assistance projects should be aimed at enhancing ownership by the recipient countries.

In most African countries and other countries with low-income economies, the governments are plagued with severely limited financial resources to improve the living conditions of the people,

since a large proportion of their revenue is allotted to the repayment of multiple debts. Donors had disregarded these circumstances, so that their assistance in providing facilities, equipment and materials has not provided sufficient benefits due to the limited financial resources for their management and maintenance on the recipient's side. In dealing with urban environmental problems and industrial pollution, in particular, the available financial resources should be properly examined to avoid putting an excessive burden on the recipient countries, agencies, targeted private companies, and state-owned enterprises.

3) Assistance concerned with achieving the most favorable environmental policies and technology

Developing countries differ in their assistance needs in the environmental field. Measures to respond to the needs are formulated from a variety of perspectives, such as i) the amount of investable financial resources, which is often proportionate to the level of economic development of the recipient country, ii) the establishment of environmental policies, iii) the institutions and organizations for environmental management, iv) the actual status of the implementation of environmental policies, v) facilities, equipment and materials necessary for the implementation of environmental policies and the quality of engineers and technicians, vi) the extent of poverty in agricultural and mountain villages, and vii) the soundness of the management base of private companies.

"The most favorable environmental policies and technology" means those policies and the technology that the recipient countries truly need and can utilize. The developing countries are required to develop the capacity to receive financial assistance and technical cooperation. However, in technical cooperation, for example, recipient organizations cannot acquire all the technology at the beginning, since they have no experience in utilizing the technology. It normally takes a decade to realize the benefits of technical cooperation in environmental management, since the problems cover a broad range of issues and there are many interrelated factors, including varying levels of technology as well as political and economic development. Consequently, for assistance to be effective, donors need to properly evaluate the situation and the environmental management system of the recipient, and then formulate plans for technical cooperation according to the phases and levels of the situation and systems. This is to ensure the optimum input of policies and technology.

Japan has overcome serious pollution through cooperation between the central and local governments, private companies, the mass media and the nation over the last thirty years. It is appropriate to argue that Japan's technology, which was developed in the course of dealing with this pollution, should now be utilized to assist developing countries. Japan's success, however, is also attributable to political, economic and social conditions that are the advantages of Japan.

Japan's traditional communities of agricultural, mountain, and fishing villages have acquired wisdom over their long history in the sustainable use of limited resources and in securing forest resources to prevent natural disasters due to flooding as a result of typhoons and heavy rain, as well as landslides and droughts. With regard to health damage caused by pollution, local doctors and researchers have identified the causes, citizens have demanded that the polluters take action, local governments have played critical roles in motivating private companies, and private companies have made huge investments in pollution control. Major investments have also been made in the environmental infrastructure, including environmental monitoring, the construction of sewerage systems, and the construction of disposal sites for general wastes. The automobile industry has promoted the reduction of exhaust gases through the investment of considerable funds in technological innovations to meet the standards for exhaust gas emissions that have been formulated to become successively stricter.

It is inappropriate to transfer to developing countries Japan's environmental laws, its policies and mechanisms for coordinating the relevant Ministries and Agencies, active environmental management by local governments, or the establishment of environmental infrastructure through public investment, since the political, economic and social background of developing countries is different from that of Japan. Donors are required to formulate measures suited to the various conditions of the recipient countries as well as undertake measures to reinforce environmental management in the recipient countries. With regard to the management of renewable natural resources, donors, together with the recipient local governments, need to continuously work with the local communities concerned to undertake this management. With regard to measures to control industrial pollution, assistance should be limited to the preparations for the introduction of technology that is referred to as cleaner production, as well as end-of-pipe technology solutions, until the recipient agencies improve their leadership to enable private companies and local private enterprises to grow sufficiently so that they can invest in environmental conservation.

Before extending ODA loans, Japan should evaluate the capacity of the recipient agencies to properly establish the infrastructure, their capacity to utilize the transferred technology for environmental management and conservation, and the availability of human resources, technical skills, and financial resources. In addition, when a ODA loan project is formulated, consideration should be given as to whether it could be provided together with technical cooperation as necessity.

It is particularly important that, when JICA implements a feasibility study for a project, JICA should design the feasibility study i) to establish the institutional framework for the project that is the subject of the feasibility study and ii) to build the capacity that will enable the recipient country staff members to implement the project that is the subject of the feasibility study while the feasibility study itself is being carried out.

The major difference between Japan and developing countries lies in the systems to implement environmental policy. In Japan, the central government determines environmental policies and notifies local governments of the need to implement them. In some cases, to prepare for this implementation, local governments inform their technical personnel of the contents of the policies even before they are officially adopted. In contrast, developing countries do not necessarily have such a close relationship between the central government and local governments, nor do they have an effective means of communication between the relevant Ministries and Agencies or coordination mechanisms within the local governments. In such cases, Japanese system, therefore, cannot be directly applied to the implementation of environmental policies in developing countries. In addition, when environmental policies are formulated in developing countries, the policies should be feasible for the conditions in these countries. It is necessary to develop the most favorable measures and provide technology that is suited to each developing country. However, it is not so easy to realize such measures. In these cases, "South-South cooperation" is one of the effective methods of implementation. Solutions to environmental problems can be promoted through the application of successful examples from other developing countries.

4) Specifying the detailed activities and outcomes of projects

In most cases of implementing assistance projects in the environmental field, the projects are designed by staff members who are responsible for technical cooperation and loan aid while they study the environmental conditions and identify the requirements in the recipient country. With regard to technical cooperation in the implementation of the projects, dispatched experts and private environmental consultants provide cooperation under the supervision of the agency responsible for the cooperation.

Detailed working plans ensure appropriate management of the projects, specifying the activities of the projects, the expected outcomes of the activities, and the dates of the start and end of activities for appropriate implementation. In addition, if the recipient organizations understand the plans, and the plans include the activities to be carried out by the recipient organizations in each phase, this will ensure more appropriate management of the projects.

Environmental science is too broad for aid agencies and their staff members to be able to cover all technology in their field, so it is hard for them be environmental experts. In order to provide advice from the technical viewpoint, agencies of the central government, Domestic Assistance Committees, Work Supervising Committees support the formulation of the projects. On the other hand, experts in specific technical fields are not necessarily the ones who are most suited to being involved in cooperation with the recipient organizations. JICA staff members who understand the needs of the

recipient countries and experts with experience in technical cooperation are the right persons to i) assess the needs based on the characteristics of the recipient countries, ii) transfer the technology efficiently and assist in the diffusion of the transferred technology, iii) help reinforce legal frameworks and organizations, iv) study measures to maximize the results in the recipient countries, and v) incorporate technical assistance into the projects.

When private consultants are assigned to implement projects, they should prepare documents with the precise design of the projects, specifying the activities and expected results of the projects. Without this documentation, proper supervision of a consultant's activities cannot be achieved, nor will the projects be successful.

The detailed designing of projects requires careful preparation and close communication with the recipient agencies. Discussions should be promoted based on project documents in English in order that the recipients can fully understand the objectives and the process of the projects and confirm the preparations that they need to make.

Specialized staff members other than those who are involved in preparing the documents should assess the projects before implementation through analysis of the feasibility of the expected results and objectives of the projects. This assessment is also referred to as "project appraisal." JICA has so far been practicing this form of assessment within the department responsible for the project.

If the project is considered to be inappropriate as a result of the preliminary assessment, the project needs to be reviewed, even if it has taken a long time to prepare. Changes in the situation in the recipient country might require modification of the plan, resulting in an increase or decrease in cooperation based on effectiveness. If necessary, the plan might also be changed or suspended during discussions with the recipient organizations.

Thorough assessments should be carried out during the project identification phase, the project design phase, the project implementation phase, and the monitoring and evaluation phase, based on precise project documents prepared through detailed project planning. The results of the monitoring and evaluation of the projects can be utilized for future environmental ODA project planning. In addition, the progress in the achievement of the environmental project can be made known to the relevant agencies and the public through an evaluation of the assessment.

5) Effective mobilization of excellent human resources

The education and training of human resources from a long-term perspective is essential in order to

raise the quality of experts who are engaged in technical cooperation in the environmental field. While education and training takes a long time, environmental problems often require urgent solutions. Therefore, a system of efficiently utilizing the high quality of expertise already available in Japan needs to be put in place to respond to this urgent demand.

Experts who are considered to have shown excellent performance and accumulated sound experience through past technical cooperation should be short-listed in order that they can be continuously engaged in technical cooperation. It is difficult to establish a system to assign these experts on a regular basis due to the actual circumstances in Japan. A system for involving these experts, therefore, should be aimed at supporting them to temporarily leave their jobs and continue technical cooperation in a new manner. It is expected, for example, that such experts will assume responsibility for the planning of group training and become lecturers for training both in Japan and overseas.

A system in which private consultants are employed was also established. They have experience in technology but do not have sufficient experience in i) improving laws and regulations, ii) assistance for policy formulation, iii) the reinforcement of organizations, iv) the reinforcement of enforcement systems, v) the reinforcement of comprehensive coordination functions between administrative agencies, and vi) the reinforcement of secretariat functions to support coordination mechanisms, all of which are key issues for capacity development in environment in developing countries. Consequently, workshops should be planned to provide effectively designed short-term intensive training so that these consultants can be quickly assigned to undertake cooperation activities.

3. Strengthening partnerships

Japan's environmental cooperation, which is aimed at responding to a variety of needs in developing countries and focuses on the concrete outcomes of cooperation, should provide greater benefits and should be implemented in such a manner that it shows the presence of Japan. Such cooperation needs to be achieved through coordination with governmental agencies, Japan's NGOs, local governments, and private companies. In order to strengthen partnerships between these organizations, the following needs were identified: 1) Efforts to carry out activities in concert with NGOs, the private sector, other Japanese government agencies and donors; 2) Strengthening partnerships between JICA and NGOs; 3) Ensuring that transparency and information dissemination are discussed as a specific strategy to promote public participation and environmental assessment.

1) Efforts to carry out activities in concert with NGOs, the private sector, other Japanese government agencies and donors

Various agencies and organizations are involved in ODA-related operations in the environmental field, including the Economic Cooperation Bureau and the Multilateral Cooperation Department of the Ministry of Foreign Affairs, JBIC, JICA, the Ministry of Economy, Trade and Industry, the Ministry of the Environment, the local offices and extra-governmental organizations of the central government, local governments, private companies, and NGOs. The network between these organizations needs reinforcing for a better exchange of information. The Basic Law Concerning Central Government Reform stipulates that the Ministry of Foreign Affairs is empowered to function as a coordinator of the relevant agencies and organizations.

To begin with, a network should be constructed to exchange various kinds of information and to coordinate different operations. The network needs managing properly, and information should be provided appropriately to the relevant agencies and organizations. The overseas representative offices of JBIC and overseas offices of JICA can provide valuable and practical information through this network, and to utilize such information, the system should be constructed to provide information covering a broad range of issues. Arranging various kinds of information and providing valuable information will improve the quality of the network.

On the other hand, there are various technical aspects to individual projects since environmental priorities differ among developing countries, and the assistance projects and technical aspects are required to respond to the needs of the recipient countries. It is therefore important to develop a network through which information on these technical aspects can be exchanged with other donors and agencies in the implementation of projects. In most cases, there are several donors providing environmental assistance in a recipient country, and the knowledge, experience and technologies of each donor are helpful to the other donors.

A system should be developed whereby Japanese Embassy, JICA overseas offices, and JBIC representative offices obtain information through a close partnership. JBIC representative offices can then analyze loan projects, and JICA overseas offices can analyze technical cooperation projects. Promoting coordination with UN agencies and other donors will make it possible for Japan to obtain useful information on projects, and could lead to the establishment of an efficient donor coordination system in the recipient country.

The information obtained through such a network should be reported to the Technical Cooperation Division, Economic Cooperation Bureau of the Ministry of Foreign Affairs and the Regional

Departments of JICA, and contribute to the formulation and implementation of future environmental projects. This is one example of strengthening partnerships.

So far, Central government agencies have played a more critical role in environmental cooperation than local governments, private companies or NGOs. In addition to these conventional way, voluntary cooperation implemented by individual organizations should be more highly appreciated and linked effectively with cooperation on a government-to-government (G-G) basis. This new method is expected to enhance the effectiveness and efficiency of cooperation. For example, environmental cooperation between Kitakyushu City in Japan and Dalian City in China, which involves long-term cooperation based on mutual trust established between the cities, is promoted by local governments and local private companies. Tie-ups involving ODA projects through this cooperation will have a greater and more effective impact.

Another form of ODA assistance should involve specific private companies that have pursued effective environmental management. Some private companies have introduced environmental management systems based on the standards of the International Organization for Standardization (ISO) into their Asian affiliated companies in order that their products can be made available in the international market, and other companies have introduced cleaner production technology and recycling technology to their overseas subsidiaries to reduce environmental management costs.

2) Strengthening partnerships between JICA and NGOs

There are many types of NGOs in the environmental field, including NGOs that are sponsored by royal families and NGOs whose members are mainly researchers. Among the many NGOs, those in developing countries have been actively working in the field of nature conservation and biodiversity protection, with the assistance of NGOs from developed countries and international NGOs. Their activities are, however, limited to specific areas and the number of members is not so large compared with NGOs in the developed countries.

NGOs played a leading role in strengthening the institutional framework for environmental management in developed countries, such as the US, Canada, Germany and Japan. The activities of NGOs are sometimes regarded as an indicator for evaluation of the extent of democratization.

Many donors have placed importance on supporting the activities of NGOs in developing countries, and have actively promoted projects that assist these NGOs. In the environmental field, in particular, donors are assisting NGOs in developing countries since the NGOs of developed countries have been highly regarded as leading players in the solution of environmental problems.

Japan's NGOs have had difficulty in participating in Japan's ODA, since it has been provided on a government-to-government (G-G) basis since it began. In the field of technical cooperation, however, the ODA-promoting agencies have begun to assist NGO activities by providing information to NGOs as well as the government staff of the recipient countries. One example involved an NGO that formulated an environmental management plan is that the ODA agencies provided the NGO with scientific data obtained through their field studies, and the NGO utilized the results of these scientific field studies in its community development work.

NGOs in Japan have begun to actively assist the NGOs of developing countries. In response to these activities, JICA has provided Japan's NGOs with opportunities for a dialogue, and started the Development Partner Project, which is a scheme aimed at establishing links with NGOs. In future, JICA should introduce the NGOs of developing countries to Japan's NGOs to promote cooperation between them, and thus promote cooperation with Japan's NGOs.

3) Ensuring transparency and information dissemination

Ensuring transparency in decision-making and the dissemination of information are key issues throughout the world at the beginning of the 21st century. They are recognized as being essential for democratization to advance to a higher level in both developed and developing countries.

Since the Law Concerning Access to Information held by Administrative Organizations came into force, the Ministry of Foreign Affairs, which is responsible for formulating basic policy for ODA, JBIC and JICA, who are responsible for implementing ODA, are required to further disseminate information and ensure transparency. Through information disclosure and ensuring the transparency of ODA, the Ministry, JBIC and JICA will fulfill their responsibility for accountability to the taxpayers. At the same time, information disclosure and ensuring transparency will promote tie-ups with NGOs and other donors in implementing ODA projects.

One of the current key issues for environmental ODA is the participation of the public. Activities involving the public have already been developed in the training courses for foreign participants. In these activities, participation of the public is essential. To accelerate these activities, relevant Ministries and Agencies, local governments, JICA and JBIC, which are promoting environmental ODA, are required to publicize on websites a list of projects being implemented with their outlines, the results of the assessments from the project appraisal phase of projects, and the results of evaluations after project implementation. The system needs to improve public access to environmental information on the activities and achievements of each project, and to respond to questions from the public. Information dissemination will increase transparency in the decision-making process of the

relevant agencies and contribute to greater public support for ODA.

The ODA-related agencies and organizations have already disseminated various kinds of information about projects. In future, they should publicize the contribution of environmental assistance to poverty reduction in the recipient countries and to dealing with global environmental problems, including the process of policy decision-making for the assistance, information that was studied during the decision-making, the objectives of the assistance, and the activities of assistance projects and their results. This will contribute to forming and strengthening partnerships with NGOs and other donors.

In the developing countries, disclosing environmental information and information on development assistance will help the public to better understand environmental problems and the assistance projects designed to deal with them. Some countries have strict restrictions on information dissemination. JICA, however, has actively promoted information dissemination. One of its success stories is that in a certain country government agencies and research institutions had separately accumulated research results without disclosing them, and this information had never been exchanged among them either. JICA, in addition to its own research, gathered the information from all the relevant agencies and institutions in a JICA development study and provided the whole information on a website so that the results were made available to the public as well as the relevant agencies and institutions themselves.

IV. The features of Japan's environmental cooperation: Its track record and policy agenda

1. Review of Japan's ODA policies on environment

1) Review of Japan's ODA policies on environment

In 1982, a Session of Special Character of the Governing Council of UNEP was held in Nairobi, Kenya, ten years after UNCHE was held in Stockholm. At this session a report, *The World Environment 1972-1982* was adopted. At the same time, worldwide demand for measures to conserve forests arose out of the food crisis in Africa caused by drought. Consequently, forest conservation was discussed at the G7 Summit Conference held in Bonn, Germany in 1985, and measures to prevent desertification were worked out. Japan proposed a "Green Peace Corps Initiative" at this summit, and subsequently, Japan decided to dispatch experts and Japan Overseas Cooperation Volunteers as well as to provide equipment and materials in order to assist in afforestation efforts to restore forests in developing countries. To achieve this, the "Green Promotion Cooperation Project" was carried out in Senegal, Tanzania and Niger.

Since then, measures to cope with global environmental problems have been actively discussed at G7 Summits. In Japan, the public has gradually come to understand that industrialized countries ought to support efforts to deal with environmental problems in the developing countries. In 1989, Japan announced its *Environmental ODA Policy* at the Arche Summit, which was Japan's first policy on environmental development assistance. Its main principles included i) the expansion and reinforcement of bilateral and multilateral assistance through the disbursement of 300 billion yen over three years in the environmental field, ii) cooperation in forest preservation and research mainly targeted at tropical forests, iii) active cooperation for capacity building in developing countries to deal with the environment, iv) the promotion of poverty reduction, based on the understanding that poverty is the root cause of the decline in tropical rainforests, v) the promotion of technical cooperation for the training of human resources in the environmental field, vi) the utilization of multilateral financial institutions for development, and vii) the reinforcement of environmental considerations in development assistance.

One of the main themes of the London Summit in 1991 was the solution of environmental problems in developing countries. Japan announced its *New Environmental ODA Policy*, which was an expansion and strengthening of the *Environmental ODA Policy* of 1989. The following are the principles of the new policy.

i) Basically, both industrialized and developing countries should cooperate in dealing with global environmental problems. Japan will expand its ODA for developing countries that should promote environmental conservation, through the utilization of Japan's technologies and experience accumulated over the course of its parallel efforts in environmental conservation and economic growth.

ii) Japan will assist developing countries through the functional and effective combination of various types of assistant measures according to the stage of economic development of the recipient countries. Japan will continue to place importance on the alleviation of poverty and control of population growth, which are closely linked to environmental problems.

iii) Japan will focus on cooperation in forest conservation and forestation, energy conservation, technologies for clean energy, pollution control, wildlife protection, land conservation, and capacity development in environment.

iv) Japan will further consider the environment in implementing assistance projects through environmental assessments and formulating guidelines according to individual sectors.

The main feature of this policy is that when Japan promotes economic cooperation, Japan will establish and implement a system where full consideration is given to the environment of the recipient countries to avoid causing the degradation of environmental conditions. Such consideration for the environment has been discussed by the Development Assistance Committee (DAC) and the Environment Committee of the Organization for Economic Co-operation and Development (OECD).

In 1985, *Recommendations of the Directorate on Development Assistance Projects and Environmental Assessment of Projects* proposed by the OECD Environment Committee with the support of DAC were adopted. In 1989, the *Environment Checklist for Development Assistance* was adopted. In 1991, a DAC Working Party on Development Assistance and Environment formulated *Good Practices for Environmental Assessment of Development Projects* and *Guidelines for Aid Agencies on Involuntary Displacement and Resettlement in Developing Countries*, which were endorsed at a meeting of OECD Ministers of Environment and Development Co-operation, together with *Good Practices for Country Environmental Surveys and Strategies* and *Guidelines for Aid Agencies on Global Environmental Problems*.

JICA, which is responsible for ODA technical cooperation, established an Aid Study Committee on Environment in 1988 with the focus on environmental considerations. Based on the recommendations of the study committee, JICA formulated and implemented guidelines in twenty sectors, including

dam construction, agriculture, harbors and roads.

In 1989, JICA established an Environment Section within the then Planning Department to coordinate operations for environmental protection. The section was later expanded into the Environment, WID and other Global Issues Division in April, 1993 and was subsequently reorganized into the Global Issues Division in 2000.

The Overseas Economic Cooperation Fund (OECF), the predecessor of the Japan Bank for International Cooperation (JBIC), expanded loan aid for large-scale infrastructure development. Since OECF understood the importance of taking the environment into consideration, it formulated the *OECF Guidelines for Environmental Considerations* in 1989 in order that its loan aid would avoid damaging the environment and living conditions of the inhabitants. OECF ensured the effective application of the guidelines by making them available in both Japanese and English and providing them to the recipient agencies of loan aid. In 1995, OECF revised the environmental guidelines utilizing accumulated experience to promote more efficient environmental assessments in recipient countries. In addition, OECF modified its Special Assistance for Project Formation (SAPROF), which assists the recipient agencies of loan aid by employing experts. If environmental assessments carried out by OECF recipient agencies are regarded as insufficient, additional and complementary studies can be implemented through this modified SAPROF.

In 1988, OECF established a post for an official responsible for the environment in order to reinforce work in the environmental field. The Environment and Social Development Section was then established in 1993 and was reorganized into the Environment Department in 1997, and again reorganized into the Environment and Social Development Department in 1998, and thus the system for taking account of environmental considerations has been further reinforced.

At UNCED in 1992, Japan committed to disbursing 900 billion yen to one trillion yen over five years for bilateral and multilateral assistance in the environmental field. As the world's top donor, Japan has sharply increased its environmental ODA since this commitment.

2) Policies to promote environmental ODA

Since 1989, Japan has been dispatching its Mission for Discussions on Policies Concerning the Environment, which is referred to as the Environment Mission, in order to promote the formulation of environmental ODA projects in developing countries that appreciate the importance of environmental conservation. The Environment Mission has been dispatched to ten countries, including Brazil, Mexico, and several Southeast Asian and East African countries. In 1995, a high

level joint mission of the government and private sector was dispatched to China to contribute to the expansion and reinforcement of environmental ODA. Environmental assistance has also been discussed during missions of the Economic Cooperation Research Group and in the policy conferences on assistance held for the major developing countries.

In 1995, Japan offered preferential conditions on ODA loans for environment-related sectors in response to the severe pollution caused by industrial operations and automobile exhaust gas emissions in moderately developed countries. At the same time, a policy was adopted that even if the gross national product per capita of a country exceeded the standard for ODA loans, such loans could be extended to that country as long as the funds contributed to the solution of serious environmental problems. Based on this policy, Mexico, Brazil and other countries were extended ODA loans. Grant aid conditions also became more flexible for the environmental sector.

In 1997, the conditions for ODA loans were eased to a 0.75% interest rate and forty-year repayment period, with a ten-year deferment, as long as the ODA loan was for measures to deal with pollution and global environmental problems. With this special interest rate, it became easier for developing countries to promote measures to combat global warming. This ODA loan facility was a landmark one since it covered projects that had never before been assisted through ODA loans, including projects for urban mass transportation systems such as subways and monorails, hydroelectric power plants with less impact on the environment, natural gas power plants and their related facilities, and the rehabilitation of manufacturing facilities for energy saving and resource conservation.

Assistance has also been extended for the establishment of central institutions so that developing countries themselves can formulate their own environmental conservation measures. Such central facilities for environmental conservation activities have been constructed in developing countries through grant aid schemes, as well as project-type technical cooperation including the dispatch of experts, accepting trainees from the recipient counties and the supply of equipment. The central institutions include the Thailand Environmental Research and Training Center, Indonesia Environmental Management Center, Japan-China Friendship Environmental Protection Center, Chile Environment Center, Mexico Environmental Research and Training Center, and Egypt Environmental Monitoring Training Center.

3) Initiatives for Sustainable Development toward the 21st Century

The Special Session of United Nations General Assembly for the Review and Appraisal of the Implementation of Agenda 21 was held in June 1997, five years after the United Nations Conference on Environment and Development. At this session, the then Prime Minister of Japan, Ryutaro

Hashimoto, announced a comprehensive environmental cooperation policy, which was referred to as the *Initiatives for Sustainable Development toward the 21st Century*. These initiatives were based on a philosophy of i) Human Security, ii) Ownership, and iii) Sustainable Development.

The concept of "human security" asserts that environmental degradation is an urgent issue to secure the living conditions of people in developed countries as well as developing countries, since expanding global problems will threaten the human existence in the near future. The concept of "ownership" relates to the need for developing countries to assume the primary responsibility and role in addressing environmental issues and that developed countries should assist such self-help efforts in developing countries. This concept was also a principle of the OECD/DAC new development strategies. Sustainable development was the core concept of *"Our Common Future"* published in 1987 by the World Commission on Environment and Development, which asserted that all human activities and economic activities should be sustainable in order to satisfy the needs of the current generation without adversely affecting the capacity of future generations to satisfy their needs.

An action plan was formulated based on these concepts so that Japan could cooperate internationally through environmental ODA. The main aspects of the action plan were as follows:

i) Measures to deal with air pollution and water contamination, and waste management;

ii) Measures to deal with global warming;

iii) Natural environment conservation, forest conservation, and afforestation;

iv) Dealing with water issues; and

v) Raising public awareness of the environment, and studies on strategies

A variety of types of assistance have been promoted based on this environmental ODA policy for the 21st century. Environmental ODA exceeded 500 billion yen on a commitment basis in FY1999, which accounted for 34% of the total of Japan's assistance.

4) Kyoto Initiative

The Third Conference of Parties to the United Nations Framework Convention on Climate Change (COP3) was held in Kyoto in 1997. The conference of parties had been held every year, but this Kyoto conference was an important and historic one where it was determined that the overall volume

of greenhouse gases emitted by the developed countries was to be reduced 5% or more from the 1990 levels, between 2008 and 2012. Japan declared its *"Policies for Assistance to Developing Countries to Cope with Global Warming"*, which was referred to as the Kyoto Initiative at this conference before other countries declared their policies. The following were the main commitments.

i) Japan would assist developing countries in human resources training in four fields: measures to deal with air pollution, waste disposal, energy saving, and forest conservation and afforestation. The target number of trainees was 3,000 over five years from 1998.

ii) Japan would offer ODA loans under the most favorable conditions (0.75% interest rate and a forty-year repayment period including a 10-year grace period).

iii) Japan would transfer technology and experience related to global warming to developing countries.

The provision of ODA loans under the most favorable conditions was implemented by JBIC as stated above. The training projects and the projects for transferring technology to combat global warming have also been gradually implemented.

Table 1 Japan's economic cooperation in the environmental field: Commitments by type of aid

(Unit: 100 million yen)

FY	Grant aid	ODA loans	Technical cooperation	Multilateral assistance	Total
1995	428.2	1,708.2	222.9	400.3	2,760
1996	360.7	3,864.7	253.4	153.8	4,632
1997	364.6	1,623.4	300.7	158.1	2,447
1998	289.9	3,280.9	304.2	263.1	4,138
1999	293.7	4,644.5	282.5	136.0	5,357

Note: Grant aid and ODA loans are on an exchange of notes basis, and amount for technical cooperation is based on the actual JICA expenditure.

Sources: Japan's Official Development Assistance – Annual Report 2000 by the Economic Cooperation Bureau, Ministry of Foreign Affairs

2. Review of Japan's environmental cooperation

1) Accomplishment of international commitments

It should be emphasized that Japan has fully accomplished its international ODA commitments. Japan pledged to disburse 300 billion yen over three years for environmental cooperation at the Arche Summit in 1989, and in reality disbursed 407.5 billion yen, exceeding the amount of the commitment by more than 100 billion yen. The breakdown was 129.4 billion yen in 1989, 165.4 billion yen in 1990, and 112.7 billion yen in 1991. At UNCED, Japan also pledged to disburse between 900 billion and 1 trillion yen in environmental ODA over five years from 1992, which was fulfilled through the disbursement of 1,440 billion yen by 1996. In addition, Japan reached the amount committed one year earlier than the target year. The breakdown consisted of 189.1 billion yen of grant aid, 1,036.7 billion yen of loan aid, 108.3 billion yen of technical cooperation, and 107.5 billion yen of contributions to international agencies related to environmental conservation. A significant feature is that the loan aid accounted for a large proportion of the total.

According to the ODA statistics in 1999, the total disbursement of environmental ODA amounted to 535.7 billion yen, which accounted for 33.5% of all ODA disbursements. The breakdown consisted of 29.4 billion yen of grant aid, 464.5 billion yen of loan aid, 28.3 billion yen of technical cooperation, and 13.6 billion yen of contributions to international agencies, etc.

Table 1 shows the environmental ODA achievements, classifying them into grant aid, loan aid, technical cooperation, and disbursements to international agencies, etc. for the five years from 1995 through 1999.

These statistics indicate to the world the significant contribution that Japan can proudly claim to have made to environmental ODA.

2) Broad environmental assistance

The projects of environmental ODA cover a broad spectrum of environment-related sectors. They deal with the management of renewable natural resources, including forestation to halt the decline in forests, social forestry, which is a type of forest management for improvement of the living conditions of inhabitants, forestation and management of mangroves, and stockbreeding promotion to cope with the degradation of grasslands; urban problems, including air pollution, water contamination, waste management, and industrial pollution in the capitals and other major cities of developing countries; and the strengthening of laws, organizations, and institutions related to the

environment, bolstering their enforcement, and the transfer of technology for environmental monitoring and on-site inspection at factories.

Most environmental measures require large amounts of public and private investment, to which loan aid is usually applied. Specifically, they include projects for the improvement of the urban environment, such as the extension of waterworks and sewerage, the construction of waste disposal sites, the construction of drainage to prevent flooding in the rainy season, the introduction of desulfurization equipment and industrial wastewater treatment facilities to control industrial pollution, the maintenance and extension of roads and the construction of subways to control air pollution caused by automobile exhaust gas emissions due to traffic congestion. Farmland development and raising agricultural productivity for the self-supply of food as well as large-scale forestation also require substantial investment of the financial resources of developing countries.

JICA's technical cooperation covers fourteen sub-sectors in the environmental field, including air pollution, water contamination, waste management, natural resources management, energy saving and alternative energy, environmental administration and management, and biodiversity. In the implementation of assistance, JICA utilizes various types of assistant measures, such as the long- and short-term dispatch of experts and groups of experts, the provision of equipment and materials, training courses in Japan, project-type technical cooperation that combines these assistance measures, development studies, loan aid, and grant aid.

In a development study, JICA dispatches a team of environmental consultants to carry out a feasibility study before the developing country implements plans for the improvement of public infrastructure, etc. The results of this feasibility study are sometimes utilized for loan aid extended by JBIC. In the plan formulation phase, such as urban environmental management plans and plans for measures to control air pollution, JICA transfers approaches to formulating plans, the establishment of organizations and systems necessary for their implementation, as well as the actual implementation of the plans. This transfer of technology is also included in the development study.

JICA have constructed Overseas Environment Cooperation Centers as central facilities for environmental management in developing countries through grant aid, and have also provided equipment and materials.

JICA have dispatched expert teams of about five members over a period of five years in most cases through project-type technical cooperation. JICA have also provided training courses for trainees from development countries. Nearly 80 training courses are provided every year according to various themes in the environmental field, including forest resources management, biodiversity management,

wetlands protection, urban environment management, environmental policies, environmental monitoring, analysis technology, industrial pollution control, energy saving and resource conservation, waste management, and measures to combat global warming. The courses last from four weeks to three months.

Japan's ODA in the environmental field is extended through a combination of various approaches based on loan aid, grant aid, and technical cooperation in order to contribute to the solution of diverse environmental problems in developing countries.

Table 2 shows the achievements of economic cooperation over the five years from 1995 to 1999, classified into five categories: residential infrastructure, forest preservation, antipollution measures, disaster prevention, and other sectors.

Table 2 Japan's economic cooperation in the environmental field: Statistics for bilateral assistance in the environmental field

(Assistance to Eastern Europe included; Unit: 100 million yen)

FY	Residential infrastructure	Forest preservation	Antipollution measures	Disaster prevention	Other Sectors
1995	1,296	252	183	453	176
1996	2,803	372	609	429	266
1997	993	223	345	384	341
1998	538	82	2,353	226	676
1999	1,303	89	2,090	656	1,083

Note: 1. Figures are totals of grant aid, loan assistance, and technical cooperation, but multilateral assistance is excluded.

2. The category of "Other sectors" includes nature conservation, environmental administration, seawater contamination, and global warming.

Sources: *Japan's Official Development Assistance – Annual Report 2000* by the Economic Cooperation Bureau, Ministry of Foreign Affairs

3) Expansion of ODA loan projects for the environment

ODA loans in the environmental field have rapidly increased from 54.1 billion yen in1989 to 181.2 billion yen in 1993, 318.8 billion yen in 1996, and 461.9 billion yen in 1999. The projects cover the sectors of residential infrastructure, forest preservation and forestation, antipollution measures, natural environment conservation, disaster prevention, energy saving and resource conservation, alternative energy, and other sectors. Figure 6 shows the annual trend in ODA loans and the committed amounts.

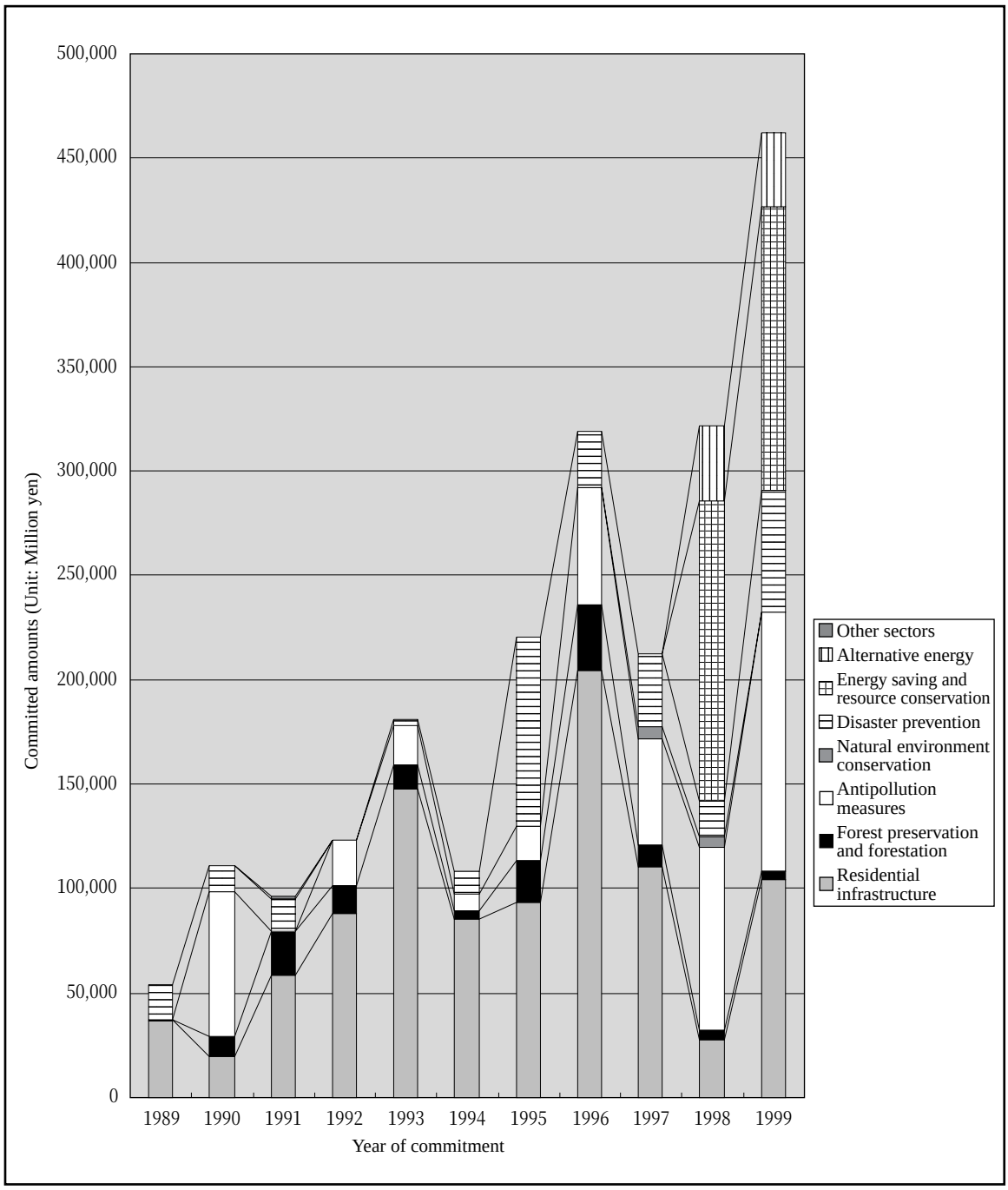


Figure 6 ODA loans classified into environmental sectors on a commitment basis

Sources: Environmental Cooperation through ODA Loans, which consists of data prepared in August 2000 by the Environment Division 2, Environment and Social Development Department, JBIC

The following are examples of activities supported by ODA loans.

(1) Southern Mindanao integrated coastal zone management project in Philippines

Mangroves are being planted in the coastal districts concerned, and areas along the upper courses of the rivers are also being forested. In order to improve the infrastructure, construction work was carried out to prevent erosion of the slopes of the riverbanks and to prevent washout of earth and sand. A sewage treatment plant has been newly constructed to control water pollution in the river and to prevent contamination of the seashore. At the same time, a small scale Environment Cooperation Center has been constructed to serve as a core facility for environmental conservation activities in the district concerned. Local farm roads are also being constructed to support agroforestry, and water supply facilities are being constructed to contribute to improving the living conditions and raising the living standards of minority groups. The cost of this project is 3.2 billion yen.

(2) Regional development program (II) in Thailand

This is a comprehensive project in the tourism sector including as many as 50 sub-projects, which costs 3.2 billion yen in total. This tourism project significantly benefits local communities through the acquisition of foreign currency, expansion of the local economy, employment creation, the conservation of historical sites and natural resources, and assurance of the participation of the local community in regional development. The sub-projects include waste management and wastewater treatment in the area of the national park along the seashore, the establishment of a training center to develop the skills needed for the promotion of tourism business, preparation of the infrastructure for tourists in the area along the border with the neighboring countries, assistance for the production of handicrafts in the local communities, the conservation and maintenance of historical sites designated as UNESCO World Cultural Heritage sites, and the establishment of a biological research center in the national park designated as a World Natural Heritage site.

(3) Environmentally friendly solutions fund in Sri Lanka

JBIC extended a soft loan of 2.7 billion yen with a 0.75% rate of interest and a repayment period of 40 years, including a ten-year grace period, to the national development bank of Sri Lanka. This project has been established to finance small and medium-sized companies at lower interest rates than market interest rates in order to promote the introduction of pollution control facilities, facilities for energy and resource saving, and cleaner production systems.

Industrial pollution has become obvious along with industrialization in this country.

(4) Port Dickson (Tuanku Jaafar) power station rehabilitation project in Malaysia

A large-scale ODA loan of 49 billion yen was extended for power generation using natural gas, which has less environmental impact as a fuel than oil. Power generation using natural gas is in line with the national policy of avoiding excessive dependence on oil-based fuels.

(5) Eastern Karnataka afforestation project in India

This is a 15.9 billion yen project for reforestation in the Katarukana district in the northeastern part of India, where the forest area has been decreasing due to excessive cutting and forests currently account for only 9% of the area of the district. Local communities have established community committees and participated in the formulation of a reforestation plan together with the forestry bureau of the district, which is the implementation agency for the project. At the same time, the improvement of nature conservation areas has been planned. Half of the employment opportunities created through this reforestation project and related activities will be available to women. In addition, the amount of labor carried out by women, such as gathering of wood fuel and livestock feeding, will be reduced after the planted trees grow.

4) Increase in technical cooperation in the environmental field

A full-fledged technical cooperation program in the environmental sector began around 1989, when it accounted for 10.1% of all JICA projects and involved expenditures of 10 billion yen. Expenditures for the environment sector exceeded 30 billion yen and the proportion of the total also increased to 19.2% in 1997. Figure 7 shows the expenditures on environmental cooperation.

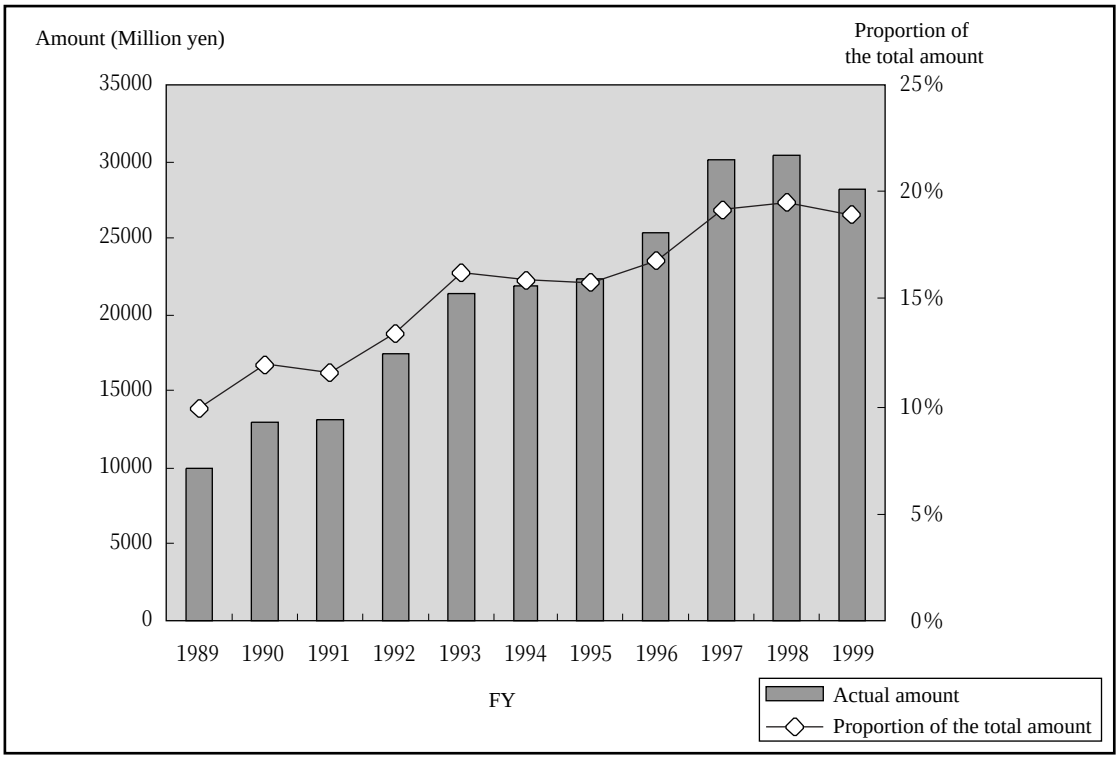


Figure 7 Expenditures on JICA's environmental cooperation from 1989 to 1999

Sources: Data prepared by the Global Issues Division, the Planning and Evaluation Department, JICA

Figure 8 shows the state of implementation of technical cooperation according to assistant measures, including the dispatch of Japan Overseas Cooperation Volunteers, provision of equipment, programs of technical training for overseas participants, project-type technical cooperation, development studies, community empowerment programs, expert training programs, and promotion of aid effectiveness and efficiency.

JICA classifies the focus of technical cooperation in the environmental field into fourteen sub-sectors, including air pollution and water contamination. Figure 9 shows the actual amounts of assistance expenditures according to schemes and sub-sectors in 1999.

JICA has also promoted environmental cooperation through grant aid under the jurisdiction of the Ministry of Foreign Affairs. When a project for an environmental center has been implemented, grant aid has been applied to the construction of the center as the core facility for the activities as well as for the provision of equipment and materials. The actual achievements in 1998 included 56 projects in 33 countries and their total amount reached 36 billion yen. The sector covered waterworks, sewerage facilities, forest conservation, reforestation, biodiversity, waste management, and disaster prevention.

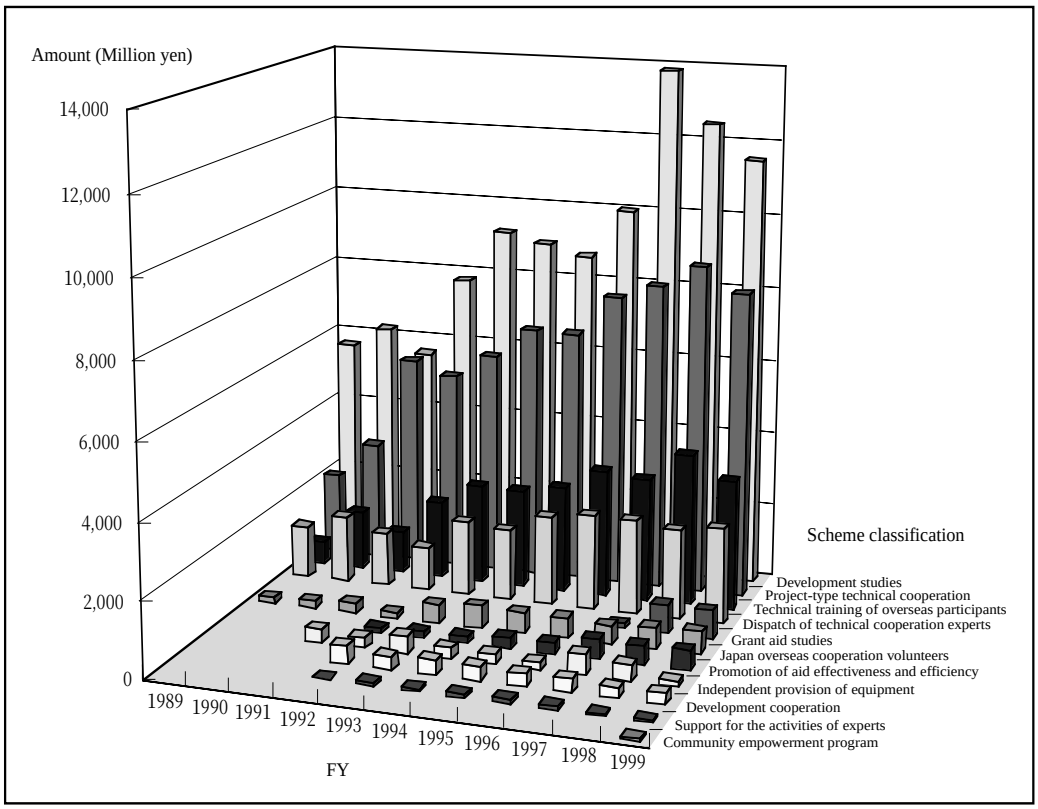


Figure 8 Achievements of JICA's environmental cooperation from 1989 to 1999

Sources: Data prepared by the Global Issues Division, the Planning and Evaluation Department, JICA

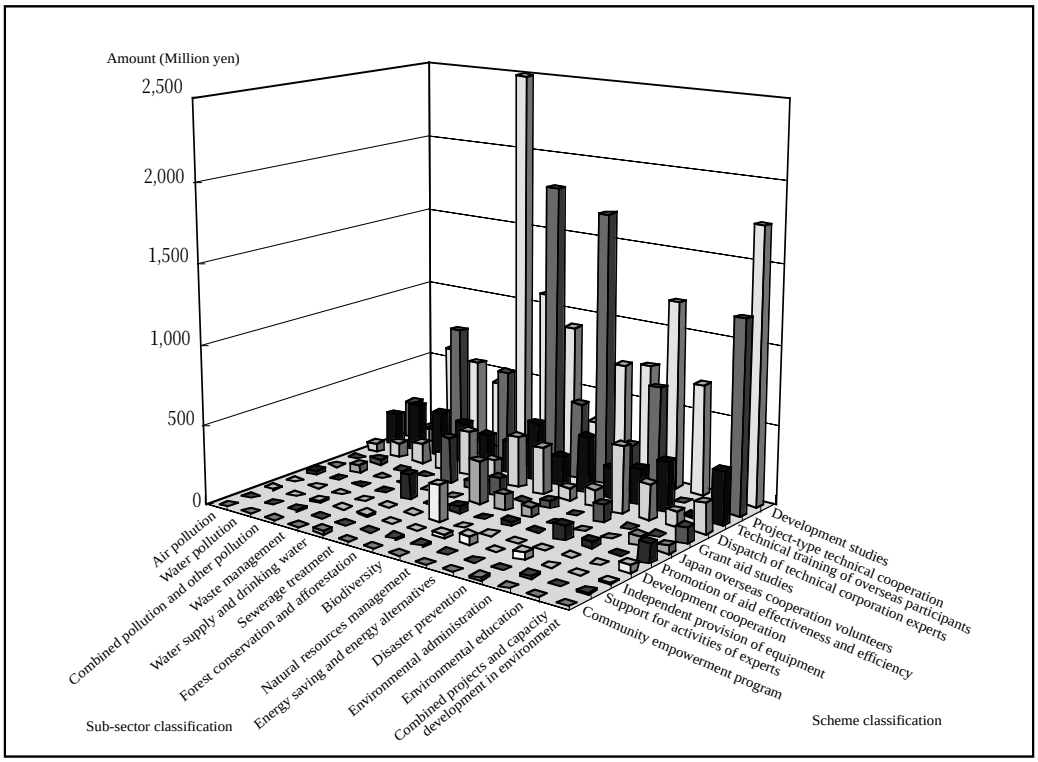


Figure 9 Achievements of JICA environmental cooperation based on schemes and sub-sectors in 1999

Sources: Data prepared by the Global Issues Division, the Planning and Evaluation Department, JICA

5) Creating central facilities for integrated environmental management

One of the features of Japan's environmental projects is that they are aimed at reinforcing the capacity for integrated environmental management in order that developing countries themselves can assume the initiative in formulating their own environmental programs. This is actualized through the establishment of environmental centers to act as central facilities for integrated management operations. The objective is to help with the human resources development of environmental administrators and the organizational foundations to implement their own environmental research and training. Specifically, the operation includes the drafting of legislation and the revision of laws, regulations, and standards, the reinforcement of the institutions responsible for environmental administration, the establishment and management of cooperation mechanisms among administrative institutions, the strengthening of local offices of the central government and local governments responsible for policy implementation, and the improvement of environmental laboratories for environmental monitoring and on-site inspection.

Each center has been established through a large-scale project. The project to construct the Japan-China Friendship Environmental Protection Center in China, for example, required 10 billion yen through grant aid. The Environmental Research and Training Center in Thailand and the Environmental Management Center in Indonesia both required grant aid of 2.5 billion yen and project-type technical cooperation over seven years for the effective use of these facilities. The projects to establish centers in Egypt, Mexico and Chile were also implemented on a large-scale.

In addition to the large scale of investment, the transfer of technology is another outstanding feature of most of these center projects. The transfer of technology has been designed to ensure effective environmental monitoring and on-site inspection. The most important factors in the formulation and implementation of environmental policies are the scientific analysis of environmental conditions, identification of the sources of pollution, and assessment of the level of degradation due to each source. Without technical study based on such environmental information, appropriate policies or implementation measures cannot be formulated. Technology for analyzing samples in the environmental laboratory is essential for the enforcement of laws and regulations concerning the environment, including the standards for wastewater discharged from factories.

Project-type technical cooperation has been implemented through waterworks training centers with the aim of training technicians involved in waterworks, sediment control technology centers for education in sediment control technology, and biodiversity conservation centers.

In contrast to other donors, Japan has placed importance on the establishment and improvement of

these environmental laboratories and on the transfer of technology applied through these facilities. Japan's assistance in environmental management has born fruit since the successful implementation of environmental cooperation has been based on these facilities.

6) Technical training of overseas participants

As one type of technical cooperation scheme, JICA invites many participants from developing countries, and provides them with lectures, practical experience and study visits both individually and in groups. Development banks and other donors have provided similar training, but have placed more importance on the dispatch of students to acquire master's degrees and doctorates rather than on practical training. The training provided by JICA is not designed for the acquisition of such a academic degree.

JICA provides group training of various types at its seven International Centers and six affiliated institutions in Japan. Approximately 80 group-training courses are provided, including country-specific training, since the environmental field covers a broad range of subjects and many developing countries request these training courses. The International Centers and the affiliated institutions of JICA, however, do not have their own experts in the environmental field. The training, therefore, is entrusted to the central government, such as Ministry of the Environment and the Ministry of Economy, Trade and Industry, their affiliated research and training agencies, local government research agencies, and public entities, including environmental associations.

JBIC have extended two-step loan assistance, which is assistance for pollution control through loan aid. For the past three or four years, JICA in cooperation with JBIC, has provided training concerning this type of assistance to the staff members of agencies that promote the projects, including the members of Ministries concerned with the environment and the development banks of the developing countries.

When a project for the establishment of pollution treatment facilities through loan aid is promoted along with a related technical training project, both projects become more effective. Such a mechanism is worth greater attention in the future.

In the promotion of these training courses, all the parties concerned in Japan have put in a considerable amount of work involving local governments, such as those of the prefectures and cities, local government research institutions, municipalities, and communities.

V. Practical tactics for JICA's technical cooperation in the environmental field

This section points out the main issues in the implementation of JICA's technical cooperation in the environmental field following the strategies for the implementation of environmental ODA described in Section III, and confirms the direction for the implementation of JICA's environmental cooperation along with specific cooperation schemes. In addition, it explains and summarizes grant and loan aid since the linkage between technical cooperation and these types of aid is likely to play an important role in the effective performance of environmental ODA in the future. Specific schemes for this linkage, however, are not mentioned here as future issues.

1. Effective technical cooperation

1) The formulation of projects tailored to local conditions

Since the needs in relation to environmental assistance differ between regions and districts, plans and actual implementation should take account of these various needs in order that the provision of cooperation can be effective. To match the assistance with the needs, it is first necessary to establish a general overview of the characteristics of the regions and the present conditions of the recipient countries, then to formulate projects that take account of these characteristics, and subsequently to implement the projects. Since environmental cooperation in particular is closely connected with the social and economic structure and the level of poverty in the recipient countries, if projects are formulated to target only a specific field, the objective of the project cannot be achieved.

Japan's environmental assistance has not always been formulated on the specific understanding of the conditions in the recipient countries and there has been an inclination to depend on the experience and opinions of Japan's own industrial sector in the formulation of projects in the environmental field. As for the implementation of environmental projects, there is also a concern that social and economic conditions in the recipient countries and the interrelationships with other sectors have received insufficient consideration.

Region- and country-specific approaches are needed to rectify such a situation at a fundamental level. When formulating projects, the characteristics of the region or country need to be identified and the overall direction of the projects should be determined among the priorities in the recipient country, such as the environment, sanitation and public health. Along with this, a program approach should be taken to integrate several projects within the same field or sector, or even across various sectors, to formulate a comprehensive program. As several projects are developed, and each project

targets the same goals as the program, each project should interact with the others during implementation, which initially requires a general and comprehensive approach.

The most significant factor in such approaches is a positive attitude of donor countries toward the efforts made by recipient countries to develop their own initiatives, that is to say, ownership by the recipient country of the process. This concept has recently provoked much debate and it is evident that ownership is one of the most significant factors in project design and implementation. However, in the course of planning and implementation, there has been a lack of transparency and equity at times, when the recipient countries were in charge of operations, or when NGOs and other local agencies were commissioned to be in charge of the entire operational management. The significance of ownership must be taken into account. However, there needs to be careful consideration of the method of implementation in accordance with the stage of economic development and the social structure of the recipient countries.

2) The formulation of projects according to the level of social and economic development

From a review of environmental problems over the past twenty years as well as implementation of the measures taken to deal with these problems in developing countries, it is evident that there is a strong correlation between the level of economic development of a recipient country and the enforcement of environmental management systems. To establish a management system for natural resources requires a substantial investment, since it involves setting up offices for the management of resources in the field and dispatching experts to formulate management plans that must be implemented by local communities. The provision of infrastructure development is also necessary for the improvement of conditions in urban areas. If there is little investment for resource management and urban public infrastructure, and the private sector does not have sufficient funds to provide facilities for pollution control or to introduce cleaner technologies in manufacturing, it is very likely that environmental problems will become more serious.

Since governments are not able to cover all the costs required, recipients of the benefits of improvements should pay part of the cost. For example, old buses with harmful exhaust gas emissions are replaced by new ones that are equipped with emissions control devices, leading to a rise in fares. The conversion of open dump sites for waste disposal to sanitary landfills that minimize the impact on the environment, or cases where trucks for garbage collection services are replaced with ones that have hydraulic compaction equipment to improve efficiency may impose a burden on those serviced by garbage collection to cover the additional costs. Another such case involves the introduction of dust collectors and desulfurization equipment in power plants to comply with air pollution control measures, the cost of which may be reflected in higher electricity charges. Whether

the recipients accept these newly introduced charges, or to what extent they are acceptable, will differ depending on the stage of economic development or the level of personal income.

Substantial funds are therefore required to establish environmental management systems, institute legal systems or regulations for environmental protection, and strengthen related organizations and enforcement. However, there are recipient countries that are not capable of raising sufficient funds for environmental protection measures. In these cases the central and local governments are not able to secure the necessary funds due to fiscal problems, and most of the budget is allocated to personnel costs. In such a situation, it is difficult to promote the self-help efforts of the recipient country for environmental protection, and in the short term specific outcomes cannot be expected even with the support provided by donor countries.

Such inefficiency, however, should not preclude assistance to developing countries with financial difficulties. Assistance to these countries should be provided as preparatory work from a long-term viewpoint, on the assumption that sufficient financial resources will be gained for environmental conservation in the coming years. In these circumstances, technical cooperation to strengthen environmental management is not very likely to produce significant results in the immediate future. Since strengthening and consolidating environment management systems takes at least several years, the recipient agencies and their technical personnel are required to have the potential capacity to benefit from technical cooperation. As technical cooperation is provided, this capacity is gradually enhanced.

Therefore, for cooperation in the environmental field, it is essential to assess the stage of economic development and the system of environmental management of the recipient countries and introduce policies or technologies that meet their prior needs and that are appropriate for their conditions.

3) Strengthening linkages and partnerships with affiliated institutions

Since there are a wide range of environmental problems and various sectors are involved, Japan's support alone is insufficient to solve such diverse problems in the recipient countries. This has led to the view that links should be established with UN agencies, international development banks, other developed donor countries, as well as NGOs in order to implement such broad-ranging activities that cater to the needs of recipient countries.

In seeking to establish such links with other aid agencies, there are two processes to be considered; one involves discussions that are held and decisions that are made among the heads of each agency, and the other involves discussions held in relation to an overseas project where each agency asks for

approval from its headquarters only when necessary. However, the important thing is to establish links in order to achieve greater efficiency and better outcomes. It is therefore essential that JICA's overseas offices in the developing countries should assume a more vital role in the exchange of information and discussions on technical issues among the donor countries, and in the process of project formulation, design, and implementation.

4) Strengthening functions of JICA overseas offices

As mentioned above, without strengthening the functions of overseas offices, it is not possible to provide support that accommodates the needs and stage of development of economic and environmental management systems and strengthen the links with other aid agencies. The information obtained by overseas offices through regular contact not only with the various government agencies of the recipient countries, but also local government agencies, NGOs, and research and educational organizations, is indispensable for project formulation and implementation. This relates to the basic role of overseas offices, which is to gather information on whether the activities in progress are useful to the recipient agencies, whether implementation is effective and efficient, and whether the systems available are sufficient to make use of the expected outputs. This is accomplished through frequent contact with recipient agencies while a project is underway, along with the conveyance of accurate instructions to the relevant experts, teams of experts, and consultants.

JICA's headquarters carried out an institutional restructuring on January 1, 2000, and established four regional divisions and two new departments: the Domestic Partnership and Training Department and the Human Resources Assignment Department. The regional divisions were established to change the past methods of implementing projects, in which projects were organized and implemented by the separate divisions involved, to one in which the direction of development and cooperation is identified according to the needs of individual countries and regions, and projects are organized on the basis of an assessment of these countries and regions. Whereas the Human Resources Assignment Department has been established to develop and secure human resources from a wide range of fields, this requires revision of the system of providing human resources, such as experts, which has tended to depend on the resources of separate ministries or departments. The Domestic Partnership and Training Department was established not only to organize technical training programs, but also to facilitate the joint implementation of projects together with domestic local governments and NGOs.

It is expected that this institutional restructuring will enable JICA not only to mediate between the development assistance requested by developing countries and Japan's capacity for the provision of cooperation and human resources, but also to implement overseas technical cooperation in a more

organized and professional manner. More specifically, when development assistance is requested by developing countries, the needs of these countries are analyzed and the optimum directions for development are confirmed separately for each country and region. JICA will not merely transfer technology that was developed under different historical circumstances from those of the recipient countries, but will instead transfer technology that is precisely tailored to match the stage of development and present state of the country concerned. Moreover, it is expected that JICA will formulate and implement projects in these developing countries by mobilizing a wide range of domestic human resources in Japan.

Meanwhile, in order to identify the various needs for cooperation with individual countries, it is essential to acknowledge the following requirements: 1) amendment of laws, regulations, and standards relating to the environmental field; 2) improvements in organizations, institutions, and implementation; 3) major decisions on environment related policies; and 4) changes in the higher levels of personnel. In order to understand the needs for cooperation, it is also necessary to acknowledge the contents of cooperation provided by other development banks, the UN agencies, and other donor developed countries, as well as the results of this cooperation, with the aim of strengthening environmental management in the recipient countries. Gathering such an extensive range of information is not possible until the local offices of Japanese agencies have been able to strengthen their functions and have disclosed the information obtained through close links among these local offices.

5) Capacity development in environment

Since the United Nations Conference on the Human Environment held in Stockholm in 1972, donor developed countries have invested a considerable amount of funds and provided human resources, technology, and materials to support solutions to environmental problems. However, despite twenty years of such efforts, environmental problems in developing countries have become even more serious. Under these circumstances, there was a debate on the validity and efficiency of cooperation during the preparatory stages of the United Nations Conference on Environment and Development held in 1992, which generated the term “capacity development in environment,” a concept that is reflected in Agenda 21.

The Development Assistance Committee (DAC) of the Organization for Economic Co-operation and Development (OECD) discussed the methodology and basic policies for assistance to capacity development in the field of environment from 1994 to 1995, and published guidelines entitled *Donor Assistance to Capacity Development in Environment*, which was based on the conclusions of the discussion held in 1995. These guidelines were developed based on the basic policies devised

through the work of OECD/DAC in its *Principles for New Orientations in Technical Co-operation* and *DAC Orientations on Participatory Development and Good Governance*.

In these guidelines, capacity development in environment is defined as the "ability of individuals, groups, organizations and institutions in a given context to address environmental issues as part of a range of efforts to achieve sustainable development." The guidelines consist of five major parts: 1) the relationship with other DAC guidelines, 2) the basic orientations and methodology, 3) specific contents of the related activities, 4) the role of donor countries, and 5) co-ordination among donor countries.

Environmental problems are diverse by their nature, as they include those relating to natural resources management and the unplanned expansion of urban cities, and a number of central and local administrative bodies are normally involved. There is also a diversity of interested parties along with the complex of political, social, and economic issues. Moreover, in developing countries, there are many cases in which government organizations do not have the power to institute an adequate legal system, or even if there is one, the enforcement is too weak. Since the number of such difficult cases has been increasing and some environmental problems still require the initial identification of the basic causes and the various types of appropriate measures, technology transfer alone is insufficient to deal with the situation. For these reasons, the issue of capacity development in environment has been emphasized among donor countries. As for the methodology, great importance is being attached to the program approach, which involves determining the organizations and individuals involved in the environmental field that should have priority for the improvement of their capacity from the long term viewpoint, or in which field and in which order support needs to be provided to effectively upgrade overall capacity.

As regards good governance, the emphasis is on the significance of disclosing and publicizing information in order to enhance the general capacity of organizations and individuals related to the environment, and an approach in which those concerned participate in deciding on priorities, the order of priorities, and methods of applying them. The importance of partnership, which involves cooperation on the part of the recipient countries that is required for capacity development, has also been emphasized in the joint implementation of projects for dealing with environmental problems. This has given impetus to an approach that places greater importance on the process of cooperation in order to develop their capacity for self-reliance. In addition, women and socially vulnerable groups of people should be taken into consideration in dealing with environmental problems.

JICA's technical cooperation has tended to concentrate on the transfer of technologies relating to the environment in specific fields to specific groups of engineers from the government agencies of

recipient countries. Recently, a number of environment-related projects have been provided that emphasize capacity development. Nonetheless, it is still essential to confirm capacity development as a clear and concrete objective and to more actively provide technical cooperation to a wide range of targeted groups.

2. The improvement of JICA's individual cooperation scheme

1) Dispatch of technical cooperation experts

In response to requests from government agencies in developing countries, JICA has provided support at the policy level, and implemented projects to transfer specific technologies in the environmental field to engineers who belong to the recipient agencies. Among experts who have been sent are researchers from central and local administrative bodies, or affiliated research institutes, who possess knowledge, experience, and skills related to the needs of recipient countries, and private consultants that have outstanding ability.

The policy support projects cover a wide range of fields, and some examples are: 1) cooperation in establishing environmental laws, related regulations, guidelines, and environmental standards; 2) capacity development projects targeting local agencies and administrative bodies; 3) formulation of environmental management plans in specific cities or industrial areas; and 4) establishment of a system for the implementation of environmental management plans. Formulation of training plans that meet the needs of various target groups is also included in order to support the capacity development of the recipients. The operating expenses necessary for the implementation of the various projects drawn up by experts are not included in the expenses for the projects to dispatch experts. Therefore, the dispatched experts have to carry out the preparatory work necessary for project formulation and design as part of their work, and examine schemes among those designed for other programs that may have the potential to be adopted in implementing the projects.

The demand for the dispatch of experts in the environmental field has been increasing year by year. However, due to the current shortage of human resources in Japan, it is difficult to provide a sufficient response. Thus, it has become more important for experts to carry out their work more efficiently and produce more definitive outputs.

On the other hand, since a wide range of fields are covered by environmental management, unless the content of the requests from recipient agencies is clearly defined, mismatches may occur, leading to inefficiencies. For instance, experts in the field of air pollution or water quality management may be requested to carry out the following: to provide instruction on the institution of laws and

methods of on-site inspection of factories, to formulate training plans aimed at strengthening enforcement and monitoring plans, to conduct training sessions, to transfer analytical skills, and to provide assistance in establishing monitoring laboratories and strengthening the management of such laboratories. The specialties required of such experts vary considerably, depending on the content of the instruction provided. JICA's overseas office personnel need to hold open and thorough discussions with the recipient countries in order to provide cooperation in fields where it is most needed. If the requested work is not clearly specified, it is necessary to visit the recipient agency, clarify the needs, and inform their headquarters in order to select suitable experts. These efforts may seem limited, however, their cumulative impact will surely help the program enhance efficiency in the environmental field.

2) Development studies

Development studies in the environmental field involve dispatching teams of Japanese consultants to support the formulation of environmental development plans in specific urban areas, air pollution management plans, and plans for the conservation of valuable wetlands and coral reefs, as well as improvement in the living conditions of the communities involved. Teams of consultants are also dispatched to conduct the feasibility studies required to provide environment-related infrastructure, such as waterworks and sewers, wastewater treatment facilities, and drainage in urban areas. Apart from the feasibility studies involved in providing the waterworks and sewers mentioned above, other feasibility studies focus on strengthening the management of wastes, including hazardous wastes, establishing the environment-related infrastructure, formulating plans for environmental management in specific cities and industrial hazard control measures in industrial parks, and the preparing and examining other master plans.

There are essentially two major frameworks constituting development studies: the preparation of feasibility studies and formulation of master plans as products; and technology transfer in their implementation and formulation as processes. However, development studies have tended to place greater importance on their formulation as products rather than technology transfer as a process, and at times have even neglected the significance of the latter.

In the compilation of feasibility studies and the formulation of master plans, if the technology transfer is insufficient, when the recipient agencies come to implement the projects examined in the feasibility studies, or if the agencies do not have the capacity to execute the master plans formulated by the dispatched experts, JICA's support is unlikely to be fully utilized. In order to avoid such inefficiencies, it is essential to develop the capacity required for implementing projects and master plans in the course of preparing the feasibility studies. This perspective should be integrated into

the project design of development studies, specified in the instructions for the work, and included in the standards for assessment of the proposals as well as in inception reports, in order to improve the quality and efficiency of development studies in the environmental field.

There is another type of study that makes use of the scheme for development studies, i.e., policy support studies that are designed to help recipient agencies in developing their capacity. Since there has been a limit to the number of experts that can be dispatched, it has not been possible to cover the whole extensive range of fields involved in dealing with environmental problems. Whereas, for development studies, there are some cases in which a team of more than ten specialized consultants can be dispatched. Since there is currently a limit to the domestic human resources available for cooperation in capacity development, as another alternative use of development studies, the potential for the implementation of the cooperation through development studies should be considered. During implementation, while the number of consultants with extensive experience in cooperation for capacity development is limited within the pool of domestic human resources, there is a system of recruiting foreign consultants for development studies, which makes it possible to look for suitable human resources overseas. Consequently, it is expected that Japanese consultants will have opportunities to acquire the skills of such foreign consultants.

In the course of conducting development studies involving the provision of public infrastructure, environmental impact assessment is also being carried out according to guidelines developed by JICA. The problem, however, is that this environmental impact assessment can be different from that of other donor countries and development banks in terms of the methods to be used. Generally, social analysis is the first priority in the environmental impact assessments implemented by other donor countries and development banks, in which conducting surveys of the relevant interested parties such as local inhabitants is obligatory and there must be consultations on whether there will be any negative effects on the living conditions of local communities due to the project. Particularly, in cases where the relocation of residents is required for the implementation of projects, there are some points that are considered critical and require careful examination. These include the methods used to formulate plans for resettlement, changes in the living conditions of the affected communities after resettlement compared to those before, financial security required to support the resettlement, and the capacity to execute the plans. It is desirable that these primary points should be taken into consideration in future development studies.

Another recommendation can be made concerning the number of reports on development studies to be distributed. JICA's reports are submitted to 30 to 50 of the relevant agencies in the recipient countries, and so if a number of agencies are involved, it is likely that reports cannot reach beyond the heads of such agencies and the relevant technical personnel cannot have access. It is desirable

to distribute 200 to 300 copies so that the reports can be read and made use of by as many people as possible, including the relevant technical personnel as well as people within the donor countries. Similarly, the distribution of CD-ROMs accompanying these reports may be worth consideration.

3) Project-type technical cooperation

Among the types of technical cooperation implemented by JICA, project-type technical cooperation is a major component involving the dispatch of teams of engineers who are specialized in various fields to provide support to recipient agencies in specific environmental sectors. This can be combined with the provision of the necessary equipment and materials or preliminary training for counterpart personnel, which lasts from a few weeks to one year in Japan, if required. The period for the implementation of these projects is very long, normally five years, and in the last year of this period, an evaluation is carried out on completion. According to the results, follow-up such as an extension of the term of cooperation can be provided if necessary.

Each project may differ depending on the country. However, it is essential to understand the present state of the environment from a scientific point of view in order to promote the strengthening of environmental management. It is not possible to decide what action should be taken for environmental policies and management, and the priorities among a wide range of environmental fields, until the current state of the environment is fully understood. However, many developing countries do not possess the technologies required for environmental monitoring. For instance, in order to ensure the enforcement of environmental standards, it is often essential to measure the concentrations of substances in the wastewater from several factories. It is necessary to transfer the technologies for the scientific analysis of air and water quality, and other hazardous substances. From this perspective, project-type technical cooperation has been planned and implemented. At the same time, environmental centers have been established together with the necessary equipment and materials using grant aid to provide a base for environmental management and there have been some cases in which teams of experts were sent to these centers to provide technical cooperation.

Among the various cooperation projects in the environmental field, projects that combine grant aid, which has been conventionally provided to Thailand, Indonesia, China, Mexico, Chile, and Egypt, with project-type technical cooperation under what are called “environmental center projects,” is one of the most significant features of Japan’s environment-related projects.

In these environmental center projects, dispatched experts transferred the skills for the analysis of air and water quality and for sampling various other hazardous substances to engineers in the recipient agencies while the projects were underway, and according to the evaluation on completion, the

projects have fully attained their primary objectives, or even exceeded them. On the other hand, environmental problems in the recipient countries involved have become more serious and complex. Concerning this situation, along with the transfer of specific skills with the aim of providing support for the government environment bureaus as to the policies at a more fundamental level and strengthening environmental management, there is a need to provide support to a wider group of relevant agencies such as the ministries of industry, agencies in charge of the implementation of projects, and local administrative bodies in order to develop their capacity as well. However, since JICA alone cannot meet all these needs, many other donor countries may need to cooperate with each other and take individual responsibility for particular areas, if necessary, in order to accomplish a broader and more comprehensive level of support. Since environmental center projects are still needed in many countries and it is very likely that these projects will become a major focus among technical cooperation projects in the environmental field in future, it is important to carry out a more active program of such projects. However, in any case, the needs of the recipient countries, their capacity to absorb technical cooperation, and the participation of other donor countries should not be neglected in designing these projects. It is necessary to conduct studies to specifically gain an accurate and comprehensive grasp of the needs, and hold frequent discussions with other donor countries in order to design projects that can provide broader and more comprehensive support for capacity development.

The principle is that these environmental center projects transfer the technologies and skills necessary for environmental monitoring that is an urgent task for developing countries, but at the same time should be able to provide more comprehensive support. Thus, it is desirable to provide support in policy-making, promoting environmental standards, strengthening related organizations, enhancing the capacity for environmental management among agencies as well as local administrative bodies through a wide range of technical training.

In order to design and execute projects more smoothly, project documents must be prepared during preliminary discussions. Since there are not many environmental consultants with sufficient experience to produce such documents on commission, it may be necessary to provide appropriate knowledge and techniques to environmental consultants through a workshop-style form of training. Exchanging ideas on JICA's view of project design and the methods used for the implementation of the project concerned at a more technical level through discussions with the recipient agencies is not possible until the relevant project documents have been prepared. Since detailed descriptions of the activities and work plans and outputs to be expected have also to be prepared, together with the relevant project documents available, the departments in charge of management and JICA's overseas offices will be able to fully understand the process as well as the outputs and provide appropriate instructions.

The improvement of these points should be achieved in order to upgrade the quality of environmental center projects as a major part of Japan's cooperation in the environmental field and to establish a system that ensures more effective and efficient implementation of cooperation projects.

4) Technical training of overseas participants

JICA accepts more than 8,000 participants from developing countries each year, and provides them with group and individual training. For the group training, JICA formulates plans such as the training curricula and provides the information to selected countries in order to invite participants. Whereas, for the individual training, since it is intended to provide opportunities to participate in the training primarily to counterparts involved in the dispatch of experts, development studies, and project-type technical cooperation, training programs are individually formulated and executed to accord with the needs of the participants. Among the training programs in the environmental field, nearly 80 training programs have been conducted relating to air-pollution measures, environmental health, resource management and administration, and global environmental conservation. The contents of the programs have been changed to improve their quality, however, there are some programs that still need to be improved. While the needs of developing countries in the environmental field have changed dynamically over the last ten years, the objectives of aid on the part of the donor countries have also changed, with greater importance given to capacity development in addition to technology transfer. Consequently, it is essential to improve the contents of group training related to the environment in order to remain abreast of developments in the situation.

Meanwhile, there is a debate as to whether Japan's successful experience in environmental management can be directly applied to developing countries. For the improvement of the quality of the training programs, it is essential for the objectives of capacity development to place the needs of the developing countries first. Considering the means for the promotion of environmental management in the actual situation faced by these countries, it is also important to reconsider previous experience, formulate curricula, secure human resources, and reflect the results of evaluations as well as the results of the training in planning for future training.

In order to foster awareness and knowledge of environmental problems, workshops can be provided to the personnel of training centers responsible for the implementation of training in the environmental field and to international development specialists. It is necessary to analyze reports submitted by the participants and evaluations at completion annually in order to define any problems with the training programs and the needs of the participants, as well as to reconsider the curricula according to these results so that the contents of training programs can be improved. In the case of training for counterparts, strong links should be established with the recipient organizations such as local

governments, together with clear definition of the aims of training programs so that they accord with the participants' expectations and the formulation of training programs designed to improve the efficiency of environmental management in their countries.

However, each domestic training centers usually possesses information only on the local human resources available to provide instructors for the training without being sufficiently aware of the fact that there are highly skilled experts capable of providing instruction in a wide range of environmental fields. It may be necessary for international development specialists, the Institute for International Cooperation of JICA, and local agencies, to take the initiative in drawing up lists of experts for each medium-sized or small environment-related sector and provide these to the centers. For sectors where the number of experts available is insufficient, taking account of the outcome of the workshops mentioned above, it may be possible to invite consultants with extensive experience in working in the environmental field in developing countries and with the help of these consultants, provide training aimed at fostering instructors and facilitators for training programs in specific fields. JICA has already provided training programs for this purpose. However, it is still necessary to improve the contents through regular reviews, with the purpose of providing training that more accurately reflects the needs of the developing countries. Training to cultivate experts may also be useful for JICA's other programs that require more experts. For instance, providing training directed towards enhancing the skills of consultants in charge of development study projects may be worth considering.

5) Collaboration with NGOs

Japan's technical cooperation is provided to the governments in developing countries in principle and nearly half of the total amount of Japan's ODA is implemented by JICA. There are also many cases in which technical cooperation is implemented individually by central ministries or departments and local governments. Private enterprises and NGOs are also involved in development cooperation in various fields. Particularly in some fields, such as social development and intellectual cooperation, where the needs are diverse and where a small-scale as well as sensitive response is required, cooperation provided by local public bodies and NGOs is more efficient. From this perspective, together with the greater importance of cooperation with NGOs, JICA launched its Development Partnership Program in 1999.

This program invites the participation of groups or bodies with experience in carrying out international development cooperation, and selects the appropriate bodies or activities and provides them with continuous support for a maximum of three years. In this program, personnel and management expenses are included as expenditure on commission, while these were not covered by subsidies

provided to NGOs in the past. Thus, the ultimate responsibility for the program is taken by JICA. Despite the short record of performance due to its recent launch, this partnership program should be adopted in the environmental field more actively since it is expected that more competent bodies together with well-considered proposals will apply to join the partnership program in the future.

The Development Partnership Program targets domestic NGOs, local governments, universities, and private enterprises whose activities have evolved within Japan, and commissions them to implement the projects in principle. However, considering the significance of efforts to strengthen the activities of NGOs in developing countries, JICA established the Community Empowerment Program in 1997. In this program, NGOs in developing countries are selected from among those that have more than two years of experience in development cooperation carried out in accordance with local needs, and then they are commissioned to implement projects over three consecutive years. The selected fields in this program are: 1) community development; 2) relief for socially vulnerable groups; 3) health care; 4) support for women's independence; 4) maintenance of living conditions; 5) human resources development; and 6) promotion of local industries. The relevant NGOs submit proposals to the overseas offices of JICA, which decides the projects that should be supported, after defining the policies for implementing projects, the formulation as well as design of the projects, methods of implementation, and establishing the process of monitoring and evaluation. Thus, NGOs with an interest in this program are required to bring their proposals directly to the JICA office in the country concerned and discuss the possibilities for carrying out their plans. Although the program has a limited record of performance, with 5 projects in fiscal 1998 and 48 projects in total as of 1999, it is expected that this program will be promoted more actively in order to strengthen the activities of NGOs in the environmental field in future.

In addition to the programs mentioned above, the NGO-JICA consultation meeting was established to strengthen links with NGOs, and NGO-JICA joint training course and NGO-JICA joint workshops have been actively organized.

Meanwhile, the Ministry of Foreign Affairs also supports Japanese NGOs in implementing development cooperation programs in developing countries through the NGO grant system in which the ministry finances NGOs involved in international development cooperation. It also launched a Grant Assistance for Grassroots Projects scheme in which overseas agencies of the Ministry of Foreign Affairs have provided support directly to relatively small-scale projects implemented by NGOs in developing countries since 1989.

It is critical that among the cooperation programs for developing countries, those programs in which NGOs take an active role in particular should be strengthened even more, as a result of which it can

be expected that cooperation in the environmental field will be enhanced as a whole.

3. Combinations of financial aid and technical cooperation

Grant and loan aid have had an important role in Japan's ODA in the environmental field, and if they are linked efficiently with technical cooperation, this will probably achieve greater effectiveness in environmental cooperation. The following will explain these grant and loan aid programs, then summarize the respective performance of the programs.

1) Grant aid program

A typical example of Japan's projects under the grant aid program in the environmental field may be the Overseas Environment Cooperation Centers that were established to provide a base for environmental management in developing countries. Several facilities and institutions for various purposes were established with grant aid, which has enabled the centers to serve as bases for environmental management. These include facilities for the training of technical personnel for environmental management, environmental laboratories used for the enforcement of environment-related laws and regulations and environmental monitoring, meeting halls capable of accommodating several environment-related conferences and workshops, and libraries and environmental information centers intended to systematically compile domestic information relating to the environment. Moreover, project-type technical cooperation has been combined with this grant aid program since technical cooperation was necessary for the agencies that would actually carry out the various activities using these facilities.

However, since these facilities require maintenance management, operating expenses, and technical staff, it is not always appropriate to promote these projects uniformly in every country. At the same time, facilities for environmental management are indispensable not only to the work of government environment bureaus, but also to overseas agencies and local administrative bodies that are in charge of the enforcement of laws and regulations. Alternative measures such as establishing several small scale centers in a country and creating a network between them should be considered. In addition to their role as centers for accumulating the technical skills involved in environmental monitoring and on-site inspection of factories, there should be greater emphasis on the significance of providing support at the policy-making level, including cooperation to strengthen environmental management policies as well as the implementation of these policies, so that their role as centers for capacity development can be enhanced in the future.

Other projects in the grant aid program in the environmental field are establishing a center to serve

as a base for the conservation of biodiversity, a visitor center to improve the management of nature reserves and increase the visitor's knowledge and awareness of the environment, an afforestation technical training center to deal with the decline in forest resources, and debris-slide protection centers for the management of mountain regions and river basins as well as for protection from landslides in areas of steep slopes and mudslides after volcanic activities. Moreover, among other grant aid projects to deal with the environmental problems of urban areas, are those to establish waste treatment sites as well as procure trucks exclusively used for garbage collection in poor areas, and the construction of waterworks technical training centers for technical personnel involved with waterworks.

In implementing grant aid projects, it is necessary to determine the needs and ownership of the projects prior to examining the technical aspects of the projects. Moreover, in the course of examination, very careful and serious consideration is required regarding the validity of the projects, how such projects are to be used in the recipient countries, and how they contribute to environmental improvement.

In JICA's grant aid program in the environmental field, 56 projects were carried out in 33 developing countries and 36 billion yen was provided in total in fiscal 1998.

2) ODA loan program

The Japan Bank for International Cooperation (JBIC), in principle, provides funds at low interest rates for long terms, with repayment deferred, in order to support the self-help efforts of developing countries in establishing the economic and social structure and to stabilize the economy. It has also provided loan aid to various fields including social services such as providing transportation, electricity, and waterworks primarily to Asian countries. In August 1999, *Japan's Medium-Term Policy for Overseas Economic Cooperation Operations* was announced, and the primary areas for the ODA loan program were clarified. Asian countries were focused on as a basic principle and three basic directions of cooperation were indicated: 1) alleviation of poverty and economic and social development; 2) global environmental problems; and 3) economic structural reform. As regards cooperation in the environmental field, the loan aid program aims to establish a sustainable economy and society in developing countries, and it is essential for it to be considered from both development and environmental aspects. From this perspective, the program encourages developing countries to tackle environmental problems, including global warming, and to enhance the required capacity, and provides them with support for sustainable development. With the launch of the program, concessional terms of loan aid are being provided together with Japanese technology and know-how to various projects, namely, energy conservation and new renewable energy measures

that were established in September 1997 and expanded as part of the Kyoto Initiative in December of the same year, global environmental protection measures, including forest conservation, and pollution control measures.

Originally the environmental sector consisted of seven fields: 1) the environment of settlements; 2) forest conservation and afforestation; 3) pollution control; 4) disaster prevention; 5) energy saving as well as resource conservation; 6) alternative energy; and 7) other sectors. However, due to the change in needs on the part of developing countries in recent years, the relevant sectors and the manners of financing them have become more diverse. As a result, there are more extensive projects such as the following: river basin management; regional environmental development; eco-tourism; environmental conservation aimed at the alleviation of poverty; air pollution control; industrial pollution control; and biogas energy production. As the JBIC is also required to play an active role in financing projects relating to the global environment, there are further projects such as the following: establishing large-scale urban transport systems such as subways and monorails intended to alleviate air pollution caused by traffic congestion in urban areas and provide improvements in relation to energy and resource conservation; establishing facilities for solar and hydroelectric power generation as well as power production using waste materials, and biomass energy, in relation to new and renewable energy; tree planting activities in relation to forest conservation and afforestation; and establishing facilities for air pollution control in urban areas and town gas reticulation to deliver household fuel in order to reduce air pollution.

For the ODA loan program in the environmental field (as of August 2001), soft loans, which are redeemable over 40 years with a 0.75% rate of interest and deferred for 10 years, have been specially arranged. For projects for water supply and disaster prevention, general projects are provided with loans that are redeemable in 30 years with a 1.0% rate of interest and deferred for 10 years to the Least among the Less Developed Countries (LLDCs), and with a 1.3% rate of interest in the case of countries with populations living in poverty, and with a 1.7% rate of interest rate for low-income countries. On the other hand, for other general projects, the loans vary depending on the level of economic development, as the interest rates are from 1.0 to 3.0% and the periods of redemption are 30 to 25 years.

ODA loans that were actually provided for environment-related projects reached 462 billion yen in 1999 on an Loan Agreement (L/A) basis, and accounted for 43.8% of the total loans of the JBIC.