

ENVIRONMENT SECTOR STUDY  
FOR  
JAPANESE ODA  
IN  
THE SOCIALIST REPUBLIC OF VIETNAM

March 2003

Nippon Koei Co., Ltd.

## ABBREVIATIONS

ADB	Asian Development Bank
BOD	Biochemical Oxygen demand
CIDA	Canadian International Development Agency
CO	Carbon monoxide
CO <sub>2</sub>	Carbon dioxide
DANIDA	The Danish International Development Agency
DO	Dissolved Oxygen
DONRE	Departments of Natural Resources and Environment
DOSTE	Departments of Science, Technology and Environment
EIA	Environmental Impact Assessment
FY	Fiscal Year
GEF	Global Environment Facility
GDLA	General Department of Land Administration
GDMH	General Department of Meteorology and Hydrology
HCMC	Ho Chi Minh City
IEE	Initial Environmental Examination
IUCN	International Union for Conservation of Nature
JBIC	Japanese Bank for International Cooperation
JICA	Japan International Cooperation Agency
JPY	Japanese Yen
LEP	Law on Environmental Protection
MARD	Ministry of Agriculture and Rural Development
MOC	Ministry of Construction
MOFA, Japan	Ministry of Foreign Affairs, Government of Japan
MONRE	Ministry of Natural Resources and Environment
MOSTE	Ministry of Science, Technology and Environment
MPI	Ministry of Planning and Investment
MPN	Most Probable Number
NEA	National Environmental Agency
NGO	Non-Governmental Organization
NH <sub>4</sub> -N	Ammonia Nitrogen
NO <sub>2</sub>	Nitrogen dioxide
NRE	Natural Resources and Environment
ODA	Official Development Assistance
ODS	Ozone Depletion Substances
PM <sub>10</sub>	Particulates smaller than 10 microns

PPC	Provincial People's Committees
RDB	Red Data Book of Vietnam
SFEs	State Forest Enterprises
SIDA	Swedish International Development Authority
SO <sub>2</sub>	Sulfur Dioxide
TCVN	Vietnamese Standard
TSP	Total Suspended Particulates
UNIDO	United Nations Industrial Development Organization
UNDP	United Nations Development Programme
US\$	United States Dollar
VEPA	Vietnam Environment Protection Agency
VND	Vietnamese dong
WHO	World Health Organization
WWF	World Wild Fund

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## Chapter 1 Law/Regulation and Institution on Environment Sector in Vietnam 1.1 Law and Regulation on Environment Sector

### 1.1.1 Primary Law on Environment; Law on Environmental Protection

Law on Environmental Protection (LEP) is the fundamental law in Vietnamese environmental sector. After the development and approval of the National Plan for Environment and Sustainable Development in Vietnam in 1991, LEP was passed by the National Assembly on 27 December 1993, and came into effect on 10 January 1994. The 55 articles of seven (7) chapters of the LEP comprehensively show the country's policies on environmental protection and set out a basic framework. The roles and obligations of the nation, organizations and individuals for the protection of environment are stipulated in the LEP, regarding the development, protection, management of land, forest, water and mineral resources, and the management and controls of production facilities, toxic substance and waste in the form of solid, gas and/or liquid.

The following shows the outline of the LEP:

- Chapter 1: General provision including scopes of the law, roles and responsibilities of bodies and individuals concerned, terms' definition, etc.
- Chapter 2: Provision of environmental degradation, pollution, and accident to be prevented and/or to be dealt with.
- Chapter 3: Provision of the general direction on control and management of environmental degradation, pollution, and accident.
- Chapter 4: Provision of the state's apparatus and institutions for environmental protection.
- Chapter 5: Provision on international relations with respect to environmental protection.
- Chapter 6: Provision of rewards, breaches and violations.
- Chapter 7: Implementing provision for enforcement of the law.

Besides Law on Environmental Protection, other major environment-related laws and regulations are listed in annex.

### 1.1.2 Specific Law and Regulation on Environment-related Issues

#### (1) Pollution Control

In Vietnam, before the promulgation of the Law of Environmental Protection, there were certain standards relating to the environmental pollution and public health,

which were set by the General Measurement and Standard Department in the Ministry of Health. However, they were largely based on WHO's regulations and 60 standards were adopted between 1978 and 1991.

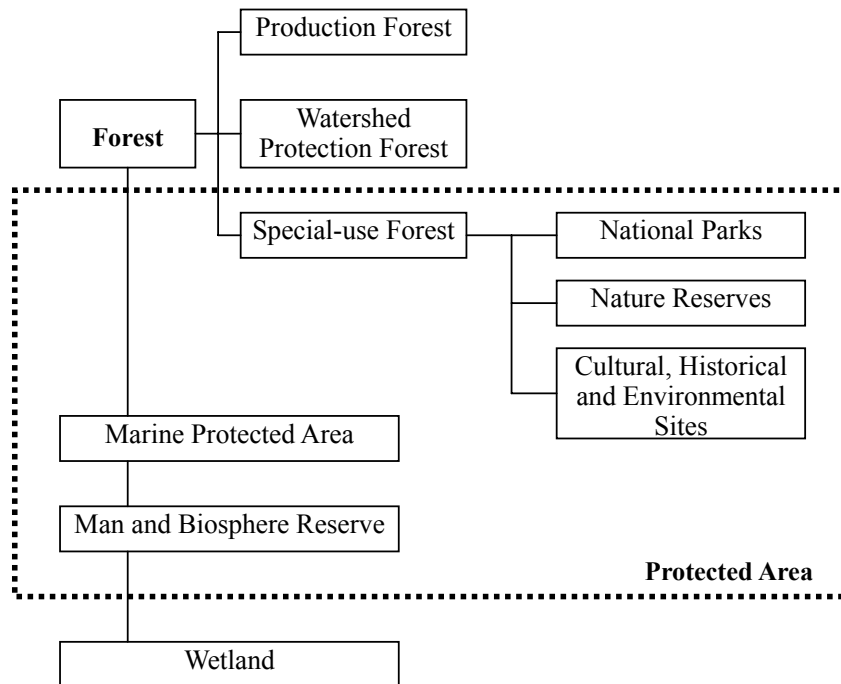
So far, the MOSTE (now MONRE) has issued about 80 Vietnamese standards including air emission, water, waste water, and noise. Such technical specifications as measurement/analysis method, requirement and calibration of measurement/analysis equipment, etc. are also covered by the said many standards.

The basic standards focusing on pollution control are enumerated below, and some of major numerical values are shown in annex.

- Air Quality, Ambient Standards (TCVN 5937, 1995)
- Air Quality, Hazardous Substance Standards (TCVN 5938, 1995)
- Air Quality, Industrial Standards for Inorganic Substances (TCVN 5939, 1995)
- Air Quality, Industrial Standards for Organic Substances (TCVN 5940, 1995)
- Standards for Noise in Public and Residential Areas (TCVN5949, 1995)
- Standards for Noise on Road Motor Vehicle (TCVN5948, 1995)
- Soil Quality Standards on Pesticide Residue Limits (TCVN5941, 1995)
- Water Quality Standards; Surface Water (TCVN5942, 1995)
- Water Quality Standards; Coastal Water (TCVN5943, 1995)
- Water Quality Standards; Groundwater (TCVN5944, 1995)
- Industrial Waste Water Discharge Standards (TCVN5945, 1995)

## (2) Nature Conservation

The Law on Forest Protection and Development plays an important role for conservation of natural environment in Vietnam. Special-use forest stipulated in the law is considered to give the basic framework for management of the protected areas. Figure 1-1 shows the classified category on the protected areas in Vietnam, in addition to the one of special-use forests.



Note: This figure was prepared in this Study

**Figure 1-1 Classified Category on Protected Areas in Vietnam**

The protected areas are composed of i) Special-use Forest, ii) Marine Protected Area and iii) Man and the Biosphere Reserve. Special-use Forest is one of the classification of forests consisting of the following three categories: 1) National Park, 2) Nature Reserve and 3) Cultural, Historical and Environmental Site. Other categories of forests that are not included in protected area are production forests and watershed protection forests, which are determined from the view points of forestry, conservation of watershed and protection of erosion. Wetland is another important category on environmental protection. However, wetlands have not gained official recognition as conservation management category. In addition, the institutional arrangements for managing the nationally important wetlands have not been determined to date. It is unclear whether these sites will be incorporated within the Special-use Forests and/or marine protected areas systems, or whether a separate system of wetland protected areas will be established.

The status and the number of the protected areas in Vietnam are listed in Table 1-1.

**Table 1-1 The number of decreed and proposed protected areas in Vietnam**

Category Decreed	Decreed	Proposed*1	Total
Special-use Forest	93	71	164
Marine Protected Area	0	24	24
Man and Biosphere Reserve*2	1	0	1
Total	94	95	189

Source: Information from Birdlife International.

\*1: Proposed by the concerned ministries including MOSTE (now MONRE).

\*2: Designation as a part of UNESCO's program.

There is no legislative or institutional framework for marine protected areas in Vietnam. Although the important role for establishment and management on them is considered to be under the Ministry of Fishery, the current institutional situation is unclear.

During 1990-92, the Institute of Ecology and Biological Resources, National Center of Natural Sciences and Technology in collaboration with concerned branches, has determined precious species for bringing them into the Red Data Book of Vietnam, for a basis for drafting protection measures of rare, valuable genetic resources of the tropical forests. The book on flora was published in 1996, and one on fauna in 2000 respectively, by MOSTE.

“Red Data Book of Vietnam, Volume 1 Animals” lists up a total of 359 species, including 80 animals, 81 birds, 54 reptiles and amphibians, 70 fishes and 74 invertebrates.

**Table 1-2 Red Data Book Categories in Vietnam (Fauna)**

Taxa/ Category	Endangered	Vulnerable	Threatened	Rare	Undetermined	Total
Mammals	34	25	0	21	0	80
Birds	13	6	32	30	0	81
Reptiles/Amphibians	8	19	16	11	0	54
Fishes	7	20	12	29	2	70
Invertebrates	9	22	9	31	3	74
<b>Total</b>	<b>71</b>	<b>92</b>	<b>69</b>	<b>122</b>	<b>6</b>	<b>359</b>

Source: Red Data Book of Vietnam, Volume 1 Animals, 2000

On the other hand, “Red Data Book of Vietnam, Volume 2 Plants” lists up a total of 356 species including 337 terrestrial flora (high class plants), 7 fungi, and 12 aquatic flora.

The legal framework for protection of precious/endangered species is given by the

Decree No. 18/HDBT dated on 17th January, 1992 under the Law on Forest Protection and Development, which is administrated by Ministry of Agriculture and Rural Development (MARD). The decree designates 16 species of flora and 56 species of fauna as ones to be prohibited from exploitation and any use, although the relation between the RDBs and the decree is unclear.

(3) Environmental Impact Assessment (EIA)

The EIA system in Vietnam is functioned by Article 17 and 18 of the LEP and a series of enforcement regulations, particularly Decree 175/CP and Decree 26/CP. Chapter III of Decree 175/CP contains requirements for the submission of EIA by investors and enterprises, both foreign and local. The investment projects are divided into two categories: Class I projects that require the EIA report to be prepared, submitted and evaluated, and Class II projects which are all other kinds of projects. Class I projects, which are listed in annex, include such projects that may potentially cause environmental pollution in a wide area, and that may easily cause environmental problems.

The period of time for appraising an EIA report cannot be longer than 2 months (60 days) from the date when all related documents are received.

(4) Other Environment-related Laws

a. Law on Water Resources

The Law on Water Resources was approved by the National Assembly in May 1998, and enforced from January 1999. The law was prepared for realizing an efficient management of water resources especially on the issues of water deficit in the dry season and flood damages in the rainy season. Establishment of National Water Resources Council and River Basin Organization is also stipulated by the law. The law is administrated by MARD, and the detailed enforcement decrees/regulations are under examination.

b. Law on Fishery (draft)

The Law on Fishery is being drafted and will replace the Ordinance on the Protection and Development of Aquatic Resources. The law will cover the aquatic species to be protected against the exploitation of fishery.

c. Others

Law on Minerals controls the mining activities. And the Law on Land provides a comprehensive framework of land administration and management including issues

of the compensation and resettlement due to the national/public interest.

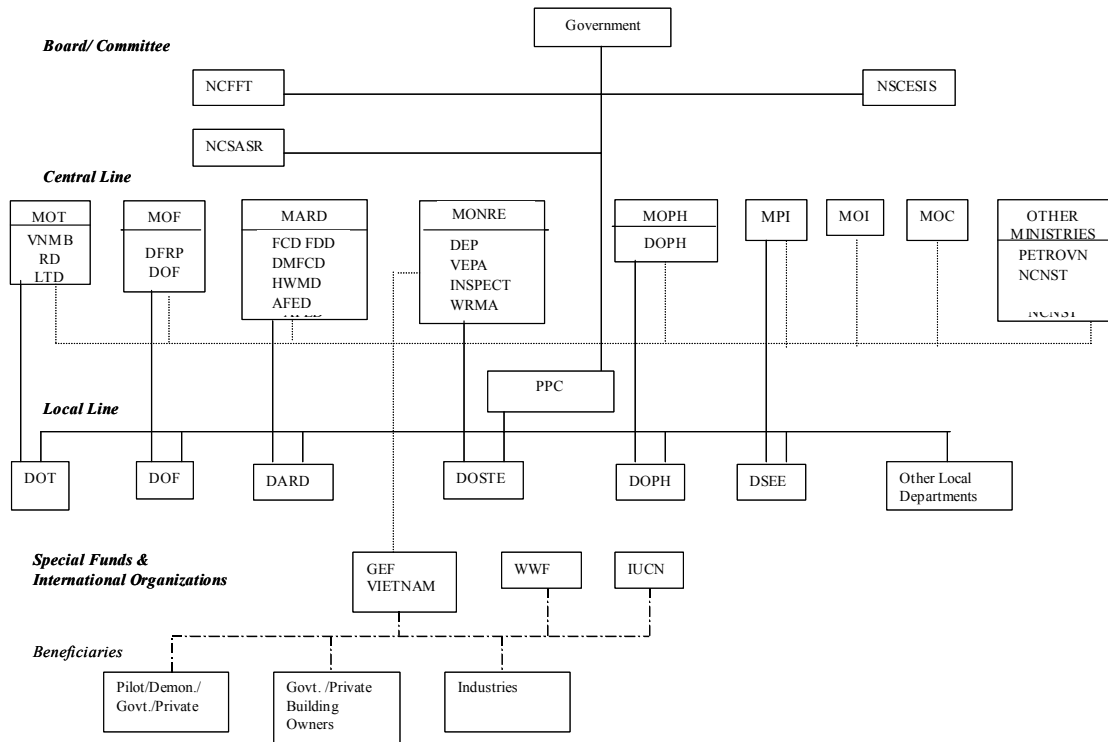
## 1.2 Institution on Environment Sector

### 1.2.1 Structure of Government

Since the promulgation of the 1992 Constitution, the power in Viet Nam is generally recognized as a "triumvirate", i.e. the President, the Prime Minister, and the Secretary-General of the Communist Party. The President is the Head of State, and leads the Office of State. The Prime Minister is the head of the Government (council of ministers), and the Secretary-General of the Communist Party has an important role in policy formulation. The National Assembly is the supreme law-making body which also elects senior governmental figures, including the President and the Prime Minister. Executive powers are vested largely in the Prime Minister, the Ministers and other officials of ministerial rank.

The structure of national governance comprises the central government in Hanoi and subsidiary levels of government at the provincial, city, town and local levels. At the provincial level (there are 61 provinces, including the city municipalities of Hanoi, Ho Chi Minh City, and Hai Phong), the People's Committees are the effective organs which implement and enforce laws.

Though the main ministry responsible for environment in Vietnam was the Ministry of Science Technology and Environment (MOSTE), this ministry has changed to the Ministry of natural resource and environment through restructuring in 2002. In addition, at least 10 other ministries and 15 state committees/general departments have responsibility for environmental and natural resource management functions. The ministries and agencies are highly segmented, with limited cooperation among them. There are significant functional overlaps, making coordination time consuming and resource intensive, and accountability difficult. Fig 1.2.2 shows the environmental relevant organizations and these relationship.



Note: **NCFT** – National Committee for Fighting against Floods and Typhoons; **NCSASR** - National Committee for Search and Rescue; **NSCESIS** – National Steering Committee for East Sea (Bien Dong) and Island Issues; **MARD** – Ministry of Agriculture and Rural Development; **MOI** – Ministry of Industry; **MOT**- Ministry of Transport; **MONRE** – Ministry of Natural resource and Environment; **MOF** – Ministry of Fisheries; **MOPH** – Ministry of Public Health; **GDMH** – General Department of meteorology and Hydrology; **DARD** – Department of Agriculture and Rural Development; **DOSTE** – Department of Science, Technique and Environment; **DFRP** – Department of Fisheries Resources Protection; **DOF** – Department of Fisheries; **DOPH** – Department of Public Health; **VNMB** – Vietnam Maritime Bureau; **RD** – River Department; **LTD** – Land Transport Department; **FCD** – Forestry Control Department; **FDD** – Forestry Development Department; **DMFCD** – Dyke Management and Flood Control Department; **WRHWMD** – Water Resource and Hydraulic Work Management Department; **AFED** – Agriculture and Forestry Extension Department; **NEA** – National Environment Agency; **GDSMQ** – General Department of Standard, Measurement, Quality; **RNSB** – Radiation and Nuclear Safety Board; **GEF Vietnam** – Global Environment Fund of Vietnam

**Figure 1-2 State Environmental Management System**

## 1.2.2 Institution of National Level on Environment Sector

As shown in 1.2.1 there are many organizations in environmental sector. In this part Ministry of Natural Resources and Environment (MONRE), which is responsible for generally environmental sector, and Ministry of Agriculture and Rural Development (MARD) which is responsible for agriculture and forestry sector, these representative two organizations are mainly described below.

### (1) Ministry of Natural Resources and Environment (MONRE)

The Ministry of Science, Technology and Environment (old MOSTE) was established in 1993. According to LEP, the MOSTE is the state management agency

for environmental protection nation-wide. The Departments of Science, Technology and Environment (DOSTE) are accountable to the Provincial and Central-level City People's Committees in terms of local environment protection.

On 2 August, 2002, the national assembly ratified the establishment of the Ministry of Natural Resources and Environment (MONRE) in order to strengthen the state management of the environment and natural resources. The MONRE is composed of departments belonged to not only MOSTE but also General Department of Land Administration (GDLA), General Department of Meteorology and Hydrology (GDMH), Water Resources Management Agency (belonged to MARD), and Vietnam's Geology and Minerals Agency (belonged to Ministry of Industry). The organizational chart of MONRE is shown in Figure 1-3. The administrative tasks related to the MONRE cover various fields as summarized below according to the Decree on 5 November 2002, although the demarcation, clarification and reformation among the other ministries are under the discussion and are not made clear.

- Land issues including registration, surveying, statistics, cartography, land-use planning, etc.,
- Water resources issues including investigation, resources protection, inspection, water resource license, etc.,
- Mineral resources issues including investigation, mineral resource license and registration for related activities, resources protection, etc.,
- Hydrology-meteorology including investigation and forecast. and
- Environment issues
  - Appraise environmental assessment reports (including IEE and EIA reports);
  - Organize the environmental research system
  - Establish and manage environmental quality standards;
  - Organize, establish and manage environmental monitoring systems;
  - Guide and inspect line agencies and local authorities, organizations and individuals;
  - Form environmental management policy;
  - Organize environmental inspections; and
  - Resolve complaints and notifications of violations in environmental protection within its authority.

The National Environmental Agency (old NEA), which was a department of old MOSTE, has been also reformed into the Vietnam Environment Protection Agency (VEPA) of present MONRE. The old NEA was directly responsible for the environmental management and protection on a nationwide scale, including the duties on environmental pollution control, EIA procedure and appraisal,

environmental inspection and monitoring, and training and awareness of the public. It is considered that the VEPA will have the almost same duties as the old NEA except the EIA-related tasks which will be managed separately by another department, although the detail demarcation of jurisdiction is not clear at present.

**(2) Ministry of Agriculture and Rural Development (MARD)**

Ministry of Agriculture and Rural Development is the agency under the Government which performs the functions of State management over agriculture, forestry and rural development. The responsibility of Water Resources was moved to MONRE in restructuring.

Forest protection issues are administrated by Department of Forest Protection and Development (MARD). Their tasks covers i) control and management of the protected areas under the special use forest, and ii) protection of precious/endangered species of flora and fauna.

However, coordination or arrangement of some international conventions in the nature-conservation fields, such as Ramsar convention and Biological diversity convention, is not covered by the ministry. These tasks are managed by MONRE. Therefore some confusion seem often to appear for implementation of nature conservation programs.

The organizational chart of MARD is shown in Figure 1-4.

**(3) Other Ministries Involved in Environment-related Sector**

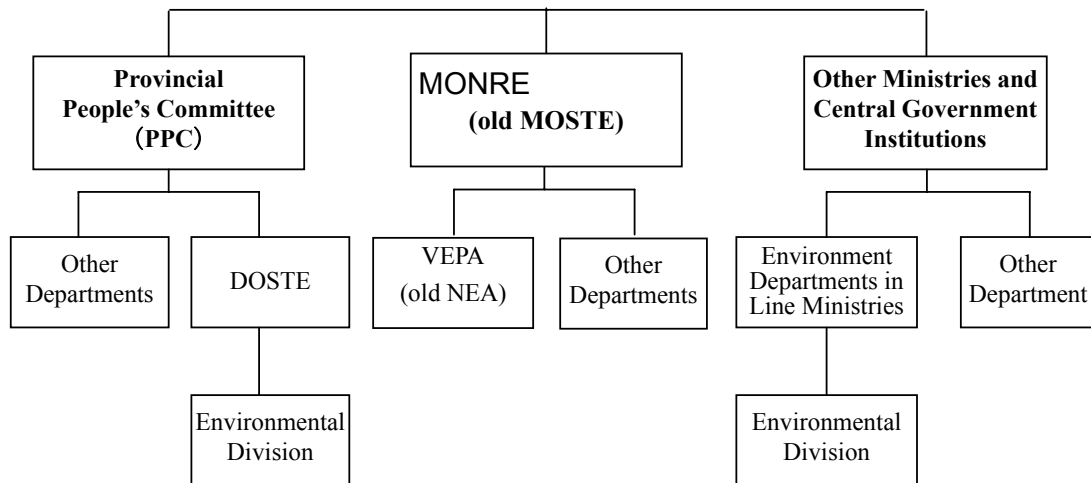
- Ministry of Fishery is responsible for the management of both marine and inland fishery activities in the country. Its task covers the research and investigation of fishery resources including the inventory and exploitability. Establishment and management of the Marine Protected Areas may be also under its responsibility, although there are no areas designated at present.
- Ministry of Construction is responsible for the fields on the water supply and sanitation facilities. The planning, implementation and operation on the specific projects are managed by the local authorities or public corporation.
- Ministry of Industry controls the individual factories against the environmental pollution and problems. Mining activities, which are recognized as one of the major pollution sources, are also controlled by this ministry.
- Ministry of Health is responsible for overseeing the delivery of health services in the country. It has a role in raising awareness related to environment health issues.

### 1.2.3 Environmental Institution of Local Level

The LEP spells out the responsibilities of the Provincial People's Committee (PPC) regarding the protection of the environment. Each of the PPC has a Department of Science, Technology and Environment (DOSTE), which is responsible for environmental management on a local level. DOSTE under the PPC is supposed to be responsible for the following on local basis:

- Preparation of annual State of the Environment report;
- Environmental monitoring; and
- Appraisal of Environmental Impact Assessment reports.

MONRE and the VEPA (old NEA) are responsible for offering DOSTE technical guidance and providing training for the staff. DOSTE comes under the purview of the central MONRE only in relation to administrative matters and technical guidance. For all other purposes, DOSTE operates under the direct control of the provincial governments, the People's Committees. The relationship among the MONRE, VEPA and DOSTE is shown in the following Figure 1-5.



**Figure 1-5 Overall Relationship among MONRE and Other Institutions**

The major sections compose the DOSTEs are as follows:

- Section of Environmental Examination and Inspection.
- Section of Technology and Scientific Management
- Section of Information and Scientific Database
- Section of Administration

- Section of Standard and Criteria.

The restructuring of the natural resources and environment (NRE) sector will also include the local administration at provincial level, where it is indicated that a new NRE administrative structure will be formed based on a merging of Department for land administration and environment. It is being consolidated and enhanced to ensure proper management of the environment and ensure national sustainable development. According to the Decree No.86/CP of the Government, provincial authorities will change accordingly in order to meet management demand of local level. In the future, there will be 61 provincial Department of Natural Resources and Environment in the whole country, and also have environment division in district level. In line with the change of the central ministry (MONRE from MOSTE), the institutional charts of provincial DOSTEs are anticipated being reformed as DONREs. These DONREs will be responsible for environmental management, land administration, mineral resources management within their locality. At the present, MONRE, in collaboration with the Ministry of Interior, preparing some options establishing DONRE in 61 provinces and cities which are suitable with local circumstances. The restructuring at provincial level is expected to be done gradually, and it might take at least one to three years to finish it completely.

## Chapter 2 Current Situations of Environment Sector Pollution

### 2.1.1 Air Pollution

#### (1) Current Situation

Air quality in nearly all urban and industrial areas is affected by high levels of particulates, lead, nitrous oxides, sulfur dioxide and carbon monoxide emitted from various sources including vehicles, factories (chemical and metallurgy industry), power plants, and households.

The rapid growth of Vietnam's automobile and motorcycle fleet from the late 1980s and throughout the 1990s has contributed substantially to air pollution, in the form of lead and fine particulates. In recent years, the growth rate of cars and fine three-wheelers increased by 7 percent. Motorcycle ownership heavily concentrated in the country's largest cities—grew at around 18 percent per year between 1993 and 2000. In terms of fuel usage, about 75 percent of the automobiles and all motorcycles use gasoline, while 25 percent of the vehicles use diesel.

Plants and factories in the cement and building material, metallurgy, and chemical sectors also contribute to air pollution. Emission inventories are not yet to be compiled and therefore source apportionment of air pollution is not available.

The greatest damage to human health comes from exposure to fine particulate matter (PM<sub>10</sub> and smaller particles). In Vietnam, however, the monitoring of PM<sub>10</sub> has commenced only recently.

In the absence of PM<sub>10</sub> monitoring, total suspended particulate concentrations are often used as a proxy indicator. In the main urban centers in Vietnam, TSP exceed standards by 1-3 fold, and the problem is most acute near busy roads, traffic intersections, and factories. TSP levels in urban residential areas are on average 1.2 to 2 times higher than the prescribed standard; but those adjacent to factories or busy roads exceed the standard by 1.5 to 3 times.

In Vietnam, solid fuels (both biomass and coal) account for a large percentage of residential energy consumption. Consequently, indoor air pollution is likely to be a significant health problem. There is, however, a lack of data on indoor air pollution.

Monitoring of SO<sub>2</sub> emissions at most industrial sites show levels that are still below the standard of 0.3 mg/m<sup>3</sup>. Occasional exceedances have been recorded. SO<sub>2</sub> levels in residential areas are still very low. However, thermal power plants and industries in the north using coal are contributing to not only high levels of sulfur, but

also fine particulates.

Levels of pollutants such as CO and NO<sub>2</sub> are within the prescribed standards in large cities like Hanoi, HCMC, Hai Phong and Da Nang and therefore do not pose immediate problems.

(2) Measures

- Air quality standards have been promulgated (refer to 1.1.2) ;
- As of July 2001, the government has phased out leaded gasoline which took full effect from September 1, 2001;
- Government is promoting efforts to improve energy efficiency in power plants and enterprises;
- With assistance from international financial institutions the government is investing in renewable energy sources.

## 2.1.2 Water Pollution

(1) Current Situation

Trends indicate that *biochemical oxygen demand* (BOD) and *Ammonia-Nitrogen* (NH<sub>4</sub>-N), both indicators for measuring organic pollution, vary widely and exceed national water quality standards by several fold. The problems are worse during the 4-month dry season, when flows in rivers are reduced. Results suggest that pollution is most obvious at locations where rivers traverse through urban and industrial centers, while in upstream reaches the water quality has been found to be good.

Within cities, lakes, streams, and canals increasingly serve as sinks for domestic sewage, municipal, and industrial wastes. Most of the lakes in Hanoi are seriously polluted with high BOD levels. Similarly, 4 small rivers in Hanoi and 5 canals in HCMC have levels of DO as low as 0-2 mg/l, and BOD levels as high as 50-200 mg/l.

Groundwater is emerging as an important source of water for domestic, industrial, and agricultural uses. It is estimated that 20 percent of the ground water reserves (50-60 billion m<sup>3</sup>) are currently being exploited. While the quality of ground water remains good, there are some pockets of contamination. There is evidence of pollution from poorly maintained septic tanks, garbage dumping, and industrial effluents and overexploitation in parts of Hanoi, HCMC and the Mekong River Delta. Saltwater intrusion into ground water aquifers is observed in about 15 coastal provinces. In some neighborhoods of Hanoi, overexploitation of ground water is

causing land subsidence.

Rapid urbanization and industrialization in the interior, port and marine transport development, expansion in coastal tourism, rise in nutrient flows, and oil spills are all contributing to the deterioration of coastal water quality and threatening the marine ecosystems in southern and northern coastal waters.

NEA's National Marine Stations which monitor coastal water quality—report an increase in some pollutants, while others remain steady. The three critical pollutants oil, pesticides, and fecal matter appear to have wide fluctuation. Oil concentrations in the coastal waters range from 0.003 to 2.5 mg/l, with some stations exceeding the standard. Pesticides concentration measured between Cua Luc and Quy Nhon appear to be within the permissible range.

Total coliform ranges between 0 to 201,500 MPN/100 ml which indicates that coastal water varies from very clean to very dirty.

(2) Measures

- In 1998, the National Program for clean water and environmental sanitation in rural areas was approved. Targets for 2005 include 80 percent rural inhabitants having access to clean water, 50 percent having hygienic latrines. Also 30 percent of breeding farms and 10 percent of artisan villages will have facilities to treat waste water.
- In 2000, the National Rural Clean Water Supply and Sanitation Strategy up to year 2020 was approved. Through promotion of countermeasures to meet demand supported by positive participation of inhabitants, it targets for 2020 include all rural inhabitants having access to more than 60 ℓ / person / day of clean water, having hygienic latrines. Targets for 2010 include 85 percent rural inhabitants having access to more than 60 ℓ / person / day of clean water, 75 percent having hygienic latrines. Also shows action plan until 2005 as countermeasures in coming years.
- A nation-wide network for ground water monitoring is being developed by the Ministry of Industry. About 470 measuring points throughout the country will measure water levels and temperature; the quality of water will also be measured twice a year at some points;
- Through financial assistance provided by international financial institutions and bilateral agencies, the government is making investments for the future collection and treatment of domestic wastewater in HCMC, Hanoi, Haiphong, and Danang.

### 2.1.3 Solid waste

#### (1) Current Situation

The generation of solid waste in urban towns in Vietnam is on the rise, and poses an emerging threat to the quality of surface and groundwater. Poor collection efficiencies, combined with largely inadequate disposal facilities are compounding the level of pollution. In addition, the generation of industrial and medical hazardous wastes is also increasing, which has accompanying health effects.

In 2000, the unit waste generation ratio for large cities ranged between 0.5-0.8 kg/person/day, while for small towns, it was 0.3-0.4 kg/person/day.

Waste generation between 1997 and 1999 increased by 30 percent, with domestic waste, construction waste, and industrial hazardous waste accounting for most of this increase. The annual waste generation in 1999 was estimated to be over 9 million tons (or 25,000 tons/day). Domestic waste accounted for three-quarters, followed by industrial and medical hazardous waste (11%).

The urban solid waste in Vietnam is high in organic content (50-62 percent), low in calorific value (3800 kJ/kg) and has a high proportion of construction materials such as soil, sand, stone, and broken bricks. Hanoi and HCMC are experiencing increases in the plastic content, while Haiphong has halved plastic content through improved recycling efforts.

Estimates for collection efficiency in big cities range from 40 to 70 percent and small towns between 20 and 40 percent. The national average collection rate is estimated at 53.4 percent. In general, solid wastes are not segregated at source. In Vietnam, solid waste from streets and households is collected and loaded onto handcarts or waste collection vehicles, and then taken to transfer stations. Private contractors are used to collect and transport solid waste from hospitals, industrial centers, and construction sites.

Recycling takes place at source, in-between and at disposal sites, and is estimated to be between 13 and 15 percent. There is no organized recycling, and is mainly done by people called waste pickers or scavengers who collect plastic, paper, metals, and glass. Only about 1.5 to 5 percent of domestic waste is composted.

Most of the collected waste in Vietnam is disposed in open dump sites and landfills. However, these landfills are not properly designed, suffer from poor siting, lack of equipment, and no leachate collection or treatment.

Hazardous wastes are comprised of wastes from industries and infectious medical waste from hospitals. In the four largest cities (Hanoi, Haiphong, Danang, HCMC)

industrial solid waste comprises around 15-26 percent of municipal solid waste. Of this 35-40 percent is considered hazardous.

In 1999, the total industrial hazardous waste generation was 109,469 tons – an increase of 33 percent over 1997. Over 90 percent of this generation comes from industries in HCMC, Dong Nai and Hanoi. Light industries contribute more than half of these wastes, while mechanical and chemical industries contribute 18 and 16 percent respectively.

The daily production of hazardous infectious medical waste from hospitals is estimated to be about 50-75 tons, which is a quarter of all hospital wastes generated in the country.

Currently, there is no classification system for hazardous waste in Vietnam. Hazardous solid waste from both enterprises and hospitals is not segregated before collection and is often disposed along with municipal solid waste at landfill sites along with household wastes.

(2) Measures

- By 2005 all provinces should prepare strategic plans for treatment and management of solid waste in all urban and industrial areas. The goal is to collect and treat 75-90 percent of the total waste generated. The government directive also requires that appropriate technologies are found for the safe disposal of infectious medical waste and industrial hazardous waste.
- Ministry of Planning and Investment has estimated that the government will need to invest approximately US\$100-150million for collecting and treating urban solid waste in Vietnam for the next 5 years;
- With assistance from donor agencies, the government is upgrading existing open dumps or rehabilitating landfills;
- Regulations for infectious medical waste management were issued by the Ministry of Health in 1999;
- Regulations for hazardous waste management were promulgated by the Prime Minister in 1999.

## 2.2 Natural Environment

### 2.2.1 Forest Deterioration

#### (1) Current Situation

During 1943 to 1993, forest cover in Vietnam declined from 14.3 million ha to only 9.3 million ha—an average loss of 100,000 ha/year. The main causes of this forest decrease are deforestation and fire agriculture for expansion of food production, forest degradation because of agent orange and so on, and forestry development aimed at timber product. Then, because of forest conservation and management based on Program 327 and five million ha reforestation program, and efforts to promote plantation activity, total area of forest and plantations has increased to 11.3 million ha.

Despite recent increases in forest area, rich and closed-canopy forest are virtually extinct, and medium-quality forests steadily diminishing. Closed canopy forests still make up only 13 percent, while poor and regenerating forests make up 55 percent of total forest area. The chances of regeneration are rapidly decreasing with the increasing isolation of the rich natural forest patches. Plantation forests, on the other hand, have almost doubled from 0.7 million ha in 1990 to 1.6 million ha in 2000.

For administrative purposes, forests in Vietnam are categorized into Production Forests, Protection Forests and Special-Use Forests (refer to Figure 1-1). Production Forests are used mainly for harvesting timber and non-timber products, after 1990 natural forest extraction was restricted, and deforestation area was extremely decreased. In addition, annual volume of timber product has been limited to maximum 300 thousands m<sup>3</sup> since 2000. The nation had owned all forest in Vietnam and managed them too. Recently distribution of forest to inhabitants etc. has progressed mainly in Production Forest, in order to secure earning of inhabitants through sustainable forest use and management by themselves, as well as to realize proper management of forestry. All forest categories have various functions for nature preservation, but Protection Forests are designated specifically to control soil erosion, moderate floods, regulate climate, and enhance the hydrological regime. Special-Use Forests are demarcated to conserve biodiversity, and as places to conduct research. These forests include national parks, nature reserves, and environmental, cultural, and historical sites.

Despite major policy reforms, as the area suitable for arable is restricted particular in northwest and central highlands, forests in Vietnam continue to be under threat of fire

agriculture by poor farmers who do not have any other means of livelihood, though it is decreasing.

With respect to State Forest Enterprises (SFEs) which have play an important role in logging operations, there were 412 SFEs before 1999, harvesting some 3.5 million m<sup>3</sup> annually.

In 1999, a Prime Ministerial Decision reformed the SFEs, allowing 130 to manage natural forests for production purposes. About 120 other SFEs are required to protect the forests and to use credit until the forests are mature enough to harvest. The remaining SFEs were to be converted into Protection Forest Management Boards.

In addition to government logging, illegal cutting, especially in the central highlands, has resulted in large areas of cleared forest. Estimates of timber extracted illegally range from 0.5-2 million m<sup>3</sup> annually.

Forest fires are caused by factors such as fire agriculture in dry season, as well as pressure due to poverty. Deliberate fires are set to clear land for cultivation often lead to forest fire and further reducing the diversity and future economic potential of those areas. Official statistics reveal recent annual losses varying from about 1000 to highs of about 20,000 hectares in 1990 and 1998. In 1998, there were 1681 cases of forest-fires in 37 provinces which destroyed 19,819 ha of forest altogether. Since 1998, MARD has had an annual budget of about VND18 to 19 billion to help prevent fires.

(2) Measures

- The Government has targeted for forest coverage to be expanded to at least 43 percent by 2010. In addition, five million hectares are to be established and regenerated by 2010.
- Distribution of forest to farmers private persons and companies has been progressing mainly in Production Forest, in order to charge forestry management to local peoples.
- Natural forest extraction in Production Forest has been restricted. The Government has advanced reformation of SFEs.

### **2.2.2 Soil Deterioration**

(1) Current Situation

Land degradation in Vietnam can be attributed to a variety of causes including urbanization, insecure land tenure, poor logging practices, drought, expansion of

aquaculture into areas of acid sulphate prone soils, and acidification. About 50 percent of Vietnam's land area has been identified as having poor quality soils as a result of human activity.

Vietnam's many steep slopes and burnt area, especially in the highlands and northwest regions, are very susceptible to soil erosion during heavy rains. The eroded topsoil is carried away and deposited as silt in rivers, lakes and estuaries, and the rich diversity of productivity-enhancing organisms is lost. Potential soil erosion ranging from 50-3200 ton/ha/year affects about 23 million ha, accounting for some 70 percent of the country's land area.

Salinization and acidification are observed in the plains and coastal areas, but are most common in the Mekong delta region. Recently many irrigation works and hydro-electric dams have changed the flow regimes of rivers. One consequence of this is saline intrusion into groundwater in estuary areas such as Thai Binh, Hai Phong, Quang Ninh provinces in the North, and the Mekong delta region in the south. This salinization not only affects drinking and industrial water, but also threatens ecosystems and agricultural systems. The severity of the salinization depends on the topography and flow—with areas such as the Mekong delta affected more than the Red River delta.

The exposure of coastal acid-sulphate soils in estuarine areas, through the development of coastal aquaculture, for example, causes acidification of land and water. The area of such soils has reduced from 2.1 million ha in 1980 to about 1.5 million ha today.

(2) Measures

- Government target for 2010 includes a 50 percent reduction in barren and degraded lands, as well as 90-100 percent regeneration of depleted upland forest.
- The Five Million Hectare program aims to recover 5 million ha of open lands through natural regeneration and reforestation of barren lands. This program is a follow-up to the "Regreening the Barren Hills" program of 1993.

### 2.2.3 Loss of Biodiversity

(1) Current Situation

Vietnam is one of the world's 10 most biologically diverse countries—containing about 10 percent of the world's species, even while covering less than 1 percent of the earth's surface. A high degree of species diversity 23,000 terrestrial and aquatic species is found in Vietnam. In terms of fauna diversity, 275 mammal species and subspecies, 828 bird species, 82 amphibians, 258 reptilian species and over 5000

insect species have been recorded. Flora diversity can be seen in the 13,766 reported species of flowering plants in Vietnam of which 2393 are lower plant species and 11,373 are flowering plant species.

Endemism in Vietnam is higher as compared to other countries in the subregion. Seven of Vietnam's 15 primate species, and about 100 bird species are endemic. High endemism is also observed in the floral kingdom as much as 10 percent of country's local plant species may be found nowhere else in the world.

The freshwaters of Vietnam are also rich in flora and fauna biodiversity—including species of fish, shrimp, crab, snail, mussels, amphibians, insects and plants. There are about 544 fish species in Vietnam, of which an estimated 35 are endemic. In addition, there are 52 species of crabs and shrimps, of which 27 are considered endemic.

Mounting pressures from population growth, dam and road construction, and expansion of agricultural lands are resulting in serious habitat losses. Mature natural forests have been damaged or destroyed, logged, cleared and replaced by plantation forests. This habitat loss is threatening the country's rich species diversity. Not surprisingly, according to government statistics, of all Vietnam's endemic species, 28 percent of mammals, 10 percent of birds, and 21 percent of reptile and amphibian species are endangered mainly due to habitat loss and hunting.

Freshwater biodiversity in Vietnam is also threatened by domestic and industrial water pollution, impoundments, dredging, destructive fishing techniques and overfishing, and the release of exotic alien species. The extent of the destruction of freshwater biodiversity is still poorly known.

Even in most protected areas wildlife is not completely conserved. The poor farmers have still captured wildlife. Intense demand both from within Vietnam, and externally from China fuels are major trade in wildlife species. The animals are traded for medicinal use, as wild meat and tonics, as trophies and souvenirs, and as pets. About half the trade is in reptiles mainly snakes and turtles. Tens of thousands of animals are confiscated but these represent only about 5-10 percent of the entire trade volume.

In order to protect and conserve its rich biodiversity, Vietnam has been developing a protected areas system over the last three decades. In Vietnam, these protected areas are classified and known as "special use forests" consisting of national parks, nature reserves and cultural, and historical sites. Vietnam's first Nature Reserve was established in 1962, at Cuc Phuong near Hanoi, where is designated as a national park. .

Wetlands are among the most threatened habitats in Vietnam with half of globally threatened birds in Vietnam being dependent on this ecosystem for their survival. However, wetlands have not yet to gain official recognition as a distinct land use or conservation management category. In 2000, MOSTE/NEA identified 79 wetlands of national importance of which only 16 are included within decreed special use forests.

(2) Measures

- Government target for 2010 includes the increase in protected areas to 109 protected areas covering 2.6 million ha—equivalent to 8 percent of the total land area.
- In early 2002, Vietnam passed a Government decree to align its laws concerning the management of export, import, and transit of wild animals and plants with the Convention on the Trade in International Species (of which Vietnam has been a long-standing member).
- The Forest Protection Department within MARD is responsible for the overall management of special-use forests, while day to day management is undertaken by Management Boards. MARD's budget to 9 management boards under its jurisdiction amounts to about 45 billion VND per year.
- Currently, only about two-thirds (65) of the 93 national special-use forests have management boards decreed and are therefore eligible for funding.

## 2.3 Global Issues

Vietnam is a party to many major international environmental conventions on transboundary and global issues, including biodiversity, ozone depletion, climate change, transportation of hazardous, oil spills, and trade in endangered species of wild fauna and flora.

### 2.3.1 Greenhouse Gas

(1) Current Situation

A national greenhouse gas inventory was prepared in 1994 for the Vietnam Initial National Communication on Climate Change. Based on this inventory, the country released a total of 103.8 million tons of CO<sub>2</sub> equivalent into the atmosphere, which translated to 1.4 tons of CO<sub>2</sub> equivalent per capita. The energy sector accounted for 24.7 percent of these emissions, agriculture 50.5 percent, industry 3.7 percent, forestry and land use change 18.6 percent, and wastes 2.5 percent.

A recent study has projected greenhouse gas emissions for the next 20 years which

indicates that share of the energy sector will grow to 88 percent, while agriculture will account for the rest. At the same time, land use and forestry will sequester 24.8 million tons of CO<sub>2</sub> equivalent. This projection does not take into account contributions from industry and waste sources.

(2) Measures

- In response to the Kyoto Protocol, Vietnam is preparing a National Action Plan on Climate Change. Concurrently, a National Strategy for Clean Development Mechanism is also at an advanced stage of preparation.

### **2.3.2 Depletion of Ozone Layer**

(1) Current Situation

It is estimated that Vietnam has been able to reduce ODS (Ozone Depleting Substances) consumption by 40 percent since 1996. However, specific types of ODS, such as those used in foam blowing has sharply increased from 30 tons in 1998 to 100 tons in 1999. After peaking in 1996 at 235 tons, refrigerants initially declined but stabilized at 170 tons in 1999. Refrigerants and foam blowing substances accounted for 80 percent of all ODS consumption in 1999.

(2) Measures

In 1995, Vietnam adopted the national program to phase out ODS, and has taken the following actions:

- An Ozone Office was established in GDMH (General Department of Meteorology and Hydrology) in 1996 to oversee the implementation of the protocol;
- ODS consumption of aerosols in cosmetic and pharmaceutical industry will be maintained at 1994 levels and will be completely eliminated by 2005;
- Reduction and depletion of ODS in foam production commenced in 1996 and will be completed in 2005; depletion of ODS in production of air conditioners and refrigerators, halon in fire extinguishers, and FCF in solvent cleaning commenced in 1996;
- Use of methyl bromide in the production of agricultural and forestry products will end in 2006.

### **2.3.3 Acid Rain**

(1) Current Situation

Pollution caused by SO<sub>2</sub> and NO<sub>2</sub> gases in atmosphere is the major reason for generating acid rain. As mentioned before (refer to 2.1.1), the air environment in

Vietnam is generally not yet polluted by SO<sub>2</sub> and NO<sub>2</sub>. Therefore, it is possible to conclude that SO<sub>2</sub> and NO<sub>2</sub> pollutant sources by themselves and not generate acid rain. However, air pollution can spread across frontiers of countries, which means SO<sub>2</sub> and NO<sub>2</sub> pollutants in one country can cause acid rain in another country.

There are 3 stations monitoring acid rain under the national system of environmental monitoring system of environmental monitoring stations, but only Lao Cai Station began measuring the acidity of rain water from 1995 onwards. One southern station located in the Centre of Water quality and environment, in HCMC as well as another station located in Dung Quat industrial zone, Quang Ngai began monitoring rain water for acid from 1999.

(2) Measures

- Monitoring system of acid rain come to be operated in some years
- Vietnam is one of members of the East Asia Acid Rain Monitoring Network

## Chapter 3 The Situation of Projects in Environmental Sector

### 3.1 Direction of Vietnamese policies in Environmental Sector

The politburo policy, high level directive N. 36CT/TW promulgated in 1998, describes that it is necessarily for Vietnam to take serious measures to promote environment protection because wastewater, air emission, and solid waste pollute many cities and industrial parks. The measures include: issuing policies on taxation and credits to encourage cleaner technology, giving people access to information on the environment, supporting public participation in environment protection; incorporating environment considerations into development plan; promoting pollution prevention strategy, setting down enterprises seriously pollute, treating effectively waste, increasing research on environment protection and promoting broader international cooperation in environment management.

The following four major directions are considered as tracks for environment protection activities in Vietnam:

1. Strengthen environmental education and training in Vietnam and integrate environmental education into the national education system.
2. Apply strict measures to close down the very polluted enterprises
3. Mobilize and promoting all financial resources for environment protection including private and NGO's ones.
4. To prepare the National Strategy for Environment Protection for the period 2002 – 2010

Base on these four tracks, a series of projects has been carried out such as:

- Industrial pollution inventory with the preparation of Black Book includes the list of the very polluted enterprises
- Design and develop the sanitation landfill both for urban waste and industrial hazardous waste
- Promote cleaner production and application of environment technology
- Develop human resource program on environment management
- Biodiversity conservation with the publication of Red Book for endangered species
- Integrated environment aspects into socio- economic development process
- Promote public participation on environment protection
- Awareness raising for all civil societies and NGOs in Vietnam

Priority Programs and Project profiles requiring external support listed in the Environmental Action Plan 2001-2005 is shown in annex.

Major national plans or strategies in environmental sector which were established and have been prepared are as shown below.

- National Strategy for Environmental Protection
  - National Plan for Environment and Sustainable Development 1991-2000
  - Environmental Action Plan 1995-2000
  - draft Environmental Action Plan 2001-2005
  - draft Environmental Action Plan 2002-2007
- \* It may be that this draft EAP 2002-2007 was revised because the year has passed before the approval of draft EAP 2001-2005

Draft Environmental Action Plan 2002-2007, priority programs shown in National Strategy for Environmental Protection, and projects requiring support from foreign donors shown in draft Environmental Action Plan 2001-2005 are attached as annex.

Not so many and significant projects has been carried out due to shortage of knowledge on environment impacts and due to the priority given to economic development. Almost of project are focused on awareness and set up a system for environment management in Vietnam throughout the country.

For the last few years, the budget for environment management in Vietnam has been increasing annually.

State budget for Environment management (excluding Vietnam Environment Fund)

2000:	75 billion VND
2001:	100 billion VND
2002:	120 billion VND
2003:	120 billion VND

### 3.2 Records and current situation of Japanese assistance projects

UNDP analyzed Japanese ODA in the report “Overview of official development Assistance in Vietnam” as follows. Though Japan remains the largest donor in Vietnam, whole disbursement of Japanese ODA is drastically decreased from 2000 to 2001. JBIC showed the largest decrease in disbursement, which partly can be explained by the completion of several projects and completion of disbursements for Miyazawa Initiative. In details, disbursement to the energy sector decreased, while those to the transport sector increased. JICA grant-based ODA also fall significantly. Japan continues to concentrate their ODA to infrastructure. Almost half of Japanese ODA was directed towards the transport sector, while fully another quarter was absorbed by the energy sector. As for JICA, there is a shift of focus from more expensive large infrastructure projects to less costly economic growth and poverty reduction programmes.

“Valuation report of Japanese ODA for Vietnam” (2002.3, Ministry of Foreign Affairs (MOFA), Japan) describe Japanese ODA on Environmental sector as shown below.

“The assistance on environmental sector does not account for so much among the whole. The amount of Yen Loan was 32.5 billion JPY and that of grant aid was 6.09 billion JPY (record of FY1999-FY2000). They occupied only 5% and 12% of each the whole amount of Japanese ODA for Vietnam. “

The record of Japanese ODA Project in environmental sector in Vietnam is shown in the following Table 3-1. Japanese ODA projects in environmental sector are classified as the following three categories, i.e. the natural environment conservation projects, the urban sanitation improvement projects, and the pollution prevention projects.

**Table 3-1 The JICA ODA Project in Environmental Sector in Vietnam**

Project Title	Assistance Type	Duration
Natural environment conservation		
The Feasibility Study on Forest Management Plan in Central Highland in Vietnam (F/S)	DS	2000.2~2003.1
The Study on Nationwide Water Development and Management Plan (M/P, F/S)	DS	2001.8~2003.9
The Study on Environmental Management for Ha Long Bay in the Socialist Republic of Viet Nam (M/P)	DS	1998.2~1999.12
The Project for the Strengthening Reforestation Programme through Agroforestry Practice in Dac Lac Province	GA	1992

Project Title	Assistance Type	Duration
The Project for Improvement of Equipment for Reforestation in North-West Viet Nam	GA	1995~1996
The Project for Afforestation on the Coastal Sandy Area in Southern Central Viet Nam	GA	2000~2001
Afforestation Technology Development Project on Acid Sulphate Soil in the Mekong Delta	PTTC	1997.3~2000.3
Afforestation Technology Development Project on Acid Sulphate Soil in the Mekong Delta (Follow-up)	PTTC	2000.3~2002.3
Urban Sanitation Improvement		
Urban Drainage and Wastewater Disposal System in Hanoi City (M/P, F/S)	DS	1993.10~1995.2
The Study on Water Supply Development for Hanoi City in the Socialist Republic of Viet Nam (M/P, F/S)	DS	1996.2~1997.9
The Study on Water Supply on Urban Drainage and Sewerage System in Ho Chi Minh City in the Socialist Republic of Viet Nam (M/P, F/S)	DS	1998.7~1999.12
Study on Environmental Improvement at Hanoi City in the Socialist Republic of Viet Nam (M/P, Pre-F/S)	DS	1998.7~2000.5
Study on Sanitation Improvement Plan for Hai Phong City in the Socialist Republic of Vietnam (M/P, F/S)	DS	2000.5~2001.6
The Detail Design Study on Ho Chi Minh City Water Environment Improvement Project in the Socialist Republic of Viet Nam (D/D)	DS	2000.3~2001.2
The Project for the Improvement of Water Supply Facilities in Gia Lam Area, Hanoi City	GA	1993~1995
The Project for Expansion of Water Supply System in Hai Duong City	GA	1998~2001
The Project for Improvement of Solid Waste Management in Hanoi City	GA	2002.1~2003.8
Water Sector Training Center Project in the Southern Areas of the Socialist Republic of Vietnam	ETD	2000.1~2003.3
Pollution Prevention		
The Master Plan Study for Industrial Pollution Prevention in Viet Nam (Waste Water) (M/P)	DS	1999.10~2000.9
JBIC's Two Step Loans for Pollution Prevention Finance	CFT	2000

Source: JICA activity and Grant Aid Projects in Vietnam, (2002.5, JICA Office in Vietnam)

Note: DS; Development Study GA; Grant Aid PTTC; Project-type Technical Cooperation

ETD; Expert Team Dispatch CFT; Country-Focused Training Courses

The valuation of other donors regarding to Japanese ODA (as JICA projects) on the environmental sector in this nation might be shown as follows, judging from existing other donors document such as “A Study on aid to the environment sector in Vietnam” (1999, UNDP, MPI).

- Japan has focused on projects on transportation and energy sector but the investment on education and health fields has not much.
- On environment sector, JICA used to be one of ten biggest donor for the period 1985-1995, from 1990 to now, almost of JICA projects are devoted to

infrastructure development in Vietnam such as national transport development strategy in Vietnam: development study; Telecommunication development in Vietnam : development study; Can Tho Bridge.

- The tendency of JICA projects on environment is decentralized aid delivery.

MOFA, Japan has proposed priority for environmental sector in their ODA policy for Vietnam (refer to 4.1). But other donors cannot help evaluating that Japan doesn't have priority on environmental sector projects because of the vast amount disbursed to other infrastructure.

### 3.3 Assistance by Other International Donors and NGOs

#### 3.3.1 Assistance by International Donors

While there has been a clear downward trend in global flows of ODA relative to the size of donor country economies during the last decade, environmental aid commitments have grown continuously up to 2000, with a particularly rapid increase of 65% in the four year to 1997. Total commitments during the period 1985 – 2000 are currently attending at US\$ 2billion (including water supply projects, which make up 50% of the amount).

During 1985-1995 environmental aid accounted for only 9.4% of total ODA disbursed, but rose to 11.8% during the period 1996-2000. This performance reflects the overall increase in ODA disbursement during the last few years. (1997: US\$1.1 billion; 1998: US\$ 1.3 Billion; 1999: US\$ 1.64 Billion and is projected to be 2 billion in the year 2000.)

By far, the greater part of the Environment ODA except for water resource development projects, goes to green areas such as forestry sector.

##### (1) Multilateral Donors

World Bank (WB), Asian Development Bank (ADB), and United Nations Development Programme (UNDP) etc. are major multilateral donors in Vietnam.

On-going ODA projects are shown in Table 3-2.

In this Study period, some donors give a chance for interview regarding ODA in environmental sector.

According to ADB Officer, ADB does not have any planned project in environmental sector. Ho Chi Minh City Environmental Improvement Project is most representative one funded by the organization. Though ADB has funded some sanitation projects, they have mainly focused on not wastewater treatment or drainage but water supply development. ADB also dispatched mission for preparatory technical assistance to Forestry sector project, namely Forest for Livelihood Improvement in the Central Highlands Project.

**Table 3-2 On-Going Major ODA Project in Vietnam in the Field of Environmental Protection  
(except for Japanese ODA)**

(2) Bilateral Donors

For some key donors on environment sector, the priority area of ODA is very clear, for example: DANIDA spend a lot effort on sanitation while SIDA prioritizes the institutional development and land administration. Many of coastal zone management and wetland project are funded by the Government of the Netherlands.

DANIDA is one of major bilateral donors in Vietnam. Total ODA amount by Denmark located in 3rd of all bilateral donors in 2000 and 2001, which followed Japan and France. In environmental sector, also this organization has assisted many projects in Vietnam as shown in Table 3-3. These projects includes ones funded not only DANIDA but other donor organization, or ones funded by DANIDA and assisted technically by other donors or NGOs. In interview to officer of DANIDA, he was modest to say that “total ODA disbursement of Denmark for Vietnam was very small compared to that of Japan, moreover the annual amount of Danish ODA has decreased in recent years”. It is certain that the amount of Japanese ODA in Vietnam has been larger than that of Denmark, but opposite situation can be found as to the ratio of ODA disbursement in environmental sector. The ratio in Danish ODA was approximately 25% in 2001 (100 million DKK among total 400 million DKK), 17% in 2002 (50 million DKK among total 300 DKK) respectively. These figure are larger than those of Japan shown above, though the content of ODA is not considered in this comparison.

**Table 3-3 On-going environmental project by DANIDA in Vietnam**

Project Title	Project Period	Executing Agency	Implementing Agency
Support to the Marine Protected Area Network in Vietnam	36 months, 2003-2005	MOF	Dept. of Science, Technology and Product Quality, MOF People's Committee of Quang Nam Province
Environmental Information and Reporting	36 months, 2003-2005	MONRE	Department of Environment
Improved solid waste management in Nghe An Province	Phase I, October 2001 - April 2005	Nghe An Provincial People's Committee	URENCO of Vinh city
Improvement of the Environment in Hanoi Living Quarters	December 2000 - December 2002	Peoples Committee in Thanh Xuan Bac	The Research Center for Architectural Indoor Climate and Environment, Hanoi
Mitigation Measures in the Building Materials Industry	December 2001 - November 2003	MOC	Institute of Building Science and Technology, Ministry of Construction
Sustainable Management of Ke Go Nature Reserve (Ha Tinh)	24 months, The project document still has to be approved by the Vietnamese Government	Ha Tinh Peoples Committee	Ke Go Nature Reserve Management Board, BirdLife Denmark
Pilot Marine Protected Areas project (Hon Mun)	Jan 2001 - Dec 2004	World Bank (GEF)	Ministry of Fishery and IUCN

Project Title	Project Period	Executing Agency	Implementing Agency
Capacity Strengthening and Programme Management Support to Ministry of Planning and Investment (MPI)/ Dept. of Science, Education and Environment (DSEE), Phase 2	March 2003 - January 2005	MPI	Department for Science, Education and Environment (DSEE)
Coastal Wetland Protection and Development	Dec 2001 - Dec 2006	World Bank	MARD
Strengthening Protected Area Management in Vietnam	December 1999 - May 2002 extended to March 2003	World Wide Fund for Nature (WWF Denmark & WWF Indochina Programme)	Forest Protection Department, MARD
Can Tho University - University of Aarhus Link in Environmental Sciences	August 1999 - April 2000. Phase II Dec. 2001- Dec. 2005	Ministry of Education and Training and Ministry of Science, Technology and Environment	Can Tho University, University of Aarhus
Environmental Education in the Schools of Vietnam	March 1999 - February 2004	UNDP and Ministry of Education and Training	Center for Education Technology
U Minh Thuong Nature Reserve Conservation and Community Development	December 1998 - November 2003	Kien Giang People's Committee	Dept. of Agriculture and Rural Development
Industrial and Urban Development in Viet Tri City	Aug 2002 - Aug 2004	Phu Tho People's Committee. COWI company contract	Phu Tho DoSTE
Forest Protection and Watershed Management in Nghe An Province	April 2002 - March 2005	Nghe An People's Committee	Department of Forest Protection of Nghe An.
Biodiversity Conservation in the North Truong Son Mountain Range	April 2002 - March 2005	Ha Tinh People's Committee	Association of Science, Technology and Environment, Ha Tinh Province

### 3.3.2 Assistance by NGOs

There are about 400 international NGOs in Vietnam actually, in which a considerable number are on environment sector. Unfortunately the data collected by government agencies as well as international agencies do not reflect the concrete contribution of NGOs, but almost of NGOs contribution are devoted to green sector such as: non timber products and sustainable forestry management; wetland conservation, biodiversity conservation , lagoon ecological system.

The major NGOs on environment sector in Vietnam are IUCN, Bird life, WWF and so on. These NGOs has collaborated with international donors as shown in 3.3.1. They have not only conducted their study or projects by themselves but also been engaged in preparing National strategies in collaboration with governmental organizations and other international donors, such as National Conservation Strategy, National Environmental Action Plan, Biodiversity Action Plan, and so on.

In interview to IUCN officer, he said as the followings.

- The NGO has conducted many projects mainly in nature conservation field.

- He has impression that Japanese ODA had priority in preparing urban infrastructure, while environmental sector had been not so much emphasized.
- Three or four-year period is necessary and proper for each environmental programme as IUCN ones.
- Other donor countries dispatch some of their personnel to international NGOs in Vietnam to understand and experience other organizational system and institute operational methods in nature conservation. Japan has only one case in IUCN in Vietnam. It would be better that these interchange increases between agencies and organizations relevant to international assistance, though he understands existing restrictions in Japanese ODA schemes.

### 3.4 The Relationship of other donors' assistance and Japanese ODA

#### 3.4.1 **The partnership programme on ODA in Vietnam**

##### (1) Forest Sector Support Program and Partnership: FSSP

FSSP is a partnership programme in the forestry sector, which is one of environmental sub-sector. This programme has been operated by the participation of governmental institutions and international donor organizations.

Al though Vietnam had been high in ratio of forestry coverage, and rich in biodiversity originally, the forestry was acutely deteriorated because of some causes such as war and fire agriculture. As the Government of Vietnam had been deeply felt the necessity of measures to the serious situation, had focused on policies relevant to this subject, therefore a lot of international assistance projects in this issues had been implemented. Considering this background, the FSSP was established. The partnership members are composed of bilateral donor countries and major international donor organizations such as WB, ADB, JBIC, and EC and so on. The FSSP has some positive activities including regular meeting. Representative governmental organization in Vietnam is MARD.

In the structure of the programme the following three institutions are included, i.e. Partnership Steering Committee: PSC, Technical Executive Committee: TEC, and FSSP Coordination Office: FSSP CO. The PSC convenes bi-annually, while the TEC meets on a monthly basis. The FSSP CO has been staffed and operating. The office provides day-to-day coordination and support to the activities in the framework of the FSSP.

##### (2) Environmental Support Group for Environment: ISGE

ISGE was established about 2 years ago, which is a partnership programme targeting on whole of environmental subjects. The governmental representative organization

is MOSTE (present MONRE). The major organizations have participated in the programme as similar as FSSP.

It was considered that 2001 was preparatory phase, 2002 should be a start year of solid working linkages. But activities of the programme currently are not frequent, but almost pausing. The subject discussed at the beginning might be concentrated in the policy aspect. (Source: interview to UNDP)

### **3.4.2 Japanese ODA**

As mentioned previously, recent Japanese ODA has been the most occupancy in the all ODA for Vietnam. The investment of Japanese ODA has put emphasis not on policies but on specific project in some sub-sectors i.e. energy or transportation, which has been also mentioned in the analysis of other donors.

In environmental sector as well, the assistance is in tendency of investment for specific project in provincial level. These assistance reflect other characteristic in Japanese ODA, that is, they are not mere scattering of money. They are targeting a face-to-face assistance. The direction that Japan intends to advance original projects is clear. On the other hand, some of bilateral donors have small ODA budget compared to Japan.

As to Japanese agencies participation to partnership programme in Vietnam, JICA is only an observer while JBIC is member of FSSP. Both agencies have not appeared as a member of ISGE, which show the tendency mentioned above

Table 3-1 shows the number of ODA project and amount of commitment on environment sector in Vietnam (1995 – 2001) as a reference for propulsion of ODA projects in environmental sector by donors. (Project data source: Official Development Report (UNDP, 2002.4)) As many projects cover solely some environmental subjects, it is difficult to categorize clearly project in only one subject. They are categorized roughly in this table.

In Table 3-4, Japanese commitment on the environmental sector during 1995 to 2001 occupies around 31 % of all, which shows that Japan is also top donor. Japanese commitment is very large in forestry sector, because a rural infrastructure project treating afforestation is included in statistic. Therefore it shows high ratio among all commitment in this sector. The commitment of environment improvement and sanitation, they implements infrastructure construction, is large too. Number of Japanese assistance projects is 10 second to Netherlands which is 15. The number and amount of Japanese projects on capacity buildings or environmental education is

small compared to those of public pollution control or natural environment conservation, as similar as other donors' case.

**Table 3-4 The number of ODA project and amount of commitment on environment sector in Vietnam (1995 – 2001)**

*(Please see the MS Excel file)*

## Chapter 4 Suggestion for Japanese ODA in Vietnam

### 4.1 Policy of Japanese ODA in Vietnam

#### 4.1.1 Meaning of assistance for Vietnam

The ODA Country Policy of Ministry of Foreign Affairs of Japan (The ODA Country Policy of MOFA, Japan) mentions the following as a meaning of assistance for Vietnam:

- i) Vietnam is considered to be an important country in Southeast Asia region from the topographical and geopolitics viewpoint, with possession of second-ranking population following Indonesia. Achievement of political settlement and economic growth of Vietnam is quite essential for the region-wide stabilization and development in Southeast Asia.
- ii) ASEAN summit conference was held in Hanoi in 1998, and statements of Vietnam are getting attractive in ASEAN.
- iii) Market-economy-oriented progress accelerated by *Doi Moi* (renovation) policy can be internationally recognized as a desirable direction, and it is no doubt meaningful for Japan to assist and enhance the progress.
- iv) Close relationship between Japan and Vietnam is being realized in the various fields after mutual visits of both leaders.
- v) Investment amount of Japan into Vietnam has accounted for about 10 % of total international investment in Vietnam, ranking fourth following Singapore, Hong Kong, and Taiwan (amounted as of June 1999).

#### 4.1.2 Relation of General Framework of ODA

The ODA Country Policy of MOFA, Japan points out the following in view of General Framework of ODA;

“Vietnam is much striving for introduction of market-oriented economy, and expenditure and trading for military terms are maintained at considerably low level. This political direction is expected to be desirable and preferable.”

And the heeds below are raised in The ODA Country Policy for applying official assistance to Vietnam:

- i) It is necessary to encourage the Vietnam government to ensure the environmental consideration for achievement of environmentally sound development, although the government is recognizing the importance on environmental conservation. It is essential for Japan as a donor country to advise and support the Vietnam's requirement for its advance.

- ii) Considering the protection of fundamental human rights, it is necessary to pay attention on the socially vulnerable groups such as the poor, women, and ethnic minorities.

#### **4.1.3 Direction of Japanese ODA in Vietnam**

The ODA Country Policy of MOFA, Japan points out that, as a direction of Japanese ODA in Vietnam, it is important to support such sectors as “capacity development and institutional strengthening”, “agricultural and rural development (poverty reduction)” and “environment”, as well as the projects of big scale infrastructure development which are still under insufficiency. The ODA Country Policy also points out that the consideration is to be given not only on the hard components but also on the improvement of soft components, and that careful consideration is to be given on the Vietnam’s capability of refunding a debt in case that a Japanese loan assistance is applied. Moreover, in order to achieve the well-operated economic growth through coping with such problems as environmental degradation and income disparity due to the rapid progress, it is recognized as important issues i) to form a basic condition for realizing the sustainable economic growth, and ii) to support the efforts for reduction of poverty. Based on the above understandings, the priority of cooperation and assistance is given to the following five fields:

- i) Human resources and institution building (with a special emphasis on support for the transition to a market economy);
- ii) Electric power and transportation infrastructures;
- iii) Agricultural and rural development;
- iv) Education, health and medical services; and
- v) Environment.

#### **4.1.4 Direction of Japanese ODA in Environmental Sector**

- (1) The ODA Country Policy of MOFA, Japan (June 2000)

The ODA Country Policy of MOFA, Japan mentions the following orientation on “environment” sector to which the priority for cooperation and assistance to Vietnam is given.

“Environment sector is recognized as one of the most important sectors in the policy of Japanese ODA, and this sector includes improvement of living environment such as water supply development, sewage system development, environmental pollution control, forest conservation, reforestation, biodiversity conservation, global environmental issues, etc. In Vietnam, serious environmental problems including

forest recession / degradation and pollution of air/water quality and soil were induced not only by the consequences of long term wars and rapid population growth but also by insufficiency of effective environment-related policy. Forest destruction is getting more serious especially in the northern mountains and the central highlands. Due to the forest destruction, the ethnic minorities inhabiting these regions are faced with the difficulty of achievement of sustainable agriculture, and are then suffered from poverty. This issue suggests that the strengthening of forest-related institutions is indispensable for successful management and control of forest. The excessive cultivation due to the limited arable lands comparing with the population also induces the soil acidification and groundwater artery pollution. Besides, urbanization and industrialization in the country causes the serious pollution on ambient air, water supply source, etc. Although the government of Vietnam enacted the Law on Environment Protection in 1993, the related guidelines and standards to put the law into the effective practice have not been formulated satisfactorily. It is necessary to discuss and examine the assistance for the immediate formulation of the guidelines and standards as well as the institutional strengthening and capacity building through the human resource development.”

(2) The Second Study on Development Assistance for the Environment  
(August 2001, JICA)

The objectives of the Second Study on Development Assistance for the Environment are as follows:

- i) To clarify the basic policy to realize the effective assistance on environment sector together with close cooperation among the related organizations of Japan, through discussion about the appropriate roles of Japan-environment ODA under the tendency that the environmental problems are getting serious in the world wide; and
- ii) To suggest the preferable scopes and schemes for JICA’s technical assistance on environment sector, since JICA plays an important role in Japan-environment ODA for providing technical assistance, and JICA also has a responsibility to implement the efficient assistance which is consistent with needs of developing countries.

The report of the study reveals the following as the advantages of Japan’s assistance on environment and issues to be tackled.

Advantages of Japan’s assistance on environment	Issues to be tackled of Japan’s assistance on environment
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<ol style="list-style-type: none"> <li>1. Fulfillment of international agreement and engagement</li> <li>2. Assistance of environment sector with broad range</li> <li>3. Expansion of the Japanese yen loan assistance to the environment-sector projects</li> <li>4. Expansion of the technical assistance on environment sector</li> <li>5. Formation of the base for environment management</li> <li>6. Training programs</li> <li>7. Cooperation with the central ministries concerned</li> </ol>	<ol style="list-style-type: none"> <li>1. Support to communities</li> <li>2. Project formation under participation of stakeholders</li> <li>3. Support to establishing, operating, and strengthening the Environmental Impact Assessment (EIA) system</li> <li>4. Consideration on the difference between the developing countries and Japan</li> <li>5. Promotion of the projects connected directly with the policy development</li> <li>6. Preparedness of the staffs with expertise of technical assistance on environment sector</li> <li>7. Improvement of JICA projects</li> </ol>
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## 4.2 Suggestion for Japanese ODA in Vietnam

### 4.2.1 General Policy

Environmental policy in Vietnam faces turning points showing the next situations. These have produced big challenging issues.

- ✓ Through restructuring, MOSTE changed to, the new organization, MONRE. MONRE includes some departments responsible for land administration, meteorology, hydrology, water resources management, geology and minerals, which belonged to not MOSTE but other organizations. But the demarcation, clarification and reformation among the ministry and other ministries have been under the discussion and are not made clear. It is time to decide the future direction of environmental policy.
- ✓ Because of the vertical structure in administration in Vietnam, governmental organizations, such as MOSTE (for general environment) MARD (for agriculture) and MOI (for industry) and other developmental bodies, have not own common recognition for environmental policy. It would be expected that MONRE gain much authorities than MOSTE in through the restructuring, but the gap among governmental organizations would remain. It would be better to create political common recognition at the nation level.
- ✓ Owing to lasting *Doi Moi* policy, Vietnam has tried to advance into the global market economy. The high potential of human and material resources enables to expect more and more development in Vietnam. But the basis of market economy is so weak that not afford to much amount to environmental pollution relief. It is significant to plan and act environmental policies, and to establish the structural, human and financial basis for environmental measures execution according to extent of economic development.
  - While FSSP is existing active partnership of donors in forestry sector, ISGE is still new trial to cooperate among donors in general environmental field. The direction of ISGE effort has not been clear. It is desirable to implement assistance project considering cooperation with other donors in Vietnam, where a lot of ODA agencies execute each activity in own fields.

Judging from these situations, the followings must be suggested as a Japanese ODA policy on the environmental sector for future.

Japan should implement the following assistance with proper scale in proper time, from long-term perspectives, with making use of the efforts and results in own experience;

- 1 ) Advice for the fundamental policy making on environmental sector in Vietnam
- 2 ) Assistance for collective environmental measures, structural and human development at the nation level

#### 4.2.2 Focusing Matters

(1) Advice for the fundamental policy making on environmental sector

While Japan accomplished miracle rate growth of economy with longing for a wealth, on the other hand suffered from various public pollutions represented by Minamata disease. As a results Japan has conquer these big problems at the large cost of money for countermeasures and human efforts. In 90's, global environmental issues such as green house effect, acid rain, and trans-boundary transfer of hazardous substances etc., have become apparent, Japan also managed to solve them in cooperating with other countries. In these backgrounds Japan is struggling to change the system consisting of mass production- mass consumption- mass disposal established in the high rate growth age, which is based on one-way usage of any resource and products. The country aims to make up the solid system of recycling-based society consisting of right product- right consumption- right recycle and minimum disposal. To tackle this objective, the Basic Environmental Law, and the Basic Law for Establishing the Recycling-based Society were settled, and administrator as well as citizens and companies respectively have advanced their efforts. In addition, the country aim to establish the society that human and nature live together, while promoting restoration of degraded natural environment including rivers, lakes, coasts and forests in the high-growth period.

It is desirable in Vietnam to regard “the construction of environmentally high efficiency recycling-based society” as the national fundamental policy for future that is the Environmental Vision, to progress an integrated environmental cooperation program by means of Japanese experience according to Vietnamese situation.

(2) Assistance for collective environmental measures, structural and human development at the nation level

As shown above, the governmental system to tackle issues in environmental sector in Vietnam has not been solid yet though MONRE has been established. Development plans belong to existing ministries still have not been harmony with environmental policies. It is inevitable to make these relations clear and to establish environmental policy at nation level based on collective recognition of current issues.

For this purpose Japan also should have collective recognition on environmental ODA. For example, it should be considered to apply JICA expert and academic experienced peoples dispatched to each sector in Vietnam. They could understand prospects, coming development programs, and situation of environmental

consideration in their sectors, and then explain current barrier and obstructive incidents. Transfer of these all integrated information to Vietnamese side has significant meaning, as trying to coordinate with other ODA donors.

Governmental Ministry (MONRE) and DONREs, that have been going to be established as local level environmental organization, these ability to treat the issues in environmental sector has not been satisfactory. Program to strengthen structural organization and human resources is necessary to make up the deficit. This program should target on decision makers, who play an important role in political procedure, and middle-class personnel, who would be core members in environmental conservation activities in future.

In spite of the actual situation that the nation will not willing to give information, the structuring of a network for environmental information to hold in common among central organizations such as Government, and local bodies.

The possible assistances arisen from realization of these focusing matters are followings.

- ✓ Making environmental information available
- ✓ Development of ability to cope with environment issues
- ✓ Environmental infrastructure development in metropolitan area
- ✓ Technical transfer in environment conservation field
- ✓ Contribution on the sustainable development in locality
- ✓ Support on basic environmental research
- ✓ Support on preservation of biodiversity
- ✓ Support on environmental recovery and mitigation project
- ✓ Support on development of environmental resource for tourism including eco-tourism

**Table 3-2 On-Going Major ODA Project in Vietnam in the Field of Environmental Protection (except for Japanese ODA)**

Donor	Project title	Executing Agency	Implementing Agency	Implementing Agency	Starting time	Scheduled Ending Time	Loan (million US\$)	Aid (million US\$)
WB	Hai Phong City Sanitation	Hai Phong People Committee	DOSTE, Department of Health,	DOSTE, Department of Health,	1999	2005		
	Da Nang City Sanitation	Da Nang People Committee	DOSTE, Department of Transportation, Department of Health	DOSTE, Department of Transportation, Department of Health	1999	2004	33.83	
	<i>Ha Long City Sanitation</i>	Quang Ninh People Committee	DOSTE	DOSTE	2000	2004	20.28	10.86
ADB	Ho Chi Minh City Environmental Improvement	HCM People's Committee	DOSTE	DOSTE	2000	2006	64.75	1.80
Germany	Viet Tri Drainage System improvement	Phu Tho People's Committee	DOSTE, Department of Transportation	DOSTE, Department of Transportation	2000	2005	4.45	
	Can Tho water waste treatment	Can Tho People's Committee	DOSTE, Department of Industry	DOSTE, Department of Industry	2003	2005	6.00	2.50
France	Nam Dinh waste treatment	Nam Dinh People's Committee	DOSTE, Department of Industry	DOSTE, Department of Industry	1999	2003	3.40	
	Thai Nguyen Drainage and water waste treatment	Thai Nguyen People's Committee	DOSTE, Department of Transportation	DOSTE, Department of Transportation	2001	2003	14.90	
	Vung Tau Drainage and water waste treatment	Vung Tau People's Committee	DOSTE, Department of Transportation	DOSTE, Department of Transportation	2002	2005	16.00	
Belgium	Hue improvement of drainage and water waste system	Hue People's Committee	DOSTE, Department of Transportation	DOSTE, Department of Transportation	1998	2003	7.92	
	Waste Processing in Can Tho	Can Tho People's Committee	DOSTE, Department of Industry	DOSTE, Department of Industry	2003		1.00	1.25

Donor	Project title	Executing Agency	Implementing Agency	Implementing Agency	Starting time	Scheduled Ending Time	Loan (million US\$)	Aid (million US\$)
Switzerland	Hue Urban Development	Hue People's Committee	DOSTE, Department of Transportation	DOSTE, Department of Transportation	2000	2001		2.20
	Nam Dinh Urban Development phase	Nam Dinh People's Committee	DOSTE, Department of Transportation	DOSTE, Department of Transportation	2000	2003		2.20
	Drainage system in Phan Thiet	Binh Thuan People's Committee	DOSTE, Department of Transportation	DOSTE, Department of Transportation	2001	2005		10.00
UNDP	VIE/96/023 - HCM City environmental management	HCM People's Committee	DOSTE, Department of Industry	DOSTE, Department of Industry	1998	2002		1.68
UNIDO	Reducing industrial pollution in HCM City (phase 3 )	HCM People's Committee	DOSTE, Department of Industry	DOSTE, Department of Industry	2001	2003		0.44
CIDA	Vietnam – Canada Environment protect (phase 2)	MONRE	Hanoi, Hai Phong, Danang , Haid-ong, Longan, Bacninh, Binhdong People’s Committee	Hanoi, Hai Phong, Danang , Haid-ong, Longan, Bacninh, Binhdong People’s Committee	2000	2005		11.5
Netherlands	Integrated Coastal zone management	MONRE	Hue, Da Nang, Hai Phong	Hue, Da Nang, Hai Phong	2001	2004		1.5
	National Wetland Programm	MONRE	Vietnam Environment Protection Agency	Vietnam Environment Protection Agency	2002	2003		0.5
GEF	Improvement of National action implementation plan for VXN in the process of accession implementation and enforcement of the newly signed Stockhol convention on POP	MONRE	Vietnam Environment Protection Agency	Vietnam Environment Protection Agency	2003	2004		0.5

Source: Ministry of Planning and Investment, MONRE

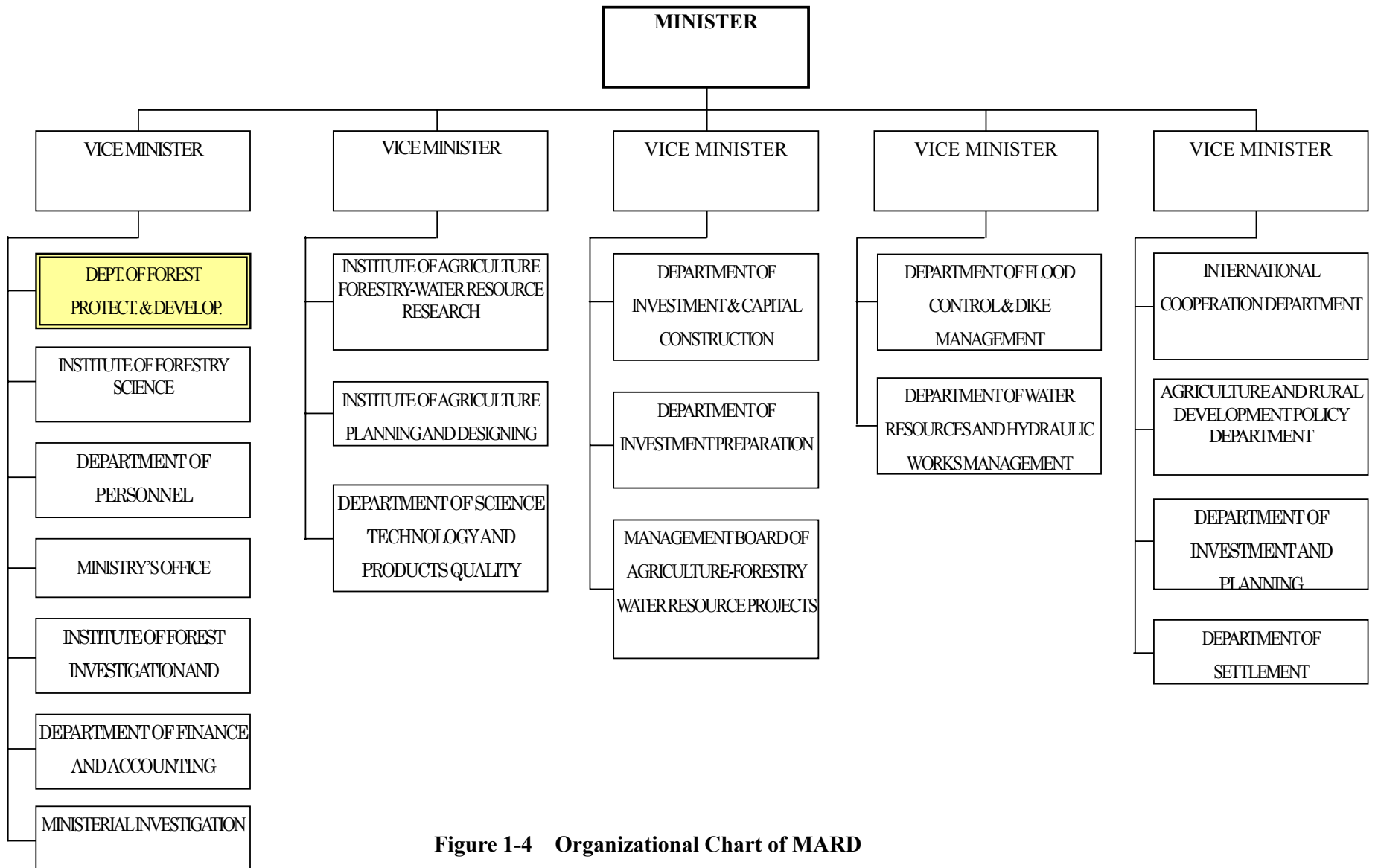


Figure 1-4 Organizational Chart of MARD

