Chapter 2 RESENT ACTIVITIES FOR WATER POLLUTION CONTROL

The efforts mentioned in the previous sections are directly for the water pollution control. Besides these, production and the use of chemicals and pesticides which may cause hazardous impacts on human health and animals and plants are also regulated. In addition, treatment standards are set for each stage of the waste treatment, and the systems to assure the appropriate treatment such as those for pollution control are established.

1. The Law Concerning the Examination and Regulation of Manufacture, etc. of Chemical Substances

The environmental pollution by PCB had led to the enactment of the "Law Concerning the Examination and Regulation of Manufacture, etc. of Chemical Substances" in 1973. This law required the examinations of the newly manufactured or registered chemicals before their production or import about the following three natures. The chemicals with all of these natures were designated as the Class 1 Specified Chemical Substances, and their production or import and their use came under regulation.

1. Persistency, or the nature not to change chemically through the natural process.
2. High bio-accumulation, or the tendency to be easily accumulated in the body of organisms.
3. Chronic toxicity, or the damage to human health by the continuous intake.

On the other hand, the law generally requires the national government to confirm the safety of the existing chemicals. The Ministry of International Trade and Industry studies their degradability by micro-organisms and their accumulation in fish and shellfish. The Ministry of Health and Welfare examines their toxicity to human body, and the Environment Agency investigates their residual tendency in general environment and their impacts on ecosystems. By December, 1996, nine substances, or PCB, HCB, PCN, aldrin, dieldrin, endrin, DDT, chlordane, and bis (tributyltin) oxide have been designated as the Class 1 Specified Chemical Substances.

The law was amended in 1986 to designate the persistent and chronically toxic chemicals with low bio-accumulation as the Specified Chemical Substances and to require the monitoring of their production and import. When there is a potential damage to human health by the environmental pollution of these Specified Chemical Substances, their manufacturers are required to investigate and report their toxicity. When they are found to be toxic, they will be designated as the Second Class Specified Chemical Substances, and their production and import will be regulated. By December, 1996, twenty-three chemicals including carbon tetrachloride, tetrachloroethylene and trichloroethylene have been designated as the Second Class Specified Chemical Substances, and 257 chemicals including chloroform and 1,2-dichloroethane have been designated as the Specified Chemical

Substances.

2. Agricultural Chemicals Regulation Law

As for the demand for legislation to control the pesticides, the Agricultural Chemicals Regulation Law was adopted in 1948 to exclude the various damages on the agricultural production by the distribution of the illegal products of low quality since before the Second World War. Then, a system was introduced in 1963 to withhold the registration of those with extreme toxicity to the animals and plants of commercial values, to order the improvement of their quality and to regulate the use of the Specified Agricultural Chemicals. In 1971, the law was amended to intensify the examination and registration of the residual tendency of pesticides and to create a provision on the cancellation of their registrations so that the measures were taken or reinforced to deal with the problems such as the residual pesticide in food and their soil and water pollutions.

Agricultural chemicals are not allowed to be sold without their registration to the Minister of Agriculture, Forestry and Fisheries. Submission of the results of the experiments on their toxicity and residual tendency are required together with those on their effectiveness and harmful effects.

In any of the following cases, the pesticide registration may be withheld and the quality improvement may be ordered when an application is made for the registration. In addition, when the already registered pesticides are found to fall in any of the following cases after the registration, their registration may be canceled and their sales may be restricted or prohibited.

(1) There occurs a harm from the use of pesticide
(2) There is a potential danger to the human health and animals
(3) There is a significant potential damage on the animals and plants with commercial values
(4) Crop-residue-prone pesticides, or those with a potential damage to the human health and animals through their residue in agricultural products
(5) Soil-residue-prone pesticides, or those with a potential damage to the human health and animals through their residue in the soil of agricultural lands
(6) Water-quality-pollution-prone pesticides, or those with a potential damage to the human health and animals through their pollution of public water and the use of such water

3. Waste Disposal and Public Cleansing Law

The Waste Disposal and Cleansing Law is a basic law on the waste treatment, and most of the treatments of the wastes from land-based sources have to follow this.

The Waste Disposal and Cleansing Law has been amended several times to catch up with changes of social conditions. The increase of the generation and variety of waste by the economic growth and improvement of public life, the shortage of final disposal sites and the frequent illegal dumping

had led to the amendment of the Waste Disposal and Public Cleansing Law in 1997 to implement the general measures to promote the reduction and recycle of wastes, to improve the reliability and safety of treatment facilities and to prevent the illegal dumping, for the assurance of the appropriate treatment of wastes.

3.1 Standards for Waste Treatment Facilities

The Waste Disposal and Public Cleansing Law designated certain incineration plants and final disposal sites as the Waste Treatment Facilities and established standards for their structure and maintenance. The Waste Treatment Facilities are divided to the Domestic Waste Disposal Facilities and the Industrial Waste Disposal Facilities. Some of the Waste Treatment Facilities are regulated for their effluents as the specified facilities under the Water Pollution Control Law.

Depending on the potential impacts of the industrial wastes to the disposed by landfill, their final disposal sites are divided to the three categories such as the strictly controlled landfill sites for hazardous industrial wastes, the least controlled landfill sites for those with less potential impacts on living environment due to their stable nature such as the construction wastes and waste glass, and the controlled landfill sites for the other industrial wastes and the domestic ones. Standards are set for each category.

3.2 Standards for Final Disposal of Wastes

The standards for the final disposal of wastes by landfill were set after the following considerations.

(1) Pollution of the public water and groundwater by the leachate from landfill sites should be prevented.
(2) Wastes should be reduced and stabilized.
(3) Sanitary problems by the disposal by landfill should be avoided.

As for (1), there is a general provision that "appropriate measures shall be taken to prevent the potential pollution of the public water and groundwater by the leachate from landfill sites".

The disposal by landfill of the industrial wastes containing heavy metals more than their criteria is subject to the more stringent regulation, and "it shall be conducted at the sites isolated from the public water and groundwater" since the environmental pollution by these regulated substances may have potential impacts on human health.

4. Environmental Cooperation for Developing Countries

4.1 Dispatch of Experts and Training Program

Many developing countries are facing the shortage of the administrative officials and engineers with general expertise on environmental protection.

Through JICA, environmental experts are dispatched to the developing countries to provide them with advice on site and the trainees are accepted from these countries, to protect their environment.

The experts were first dispatched in the fiscal year of 1975. Local governments joined in this program in the fiscal year of 1984, and then the universities and private companies also participated in the program, which resulted in the rapid increase of the dispatched experts. In the fiscal year of 1995, a total of 83 experts were dispatched to the countries like Chile, Thailand and China. Some 20 long-term experts are always providing assistance at various places around the world for more than one year.

Trainees have been accepted since the fiscal year of 1973. At present, training programs such as those on the Environmental Engineering (Water Quality Management), the Environmental Monitoring (Water Quality) and the Lakes Water Quality Management are provided, and over ten trainees are accepted for each program every year. By the end of the fiscal year of 1990, 501 trainees from 53 countries have participated in these group training programs. In addition, three group training programs were provided for individual countries in the fiscal year of 1990. A program on the River Purification was provided to those from Indonesia, and a program on the Environmental Protection was provided separately to those from Poland and Hungary in the fiscal year of 1990. Upon the request by developing countries, training programs for a single country are provided at all times to meet the specific need of individual countries.

The project-type technical cooperation, a combination of the dispatch of experts and training programs, is also carried out by JICA under the cooperation of the relevant ministries and agencies.

Some examples of the project-type technical cooperation are the Environmental Research and Training Center in Thailand in 1990, the Japan-China Friendship Environmental Protection Center, the Research Center for Water Pollution and Water Re-use, the Environmental Management Center in Indonesia, and the Water Quality Improvement System Development in Korea.

4.2 Financial Cooperation

The international cooperation for developing countries in the area of environment protection has long been carried out under the framework of JICA. However, to promote more various environmental cooperation, the Environment Agency started to appropriate its own budget for ODA in 1986.

At present, Japan is providing both of the grant aid and loan assistance.

The loan assistance makes significant contributions to the sustainable development of the developing countries through the assistance to the economic infrastructure projects. Japan has actively provided the loan assistance also to the projects in environmental fields through the Overseas Economic Cooperation Fund or OECF. The projects financed by the loan assistance are mainly those for the drinking water supply and sewerage, which could be hardly covered by the grant aid or technical cooperation due to their large scale.

The grant aid is provided in combination with the project-type technical

cooperation to construct and operate the facilities to make it more effective.

5. From the Basic Law for Environmental Pollution Control to the Environment Basic Law

5.1 The Environment Basic Law and the Basic Environment Plan

In Japan, environmental administrations have been conducted mostly under the framework of the Basic Law for Environmental Pollution Control, and they have considerably succeeded in the abatement of pollutions. At present, however, driven by the social and economic activities based on the mass production, mass consumption and mass disposition, the urban public nuisances and household pollution problems and the global environmental problems have become more serious. Conventional approaches based on the command-and-control mechanism have not been sufficient to cope with such problems. This made it necessary to enact the Environment Basic Law in 1993, which provided the philosophy for environmental policies, the direction for basic actions and the general framework for environmental policy developments.

Also for the protection of water environment, comprehensive measures are to be developed under the Environment Basic Law.

In 1994, under the Environment Basic Law, the Cabinet decided the Basic Environment Plan to provide fundamental directions for the environmental protection in Japan. Long-term objectives listed in this Plan are "building a socioeconomic system fostering an environmentally-sound material cycle", "ensuring harmonious coexistence between humankind and nature", "achievement of participation by all sectors of society, each sharing a fair burden" and "promotion of international activities." To achieve these objectives, the roles and efforts expected to be taken by the local governments, entrepreneurs, general public and private organizations in addition to the efforts by the national government are presented in the Plan.

5.2 Future Protection of Water Environment by the Environment Basic Law and the Basic Environment Plan

The Basic Environment Plan stresses about the protection of water environment that the loads on environment should be kept within the purification capacity of the natural cycle processes of water. Taking whole of the water quality and quantity, aquatic organisms and watersides into consideration, the Plan generally promotes various actions while inviting those interested in water environment to participate.

It illustrates that the protection of water environment should be considered as a part of the efforts for the general water cycle and the previous efforts concentrating on the protection of water quality should be extended to include various elements for the overall development of actions with the sound material cycle, harmonious coexistence and participation as basic philosophies.

Preparation of this Basic Environment Plan has significantly expanded the scope of water environment administration. Innovative actions have to be developed on the basis of the ideas different from the previous ones both in the purpose of protection, or what the protection of water environment is for, and in the elements to be protected, or

what should be protected for water environment.

First, as for the purpose of the protection of water environment, previous efforts aimed to protect two elements such as human health and living environment as, for example, shown in the quality standards. However, in addition to this, the Environment Basic Law makes it also important to maintain the sound water environment, to protect the diverse nature of watersides with consideration of their local conditions, and to keep the contact of people with nature, for the appropriate protection of natural environment. In other words, it requires to preserve the water-derived benefits in the forms and by the methods suitable to the local conditions and to pass them over to the next generation. Previous administrations of water environment concentrated on the objective evaluations of the numerical values by specific chemical analyses and a little attention was paid to other areas. Future administrations should consider the historical and cultural values of the water environment and also its value as landscape.

Second, as for those to be protected as the elements constituting the water environment, the Environment Agency centered its administration of water environment on the protection of water quality, and the protected elements were limited when it was considered that the water environment comprised of various elements such as the water quantity and watersides in addition to the water quality as stated in the Basic Environment Plan.

As for the water quantity, it is desirable to secure the minimum flow of rivers to realize the sound cycle of water throughout an entire basin, including the allocation of water not only to the users of water resources but also to the various organisms and ecosystems in water environment. Efforts are required to improve the overall water cycle by the measures such as the reuse of highly treated sewage, the protection of forests and the recharge of groundwater.

Such approaches may be applicable also to the water cycle in the cities. Implementation of a variety of measures including the installation of the infiltration inlets, permeable paving and tree planting to restore the spring water, which is an example of the important water environment in the cities, also follows the general flood control approach. How to organize a forum and what kind of support should be provided by the national government to adjust the water flow between the upstream and downstream communities should be studied as well.

As for the watersides, a single argument cannot be made to all of them since their forms vary to each other. Many of the existing watersides are artificial, and it must be also considered to elaborate more natural watersides.

Watersides are the ecotones between the water and land areas and they are important as habitats for various organisms. It is required to protect the watersides not only for the human health and amenity but also for the conservation of organisms and ecosystems. The administration of water environment, therefore, should be modified so that much wider areas could be dealt with, including the water quantity and watersides as well as the water quality, to secure the sound water cycle.

Third, the sound water environment is supported by local people. During the construction of the safer and more efficient economy and society after the Second World War, many watersides disappeared, people's awareness of water-derived benefits faded out and the water environment became deteriorated. The role sharing and active involvement of the local people are essential for the protection and restoration of rich

water environment. It is expected to develop new measures to increase the people's intention to participate in the programs to protect the water environment, like the "listing of 100 spots with famed delicate water".

Following the significant extension of the scope of the water environment protection by the Environment Basic law and the Basic Environment Plan, the national government is required to prepare the guidelines for water environment protection and to promote various programs. Following the national guidelines for water environment protection, local governments are required to determine the water environment objectives and plans appropriate to their local conditions and to generally coordinate and promote the various water environment-related programs. The issues which take place in wider areas and go beyond the administrative boundaries of the local governments, such as the large-scale water cycle and quality, definitely require the coordination and cooperation among the relevant administrative organizations.