Profile on Environmental and Social Considerations in Vietnam

September 2011

Japan International Cooperation Agency
(JICA)

CRE
CR(5)
11-009

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Abbreviation List

ADB	Asian Development Bank
AUSAID	Australian Agency for International Development
BMZ	Bundesministerum für wirtshaftliche Zusammenarbeit und Entwicklung（German）
BAP	Biodiversity Action Plan
BOD	Biological Oxygen Demand
CBD	Convention on Biological Diversity
CDF	Comprehensive Development Framework
CDM	Clean Development Mechanism
CEMA	Committee for Ethnic Minority Affairs
CENTEMA	Center for Technology and Environment Management
CIDA	Canadian International Development Authority
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CPRGS	Comprehensive Poverty Reduction and Growth Strategy
DANIDA	Danish International Development Agency
DARD	Department of Agriculture and Rural Development
DCPW	Department of Communications and Public Works
DGDC	Directorate-General for Development Cooperation
DONRE	Department of Natural Resources and Environment
DOSTE	Department of Science and Technology
EIA	Environmental Impact Assessment
ESTEC	Environmental Science and Technology Center
FINNIDA	Finland International Development Agency
FIPI	Forest Inventory and Research Institute
GTZ	Deutsche Gesellschaft für Technische Zusammenarbeit (German)
IBA	Important Bird Area
IEBR	Institute of Ecology and Biological Resources
IUCN	International Union for Conservation of Nature and Natural Resources
JBIC	Japan Bank for International Cooperation
KfW	Kreditanstalt für Wiederaufbau (German)
MAB	Man and Biosphere Program
MOF	Ministry of Federal
MOFI	Ministry of Fisheries
MOH	Ministry of Health
MOI	Ministry of Industry
MONRE	Ministry of Natural Resources and Environment
MPI	Ministry of Planning
MOLSA	Ministry of Laborer ,War Invalid and Social Affairs
MOST	Ministry of Science and Technology
MOSTE	Ministry of Science, Technology and Environment
NCNST	National Center for Natural Science and Technology
NEA	National Environment Agency
PPC	Provincial People's Committee
PRSP	Poverty Reduction Strategy Paper
RDB	Red Data Book
TSP	Total Suspended Particulate
UNDP	United Nations Development Program
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
VEPA	Vietnam Environmental Protection Agency
VEPF	Vietnam Environmental Protection Fund
VESDI	Vietnam Environment and Sustainable Development Institute
WB	World Bank
WWF	World Wildlife Fund

Chapter 1 The outline of the targeted country

1.1 General characteristic of the targeted country

The Vietnam political system is divided by legislation, administration and justice; however separation of powers does not exist. And the Diet in charge of legislation in Vietnam is one-party regime dominated by Communist Party. So Communist Party is considered as "leading force" in country and society, as described in the Constitution. Since the Constitution was promulgated in 1992, Vietnamese political system is triarchy by Chief of state (or President), prime minister who is president of the government, General Secretary (Communist Party Leader).

1.2 Legislation and policies related to environmental and social consideration

(1) Related legislation

The legal system consisting of laws and ordinances can be classified into the following 9 categories, as stipulated by the Constitution promulgated in 1992. The bodies which promulgate legislation are summarized in Table 1-1 below.

a)"Constitution (*Hien Phap*)", "Law (*Luat*) and "Code (*Bo Luat*) enacted by the Diet (Article 84)
b)"Resolution of the Diet (*Nghi Quyet*) as legislation other than laws (Article 84)
c)"Diet Standing Committee Decree or Ordinance (*Phap Lenh*) and "Resolution (*Nghi Quyet*) promulgated by the Standing Committee of the Diet on issues relegated by the Diet (Article 91)
d)Chief of State (Presidential) Decree or Order (*Lenh*) and "Decision (*Quyet Dinh*) by Chief of State (President) (Article 106)
e)"Resolution (*Nghi Quyet*) and "Decree or Cabinet Order (*Nghi Dinh*) by the Government (Article 115)
f)"Decision (*Quyet Dinh*) and "Prime Minister Instruction (*Chi Thi*) (Article 115)
g)"Decision (*Quyet Dinh*), "Instruction (*Chi Thi*) and Ministerial Decree, Circular (*Thong Tu*) by the Minister (Article 116)
h)"Resolution (*Nghi Quyet*) by each Class of the People's Council (Article 120)
i)"Decision (*Quyet Dinh*) and "Instruction (*Chi Thi*) by each Class of the People's Council (Article 124)

Source: Edited from "Doing Legal Research in Asian Countries 2003", Institute of Developing Economies, Japan External Trade Organization.

Table 1-1 Legal documents and the issuance bodies

Legislation / Agency	Constitution *Hien Phap*	Law *Luat*	Resolution *Nghi Quyet*	Ordinance *Phap Lenh*	Order *Lenh*	Decision *Quyet Dinh*	Decree *Nghi Dinh*	Instruction/Directives *Chi Thi*	Circular *Thong Tu*
The Diet (*Quoc hoi*)	○	○	○						
The Diet Standing Committee			○	○					

(*Uy ban Thuong vu Quoc hoi*)									
Chief of State (*Chu tich nuoc*)					○	○			
Government (*Chinh phu*)			○				○		
The Supreme People's Judge Conference			○						
President of the Supreme People's Procuratorate						○		○	○
Prime Minister						○		○	
Central Government Ministries (including equivalent agencies)						○		○	○
Association of the above agencies									○
The People's Council			○						
The People's Committee						○		○	

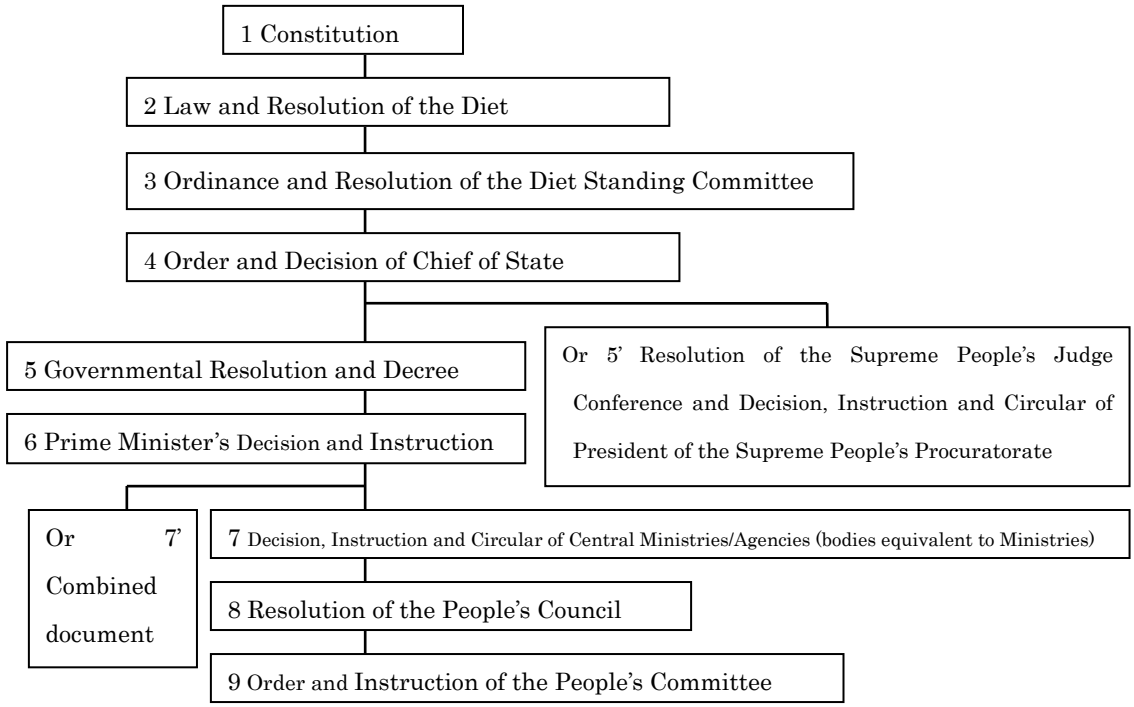
Note: ○ means it has the right of issuance.
Source: 2008 Law on Promulgation of Legal Normative Documents

Under the legislation of Vietnam, as the legislator function of the Diet doesn't come up to the actual requirements, some of the official documents (*Cong van*), which haven't been prescribed by the Law on Promulgation of Legal Normative Documents must be treated as laws.

(2) Ranks of laws

The above laws are ranked in an order with higher ranking laws assigned with smaller numbers, as shown in the Table below, so that lower legal documents must be enacted as as not to conflict with the higher laws. For example, the Order and Decision of Chief of State ranked in 4 must comply with the Constitution, laws, Resolution and Ordinance of the Diet, as well as the resolution of the Diet Standing Committee, which are ranked in 1-3. However, the Decision and Instruction of the Prime Minister, ranked in 6, are required to comply with the legal documents of 1-5, but they are not necessarily bound by the contents of 5 (the National Organizations of Vietnam, 2000). This practice has been derived from the fact that the Governmental Resolution and Decree ranked in 5 are essentially treated as the legal documents for enacting the Decisions on specific policies and instructions to the People's Council, or for prescribing the bylaws for implementing upper-ranking legal documents and specific measures for the government to carry out its powers and duties, and that they are not regarded as formal laws or Ordinances. These are actually adopted as the legal documents which are replaced by Resolutions and

Decrees. As regards 8 and 9, it shows the hierarchical relations of the documents of the People's Council and the documents of People's Committee.



Source:Edited from "The National Organizations of Vietnam, 2000"

Figure1-1 Ranks of the legal documents of Vietnam

(3)About the acronyms of laws

The laws of Vietnam are assigned with numbers and alphabets. The alphabetical acronyms represent the classifications of issuance bodies and Ordinances in Vietnamese. For examples, in the case of Decree No.80/2006/ND-CP, the acronym is expressed as: the classification of Ordinance and number (Decree 80), year of issuance (2006), classification of Ordinance (ND; Nghi Dinh: Decree) and issuer (CP: Government) (Please see Table 1-3).

Table 1-2 The system of acronyms used for laws

Name of law	Law number	Year of issuance	Acronyms of laws	Issuance body
			Resolution NQ (Nghi Quyet) Ordinance PL (Phap Lenh) Order L (Lenh) Decision QD (Quyet Dinh) Decree/Decree ND (Nghi Dinh) Instruction:CT (Chi Thi) Ministerial Decree/Circular TT (Thong Tu) Standaerds TC etc.	The Diet:QH (Quoc hoi) The Government:CP (Chinh phu) Prime Minister:TTg Ministry of Natural Resources and Environment: BTNMT Ministry of Agriculture and Rural Development: BNN Ministry of Finance: BTC Ministry of Planning and Investment: BKH Ministry of Commerce and Industry: BCT Ministry of Construction: BXD Socialist Republic of Vietnam: VN etc.

(3) Promulgation procedures of laws

The promulgation procedures of legal documents are provided by the Law on Promulgation of Legal Normative Documents.

According to "The National Organizations of Vietnam, 2000", the legal documents of the Diet or the Diet Standing Committee are promulgated by the Promulgation Decree of Chief of State. The legal documents of the central national agencies subordinate to the Diet and the Diet Standing Committee are enacted by the signature of the chiefs of the organization concerned. Legal documents are posted on the Official Gazette (*Cong Bao*), which corresponds to the official gazette of Japan, or must be publicized via mass media.

In addition, as for the information services of laws, governmental and non-governmental internal information sharing systems have been developed, which use IT, and related information is supplied to the citizens in general through various types including newspapers, mass media, legal database[1], CD-ROMs. Legal documents are also readily available as a database on the websites of the Government, central Mnistries, and local provinces and municipalities. Even for those documents at the draft stage, a system of hearing the opinions of the citizens on the government and respective Ministries' websites.

However, the publication of documents which belong to the laws enacted by administrative agencies has limitatins and not all of them are made public. The following laws are not required to be publicized.

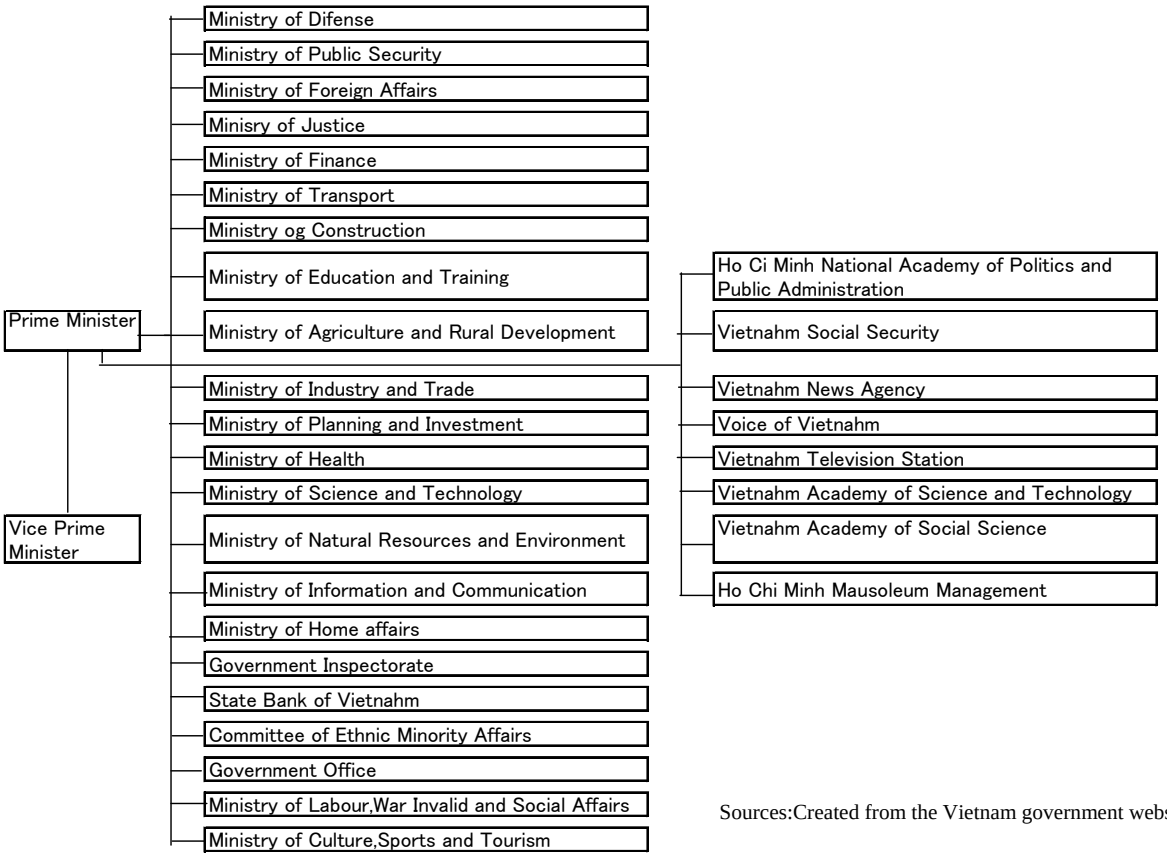
1. The documents on the state secrets are excluded from the targeted documents for publication.

[1] The main legal databases includethose operated by: the Office of the Government (CP Net), the Office of the National Assembly (WinLaw), the Ministry of Justice (Lawnet), the Center for Commercial Information of the Ministry of Trade (VInet), and Phuong Nam Company (Phuong Nam net).

2. As the official documents on businesses and citizens are not written in the legal forms prescribed by the Law on Promulgation of Legal Normative Documents and are not required to be promulgated, they may not be posted.
3. The international conventions and treaties to which Vietnam is a signatory are also excluded from the target of the Law on Promulgation of Legal Normative Documents.
4. Some of the documents of the Communist Party (*van kien*) including the resolution documents of the Party's Central Executive Committee and the Political Bureau actually have legal binding force, but they are excluded from the target because they're not legal documents.

1.3 Environmental and social consideration related to administrative organization and execution faculty

Government reorganization plan was passed by a majority approval during a first session of the 12 the Diet on July 31, 2007, and a new cabinet was approved on August 2. By this government reorganization, the number of ministries was reduced from 26 to 22 with cut down of 4 ministries. The Dung's Second cabinet became the one of technocrats focusing on specialties. The outline of the government reorganization is as below;
a.The Ministries of Industry and Trade were combined into the Ministry of Industry and Trade, b.the Ministry of Fisheries were integrated into the Ministry of Agriculture and Rural Development c. Marine field was added into the Ministry of Natural Resources and Environment d.the Ministry of Culture, Sports and Tourism were created by integrating sports committee, Ministry of culture information and Directorate General of tourism
d.The Ministry of Culture, Sports and Tourism was established,e.Publishing and media divisions were transformed into the Ministry of Posts and Telecommunications, the Ministry of information telecommunications was established. f.Population, family and children committees were demolished and transferred into related Ministries.



Sources:Created from the Vietnam government website

Figure1-2 Organization chart of Vietnam government

Table1-3 Roles of related ministries

Name of ministry	Role
Ministry of Planning & Investment	It is in charge of nationwide planning and administration of investment field such as ; socio-economic development strategies, program of economic management mechanism and comprehensive suggestion for the plan, comprehensive counsel for state economic policy on a sectoral basis. Also, domestic and foreign investment, suggestion for industrial and export processing zone and management of ODA funds. Management of procurement, and registration of enterprise and business at the state level. It is given a role of managing public service within its jurisdiction on behalf of the state.
Ministry of Finance	It is in charge of management of the followings; state finance, budget, tax, and other budget incomes, state financial fund, financial investment, corporate finance, financial service, custom duty, account, audit, state unified pricing. By law, it possesses of property right for investment fund of the state into enterprises.

Name of ministry	Role
Ministry of Natural Resources & Environment (MONRE)	In order to strengthen the management of environmental and natural resources at a state level, with reformation of environmental organizations in 2002, it was reorganized as ministry in charge of the administration of environmental fields. It was constituted of environment, land management and meteorology-hydrology divisions of the former Science-Technology-Environment Ministry, Water resources bureau of the Ministry of Agriculture and Rural Development, geology-mineral division of the Ministry of Technology. It is in charge of the followings: approval of Decree86/1002/ND-CP ; investigation, protection, approval-license and registration of mineral resources ; environmental problem issues(IEE,EIA, search system, environmental standard, instructions to subordinate organizations , support environment management policy, notify environment management illegal act、etc.,)
Ministry of Construction	It is in charge of the management of administration related to plumbing and sanitary equipment. Legislation, execution and management related to specified project are under control of local government or public corporation.
Ministry of Industry and Trade (MOIT)	It is in charge of the administration of Industry and Trade affaires including the following fields;machinery, metallurgy, electricity, new energy, renewable energy, petrol and gas, chemical materials, industrial explosive materials, mining, food industry, domestic commercial distribution, export and import, market management, promotion of trade, electric trading, application of self –defense measures in trade, consumer protection.
Ministry of Agriculture & Rural Development (MARD)	It is in charge of state management of agriculture, forester and rural development. Water resources bureau was transferred into MORNE, management of water resources related to agriculture production such as dam for irrigation or reservoir is controlled by flood and bank management division and water resources and hydraulic business management division in MARD. Forest protection is under control of MARD forest protection bureau and forest development bureau, which are in charge of regulation and management of special-use forest in the protected areas and protection of rare flora and fauna and endangered species. However International treaties such as the Ramsal Convention and the Convention on Biological Diversity are under control of MORNE. Also, it controls marine and upcountry fishery.It assesses the potential capture volume, executes investigation- research of fishery resources, sets and manages Marine Protected Area.

Name of ministry	Role
Ministry of Science and Technology and Technology (MOST)	It is the ministry which broken away from the science technology division of the former MOSTE. It supervises and directs domestic science-technology administrations and research in not only nature science but also socio-science fields.
Ministry of Labor, Invalids and Social Affairs (MOLISA)	It plays a principal role for poverty policy such as developing Participatory Poverty Assessment with MPI (Ministry of Plannning & Investment) and UNDP.
Ministry of Health	It supervises the penetration state of medical services and is in charge of promoting awareness to improve environmental sanitation
Committee for Ethnic Minority Affairs	They are administrative organization of ethnic minority and mountain areas at a Cabinet level. They are in charge of ethnic minority and mountain areas investigation, creation of proposal and guideline for socio-economic development. It plans socio-economic development for ethnic minorities and mountain areas in cooperation with related organizations. It executes projects and program commissioned by the state.

Note: As for land acquisition and involuntary resettlement, ministries which undertake projects take charge of these issues respectively. As for vulnerable groupes, Committee for Ethnic Minority Affairs handle those for ethnic minorities or mountainous areas, besides those, ministries undertaking projects take charge of these issues.
Source: Created based on the Report 2007 from Website of each ministry

1.4 Outline of ratification and application of international treaty

According to ”Register of International Treaties and Other Agreements in the Field of the Environment 2005” created by the UNEP bureau and the Website of Vietnam Environment Protection bureau (June 2011), the list of principal international treaties related to environment is as follows.

Table 1-4 Ratification status of international conventions/treaties

International convention/treaty	Year	Ministries in charge
Convention Concerning the Protection of the World Cultural and Natural Heritage	1987 At	MOCI
Protocol of 1978 relating to the International Convention for the Prevention of Pollution from Ships, 1973	1991 S	VNMB, MOT
Convention on Wetlands of International Importance especially as Waterfowl Habitat	1989	MONRE、MARD、MOF
Montreal Protocol on Substances that Deplete the Ozone Layer	1994 Ac	GDMH
Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal	1995 Ac	VEPA, MONRE
Framework Convention on Climate Change	1994 R	MONRE

International convention/treaty	Year	Ministries in charge
Convention on Biological Diversity	1994 R	VEPA, MONRE
Convention on International Trade in Endangered Species of Wild Fauna and Flora /CITES)	1994 R	MARD
United Nations Convention on the Law of the Sea(UNCLOS)	1994 R	MFA
United Nations Convention to Combat Desertification in Those Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa (UNCCD)	1998 Ac	MARD
Agreement on the Cooperation for the Sustainable Development of the Mekong River Basin	1995 S	MFA
Kyoto Protocol to the United Nations Framework Convention on Climate Change	2002 R	GDMH, MONRE
Cartagena Protocol on Biosafety to the Convention on Biological Diversity	2004 Ac	VEPA, MONRE
Stockholm Convention on Persistent Organic Pollutants	2006S	VEPA, MONRE
Agreement on the Network of Aquaculture Centres in Asia and the Pacific, 1988	1989	MONRE
International declaration on cleaner production	1999	MIP 等
Vienna convention for the protection of the ozone layer, 1985	1994	GDMH, MONRE
Agreement for the Establishment of the Asia-Pacific Fishery Commission, 1948	1995 At	MOF
Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, London, 1972	—	Now under review
Convention on the Conservation of Migratory Species of Wild Animals, 1979	—	Now under review
Agreement on the Conservation of Nature and Natural Resources, 1985	—	Now under review

Note:UNEP REGISTER OF INTERNATIONAL TREATIES AND OTHER AGREEMENTS IN THE FIELD OF THE ENVIRONMENT, 2005; Vietnam Environment Protection Agency Website http://www.nea.gov.vn/English/convention.htm
A list of acronyms; Organization: GDMH; General Department of Meteorology and Hydrology, VNMB; Vietnam Maritime Bureau, MFA; Ministry of Foreign Affairs, MOIT; Ministry of Industry and Trade(Ministry of Commerce and Industry), MONRE; Ministry of Natural Resources & Environment(Ministry of Natural Resources and Environment), MARD; Ministry of Agriculture & Rural Development, MPI; Ministry of Planning and Investment (Ministry of Planning and Investment), MOH; Ministry of Health, Ministry of Science and Technology; MOST (Ministry of Science and Technology (MOST)), MOTRS; Ministry of Transport, MOCI; Ministry of Culture and Information
S (Signature), R (Ratification), At (Acceptance), Ap (Approval), Ac (Accession)

1.5 NGO Trend

In Vietnam, while NGOs are encouraged to participate in politics, they are under the management of the Government and the situation is different from the NGOs in capitalistic countries, where NGOs are independent of the government.

First, the principle of “People know, people debate, people practice and people supervise”, which is repeatedly described in the documents and policies of the Communist Party of Vietnam, represents the Government’s intention of promoting the participation by social organizations and citizens in the process of formulating, implementing and monitoring activities of policies. This principle is ensured by Directive No. 30/CT the Central Committee of the Vietnam’s CP on Grassroots Democracy.

Meanwhile, in Vietnam, where the distinction between the government and private sectors is not clear, NGOs are managed by the State. Additionally, at times national organizations are also

treated as NGOs. The organizations which are called NGOs usually include central Ministries, local administrative agencies, attached organizations established by the support from such parent organizations as universities/central Ministries/mass organization, research institutes, business organizations engaged in humanitarian supports, religious communions belonging to the Vietnam Fatherland Front etc. As regards international NGOs, they are given approval for their activities if they partner with Vietnamese NGOs. The permit of establishing NGOs (including mass organizations and non-governmental organizations) and the supervision are under the authority of the Prime Minister, and the actual permission procedures, coordination between international NGOs with national NGOs, and information collection on international NGOs etc. are carried out by People's Aid Coordinating Committee (PACCOM), which is a part of an NGO "Vietnam Union of Friendship Organization". Meanwhile, those NGOs which do not have optional permit for establishment are regarded as illegal.

The rules concerning NGOs include "Prime Minister Decision 581/TTg on the establishment of the representative office and contact office of foreign NGOs in Vietnam", enacted in September 1993, "Prime Minister Decision 59/2001/QD-TTg on the establishment of a committee on international NGO issues", enacted in April 2001, and "Rules on the management and operation of aids from international NGOs". In addition, "Decision88/2003/ND-CP on national NGOs" was adopted in July 2003. NGO-related laws published after 2007 include the following:

- Circular 55/2007/TT-BTC on the tax exemption of individual income tax on foreign experts who carry out the foreign non-governmental support projects in Vietnam.
- Guideline 109/2007/TT-BTC on the system for the management of national finance applied to the foreign non-governmental support which does not belong to the public income of the national budget.
- Decree 93/2009/ND-CP on the official announcement of the management/restricted use of foreign non-governmental support
- Circular 07/2010/TT-BKH on the announcement of Decree 93/2009/ND-CP

1.6 Donner trend

Besides JICA, there are World Bank, UNDP, ADB etc. as donors. Also a natural protection project is executed by Japan Federation of Economic Organizations (Note: Support activities for NGO by Natural protection fund of Japan Federation of Economic Organizations).

1.7 Outline and presence of local knowledgeable persons(academic experts, consultants)

As for local knowledgeable persons, alliances organizations differ by ministries. For example, The Ministry of Transport is establishing cooperative relations with universities in Hanoi and Ho Chi Minh such as Hanoi Transportation University, Hanoi Engineering University, Vietnam Marine University.

On the other hand, the Ministry of Natural Resources and Environment changed its supervising university (Hanoi nature and environment University) from 2 year-college to 4 year-one ,came to execute human resources development and researches in the fields of floodgate, metrology, measurement and land management etc.

Chapter 2 Natural environment

2.1 Overview

(1) Definition of Protected Areas

Protected Areas (PA) in Vietnam are classified as special-use forest, Wetland Reserves and Marine Protected Areas according to its location categalization and environment.special-use forest is located mainly in mountain areas and it has sub-categories such as National parks, Nature reserves, Species-habitat conservation zones, Landscape protection areas. Nature reserves and Species-habitat conservation zones are generally called as Nature Conservation Area. These are set mainly for the purpose of protecting rare species etc,.On the other hand, Wetland Reserves are located in plains and coasts and categolized as Nature reserves and Species, biotope reserves.[1] Article 36 (stipulated Right of forest use right trade etc.) lapsed in Decree 23/2006/ND-CP, this prescription is treated in 83/2010/ND-CP. Also, Decree 25/2009/ND-CP relating marine and islands fields was issued for in 2009.

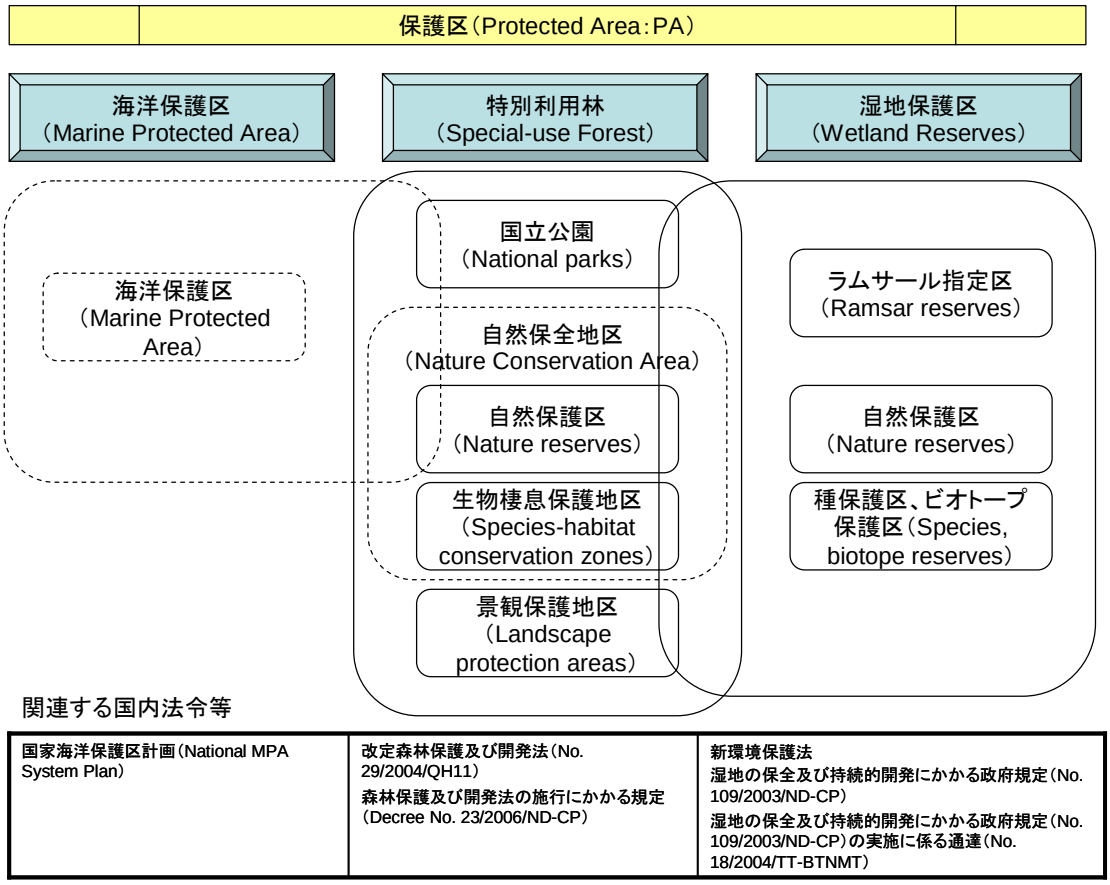


Figure 2-1 Relational frame format of 3 kinds Nature reserves

1:Article36 (stipulated Right of forest use right trade etc.) lapsed in Decree 23/2006/ND-CP, this prescription is treated in 83/2010/ND-CP.

Table 2-1 The relation of Nature reserves and applicable regulations

Nature reserves	Applied regulations etc,
Nature reserves based on domestic law	
・special-use forest(land reserves)	Amended Law on Forest Reserve Development(Article4)etc.
・Wetland Reserves	Law on Environmental Protection(Article4)、gomental regulations related to wetland conserve and sustainable development etc.
・Marine Protected Area	Management regulations for important Vietnam Marine Protected Area at state and international level(Decree 57/2008/ND-CP)
	System planning of Vietnam Marine Protected Area by 2020(Decision 742/QĐ-TTg)
Nature reserves based on international law and regulation	
・Designated area by the Ramsar	Ramsar Convention
・Designated as World heritage(Natural Heritage)	World Heritage Convention

(2) Governing Ordinance

The major laws which prescribe the grounds for establishing and for managing the Protected Areas (special-use forest, Wetland Protected Areas and Marine Protected Areas) are largely classified into Ordinances of the national law system and those based on international conventions/treaties. The national laws prescribing the Protected Areas include ① the revised law on the protection and development of forests (Law on Forest Protection and Development, No. 29/2004/QH11, April 1, 2005. Hereinafter referred to as No. 29/2004/QH11), ② Decree on the Implementation of the Law on Forest Protection and Development, Decree No. 23/2006/ND-CP, March 3, 2006. Hereinafter referred to as Decree No. 23/2006) and ③ Law on Environmental Protection, No. 52/2005/QH11, December 2005). As for Marine Protected Areas, a marine management regulation on the Protected Areas of Vietnam (Decree 57/2008/ND-CP), which has both national and international importance, and the system plan on Vietnam Marine Protected Areas through 2020 (Decision 742/QĐ-TTg) have been instituted. Meanwhile, Ordinances specialized for the Protected Areas which were publicized after 2007 include the following:

- ・Decree 57/2008/ND-CP: Official announcement of a marine management regulation on the Protected Areas of Vietnam, which has both national and international importance
- ・Decision 1479/QD-TTg: Approval of the system plan on Vietnam (Inland Water) Marine Protected Areas through 2020
- ・Decision 742/QD-TTg: Approval of the system plan on Vietnam's Marine Protected Areas through 2020

On the other hand, international treaties on the designation of Natural Protected Areas Vietnam has ratified include the World Heritage Treaty and the Ramsar Convention. The natural heritages based on the World Heritage Treaty are designated as special-use forests (National Park) under the Law on the

Protection and Development of Forests, and Ramsar-Designated Areas based on the Ramsar Convention are designated as Wetland Protected Areas under the Law on Environmental Protection, both of which are included in the Protected Areas designated by the national ordinances.

Table 2-2 A list of major ordinances on the management of Protected Areas

Ordinance		Date	Contents
	＜Protected Areas as a whole＞		
1.	Decision No. 192/2003/QD-TTg	2003/09/17	System management strategies on the Protected Areas through 2010
2.	Decision No. 256/2003/QD-TTg	2003/12/02	The national environment protection strategy through 2010 and the policy toward 2020
	＜special-use forest＞		
1.	Decision No. 1171/QD	1989/11/30	The rules on the management of productive forests, protection forestsand special-use forests
2.	Law on Forest Protection and Development	1991/08/19	Old laws on the protection and development of forests
3.	Decision No. 327/CT	1992/09/15	Land use (bare areas, forests, coastal areas)
4.	Decree No. 14/CT	1992/12/05	Protection and management of forests and penalties/fines
5.	Decree 163/ND-CP	1999/11/16	Use of forests for a long-term management of forests
6.	Decision No. 08/QD-TTg	2001/01/11	Management of productive forests, protection forests and special-use forests
7.	Decree No. 139/2004/ND-CP	2004/01/25	Decree on the penalties for the violation of forest management/protection/production
8.	No. 29/2004/Q11	2004/12/14	Revised law on the protection and development of forests
9.	Decision No. 61/2005/QD-BNN	2005/10/12	Decision on the promulgation of the rules for the standards for classifying protection forests
10.	Decision No. 62/2005/QD-BNN	2005/10/12	Decision on the standards for classifying the special-use forest and the promulgation of the standards
11.	Decree No. 23/2006/ND-CP	2006/03/03	Decree on the enforcement of the law on the protection and development of forests
	＜Wetland Protected Areas＞		
1.	Law on Environmental Protection	1993/12/27	Old environment protection law
2.	Decree No. 109/2003/ND-CP	2003/09/23	Decree on the protection and sustainable development of wetlands
3.	Decision No. 646/QD/BNN-KHCN	2004/03/17	Decision on the standards for wetlands
4.	Decision No. 04/2004/QD-BTNMT	2004/04/05	Decision on the approval of action plans for the protection and sustainable development of wetlands in the period of 2004 – 2010.
5.	Circular No. 18/2004/TT-BTNMT	2004/08/23	Directive on the implementation of the governmental regulation on the preservation and sustainable development of wetlands (No. 109/2003/ND-CP)
6.	No. 52/2005/QH11	2005/12/12	New environment protection law
	＜Marine Protected Areas＞		
	Decree 25/2009/ND-CP	2009/03/09	Decree on the total management of the resources/environment in the marine/island areas

Source: Added a few words to the Sourcebook of Existing and Proposed Protected Areas in Viet Nam, BirdLife (2001)

(3) Zoning

① Zoning of the special-use forest

Special-use forests are among the management classifications specified in the revised law on the protection and development of forests (No. 29/2004/QH11), and they are designated in one of the three categories in addition to the categories of production forest and protection forest.

＜Three categories of forests＞

1) Production forest: Forests whose main purpose is to utilize the timber and specific forest products

2) Protection forest: Forests where felling is prohibited and which is protected for soil conservation and water source conservation

3) special-use forest: Forests for the purpose of protecting the forest ecology, biodiversity and hereditary sources. These forests are included in the national parks, Natural Protected Areas or sanctuaries and protected under the management of the Ministry of Agriculture and Rural Development. The use of these forests for academic surveys and recreational activities is permitted.

An important purpose of special-use forests is to conserve the diversity of forests and living organisms as Protected Areas. Special-use forests are classified into (i) national parks, (ii) Nature conservation zones (Nature Protected Areas (Nature Reserves) and species-habitat conservation zones are included), (iii) landscape protection areas (forests with historical relics and cultural relics and forests for scenic landscape are included), and (iv) scientific research and experimental forests.

In Vietnam, while the terms “core area”, “buffer zone” and “transition zone” in special-use forests are not clearly defined, the revised law on the protection and development of forests (2004) doesn’t allow the inhabitants to live or settle in core zones that are important from the perspective of biodiversity in the Protected Areas (No. 29/2004/Q11).

Further, it is permitted to use a part of special-use forests for academic surveys and recreational activities, and they play a role of “buffer zones”. Regarding buffer zones, since the roles and duties of local communities, State Forest Enterprises (SFTs) and the forest protection board, which are stakeholders involved in the buffer zones, for managing the buffer zones are not clearly defined, it was pointed out that the protective function of the buffer zones, which is required under laws, doesn’t work well (UNDP, 2006).

② Zoning of Wetland Protected Areas

Article 14 of the Governmental Regulation on the conservation and sustainable development of wetlands (Decree 109/2003/ND-CP) prescribes two categories of protected wetlands: i.e. “Wetland Conservation Zone” and “buffer zone”. The Decree prescribes that the Wetland Conservation Zones shall be strictly preserved, and conservation works in these zones as well as the migration of people from other areas are prohibited. On the other hand, the “buffer zones” of wetlands are areas where adequately managed development is permitted, but those construction works which will have unfavorable impact on or potential threat to the buffer zones are strictly controlled.

In designating these zones, the Provincial level People’s Committee instructs on the bounding of the Protected Areas and delegates the management of the Protected Areas to managing organizations. The organizations which are delegated with the management of Wetland Protected Areas are responsible for the bounding of the Protected Areas in coordination with the People’s Committee of the relevant

commune where the Wetland Protected Area is located. According to the purpose of protection, Wetland Protected Areas are subdivided into the following subzones (treated as a part of buffer zones):

- Strictly protected sub-zone:
  The area where the natural ecosystem is not lost
- Ecological rehabilitation sub-zone:
  The area where the rehabilitation/development of the natural ecosystem are pursued
- Service Administration sub-zone:
  The area where administrative offices and tourist facilities are constructed

(4) Activities that are prohibited/permitted in the Protected Areas

① Management activities in special-use forests

The activities permitted in Natural Protected Areas (special-use forests) are prescribed in Chapter 6 of Decree No.23/2006/ND-CP: Forest Management Organization and the Protection, Development and Use of Forests, Articles 51-56.

When the forest products from special-use forests are used, (i) conservation and preservation of the biodiversity and the habitats of endangered/rare species in forests, (ii) protection of animals and plants with high scientific, educational, touristic and economic values, (iii) protection of landscape, cultural, historic and environmental values need to be ensured (Article 52). Moreover, in addition to the wood resources in the management areas of National Parks and Natural Protected Areas, the use, collection and elimination of blighted/fallen woods are, except for endangered, scarce and valuable species, permitted.

② Management activities in Wetland Protected Areas

Activities in Wetland Protected Areas are prescribed in Decree No.23/2006/ND-CP, and the activities in Wetland Protected Areas as well as habitation in Wetland Protected Areas are restricted as follows:

＜Prohibited activities in Wetland Protected Areas＞

・ Prohibited activities in all Wetland Protected Areas (entire wetland reserves)
  - Destruction of wetlands, adverse impact on habitats, breeding/cultivation of animals/plants
  - Destructive actions to aquatic resources using electric shock, explosives, chemical agents etc.
  - Collection of animals/plants protected in the Protected Areas
  - All kinds of collection activities
  - Erosion of canals, ditches water passages and hedges, and irrigation in wetlands
  - Illegal enclosure and occupation of lands, and change of land use objective
  - Introduction of adventives which have adverse impact on the natural environment and biodiversity

- Regardless of the manner, immigration to and settlement in the Protected Areas
- Breeding and cultivation of livestock, poultry and fish on a production scale
- Occurrence of environmental pollution beyond acceptable levels, including foul odor and ambient noise

・ Other prohibited matters than the above in ecological rehabilitation sub-zones
- Construction
- All kinds of development of forest/aquatic resources

・ Other prohibited matters than the above in strictly protected sub-zones
- Collection of mineral substances, wild animals, aquatic animals/plants, and microorganisms
- All kinds of tourism

Activities and habitation in Wetland Protected Areas are restricted by Decree No.23/2006/ND-CP in a similar manner as the prohibited activities in Wetland Protected Areas.

＜Activities and habitation in Wetland Protected Areas＞

・ The households living in the Protected Areas are not allowed to expand their premises. When a household is divided and new households are created, they need to move out of the Protected Areas.
・ The households living in the Protected Areas of buffer zones must lead the way to conduct activities for the protection and development of the ecosystems in Wetland Protected Areas.
・ The organizations engaged in business activities or individuals living in the Protected Areas need to comply with the regulations of DecreeNo.109/2003/ND-CP, Directive No. 18/2004/TT-BTNMT and other management regulations of the Protected Areas.

＜Management of the buffer zones in Wetland Protected Areas (V, Part 2, Circular No.18/2004)＞

・ Buffer zones shall be set up around Wetland Protected Areas. As for the communes where a part of the commune is included in the Wetland Protected Areas, and those adjacent to the Wetland Protected Areas need to be reserved in the similar manner as in Wetland Protected Areas.
・ All the investment activities in the buffer zones shall seek to protect the Wetland Protected Areas, increase the occupational opportunities and income of the inhabitants in the buffer zones as well as to reduce the adverse effect on the Protected Areas.
・ All the activities in the buffer zones shall not cause any adverse impact on the management and protection of Wetland Protected Areas.
・ All levels of public bodies and related organizations whose whole site or a part of it is located in the Protected Areas need to protect and manage the Wetland Protected Areas and the buffer zones in cooperation with the Protection and Management Committee concerned.

(5) The procedure for the diversion of special-use forests の for other purposes than forest lands

When a special-use forest is to be used for other purpose than for a forest land, the provisions of the Law on Land (No.13/2003/QH11 and the revised law on the protection and development of forests (No. 29/2004/QH11) need to be complied with. Specifically, it is necessary that ① the intended investment activity has been approved by the competent governmental agencies, ② the EIA on the revision of the intended use has been created, ③ a compensation plan has been developed in terms of the cancellation of the forest land authorization, ④ an investment for afforestation with an area equivalent to the converted forest land has been conducted (No. 29/2004/QH11, Box 2-3). In addition, in June 2009, the Law of capital construction investment (38/2009/QH12) revised and added some provisions which were related to capital construction investment (Articles 7, 40, 40a, 43, 54, 55 and 59) to the Law on Land (No.13/2003/QH11). (Please see Law No. 38/2009/QH12 of June 19, 2009 for details)

The approving body of the converted use differs in the investment project type; i.e. ① Prime Minister, if the intended use of the whole or a part of the forest, which was created by the Decision of the Prime Minister himself, is to be changed on the basis of MARD Minister's consent, ② President of the People's Committee in the Province/corporate town, if the intended use of the whole or a part of the forest, which was created by his own Decision, Decision on the transfer and lease of the forest to a domestic organization or overseas Vietnamese, or Decision on the lease of the land to some foreign organization and individual, is to be changed, and ③ President of the People's Committee in the region/district, if the forest is to be transferred to a household or an individual (Decree No.23/2006/ND-CP, Article 28 (2)).

Box 2-1 Decree on the conversion of intended use among different categories of forests (protected forest, special-use forests and production forests)

1) The authority concerning the conversion of intended use of forests shall comply with Article 28 (2) of Decree No.23/2006/ND-CP; specifically the following cases.
   - As requested by MARD Minister, the Prime Minister has decided to convert the intended use of the whole or a part of a forest.
   - President of the Provincial People's Committee has decided to convert the intended use of the whole or a part of a forest for any of the following purposes:
     - As regards the forest which fits the purpose of the authority of the Provincial People's Committee, it was decides to convert the ntended use among three different categories of forests (protected forests, special-use forest and production forest).
     - When a certain overseas Vietnamese, foreign organization or foreign individual intends to use the forest for investment purpose, the investment project has already been approved by the competent Ministry/agency, the intended use of the forest needs to be converted, and the Provincial People's Committee has decided to convert the category of the forest for the project.
2) A competent state agency has already approved the investment project.
3) A report on assessment of environmental impacts concerning the conversion of the intended use of the forest has been created.
4) A competent state agency has approved the comensation plan on the cancellation of the forest land authorization.
5) The agency which has approved the conversion to multi-purpose forest needs to guarantee the investment for afforestation with an area equivalent to the converted forest land.

(Source: Revised law on the protection and development of forests (No. 29/2004/QH11))

(6) Ecosystem

① Main Ordinances related to the ecosystem and biodiversity

In general, for the purpose of preserving the ecosystem and biodiversity, either a species-based approach, which pays attention to particular endangered species and seeks to protect the individual species, or an ecosystem approach, which looks at the whole ecosystem that supports the habitat environment of living organisms rather than particular species, and pays attention to the structure and function of the habitat environment is adopted. Signing the Convention on International Trade in Endangered Species of Wild Fauna and Flora (Washington Convention) in January 1994 and ratifying the Convention on Biological Diversity in November 1994 etc., Vietnam has pursued to establish Ordinances on the treatment of rare species in relation to the accession to WTO. The Ordinances related to the protection of the ecosystem and biodiversity are summarized in Table 2-3. Additionally, the following action plans have been announced on the laws concerning biodiversity since 2007.

- Decision 79/2007/QD-TTg, which approves "the National Action Plan on Biodiversity through 2010 with an outlook toward 2020 for the Purpose of Implementing the Convention on Biological Diversity and Cartagena Protocol on Biosafety".
- 01/2008/TT-BTC on the proposal, management, use and settlement of the state budget for implementing "the National Action Plan on Biodiversity through 2010 with an outlook toward 2020 for the Purpose of Implementing the Convention on Biological Diversity and Cartagena Protocol on Biosafety".
- Law on Biodiversity 20/2008/QH12
- Circular 69/2009/TT-BNNPTNT on the risk assessment tests on the biodiversity of genetically-engineered crops and the environment
- Decree 65/2010/ND-CP on the detailed rules for several provisions on biodiversity

Table 2-3 A list of Ordinances on the ecosystem and biodiversity

Ordinance	Date	Contents
International conventions /treaties		
1 the Convention on Biological Diversity	1995/12/22	Domestic ratification of the Convention on Biological Diversity (No. 845/TTg)
2 Washington Convention	1994/01/20	Domestic ratification of Washington Convention
National laws		
1. Law on the protection and development of forests	1991/08/19	Regulation on the protection of forest animals/plants (Article 41) Designation of special protection forests where valuable species inhabit
2. Law on the protection and development of forests (revised) (No. 29/2004/Q11)	2004/12/14	Regulation on the protection of forest animals/plants (Article 19)
3. The new Law on Environmental Protection (No. 52/2005/QH11)	2005/12/12	Regulation on the protection of biodiversity (Article 30)
4. Law on Biodiversity	2008/6/3	Law on the protection of biodiversity

Ordinance	Date	Contents
(No.20/2008/QH12)		
Domestic Decision/Decree etc.		
1. Decree No. 18/HDBT	1992/01/17	Conservation and management of endangered species under the previous law on the protection and development of forests
2. Decree No. 32/2006/ND-CP	2006/03/30	Decree on the management of endangered species (revised)
3. Directive No. 130/TTg	1992/03/27	Conservation and management of endangered animal/plant species
4. Decree No. 77/CP	1996/11/29	The protection and management of forest resources and penalties/fines
5. Directive No. 359/TTg	1996/05/29	Urgent measures for the protection of wild animals
6. Official Letter No. 2472/NN-KL-CV	1996/07/29	Enhanced protection of wild animals
7. Decree No. 11/2002/ND-CP	2002/01/22	Decree on the import/export of wild animals/plants (CITES)
8. Decree No. 48/2002/ND-CP	2002/04/22	The system for the conservation and management of endangered species (revised)
9 Official Dispatch No. 3399/VPCP-NN	2002/06/21	Dispatched public document on the revision of the list included in Decree No. 48/2002/ND-CP (Revision of and supplement to the list in Decree No. 18/HDBT)
10. Decree No. 82/2006/ND-CP	2006/08/10	Import/export, transfer, and management of endangered animal/plant species (CITES)
11 Decision 79/2007/QD-TTg	2007/5/31	"the National Action Plan on Biodiversity through 2010 with an outlook toward 2020 for the Purpose of Implementing the Convention on Biological Diversity and Cartagena Protocol on Biosafety"
12 01/2008/TT-BTC	2008/1/3	The proposal, management, use and settlement of the state budget for implementing "the National Action Plan on Biodiversity through 2010 with an outlook toward 2020 for the Purpose of Implementing the Convention on Biological Diversity and Cartagena Protocol on Biosafety"
13 Circular69/2009/TT-BNNPTNT	2009/10/27	Risk assessment tests on the biodiversity and environment of genetically-engineered crops
14 Decree 65/2010/ND-CP	2010/6/11	Regulation on the detailed rules of several provisions in the law on biodiversity

② Protection under the national laws of Vietnam

a) Governing provisions

The governing Ordinances which prescribe the animals/plants targeted for protection in Vietnam are the law on the protection and development of forests (2004), Article 41 and the Decree on the management of endangered animals/plants (Decree No. 32/2006/ND-CP). Article 41 of this law clearly defines the species targeted for protection which were not defined in the previous law on the protection and development of forests, and it also obligates MARD to make a list of the species targeted for protection as well as stipulates the prohibited matters in relation to capturing and collection, together with the penal provisions for violating this stipulation. Additionally, it requires the areas, where development is proscribed, to be specified as special-use forests.

b) Species targeted for protection

Designation of specific species targeted for protection is conducted under Decree No32/2006/ND-CP. The species targeted for protection are categorized into the targeted species whose capture and

collection are prohibited (Group I, 77 species) and the targeted species whose capture and collection are restricted (Group II, 126 species), totaling 203 species. The number of species targeted for protection under Decree No.32 have increased compared with that prescribed in the Decree (Decree No. 18/HDBT) under the previous law on the protection and development of forests of 1991, and these animals targeted for protection include the 5 species of mammals which were recently discovered in Vietnam, i.e. Saola (*Pseudoryx nghetinhensis*), Grey-shanked Douc (*Pygathrix cinerea*), Large-antlered Muntjac (*Muntiacus vuquangensis*), Annamite Muntjac (*Muntiacus truongsonensis*) and Annamite Striped Rabbit (*Nesolagus timminsi*). Most of the species categorized in Group I are listed in the Vietnamese Version of Red Databook, and this Group largely covers the species targeted for protection from the perspective of the global trend.

Table 2-4 Group I: Forest animals/plants whose capture, collection and commercial use are prohibited

グループ IA：森林性植物種 (Forest plants)

No.	学 名	和 名	英語名	生息地	Red List	
					IUCN	VNRD
1	*Cupressus torulosa*	(イトスギ)	Himalayan Cypress	Lam Dong		E
2	*Taiwania cryptomerioides*	台湾スギ	Taiwania		VU	
3	*Xanthocyparis vietnamiensis*				CR	T
4	*Abies delavayi fansipanensis*	マツ科				R
5	*Pinus kwangtugensis*	マツ科		Lam Dong, Dac Lac, Gia Lai, Kom Tum		V
6	*Taxus wallichiana (T. baccata wallichiana)*	イチイ科			DD	R
7	*Glyptostrobus pensils*	スイショウ	Chinese Swamp Cypress		EN	E
8	*Berberis julianae*		(Barberry)			E
9	*Berberis wallichiana*		(Barberry)			E
10	*Diospyros Salletii*	カキノキ科 (コクタン)	(Ebony)		CR	V
11	*Dalbergia tonkinensis*	マメ科			VU	V
12	*Coptis chinensis*					E
13	*Coptis quinquesecta*					E
14	*Anoectochilus* spp.					R
15	*Paphiopedilum* spp.	ラン科				

出典：Decree No. 32/2006/ND-CP of March 30, 2006, on Management of Endangered, Precious and Rare Forest Plants and Animals
Red List の欄は、下表参照。

グループ IB：森林性動物種 (Forest animals)

No.	学 名	和 名	英語名	生息地	Red List	
					IUCN	VNRD
	MAMMALIA (哺乳類)					
	Dermoptera					
1	*Cynocephalus variegatus*		Sunda Flying Lemur		LR/lc	?
	Primates					
2	*Nycticebus bengalensis (N. coucang)*		Bengal Slow Loris		DD	
3	*Nycticebus pygmaeus*	ロリス	Pygmy Slow Loris		VU	V
4	*Pygathrix cinerea*		Gray-shanked Douc			
5	*Pygathrix nemaeus*	ドゥクモンキー	Red-shanked Douc		EN	
6	*Pygathrix nigripes*	ドゥクモンキー	Black-shanked Douc		EN	E
7	*Rhinopithecus avunculus*	トンキンシシバナザル	Tonkin Snub-nosed Langur		CR	E
8	*Trachypithecus barbei (T. phayrei)*		Tenasserim Lutung			
9	*Trachypithecus delacouri*		Delacour's Langur		CR	E
10	*Trachypithecus francoisi*		Francois' Langur		VU	V
11	*Trachypithecus hatinhensis*		Hatinh Langur			
12	*Trachypithecus poliocephalus*		White-headed Langur		CR	E
13	*Trachypithecus villosus (T. cristatus)*		Purple-faced Langur		DD	
14	*Nomascus (Hylobates) concolor*		Concolor or Black Crested Gibbon		EN	E
15	*Nomascus (Hylobates) gabriellae*		Yellow-cheeked Gibbon		VU	
16	*Nomascus (Hylobates) leucogenys*		Northern White-cheeked		DD	E

No.	学 名	和 名	英語名	生息地	Red List	
					IUCN	VNRD
			Gibbon			
17	*Nomascus (Hylobates) nasutus*		Eastern Black Crested Gibbon		CR	
	Carnivora					
18	*Cuon alpinus*	ｱｶｵｵｶﾐ	Dhole			E
19	*Ursus (Helarctos) malayanus*					E
20	*Ursus (Selenarctos) thibetanus*		Asiatic black bear		VU	V
21	*Lutra lutra*	ｶﾜｳｿ	European Otter		NT	V
22	*Lutra sumatrana*		Hairy-nosed Otter		DD	E
23	*Lutrogale (Lutra) perspicillatra*		Smooth-coated Otter		VU	V
24	*Amblonyx (Aonyx) cinereus (A. cinerea)*		Oriental Small-clawed Otter		NT	V
25	*Arctictis binturong*	ｸﾏﾈｺ	Binturong		LR/lc	V
26	*Catopuma (Felis) temminckii*		Asian Golden Cat			
27	*Felis chaus*		Jungle Cat			E
28	*Pardofelis (Felis) marmorata*		Marbled Cat		VU	V
29	*Prionailurus (Felis) bengalensis*		Leopard Cat			
30	*Prionailurus (Felis) viverrina*		Fishing Cat		VU	R
31	*Neofelis nebulosa*	ｳﾝﾋﾟｮｳ	Clouded Leopard		VU	
32	*Panthera pardus*	ﾋｮｳ	Amur Leopard		LC	E
33	*Panthera tigris*	ﾄﾗ	Siberian Tiger	北部から南部まで	EN	E
	Proboscidea					
34	*Elephas maximus*	ｱｼﾞｱｿﾞｳ	Asian Elephant	西部国境地帯		V
	Perissodactyla					
35	*Rhinoceros sondaicus*	ｼﾞｬﾜｻｲ	Javan Rhinoceros	Dong Nai	CR	E
	Artiodactyla					
36	*Axis (Cervus) porcinus*					E
37	*Cervus eldii*	ﾀｰﾐﾝｼﾞｶ	Hog Deer			E
38	*Megamuntiacus vuquangensis*		Giant Muntjac			V
39	*Muntiacus truongsonensis*		Truong Son Muntjac		DD	
40	*Moschus berezovskii*		Dwarf Musk Deer		LR/nt	E
41	*Bos gaurus*	ｶﾞｳﾙ	Gaur			E
42	*Bos javanicus*		Banteng			V
43	*Bos sauveli*	ｺｰﾌﾟﾚｲ（ｽｲｷﾞｭｳ）	Kouprey	中部高原		E
44	*Bubalus arnee*		(Baffalo)			E?
45	*Naemorhedus (Capricornis) sumatraensis*		(Mainland Serow)			V
46	*Pseudoryx nghetinhensis*		Saola		CR	E
	Lagomorpha					
47	*Nesolagus timinsi*		(Rabbit)		DD	
	AVES					
	Pelecaniformes					
48	*Leptoptilos javanicus*		Lesser Adjutant			R
49	*Pseudibis davisoni*		White-shouldered Ibis			V
50	*Platalea minor*		Black-faced Spoonbill			R
	Gruiformes					
51	*Grus antigone*	ｵｵｿﾞﾙ	Sarus Crane	メコン川、海岸一帯		V
	Galiformes					
52	*Polyplectron bicalcaratum*	ﾊｲｲﾛｺｸｼﾞｬｸ	Grey Peacock		LC	

No.	学 名	和 名	英語名	生息地	Red List	
					IUCN	VNRD
			Pheasant			
53	*Polyplectron germaini*	ｺｸｼﾞｬｸ	Germain's Peacock Pheasant	Nghe An から Binh Dinhに至る	NT	T
54	*Rheinardia ocellata*	ｶﾝﾑﾘｾｲﾗﾝ	Crested Argus	メコンデルタ	NT	T
55	*Pavo muticus*	ﾏｸｼﾞｬｸ	Green Peafowl		VU	R
56	*Lophura diardi*	ｼﾏﾊｯｶﾝ	Siamese Fireback		NT	T
57	*Lophura edwardsi*		Edwards's Pheasant		EN	E
58	*Lophura hatinhensis*				EN	E
59	*Lophura imperialis*	ﾆｼﾞｷｼﾞ	Imperial Pheasant	北西中部及び南部		E
60	*Lophura nycthemera*		Silver Pheasant		LC	T
	REPTILIA					
	Squamata					
61	*Ophiophagus hannah*	ﾍﾋﾞ	King Cobra	Vinh Phu		E
	Testudinata					
62	*Cuora trifasciata*		Golden Coin Turtle			V

出典：Decree No. 32/2006/ND-CP of March 30, 2006, on Management of Endangered, Precious and Rare Forest Plants and Animals
Red List の欄は、下表参照。

Table 2-5 Group II: Forest animals/plants whose capture, collection and commercial use are restricted

グループ IIA：森林性植物種（Forest plants）

No.	学 名	和 名	英語名	生息地	Red List	
					IUCN	VNRD
1	*Cephalotaxus mannii*		(Plum-yew)		VU	
2	*Calocedrus macrolepis*	ﾋﾉｷ科	Chinese Incense-cedar	Ba Vi (Ha Tay), Lam Dong, Yen Bai	VU	E
3	*Calocedrus rupestris*	ﾋﾉｷ科				
4	*Fokienia hodginsii*		Fujian Cypress	北中部山岳及び中部高原地帯	LR/nt	K
5	*Keteleeria evelyniana*	ﾏﾂ科			LR/lc	V
6	*Pinus dalatensis*	ﾏﾂ科	Vietnamese White Pine	Dac Lac	VU	R
7	*Pinus krempfii*	ﾏﾂ科	Krempf's Pine		VU	R
8	*Taxus chinensis*	ｲﾁｲ	Chinese Yew	Lao Cai, Son La, Nghe An, Ha tinh, Phu Yen, Khanh Hoa, Lam Dong		R
9	*Cunninghamia konishii*	ﾗﾝﾀﾞｲｽｷﾞ			VU	R
10	*Cycas* spp.	ｿﾃﾂ科	(Cycad)		VU, CR, EN, NT	R, V
11	*Panax bipinnatifidum*					E
12	*Panax stipuleanatus*					
13	*Panax vietnammensis*	ﾁｮｳｾﾝﾆﾝｼﾞﾝ				E
14	*Asarum* spp. *(Asarum balansae)*					E
15	*Markhamia stipulata*					V
16	*Afzelia xylocarpa*	ﾏﾒ科			EN	V
17	*Arythrophloeum fordii*					
18	*Sindora siamensis*	ｾﾌﾞﾁｰﾙﾒﾝﾍﾞﾗｽ			LR/lc	K
19	*Sindora tokinensis*	ｸﾗｶｽ			DD	V
20	*Codonopsis javanica*					V
21	*Garcinia fagraeoides*	ｵﾄｷﾞﾘｿｳ科（ﾏﾝｺﾞｽﾁﾝ）				V
22	*Dalbergia cochinchinesis Pierre*	ｼﾀﾝ	Siamese Rosewood	Gia Lai, Kon Tum	VU	V
23	*Dalbergia oliverrii (D. bariaensis, D. mammosa)*	ﾋﾞﾙﾏﾁｭｰﾘｯﾌﾟｳｯﾄﾞ	Burmese Rosewood	Dac Lac, Gia Lai, Kon Tum, Thuan Hai, Dong Nai, Song Be	EN	V
24	*Pterocarpus macrocarpus*	ﾋﾞﾙﾏｶﾘﾝ	Burmese padauk			K

No.	学 名	和 名	英語名	生息地	Red List	
					IUCN	VNRD
25	*Cinnamomum balansae*	ｸｽﾉｷ科			EN	R
26	*Cinnamomum glaucescens*	ｸｽﾉｷ科				
27	*Cinnamomum parthenoxylon*	ｶﾞｼﾞｽｸﾞｽ			DD	K
28	*Coscinium fenestratum*					V
29	*Fibraurea tinctoria (F. chloroleuca)*					V
30	*Stephania* spp.					E,V,R
31	*Thalictrum foliolosum*					V
32	*Excentrodendron tonkinensis (Burretiodendron tonkinensis)*				EN	V
33	*Disporopsis longifolia*					V
34	*Lilium brownie*	ﾊﾅｶﾞｻｷ属				
35	*Polygonatum kingianum*	ｸﾃﾞ科				
36	*Dendrobium nobile*	ﾃﾞﾝﾄﾞﾛﾋﾞｭｰﾑ・ﾉﾋﾞﾚ				R
37	*Nervilia* spp.					

出典：Decree No. 32/2006/ND-CP of March 30, 2006, on Management of Endangered, Precious and Rare Forest Plants and Animals
Red List の欄は、下表参照。

グループ IIB：森林性動物種（Forest animals）

No.	学 名	和 名	英語名	生息地	Red List	
					IUCN	VNRD
	MAMMALIA（哺乳類）					
	Chiroptera					
1	*Pteropus vampyrus*		Fruit Bat			
	Primates					
2	*Macaca arctoides*	ﾍﾞﾆｶﾞｵｻﾞﾙ	Stump-tailed Macaque or Bear Macaque		VU	V
3	*Macaca assamensis*	ｱｯｻﾑｻﾞﾙ	Assam Macaque	中部地方南	VU	V
4	*Macaca fascicularis*		Crab-eating Macaque or Long-tailed Macaque or Kera		LR/nt	
5	*Macaca leonine (M. nemestrina)*		Northern Pig-tailed Macaque		VU	V
6	*Macaca mulatta*	ｱｶｹﾞｻﾞﾙ	Rhesus Macaque	北部から中部地方一帯	LR/nt	
	Carnivore					
7	*Vulpes vulpes*		Red Fox			E
8	*Canis aureus*	ｵｵｶﾐ	Golden Jackal			E
9	*Mustela kathiah*		Yellow-bellied Weasel		LR/lc	
10	*Mustela nivalis*		Least Weasel			E
11	*Mustela strigidorsa*		Black-striped Weasel		VU	
12	*Viverra megaspila*		Large-spotted Civet		LR/lc	E
13	*Viverra zibetha*		Large Indian Civet		LR/lc	
14	*Viverricula indica*		Small Indian Civet		LR/lc	
15	*Prionodon pardicolor*	ﾋｮｳ	Spotted Linsang		LR/lc	R
16	*Chrotogale owstoni*	ｼﾞｬｺｳﾈｺ	Owston's Palm Civet			
	Artiodactyla					
17	*Tragulus javanicus*		Lesser Mouse Deer			
18	*Tragulus napu*		Greater Mouse Deer		LR/lc	E
	Rodentia					
19	*Hylopetes alboniger*		Particolored Flying Squirrel			R
20	*Hylopetes lepidus*		Gray-Cheeked Flying Squirrel			
21	*Hylopetes phayrei*		Indochinese Flying Squirrel			R
22	*Hylopetes spadiceus*		Red-Cheeked Flying Squirrel			
23	*Petaurista elegans*	ﾑｻｻﾋﾞ	Spotted Giant Flying		LR/lc	E

No.	学 名	和 名	英語名	生息地	Red List	
					IUCN	VNRD
			Squirrel			
24	*Petaurista petaurista*					R
	Pholydota					
25	*Manis javanica*		Malayan Pangolin		LR/nt	
26	*Manis pentadactyla*		Chinese Pangolin		LR/nt	V
	AVES					
	Ciconiiformes					
27	*Ciconia episcopus*		Woolly-necked Stork		LC	R
28	*Thaumabitis (Pseudibis) gigantea*		Giant Ibis			E
	Anseriformes					
29	*Cairina scutulata*		White-winged Wood Duck			V
	Gruiformes					
30	*Houbaropris bengalensis*				EN	
	Falconiformes					
31	*Spilornis cheela*		Crested Serpent Eagle		LC	
32	*Polihierax insignis*		(Pygmy falcon)		NT	
	Galiformes					
33	*Arborophila davidi*		(Hill Partridges)			E
34	*Arborophila charltonii*		(Hill Partridges)			
	Cuculiformes					
35	*Carpococcyx renauldi*		Coral-billed Ground Cuckoo			T
	Columbiformes					
36	*Columba punicea*		Pale-capped Pigeon			
	Apodiformes					
37	*Collocalia germaini*		(Swiftlets)		LC	T
	Coraciiformes					
38	*Buceros bicornis*	オオサイチョウ	Great Hornbill		NT	T
39	*Annorhinus tickelli*					
40	*Aceros nipalensis*		Rufous-necked Hornbill			E
41	*Aceros undulatus*		Wreathed Hornbill		LC	
	Psittaformes					
42	*Psittacula eupatria*		Alexandrine Parakeet		LC	
43	*Psittacula finschii*		Grey-headed Parakeet		LC	
44	*Psittacula roseate*		Blossom-headed Parakeet		LC	
45	*Psittacula alexandri*		Red-breasted Parakeet		LC	
46	*Loriculus verlanis*		Vernal Hanging Parrot		LC	
	Strigiformes					
47	*Tyto alba*		Barn Owl		LC	
48	*Tyto capensis*		African Grass-owl			
49	*Ketupa zeylonensis*		Brown Fish Owl		LC	T
50	*Copsychus malabaricus*		White-rumped Shama		LC	
51	*Garrulax formosus*		Red-winged Laughingthrush			R
52	*Garrulax merulinus*		Spot-breasted Laughingthrush			R
53	*Garrulax milleti*		Black-hooded Laughingthrush			R
54	*Garrulax vassali*		White-cheeked Laughingthrush		LC	T
55	*Garrulax yersini*		Collared Laughingthrush			R
56	*Gracula religiosa*		Hill Myna		LC	
	REPTILIA					
	Squamata					
57	*Varanus bengalensis (V. nebulosa)*		Bengal monitor			V

No.	学 名	和 名	英語名	生息地	Red List	
					IUCN	VNRD
58	*Varanus salvator*		Water monitor			V
59	*Python curtus*		Blood Python			E
60	*Python molurus*		Indian Python		LR/nt	V
61	*Python reticulatus*		Reticulated Python			V
62	*Elaphe radiata*		Copperhead Rat Snake			
63	*Ptyas mucosus*		Oriental Ratsnake			V
64	*Bungarus candidus*		Blue Krait			
65	*Bungarus flaviceps*		Red-Headed Krait			
66	*Bungarus multicinctus*		Many-Banded Krait			
67	*Bungarus fasciatus*		Banded Krait			T
68	*Naja naja*		Indian Cobra			T
	Testudinata					
69	*Platysternum megacephalum*		(Big-headed Turtles)		EN	R
70	*Heosemys grandis*		Giant Asian Pond Turtle			
71	*Hieremys annandalii*		Hieremys annandalei			V
72	*Mauremys annamensis*		Annam Leaf Turtle		CR	
73	*Indotestudo elongata*	ﾘｸｶﾞﾒ	Elongated Tortoise			V
74	*Manouria impressa*		Impressed Tortoise		VU	V
	Crocodylia					
75	*Crocodylus porosus*	ｲﾘｴﾜﾆ	saltwater or estuarine crocodile			E
76	*Crocodylus siamensis*	ｼｬﾑﾜﾆ	Siamese crocodile			E
	AMPHIBIAN					
	Caudata					
77	*Paramesotriton deloustali*	ｻﾝｼｮｳｳｵ	Tam Dao Warty Newt		VU	E
	INSECTA					
	Coleoptera					
78	*Dorcus curvidens*		(Stag Beetles)			
79	*Dorcus grandis*		(Stag Beetles)			
80	*Dorcus antaneus*		(Stag Beetles)			
81	*Eurytrachelteulus titanneus*					
82	*Cheriotonus battareli*					
83	*Cheriotonus iansoni*					
84	*Eupacrus gravilicornis*					
	Lepidoptera					
85	*Teinopalpus aureus*				DD	
86	*Teinopalpus imperalis*					
87	*Troides helena ceberus*					E
88	*Zeuxidia masoni*					
89	*Phyllium succiforlium*					

出典：Decree No. 32/2006/ND-CP of March 30, 2006, on Management of Endangered, Precious and Rare Forest Plants and Animals
Red List の欄は、下表参照。

＊ IUCN レッドリストカテゴリー

1994 年版 (Ver. 2.3) による分類カテゴリーは以下の通りである。

- Evaluated - 評価実施
  - Adequated data - 適当なデータあり
    - Extinct (EX) - 「絶滅」
    - Extinct in the Wild (EW) - 「野生絶滅」
    - Threatened - 「危惧」あるいは「絶滅のおそれのある状態」（絶滅危惧）
      - Critically Endangered (CR) - 「絶滅寸前」（絶滅危惧 IA 類）
      - Endangered (EN) - 「絶滅危機」（絶滅危惧 IB 類）
      - Vulnerable (VU) - 「危急」（絶滅危惧 II 類）
    - Lower Risk (LR) - 「低リスク」
      - Lower Risk - Conservation Dependent (LR/cd) - 「保全対策依存」
      - Lower Risk - Near Threatened (LR/nt) - 「準絶滅危惧」（準絶滅危惧）
      - Lower Risk - Least Concern (LR/lc) - 「軽度懸念」
  - Data Deficient (DD) - 「データ不足」（情報不足）

- Not Evaluated (NE) - 「未評価」

＊ ベトナム版レッドリストカテゴリー

- Endangered (E) 絶滅危惧種：野生での存続が困難で、ごく近い将来における野生での絶滅の危険性が極めて高い種。
- Vulnerable (V) 危急種：絶滅の危険が増大している種で、現在の状態をもたらした圧迫要因が引き続き作用する場合、近い将来「絶滅危惧Ⅰ類」のランクに移行することが確実と考えられる種。
- Rare (R) 希少種：分布が限定され、個体数が少ない種。現在は種の存続に危険はないが、将来的には危急種に移行する可能性の高い種。
- Threatened (T) 危惧種：上記カテゴリーのどれかに相当するが、データが不十分なため、カテゴリー分類ができない種。
- Insufficiently known (K) 不明： データが不十分なため、カテゴリー分類ができない種。

③ IUCN Red List

In Vietnam, the habitats of valuable wild animals and plants have been decreasing along with the recent economic growth, and the number of endangered species has been increasing. The endangered animal/plant species in the world are listed in the Red Databook (RDB) published by the International Union for Conservation of Nature and Natural Resources/the World Conservation Union (IUCN). The definition of categories in the Red List is as shown in Box 2-7, and this doesn't entail any legal protective measures. In Vietnam, a total of 264 species are considered to be in "danger of extinction (endangered)" as shown below:

Table 2-6 The number of species listed in the IUCN version Red Databook by category type

	Category					
	Critically Endangered (CR)	Endangered (EN)	Vulnerable (VU)	Lower Risk		
				Conservation Dependent (LR/cd)	Near Threatened (LR/nt)	Least Concern (LR/lc)
Animals	**49**	**114**	**190**	**7**	**12**	**0**
・Mammals	12	29	31		7	
・Birds	11	18	26	6	5	
・Reptiles	11	21	20			
・Amphibians	4	29	50			
・Invertebrates	11	17	63	1		
Plants	**43**	**195**	**220**	**3**	**0**	**6**
・Angiosperms	28	111	154			
・Monocotyledons	10	69	34	3		6
・Coniferophytas	5	15	32			
Total	**92**	**309**	**310**	**11**	**12**	**6**

Source: 2007 IUCN Red List

④Red list of Vietnam version

Except for the Red list by IUCN, Red list data of Vietnam version is created.[3] The red data book of Vietnam version does not involve legal measures, but it has the following roles for protection of forest and biodiversity (they are not upgraded from 1994).

- Basic information for deciding policies regarding nature and biodiversity reserves
- Set priorities of reserve activities
- Information used for management of trade and import of endangered species
- Basic information for preparation of domestic reserves area management plan
- Education of staff in reserve area
- Contribution to publicity about domestic nature protection
- Ensure fund from donors

In Red data book (RDB) of Vietnam version, a total of 721 species (365 species of fauna, 356 species of flora are listed.

Table 2-7 The number of species listed in the Vietnamese version Red Databook by category type

	Category					Total
	Endangered (E)	**Vulnerable (V)**	**Threatened (T)**	**Rare(R)**	**Insufficiently known(K)**	
Animals	**68**	**96**	**87**	**108**	**6**	**365**
Vertebrates						
・Mammals	30	23	1	24	0	78
・Birds	14	6	32	31	0	83
・Reptiles/Amphibians	8	19	16	11	0	54
・Fish (freshwater)	4	18	5	11	0	38
・Fish (seawater)	2	6	24	2	3	37
Invertebrates	10	24	9	29	3	75

	Category					Total
	Endangered (E)	**Vulnerable (V)**	**Threatened (T)**	**Rare(R)**	**Insufficiently known(K)**	
Plants	**24**	**61**	**157**	**83**	**31**	**356**
Non-tracheophytes	0	7	7	2	3	19
Tracheophytes	24	54	150	81	28	337
・Non-spermatophytes	0	0	1	2	2	5
・Gymnosperms	4	6	13	2	2	27
・Angiosperms						
Monocotyledons	2	4	51	15	2	74
Dicotyledons	18	44	85	62	22	231

Source: Red Data Book of Viet Nam Volume 1. Plants (1992) & Volume 2. Animals (1994))

[3] Red list for Vietnam version were issued in 2007, which is separated in 2 brochures of Flora and Fauna. It was edited by Vietnam Science Technology Academy of Ministry of Science and Technology and edited by IUCN category.(Publisher:Nha Xuat Ban Khoa Hoc Tu Nhien Va Cong Nghe)

(7) Other information on the policy for biodiversity

① Protective policies under the Convention on Biological Diversity (Convention on Biological Diversity: CBD)

Vietnam signed the Convention on Biological Diversity on May 28, 1993, and ratified it on November 16, 1994. As a result, the Biodiversity Action Plan for Viet Nam (BAP) was formulated, and it was officially approved by the Vietnamese Government on December 22, 1995 (No. 845/TTg). The main cognizant agency of BAP is MONRE, and the implementation is managed by MARD, the Ministry of Fisheries (MOFI) and the Centre of Natural Science and Technology.

② International efforts toward the ecosystem and biodiversity

It was recognized in the high-level national policy of the Vietnamese Government that sustainable development strategies concerning the ecosystem and biodiversity needed to be integrated into the policies and programs in every sector. The following plans and strategies have been formulated as a part of this effort.

- Multilateral Environmental Agreements (MEA)
- Enactment of “Man and the Biosphere Program Reserve (MAB)”
- Participation in ASEAN Regional Centre for Biodiversity Conservation (ARCBC)
- Participation in the Mekong River Commission
- Accession to the Convention on Migratory Species
- Accession to the Convention on Biological Diversity/Ramsar Convention

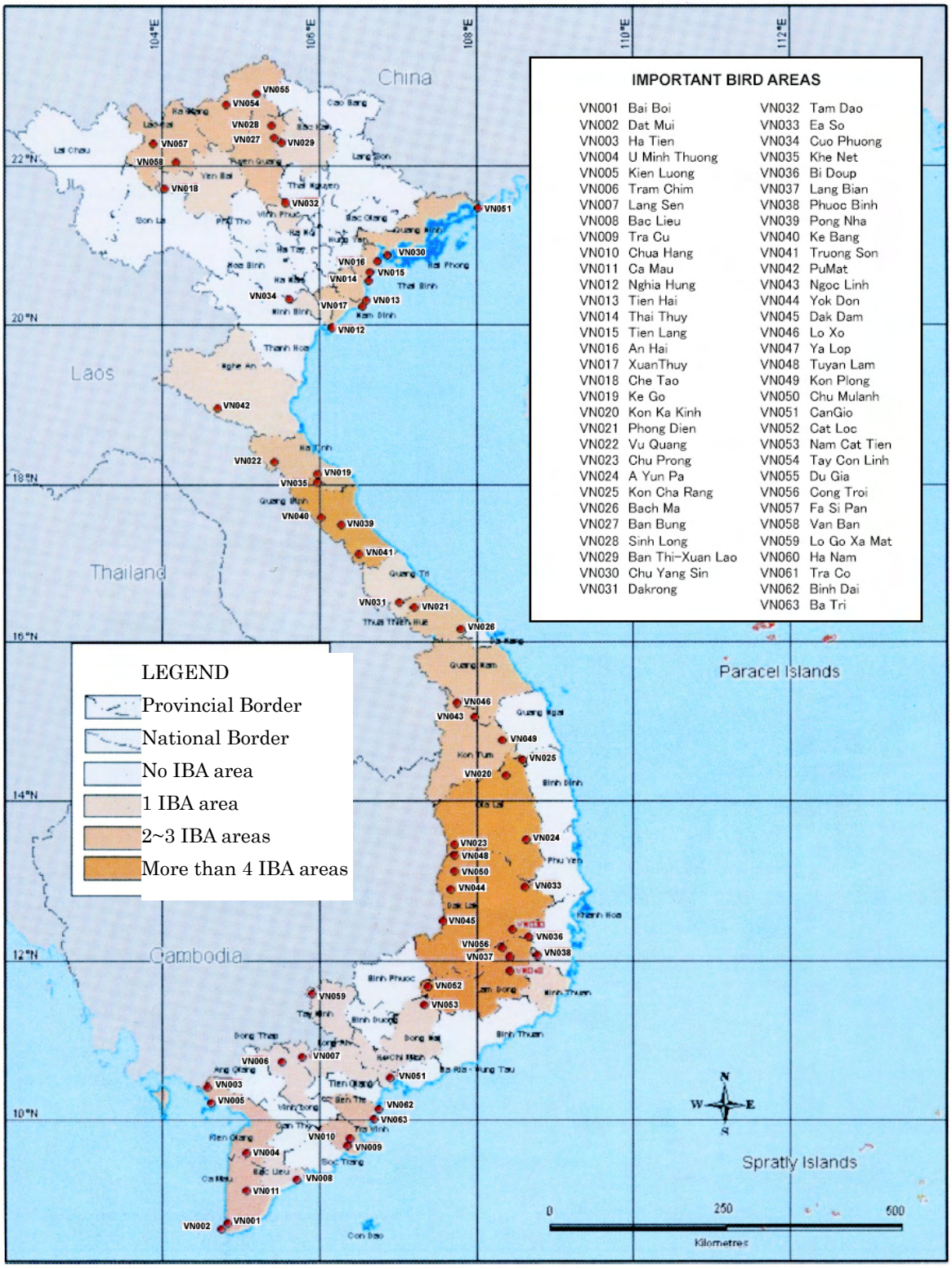


Figure 2-2 Location of IBA

Note: Since the original numerical expression is blurred, the following points on the list are not shown on this map: VN 047, VN 061.

Source: Directory of Important Bird Areas in Viet Nam - Key Sites for Conservation (2002)

2.2 Wildlife species (Endemic species, endangered species, international agreed species etc.)

(1)Wildlife species (endemic, endangered, internationally agreed species etc.)

Important Bird Area (IBA) and Endemic Bird Area(EBA)

Important Bird Areas (IBAs) are designated throughout the World by BirdLife International from 1989. IBA assesses ecosystem by using birds as index organism, it indicates important ecosystem from the point of view of protecting not only birds but also biodiversity. IBA does not involve a legally binding. But it is important to use IBA as indication for consideration of environmental influences by development plan. IBAs are designated in Europe, Africa, Middle-East etc., throughout the world, in Vietnam, 59 places are designated as IBA.

On the other hand, the "Endemic Bird Areas of the World" issued by BirdLife International, creates "Endemic Bird Area: EBA" and "Secondary Area: SA" in order to cover principal distributional areas of "Restricted-range species". EBA is set as important habitat area for Restricted-range species by Bird Life International. In Vietnam, 5 areas are designated as EBA.

(2) Rare species regarded as protected ones

There are legal stipulations about management of endangered flora and fauna etc., for ecosystem protection policy, by which, a list of flora and fauna[2] covered is created. In addition to Vietnam domestic law, international laws such as Convention on Biological Diversity, IUCN Red List (740 species are considered as being facing a risk of extinction as of 2007) do not involve legal protection measures but are used as standard for protecting wild flora and fauna.

2.3 Important ecosystem and habitat (Protected Area, coral reef, mangrove wetland, dry beach, internationally agreed area etc.)

(1)Wetland Reserves

According to Decree No.109/2003, wetland ecosystem "is an area submerged in water that has unique ecosystem and high biodiversity, functions to maintain the water resources and balanced ecosystem, as well as global and domestic importance." The specific criteria are provided in Circular No.18/2004 (refer to Box 2-2). The area which meets at least one of the criteria and accounts for 50% of the ecosystem is treated as a target for protection as a Protected Area, which belongs to either one of

[2] Some Fauna and Flora listed in these list are duplicated and scientific names used may be different by list, so it is needed to pay attention.

Ramsar Reserve, Natural Protected Area (Nature reserve), Species Protected Area, or biotope reserve among the subgroups of Protected Areas prescribed in the Law on Environmental Protection.

Box 2-2 Criteria and designation standards of wetland

- The area has a typical and unique property as a natural wetland.
- The area is a regular or seasonal habitat of the local, rare or endangered animals/plants.
- Not less than 20,000 waterfowl or not less than 1% of the global or local waterfowl live in the area.
- The area plays an important role of establishing a balanced water resources and the local ecosystem, and has special landscape features or environmental values.
- The area has special values in terms of the ecology, anthropology, history and culture of the nation and each locality.

(Source:Circular No.18/2004)

In Vietnam, there are 68 important Wetland nationwide, of which 23 areas are listed as special-use forest (SUF) by Forest Protection law, 14 areas are proposed as special-use forest (SUF). On the other hand, 7 areas located in coast are proposed as Marine protected Area(MPA)[4].(UNEP、2006).In addition 10 coast wetlands which have a high value based on Ramsar Convention standards are proposed (Table 2-8).

Table 2-8 Wetland in Vietnam recognized for its importance

Category	Places number
special-use forest	23
Area proposed as special-use forest	14
Area proposed as Marine Protected Area	7
Others	24
Total	68

(Source:Viet Nam Environment Protection Agency, 2005)

Further, coastal wetlands with high values have been suggested at 10 places, based on the criteria of Ramsar Convention (Table 2-9).

Table 2-9 Coastal wetlands in Vietnam with high values based on the criteria of Ramsar Convention

Tien Yen Estuary	Tam Giang - Cau Hai Lagoons
Bach Dang Estuary	Tra O Wetland
Van Uc Estuary	Dong Nai Estuary
Ba Lat Estuary	Tien Estuary
Kim Son Tidal Flat	Southeast Ca Mau Tidal Flat

(Source:Nhuan, Mai Trong, 2004)

[4] There is a report containing a list of 68 wetland in a separated file 4-13 (Wetlands Classification System_VN_FINAL in Vietnam). Also, recently, a map of wetland in coasts is completed (parts per million)
http://www.monre.gov.vn/v35/default.aspx?tabid=675&CateID=60&ID=94447&Code=AMXYI94447

(2)Marine Protected Area

Marine Protected Area (MPA) is set for protecting biodiversity of marine living things such as fish or coral reef and managed by the the Ministry of Fisheries. 15 areas are currently proposed as part of National Marine Protected Area Network, which is currently progressing. Fund is already ensured for 3 areas of the above 15 areas and protection actions as MPA are being executed. In October 2003, MPA program was started in Quang Nam, Cu Lao Cham, and second MPA was designated in Cu Lao Cham in 2005. Con Dao was designated as National Park and MPA. 12 areas were scheduled to be registered as MPA by 2010(UNEP 2006), according to Reefbase of 2011, the following 4 areas are designated as MPA in Vietnam.

a) Cat Ba (National Park)

b) Con Dao (National Park)

c) Cuo Lao Cham (Nature Reserves)

d) Phu Quoc (Nature Reserves)

(3)Reserve areas based on International treaties etc,

Table 2-10 lists reserve areas covered by international treaties etc.

Table 2-10 Vietnam areas covered by international treaties

Reserve area category	Already designated(designated by domestic law)	Being proposed
1. Ramsar convention(list as of November 2006: http://www.ramsar.org/)	・Xuan Thuy National Park(National parks) ・Bau Sau (Crocodile Lake) Wetlands and Seasonal Floodplains	・Cat Tien National Park ・Tram Chim National Park
2. World Heritage(Natural heritage) (UNESCO World Heritage: http://whc.unesco.org/en/statesparties/vn)	・Ha Long Bay(Nature reserves) ・Phong Nha-Ke Bang(Nature reserves)	・Ba Be Lake (1997) ・Huong Son Complex of Natural Beauty and Historical Monuments (1991) ・Cat Tien National Park (2006) ・Con Moong Cave (2006)
3.: MAB (UNESCO, Man and the Biosphere Reserve: http://www.unesco.org/mab/wnbr.htm)	・Can Gio Mangrove (in Ho Chi Minh City) ・Cat Tien National Park(National parks) ・Cat Ba(adjacence to Ha Lon Bay) ・Red River Delta(Coast areas in northern Vietnam)	・ Kien Giang(Kien Giang province)(Application in 2005) ・Western Nghe An(Nghe An Province province)(Application in 2006) ・Western Thanh Hoa Biosphere Reserve, Thanh Hoa Province
4. ASEAN Heritage Park: http://www.aseanbiodiversity.org/AGP/)	・Ba Be National Park(North-East, Bac Kan province) ・Hoang Lien Sa Pa National Park(North-West, Lao Cai Province) ・Kon Ka Kinh National Park(Central, Gia Lai Province) ・Phong Nha-Ke Bang National Park (Chu Mom Ray)(Central, Quang Binh province)	

Source:Add and alter with Sourcebook of Existing and Proposed Protected Areas in Viet Nam, 2001, BirdLife

2.4 Forest (primary forest, tropical natural forest, artificial forest)

Special-use forest is one of the three categories of forest prescribed in Article 4 of the revised law on the protection and development of forests (No. 29/2004/QH11), along with the categories of production forest and protection forest.

1. Production forest: A forest mainly intended to be commercially used for its timber and the specific forest products.
2. Protection forest: A forest where logging operation is prohibited, and which is protected for the purpose of soil conservation and water source conservation.
3. Special-use forest: A forest mainly intended to protect the forest ecosystem, biodiversity and hereditary resources. It is included in the National Parks, Natural Protected Areas and sanctuaries and is protected under the management of MARD. Academic surveys and recreational activities are permitted.

Special-use forest is mainly intended to preserve the forest and biodiversity as a Protected Area. Special-use forests are classified into (i) National Parks, (ii) nature conservation zones (including Nature Protected Areas (nature reserves) and species-habitat conservation zones, (iii) landscape protection areas (including forests for scenic landscape in historical relics and cultural relics, (iv) scientific research and experimental forests.

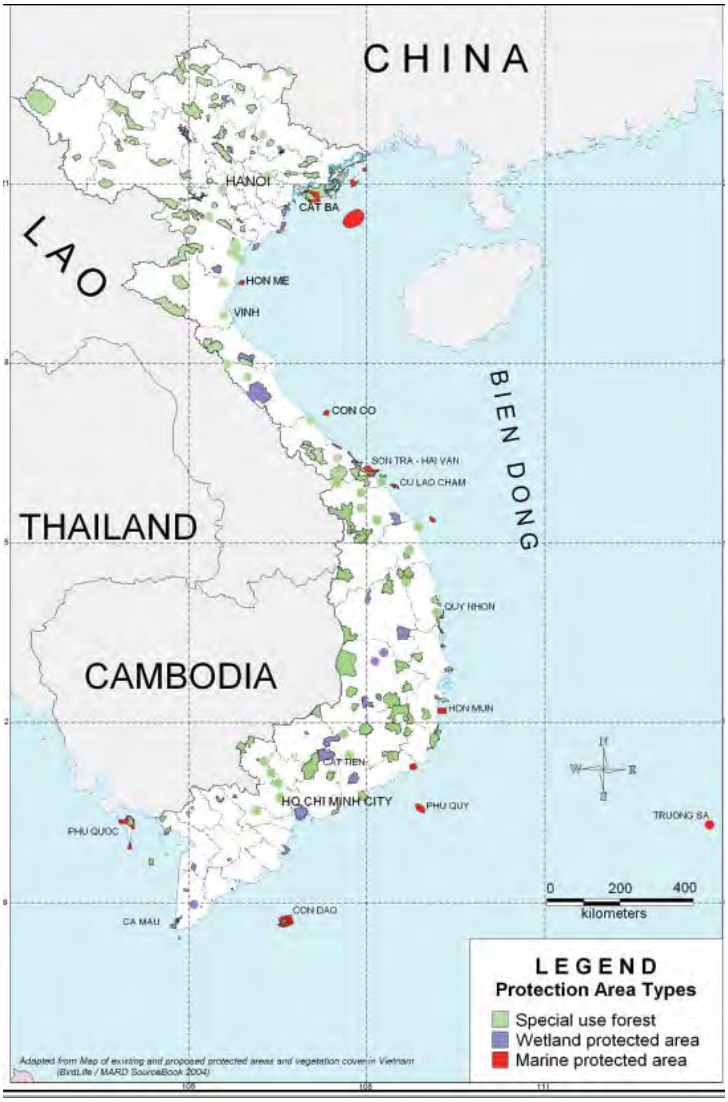


Figure 2-3 Location of nature conservation zones (UNDP, 2006)

126 areas are designated as special-use forest, its total area is 2.5 million ha. The below is the outline and location by protection category (Table 2-11).

Table2-11 Distribution of special-use forest(Nature reserves)in Vietnam[5]

No.	Category	Location	Dimension(ha)
I	National parks	27	957,330
II	Nature Conservation Area	60	1,369,058
IIa	Nature reserves	49	1,283,209
IIb	Species/habitat protected area	11	85,849
III	Landscape-protected area	39	215,287
	Total	126	2,541,675

Sources:MARD,2003(Management Strategy for a Protected Area System in Viet Nam to 2020)

[5] The below is a website of information regarding a list of Vietnam Nature reserves (in Vietnamese): http://vi.wikipedia.org/wiki/Danh_s%C3%A1ch_khu_b%E1%BA%A3o_t%E1%BB%93n_thi%C3%AAn_nhi%C3%AAn_Vi%E1%BB%87t_Nam

2.5 Analysis of Accordance and Gap among Local law system and new environmental guideline, safeguard policy of World Bank

(1) The difference between the new Law on Environmental Protection and Law on Environmental Protection

The main differences between the new Law on Environmental Protection and the previous Law on Environmental Protection enacted in 1994 are summarized in Table 2-12 below. While the previous Law on Environmental Protection consists of a total of 7 Chapters and 55 Articles, the new Law on Environmental Protection consists of a total of 15 Chapters and 134 Articles, with increasing environmental issues it has to regulate, such as EIA and SEA, conservation of the water environment, management of wastes, environmental monitoring, environmental audit, compensation for environmental damages etc.

Table 2-12 New Law on Environmental Protection

New Law on Environmental Protection		
Chapter		**Main contents**
Chapter 1 General rules		・The purpose, targeted stakeholders and the concept of environment protection prescribed in the new Law on Environmental Protection ・ Defines 22 environment-related terms including “environment”, “environmental element”, “environment protection”, “sustainable development”, “environmental standards” etc. ・Stipulates recommended activities such as dissemination of environment conservation and promotion of recycling ・ Stipulates strictly prohibited activities such as forest destruction, destruction/overdevelopment of natural resources, intrusion into the natural heritages and Protected Areas.
Chapter 2 Environmental standards		・The concept of environmental standards ・Targets of the environmental standards, such as soil, water quality, marine, wastes etc. ・Meaning of the environmental standards ・Responsibility of administrative agencies on environmental standards
Chapter 3 SEA and EIA, Environment Protection	Section 1 SEA	・Purpose, overview and targeted projects of SEA ・Implementation supervisor and the time period of SEA ・Entries in an SEA report ・Evaluation method of an SEA report

Commitment	Section 2 EIA	・Purpose, overview and targeted projects of EIA ・Implementation supervisor and the time period of EIA ・Entries in an EIA report ・Evaluation method of an EIA report ・Approval method of an EIA report ・Responsibilities for the implementation and supervision of the entries in an EIA report
	Section 3 Environment Protection Commitment	・Targeted projects of Environment Protection Commitment ・Entries of Environment Protection Commitment ・Registration of Environment Protection Commitment
Chapter 4 Conservation and rational use of resources		・Concept of nature conservation ・Concept of the conservation of biodiversity ・Concept of the conservation and development of landscape ・Concept of the development of new energy and environment-friendly products ・Promotion of consumption considering the environment
Chapter 5 Environment conservation in manufacturing, business and service sectors		・Regulations on the environment conservation in industrial promotion areas, including the strict observation and monitoring of the contents of EIA report etc. ・Regulations on environment conservation in manufacturing, business and service sectors, including wastewater treatment and pollution control measures ・Regulations on the environment conservation in 11 types of industrial activities including medical facilities, construction, transportation/traffic, cultivation and agriculture.
Chapter 6 Environment conservation in urban areas and housing areas		・Environment conservation plans in urban and housing areas. ・Environment conservation in urban/housing built-up areas, public places and households
Chapter 7 Environment conservation in marine and river waters	Section 1 Marine conservation	・Concept of marine environment conservation ・Conservation and rational use of aquatic resources ・Concept of the management of marine pollution and restoration ・Organizations responding to marine pollution
	Section 2 River conservation	・Concept of river environment conservation ・Management of river pollution and restoration ・Responsibility of local administration for river conservation ・Managing organization of river conservation

	Section 3 Conservation of other water environments	・Responsibilities of organizations and individuals for the management of wastes, including recycling, reuse and reduction. ・Recovery and treatment of out-of-date and waste products ・Concept of waste recycling ・Responsibility of the administration for waste management
Chapter 8 Management of wastes	Section 1 Overview of waste management	・Responsibilities of organizations and individuals for the management of wastes, including recycling, reuse and reduction. ・Recovery and treatment of out-of-date and waste products ・Concept of waste recycling ・Responsibility of the administration for waste management
	Section 2 Management of hazardous wastes	・Regulations for registration for the management of hazardous wastes ・Responsibility and obligation in the segregation, recovery, storage, transport and treatment of hazardous wastes ・Regulations on the disposal stations and land-filling of hazardous wastes
	Section 3 Management of general solid wastes	・Classification of general solid wastes ・Regulations on the recovery, transport, recycling and landfilling of general solid wastes
	Section 4 Effluent management	・Regulations on the recovery and treatment systems of effluents
	Section 5 Management of dust, gas, ambient noise, vibration and pollution	・Responsibility of the emitters of dust and gas ・Regulations on the emission of greenhouse gases and ozone-layer-destructive gases ・Regulations on ambient noise, vibration and pollution
Chapter 9 Prevention, response and purification of environmental accidents	Section 1 Prevention of environmental accidents and responses after the occurrence of the accidents	・Regulations for the prevention of environmental accidents, including installation of devices and staff education etc. ・Regulations on biosafety, including sanitary affairs and import/export of animals/plants ・Management of chemicals and radioactive substances ・Regulations on the responses to environmental accidents
	Section 2 Purification of pollution and	・Classification of polluted areas ・Survey method of environmentally polluted areas ・Responsibility of polluters for the purification of polluted areas and

	recovery of the environment	compensation
Chapter 10 Environmental monitoring and information		・Concept of environmental monitoring and the responsibility of the administrative agencies ・Regulations on the environmental monitoring systems, including the collection of materials and analytical facilities ・Regulations on the planning and implementation of environmental monitoring systems and the arrangement at the time of planning ・Regulations on White Paper on the Environment ・Regulations on environmental statistics and environmental information ・Publication and the contents of environmental information and the dialogues with the citizens and workers
Chapter 11 Resources for environment conservation		・Policies for the promotion/dissemination of environment conservation, environment education and environment technologies ・Promotion of environment technology industries and disaster prediction ・Policies on the financial resources for environment conservation, including local government resources, environment tax, Environmental Handling Charge System, environmental deposit, environment conservation fund
Chapter 12 International cooperation for environment conservation		・Observation of international laws ・Policies on globalization and environment conservation ・Policies on the promotion of international cooperation
Chapter 13 Responsibility of the administrative agencies and Vietnam Fatherland Front for environment conservation		・Responsibility of the Government, Ministries, government-related organizations on the local level, and Vietnam Fatherland Front
Chapter 14 Environmental audit and penalties for violation; compensation for conflict resolution and environmental damages	Section 1 Environmental audit	・Frequency of implementation of, and the responsibility of the administration for environmental audit ・Regulations on the violation, including purification, restoration and compensation obligation etc. ・Regulations on the lawsuits and conflicts related to environmental issues
	Section 2 Compensation for environmental damages	・Definition of environmental damage ・Regulations on the decision on the extent and survey method of, and compensation for environmental damages ・Policies on the insurance regime for environmental pollution and disasters

Chapter 15 Implementation regulations	・This law was enacted in July 2006.

Source: Edited from the new Law on Environmental Protection

(2) An analysis on the consistency/gap between new Law on Environmental Protection and the safeguard policy of the World Bank

The current environmental protection law has the following characteristics compared with the previous one.

1. SEA regles were included as law.
2. Regles relating to environmental protection in water areas such as oceans and rivers were included.
3. Management of wastes was strengthened.

However, the current environmental protection law is in the process that the points to be taken into consideration during development are listed up, compared with the safeguard policy of the World Bank. It is not developed systematically from the point of view of integrating sustainable development network and infrastructure network. However, during the field study of this time, it became clear that persons in charge of the related ministries recognize its importance. Gaps are expected to be filled to certain extent in the next amendment.

Chapter 3 Pollution and environmental degradation

3.1 Overview

Vietnam has achieved a rapid economic growth since the implementation of Doi Moi reform program, the growth rate of GDP reached 6.8% in 2010 (Vietnam bureau of Statistics). As World Bank estimates that it would be 6.3% also in 2011, Vietnam shows a stable economic growth. In particular, industrial productions such as state-owned petrol and natural gas, electricity, cement sectors have been growing rapidly. In 2008, industrial production increased to 39.7% of GDP (in stoical yearbook 2008). However, various pollution problems are getting severe in every region.

Strategic Orientation for Sustainable Development in Vietnam (Vietnam's Agenda 21)issued in 2004, indicated reduction of aerial pollution in industrialized and urban zones and strengthening management of solid waste and dangerous waste as important items. In addition, Approving the State Plan on Environmental Pollution Control till 2010(Decision No. 328/2005/QD-TTg)promulgated in 2005, builds the plan for managing waste and reducing pollution by 2010[6]. Also, a large party of Law On Environmental Protection(Order No. 29/2005/L-CTN)promulgated in 2005 also is for management of solid waste and dangerous waste or measures for contamination. Of which, what should be remarked is that it clarifies the responsibility of polluters.

On the other hand, environmental standard or effluent gas standard related to industry in Vietnam are clarified as Vietnam environmental criterea (TCVN) . The old Law on Environmental Protection became effective in 1993, after that, in 1994, Decree No. 175/CP was promulgated. Decree No. 175/CP indicates the importance of environmental standard. In response to this, since 1995, environmental standards were established successively in Vietnam. However considering that it has been long since the environmental standard was executed and social awareness to environmental problems being becoming high, the environmental standards are being amended.

3.2 Current state of aerial pollution and approach

(1)Current state of aerial pollution

Several provinces and cities conducted surveys about state of aerial pollution, though there are few data managed at state level. Surveys about effluent gas were conducted mostly on a project basis, except for in Ho Chi Minh, actually, collected data were temporary.[7] In 2004, CEETIA(Center for Environmental

[6] For exemple, the reducing wastes plans created by Quang Ninh City are as follows: 1)Collecting domestic solid waste by 100% by 2020. 2)Estimating the amount of the wastes in each places inside the city and creating a list of waste disposal sites which are operating or going to be created.

[7] There is an environment report 2007 named as "Vietnam aereal environment in urban areas". The environmental measured data is posted on the website (http://hepa.gov.vn/content/home.php) by the environmental protection agency in Ho Chi Minh every month. Posted data is air (dust,lead,NO2,noise, benzene, toluene, radiation, etc.) and water (water quality of surface water, groundwater, water channel, in coast areas).

Engineering of Towns and Industrial Areas)and MORNE conducted survey about effluent gas at a national level.

Currently, especially urban areas and industrial zones, air pollutions became severe. The origins of pollutions such as air born particulates matter, lead, nitroxide, carbon monoxide are ejected from automobiles, factories (chemical and metal industries), power plant, household, etc. In 2004, CEETIA conducted investigation of exhaust gas to 300 factories in Hanoi under direction of MORNE. Also, transport facilities are one of the principal sources of aerial pollution materials, and cause air pollution by lead and particulates.

(2)Standard on aerial pollution and measures

The state standard on aerial pollution was established, of which, there are QCVN04-2009/BGTVT (in Circular33/2010/TT-BGTV partially amended) and QCVN05-2009/BGTVT about motor vehicle emission and QCVN02-2008/BTNMT about emission of medical waste incinerator.

Also in 2005, emission standard on general vehicles was strengthed(Decision No. 249/2005/QD-TTG).The vehicles covered by the regulation are two-wheeled vehicle, three-wheeled vehicle, mortorcycle or moped. In addition, in 2006, the policy was issued that requires sulfer content of unleaded gas sold on the market should be reduced by 0.05% , that of diesel should be reduced by 0.25% in diesel used for in industrial activities.(Country Synthesis Report on Urban Air Quality Management Vietnam, Discussion Draft, December 2006, ADB)

Table 3-1 Air quality standards

	Average per hour	Average per 8 hours	Average per 24 hours	Yearly average
SO2	350	—	125	50
CO	30,000	10,000	5,000	—
NOx	200	—	100	40
O3	180	120	80	—
Suspended particulate matter	300	—	200	140
PM10	—	—	150	50
Pb	—	—	1.5	0.5

Note: '—' represents "no regulation"
Source: QCVN05 2009/BTNMT)

Table 3-2 Guideline value of air pollutants

No.	Source Pollutants	Chemical formula	Guideline value (QCVN06:2009/BTNMT) ($\mu g/m^3$)			
			1 hour	8 hours	24 hours	1 year
1	arsenic	A_S	0.03	-	-	0.005
2	arsine	A_SH_3	0.3	-	-	0.05
3	hydrochloric acid	HCl	-	-	60	-
4	nitrate	HNO_3	400	-	150	-
5	sulfuric acid	H_2SO_4	-	-	50	3

No.	Source Pollutants	Chemical formula	Guideline value (QCVN06:2009/BTNMT) (µg/m^3)			
			1 hour	8 hours	24 hours	1 year
6	silica	50% to 90% of SiO_2	300	-	50	3
7	particles of asbestos	$MgO.SiO_2.H_2O$	-	1fiber/ m^3	-	-
8	cadmium	Cd	0.4	0.2	-	0.005
9	chlorine	Cl_2	100	-	30	-
10	chromium	Cr	0.007	-	0.003	0.002
11	hydrofluoric acid	HF	20	-	5	1
12	hydrogen cyanide	HCN	10	-	-	
13	manganese	Mn/MnO_2	10	-	8	0.15
14	nickel	Ni	-	-	1	-
15	mercury	Hg	-	-	-	0.3
16	acrolein		50	-	-	-
17	acrylonitrile	CH_2=CHCN	-	-	45	22.5
18	aniline	$C_6H_5NH_2$	50	-	30	-
19	ß-propiolactone	$C_3H_4O_2$	-	-	-	54
20	benzene	C_6H_6	22	-	10	-
21	benzidine	$NH_2C_6H_4$ $C_6H_4NH_2$	0	0	0	0
22	chloroform	$CHCl_3$	-	-	16	0.04
23	hydrocarbon		5,000	-	1500	-
24	formaldehyde	HCHO	20	-	-	-
25	naphthalene		-	500	120	-
26	phenol	C_6H_5OH	10	-	-	-
27	tetrachloroethylene	C_2Cl_4	-	-	100	-
28	vinyl chloride	$ClCH=CH_2$	-	-	26	-
29	ammonia	NH_3	200	-	-	-
30	acetaldehyde		45	-	-	30
31	propionic acid	C_2H_5COOH	-	300	-	-
32	hydrogen sulfide	H_2S	42	-	-	-
33	methyl mecarptan		50	-	20	-
34	styrene	$C_6H_5CH=CH_2$	-	-	260	190
35	toluene	$C_6H_5CH_3$	500	-	-	190
36	xylene		1,000	-	-	-

Note: 30 minutes, 1,000µg/m3 for toluene
Source: QCVN06 2009/BTNMT

Meanwhile, the standards on air quality standards and the maximum allowable concentration of atmospheric harmful substances in Vietnam are provided by the following laws.

- Air quality standards (TCVN 5937: 2005)
- The maximum allowable concentration of atmospheric harmful substances (TCVN 5938: 2005)
- Industrial emission standards on inorganic substances and dust etc. (TCVN 5939: 2005)
- Industrial emission standards on organic substances (TCVN 5940: 2005)

In addition, environmental standards QCVN (another file/all in Vietnamese) have been set, among which the following standards are related to the atmosphere.

- QCVN04-2009/BGTVT (partly revised by Circular33/2010/TT-BGTVT) and
- QCVN05-2009/BGTVT on the exhaust gas from automobiles
- QCVN02-2008/BTNMT on the emissions from incinerators for medical wastes
- QCVN05-2009/BTNMT on the quality of ambient air
- QCVN06-2009BTNMT on the harmful substances in terms of the quality of ambient air
- QCVN19-2009/BTNMT on the industrial emissions of dust and inorganic substances
- QCVN20-2009/BTNMT on the industrial emissions of organic substances
- QCVN21-2009/BTNMT on the emissions from chemical fertilizer industry
- QCVN22-2009/BTNMT on the emissions from thermal power stations
- QCVN23-2009/BTNMT on the emissions from cement industry
- QCVN30-2010/BTNMT on the emissions from incinerators for industrial wastes
- QCVN34-2010/BTNMT on the dust/inorganic substances in the emissions from oil refineries

Of the above standards, air quality standards (TCVN 5937: 2005) and the maximum allowable concentration of atmospheric harmful substances (TCVN 5938: 2005) cover the whole atmospheric environment.

Emission standards for the gases from industries

The basic environmental standards on the emission gas from industrial activities include the industrial emission standards on inorganic substances and dust (TCVN 5939: 2005) and the industrial emission standards on organic substances (TCVN 5940: 2005). In addition to these, the following industrial emission standards have been set for respective regions.

- Industrial emission standards on the inorganic substances emitted in industrial areas (TCVN 6991: 2001).
- Industrial emission standards on the inorganic substances emitted in urban areas (TCVN 6992: 2001)
- Industrial emission standards on the inorganic substances emitted in villages and mountainous regions (TCVN 6993: 2001)
- Industrial emission standards on the inorganic substances emitted in industrial areas (TCVN 6994: 2001)
- Industrial emission standards on the organic substances emitted in urban areas (TCVN 6995: 2001)
- Industrial emission standards on the organic substances emitted in villages and mountainous regions (TCVN 6996: 2001)
- Emission standards for thermal power plants (TCVN 7440: 2005)

Table 3-3 Standard for industrial exhaust gas (sooty smoke and inorganic substance)(mg/ m^3)

No.	Pollutants	permissive density (mg/ m^3)	
		standard A	standard B
1	Sooty smoke	400	200
2	Sooty smoke includes silica	50	50
3	Ammonia	76	50
4	Antimony	20	10
5	Arsenic	20	10
6	Cadmium	20	5
7	Lead	10	5
8	carbon monoxide	1,000	1,000
9	Chloride	32	10
10	Copper	20	10
11	Zinc	30	30
12	hydrochloric acid	200	50
13	Fluoride	50	20
14	hydrogen sulfide	7.5	7.5
15	sulfur dioxide	1,500	500
16	nitrogen compound	1,000	850
17	nitrogen compound at processing facilities	2,000	1,000
18	sulfuric acid or trisulphuration gas	100	50
19	nitrate gas includes nitrogen dioxide	1,000	500

standard A will be applied for factories or facilities in operation.
standard B will be applied for new factories or facilities
source:QCVN 19:2009/BTNMT

Table 3-4 Standard for exhaust organic substance (mg/m3)

No	Item	chemical formula	permissive density NEW standard (QCVN 20: 2009)	permissive density Old standard (TCVN 5940: 2005)
1	Acetone	CH3COCH3	-	2400
2	sym-tetrabromoethane	CHBr2CHBr2	14	14
3	acetaldehyde	CH3CHO	270	270
4	acrolein	CH2=CHCHO	2.5	1.2
5	amyl acetate	CH3COOC5Al	525	525
6	Aniline	C6H2NH2	19	19
7	Anhydride	(CH3CO)20	-	360
8	benzidine	NH2C6H4C6H4NH2	-	0

No	Item	chemical formula	permissive density NEW standard (QCVN 20: 2009)	permissive density Old standard (TCVN 5940: 2005)
9	Benzene	C6H6	5	80
10	chlorobenzene	C6H5CH2Cl	5	5
11	butadiene	C4H6	2200	2200
12	Butane	C4H10	--	2350
13	butyl acetate	CH3COOC4H9	950	950
14	n-butanol	C4H9OH	—	300
15	n-butylamine	CH3(CH2)CH2NH2	15	15
16	cresol.(o-, m-, p-)	CH3C6H4OH	22	22
17	chlorobenzene	C6H5Cl	350	350
18	chloroform	CHCl3	240	240
19	ß-chloropyrene	CH2=CClCH=CH2	90	90
20	chloropicrin	CCl3NO2	0.7	0.7
21	cyclohexane	C6H12	1300	1300
22	cyclohexanol	C6H11OH	410	410
23	cyclohexznone	C6H10O	400	400
24	cyclohexene	C6H10	1350	3150
25	diethylamine	(C2H5)2NH	75	75
26	dibromodifluoromethane	CF2Br2	860	860
27	ortho dichlorobenzene	C6H12Cl2	300	300
28	1,1-dichloroethane	CHCl2CH3	400	400
29	1,2-dichloroethylene	ClCH=CHCl	790	790
30	1,2-dichloroethane	CCl2F2	-	4950
31	Dioxane	C4H8O2	360	360
32	dimethyl aniline	C6H5N(CH3)2	25	25
33	dichloroethyl ether	(ClCH2C2)20	90	90
34	diethylformamide	(CH3)2NOCH	60	60
35	dimethyl sulfide	(CH2)2SO4	0.5	0.5
36	dimethyl sulfide	(NH3)2NNH2	1	1
37	dinitrobenzene (o-, m-, p-)	C6H4(NO2)2	1	1
38	ethyl acetate	CH3COOC2H5	1400	1400
39	ethylamines	CH3CH2NH2	45	45
40	ethyl benzene	CH3CH2C6H5	870	870
41	ethyl bromide	C2H5Br	890	890
42	ethyl diamine	NH2CH2CH2NH2	30	30
43	ethyl dibromide	CHBr=CHBr	190	190
44	Ethanol	C2H5OH	-	1900
45	ethyl acrylate	H2=CHCOOC2H5	100	100
46	chlorohydrin	CH2ClCH2OH	16	16
47	ethylene oxide	CH2OCH2	20	20
48	ethyl ether	C2H5OC2H5	1200	1200
49	ethyl chloride	CH3CH2Cl	2600	2600
50	ethyl silicate	(C2H5)4SiO4	850	850
51	ethanolamines	NH2CH2CH2OH	45	45
52	furfural	C3H3OCHO	20	20
53	formaldehyde;	HCHO	20	6
54	furfuryl	C4H3OCH2OH	120	120
55	fluorotrichloromethane	CCl3F	5600	5600
56	n-heptane	C7H16	2000	2000
57	n-hexane	C6H14	450	450
58	isopropylamine	(CH3)2CHNH2	12	12
59	isobutanol	(CH3)2CHCH2OH	360	360
60	Methyl acetate	CH3COOCH3	610	610
61	methylacrylate	CH2=CHCOOCH3	35	35
62	methanol;	CH3OH	260	260
63	methylacetylene	CH3C=CH	1650	1650

No	Item	chemical formula	permissive density NEW standard (QCVN 20: 2009)	permissive density Old standard (TCVN 5940: 2005)
64	Methyl bromide	CH3Br	80	80
65	methylcyclohexane	CH3C6H11	2000	2000
66	methylcyclohexanol	CH3C6H10OH	470	470
67	methylcyclohexanone	CH3C6H9O	460	460
68	Methyl chloride	CH3Cl	210	210
69	methylene chloride	CH2Cl2	1750	1750
70	Methyl chloroform	CH3CCl3	2700	2700
71	monomethylamine	C6H5NHCH3	9	9
72	methanol amine	HOCH2NH2	31	31
73	naphthalin	C10H8	150	150
74	nitrobenzene	C6H5NO2	5	5
75	vitroethane	CH3CH2NO2	310	310
76	nitroglycerin	C3H5(NO2)3	5	5
77	nitromethane	CH3NO2	250	250
78	2-nitropropane	CH3CH(NO2)CH3	1800	1800
79	nitrotoluenes	CO2C6H4CH3	30	30
80	octane	C8H18	-	2850
81	pentane	C5H12	-	2950
82	pentanone	CH3CO(CH2)2CH3	700	700
83	phenol	C6H5OH	19	19
84	phenylhydrazine	C6H5NHNH2	22	22
85	tetrachloroethylene	CCl2=CCl2	-	670
86	propanol	CH3CH2CH2OH	980	980
87	propyl acetate	CH2COOC2H7	840	840
88	propylene dichloride	CH3CHClCH2Cl	350	350
89	propylene oxide	C3H6O	240	240
90	propylene ester	C3H5OC3H5	-	2100
91	pyridine	C5H5N	30	30
92	pyrene	C16H10	15	15
93	quinone	C6H4O2	0.4	0.4
94	Styrene.	C6H5CH=CH2	100	420
95	tetrahydro	C4H8O	590	590
96	1,1,2,2-tetrachloroethane	C12HCCHC12	35	35
97	tetrachloromethane	CCl4	65	65
98	Toluene	C6H5CH3	750	750
99	tetranitromethane	C(NO2)4	8	8
100	toluidine	CH3C6H4NH2	22	22
101	Toluene 2,4-diisocyanate	CH3C6H3(NCO)2	0.7	0.7
102	triethylamine	(C2H5)3N	100	100
103	1,1,2 - trichloroethane	CHCl2CH2Cl	1080	1080
104	trichloroethylene	ClCH=CCl2	110	110
105	trifluoride methane	CBrF3	-	6100
106	xylene (o-, m-, p-)	C6H4(CH3)2	870	870
107	xylidine	(CH3)2C6H3NH2	50	50
108	vinyl chloride	CH2=CHCl	20	150
109	vinyltoluene	CH2=CHC6H4CH3	480	480
	mercaptan		-	15

Sources:QCVN20:2009,TCVN 5940: 2005

Table 3-5 Standards on the inorganic substances contained in the industrial emission gas in industrial areas (TCVN6991: 2001) (mg/m^3)

No.	Indicator substances		Technology level A K_{CN}=0.6			Technology level B K_{CN}=0.75			Technology level C K_{CN}=1		
			Q_1 K_Q=1	Q_2 K_Q=0.75	Q_3 K_Q=0.5	Q_1 K_Q=1	Q_2 K_Q=0.75	Q_3 K_Q=0.5	Q_1 K_Q=1	Q_2 K_Q=0.75	Q_3 K_Q=0.5
1	Antimon	アンチモン	15	11.25	7.5	18.75	14.0625	9.375	25	18.75	12.5
2	Asen	砒素	6	4.5	3	7.5	5.625	3.75	10	7.5	5
3	Cadimi	カドミウム	0.6	0.45	0.3	0.75	0.5625	0.375	1	0.75	0.5
4	Pb	鉛	6	4.5	3	7.5	5.625	3.75	10	7.5	5
5	Cu	銅	12	9	6	15	11.25	7.5	20	15	10
6	Zn	亜鉛	18	13.5	9	22.5	16.875	11.25	30	22.5	15
7	Clo	一酸化塩素	12	9	6	15	11.25	7.5	20	15	10
8	HCl	塩酸	120	90	60	150	112.5	75	200	150	100
9	Flo, axit HF (sources)	フッ素化合物	6	4.5	3	7.5	5.625	3.75	10	7.5	5
10	H_2S	硫化水素	1.2	0.9	0.6	1.5	1.125	0.75	2	1.5	1
11	CO	一酸化炭素	300	225	150	375	281.25	187.5	500	375	250
12	SO_2	二酸化硫黄	300	225	150	375	281.25	187.5	500	375	250
13	NO_X (sources)	窒素酸化物	600	450	300	750	562.5	375	1000	750	500
14	NO_X	同上	600	450	300	750	562.5	375	1000	750	500
15	H_2SO_4	硫酸	21	15.75	10.5	26.25	19.6875	13.125	35	26.25	17.5
16	HNO_3	硝酸	42	31.5	21	52.5	39.375	26.25	70	52.5	35
17	Amoniac	アンモニア	60	45	30	75	56.25	37.5	100	75	50

Note: K_{CN}: Coefficient correspond to technology level, K_Q: Coefficient correspond to size of emission sources

Q1: Not more than 5,000m^3/h of emission, Q2: Not less than 5,000 m^3/h and not more than 20,000 m^3/h of emission, Q3: Not less than 20,000 m^3/h of emission

Table 3-6 Standards on the inorganic substances contained in the industrial emission gas in urban areas (TCVN6992: 2001) (mg/m^3)

No.	Indicator substances		Technology level A K_{CN}=0.6			Technology level B K_{CN}=0.75			Technology level C K_{CN}=1		
			Q_1 K_Q=1	Q_2 K_Q=0.75	Q_3 K_Q=0.5	Q_1 K_Q=1	Q_2 K_Q=0.75	Q_3 K_Q=0.5	Q_1 K_Q=1	Q_2 K_Q=0.75	Q_3 K_Q=0.5
1	Antimon	アンチモン	12	9	6	15	11.25	7.5	20	15	10
2	Asen	砒素	4.8	3.6	2.4	6	4.5	3	8	6	4
3	Cadimi	カドミウム	0.48	0.36	0.24	0.6	0.45	0.3	0.8	0.6	0.4
4	Pb	鉛	4.8	3.6	2.4	6	4.5	3	8	6	4
5	Cu	銅	9.6	7.2	4.8	12	9	6	16	12	8
6	Zn	亜鉛	14.4	10.8	7.2	18	13.5	9	24	18	12
7	Clo	塩化	9.6	7.2	4.8	12	9	6	16	12	8
8	HCl	塩酸	96	72	48	120	90	60	160	120	80
9	Flo, axit HF (sources)	フッ素化合物	4.8	3.6	2.4	6	4.5	3	8	6	4
10	H_2S	硫化水素	0.96	0.72	0.48	1.2	0.9	0.6	1.6	1.2	0.8
11	CO	一酸化炭素	240	180	120	300	225	150	400	300	200
12	SO_2	二酸化硫黄	240	180	120	300	225	150	400	300	200
13	NO_X (sources)	窒素酸化物	480	360	240	600	450	300	800	600	400
14	NO_X	同上	480	360	240	600	450	300	800	600	400
15	H_2SO_4	硫酸	16.8	12.6	8.4	21	15.75	10.5	28	21	14
16	HNO_3	硝酸	33.6	25.2	16.8	42	31.5	21	56	42	28
17	Amoniac	アンモニア	48	36	24	60	45	30	80	60	40

Note: K_{CN}: Coefficient correspond to technology level, K_Q: Coefficient correspond to size of emission sources

Q1: Not more than 5,000m^3/h of emission, Q2: Not less than 5,000 m^3/h and not more than 20,000 m^3/h of emission, Q3: Not less than 20,000 m^3/h of emission

Table 3-7 Standards on the inorganic substances contained in the industrial emission gas in farming/mountainous areas (TCVN6993: 2001) (mg/m^3)

No.	Indicator substances		Technology level A K_{CN}=0.6			Technology level B K_{CN}=0.75			Technology level C K_{CN}=1		
			Q_1 K_Q=1	Q_2 K_Q=0.75	Q_3 K_Q=0.5	Q_1 K_Q=1	Q_2 K_Q=0.75	Q_3 K_Q=0.5	Q_1 K_Q=1	Q_2 K_Q=0.75	Q_3 K_Q=0.5
1	Antimon	アンチモン	18	13.5	9	22.5	16.875	11.25	30	22.5	15
2	Asen	砒素	7.2	5.4	3.6	9	6.75	4.5	12	9	6
3	Cadimi	カドミウム	0.72	0.54	0.36	0.9	0.675	0.45	1.2	0.9	0.6
4	Pb	鉛	7.2	5.4	3.6	9	6.75	4.5	12	9	6
5	Cu	銅	14.4	10.8	7.2	18	13.5	9	24	18	12
6	Zn	亜鉛	21.6	16.2	10.8	27	20.25	13.5	36	27	18
7	Clo	塩化	14.4	10.8	7.2	18	13.5	9	24	18	12
8	HCl	塩酸	144	108	72	180	135	90	240	180	120
9	Flo, axit HF (sources)	フッ素化合物	7.2	5.4	3.6	9	6.75	4.5	12	9	6
10	H_2S	硫化水素	1.44	1.08	0.72	1.8	1.35	0.9	2.4	1.8	1.2
11	CO	一酸化炭素	360	270	180	450	337.5	225	600	450	300
12	SO_2	二酸化硫黄	360	270	180	450	337.5	225	600	450	300
13	NO_X (sources)	窒素酸化物	720	540	360	900	675	450	1200	900	600
14	NO_X	同上	720	540	360	900	675	450	1200	900	600
15	H_2SO_4	硫酸	25.2	18.9	12.6	31.5	23.625	15.75	42	31.5	21
16	HNO_3	硝酸	50.4	37.8	25.2	63	47.25	31.5	84	63	42
17	Amoniac	アンモニア	72	54	36	90	67.5	45	120	90	60

Note: K_{CN}: Coefficient correspond to technology level, K_Q: Coefficient correspond to size of emission sources

Q1: Not more than 5,000m^3/h of emission, Q2: Not less than 5,000 m^3/h and not more than 20,000 m^3/h of emission, Q3: Not less than 20,000 m^3/h of emission

Table 3-8 Standards on the organic substances contained in the industrial emission gas in industrial areas (TCVN6994: 2001)(1) (mg/m^3)

No.	Indicator substances	Chemical formula	Technology level A K_{CN}=0.6			Technology level B K_{CN}=0.75			Technology level C K_{CN}=1		
			Q_1 K_Q=1	Q_2 K_Q=0.75	Q_3 K_Q=0.5	Q_1 K_Q=1	Q_2 K_Q=0.75	Q_3 K_Q=0.5	Q_1 K_Q=1	Q_2 K_Q=0.75	Q_3 K_Q=0.5
1	Axeton	CH_3COCH_3	1440	1080	720	1800	1350	900	2400	1800	1200
2	Axetylen tetrabromua	$CHBr_2CHBr_2$	8.4	6.3	4.2	10.5	7.875	5.25	14	10.5	7
3	Axetaldehyd	CH_3CHO	162	121.5	81	202.5	151.875	101.25	270	202.5	135
4	Acrolein	CH_2=CHCHO	0.72	0.54	0.36	0.9	0.675	0.45	1.2	0.9	0.6
5	Amylaxetat	$CH_3COOC_5H_{11}$	315	236.25	157.5	393.75	295.3125	196.875	525	393.75	262.5
6	Anilin	$C_6H_5NH_2$	11.4	8.55	5.7	14.25	10.6875	7.125	19	14.25	9.5
7	Anhydrit axetic	$(CH_3CHO)_2O$	216	162	108	270	202.5	135	360	270	180
8	Benzidin	$NH_2(C_6H_4)_2NH_2$	0.0048	0.0036	0.0024	0.006	0.0045	0.003	0.008	0.006	0.004
9	Benzen	C_6H_6	48	36	24	60	45	30	80	60	40
10	Benzyl clorua	$C_6H_5NH_2$	3	2.25	1.5	3.75	2.8125	1.875	5	3.75	2.5
11	Butadien	C_4H_6	1320	990	660	1650	1237.5	825	2200	1650	1100
12	Butan	C_4H_{10}	1410	1057.5	705	1762.5	1321.875	881.25	2350	1762.5	1175
13	Butyl axetat	$CH_3COOC_4H_9$	570	427.5	285	712.5	534.375	356.25	950	712.5	475
14	N – Butanol	C_4H_9OH	180	135	90	225	168.75	112.5	300	225	150
15	Butylamin	$CH_3(CH)_2CH_2NH_2$	9	6.75	4.5	11.25	8.4375	5.625	15	11.25	7.5
16	Creson (a-, m-, p-)	$CH_3C_6H_4OH$	13.2	9.9	6.6	16.5	12.375	8.25	22	16.5	11
17	Clobenzen	C_6H_5Cl	210	157.5	105	262.5	196.875	131.25	350	262.5	175
18	Clorofom	CH_3Cl	144	108	72	180	135	90	240	180	120
19	B- clopren	CH_2=CClCH=CH_2	54	40.5	27	67.5	50.625	33.75	90	67.5	45
20	Clopicrin	CCl_3NO_2	0.42	0.315	0.21	0.525	0.39375	0.2625	0.7	0.525	0.35
21	Cyclohexan	C_6H_{12}	780	585	390	975	731.25	487.5	1300	975	650
22	Cyclohexanol	$C_6H_{11}OH$	246	184.5	123	307.5	230.625	153.75	410	307.5	205
23	Cyalohexanon	$C_6H_{10}O$	240	180	120	300	225	150	400	300	200
24	Cyclohexen	C_6H_{10}	810	607.5	405	1012.5	759.375	506.25	1350	1012.5	675

Table 3-8 Standards on the organic substances contained in the industrial emission gas in industrial areas (TCVN6994: 2001)(2. continued) **(mg/m^3)**

No.	Indicator substances	化学式	Technology level A K_{CN}=0.6			Technology level B K_{CN}=0.75			Technology level C K_{CN}=1		
			Q_1 K_Q=1	Q_2 K_Q=0.75	Q_3 K_Q=0.5	Q_1 K_Q=1	Q_2 K_Q=0.75	Q_3 K_Q=0.5	Q_1 K_Q=1	Q_2 K_Q=0.75	Q_3 K_Q=0.5
25	Dietylamin	$(C_2H_5)_2NH_2$	45	33.75	22.5	56.25	42.1875	28.125	75	56.25	37.5
26	Diflodibrommetan	CF_2Br_2	516	387	258	645	483.75	322.5	860	645	430
27	o-diclobenzen	$C_6H_4Cl_2$	180	135	90	225	168.75	112.5	300	225	150
28	1,1 – Dicloetan	$CHCl_2CH_3$	240	180	120	300	225	150	400	300	200
29	1,2 – Dicloetylen	ClCH=CHCl	474	355.5	237	592.5	444.375	296.25	790	592.5	395
30	1,2 – Diclodiflometan	CCl_2F_2	2970	2227.5	1485	3712.5	2784.375	1856.25	4950	3712.5	2475
31	Dioxan	$C_4H_8O_2$	216	162	108	270	202.5	135	360	270	180
32	Dimetylanilin	$C_6H_5N(CH_3)_2$	15	11.25	7.5	18.75	14.0625	9.375	25	18.75	12.5
33	Dicloetyl ete	$(ClCH_2CH_2)_2O$	54	40.5	27	67.5	50.625	33.75	90	67.5	45
34	Dimetylfomamit	$(CH_3)_2NOCH$	36	27	18	45	33.75	22.5	60	45	30
35	Dimetylsunfat	$(CH_3)_2SO_4$	0.3	0.225	0.15	0.375	0.28125	0.1875	0.5	0.375	0.25
36	Dimetylhydrazin	$(NH_3)_2NNH_2$	0.6	0.45	0.3	0.75	0.5625	0.375	1	0.75	0.5
37	Dinitrobenzen (o-, m-, p-)	$C_6H_4(NO_2)_2$	0.6	0.45	0.3	0.75	0.5625	0.375	1	0.75	0.5
38	Etylaxetat	$CH_3COOC_2H_5$	840	630	420	1050	787.5	525	1400	1050	700
39	Etylamin	$CH_3CH_2NH_2$	27	20.25	13.5	33.75	25.3125	16.875	45	33.75	22.5
40	Etylbenzen	$CH_3CH_2C_6H_5$	522	391.5	261	652.5	489.375	326.25	870	652.5	435
41	Etylbromua	C_2H_5Br	534	400.5	267	667.5	500.625	333.75	890	667.5	445
42	Etylendiamin	$NH_2CH_2=CH_2NH_2$	18	13.5	9	22.5	16.875	11.25	30	22.5	15
43	Etylendibromua	CHBr=CHBr	114	85.5	57	142.5	106.875	71.25	190	142.5	95
44	Etanol	C_2H_5OH	1140	855	570	1425	1068.75	712.5	1900	1425	950
45	Etylacrilat	$CH_2=CHCOOC_2H_5$	60	45	30	75	56.25	37.5	100	75	50
46	Etylen clohydrin	CH_2ClCH_2OH	9.6	7.2	4.8	12	9	6	16	12	8
47	Etylen oxyt	CH_2OCH_2	12	9	6	15	11.25	7.5	20	15	10

Table 3-8 Standards on the organic substances contained in the industrial emission gas in industrial areas (TCVN6994: 2001) (3. Continued) **(mg/m^3)**

No.	indicator substances	化学式	Technology level A K_{CN}=0.6			Technology level B K_{CN}=0.75			Technology level C K_{CN}=1		
			Q_1 K_Q=1	Q_2 K_Q=0.75	Q_3 K_Q=0.5	Q_1 K_Q=1	Q_2 K_Q=0.75	Q_3 K_Q=0.5	Q_1 K_Q=1	Q_2 K_Q=0.75	Q_3 K_Q=0.5
48	Etyl ete	$C_2H_6OC_2H_5$	720	540	360	900	675	450	1200	900	600
49	Etyl clorua	CH_3CH_2Cl	1560	1170	780	1950	1462.5	975	2600	1950	1300
50	Etylsilicat	$(C_2H_5)_4SiO_4$	510	382.5	255	637.5	478.125	318.75	850	637.5	425
51	Etanolamin	$NH_2CH_2CH_2OH$	27	20.25	13.5	33.75	25.3125	16.875	45	33.75	22.5
52	Fufural	C_4H_3OCHO	12	9	6	15	11.25	7.5	20	15	10
53	Fomaldehyt	HCHO	3.6	2.7	1.8	4.5	3.375	2.25	6	4.5	3
54	Fufuryl	$C_4H_3OCH_2OH$	720	540	360	900	675	450	1200	900	600
55	Flotriclometan	CCl_3F	3360	2520	1680	4200	3150	2100	5600	4200	2800
56	n – Heptan	C_7H_{16}	1200	900	600	1500	1125	750	2000	1500	1000
57	n – Hexan	C_6H_{14}	270	202.5	135	337.5	253.125	168.75	450	337.5	225
58	Isopropylamin	$(CH_3)_2CHNH_2$	7.2	5.4	3.6	9	6.75	4.5	12	9	6
59	Isobutanol	$(CH_3)_2CHCH_2CH$	216	162	108	270	202.5	135	360	270	180
60	Metylaxetat	CH_3COOCH_3	366	274.5	183	457.5	343.125	228.75	610	457.5	305
61	Metylacrylat	$CH_2=CHCOOCH_3$	21	15.75	10.5	26.25	19.6875	13.125	35	26.25	17.5
62	Metanol	CH_3OH	156	117	78	195	146.25	97.5	260	195	130
63	Metylaxetylen	$CH_3C=CH$	990	742.5	495	1237.5	928.125	618.75	1650	1237.5	825
64	Metylbromua	CH_3Br	48	36	24	60	45	30	80	60	40
65	Metylcyclohecxan	$CH_3C_6H_{11}$	1200	900	600	1500	1125	750	2000	1500	1000
66	Metylcyclohecxanol	$CH_3C_6H_{10}OH$	282	211.5	141	352.5	264.375	176.25	470	352.5	235
67	Metylcyclohecxanon	$CH_3C_6H_9O$	276	207	138	345	258.75	172.5	460	345	230
68	Metylclorua	CH_3Cl	126	94.5	63	157.5	118.125	78.75	210	157.5	105
69	Metylen clorua	CH_2Cl_2	1050	787.5	525	1312.5	984.375	656.25	1750	1312.5	875
70	Metyl clorofom	CH_3CCl_3	1620	1215	810	2025	1518.75	1012.5	2700	2025	1350
71	Monometylanilin	$C_6H_5NHCH_3$	5.4	4.05	2.7	6.75	5.0625	3.375	9	6.75	4.5

Table 3-8 Standards on the organic substances contained in the industrial emission gas in industrial areas (TCVN6994: 2001) (4. Continued) **(mg/m^3)**

No.	indicator substances	化学式	Technology level A K_{CN}=0.6			Technology level B K_{CN}=0.75			Technology level C K_{CN}=1		
			Q_1 K_Q=1	Q_2 K_Q=0.75	Q_3 K_Q=0.5	Q_1 K_Q=1	Q_2 K_Q=0.75	Q_3 K_Q=0.5	Q_1 K_Q=1	Q_2 K_Q=0.75	Q_3 K_Q=0.5
72	Metanolamin	$HOCH_2NH_2$	18.6	13.95	9.3	23.25	17.4375	11.625	31	23.25	15.5
73	Naphtalen	$C_{10}H_8$	90	67.5	45	112.5	87.375	56.25	150	112.5	75
74	Nitrobenzen	$C_6H_5NO_2$	3	2.25	1.5	3.75	2.8125	1.875	5	3.75	2.5
75	Nitroetan	$CH_3CH_2NO_2$	186	139.5	93	232.5	174.375	116.25	310	232.5	155
76	Nitroglycerin	$C_3H_5(NO_2)_3$	3	2.25	1.5	3.75	2.8125	1.875	5	3.75	2.5
77	Nitrometan	CH_3NO_2	150	112.5	75	187.5	140.625	93.75	250	187.5	125
78	2 – Nitropropan	$CH_3CH(NO_2)CH_3$	1080	810	540	1350	1012.5	675	1800	1350	900
79	Nitrotoluen	$NO_2C_6H_4CH_3$	18	13.5	9	22.5	16.875	11.25	30	22.5	15
80	Octan	C_8H_{18}	1710	1282.5	855	2137.5	1603.125	1068.75	2850	2137.5	1425
81	Pentan	C_5H_{12}	1770	1327.5	885	2212.5	1659.375	1106.25	2950	2212.5	1475
82	Pentanon	$CH_3CO(CH_2)_2CH_3$	420	315	210	525	393.75	262.5	700	525	350
83	Phenol	C_6H_5OH	11.4	8.55	5.7	14.25	10.6875	7.125	19	14.25	9.5
84	Phenylhydrazin	$C_6H_5NHNH_2$	13.2	9.9	6.6	16.5	12.375	8.25	22	16.5	11
85	Tetracloetylen	$CCl_2=CCl_2$	402	301.5	201	502.5	376.875	251.25	670	502.5	335
86	Propanol	$CH_3CH_2CH_2OH$	588	441	294	735	551.25	367.5	980	735	490
87	Propylaxetat	$CH_3COOC_3H_7$	504	378	252	630	472.5	315	840	630	420
88	Propylendiclorua	$CH_3CHCl\text{-}CH_2Cl$	210	157.5	105	262.5	196.875	131.25	350	262.5	175
89	Propylenoxyt	C_3H_6O	144	108	72	180	135	90	240	180	120
90	Propylen ete	$C_3H_5OC_3H_5$	1260	945	630	1575	1181.25	787.5	2100	1575	1050
91	Pyrindin	C_5H_5N	18	13.5	9	22.5	16.875	11.25	30	22.5	15
92	Pyren	$C_{16}H_{10}$	9	6.75	4.5	11.25	8.4375	5.625	15	11.25	7.5
93	Quinon	$C_6H_4O_2$	0.24	0.18	0.12	0.3	0.225	0.15	0.4	0.3	0.2
94	Styren	$C_6H_5CH=CH_2$	252	189	126	315	236.25	157.5	420	315	210
95	Tetrahydrofural	C_4H_8O	354	265.5	177	442.5	331.875	221.25	590	442.5	295

Table 3-8 Standards on the organic substances contained in the industrial emission gas in industrial areas (TCVN6994: 2001)(5. Continued) **(mg/m^3)**

No.	Indicator substances	Chemical formula	Technology level A K_{CN}=0.6			Technology level B K_{CN}=0.75			Technology level C K_{CN}=1		
			Q_1 K_Q=1	Q_2 K_Q=0.75	Q_3 K_Q=0.5	Q_1 K_Q=1	Q_2 K_Q=0.75	Q_3 K_Q=0.5	Q_1 K_Q=1	Q_2 K_Q=0.75	Q_3 K_Q=0.5
96	1,1,2,2 – Tetracloetan	$Cl_2HCCHCl_2$	21	15.75	10.5	26.25	19.6875	13.125	35	26.25	17.5
97	Tetraclometan	CCl_4	39	29.25	19.5	48.75	36.5625	24.375	65	48.75	32.5
98	Toluen	$C_6H_5CH_3$	450	337.5	225	562.5	421.875	281.25	750	562.5	375
99	Tetranitrometan	$C(NO_2)_4$	4.8	3.6	2.4	6	4.5	3	8	6	4
100	Toluidin	$CH_3C_6H_4NH_2$	13.2	9.9	6.6	16.5	12.375	8.25	22	16.5	11
101	Toluen - 2,4 – diisocyanat	$CH_3C_6H_3(NCO)_2$	0.42	0.315	0.21	0.525	0.39375	0.2625	0.7	0.525	0.35
102	Trietylamin	$(C_2H_5)_3N$	60	45	30	75	56.25	37.5	100	75	50
103	1,1,2 – Tricloetan	$CHCl_2CH_2Cl$	648	486	324	810	607.5	405	1080	810	540
104	Tricloetylen	$ClCH=CCl_2$	66	49.5	33	82.5	61.875	41.25	110	82.5	55
105	Triflo brommetan	$CBrF_3$	3660	2745	1830	4575	3431.25	2287.5	6100	4575	3050
106	Xylen (o-, m-, p-)	$C_6H_4(CH_3)_2$	522	391.5	261	652.5	489.375	326.25	870	652.5	435
107	Xylidin	$(CH_3)_2C_6H_3NH_2$	30	22.5	15	37.5	28.125	18.75	50	37.5	25
108	Vinylclorua	$CH_2=CHCl$	90	67.5	45	112.5	84.375	56.25	150	112.5	75
109	Vinyltoluen	$CH_2=CHC_6H_4CH_3$	288	216	144	360	270	180	480	360	240

Note: K_{CN}: Coefficient correspond to technology level, K_Q: Coefficient correspond to size of emission sources

Q1: Not more than 5,000m^3/h of emission, Q2: Not less than 5,000 m^3/h and not more than 20,000 m^3/h of emission, Q3: Not less than 20,000 m^3/h of emission

Table 3-9 Standards on the organic substances contained in the industrial emission gas in urban areas (TCVN6995: 2001)(1) **(mg/m^3)**

No.	Indicator substances	Chemical formula	Technology level A K_{CN}=0.6			Technology level B K_{CN}=0.75			Technology level C K_{CN}=1		
			Q_1 K_Q=1	Q_2 K_Q=0.75	Q_3 K_Q=0.5	Q_1 K_Q=1	Q_2 K_Q=0.75	Q_3 K_Q=0.5	Q_1 K_Q=1	Q_2 K_Q=0.75	Q_3 K_Q=0.5
1	Axeton	CH_3COCH_3	1152	864	576	1440	1080	720	1920	1440	960
2	Axetylen tetrabromua	$CHBr_2CHBr_2$	6.72	5.04	3.36	8.4	6.3	4.2	11.2	8.4	5.6
3	Axetaldehyd	CH_3CHO	129.6	97.2	64.8	162	121.5	81	216	162	108
4	Acrolein	CH_2=CHCHO	0.576	0.432	0.288	0.72	0.54	0.36	0.96	0.72	0.48
5	Amylaxetat	$CH_3COOC_5H_{11}$	252	189	126	315	236.25	157.5	420	315	210
6	Anilin	$C_6H_5NH_2$	9.12	6.84	4.56	11.4	8.55	5.7	15.2	11.4	7.6
7	Anhydrit axetic	$(CH_3CHO)_2O$	172.8	129.6	86.4	216	162	108	288	216	144
8	Benzidin	$NH_2(C_6H_4)_2NH_2$	0.00384	0.00288	0.00192	0.0048	0.0036	0.0024	0.0064	0.0048	0.0032
9	Benzen	C_6H_6	38.4	28.8	19.2	48	36	24	64	48	32
10	Benzyl clorua	$C_6H_5NH_2$	2.4	1.8	1.2	3	2.25	1.5	4	3	2
11	Butadien	C_4H_6	1056	792	528	1320	990	660	1760	1320	880
12	Butan	C_4H_{10}	1128	846	564	1410	1057.5	705	1880	1410	940
13	Butyl axetat	$CH_3COOC_4H_9$	456	342	228	570	427.5	285	760	570	380
14	n – Butanol	C_4H_9OH	144	108	72	180	135	90	240	180	120
15	Butylamin	$CH_3(CH)_2CH_2NH_2$	7.2	5.4	3.6	9	6.75	4.5	12	9	6
16	Creson (a-, m-, p-)	$CH_3C_6H_4OH$	10.56	7.92	5.28	13.2	9.9	6.6	17.6	13.2	8.8
17	Clobenzen	C_6H_5Cl	168	126	84	210	157.5	105	280	210	140
18	Clorofom	CH_3Cl	115.2	86.4	57.6	144	108	72	192	144	96
19	β- clopren	CH_2=CClCH=CH_2	43.2	32.4	21.6	54	40.5	27	72	54	36
20	Clopicrin	CCl_3NO_2	0.336	0.252	0.168	0.42	0.315	0.21	0.56	0.42	0.28
21	Cyclohexan	C_6H_{12}	624	468	312	780	585	390	1040	780	520
22	Cyclohexanol	$C_6H_{11}OH$	196.8	147.6	98.4	246	184.5	123	328	246	164
23	Cyalohexanon	$C_6H_{10}O$	192	144	96	240	180	120	320	240	160
24	Cyclohexen	C_6H_{10}	648	486	324	810	607.5	405	1080	810	540

Table 3-9 Standards on the organic substances contained in the industrial emission gas in urban areas (TCVN6995: 2001)(2. Continued) (mg/m3)

No.	Indicator substances	Chemical formula	Technology level A K_{CN}=0.6			Technology level B K_{CN}=0.75			Technology level C K_{CN}=1		
			Q_1 K_Q=1	Q_2 K_Q=0.75	Q_3 K_Q=0.5	Q_1 K_Q=1	Q_2 K_Q=0.75	Q_3 K_Q=0.5	Q_1 K_Q=1	Q_2 K_Q=0.75	Q_3 K_Q=0.5
25	Dietylamin	$(C_2H_5)_2NH_2$	36	27	18	45	33.75	22.5	60	45	30
26	Diflodibrommetan	CF_2Br_2	412.8	309.6	206.4	516	387	258	688	516	344
27	o-diclobenzen	$C_6H_4Cl_2$	144	108	72	180	135	90	240	180	120
28	1,1 – Dicloetan	$CHCl_2CH_3$	192	144	96	240	180	120	320	240	160
29	1,2 – Dicloetylen	ClCH=CHCl	379.2	284.4	189.6	474	355.5	237	632	474	316
30	1,2 – Diclodiflometan	CCl_2F_2	2376	1782	1188	2970	2227.5	1485	3960	2970	1980
31	Dioxan	$C_4H_8O_2$	172.8	129.6	86.4	216	162	108	288	216	144
32	Dimetylanilin	$C_6H_5N(CH_3)_2$	12	9	6	15	11.25	7.5	20	15	10
33	Dicloetyl ete	$(ClCH_2CH_2)_2O$	43.2	32.4	21.6	54	40.5	27	72	54	36
34	Dimetylfomamit	$(CH_3)_2NOCH$	28.8	21.6	14.4	36	27	18	48	36	24
35	Dimetylsunfat	$(CH_3)_2SO_4$	0.24	0.18	0.12	0.3	0.225	0.15	0.4	0.3	0.2
36	Dimetylhydrazin	$(NH_3)_2NNH_2$	0.48	0.36	0.24	0.6	0.45	0.3	0.8	0.6	0.4
37	Dinitrobenzen (o-, m-, p-)	$C_6H_4(NO_2)_2$	0.48	0.36	0.24	0.6	0.45	0.3	0.8	0.6	0.4
38	Etylaxetat	$CH_3COOC_2H_5$	672	504	336	840	630	420	1120	840	560
39	Etylamin	$CH_3CH_2NH_2$	21.6	16.2	10.8	27	20.25	13.5	36	27	18
40	Etylbenzen	$CH_3CH_2C_6H_5$	417.6	313.2	208.8	522	391.5	261	696	522	348
41	Etylbromua	C_2H_5Br	427.2	320.4	213.6	534	400.5	267	712	534	356
42	Etylendiamin	$NH_2CH_2=CH_2NH_2$	14.4	10.8	7.2	18	13.5	9	24	18	12
43	Etylendibromua	CHBr=CHBr	91.2	68.4	45.6	114	85.5	57	152	114	76
44	Etanol	C_2H_5OH	912	684	456	1140	855	570	1520	1140	760
45	Etylacrilat	$CH_2=CHCOOC_2H_5$	48	36	24	60	45	30	80	60	40
46	Etylen clohydrin	CH_2ClCH_2OH	7.68	5.76	3.84	9.6	7.2	4.8	12.8	9.6	6.4
47	Etylen oxyt	CH_2OCH_2	9.6	7.2	4.8	12	9	6	16	12	8

Table 3-9 Standards on the organic substances contained in the industrial emission gas in urban areas (TCVN6995: 2001) (3. Continued) (mg/m3)

No.	Indicator substances	Chemical formula	Technology level A K_{CN}=0.6			Technology level B K_{CN}=0.75			Technology level C K_{CN}=1		
			Q_1 K_Q=1	Q_2 K_Q=0.75	Q_3 K_Q=0.5	Q_1 K_Q=1	Q_2 K_Q=0.75	Q_3 K_Q=0.5	Q_1 K_Q=1	Q_2 K_Q=0.75	Q_3 K_Q=0.5
48	Etyl ete	$C_2H_6OC_2H_5$	576	432	288	720	540	360	960	720	480
49	Etyl clorua	CH_3CH_2Cl	1248	936	624	1560	1170	780	2080	1560	1040
50	Etylsilicat	$(C_2H_5)_4SiO_4$	408	306	204	510	382.5	255	680	510	340
51	Etanolamin	$NH_2CH_2CH_2OH$	21.6	16.2	10.8	27	20.25	13.5	36	27	18
52	Fufural	C_4H_3OCHO	9.6	7.2	4.8	12	9	6	16	12	8
53	Fomaldehyt	HCHO	2.88	2.16	1.44	3.6	2.7	1.8	4.8	3.6	2.4
54	Fufuryl	$C_4H_3OCH_2OH$	576	432	288	720	540	360	960	720	480
55	Flotriclometan	CCl_3F	2688	2016	1344	3360	2520	1680	4480	3360	2240
56	n – Heptan	C_7H_{16}	960	720	480	1200	900	600	1600	1200	800
57	n – Hexan	C_6H_{14}	216	162	108	270	202.5	135	360	270	180
58	Isopropylamin	$(CH_3)_2CHNH_2$	5.76	4.32	2.88	7.2	5.4	3.6	9.6	7.2	4.8
59	Isobutanol	$(CH_3)_2CHCH_2CH$	172.8	129.6	86.4	216	162	108	288	216	144
60	Metylaxetat	CH_3COOCH_3	292.8	219.6	146.4	366	274.5	183	488	366	244
61	Metylacrylat	CH_2=$CHCOOCH_3$	16.8	12.6	8.4	21	15.75	10.5	28	21	14
62	Metanol	CH_3OH	124.8	93.6	62.4	156	117	78	208	156	104
63	Metylaxetylen	CH_3C=CH	792	594	396	990	742.5	495	1320	990	660
64	Metylbromua	CH_3Br	38.4	28.8	19.2	48	36	24	64	48	32
65	Metylcyclohecxan	$CH_3C_6H_{11}$	960	720	480	1200	900	600	1600	1200	800
66	Metylcyclohecxanol	$CH_3C_6H_{10}OH$	225.6	169.2	112.8	282	211.5	141	376	282	188
67	Metylcyclohecxanon	$CH_3C_6H_9O$	220.8	165.6	110.4	276	207	138	368	276	184
68	Metylclorua	CH_3Cl	100.8	75.6	50.4	126	94.5	63	168	126	84
69	Metylen clorua	CH_2Cl_2	840	630	420	1050	787.5	525	1400	1050	700
70	Metyl clorofom	CH_3CCl_3	1296	972	648	1620	1215	810	2160	1620	1080
71	Monometylanilin	$C_6H_5NHCH_3$	4.32	3.24	2.16	5.4	4.05	2.7	7.2	5.4	3.6

Table3-9 Standards on the organic substances contained in the industrial emission gas in urban areas (TCVN6995: 2001) (4. Continued) **(mg/m^3)**

No.	Indicator substances	Chemical formula	Technology level A K_{CN}=0.6			Technology level B K_{CN}=0.75			Technology level C K_{CN}=1		
			Q_1 K_Q=1	Q_2 K_Q=0.75	Q_3 K_Q=0.5	Q_1 K_Q=1	Q_2 K_Q=0.75	Q_3 K_Q=0.5	Q_1 K_Q=1	Q_2 K_Q=0.75	Q_3 K_Q=0.5
72	Metanolamin	$HOCH_2NH_2$	14.88	11.16	7.44	18.6	13.95	9.3	24.8	18.6	12.4
73	Naphtalen	$C_{10}H_8$	72	54	36	90	67.5	45	120	90	60
74	Nitrobenzen	$C_6H_5NO_2$	2.4	1.8	1.2	3	2.25	1.5	4	3	2
75	Nitroetan	$CH_3CH_2NO_2$	148.8	111.6	74.4	186	139.5	93	248	186	124
76	Nitroglycerin	$C_3H_5(NO_2)_3$	2.4	1.8	1.2	3	2.25	1.5	4	3	2
77	Nitrometan	CH_3NO_2	120	90	60	150	112.5	75	200	150	100
78	2 – Nitropropan	$CH_3CH(NO_2)CH_3$	864	648	432	1080	810	540	1440	1080	720
79	Nitrotoluen	$NO_2C_6H_4CH_3$	14.4	10.8	7.2	18	13.5	9	24	18	12
80	Octan	C_8H_{18}	1368	1026	684	1710	1282.5	855	2280	1710	1140
81	Pentan	C_5H_{12}	1416	1062	708	1770	1327.5	885	2360	1770	1180
82	Pentanon	$CH_3CO(CH_2)_2CH_3$	336	252	168	420	315	210	560	420	280
83	Phenol	C_6H_5OH	9.12	6.84	4.56	11.4	8.55	5.7	15.2	11.4	7.6
84	Phenylhydrazin	$C_6H_5NHNH_2$	10.56	7.92	5.28	13.2	9.9	6.6	17.6	13.2	8.8
85	Tetracloetylen	$CCl_2=CCl_2$	321.6	241.2	160.8	402	301.5	201	536	402	268
86	Propanol	$CH_3CH_2CH_2OH$	470.4	352.8	235.2	588	441	294	784	588	392
87	Propylaxetat	$CH_3COOC_3H_7$	403.2	302.4	201.6	504	378	252	672	504	336
88	Propylendiclorua	$CH_3CHCl\text{-}CH_2Cl$	168	126	84	210	157.5	105	280	210	140
89	Propylenoxyt	C_3H_6O	115.2	86.4	57.6	144	108	72	192	144	96
90	Propylen ete	$C_3H_5OC_3H_5$	1008	756	504	1260	945	630	1680	1260	840
91	Pyrindin	C_5H_5N	14.4	10.8	7.2	18	13.5	9	24	18	12
92	Pyren	$C_{16}H_{10}$	7.2	5.4	3.6	9	6.75	4.5	12	9	6
93	Quinon	$C_6H_4O_2$	0.192	0.144	0.096	0.24	0.18	0.12	0.32	0.24	0.16
94	Styren	$C_6H_5CH=CH_2$	201.6	151.2	100.8	252	189	126	336	252	168
95	Tetrahydrofural	C_4H_8O	283.2	212.4	141.6	354	265.5	177	472	354	236

Table 3-9 Standards on the organic substances contained in the industrial emission gas in urban areas (TCVN6995: 2001) (5. Continued) **(mg/m^3)**

No.	Indicator substances	Chemical formula	Technology level A K_{CN}=0.6			Technology level B K_{CN}=0.75			Technology level C K_{CN}=1		
			Q_1 K_Q=1	Q_2 K_Q=0.75	Q_3 K_Q=0.5	Q_1 K_Q=1	Q_2 K_Q=0.75	Q_3 K_Q=0.5	Q_1 K_Q=1	Q_2 K_Q=0.75	Q_3 K_Q=0.5
96	1,1,2,2 – Tetracloetan	$Cl_2HCCHCl_2$	16.8	12.6	8.4	21	15.75	10.5	28	21	14
97	Tetraclometan	CCl_4	31.2	23.4	15.6	39	29.25	19.5	52	39	26
98	Toluen	$C_6H_5CH_3$	360	270	180	450	337.5	225	600	450	300
99	Tetranitrometan	$C(NO_2)_4$	3.84	2.88	1.92	4.8	3.6	2.4	6.4	4.8	3.2
100	Toluidin	$CH_3C_6H_4NH_2$	10.56	7.92	5.28	13.2	9.9	6.6	17.6	13.2	8.8
101	Toluen – 2,4 – diisocyanat	$CH_3C_6H_3(NCO)_2$	0.336	0.252	0.168	0.42	0.315	0.21	0.56	0.42	0.28
102	Trietylamin	$(C_2H_5)_3N$	48	36	24	60	45	30	80	60	40
103	1,1,2 – Tricloetan	$CHCl_2CH_2Cl$	518.4	388.8	259.2	648	486	324	864	648	432
104	Tricloetylen	$ClCH=CCl_2$	52.8	39.6	26.4	66	49.5	33	88	66	44
105	Triflo brommetan	$CBrF_3$	2928	2196	1464	3660	2745	1830	4880	3660	2440
106	Xylen (o-, m-, p-)	$C_6H_4(CH_3)_2$	417.6	313.2	208.8	522	391.5	261	696	522	348
107	Xylidin	$(CH_3)_2C_6H_3NH_2$	24	18	12	30	22.5	15	40	30	20
108	Vinylclorua	$CH_2=CHCl$	72	54	36	90	67.5	45	120	90	60
109	Vinyltoluen	$CH_2=CHC_6H_4CH_3$	230.4	172.8	115.2	288	216	144	384	288	192

Note: K_{CN}: Coefficient correspond to technology level, K_Q: Coefficient correspond to size of emission sources

Q1: Not more than 5,000m^3/h of emission, Q2: Not less than 5,000 m^3/h and not more than 20,000 m^3/h of emission, Q3: Not less than 20,000 m^3/h of emission

Table 3-10 Standards on the organic substances contained in the industrial emission gas in farming/mountainous areas (TCVN6996: 2001)(1) (mg/m^3)

No.	Indicator substances	Chemical formula	Technology level A K_{CN}=0.6			Technology level B K_{CN}=0.75			Technology level C K_{CN}=1		
			Q_1 K_Q=1	Q_2 K_Q=0.75	Q_3 K_Q=0.5	Q_1 K_Q=1	Q_2 K_Q=0.75	Q_3 K_Q=0.5	Q_1 K_Q=1	Q_2 K_Q=0.75	Q_3 K_Q=0.5
1	Axeton	CH_3COCH_3	1728	1296	864	2160	1620	1080	2880	2160	1440
2	Axetylen tetrabromua	$CHBr_2CHBr_2$	10.08	7.56	5.04	12.6	9.45	6.3	16.8	12.6	8.4
3	Axetaldehyd	CH_3CHO	194.4	145.8	97.2	243	182.25	121.5	324	243	162
4	Acrolein	CH_2=CHCHO	0.864	0.648	0.432	1.08	0.81	0.54	1.44	1.08	0.72
5	Amylaxetat	$CH_3COOC_5H_{11}$	378	283.5	189	472.5	354.375	236.25	630	472.5	315
6	Anilin	$C_6H_5NH_2$	13.68	10.26	6.84	17.1	12.825	8.55	22.8	17.1	11.4
7	Anhydrit axetic	$(CH_3CHO)_2O$	259.2	194.4	129.6	324	243	162	432	324	216
8	Benzidin	$NH_2(C_6H_4)_2NH_2$	0.00576	0.00432	0.00288	0.0072	0.0054	0.0036	0.0096	0.0072	0.0048
9	Benzen	C_6H_6	57.6	43.2	28.8	72	54	36	96	72	48
10	Benzyl clorua	$C_6H_5NH_2$	3.6	2.7	1.8	4.5	3.375	2.25	6	4.5	3
11	Butadien	C_4H_6	1584	1188	792	1980	1485	990	2640	1980	1320
12	Butan	C_4H_{10}	1692	1269	846	2115	1586.25	1057.5	2820	2115	1410
13	Butyl axetat	$CH_3COOC_4H_9$	684	513	342	855	641.25	427.5	1140	855	570
14	n – Butanol	C_4H_9OH	216	162	108	270	202.5	135	360	270	180
15	Butylamin	$CH_3(CH)_2CH_2NH_2$	10.8	8.1	5.4	13.5	10.125	6.75	18	13.5	9
16	Creson (a-, m-, p-)	$CH_3C_6H_4OH$	15.84	11.88	7.92	19.8	14.85	9.9	26.4	19.8	13.2
17	Clobenzen	C_6H_5Cl	252	189	126	315	236.25	157.5	420	315	210
18	Clorofom	CH_3Cl	172.8	129.6	86.4	216	162	108	288	216	144
19	β- clopren	CH_2=CClCH=CH_2	64.8	48.6	32.4	81	60.75	40.5	108	81	54
20	Clopicrin	CCl_3NO_2	0.504	0.378	0.252	0.63	0.4725	0.315	0.84	0.63	0.42
21	Cyclohexan	C_6H_{12}	936	702	468	1170	877.5	585	1560	1170	780
22	Cyclohexanol	$C_6H_{11}OH$	295.2	221.4	147.6	369	276.75	184.5	492	369	246
23	Cyalohexanon	$C_6H_{10}O$	288	216	144	360	270	180	480	360	240
24	Cyclohexen	C_6H_{10}	972	729	486	1215	911.25	607.5	1620	1215	810

Table 3-10 Standards on the inorganic substances contained in the industrial emission gas in farming/mountainous areas (TCVN6996: 2001)(2. Continued) (mg/m^3)

No.	Indicator substances	Chemical formula	Technology level A K_{CN}=0.6			Technology level B K_{CN}=0.75			Technology level C K_{CN}=1		
			Q_1 K_Q=1	Q_2 K_Q=0.75	Q_3 K_Q=0.5	Q_1 K_Q=1	Q_2 K_Q=0.75	Q_3 K_Q=0.5	Q_1 K_Q=1	Q_2 K_Q=0.75	Q_3 K_Q=0.5
25	Dietylamin	$(C_2H_5)_2NH_2$	54	40.5	27	67.5	50.625	33.75	90	67.5	45
26	Diflodibrommetan	CF_2Br_2	619.2	464.4	309.6	774	580.5	387	1032	774	516
27	o-diclobenzen	$C_6H_4Cl_2$	216	162	108	270	202.5	135	360	270	180
28	1,1 – Dicloetan	$CHCl_2CH_3$	288	216	144	360	270	180	480	360	240
29	1,2 – Dicloetylen	ClCH=CHCl	568.8	426.6	284.4	711	533.25	355.5	948	711	474
30	1,2 – Diclodiflometan	CCl_2F_2	3564	2673	1782	4455	3341.25	2227.5	5940	4455	2970
31	Dioxan	$C_4H_8O_2$	259.2	194.4	129.6	324	243	162	432	324	216
32	Dimetylanilin	$C_6H_5N(CH_3)_2$	18	13.5	9	22.5	16.875	11.25	30	22.5	15
33	Dicloetyl ete	$(ClCH_2CH_2)_2O$	64.8	48.6	32.4	81	60.75	40.5	108	81	54
34	Dimetylfomamit	$(CH_3)_2NOCH$	43.2	32.4	21.6	54	40.5	27	72	54	36
35	Dimetylsunfat	$(CH_3)_2SO_4$	0.36	0.27	0.18	0.45	0.3375	0.225	0.6	0.45	0.3
36	Dimetylhydrazin	$(NH_3)_2NNH_2$	0.72	0.54	0.36	0.9	0.675	0.45	1.2	0.9	0.6
37	Dinitrobenzen (o-, m-, p-)	$C_6H_4(NO_2)_2$	0.72	0.54	0.36	0.9	0.675	0.45	1.2	0.9	0.6
38	Etylaxetat	$CH_3COOC_2H_5$	1008	756	504	1260	945	630	1680	1260	840
39	Etylamin	$CH_3CH_2NH_2$	32.4	24.3	16.2	40.5	30.375	20.25	54	40.5	27
40	Etylbenzen	$CH_3CH_2C_6H_5$	626.4	469.8	313.2	783	587.25	391.5	1044	783	522
41	Etylbromua	C_2H_5Br	640.8	480.6	320.4	801	600.75	400.5	1068	801	534
42	Etylendiamin	$NH_2CH_2=CH_2NH_2$	21.6	16.2	10.8	27	20.25	13.5	36	27	18
43	Etylendibromua	CHBr=CHBr	136.8	102.6	68.4	171	128.25	85.5	228	171	114
44	Etanol	C_2H_5OH	1368	1026	684	1710	1282.5	855	2280	1710	1140
45	Etylacrilat	$CH_2=CHCOOC_2H_5$	72	54	36	90	67.5	45	120	90	60
46	Etylen clohydrin	CH_2ClCH_2OH	11.52	8.64	5.76	14.4	10.8	7.2	19.2	14.4	9.6
47	Etylen oxyt	CH_2OCH_2	14.4	10.8	7.2	18	13.5	9	24	18	12

Table 3-10 Standards on the inorganic substances contained in the industrial emission gas in farming/mountainous areas (TCVN6996: 2001)(3. Continued) (mg/m^3)

No.	Indicator substances	Chemical formula	Technology level A K_{CN}=0.6			Technology level B K_{CN}=0.75			Technology level C K_{CN}=1		
			Q_1 K_Q=1	Q_2 K_Q=0.75	Q_3 K_Q=0.5	Q_1 K_Q=1	Q_2 K_Q=0.75	Q_3 K_Q=0.5	Q_1 K_Q=1	Q_2 K_Q=0.75	Q_3 K_Q=0.5
48	Etyl ete	$C_2H_6OC_2H_5$	864	648	432	1080	810	540	1440	1080	720
49	Etyl clorua	CH_3CH_2Cl	1872	1404	936	2340	1755	1170	3120	2340	1560
50	Etylsilicat	$(C_2H_5)_4SiO_4$	612	459	306	765	573.75	382.5	1020	765	510
51	Etanolamin	$NH_2CH_2CH_2OH$	32.4	24.3	16.2	40.5	30.375	20.25	54	40.5	27
52	Fufural	C_4H_3OCHO	14.4	10.8	7.2	18	13.5	9	24	18	12
53	Fomaldehyt	HCHO	4.32	3.24	2.16	5.4	4.05	2.7	7.2	5.4	3.6
54	Fufuryl	$C_4H_3OCH_2OH$	864	648	432	1080	810	540	1440	1080	720
55	Flotriclometan	CCl_3F	4032	3024	2016	5040	3780	2520	6720	5040	3360
56	n – Heptan	C_7H_{16}	1440	1080	720	1800	1350	900	2400	1800	1200
57	n – Hexan	C_6H_{14}	324	243	162	405	303.75	202.5	540	405	270
58	Isopropylamin	$(CH_3)_2CHNH_2$	8.64	6.48	4.32	10.8	8.1	5.4	14.4	10.8	7.2
59	Isobutanol	$(CH_3)_2CHCH_2CH$	259.2	194.4	129.6	324	243	162	432	324	216
60	Metylaxetat	CH_3COOCH_3	439.2	329.4	219.6	549	411.75	274.5	732	549	366
61	Metylacrylat	CH_2=$CHCOOCH_3$	25.2	18.9	12.6	31.5	23.625	15.75	42	31.5	21
62	Metanol	CH_3OH	187.2	140.4	93.6	234	175.5	117	312	234	156
63	Metylaxetylen	CH_3C=CH	1188	891	594	1485	1113.75	742.5	1980	1485	990
64	Metylbromua	CH_3Br	57.6	43.2	28.8	72	54	36	96	72	48
65	Metylcyclohecxan	$CH_3C_6H_{11}$	1440	1080	720	1800	1350	900	2400	1800	1200
66	Metylcyclohecxanol	$CH_3C_6H_{10}OH$	338.4	253.8	169.2	423	317.25	211.5	564	423	282
67	Metylcyclohecxanon	$CH_3C_6H_9O$	331.2	248.4	165.6	414	310.5	207	552	414	276
68	Metylclorua	CH_3Cl	151.2	113.4	75.6	189	141.75	94.5	252	189	126
69	Metylen clorua	CH_2Cl_2	1260	945	630	1575	1181.25	787.5	2100	1575	1050
70	Metyl clorofom	CH_3CCl_3	1944	1458	972	2430	1822.5	1215	3240	2430	1620
71	Monometylanilin	$C_6H_5NHCH_3$	6.48	4.86	3.24	8.1	6.075	4.05	10.8	8.1	5.4

Table 3-10 Standards on the inorganic substances contained in the industrial emission gas in farming/mountainous areas(TCVN6996: 2001)(4. Continued) **(mg/m^3)**

No.	Indicator substances	Chemical formula	Technology level A K_{CN}=0.6			Technology level B K_{CN}=0.75			Technology level C K_{CN}=1		
			Q_1 K_Q=1	Q_2 K_Q=0.75	Q_3 K_Q=0.5	Q_1 K_Q=1	Q_2 K_Q=0.75	Q_3 K_Q=0.5	Q_1 K_Q=1	Q_2 K_Q=0.75	Q_3 K_Q=0.5
72	Metanolamin	$HOCH_2NH_2$	22.32	16.74	11.16	27.9	20.925	13.95	37.2	27.9	18.6
73	Naphtalen	$C_{10}H_8$	108	81	54	135	101.25	67.5	180	135	90
74	Nitrobenzen	$C_6H_5NO_2$	3.6	2.7	1.8	4.5	3.375	2.25	6	4.5	3
75	Nitroetan	$CH_3CH_2NO_2$	223.2	167.4	111.6	279	209.25	139.5	372	279	186
76	Nitroglycerin	$C_3H_5(NO_2)_3$	3.6	2.7	1.8	4.5	3.375	2.25	6	4.5	3
77	Nitrometan	CH_3NO_2	180	135	90	225	168.75	112.5	300	225	150
78	2 – Nitropropan	$CH_3CH(NO_2)CH_3$	1296	972	648	1620	1215	810	2160	1620	1080
79	Nitrotoluen	$NO_2C_6H_4CH_3$	21.6	16.2	10.8	27	20.25	13.5	36	27	18
80	Octan	C_8H_{18}	2052	1539	1026	2565	1923.75	1282.5	3420	2565	1710
81	Pentan	C_5H_{12}	2124	1593	1062	2655	1991.25	1327.5	3540	2655	1770
82	Pentanon	$CH_3CO(CH_2)_2CH_3$	504	378	252	630	472.5	315	840	630	420
83	Phenol	C_6H_5OH	13.68	10.26	6.84	17.1	12.825	8.55	22.8	17.1	11.4
84	Phenylhydrazin	$C_6H_5NHNH_2$	15.84	11.88	7.92	19.8	14.85	9.9	26.4	19.8	13.2
85	Tetracloetylen	$CCl_2=CCl_2$	482.4	361.8	241.2	603	452.25	301.5	804	603	402
86	Propanol	$CH_3CH_2CH_2OH$	705.6	529.2	352.8	882	661.5	441	1176	882	588
87	Propylaxetat	$CH_3COOC_3H_7$	604.8	453.6	302.4	756	567	378	1008	756	504
88	Propylendiclorua	$CH_3CHCl\text{-}CH_2Cl$	252	189	126	315	236.25	157.5	420	315	210
89	Propylenoxyt	C_3H_6O	172.8	129.6	86.4	216	162	108	288	216	144
90	Propylen ete	$C_3H_5OC_3H_5$	1512	1134	756	1890	1417.5	945	2520	1890	1260
91	Pyrindin	C_5H_5N	21.6	16.2	10.8	27	20.25	13.5	36	27	18
92	Pyren	$C_{16}H_{10}$	10.8	8.1	5.4	13.5	10.125	6.75	18	13.5	9
93	Quinon	$C_6H_4O_2$	0.288	0.216	0.144	0.36	0.27	0.18	0.48	0.36	0.24
94	Styren	$C_6H_5CH=CH_2$	302.4	226.8	151.2	378	283.5	189	504	378	252
95	Tetrahydrofural	C_4H_8O	424.8	318.6	212.4	531	398.25	265.5	708	531	354

Table 3-10 Standards on the inorganic substances contained in the industrial emission gas in farming/mountainous areas (TCVN6996: 2001)(5. Continued) (mg/m^3)

No.	Indicator substances	Chemical formula	Technology level A K_{CN}=0.6			Technology level B K_{CN}=0.75			Technology level C K_{CN}=1		
			Q_1 K_Q=1	Q_2 K_Q=0.75	Q_3 K_Q=0.5	Q_1 K_Q=1	Q_2 K_Q=0.75	Q_3 K_Q=0.5	Q_1 K_Q=1	Q_2 K_Q=0.75	Q_3 K_Q=0.5
96	1,1,2,2 – Tetracloetan	$Cl_2HCCHCl_2$	25.2	18.9	12.6	31.5	23.625	15.75	42	31.5	21
97	Tetraclometan	CCl_4	46.8	35.1	23.4	58.5	43.875	29.25	78	58.5	39
98	Toluen	$C_6H_5CH_3$	540	405	270	675	506.25	337.5	900	675	450
99	Tetranitrometan	$C(NO_2)_4$	5.76	4.32	2.88	7.2	5.4	3.6	9.6	7.2	4.8
100	Toluidin	$CH_3C_6H_4NH_2$	15.84	11.88	7.92	19.8	14.85	9.9	26.4	19.8	13.2
101	Toluen - 2,4 – diisocyanat	$CH_3C_6H_3(NCO)_2$	0.504	0.378	0.252	0.63	0.4725	0.315	0.84	0.63	0.42
102	Trietylamin	$(C_2H_5)_3N$	72	54	36	90	67.5	45	120	90	60
103	1,1,2 – Tricloetan	$CHCl_2CH_2Cl$	777.6	583.2	388.8	972	729	486	1296	972	648
104	Tricloetylen	$ClCH=CCl_2$	79.2	59.4	39.6	99	74.25	49.5	132	99	66
105	Triflo brommetan	$CBrF_3$	4392	3294	2196	5490	4117.5	2745	7320	5490	3660
106	Xylen (o-, m-, p-)	$C_6H_4(CH_3)_2$	626.4	469.8	313.2	783	587.25	391.5	1044	783	522
107	Xylidin	$(CH_3)_2C_6H_3NH_2$	36	27	18	45	33.75	22.5	60	45	30
108	Vinylclorua	$CH_2=CHCl$	108	81	54	135	101.25	67.5	180	135	90
109	Vinyltoluen	$CH_2=CHC_6H_4CH_3$	345.6	259.2	172.8	432	324	216	576	432	288

Note: K_{CN}: Coefficient correspond to technology level, K_Q: Coefficient correspond to size of emission sources
Q1: Not more than 5,000m^3/h of emission, Q2: Not less than 5,000 m^3/h and not more than 20,000 m^3/h of emission, Q3: Not less than 20,000 m^3/h of emission

Table 3-11 Emission standards from thermal power stations

(1) Emission concentration standards for thermal power stations (C_{tc})

Pollutants	Standard values (mg/Nm^3)		
	Coal-fired	Oil-fired	Natural gas-fired
TSP (Total suspended particles)	200	150	50
NO_x	650 (in case of coal with heat content not less than 10%) 1000 (in case of coal with heat content not more than 10%)	600	250
SO_2	500	500	300

Source: TCVN 7440: 2005

Note: The standards are determined according to the output of the power station and the location using the following calculation formula, based on the standard value (C_{tc}) in Table 4-17 (1). Maximum allowable concentration of the thermal power station (C_{max})(mg/N m^3)=Emission concentration standards (C_{tc})×Coefficient corresponding to the output of the power plant (K_p)× the location area (K_v)

Table 3-12 Emission standards for thermal power stations

(2) Coefficient corresponding to the output of the power plant (Kp)

Output of the power plant	Coefficient (Kp)
Not more than 300MW	1
Not less than 300MW and not more than 600MW	0.85
Above 600MW	0.7

Source: Decision No. 07/2005/QD-BTNMT

Table 3-13 Emission standards for thermal power stations

(3) Coefficient corresponding to the location area of the power station (Kv)

Location area		Coefficient (Kv)
Area 1	Special urban district (Note 1), urban district Ⅰ(Note 1), and the districts with vulnerable ecosystems (Note 2)	0.6
Area 2	Urban districts Ⅱ, Ⅲ, Ⅳ (Note1)	0.8
Area 3	Industrial zones	1
Area 4 (Note 3)	Farmland and mountainous areas (included in urban district Ⅴ(Note 1))	1.2

Note 1: Classification of urban districts shall comply with Decree No. 72/2001/ND-CP[2]. Note 2: The areas which the government has designated, such as internationally protected areas, relics and historical/cultural heritages. Note 3: If the power station is to be constructed in area 4, and if the distance from the center of the area where the power station is to be constructed to the boundaries between area 1 and 2 or 3 is not more than 5km, apply the coefficient Kv for each of the area 1 , 2 and 3. Source: Decision No. 07/2005/QD-BTNMT

[2]Decree No. 72/2001/ND-CP replaced 42/2009/ND-CP.
http://www.chinhphu.vn/portal/page?_pageid=578,33345598&_dad=portal&_schema=PORTAL&docid=86490
http://www.mangdanluat.com/archive/Nghi-dinh/Decree-No-42-2009-ND-CP-of-May-7-2009-on-the-grading-of-urban-centers-vb91192t11.aspx

Emission standards for the exhaust gas from automobiles

The government reinforced the standards for general vehicles in 2005 (Decision No. 249/2005/QD-TTG). The targeted vehicles include mopeds and motorbikes of two-wheel or three-wheel type, automobiles and light-duty cars. Further, the Government announced the policy for reducing the sulfur content of commercially available lead-free gasoline to 0.05%, and the sulfur content of diesel oils for industrial use to 0.25% in 2006. (Country Synthesis Report on Urban Air Quality Management Vietnam, Discussion Draft, December 2006, ADB)

Table 3-14 Regulations on the exhaust gas from general vehicles (2005)

Type of vehicle			Commencing time of the regulation	Contents of the regulation
New vehicle	Vehicles which are imported, or manufactured/assembled in Vietnam		July 2007	Euro2 (One of the European exhaust gas standards)
	Vehicles certified for the safety/environmental standards before July 2007		July 2008	Euro2
Imported old vehicles	Vehicles equipped with spark ignition engines (such as those engines using gasoline and LPG)	Mopeds and motorbikes including vehicles for the handicapped	July 2006	Limit 2(
		All the other automobiles	July 2006	Limit 3
	Vehicles equipped with pressure ignition engines (such as diesel engines)		July 2006	Limit 2
Automobiles for commercial use	Vehicles equipped with either spark ignition or pressure ignition engines, and which have the number plates granted by the municipalities of Hanoi, Ho Chi Minh, Hai Phong, Danang, and Can Tho.		July 2006	Limit 1
	Vehicles equipped with either spark ignition or pressure ignition engines, and which have the number plates granted byte municipalities or Provincial governments		July 2008	Limit 1

Source: Decision No. 249/2005/QD-TTG

Table 3-15 Regulation values of Euro2

Type of vehicle		Regulation values for exhaust gas (g/km)		
Size	Type of fuel	CO	HC＋NOx	PM
Passenger cars (except for those passenger cars for not less than 6 passengers, or with maximum weight not less than 2.5 tons)	Gasoline	2.2	0.5	-
	Diesel oil	1.0	0.7	0.08

Small-sized commercial cars with reference weight not more than 1250kg. The passenger cars with maximum weight not more than 2.5 tons are included.	Gasoline	2.2	0.5	-
	Diesel oil	1.0	0.7	0.08
Small-sized commercial cars with reference weight between 1251 and 1700kg. The passenger cars with maximum weight above 2.5 tons are included.	Gasoline	4.0	0.6	-
	Diesel oil	1.25	1.0	0.12
Small-sized commercial cars with reference weight above 1700kg. The passenger cars with maximum weight above 2.5 tons are included.	Gasoline	5.0	0.7	-
	Diesel oil	1.5	1.2	0.17

Source: EU Directive 96/69(http://app.nea.gov.sg/cms/htdocs/article.asp?pid=1522)

3.3 Water contamination and its approach

(1)Current State of Water Contamination

Vietnam is a country blessed with surface water such as river and ground water. However, in Vietnam, the amount of precipitation varies by season, like that in dry-season a drought occurs, in rainfall season a flood occurs. For many rivers, water quality in upstream site is relatively good. On the other hand, in downstream, especially, in urban area and industrial zones, pollution is progressing. Especially most severely polluted reveres are the following 3 ones, Thi Vai river in southern Vietnam, Cau river in northern Vietnam、Han river nearby central Vietnam DagNang city[8].

The cities where water pollution is severe are Hanoi, Ho Chi Mien city, Haiphong city, Hue city, Danang, Nam Dinh, Hai Duong, etc[9].

Also, of 65 industrial zones in the country, where effluent treatment facilities are operating, are limited to 5 sites. Moreover, 90% of enterprises which were established before 1995 do not manage wastewater.

Generally in coast areas, water quality satisfies environmental standard, however, in some water areas, pollution is progressing. Especially, in the north (Hanoi and peripheries) and the south (Ho Chi Minh), rapid urbanization and industrialization of internal regions, development of port facilities and sea

[8] As a report mentioning pollution state of river there is an environmental report 2006 which focuses on Cau river (North)、Nhue river(North)、Dong Nai river(South) (separated file/Vietnamese・Engalish). Also, as research report about rever or water quality, there is a report edited by the World Bank “Vietnam environment monitor 2006”.

[9] According to the state environmental report 2009, 70% of industrial park discharging water (the number of industrial park is 223, of which 171 are operating.). According to the article posted on the website of Ho Chi Mien city, the number of industrial park (Khu Cong Nghiep) including under construction ones reaches 253 throuout the country.

transport growth of tourism industries in coast areas, dissolution of soil nutrient and oil component from land area to marine area cause water quality deterioration and threaten marine ecosystem.

(2)Standard for Water Pollution and Measures

Based on old Law on Environmental Protection and Decree No.175/CP, since1995, many environmental standards about water quality were issued. Like as the standards about air environmental quality, currently, they were amended and replaced by QCVN in 2008. Also state standard QCVN about water quality and discharging water, after 2008, nautical marine pollution prevention system regulations QCVN26-2010BGTVT, QCVN01-2008BTNMT about waste water about natural rubber processing industry were created.

- Ambient water quality standard for surface water (QCVN08 2008/BTNMT (replacing TCVN 5942: 1995))

  It classifies the water area into two categories, i.e. the water area where the water is used for domestic water after adequate treatment (Class A of the standard value) and the water area where the water is used for other purposes than domestic water (Class B of the standard value), and sets the upper measurement limit for 31 items.
- Ambient water quality standard for coastal water (QCVN10 2008/BTNMT (replacing TCVN 5943: 1995)
- Ambient water quality standard for groundwater (QCVN09 2008/BTNMT (replacing TCVN 5944: 1995))

Moreover, as standards directed under the Ministry of Health, there are QCVNBYT01-2009 about drinking water quality and QCVNBYT02-2009 about domestic water quality.

As for water pollution, in addition to environmental standard, charge system for environmental protection cost due to discharging water has begun from 2004(Decree No. 67/2003/ND-CP)[10]. By this system, organizations which discharge industrial wastewater and households which discharge sewage are imposed duties of paying costs based on their quantities and degree of pollution.

Environmental protection fees collected for wastewater, of which distributed into national budget for collecting cost, the half portion is distributed for Vietnam environmental protection fund and the rest is distributed for local budget.

On the other hand, Law on Environmental Protection describes the basic concept of environmental measures on water fields such as oceans, rivers, ground water in its Articles 55 to 65. In particular, water quality conservation of rivers, environmental protection measures considering the comprehensive water areas are to be noted.

[10] Government decree 04/2007/ND-CP, partially amended. Amended items are, Chapters 6-2,8-1,9. Also, Decree 26/2010/ND-CP, partially amended. Amended item is Article 8 Section 2

Also, as for discharging water management, in urban areas and separated collection system of rainfall and discharging water has to be implemented as duties. Before discharging wastewater, it must be treated to satisfy environmental standard by Law on Environmental Protection Article 82. Bedsides this, some water quality improvement projects are being implemented by assistance of international organization.

Table 3-16 Water quality standards of surface water

No	Item	unit	Density			
			A1	A2	B1	B2
1	pH	-	6-8.5	6-8.5	5.5-9	5.5-9
2	Oxygen	mg/l	≧6	≧5	≧4	≧2
3	suspended solids	mg/l	20	30	50	100
4	COD Cr	mg/l	10	15	30	50
5	BOD5 (20℃)	mg/l	4	6	15	25
6	ammonium(NH+4)	mg/l	0.1	0.2	0.5	1
7	chlorine(Cl-)	mg/l	250	400	600	-
8	fluorine(F-)	mg/l	1	1.5	1.5	2
9	nitrate ($NO2^-$)	mg/l	0.01	0.02	0.04	0.05
10	nitrate nitrogen($NO3^-$)	mg/l	2	5	10	15
11	phosphate(PO_4^{3-})	mg/l	0.1	0.2	0.3	0.5
12	cyanide(CN-)	mg/l	0.005	0.01	0.02	0.02
13	Arsenic	mg/l	0.01	0.02	0.05	0.1
14	Cadmium	mg/l	0.005	0.005	0.01	0.01
15	lead (Pb)	mg/l	0.02	0.02	0.05	0.05
16	trivalent chromium Cr3+	mg/l	0.05	0.1	0.5	1
17	hexavalent chromium Cr6+	mg/l	0.01	0.02	0.04	0.05
18	copper (Cu)		0.1	0.2	0.5	1
19	zinc (Zn)		0.5	1	1.5	2
20	Nickel(Ni)		0.1	0.1	0.1	0.1
21	iron (Fe)		0.5	1.0	1.5	2
22	mercury (Hg)	mg/l	0.001	0.001	0.001	0.002
23	Surfactant	mg/l	0.1	0.2	0.4	0.5
24	oil membrane	mg/l	0.01	0.02	0.1	0.3
25	phenol (C_6H_6O)	mg/l	0.005	0.005	0.01	0.02
26	Agricultural chemical					
	aldrin and dieldrin	μg/l	0.002	0.004	0.008	0.01
	endrin	μg/l	0.01	0.012	0.014	0.02
	BHC	μg/l	0.05	0.1	0.13	0.015
	DDT	μg/l	0.001	0.002	0.004	0.005
	endosulfan	μg/l	0.005	0.01	0.01	0.02
	lindane	μg/l	0.3	0.35	0.38	0.4

	chlordane	μg/l	0.01	0.02	0.02	0.03
	heptachlor	μg/l	0.01	0.02	0.02	0.05
27	Organic phosphors					
	parathion	μg/l	0.1	0.2	0.4	0.5
	marathion	μg/l	0.1	0.32	0.32	0.4
28	Herbicide					
	2,4D	μg/l	100	200	450	500
	2,4,5T	μg/l	80	100	160	200
	Paraquat	μg/l	900	1200	1800	2000
29	Alpha radiation	Bq/l	0.1	0.1	0.1	0.1
30	beta radiation	Bq/l	1.0	1.0	1.0	1.0
31	escherichia coli	MPN/100ml	20	50	100	200
32	number of colitis germ legions	MPN/100ml	2500	5000	7500	10000

Source: QCVN08 2008/BTNMT

Note: Standards of surface water are classified as 4 categories.

A1: Domestic water and purposes other than A2, B1, and B2.

A2: (1) Domestic water processed by appropriate technology, (2) conservation for water creature, and (3) purposes other than B1 and B2

B1: (1) Irrigation water and water that requires equivalent quality of irrigation water, and (2) purposes other than B2

B2: Water that requires relatively low quality

Table 3-17 Water quality standards of seawater

No	Item	unit	Standards		
			Beach	Aquaculture	Others
1	Temperature	℃	30	-	-
2	offensive odor		acceptable		
3	pH	-	6.5-8.5	6.5-8.5	6.5-8.5
4	dissolved solid	mg/l	≧4	≧5	≧4
5	COD Cr	mg/l	4	3	
6	ammonium(NH+4)	mg/l	0.5	0.1	0.5
7	fluorine(F-)	mg/l	1.5	1.5	1.5
8	Sulfide	mg/l	0.01	0.005	0.01
9	cyanide(CN-)	mg/l	0.005	0.005	0.01
10	Arsenic	mg/l	0.02	0.05	0.1
11	Cadmium	mg/l	0.005	0.005	0.005
12	Lead	mg/l	0.02	0.05	0.1
13	trivalent chromium Cr3+	mg/l	0.1	0.1	0.2
14	hexavalent chromium Cr6+	mg/l	0.05	0.02	0.05
15	copper (Cu)	mg/l	0.5	0.03	1
16	zinc (Zn)	mg/l	1.0	0.05	2.0
17	Manganese	mg/l	0.1	0.1	0.1
18	iron (Fe)	mg/l	0.1	0.1	0.3
19	mercury (Hg)	mg/l	0.002	0.001	0.005
20	yellow oil	mg/l	0	0	
21	mineral oil	mg/l	0.1	0	0.2
22	phenol (C_6H_6O)	mg/l	0.001	0.001	0.002
23	Agricultural chemical				
	aldrin and dieldrin	μg/l	0.008	0.008	-
	endrin	μg/l	0.014	0.014	-
	BHC	μg/l	0.13	0.13	-
	DDT	μg/l	0.004	0.004	-
	endosulfan	μg/l	0.01	0.01	-
	lindane	μg/l	0.38	0.38	-
	chlordane	μg/l	0.02	0.02	-
	heptachlor	μg/l	0.06	0.06	-
24	Organic phosphors				

	parathion	μg/l	0.4	0.4	-
	marathion	μg/l	0.32	0.32	-
25	Herbicide				
	2,4D	mg/l	0.45	0.45	-
	2,4,5T	mg/l	0.16	0.16	-
	Paraquat	mg/l	1.8	1.8	-
26	alpha radiation	Bq/l	0.1	0.1	0.1
27	beta radiation	Bq/l	1.0	1.0	1.0
28	escherichia coli	MPN/100ml	1000	1000	1000

Table 3-18 Groundwater quality standards

No	Item	Unit	Standards
			Beach
1	pH	-	5.5-8.5
2	hardness (as CaCO3)		500
3	dissolved solid	mg/l	1500
4	COD Cr	mg/l	4
5	ammonium(NH+4)	mg/l	0.1
6	Chlorine		250
7	fluorine(F-)		1.0
8	nitrogen dioxide		1.0
9	Nitrate	mg/l	15
10	Sulfide	mg/l	400
11	cyanide(CN-)	mg/l	0.01
12	Phenol	mg/l	0.001
13	Arsenic	mg/l	0.05
14	Cadmium	mg/l	0.005
15	Lead	mg/l	0.01
16	hexavalent chromium Cr6+	mg/l	0.05
17	Copper (Cu)	mg/l	1.0
18	zinc (Zn)	mg/l	3.0
19	Manganese	mg/l	0.5
20	mercury (Hg)	mg/l	0.001
21	iron (Fe)	mg/l	5
22	Selenium	mg/l	0.01
23	alpha radiation	Bq/l	0.1
24	beta radiation	Bq/l	1.0
25	escherichia coli	MPN/100ml	0
26	number of colitis germ legions	MPN/100ml	3

Source: QCVN09 2008/BTNMT

Additionally, the following QCVN stipulate the environmental standards for water quality and wastewater.

- QCVN26-2010BGTVT on the prescription of the system for preventing marine pollution by boats and ships
- QCVN01-2008BTNMT on the wastewater from natural rubber processing industry
- QCVN08-2008BTNMT on the quality of surface water
- QCVN09-2008BTNMT on the quality of groundwater
- QCVN10-2008 BTNMT on the quality of coastal seawater
- QCVN11-2008BTNMT on the wastewater from marine product processing industry
- QCVN12-2008BTNMT on the wastewater from paper manufacturing industry
- QCVN13-2008BTNMT on the wastewater from textile industry
- QCVN14-2008BTNMT on domestic wastewater
- QCVN24-2009BTNMT on industrial wastewater
- QCVN25-2009BTNMT on the wastewater from solid wastes landfills
- QCVN28-2010BTNMT on medical wastewater
- QCVN29-2010BTNMT on the wastewater from gas stations and warehouses
- QCVN35-2010BTNMT on the wastewater from marine oil development facilities

Meanwhile, the following standards have been established under the Ministry of Health

- QCVNBYT01-2009 on the quality of potable water
- QCVNBYT02-2009 on the quality of daily-life water

As regards the standards for industrial wastewater, the environmental standards for industrial wastewater were revised in July 2006 (TCVN 5945: 2005, refer to Table 4-28). These standards stipulate the upper limits of 35 substances contained in wastewater, such as heavy metals and organic compounds including trichloroethylene, as well as such general items as water temperature and COD. The standard values are different for respective environment where wastewater is discharged, and are set for Class A (daily-life water intake areas), Class B (water areas for water transport, irrigation, fishery processing, water bathing) and Class C (water areas specially authorized by the administration), respectively.

In addition to the environmental standards for industrial wastewater (TCVN 5945: 2005), the following environmental standards have been established for industrial wastewater (refer to the report in 2007 for details of the standards)

- The Standard for the industrial wastewater discharged into daily-life water intake areas (TCVN 6980: 2001)
- The Standard for the industrial wastewater discharged into daily-life water intake areas in lakes/ponds (TCVN 6981: 2001)

- The Standard for the industrial wastewater discharged into rivers which are used for recreational purposes and water bathing (TCVN 6982: 2001)
- The Standard for the industrial wastewater discharged into lakes/ponds which are used for recreational purposes and water bathing (TCVN 6983: 2001)
- The Standard for the industrial wastewater discharged into rivers which are used for the protection of aquatic life (TCVN 6984: 2001)
- The Standard for the industrial wastewater discharged lakes/ponds which are used for the protection of aquatic life (TCVN 6985: 2001)
- The Standard for the industrial wastewater discharged into coastal areas which are used for the protection of aquatic life (TCVN 6986: 2001)

In addition to the above environmental standards on the pollution of water quality, a billing system of environment protection fee for wastewater has been implemented since 2004 (Decree No. 67/2003/ND-CP) 。This system was partly revised in 2007 by Decree 04/2007/ND-CP. The revised provisions were Articles 6(2), 8(1) and 9. Moreover, it was further partly revised by Decree26/2010/ND-CP. The revised provision was Article 8(2).

3.4 Current state of Land Contamination and Measures

(1) Land degradation

In Vietnam, throughout the country, land contamination and land deterioration become a problem under remarkable economic development. Moreover in rural areas, land contamination is progressing for inappropriate use of agrichemical .However, the information about current land pollution level is limited, relevant standards established are as below about the level of residual pesticides and heavy metal.[11]

- The maximum permitted amount of residual pesticides in land(TCVN 5941: 1995)
- The maximum permitted amount of heavy metal in land(TCVN7209: 2002)

The government established the object of reducing degraded land by 50% by 2010 and rebirth forest by 90%-100% in degraded mountain areas. For exemple, the object of “The 5 million hectare plan” is to rebirth 5 million hectal of forestry through rebirthing nature and planting to degraded land.

3.5 Current state of Waste and Measures

The amount of waste has been increasing due to increasing consumption, urbanization and industrial growth. The government creates Resolution 2149/QĐ-TTg (state program) which approves state strategy about solid waste comprehensive management by 2025 in

[11] 2 state standards of QCVN were issued:”QCVN03-2008BTNMT of permitted amount of heavy metal in land” and “QCVN15-2008BTNMT of residual pesticides in land”.

perspective of 2050 .The governmental objective is to strengthen management gradually, such as increasing the collection and treatment rate of urban domestic waste to 90 % by 2020 .The Ministries in charge of management and recycle of waste are MOC, MORE, MOIT etc.

(1) Standards and measures for wastes

The previous Law on Environmental Protection didn't make dedicated chapters for the management of wastes. However, the new Law on Environmental Protection creates a chapter for it, and the Articles 66-80 show a clear concept for the management of hazardous wastes and recycling. Its first characteristic is that it obligates the dischargers to reduce the amount of wastes and to recycle/reuse them. The second characteristic may be that it has adopted the concept of extended producer responsibility. Producers of radioactive substances, batteries, electric accumulators, electronic/electric equipments, medicals/chemicals, tires etc. must recover the products. The new Law on Environmental Protection stipulates the following regulations on the management of harmful wastes:

Management of harmful wastes (Law on Environmental Protection Articles 70-76)

1. Activities discharging harmful wastes and organizations/individuals receiving them need to be registered at the Province-level environment conservation agency.
2. The organization and individual discharging harmful wastes are responsible for the segregation and recovery of them.
3. Only permitted organizations and individuals can transport harmful wastes. Those organizations and individuals are responsible for the pollution occurring during transport or unloading operations.
4. Only permitted organizations and individuals can treat or process harmful wastes. EIA report must be prepared in order to construct a treatment facility.

Similarly, it stipulates the following regulations on themanagement of general wastes.

Management of general wastes (Law on Environmental Protection Articles 77-80)

1. General wastes include the wastes that can be recycled/reused and that are disposed/landfilled. Dischargers must segregate these wastes.
2. The organization and individual managing commercial, housing areas or public places must have an adequate system for recovering the wastes.
3. General wastes shall be recycled/reused to the maximum extent possible.
4. The facilities for the treatment and landfilling of general wastes shall be constructed far from housing areas and water sources so as to prevent pollution.

On the other hand, the Strategy for the Management of Solid Waste in Vietnam Cities and Industrial Parks (Decision No. 152/1999/QD-TTg) was promulgated in 1999 for the management of wastes in

urban areas and industrial complexes. This strategy presents the actions local administrative bodies should take by 2020 in order to manage the wastes in a comprehensive manner. It focuses on the upgrading of infrastructures especially in urban areas and Industrial zones, the main contents of which include development of laws, permeation of understanding and education, privatization and cost recovery, use of adequate and state-of-the-art technologies.

After the promulgation of Decision No. 152/1999/QD-TTg, Management of wastes have begun to permeate gradually, but as only afew treatment facilities are managed in a sanitary manner, it influences the health of the people. in view of this situation, in order to further enhance waste management, Enhancing the Management of Solid Wastes in Urban Centers and Industrial Parks (Directive No. 23/2005/CT-TTg) was promulgated in 2005. This Directive presents the following objectives to be achieved by 2020.

1. Establish a waste management plan among provinces or urban areas and industrial complexes. In particular, the final disposal facilities and recycling of solid wastes should be planned on a preferential basis.
2. Establish the standards, regulations and policies for solid wastes.
3. Disseminate solid waste management and treatment systems throughout the urban areas.
4. In order to pursue the construction of solid waste recycling facilities, segregate domestic wastes in all the urban areas.
5. Enhance the recovery rate of wastes from urban areas and industrial complexes up to 90%. Give priority to reuse and recycling to reduce the final amount for disposal.
6. Treat all the harmful medical wastes. Treat not more than 60% of harmful industrial wastes.
7. Thoroughly improve the facilities which cause serious pollution specified in Decision No. 64/2003/QD-TTg (refer to 4.3.1).

Especially for the purpose of enhancing the management of harmful wastes, “Rules for the Management of Harmful Wastes” (Decision No.155/1999/QD-TTg) was promulgated in 1999. This rule stipulates that the dischargers of harmful wastes and the organizations or individuals conducting the collection, transport, storage, treatment or disposal of the harmful wastes are obligated to be registered at the State Management Agency in Charge of Environmental Protection in order to prevent the environmental pollution and health hazard by harmful wastes. This rule includes the definition of harmful wastes, responsibilities of competent Ministries/agencies and dischargers, the certification system of transport/treatment/final disposal agents, transport systems using manifests, emergency responses etc.

Table 3-19 Main regulations and environmental standards related to wastes

Ordinance	Year of enactment	Contents
Decision No.155/1999/QD-TTg	1999	Rules for the Management of Harmful Wastes
Decision No. 60/2002/QD-BKHCNMT	2002	A Technical Guideline on the Dumping of Harmful Wastes
Decree No. 13/2003/ND-CP	2003	Regulations on harmful/hazardous substances from the standpoint of explosive/inflammable and hazardous properties.
TCVN	**Year of issuance**	**Contents of the standard**
TCVN 6696: 2000	2000	The Standard on the Sanitary Aspect of Landfills
TCVN 6705: 2000	2000	The Standard on the Segregation of Harmless Wastes
TCVN 6706: 2000	2000	The Standard on the Segregation of Harmful Wastes
TCVN 6707: 2000	2000	The Standard on the Prevention of and Hazardous Information on Harmful Wastes

Source: created from related materials

The Ministries/agencies responsible for the management and recycling of wastes are as shown in Table 3-20 below.

Table 3-20 Ministries/agencies involved in the management and recycling of wastes

Name of Ministry/agency	Major roles
Ministry of Construction	・ Formulates the management plans of solid wastes and harmful wastes spanning multiple provinces. ・ Revises, supplements and enacts the standards on the treatment of solid wastes in cooperation with MONRE and the Ministry of Science and Technology (MOST). ・ Conducts verification tests on the treatment technologies of wastes. ・ Develops the plans on the enhancement of efficiency and ability of businesses involved in waste treatment and submit them to the Prime Minister.
MONRE	・ Conducts surveys and reviews on the implementation status of the Rules for the Management of Harmful Wastes in the second quarter of 2006. ・ Formulates the regulations on environment inspectors and construction inspectors. ・ Reduces the environmental pollution caused by industrial wastes.
VEPA (Vietnam Environment Protection Agency)(Note)	・ The Pollution Management Division formulates the legal regulations and policies for waste management and prevention of water contamination, air pollution etc.
The Ministry of Industry	・ Prepares the statistics on industrial wastes. ・ Implements the management plans of industrial solid wastes, particularly harmful wastes in cooperation with the Ministry of Construction.
Other central Ministries/agencies	・ The Ministry of Planning and Investment and the Ministry of Finance compile the budget for investments related to wastes. They also consider tax incentives in relation to the discharge of wastes etc.

Name of Ministry/agency	Major roles
People's Committee in each province/municipality	・ Obligates the segregation of domestic solid wastes in the central urban areas of each province and municipality, which has recycling facilities for solid wastes. ・ Obligates the periodic reporting on the composition and quantity of solid wastes from the factories in relevant areas. ・ Takes measures for the factories to treat solid wastes adequately.

Note: A subsidiary organ of MONRE

Source: Institute of Developing Economies, JETRO, "A report on the Project for Providing Information on the Policies of Industrial Wastes and Recycling in Asian Countries" (2006).

3.6 Current states of other pollutions and Measures

(1)Noise and Vibration

As for noise, noise level on vehicle and habitation area is set and as for vibration, the vibration level accompanied with construction and industrial activities are set.[12]

The Ministry of Natural Resources and Environment enforced the Environment Standard for the Regulation of Ambient Noise in Residential Areas and Commercial/Industrial Areas (QCVN26:2010/BTNMT) on January 15, 2011. The standard values during the daytime (6:00 – 21:00) and night time (21:00 – 6:00 of next day) for each region are as follows:

・The areas where tranquility is especially needed, such as where medical facilities, libraries, kindergartens, schools etc. are concentrated.

Daytime: Not more than 55 dB; Night time: Not more than 45 dB

・The areas which are used for commercial/industrial facilities along with a substantial number of houses/

Daytime: Not more than 70 dB; Night time: Not more than 55 dB

(2) Ground subsidence

In Vietnam, the actual state of ground subsidence has not been assessed. As for restriction on pumping of ground water, groundwater use is stipulated in Water Resources Law etc. related to authorization of water resources use and discharging water into the water sources as a part of water resources use.

- The Law on Water Resource (No.08/1998/QH10 of May 20, 1998)
- Decree No.149/2004/ND-CP of July 27, 2004 on the Issurance of Permits for Water Resource Exploration, Exploitation and Use, or for Discharge of Wastewater into Water Source
- Circular No. 02/2005/TT-BTNMT of June 24, 2005, Guiding the Implementation of the Government's Decree No.149/2004/ND-CP of July 27, 2004 on the Issurance of Permits for Water Resource Exploration, Exploitation and Use, or for Discharge of Wastewater into Water Source

[12] State standards QCVN26-2010BTNMT for for noise and QCVN27-2010BTNMT for vibration, are stipulated.

- Decision of the Ministry of Natural Resources and Environment No.17/2006/QD-BTNMT of October 12, 2006, Promulgating the Regulation on Grant of Practice Permits for Underground Water Drilling
- Decision of the Ministry of Finance No. 59/2006/QD-BTC of October 25, 2006, Providing the Regime of Collection, Remittance, Management and Use, and Levels, of the Evaluation Charge and the Fee for Granting Perits for Exploitation and Use of Water Resources, Discharge of Wastewater into water sources and Drilling for Ground Water

As for groundwater, in case of important national projects on water sources approved by the Prime Minister, or in case of the development and drilling of groundwater with feed rate at 3,000m^3/day or more, permit of MONRE is needed. In these cases, the application shall be submitted to the Department of Water Resources Mangement subordinate to MONRE.

(3)Offensive odors

Offensive odors are also pollutions of which actual state has not been assessed in Vietnam and the regulation standard does not exist. With economic development, in Vietnam's urban areas, waste amount has been increasing as at the same level as the industrialized countries. Wastes are open dumped in disposal sites after collected. In provincial cities wastes are dredged up by farmers to reuse as fertilizer, so that offensive odors become problems.

Chapter 4 Social environment

4.1 Overview (General Characteristics, Religion, culture)

(1)General characteristics

More than 85 % of total Vietnam people are Kinh race including the majority Hoa race who live on wet-paddy rice cultivation mainly in lowland .Kinh races live mainly in Delta areas of from the north to the south and in coastal areas. On the other hand, 53 ethnic minorities live throughout the country.[3] They account for 15 % of the total populations. Ethnic minorities live mainly in mountain areas or highlands, and their main livelihood is agriculture. Each ethnic has particular culture and customs. Mountain areas and highlands in Vietnam are less developed than wet-paddy rice zones where Kinh race live and poverty problem is severe.

From the perspective of residential areas, Tay, Nung, Hmong, Dao etc. races live in Red River basin in the north, Thai or Muong etc. races live in central coastal north of Ca river basin or mountain areas of Ma river basin. Also, Gia-Rai, Ede etc.races live in central highland in the south, Hoa and Khmer races live in Mekong delta region.

(2)Religion and Culture

Buddhism accounts for 80 % of the population, there are also Catholic and Cao Dai etc.

As for World Heritage, as of the end of 2010, 2 Natural Heritages(Ha Long Bay, Phon Nha Dong), 4 Cultural Heritages(Complex of Hué Monuments, Hoi An Ancient Town, My Son Sanctuary, Central Sector of the Imperial Citadel of Thang Long - Hanoi), 2 intangible cultural assets(Ancien Court Music in Vietnam, Spcace of Gong culture in the Central Highland in Vietnam)are registered(described in the Section 4.3).

Besides the above, not registered as World Heritage, Tet (Lunar New Year) which is the most important annual event in Vietnam, midautumn harvest festival which is festival for children on August 15 on the old calendar and Dong Da festival which celebrates the winning to Chinese Qing, are known as cultural events in Vietnam.

4.2 Major social issues(Trend and Approach related to Poverty, Gender, Child Lavor,Rights of Vulnerable Social Groups and Labors, Overviews of ratification and application of other international human rights standards)

The Vietanm govermrent set becoming middle income country from the low income country as

[13] According to census 2009, Kinh races are 73.59 million people, Tay races ranked secondly are 1,63 million people . Refer to the following website http://www.gso.gov.vn/default_en.aspx?tabid=515&idmid=5&ItemID=10799 for details.(Bureau of census)

objective in the "The 8th Socio-Economic development 5-year plan " (SEDP2006-10:Socio-Economic Development Plan 2006-10) which was approved in the Parliament in June 2006. For acheving this objective, 1:Promotion of growth and market economy, 2:Poverty reduction and ensuring of the social inclusion, 3:Sustainable management of environment and natural resources, 4:Construction of institutional system for sustaining the strategy, were set as pillars.

It is aimed that in 2011, objective year, the population ratio of below new poverty line will be under 10% in 2011 from 20% in 2004, population ratio of ethnic minorities of below new poverty line will be under 40% in 2011 from 61% in 2005.

(1) Social- Economic State of Ethnic Minorities

In Vietnam, the governance system by Communist Party and central government dominates until the provincial areas. The lifestyle of ethnic minorities and that of non-ethnic minorities are different considerably, however, this rarely causes ethnic conflicts. The State goal is to achieve development for Vietnam people, regardless of their regional and social hierarchy, the state ensures that people have rights of receiving benefits by contributing equally to the State development, regardless of ethnic differences.

(2)Requirements for Community designated and Protected domains

Joint Circular No.819/2004/TTLT-UBDT-KHDT-TC-XD-NNPTNT enacted in November 2004, by Prime Minister's Resolution "No.134/2004/QD-TTg" in July 20, 2004 , stipulates assistance to cultivation land , habitat land, housing, domestic use of water for ethnic minorities in poverty.

The subjected household and community, they need to satisfy the following conditions . There are 3 kinds of assisted subjects such as cultivation land, habitat land and domestic use of water .(Refer to Joint Circular No.819/2004/TTLT-UBDT-KHDT-TC-XD-NNPTNT).

4.3 Cultural heritage

In Vietnam, the following 6 areas are registered as World Heritage. The latest registration is Thang Long in 34 the World Heritage Commission of UNESCO.Vietnam ㋐ Thang Long Imperial City was registered as World Heritage(Table4-1).Moreover, 6 places were presented by the Ministry of Culture, Sports and Tourism, currently they are posted on the provisional list.

Table 4-1 State of World Heritage registration in Vietnam

Name of World Heritage	Year of designated	Natural Heritage / culture Heritage
Complex of Hué Monuments	1993	culture Heritage
Ha Long Bay	1994,2000*	Natural Heritage
Hoi An Ancient Town	1999	culture Heritage
My Son Sanctuary	1999	culture Heritage
Phong Nha-Ke Bang National Park	2003	Natural Heritage
Central Sector of the Imperial Citadel of Thang Long	2010	culture Heritage

*Additional designation of related parties
Source:UNESCO website http://whc.unesco.org/en/statesparties/vn

(2) Relevant legal systems and Ministries/agencies

The cultural heritages of Vietnam are protected based on the Diet Council's Ordinance on Protection and Use of Historical and Cultural relics and Places of April 1984. The composition of this Ordinance is as follows:

Chapter 1 General rules (Article 1 - 6)
Chapter 2 Certification of historical cultural heritages and historic scenes (Article 7 - 11)
Chapter 3 Protection and use of historical cultural heritages and historic scenes (Article 12 - 24)
Chapter 4 Awards and penalties (Article 25 - 26)
Chapter 5 Final regulation (Article 27)

Additionally, Article28 of the Law on Cultural Heritage[4] of 2001 gives a specific explanation in addition to the regulations on the criteria for classifying relics and the process in the Enactment number 519TTg of 1957. Based on this law, as of August 2010, out of 40,000 historical/cultural heritages and landscape, about 3,000 were certified by the State and Provinces (Source: the website of Vietnam National Administration of Tourism).

4 .4 An analysis on the consistency/gap among the Vietnamese legal systems, new environmental guidelines and the safeguard policy of the World Bank

Table 4-3 summarizes the comparison among the "Guidelines for Environmental and Social Considerations" introduced by Japan International Cooperation Agency (referred to as "new environmental guideline" below) in April 2010, the safeguard policy of the World Bank, and the Vietnamese laws concerning the protection of the Vietnamese cultural heritages. There are no significant institutional discrepancies among them.

[4] The Law on Cultural Heritage was partly revised on June 29, 2009 by 32/2009/QH12. The revised provisions were Article 4(1), (14), (15), (16), Article 13(1), (4), (5), Articles 17, 18, 21, 25, 26, 28(1), 29, 30(1), 31, 32, 33(4), 34, 35, 36 (3), 37, 38, 41, 41a, 42, 47, 48 and 50, which were on the criteria for tracking/classification. Further, on September 21, 2010, the Government announced Decree 98/2010/NĐ-CP, which stipulated the details of both the Law on Cultural Heritage and the revised version of the same law.

Table 4-2 Comparison among the new environmental guidelines, WB safeguard policy and the Vietnamese laws on cultural heritages

Responsive measures integrating the new environmental guidelines and the safeguard policy of the World Bank	Related Vietnamese laws	Main difference
Projects should be implemented basically in other places than the protection areas specified by laws etc. for the purpose of protecting nature and cultural heritages. In addition, the projects should be implemented in a manner that has no significant impact on the designated protection areas.	The laws pursue the protection of nature and cultural heritages through the Law on Cultural Heritage, so that no significant discrepancies can be observed.	(None in particular)

Source: The new environmental guidelines, WB safeguard policy and the relevant Vietnamese laws

Chapter 5 Climate Change

5.1 Impact by Climate Change

In Vietnam, there are growing concerns that climate change impacts cause storm surge or immersion and bring damages to grain-belts or industrial zones in coastal areas.Also, UNDP indicated that the delta areas of Hon River and Mekong River are likely to be influenced by climate change because there are many plain areas.

5.2 Relevant Legal System and Administrative Organization

The Vietnam government is building an action plan 2010 through 2011based on decree 1585. The Climate Change committee covering totally (role of state window) is under direction of the Ministry of Natural Resources and Environment (MONRE) and carries out examinations by category.

Concretely, the ministry of Natural Resources Environment(MONRE)is creating basic scenario of climate change, by which, the relevant Ministries will create impact appraisal and draw up a relevant report.

Only related to the agricultural field, the Ministry of Agriculture and Rural Development is in charge. In addition, agriculture is affected directly by climate change, and influences to people's life are enormous, aside from the commission, a task force of which chairperson and vice-chairperson are the minister and vice-minister of agriculture and rural development, has been considering The Ministry of Agriculture and Rural builds an action plan by 2020, in which, a decision as the ministry that when drawing up agriculture-related plans, climate change has to be considered.

On the other hand, the Ministry of Construction carries out impact appraisal etc. about buildings such as bunds etc by surge in coastal areas or elevation of water surface, and submit the results to the government. Also, in 5 cities within its ruling (Hanoi, Ho Chi Minh, Haiphong, Danang and Cantho) the Ministry is creating an action plan for the construction industry to respond to climate change. Moreover, the ministry suggests to the government to conduct research of construction materials in response to water surge due to climate change. The plan is going to be implemented as soon as the prime minister approves the plan.

Also, the Ministry of Transport, carries out appraisal for climate change in regard to rail and road from 2010 to 2013. This appraisal is conducted by 2 points of views. The one is for the response to climate change and the other is response to global warming. As for climate change, implementing tide prevention in the coast area considered for the measures for preventing damages to transportation infrastructure by flood of typhoon or sea level surge in coastal areas. As for global warming, development of transportation means for mitigating traffic jam, introduction of transportation without using gasoline (e.g. train), energy saving (e.g. use of bio-energy), are considered. Moreover the Ministry of Trade and Industry participates in drawing up an environmental impacts appraisal, an action plan and a concrete action plan. Also, the Ministry of Trade and Industry works as

collaborator on energy saving program in the National Tuberculosis Control Programme (NTP).

5.3 Measures on Climate Change(Mitigation and Adaptation)

As described in 5.2, currently, the Vietnam government is promoting measures to climate change by each Ministry. At the same time, the government is asking for cooperation to foreign donors, promoting climate change related projects. For example, the Ministry of Trade and Industry is creating standards for energy saving and energy efficiency with JICA.

Chapter 6 Legal System and Procedure of Environmental Assessment

6.1 Relevant Legal System

Law On Environmental Protection defines that EIA is “to analyze and predict environmental impacts caused by implementing a project in order to establish environmental protection measures”.(Law on Environmental Protection Article 3).

(1)Projects which require creating EIA report

Project owner has to create EIA report for the projects listed in the below chart

Table 6-1 Projects requires creating EIA report

1.	Important project at the state level
2.	Projects that use or affect negatively natural reserves, National Park, Historical Heritage, Cultural Heritage, Natural Heritage、landscape
3.	Projects that influence negatively river areas, coastal areas or ecosystem conservation area.
4.	Construction projects of infrastructures in economic or industrial zone, new technology industrial zone, export-processing zone, artifice zone.
5.	Construction project of new urban center or congested residential area
6.	Projects that use a large-scale of groundwater or natural resources
7.	Projects that have other potential risks and affect the environment.

Source:Law on Environmental Protection Article 18

The previous Law on Environmental Protection classified the projects that needed environmental impact assessment into categories I and II (Circular No.490/1998/TT-BKHCNMT). It was made obligatory to prepare EIA report and obtain approval from environmental administrative agencies for Category I projects. Meanwhile, for relatively small-scaled Category II projects, it was enough to complete a simple registration document ensuring the compliance with environmental standards and to submit it to DONRE (Department of Natural Resources and Environment). The enforcement of the new Law on Environmental Protection has eliminated this distinction of categories. Instead, based on the targeted projects summarized in Table 6-1 above, Decree No.80/2006/ND-CP prescribed 102 types of detailed target project. Meanwhile, Decree No.80/2006/ND-CP was revised in 2008 into Decree No.21/2008/ND-CP Appendix, and it listed 162 types of detailed target projects rearranged by type of projects (e.g. infrastructure, traffic etc.). (see Table 6-2).

Table 6-2 A detailed list of projects for which EIA report must be prepared

	Type of project	Scale
1.	Major national works	All
2.	Projects that have an influence on the whole or a part of the Natural Protected Areas and National Parks, historical/cultural heritages, natural heritages, landscape areas which are designated by the Decision of People's Committee of the province/municipality	All
3.	Projects that have a severe influence on the water sources within a river water area or a coastal area, or the coastal areas which include the protection area for the ecosystem	All
	Construction project group	
4.	Infrastructure of urban centers and residential areas	Not less than 50ha
5.	Industrial complexes, high-tech parks, export procedure zones	All
6.	Supermarkets	Not less than 200 stores
7.	Sport centers	Not less than 10ha
8.	Hospitals	Not less than 50 beds
9.	Hotels and lodging facilities	Not less than 100 rooms
10.	Recreational facilities for tourists, resort areas	Not less than 10ha
11.	Service facilities for tourists along the coasts and isolated islands (infrastructure)	Not less than 1,000 m^3 of water use per 24 hours
12.	Golf courses	Not less than 18 holes
13.	Burial plots (including crematoriums and mortuaries)	All
14.	Subways	All
15.	Homes with basements	Equipped with a basement with depth not less than 10m
16.	Military combat exercise, training and fire-shooting facilities	All
17.	Military warehouses	All
18.	Defense facilities in economic sea zones	All
19.	Jailhouses, detention camps	All
	Construction material manufacturing project group	
20.	Cement manufacturing	Not less than 300,000 tons per year
21.	Cement stirring facilities	With designed capacity of not less than 1 million tons per year
22.	Tile manufacturing for walls and roofs	With designed capacity of not less than 10 million sheets
23.	Other construction material manufacturing	With designed capacity of not less than 10,000 tons per year

Type of project		Scale
Traffic projects		
24.	Subway workhouses (laying of subway lines and digging of tunnels)	Not less than 500m
25.	Construction of I to III classes of carriage ways	All
26.	Road improvement work for I to III classes of carriage ways	Not less than 50km
27.	Construction of IV class of carriage ways	Not less than 100km
28.	Railroad construction	Not less than 50km
29.	Elevated railroad construction	All
30.	Construction of aerial tramway cars	Not less than 500m
31.	Construction of permanent roads and railway bridges	Not less than 200m (excluding the length of access roads)
32.	Construction and improvement of traffic-related work	With resettlement of not less than 1,000 persons
33.	Docks in the sea or rivers	Accommodating not less than 1,000 tons of ships
34.	Unloading areas of fish	Accommodating not less than 100 ships/fishing boats per day
35.	Airports, airfields	All
36.	Bus stops	Not less than 0.5ha
37.	Manufacturing of asphalt concrete	With designed capacity of not less than 30,000 tons per year
Energy and radiation-related projects		
38.	Nuclear power plants	All
39.	Thermonuclear power plants	All
40.	Construction of nuclear reactors	All
41.	Thermal power plants	With designed capacity of not less than 300,000 KM
42	Wind power plants	Covering an area of not less than 100ha
43.	Solar photovoltaic power plants	Covering an area of not less than 100ha
44.	Hydro power plants	Covering an area of not less than 100ha
45.	High-voltage lines	Not less than 100km
46.	Manufacturing of electric lines/cables	Using not less than 2,000 tons of aluminum or equivalent
Electric communication projects		
47.	Accumulator plants	With designed capacity of not less than 2 kWh

Type of project		Scale
48.	Electric/electronic plants	With designed capacity of not less than 10,000 units per year
49.	Electric/electronic parts plants	With designed capacity of not less than 500 tons per year
50.	Communication lines	Not less than 100km
51.	Manufacturing of communication cables	All
Irrigation, forest resource development, afforestation projects		
52.	Storage reservoirs and lakes for irrigation	With capacity of not less than 300,000 m^3
53.	Irrigation	Covering an area of not less than 200ha
54.	Coastal landfilling projects	All
55.	Embanking projects in rivers and seas	Not less than 1,000m
56.	Projects concerning water source conservation forests and wave break forests, forests for preventing aggradation of coastal areas, and projects for using forests intended for specified purposes	Not less than 5ha
57.	Projects including the use of natural forests	Not less than 20ha
58.	Afforestation and forest utilization	Not less than 1,000ha for afforestation, not less than 200ha for forest utilization
59.	Development of rubber, cassava, sugarcanes, coffee, cocoa, black tea, and pepper fields	Not less than 100ha
60.	Development of vegetables and flower fields	Not less than 100ha
Mineral resource development projects		
61.	Mineral resource development for construction materials in the mainland	Yearly developed volume not less than 50,000 m^3
62.	Development of ground surface rich in mineral resources	Yearly developed volume not less than 100,000 m^3
63.	Development, dredging and recovery of construction materials (sands, gravels) from riverbeds	Not less than 50,000 m^3
64.	Development of solid minerals without using chemical substances	Not less than 100,000 m^3 per year
65.	Development and processing of solid minerals containing hazardous substances or when using chemicals	All
66.	Processing of solid minerals	With designed capacity of not less than 50,000 tons per day Not less than 500,000 tons per year before extracting coal
67.	Development of groundwater	With designed capacity of not less than 10,000 m^3 per day
68.	Development of potable natural water (surface water/groundwater)	With designed capacity of not less than

Type of project		Scale
		120 ㎥ per day
69.	Natural water (surface water/groundwater) for services including baths and medical practices	With designed capacity of not less than 500 ㎥ per day
70.	Development of surface water	With designed capacity of not less than 50,000 ㎥ per day
Oil and gas projects		
71.	Development of oil and gas	All
72.	Oil refineries (excluding the projects for extracting LPG and facilitation of LPG recovery)	All
73.	Manufacturing of petrochemical products (surface-active agents, plasticizer, methanol)	All
74.	Construction of oil and gas pipelines	All
75.	Oil storage facilities	With capacity of not less than 1,000 ㎥
76.	Oil and gas terminal areas	All
Waste treatment projects		
77.	Common type of solid waste treatment plants	All
78.	Construction of hazardous substance treatment facilities	All
79.	Construction of common type of garbage treatment facilities	Treatment facility for 500 households
80.	Treatment systems for collecting industrial effluents other than in industrial zones, export processing zones, and new technology industrial zones	All
81.	Collective treatment systems for daily effluents	With designed capacity of not less than 1,000 ㎥ (per day and night)
82.	Scrap items and purchase (including imports)	With designed capacity of not less than 2,000 tons per year
83.	Washing of ships	All
84.	Dismantlement of aged ships (all types)	All
Engineering, metallurgy projects		
85.	Iron, non-iron metallurgy	With designed capacity of not less than 3,000 tons per year
86.	Iron rolling	With designed capacity of not less than 5,000 tons per year
87.	Construction and repair of ships	With dead-weight capacity of not less than 1,000 tons (DWT)
88.	Manufacturing and repair of locomotive engines and vehicles	With designed capacity of not less than 500 vehicles per year
89.	Manufacturing and repair of bicycles	With designed capacity of not less than

Type of project	Scale
	10,000 vehicles per year
90. Mechanical and engineering plants	With designed capacity of not less than 1,000 tons per year
91. Metal plating, coating, grinding	With designed capacity of not less than 1,000 tons per year
92. Molding of aluminum	With designed capacity of not less than 2,000 tons per year
93. Ammunition, military goods, technical equipments	All
Wood processing, glass, ceramics, earthenware manufacturing	
94. Wood processing	With designed capacity of not less than 5,000 m^3 per year
95. Plywood processing	With designed capacity of not less than 100,000 m^2 per year
96. Daily wood processing	With designed capacity of not less than 10,000 items per year
97. Manufacturing plants for art-related products	With designed capacity of not less than 1 million items per year
98. Glass, ceramics and earthenware manufacturing	With designed capacity of not less than 1 million items per year
99. Manufacturing of lavatory basins	With designed capacity of not less than 10,000 tons per year
100. Manufacturing of enamel tiles	With designed capacity of not less than 1 million m^2 per year
101. Manufacturing of bulbs and thermal flasks	With designed capacity of not less than 1 million items per year
Food processing, beverage projects	
102. Food processing	With designed capacity of not less than 5,000 tons per year
103. Slaughter houses	With designed capacity of not less than 1,000 heads of livestock per day or not less than 10,000 of fowl
104. Frozen fishery product processing	With designed capacity of not less than 1,000 tons per year
105. Sugar manufacturing	With designed capacity of not less than 20,000 tons per year

Type of project	Scale
106. Manufacturing of alcohol and spirits	With designed capacity of not less than 100,000 liters per year
107. Manufacturing of beer and beverages	With designed capacity of not less than 500,000 liters per year
108. Sodium glutamate manufacturing plants	With designed capacity of not less than 5,000 tons per year
109. Milk processing plants	With designed capacity of not less than 10,000 tons per year
110. Edible oil processing	With designed capacity of not less than 10,000 tons per year
111. Confectionery manufacturing	With designed capacity of not less than 5,000 tons per year
112. Ice making plants	With designed capacity of not less than 3,000 pieces of ice bar (per day and night) or not less than 150,000 kg of ice water
Agricultural product processing projects	
113. Tobacco production	With designed capacity of not less than 30,000 packs per year
114. Manufacturing of smokers' articles	With designed capacity of not less than 1,000 tons per year
115. Cereal manufacturing	With designed capacity of not less than 10,000 tons per year
116. Rice milling plants	With designed capacity of not less than 20,000 tons per year
117. Manioc starch milling plants	With designed capacity of not less than 1,000 tons per year
118. Cashew nuts production	With designed capacity of not less than 10,000 tons per year
119. Tea manufacturing	With designed capacity of not less than 10,000 tons per year
120. Coffee manufacturing	With designed capacity of not less than 5,000 tons per year for coffee powder and instant coffee; 10,000 tons per year by wet manufacturing method or 1,000 tons per year by dry manufacturing method
Livestock/fowl raising and aquaculture projects	
121. Breeding and processing of livestock, fowl and cultured animals	With designed capacity of not less than

Type of project	Scale
	5,000 tons per year
122. Processing of aquaculture by-products	With designed capacity of not less than 1,000 tons per year
123. Processing of baits	With designed capacity of not less than 1,000 tons per year
124. Breeding (Permanent work, semi-permanent work)	With water area not less than 10ha
125. Dedicated for breeding	With water area not less than 50ha
126. Aquaculture on sand	All
127. Large livestock breeding	Not less than 1,000 heads
128. Large poultry breeding	Not less than 20,000 fowl, 200 (ostriches), 100,000 quails
Chemical fertilizers and agrichemical projects	
129. Manufacturing of chemical fertilizers	With designed capacity of not less than 2,000 tons per year
130. Storage warehouses for chemical fertilizers and agrichemicals	With storage capacity of not less than 2 tons
131. Agrichemical manufacturing	All
132. Bottling/bagging of agrichemicals	With designed capacity of not less than 1,000 tons per year
133. Manufacturing of Organic fertilizers and micro-fertilizers	With designed capacity of not less than 1,000 tons per year
Chemical agent, medical, cosmetic projects	
134. Pharmaceutical manufacturing	With designed capacity of not less than 50 tons per year
135. Vaccine manufacturing	All
136. Manufacturing of medication for veterinary practice	With designed capacity of not less than 50 tons per year
137. Cosmetics manufacturing	With designed capacity of not less than 50 tons per year
138. Plastics and plastic products	With designed capacity of not less than 500 tons per year
139. Plastic package manufacturing	With designed capacity of not less than 2 million boxes per year
140. Manufacturing of paints and basic chemicals	With designed capacity of not less than 500 tons per year

Type of project	Scale
141. Detergents and additives	With designed capacity of not less than 1,000 tons per year
142. Explosives and inflammables	All
143. Explosives	All
144. Bases	Not less than 100ha of target area
Paper and stationery projects	
145. Pulp and paper manufacturing (non-recycle paper)	With designed capacity of not less than 1,000 tons per year
146. Pulp and recycle paper manufacturing	With designed capacity of not less than 5,000 tons per year
147. Stationery manufacturing	With designed capacity of not less than 1,000 tons per year
Dyes for fabric and clothing	
148. Dying fabric plants	All
149 Non-dying fabric plants	With production capacity 10,000,000 m per year of fabrics
150. Clothing with washing or bleaching	With designed capacity of not less than 50,000 items per year
151. Clothing without washing or bleaching	With designed capacity of not less than 2 million items per year
152. Laundries	With designed capacity of not less than 50,000 items per year
153. Silk and artificial fabrics	With designed capacity of not less than 1,000 tons per year
Other projects	
154. Rubber latex processing plants	With designed capacity of not less than 5,000 tons per year
155. Rubber processing plants	With designed capacity of not less than 1,000 tons per year
156. Footwear manufacturing plants	With designed capacity of not less than 1 million tons per year
157. Tires and tubes for industrial vehicles and tractors	With designed capacity of not less than 50,000 industrial vehicles/tractors, 100,000 cars and bikes per year
158. Heat accumulators and batteries	With designed capacity of not less than 50,000 kWh per year or 100 tons per year

Type of project	Scale
159. Tannage plants	All
160. Manufacturing/extraction of liquefied CO2 gas	With designed capacity of not less than 3,000 tons per year
161. Manufacturing of fire-fighting apparatuses	All
162. Projects with renovation, upgrading and expansion	With size and capacity of 25 and 26 (road projects), the others 1 - 161

Source: Decree No.21/2008/ND-CP Appendix

In addition, for especially large-scale projects which are likely to have serious influences on the environment, MONRE stipulates that EIA shall be responsible for the approval of reports (Decree No.80/2006/ND-CP Articles 6 and 7). DONRE is responsible for approving the other EIA report.

Table 6-3 Projects spanning multiple divisions and Provinces, for which MONRE evaluates and approves EIA report

1.	Projects which utilize National Parks, nature protection areas, biosphere protection areas, world heritages, historical/cultural heritages
2.	Nuclear power plants and thermo-nuclear power plants, nuclear reactor projects
3.	Thermal power plants with output of 300-500MW, and thermal power plants within 2 km from urban centers and residential areas. Or, thermal power plants of not less than 500MW
4.	Hydro power plants and irrigation facilities with reservoirs of not less than 100,000,000 ㎥, or projects which have an influence on the supply of surface water and groundwater in not less than 2 Provinces and Cities under direct authority of the Central Government
5.	Projects which destroy not less than 20ha of water source conservation forests and wave break forests, forests for preventing aggradation of coastal areas, and forests intended for specified purposes, or projects which destroy other natural forests covering not less than 200ha.
6.	Inland aquaculture plants with area of not less than 100ha
7.	Petrochemical refineries with yearly production capacity of not less than 20,000 tons (base chemicals, plant protectants, surface-active agents, additives, chemical fertilizers), transformer plants with yearly designed output of not less than 300,000Wh, cement plants with production capacity of not less than 1,200,000 tons per year, plants having or releasing radioactive substances and work areas
8.	Oil and gas development, development of not less than 500,000 ㎥ per year of solid minerals, development of radioactive metals and rare earths, development of not less than 50,000 ㎥ per day of groundwater (per day and night), development of not less than 500,000 ㎥ per day of surface water (per day and night)
9.	Construction of infrastructure in industrial zones, export processing zones, new technical industrial zones, industrial clusters with area of not less than 200ha, construction of infrastructure in tourism and recreational resort areas, construction of ports which can accommodate ships with dead-weight capacity not less than 50,000 DWT, iron/steel refineries with yearly production of not less than 300,000 tons
10.	Reprocessing, treatment and landfilling of hazardous wastes
11.	Projects which includes not less than one element of the above 10 items
12.	Projects, excluding those listed in Table 2-3, in not less than 2 Provinces and Cities under direct authority of the Central Government

Source: Projects Decree No.80/2006/ND-CP Appendix Ⅱ

(2) The conditions for consultants which undertake the preparation of EIA report

All the national and foreign organizations which have been registered in Vietnam and meet the following conditions a.- c. can undertake the consulting services for preparing EIA report. However, the projects relating to security, defence and state secrets are excluded. Additionally, when placing an

order for consulting services, the organizations and agencies placing the order must confirm these conditions (Law on Environmental Protection Article 19, Decree No.80/2006/ND-CP Article 8).

a. The organization or agency is suited for the target project and has technical environmental technologies
b. It has equipments and devices optimal for environmental analysis.
c. It has adequate items, technology and laboratory for sampling. If it doesn't have any laboratory, the consultant shall make a contract with an adequate laboratory.

According to the hearing surveys to MONRE in 2007, although this law has words about the registration of operation, it has actually no prescriptions concerning the certificate and the permit system for consultant service. It stipulates that the consultants shall have enough ability to prepare EIA report, but it is difficult to show the ability clearly. According to MONRE, the ability of the consultant can be proved by the fact of meeting all the above standards and preparing EIA report which can be approved.

6.2 Procedures for Strategic Environmental Assessment

(1)Definition of Strategic Environment Assessment (SEA)

New Law on Environmental Protection defines that SEA is that "before development plan in view of sustainable development is authorized, analyzing and predicting environmental impacts caused by these development plans." In contrary to EIA which is carried out when project is implemented, SEA is carried out when drawing up and examining policy, plan or program which are situated above implementation of project.

(2) SEA subjected Projects

Strategies and plans that have duties of creating SEA statement are listed in Table 6-4.

Table 6-4 Strategies or plans that require creating SEA statement

1.	Strategy and plan related to state socio-economic development
2.	Development strategy and plan at state level
3.	Socio-economic development strategy and plan at provinces, center-ruled special cities and region level
4.	Use of land, forestry protection, forestry development, use and development of other natural resources which are crossing province or region
5.	Development plan in important economic zones
6.	General plan for river areas of inter-provincial river

Source:Law on Environmental Protection Article 1

(3)Contents of SEA statement

Article 16 of Law On Environmental Protection describes items to be included in SEA statement Moreover, the Circular No. 08/2006/TT-BTNMT states detailed items described in SEA statement.

Table 6-5 Detailed items of EIA report

Introduction

1. Background of the project
   - Explanation on the background leading to the occurrence of the project and the type of project (new, supplementary, or other)
   - Approving organization of the project
2. The relevant laws and documents proving the technology, needed to implement EIA
3. Statement of implementing EIA
   - Overview of the implementation of EIA and the preparation of EIA report. Existence/non-existence of any employed consultant when preparing the reports. If some consultant is employed, the name and address of the organization and the representative person
   - A list of personnel who are directly involved in the implementation and preparation of EIA

Chapter 1 Overview of the project

1.1 Name of the project

Same as the name entered in F/S and investment reports.

1.2 Name of the project implementer

Name, address, and contact of the project implementer, and name and title of the representative person of the organization.

1.3 Geographical information

Geographical explanation on the area for implementing the project, including the surrounding natural items, socio-economical elements, and other buildings and housing areas, as well as maps showing these elements.

1.4 Main contents of the project

- The scale of the project in terms of space and time. Design drawings included in the following 2 types of construction.
  - With an aim for major construction, manufacturing, business, and services.
  - Necessary for the facilities for supplementary construction/transport systems, postal mails, telecommunication, electricity, water supply, water discharge, resettlement, forest-related, effluent-treatment facilities, solid wastes treatment and recovering

facilities (if possible), and other items needed for the major construction work.

- Details and the explanation of the technologies used. The explanatory figures shall contain the environmental factors in the water source used (if possible).
- A list of the equipments and facilities utilized. The manufacturer, date of manufacture and the status shall be clearly written.
- A list of materials used such as fuels. The name and chemical composition shall be clearly written (if possible)

Chapter 2 The natural environment and socio-economic aspects related to the project

2.1 Status of the natural environment

- Geological and geographical aspects: Explain the item which will be influenced, the related phenomenon and the process (For projects which will change the geological elements and landscape, and the projects involving the development of minerals and the construction of underground structures, the details should be explained). The sources of quoted documents and information should be clearly shown.
- Hydrologic/meteorological aspects: Explain the item which will be influenced, the related phenomenon and the process (For projects which will develop, use and change the hydrological elements, the details should be explained). The sources of quoted documents and information should be clearly shown.
- Natural environmental aspect: Explain the environmental factors which will be directly affected.

As for the status of atmosphere, water and lands, the following items should be clearly written.

- Clear methods for data measurement/analysis when EIA is implemented.
- General assessment on the influence which can be accepted in terms of the environment and accuracy.

2.2 Status of society and economy

- Economic aspect: Explain the economic activities which will be influenced (industry, agriculture, transport, mining, tourism, trade, service, and other sectors). The sources of quoted documents and information should be clearly shown.
- Social aspect: Explain the activities of culture, society, religion, creed, historical heritage, houses, urban areas, and other sectors which will be influenced. The sources of quoted documents and information should be clearly shown.

Chapter 3 Influences on the environment

3.1 Environment influencing factors

- Origins of the influences caused by wastes: A list of all the origins which can cause solid,

liquid, gas, and other forms of wastes. Quantification of those origins and clarification of possible places and times of occurrence. Comparison with reference values and regulations, if possible.

- Origins of influences which have nothing to do with wastes: Predictions on all the factors causing mudslide, corrosion and subsidence; erosion of riverbanks, pond rims and coasts; deposition on the riverbed, pond bottoms and sea beds; change of water levels in the surface water and groundwater; variation in chloride- and aluminate-forming process; change in local weathers and environmental factors; degradation of biodiversity; and other influences. Clarification of the extent, possible places and times of occurrence. Comparison with reference values and regulations, if possible.
- Prediction on the environmental risks: environmental risks predictable when the project is planned and operated.

3.2 The predicted target and the extent of the influences

All the predicted targets in the natural, economic, cultural, social, religious, creedal, and historical heritages within the project implementation areas and the surrounding areas which will be influenced by waste-derived and non-waste-derived origins. Details of the possible places and times of occurrence.

3.3 Impact assessment

- Clearly show the impact assessment on the cause of each influence and the target objects which will be influenced. Details of the extent, place and time.
- Clearly show the impact assessment of each project.

3.4 Assessment method

Evaluate the reliability of the assessment method. Uncertain points and the reasons, proposal of improvement measures.

Chapter 4 Measures for reducing environmental impact and preventive measures for environmental accidents

- Responses to environmental loads
  - Formulate reduction measures for each environmental load. The advantages and inconveniences, feasibility, efficiency, and effects should be clearly shown. If optimal reduction measures cannot be found, file a statement of reason and a claim to the competent bodies for allowing them to take countermeasures.
  - By comparing with the current standards and regulations, demonstrate how much load can be reduced after implementing the reduction measures. If the requirements cannot be fulfilled, file a statement of reason and a claim to the competent bodies for allowing them to take countermeasures.

- Responses to environmental accidents: Propose general countermeasures including the following items.
  - The contents and methods of countermeasures that can be implemented by the project implementer. Evaluation of the feasibility and effects.
  - The contents and methods of countermeasures which need cooperation with administrative bodies and other organizations
  - Items and claims essential for the handling of environmental accidents

Chapter 5 Implementation of environment conservation measures

Statement of the duty of the project implementer to reduce environmental loads and to commit itself to the environment conservation

Chapter 6 Construction and management/supervision for improving environmental loads

6.1 A list of construction for improving environmental loads

- A list of construction for responding to solid, liquid, gas, and other forms of wastes. The process of each construction.
- A list of construction for responding to environmental loads other than wastes (the factors causing mudslide, corrosion and subsidence; erosion of riverbanks, pond rims and coasts; deposition on the riverbed, pond bottoms and sea beds; change of water levels in the surface water and groundwater; variation in chloride- and aluminate-forming process; change in local weathers and environmental factors; degradation of biodiversity and other influences). The process of each construction.

6.2 The system of management/supervision

- Management programs
  - The organization of personnel, who are in charge of the environmental loads related to the projects involving the environment, wastes, toxic wastes, avoidance of environmental accidents and other projects.
- Supervision programs
  - Wastes: Based on the current standards, monitor the statistics on the generated amount of wastes and environmental pollution, especially paying attention to the wastes. It shall be implemented at least every 3 months. Details of the places to be monitored shall be clearly shown on the maps.
  - Surrounding environment: If there are no monitoring posts or places of the administrative agencies, based on the current standards, monitor the statistics on the environmental pollution, especially paying attention to the wastes. It shall be implemented at least every 6 months. Details of the places to be monitored shall be

clearly shown on the maps.

- Other: If there are no monitoring posts or places of the administrative agencies, monitor the mudslide, corrosion and subsidence; erosion of riverbanks, pond rims and coasts; deposition on the riverbed, pond bottoms and sea beds; change of water levels in the surface water and groundwater; variation in chloride- and aluminate-forming process; change in local weathers and environmental factors; degradation of biodiversity and other influences at an adequate frequency. Details of the places to be monitored shall be clearly shown on the maps.

Chapter 7 Estimation of the budget for the construction related to environment conservation

Chapter 8 Reflection of the public opinion

8.1 Opinions from the administrative village level People's Committee

8.2 Opinions from the representatives of communities

Chapter 9 The sources of statistics, data and assessment methods

9.1 The sources of statistics and data

- A list of quoted statistics and information: The title, author, publisher and publication year of the reference materials and information. Evaluation of the accuracy, reliability and the status of updates of the information.
- Documents and information created by the implementer: A list of the title, publication year and the publisher of referenced documents and information. Evaluation of the accuracy, reliability and the status of updates of the information.

9.2 Methods used

- A list of all the methods used in implementing EIA and preparing EIA report.
- Evaluation of the reliability of the above methods.

9.3 Objective reference to the accuracy and reliability of the predicted change in the natural environment and socio-economic aspects during the project implementation and other time periods. If required information cannot be represented, show the objective and subjective reasons.

Conclusions and claims

1. Conclusions: Conclusions shall include the following contents:
   - Were all influences captured and assessed? Where are uncertain points?
   - A generalized evaluation of the extent and scale of the influences
   - Possibility of influence reduction measures
   - The influences that cannot be reduced by the implementer and the claims

2. Proposals: Request for cooperation to solve the unavoidable problems

Source: Circular No. 08/2006/TT-BTNMT

6.3 Procedure for Environmental Assessment Execution and Environmental Approval and License

(1)Contents described of EIA report and a track of approval and license

Law On Environmental Protection states the items to be included in EIA report, as described in Table 6-6.

Table6-6 Contents described in EIA report

1.	Construction contents and dimensions, period and schedule, technologies and its details introduced for each construction and all of the project,
2.	Current appraisal to the environment in the project area and in its neighborhood, appraisal of acceptable impacts for the environment.
3.	Detailed appraisal of environmental impact for implementation of the project, detailed appraisal of the environmental and socio-economic impacts that project has. Prediction of accident.
4.	Specific measures for minimizing environmental damages, prevention of environmental accident and specific measures for accident occurrences.
5.	Manifestation of duties dealing with environmental protection
6.	Implementation lists of the project, management environmental problems and monitoring plan
7.	Estimates for the environmental protection measures costs in regards to all project budget.
8.	Opinion about administrative commune/sector, or township level People's Committee and community representative, Objection about project area or environmental protection measures
9.	Chart ,data, sources of appraisal method

Source:Law on Environmental Protection Article 20

The process of appraisal and approval after creating EIA report is described in the chart 6-1 on the next page.

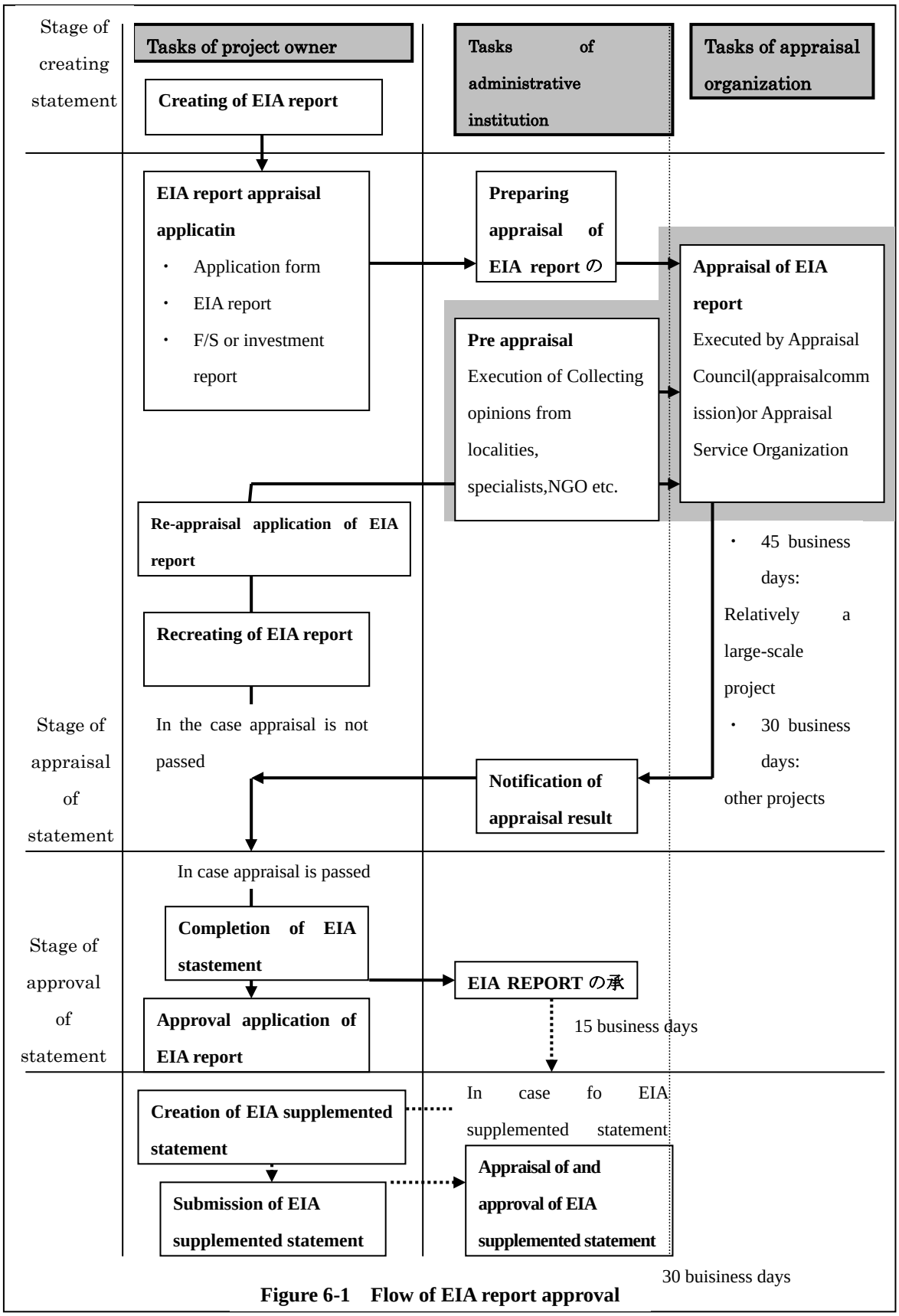


Figure 6-1 Flow of EIA report approval

Appraisal and approval of the EIA report is charged by mainly Competent Appraising Agency. (See chart6-2).However, actually, Appraisal Council(appraisal commission)or Appraisal Service Organization conducts appraisal of EIA report. As summarized in chart 6-6, based on the kinds of the project, each Competent Appraising Agency has responsibilities in organizing Appraisal Council or Appraisal Service Organization. The chief of Competent Appraising Agency examines specialties and technical aspects of the project and complexities of the surrounding environments, then, decides either Appraisal Council or Appraisal Service Organization conducts appraisal.

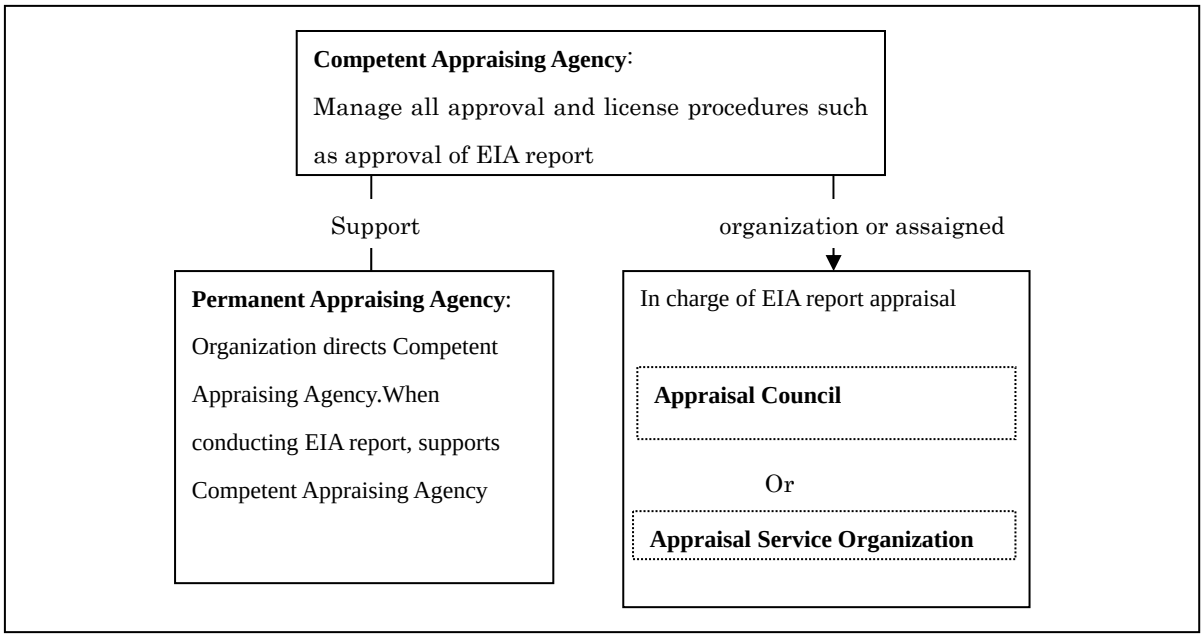


Figure 6-2 Relational chart of organization related to appraisal of EIA report

(2)Appraising of EIA report

After accepting documents necessary for appraisal of EIA report, Permanent Appraising Agency checks documents defect etc.(Circular No.08/2006/TT-BTNMT 3.4).

Permanent Appraising Agency examines the dimension or characteristics of the project, and considers if it is necessary to conduct pre appraisal for the project area and neighborhood area. Before holding formal Appraisal Council as needed, institutions in charge of appraisal execution carries out this pre-appraisal.(Decree No.80/2006/ND-CP Article 11).

After appraisal of EIA report, project owners complete the statement. Then, they submit the EIA report to Competent Appraising Agency for appraisal. The details of the flow and documentations necessary for approval application are described in figure 6-3 and chart 6-8.(Circular No. 08/2006/TT-BTNMT 3.4, 3.5).

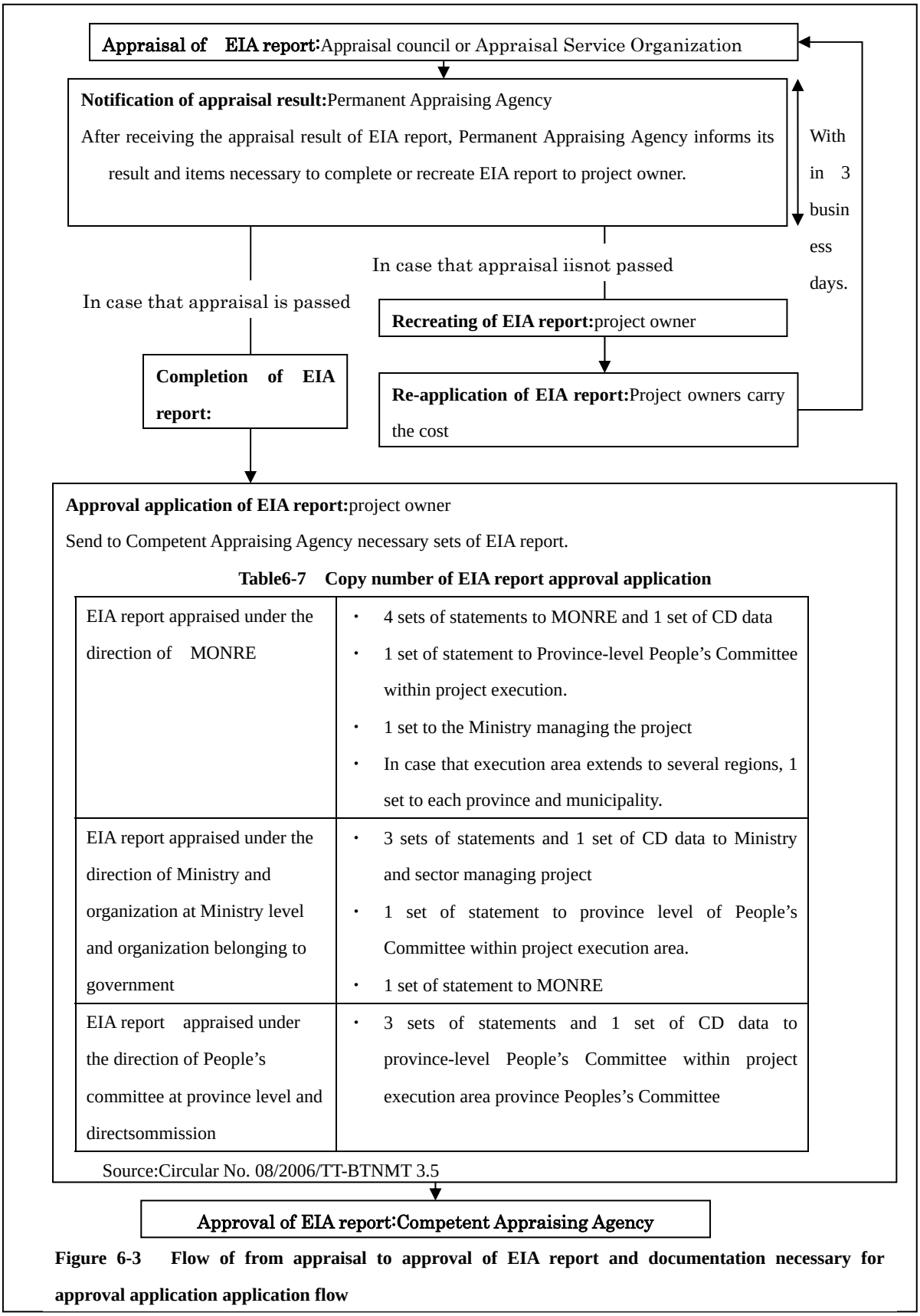


Table6-7 Copy number of EIA report approval application

EIA report appraised under the direction of MONRE	・ 4 sets of statements to MONRE and 1 set of CD data ・ 1 set of statement to Province-level People's Committee within project execution. ・ 1 set to the Ministry managing the project ・ In case that execution area extends to several regions, 1 set to each province and municipality.
EIA report appraised under the direction of Ministry and organization at Ministry level and organization belonging to government	・ 3 sets of statements and 1 set of CD data to Ministry and sector managing project ・ 1 set of statement to province level of People's Committee within project execution area. ・ 1 set of statement to MONRE
EIA report appraised under the direction of People's committee at province level and directsommission	・ 3 sets of statements and 1 set of CD data to province-level People's Committee within project execution area province Peoples's Committee

Source:Circular No. 08/2006/TT-BTNMT 3.5

Figure 6-3 Flow of from appraisal to approval of EIA report and documentation necessary for approval application application flow

(3)Approval of EIA report

After appraisal of EIA report, Permanent Appraising Agencys sends documents on appraisal result and resolution of establishing Appraisal Council to the chief of Competent Appraising Agency(Circular No. 08/2006/TT-BTNMT 3.6).

After that, Competent Appraising Agency in chrge of organizating Appraisal Council examines EIA report and decides its approval.Before approving, Competent Appraising Agency examines the dissents and comments from the project owner, local community, organization and indivisuals(Law on Environmental Protection Article 22). Before approving F/S, it is necessary to receive EIA report approval.

(4)Approval period of EIA report

Within 15 business days after Project owner submits the EIA report that meets requirements, the chief of the Competent Appraising Agency decides approval. In the case that the approval period exceeds 15 business days, it is necessary to notify its reasons to project owners in wiring or through Permanent Appraising Agency(Circular No. 08/2006/TT-BTNMT 3.6). In the case of non-approval, the clear reasons are notified to the project owner in writing.

(5) EIA supplemented statement

In the below either case, creating EIA supplemented statement is required.(Decree No.80/2006/ND-CP Article 13).

a. In the case of changing the place and dimension of project implementation, project capacities (places and dimensions of project implementation, building transportation volume, technology, product, funerals, effluent)
b. In the case that within 24 months after approving EIA report, the project is not executed.

(6)Public consultation

During the preparation of EIA report, opinions from People's Committee of administrative villages/districts or township and the representatives of communities, as well as adverse opinions against the project areas and environment conservation measures shall be collected and the contents shall be incorporated in EIA report (Law on Environmental Protection Article 20). The specific contents are as follows (Circular No. 08/2006/TT-BTNMT 3.2):

① The project implementer shall submit the overview of the project, environmental loads and the reduction measures to Fatherland Front in addition to the People's Committee at administrative village level where the project is to be implemented, and receive written opinions.
② Express consent or counterargument to the opinions from the above organizations. In case of counterarguments, explain the reasons and make required claims.

③Attach the copies of the opinion documents from the above organizations or other relate③d organizations as appendix to EIA report.

(7)Public hearing and public inspection systems

①Mechanism of public hearing and public inspection systems

The operator is obligated, other than the evaluation of EIA report by the Appraisal Service Organization or the Appraisal Council, to hear public's opinion during the implementation and review process of EIA, as prescribed in the new Law on Environmental Protection, Circular No.08/2006/TT-BTNMT and Decree No.80/2006/ND-CP. However, although these are obligatory, the method of procedure, penalties and other details have not been established at present, and MONRE intends to present the details in its Decision.

As for the stipulated items in the above Ordinance, Article 20 of the new Law on Environmental Protection stipulates that opinions from People's Committee of administrative villages/districts or township and the representatives of communities, as well as adverse opinions against the project areas and environment conservation measures need to be incorporated as one item in EIA report.

② Public inspection system for EIA report

Similar to the above public hearing, Decree No.80/2006/ND-CP stipulates the system of public inspection on EIA report. The Decree makes it obligatory to publish the following information in the place where the project is to be implemented.

- Overview of EIA report
- Type and amount of wastes
- Treatment technologies and facilities for the wastes
- Presentation of the status of waste treatment in comparison with the reference values
- Other conservation measures

However, details of publication period, method for receiving comments, and method for reflecting the comments in EIA report haven't been decided yet.

(8) Responsibility of the project implementer after obtaining approval of EIA report

The project implementer must strictly implement all the approved contents of EIA report and supplemental EIA reports, as well as meet the conditions presented at the time of approval. Furthermore, the implementer has the following responsibilities (Decree No.80/2006/ND-CP Article 14, Circular No. 08/2006/TT-BTNMT 4.1):

a. Submit a report, which clearly states that EIA report has been approved, to the People's Committee of the county where the project is to be implemented. Attach a copy of the approved Decision document.

b. In the actual field where the project is to be implemented, present the overview of EIA report, type and amount of wastes, treatment technologies and facilities for the wastes, presentation of the status of waste treatment in comparison with the reference values and other conservation measures.
c. Design, construction and installation of environmental treatment facilities
d. Based on the contents of EIA report, design, construct and install environmental treatment facilities according to the current investment and construction laws.
e. After the detailed design of environmental treatment facilities has been approved, send the construction/installation plan to the administrative agency which approved EIA report together with the detailed design of environmental treatment facilities. The administrative agency which approved EIA report supervises in reference to the documents.

(9) Responsibility of the administrative agency after the approval of EIA report

The administrative agency assumes the following responsibilities after the approval of EIA report (Decree No.80/2006/ND-CP Article 15).

a. In case of an organization of a Ministry or on the Ministry level, or subordinate to the Government, it shall communicate the policy for approving EIA report to the People's Committee of the Province where the project is to be implemented.
b. The Province-level People's Committee shall communicate the policy for approving EIA report and the EIA reports the organization of a Ministry or on the Ministry level, or subordinate to the Government sent to it the People's Committee of the county where the project is to be implemented.

(10)Disclosure of information

Vietnam doesn't have any comprehensive laws on the disclosure of information by the Government. However, the Government as a whole pursues disclosure of information by means of promoting the electronization of the Government and utilizing IT, such as on-line use of the administrative procedures, electronically presenting administrative information, optimizing the tasks/systems, improving the Governmental procurement in relation to information systems, and promoting information security etc. Specifically, each Ministry/agency and locality formulated five-year plan for IT utilization in each organization (Decree64/2007/ND-CP), based on Article 25 of Decree 64/2007/ND-CP on the IT utilization in the activities of national agencies, and providing information via its website. As a result, the central Ministries and agencies have all introduced their own websites except for the Ministry of Defense.

(11)Appraisal organization of SEA statement

Appraisal Council is in charge of SEA statement. As summarized in Table 6-8, respective Competent Appraising Agency has responsibilities in organizing Appraisal Council based on the kinds of the projects.

Table6-8 Institutions of organizing SEA statement

Kinds of projects	Competent Appraising Agency organizing Appraisal Council
Project approved by National Assembly, government or prime minister	MONRE
Projects managed by Ministries or organization at Ministry-level, organization belonging to government	Ministries or organization at ministry level, organization belonging to the government
Project managed by Province-level People's Committee, or People's Committee of the Province level	Province-level People's Committee

Source:Law on Environmental Protection Article 17

The composition of Appraisal Council is described in Table 6-9, more than half of the Appraisal Council members have to possede the expertises related to the project such as environment or other fields. Members involved directly in creating SEA statement are not allowed to participate in Appraisal Council.(Law on Environmental Protection Article 17)

Table6-9 Composition of Appraisal Council of SEA statement

Kinds of project	Composition of Appraisal Council
State project or project crossing provinces	Representative of administrative institution approving project(ministry), ministry level organization、organization belonging to government, Representative of Province-level People's Commmitte,specialist, representatives of other organization individuals
Project at province level	People's Committee at province level and specialized environmental protection organization, related departments and agencies, specialists, representatives of other organizations and individuals.

Source:Law on Environmental Protection Article 17

(12)Appraisal application of SEA sttement

For appraisal of application of SEA statement, project owner has to send application document to Competent Appraising Agency described in Table 6-8. For appraisal application of SEA statement, the documents described in Table 6-10 are required.(Decree No. 80/2006/ND-CP Article 9,Circular No. 08/2006/TT-BTNMT 2.2).

Table 6-10 Documents required for appraisal application of SEA statement

1. Appraisal application form by project owner	1 set
2. SEA statement	7sets
3. Strategy of implementing SEA／Draft of plan	1set

Source:Circular No. 08/2006/TT-BTNMT 2.2

(13)Appraisal of SEA statement

After accepting required document for SEA statement appraisal, Permanent Appraising Agenc conducts the following procedures(Circular No.80/2006/TT-BTNMT 2.3).

- If documents have defects:Within 5 business days, notify defect reasons to project owner in writing, report to the Competent Appraising Agency in order to return documents(Circular No. 08/2006/TT-BTNMT 2.3).
- If documnents have no defects:Do preparation of establishing Appraisal Council.Following the compositin of Appraisal Council indicated in chart 2-16, Permanent Appraising Agency examines the numbers of compositin members and notify the decided contetnts to Competent Appraising Agency. The number of composition members must be beyond 7.

Appraisal result of SEA statement is expressed as minutes which include Appraisal Council progress and results, signs of chairperson and clerical officer. MONRE reports appraisal results and minutes to the Prime Minister and the National Assembly. On the other hand, specialized organization of environmental protection at the Ministry level, institutions at Ministry level, institutions belonging to the government, environmental protection organization of People's Committee at province/municipality-level, report appraisal results and minutes to the Ministry having approval authorities of the project or chief of the institution.(Decree No.80/2006/ND-CP Article 10).

(14)Appraisal period of SEA statement

The appraisal period of SEA statement is as follows in the below Table 6-11. In the case SEA statement is not approved and appraisal is to be executed again, the same period is necessary.

Table 6-11 Appraisal period of SEA statement

Kinds of project	Appraisal period
Projects under the management of Prime Minister, government and National Assembly Projects under between departments or provinces	Within 45 business days after receiving documents free of flaw
The projects except for ones described above	Within 30 business days after receiving documents free of flaw

Source:Decree No.80/2006/ND-CP Article 12

(15)Contents of the Environment Protection Commitment

As for independent businesses and services which have no obligation to prepare EIA report (projects that are not included in the category of projects that need to prepare EIA report), the project implementer shall prepare an Environment Protection Commitment. Only after Environment Protection Commitment has been registered, can they begin production and business activities (Law on Environmental Protection Article 26).

(16)Roles of each administrative level for appraisal, approval and registration of EIA report, SEA statement and Environment Protection Commitment

The roles of each department in MORNE and in administrative levels for appraisal, approval and registration of EIA report, SEA statement and Environment Protection Commitment are as follows in Table6-12.[14]

Table 6-12 The roles of each department in each administrative level

Administrative level	Name of department	Role
MONRE	Department of Environmental Impact Appraisement and Assessment	It is in charge of Permanent Appraising Agency(It supports Competent Appraising Agency and conducts appraisal of EIA report and SEA statement. In cooperation with the related institutions, it manages and monitors all activities related to SEA and EIA)

[14] Except for this, regulations on EIA and SEAwhich were issued after 2007 are as follows
Circular 218/2010/TT-BTC which stipulates the standard, collectin system, payment and use management of appraisal fee of EIA report.
Circular 19/2007/QD-BTNMT which stipulates appraisal service activity and conditions of EIA.

	Bureau of Preserving the Environment	It monitors the implementation of the approved EIA report, EIA supplemented statement and the conditions imposed at the time of approval in cooperation with Department of Environmental Impact Appraisement and Assessment or related institutions.
	Inspectors of MONRE	It monitors and penalizes violations in regard to SEA and EIA issues in cooperation with Department of Environmental Impact Appraisement and Assessment or Bureau of preserving the environment and related institutions.
Province level	Department of Natural Resource and Environment	It is in charge of Permanent Appraising Agency at province level People's Committee(It supports Competent Appraising Agency and manages and monitors implementation of EIA report and EIA supplemented statement.)
District level	Division of Natural Resource and Environment or specialized department for environmental protection	It supports district level People's Committee and conducts appraisal and registration of Environment Protection Commitment.
Administrative Commune level	Staff and department in charge of protection of natural resources and environment	It supports administrative-commune-level People's Committee and conducts appraisal and registration of Environment Protection Commitment. Also, it manages and monitors its execution.

Source:Circular No. 08/2006/TT-BTNMT 6.1

(16)The role of the respective levels of administrative agencies in the evaluation, approval and registration of EIA/SEA reports and the Environment Protection Commitment.

The role of the respective levels of MONRE and other administrative agencies in the evaluation, approval and registration of EIA/SEA reports and the Environment Protection Commitment is as shown in Table 6-13. In addition, the following laws were enacted after 2007 in relation to EIA and SEA:

- Circular 218/2010/TT-BTC, which stipulates the standards, collecting system, payment and management of the use of the review fee of environment impact assessment reports.
- Circular 19/2007/QD-BTNMT, which stipulates the review service activity and conditions of environment impact assessment reports.

Table 6-13 Role of the respective levels of administrative agencies

Administrative level	Name of division	Roles
MONRE	Department of Environmental Impact Appraisement and Assessment	Assumes the role of the Permanent Appraising Agency (support the assessment organization in charge and evaluates EIA/SEA reports. Manages/supervises all activities related to SEA and EIA in cooperation with relevant agencies)
	Bureau of Preserving the Environment	Supervises EIA reports and supplemental EIA reports as well as the conditions presented in the process of approval, in cooperation with the Department of Environmental Impact Appraisement and Assessment and other relevant agencies.
	Inspectors of MONRE	Supervises the violations related to SEA and EIA and penalizes in cooperation with the Department of Environmental Impact Appraisement and Assessment ヘ Bureau of preserving the environment.
Provincial level	Department of Natural Resource and Environment	Assumes the role of the Permanent Appraising Agency in the Provincial level People's Committee (support the assessment organization in charge and manages/supervises all activities related to SEA and EIA)
County level	Division of Natural Resource and Environment, or dedicated Division for environment conservation	Supports the county level People's Committee, and evaluates and registers the Environment Protection Commitment.
Administrative village level	Divisions and staff responsible for the conservation of natural resources and the environment	Supports the administrative village level People's Committee and evaluates and registers the Environment Protection Commitment, as well as manages/supervises the implementation.

Source: Circular No. 08/2006/TT-BTNMT 6.1

(17)About the Environment Management Plan (EMP)

The Environment Management Plan (EMP) plays an important role in EIA report of category A projects, and in Vietnam, the plan was prepared for the North-South Expressway Construction Project (between Ben Luc and Long Thanh), Phan Ri-Phan Thiet irrigation project, a survey project on the improvement of the Sanitary Environment in Danang City, Vietnam etc.

6.4 Information disclosure and Monitoring

(1)Overview of Environmental Monitoring

①Monitoring program, Responsible organizations, Disclosure methods

Currently, by the following 4 programs, the environmental states are being monitored. The organizations with responsibilities of monitoring are described in Table 6-14.

Table 6-14 Programs of environmental monitoring and its responsible organizations

Program of environmental monitoring	Execution content	Responsible organization
Monitoring at State level	d. Regular acquiring of analysis data and prediction of land, water and air pollution e. Monitoring amount and composition changing natural resources f. Monitoring ecosystem and organism species, quality ,quantity and composition change of gene resources	MONRE
Monitoring environmental impacts caused by activities of sector or local	a. Monitoring amount, current state and change of source affecting negatively to the environment b. Monitoring amount, composition and change of hazardous degree of solid, gassy and liquids wastes c. Specifying and appraisal of impacts to the environment caused by crossing boarders.	Ministry and Institution at the Ministry level, and governmental institution
Monitoring environmental state of at province level	a. Regular acquiring of analysis data and prediction of land, water and air pollution b. Monitoring amount and composition change of natural resources c. Monitoring ecosystem and organism species, quality, quantity and composition change of gene resources	省 people's Committee
monitoring environmental impact caused by Production or business, service industry, concentrated production, business and service zones	a. Monitoring amount, current state and change of source affecting negatively to the environment b. Monitoring amount, composition and change of hazardous degree of solid, gassy and liquids wastes c. Specifying and appraisal of impacts to the environment caused by crossing boarders	Persons in charge of concentrated production, business and service zones

Source:Law on Environmental Protection, Article 94 and 97

The information collected by these environmental monitoring programs are edited as environmental report.

②Environmental Monitoring System

When conducting environmental monitoring, the following standards must be satisfied(Law on Environmental Protection Article 95).

Preparation of facilities for acquiring and evaluating of data.

Preparation of experimental institution for analyzing of acquired information and analyzing and managing of data.

Implementation of monitoring sufficiently for environmental management and protection.

Only individuals having enough expertise and organizations having technical facilities engage in implementing environmental monitoring.

When planning environmental monitoring, the followings must be examined.(Law on Environmental Protection Article 96)

a. Consideration and decision of monitoring subjects and data necessary for environmental protection.
b. Decision of number, dimension, capacity of facilities for acquiring data.
c. Consideration of equipment system when implementing environmental monitoring.
d. Consideration of monitoring schedule and necessary materials.
e. Education of human resources.

(3) Reporting and Disclosure of Environmental information

Organization and individuals engaging in management of concentrated production, business and service zones which require creating EIA report have to report related environmental information to specialized organization for province-level environmental protection. Other production, business, and service industry provide persons in charge of environmental protection specialized organization at district-level or administrative commune level with environmental information. Environmental protection specialized organizations at all level report local environmental information to its above situated organization. In addition, they have to issue major information on a regular basis or disclose based on requests. Also, Ministries and Ministry level organization, governmental organization and People's Committees at all levels provide environmental information managed by each organization with MORNE and Bureau of Statistics at central level on a regular basis.(Law on Environmental Protection Article 103)

The following environmental information a-f is subjected of information disclosure, except for national secret. Disclosure method has to be easy for users to view. Also organizations which disclose information are responsible for its accuracy, reliability and objectivity(Law on Environmental Protection Article 104).

a. EIA report and its approved contents, and responses plan for requirements imposed when approved
b. Willing statement for implementing environmental protection
c. List of sources and kinds of waste that may affect health negatively
d. Areas severely polluted, ones with severe environmental deterioration, ones with potential environmental problems
e. Plan of collecting, recycling and treating wastes
f. Current states of all country and province level, environmental problems by sector

Organizations and individuals in charge of management of concentrated production, business and service zones, owners and of concentrated production, business and service zones and specialized organization for environmental protection have a responsibility to disclose information on local environment or environmental protection measures to local resident or workers. Environmental information is provided by holding meetings, notifying or writing. Also in case that there are requests from relevant organization or administrative organization in charge of environmental protection request, complaints or accusations from related organizations or individuals or trials, requested organizations have to implement environmental dialogue(Law on Environmental Protection Article 105).

(4)Specialized Organization for Environmental Protection

Administrative organizations at all level and enterprises have to decide Specialized Agencies or Officials in Charge of Environmental Protection dealing with environmental protection.

(5)Field Inspection and Penalties and Responsibilities of violators

①Environmental inspection

In production, business and service industry, environmental protection inspection is carried out maximally twice a year. However in case that there are violations or signs of violations to Law On Environmental Protection, its frequencies may increase. Inspectors wear uniform and badge, use tools necessary for inspection.(Law on Environmental Protection Article 125,126)Related organizations have the following responsibilities in regard to inspection.

6.5 Analysis of Accordance and Gap among Local Legal System, new Environmental Guideline and Safeguard Policy of World Bank

The following Table 6-15 describes about the comparison of Japan International Cooperation Agency Guidelines for Environmental and Social Considerations (hereinafter reffered as to New Environmental Guidelines)proclaimed in April 2010, Safeguards of the World Bank and related laws in Vietnam about EIA. There is not a big difference in regard to the system.

Table 6-15 Comparison of New Environmental Guidelines/Safeguards of the World Bank and related laws in Vietnam about EIA

	Response policy of comprising New Environmental Guidelines and Safeguard policy of the World Bank	EIA related laws in Vietnam	Main diffenent point
Procedure system	It is confirmed if the projects comply with the law or standards related to the environment in the central and local goverments of host countries. It is also confirmed that the projects do not deviate significantly from the World Bank's Safeguard Policies.	Environmental Impact Asessment system exists, which DONRE has formulated.(Decree NO.80/2006/ND-CP)	(There is not difference in particular.)
Language of Environmental Assessment Statement	Environmental Assessment Statements (their names may be different depending on systems) must be written in official language or language used widely in coutries where the projects are implemented. Also, when explanating, document must be formulated in languages and forms that are understandable to local people.	It is written in Vietnamese or English.(Circular No.08/2006/TT-BTNMT)	(There is not difference in particular.)
Information disclosure of environmental and social considerations	In principle, host countries etc. disclose information about the environmental and social considerations of their projects. As needed, assist host countries etc. Encourage project proponents etc. to disclose and present information about environmental and social considerations to local stakeholders. So that information on environmentaland social considerations be made public and provided	It is required to receive opinions of People's committee of commune, ward and township during formlating EIA report and they must be included in EIA report (Law on Environment Protection Article 20) Public hearing must be held and in addition, EIA report must be disclosed(Decree NO.80/2006/ND-CP). However details of disclosure procedure such as disclosure period, or the way of receiving comments are not decided.	Under the domestic legal system, detailed process of disclosing EIA report has not been decided.
Access/Copy	Environmental Assessment Statements are disclosed in countries where projects are implemented to local residents as well. It is required htat they are accessible by stakeholders such as local people and permitted for copying.	EIA report is disclosed on project sites (Circular No.08/2006/TT-BTNMT)	(There is not a difference in particular.)

	Response policy of comprising New Environmental Guidelines and Safeguard policy of the World Bank	EIA related laws in Vietnam	Main diffenent point
Consultaion with stakeholoders	In principle, host countries consult with local stakeholders as much as widely in a rational range, assist host countries as needed. In the case of Category A projects, encourage host countries to consult with local stakeholders about their understanding of development needs, the likely adverse impacts on the environment and society, and the analysis of alternatives at an early stage of the project.	Residents are ble to participate in the scoping and EIA report review steps. As for all projects of the State and in Category A, at the scoping step, consultation with stakeholders incouding residents is required. Also, at the EIA report review process, public hearing has to be held. (Circular No.08/2006/TT-BTNMT)	Currently, procedures, system of sanctions etc. are not fixed.
Disclosure of monitoring results	Confirm monitoring results through host countries to confirm if host countries etc. implement environmental and social considerations. Host countries are required to report information needed to confirm monitoring results in an appropriate manner such as documentations. Also, it is required to disclose the monitoring results conducted by host countries etc. on the website to the extent that they are made public in host countries. on Website to the extent that they are made public.	Monitoring results are edited in the form of white paper, and the State stores them as archive. (At 3 levels of province , local and State)(Circular No.08/2006/TT-BTNMT)	(There is not a difference in particular.)

Source:New Environmental Guidelines, World Bank Safeguard policy, Related laws in Vietnam

Chapter 7 Legal System and Procedure for Land Acquisition and Involuntary Resettlement

7.1 Relevant Legal System

(1)Overview of Land Law and Background of Amending

Land Law stipulates clearly state's land possession and stipulates land management, application, registration, issuing certification etc.of land use right. Regulations related to land acquisition are included in land acquisition Decree, Circular 116/2004/TT-BTC, Circular 69/2006/TT-BTC. Also, calculation method of land cost is stipulated in Decree 188/2004/ND-CP and Circular 114/2004/TT-BTC.

Land Law(15 Oct.1993/1998/2003) is a law that stipulates land rights related-issues and relevant procedures comprehensively, and situated above Land Acquisition Decree. The law enacted in 1993 was amended in 2003, enforced from July 1, 2004, by which, legal provision reform related to land issues was implemented including integrated land management by the State, restriction and responsibilities, promotion of industrialization and modernization of the land.

(2)State's Rights to Land

The Constitution 1980 stipulates land nationalization and land is comprehensively possessed by the State. In addition, Land Law stipulates that in Vietnam land is possessed by People and managed by the State as representative property. Concretely, the State possesses Right of Disposal of land.(Land Law Article 5)。

(3)Kinds of Land

Land Law stipulates the land is divided into the following 3 categories, "agricultural land", "non-agricultural land", "land not used".

(4)Regulations on Land Acquisition, Involuntary Resettlement

Regulations related to land acquisition, compensation system and people resettlement in Vietnam are described below. Some parts of these regulations lapsed or were amended. For details, it needs to verify the current state of each regulation.

1. The 1993 Land Law Amended in 1998, 2001 and 2003
2. Decree 181/2004/ND-CP of Oct. 29,2004 - Govermental resolution on Land Law implementation
3. Decree 197/2004/ND-CP of December 3, 2004 on compensation, support and resettlement when land is recovered by the State - Govermental resolution on land acquisition decree
4. Circular 116/2004/TT-BTC of December 7, 2004 guiding the implementation of Government's Decree 197/2004/ND-CP of December 3, 2004 – Circular of the Ministry of Finance on the implementation of land acquisition decree

5. Circular 69/2006/TT-BTC of August 2, 2006, amending and supplementing the Finance Ministry's Circular No.116/2004/TT-BTC of December 7, 2004 - Circular of the Ministry of Finance amending and supplementing the above notification
6. Decree 188/2004/ND-CP of Nov. 16, 2004 – Govermental resolution on land price calculation method and land price
7. Circular 114/2004/TT-BTC of Nov. 26, 2004 – Circular of the Ministry of Finance on implementation of land calculation method promulgation
8. Decree No.69/2009/ND-CP of August 13, 2009 'Additional Regulations on Land Use Plan, Land Price, Land Acquisition, Compensation, Assistance and Resettlement' "

7.2 Procedure of Land Acquisition and Involuntary Resettlement

(1) Premises for Land Acquisition

People have to acquire Land Use Right Certificate (LURC) to have Land Use Right. Land Use Right Certificate is issued by MORNE for all kinds of land of each land compartment based on the state integrated system. It registers also the property of asset pertaining to land and is written in the certificate.

(2) Overview of the process for assigning land use rights (Article 127, Land Act)

The basic principles of the process for assigning land use rights are as shown below. The processes for new/existing land users will be described separately in the following sections.

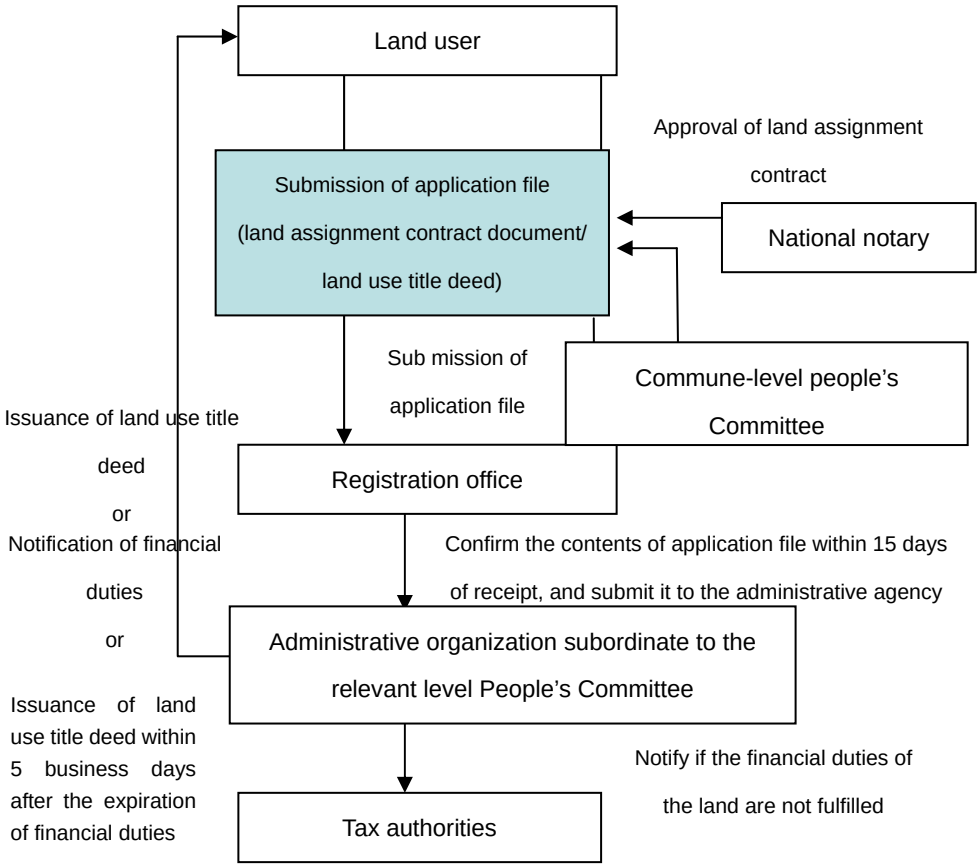


Figure7-1 A diagrammic illustration of the land use rights assignment procedure

Source: created from Article 127, Land Act

(3)Main Amended Points of Land Acquisition Decree

The amended points of land acquisition decree in 2004 are described below.

a)It was clearly stipulated the following things such as compensation and its eligibility criteria for people resettlement and compensated subjects range.

b)It was stipulated that the State are responsible for compensation, assistance, resettlement of people, land leveling accompanied with projects.

c)It was stipulated that compensation is executed in accordance with the real land use. For example, if agricultural land and residential land coexist, in addition to compensation for agricultural land, assistance eligibility for 20-50% of land cost of adjacent residential land.(Decree 197 10)

d)Promotion of Land Funds

e)Responsibilities and authorities related to creating people resettlement plan, compensation, implementation authorities were transferred from the People's Committee at province level to the ones of at district level

Then, under "Decree No.69 'Additional Regulations on Land Use Plan, Land Price, Land Acquisition, Comopensation, Assistance and Resettlement' issued on August 13, 2009, assistance for displaced people related issue is amended from Decree 197.

(4)Policy and Eligibility for Compensation(Decree 69 Article 14)

They are as the following table.

Table7-1 Requirements for compensation eligibility

① Holders of Land use right certificate
② Holders of Land assignment decision
③ Those using land continuously and holding certificate that indicates that there is not land dispute from People's Committee at commune level, and document related to land possession (refer to the next chart)
④ Household and individuals using land, who do not complete the procedures of transfer of land use right at the time land acquisition is decided, however, hold one of the documents that described in the above 3 items.
⑤ Household and individuals using land, who have eternal registration, engage in directly agriculture in mountain areas or islands, forest industry, aquaculture, salt industry, under difficult socio-economic conditions, have certificate from People's Committee at commune level that there is not a land dispute and the land use is stable.
⑥ Household and individuals using land, who do not have the above required documents, use continuously land before October 15, 1993, and hold certificate that proves that there is not land dispute, which is issued by People's Committee at commune level.
⑦ Household and individual approved by judgment of lapsed land use and People's court decision , decision of the court by the decision of the court institution, and the decision of legal institution of land dispute treatment
⑧ Household and individuals using land, who do not have required documents, use land complying with the plan by the time of land acquisition prior to October 15, 1993, announcement by legal institution is made, not invade roads for protecting project, not occupying land illegally, have certificate issued by commune-level People's Committee that proves that there is not land dispute.
⑨ Household or individuals using land that is subjects of the State's management which would come to be managed by the State land policy, however which is not managed by the State and which households and indivisuals use.
⑩ Communal house, temple, pagoda, shrine, hall adoring ancestors, shrine for family adoration, land is used on a daily basis, having certificate issued by commune-level People's Committee that there is not land disputing.
⑪ organization using land as below In the case that land is earmarked to the State, land use costs are paid except from the State budget. ; Or in the case that land is transferred by leagal user and payment is done except for the State budget. In the case that used land is possessed legally by household or individuals.

(5) Supportive measures (Decree 69, Sections 17-23)

The foremost achievement of the enactment of Decree 69 may be the reinforcement of supports for the people selected for resettlement. According to PMU (Project Management Unit) 85 under the Vietnamese Ministry of Transport (MOCI), the new Decree has been publicized on TV and newspaper

etc., and has permeated among the citizens in full measure (September 8, 2009, at the PMU85 Office). The overview of Decree 69 is as follows:

a) As for the compensation to the people selected for resettlement, while Decree 197 clearly specified the amount of maximum support, Decree 69 has eliminated the entry (Decree 69, Section 18). Instead, Decree 69, Section 22 adds items on households and individuals directly engaged in agriculture, and clearly states the amount of support which is equivalent to 1.5 to 5-fold of the value of expropriated farmland.
b) As for supports for the stabilization of living and production, while Decree 197 stipulated an equal support for those households and individuals, not less than 30% of whose land was expropriated in a lump sum, Decree 69 divided the expropriation rate into two parts : 30-70% and not less than 70%, as well as expanded the support period to not less than two-fold (Decree 69, Section 20 (1)).
c) Among the newly introduced items by Decree 69, in case where an economic organization or a registered production/commercial household stops production for the State to expropriate the land, it can receive a compensation at a maximum of 30% of the yearly averaged income after taxation over the past 3 years. (Section 20(2): Assistance for Life and Production Stability)
d) As for the support for career change and job generation, While Decree 197 targeted the households and individuals 30% of whose land was expropriated, Decree 69 targets all the households and individuals whose land was expropriated (Decree 69, Section 22(1)).
e) In case where the household or individual engaged in agriculture had their farmland expropriated, and no alternate land has been supplied, a subsidy equivalent to 1.5 to 5-fold of the value of the expropriated farmland shall be paid (Section 22(1): Assistance to Career Change and Job Generation)

(6) Compensation process and duties

Responsibilities for the compensation process of govermental organizations or related parties are described in the below table.

Table 7-2 Responsibilities for compensation process of each institution

Compensation process	Organization in charge
Entirety	It is stipulated that the State organizes land acquisition, compensation, resettlement and the State has a responsibility in the entirety. (Decree197 Article 3)Practical business is conducted by People's committees at province, district, commune levels.
Fund	Project owner, Investor
Plan –making	People's committee at province level and municipality direct controlling decide compensation plan and amount, etc.(Decree 197 Article 43).
Plan implementation	People's Committee at district and commune levels provide residents with information,coordinate practical business with committees of compensation, assistance, resettlement, departments of relevant governmental organizations, investors etc.(Decree 197 Article 43).

Monitoring	Monitoring is not clearly stipulated. However it is stipulated that the Ministry of Finance leads the implementation of compensation, assistance and resettlement policies etc. and check them. The Ministry of Plan Investment has responsibilities in making resettlement plan, leading of implementation and investigation(Decree197 Article 46). As for claims of residents, they are handled complying with Land Law and Decree181(Decree197 Article 49), People's committees at District level have responsibilities in coordination(Decree197 Article 43).

Source:Created from Decree197

(7)Compensation Dimension (Decree197 Article5)

New land acquisition decree stipulates the following 4 kinds of subjects that are compensated and assisted when land is acquired by the State:

＜Compensated subjects＞

- Land acquired by projects
- Costs invested for buildings and relevant land within sites acquired by projects

＜Assisted subjects＞

- Restoring livelihood for resettlement, finding a new employment and its training and other assistance measures
- Assistance for settlement and for restoring living at resettlement places

The above acquisition decree includes also the stipulations about the subjects not covered by compensation,(Decree197 Article 1 Clause 3).It is stipulated that in principle, the buildings and lands that the State possesses or has acquired are not compensated. Also, taking into consideration of the cases of previous projects, the land acquisition decree also stipulates about the handling in case that stipulations of Vietnam domestic law and requirements of international aid organizations etc are different t for ODA projects etc.(Decree197 Article 1Clause 2.According to the above Article, the Ministry in charge of the relevant project has to inform to the Prime Minister before ratification of international treaty, the Prime Minister decides about its dealing. If the Vietnam domestic law and international treaty are different, the international treaty is given priorities.

In case that land of person whose liability for their land is not satisfied, its liability amount are subtracted from compensation and assistance amounts.

(8)Compensation Payment Method(Decree Article10)

Person affected by land acquisition is given a new land of the same purpose. In case that lands to provide are insufficient, they receive the same amount of compensation as the price of land use right at the time land acquisition is decided. Also, in case that compensations are new land and housing and differences caused, they are paid by money.

(9)Calculation Method of Compensation Cost(Decree197 Article 9)

Compensation Calculation is different between land and buildings. Compensation as for land is calculated based on the land prices published by Province-level People's Committee on January 1 every year. On the other hand, comopensation for buildings are calculated based on lists of the new

house construction prices issued by People's Committees of each Province (Land Law, 69/2009/ND-CP Artcile 24). Compensation is calculated based on land prices for its purpose when land acquisition is decided.[18]

In that case, it is necessary to testify invested costs to land (part unused, land use tax paid in advance, reclamation cost, land amelioration cost) by sufficient relevant documentations, evidential documents, facts (invoices etc.).In case that non-agricultural land or residential land is acquired and compensation is paid as non-agricultural land or residential land, reclamation costs and land amelioration costs are not compensated.(Circular 116/2004/TT-BTC, Part II 3.2).

In case that compensation payment is delayed, the compensation amount is adjusted. In case that the payment is delayed due to the governmental side problem and land price at the time of payment is higher than the compensation at the time of publish, or land price at the time of payment is higher than one at the time of publish, the higher compensation is always paid.

The compensation standards in relation to land expropriation are summarized in the Table below:

Table 7-3 Compensation standards by type of land

Type of land	Target of compensation	Recipient of compensation
Farmland		
Farmland[5](in case where new land is provided for the same land use)	Area shall be decided according to the actual regional land fund. The maximum area of the land to be provided ＝the area of the expropriated land or the granting limitation on the regional farmland. If no land is available, the value shall be compensated by money based on the land price of the farmland of the same category in the relevant region (Part II 4.2)	Household/individual
Farmland (the value of the land to be provided is lower than that of the expropriated land)	Value of the land－difference shall be compensated by money (Part II 4.2.a)	Household/individual
Farmland (the area of the land to be provided is smaller than that of the expropriated land)	Value of the land－difference shall be compensated by money (Part II 4.2.a)	Household/individual
Farmland (the value of the land to be provided is higher than that of the expropriated land)	Provide the land with the same area as the expropriated land (Part II 4.2.b)	Household/individual
Farmland mixed with residential areas, garden plots adjacent to residential areas or the land surrounding ponds	Subsidy of 20-50% of the compensation amount + residential land price, based on the price of farmland belonging to the same category. Provided that it must be a land in the Population Area. As for garden plots and ponds adjacent to the living place of the Population Area, at least one part of the land area must be a living place of the Population Area. Specific support level is	Household/individual

[18] It is not the land purpose for which after land acquisition. In addition, in the case that land purposes do not comply with law, the land is not compensated.(Circular 116/2004/TT-BTC, Part II 3.1)

Type of land	Target of compensation	Recipient of compensation
	decided by the provincial level People's Committee in consultation with relevant branches based on the proposals by the Provincial and municipal level financial service (Part II 4.3)	
Farmlands possessed by the State on a contract basis	Compensation at the investment cost of the land ＋other supports (Part II 4.4)	Household/individual, who makes a living by being directly engaged in agriculture
Forest land which is categorized as production forest and commercial forest and possessed by the State on a contract basis	Compensation for the land (provided that the land is assigned for continuous use on a long-term lease). In case of no long-term lease or continuous use, only the investment cost shall be compensated. (Part II 4.5)	Household/individual
Protection forest, special-use forest and agricultural forest, which is categorized as protection forest and special-use forest	Compensation at the afforestation cost. The compensation level shall be co-production level, stipulated by Joint Circular 80/2003/TTLT-BNN-BTC(Sept.03.2003). (Part II 4.5)	Household/individual
Residential land		
Residential land[6]	Compensation amount shall be calculated based on the price of the newly provided living place and the price of the previously used living place. (Part II 5.2)	Household/individual
Residential land excluded from the target of compensation	In case where the household/individual doesn't meet the conditions for compensation and doesn't have other houses, after consideration of the local situation, the Provincial level People's Committee assigns new living place in localities, and it assigns new living place or sell/leases a new house in urban areas. (Part II 6)	Household/individual
Residential land whose ownership is not clear	The Provincial level People's Committee receives the guarantee money equivalent to the general land use rights and assigns it to co-owners. (Part II 7)	Organization of co-owners/household/individual
Building, upper structure		
Building, upper structure	Decided based on the list of construction prices of new houses announced by the respective Provincial or municipality's People's Committee. (Land Act, 69/2009/ND-CP, Article 24)	Owner of the relevant building
Safety passage		
Land within safety passage In case of changing land use (residential→non-agricultural/farmland)	In case where the intended use is changed from residential to non-agricultural (other than residential), the compensation amount shall be the difference between the prices of residential and non-agricultural. Or in case where it is changed into agricultural land, the compensation amount shall be the difference between the prices of residential land and farmland. (Part II 8.1.a)	Owner of the relevant land
Land within safety passage In case of changing land use (Non-agricultural→farmland)	In case where the intended use is changed from non-agricultural (other than residential) to farmland, the compensation amount shall be the difference between the prices of non-agricultural land and agricultural land. (Part II.8.1.b)	Owner of the relevant land
Land within safety passage[7]	In case where the intended use was not changed but the	Owner of the relevant land

[6] The definition of residential land includes residences/dwellings conforming to the zoning, or the land for building structures related to life, as well as gardens and ponds etc. within the same parcel of land. Please refer to Articles 50, 83, 84 and 87 of the Land Act of 2003, and Articles 45, 46, 48, 79 and 80 of Decree181/2004/ND-CP for the identification of residential land. In addition, determination of residential land is made on the basis of the guidance of the Natural Resource and Environment Agency.

Type of land	Target of compensation	Recipient of compensation
In case of no changing of land use	land use is changed, the actual loss shall be compensated. The compensation level shall be the land area limited in terms of land use × the price difference between before issuance of Decision of land expropriation and after the issuance. Details of the compensated amount shall be decided by the Provincial level People's Committee. (Part II.8.2)	
Land within safety passage	In case where the safety passage accounts for not less than 70% of the land used by a single land owner by constructing a house or structures, the compensation shall be paid for the remaining land according to 8.1 and 8.2 of the same Article. (Part II.8.3)	Owner of the relevant land
Land used by the organization		
The land at large used by the organization	No compensation for land. Compensation shall be made for a specified amount of cost paid for other than the national budget[8]. In case of transfer, the owner shall have the right to receive the support for the implementation of investment projects. The compensation level shall be within the amount paid when the expropriated land is assigned/leased. The compensated amount can be used for investing in the land in the newly settled area. The surplus amount of compensation shall be returned to the national budget. (in cases where administrative organization, non-commercial bodies, and state-owned companies which have been assigned with land or leasing the land will make payment to the national budget or receive an exemption from land use fees.)(Part II.9.1)	Organization
The land at large used by the organization	The other organizations than those described above (Part II.9.1) shall receive support for resettlement according to the plan which the Prime Minister has stipulated. (Part II.9.2)	Organization

(12) Policy on assistance for life and production stability

① Support for relocation (Decree 197 Article 27, later revised by Decree 69, Article 18)

The household or individual who needs relocation due to land expropriation shall receive the relocation cost (revised by Decree 69).

In case where the organization, which meets the conditions for compensation for land or assets, relocates itself, it shall receive compensation for all the actual relocation, dismantlement and installation costs.

[7] The land for construction projects accompanying safety passage includes the land for traffic systems, irrigation, embankment, water supply, water discharge, wastewater treatment, electricity/oil/gas supply systems, communication systems and the above safety passages. (Land Act, Article 97)

[8] The land for construction projects accompanying safety passage includes the land for traffic systems, irrigation, embankment, water supply, water discharge, wastewater treatment, electricity/oil/gas supply systems, communication systems and the above safety passages. (Land Act, Article 97)

In case of an individual whose land has been expropriated and who has no other houses to live in, he/she has the right to have a temporary living place arranged while a new house is being constructed, or receive the money for renting a living place. Specific support period and support level shall be decided by the Provincial level People's Committee.

② Support for living and production (Decree 197, Article 28, later revised by Decree 69, Article 20 (1) and (2))

1) In case of a household or an individual who is directly engaged in agriculture and 30-70% of whose land has been expropriated by the State, it/he/she shall receive supports for income restoration for 6 months if it/he/she is not to be relocated, and for 12 months if it/he/she is to be relocated. In case of a new location where social/economic situation is not favorable, the support shall be granted for a maximum of 24 months. The level of money grants shall be an average price of 30kg of rice in each locality/person/month.

2) In case of a household or an individual who is directly engaged in agriculture and not less than 70% of the land has been expropriated by the State, it/he/she shall receive supports for income restoration for 12 months if it/he/she is not to be relocated, and for 24 months if it/he/she is to be relocated. In case of a new location where social/economic situation is not favorable, the support shall be granted for a maximum of 36 months. The level of money grants shall be an average price of 30kg of rice in each locality/person/month.

③ Support for career change/job generation (Decree 197, Article 29, later revised by Decree 69, Article 22)

In case where the household or individual who is directly engaged in agriculture has had its/his/her farmland expropriated by the State, but no alternate land has been granted, one of the following assistance shall be given to it/him/her.

・A subsidy equivalent to 1.5 to 5-fold of the value of the expropriated farmland/one site for residence/one of a housing complex/one site for non-agricultural production management

④ Support for those living in non-state-owned houses (Decree 197, Article 30)

In case of a household or an individual living in non-state-owned houses and whose house has been dismantled due to the State's expropriation, it/he/she shall receive support at the level specified in Decree197, Article 27 (1) on the support for resettlement, if it/he/she is to be relocated. Based on each local situation, the Provincial level People's Committee shall grant Support for living and production.

(13) Matters related to the procedure for resettlement plan

Based on the local socio-economic development plans and land use plans, the Provincial level People's Committee prepares and implements the resettlement plan. Formulation of the plan and construction of the new location for resettlement shall be in accordance with the latest rules on investment and construction management. (Decree 197, Article 33)

① The upper limit of land assignment in the new location for resettlement (in case of farmland)(Circular 116 Part II)

In principle, the assignment of the new location for resettlement shall be decided by the land fund of the relevant locality of the new location. The land to be assigned in the new location shall not surpass the area of the previous location and the upper limit of land assignment in the new locality.

②Calculation of the value of land use right (Decree188/2004/ND-CP and Cirucular114/2004/TT-BTC)

The amount of land use tax and the compensation etc. at the time of land expropriation shall be calculated by the locality based on the land price determined by the Provincial level People's Committee according to the regulations of Decree188/2004/ND-CP and Cirucular114/2004/TT-BTC. There are two calculation methods (Direct Comparison method and Income-Based method) of the basic land price as follows:

a) Direct Comparison method: Determine the prices of a land area and a land category in comparison with the actual price levels at the time of transferring the rights of land which has equivalent category, area, land area, class, urban center grade, road grade and location.

b) Income-Based method: Calculate the land price based on the index of yearly average saving rate of a national bank having the highest interest rate and highest yearly net profit per unit of land area in the relevant region on a Vietnam Dong basis (until the time of land price calculation).

(14) Support for living and production in the new location for resettlement (Decree 197, Article 36 (1) and (2))

The Provincial level People's Committee shall determine the level of supports for living and production in the new location for resettlement, considering the actual conditions of the region. The supportive measures include the following two types:

a) Supports for the seeds of agricultural products, livestock raising, farmers and services, as well as for the services for disseminating forestry, plant protection, land cultivation/livestock technology services etc. in the first year.

b) Support for commercial/job generation suitable for the workers (especially female workers) in the new location

(15) Compulsory execution of the decision on land expropriation and land grading (Decree 197, Article 47)

Each level People's Committee shall, in cooperation with related organizations, socio-economic groups and mass organizations, relocate the target for land expropriation, and implement the decision on the land expropriation and land grading. Even if the rules for resettlement are accurately implemented, in case where the person who has had his/her land expropriated interferes in the execution of land expropriation on purpose, the organization having the authority to issue a Decision on land expropriation can issue the Decision, and expropriate the land in a forcible manner according to laws. This compulsory execution shall be conducted within 15 days of the announcement of the Decision on the compulsory expropriation, on condition that the procedure of resettlement has been adequately implemented, the original time limit for delivery has been surpassed by not less than 30 days, the persuasion of the representative in charge of the land expropriation/grading has been accepted but it has not yet been delivered, the personnel in charge at the People's Committee has been making effort to expropriate the land under the law, and the People's Committee has already issued Decision on the compulsory expropriation of the land. (69/2009/ND-CP, Article 32)

(16) Rights and duties of the individual whose land is to be expropriated and who is to be relocated (Decree 197, Article 37)

① Rights of the individual targeted for relocation

A written registration of relocation, preferential registration of the dwelling place, rejection of relocation in case the individual is unsatisfactory about the new location notified.

② Duties of the individual targeted for relocation

Observation of the final date of relocation specified by the competent governmental agency, construction of a house according to the plans and laws, payment for the house according to the law, payment of land use fee.

(17) Procedure for the payment of compensation

① Establishment of an organization which deals with the resettlement service (Decree 197, Article 39)

The provincial level People's Committee shall, considering the regional situation, delegate the resettlement service to ① rural district, urban district, towns, and provincial city level) resettlement committee or the land fund development organization.

(18) Others

① Review of the resettlement plans by experts (Deree 197, Article 41)

The Provincial/municipal level Finance Service shall conduct an experts' review of the resettlement plans in coordination with related groups. If necessary, President of the provincial level People's

Committee can establish an Experting Council consisting of the experts from related groups, and appoint the director of the Provincial/municipal level Finance Service to be the chairman the council.

② Formal objection and conciliation (Decree 197, Article 49)

In case the stakeholder has objection to the Decision on the resettlement, he/she can submit a formal objection according to Land Act, Article 138 and Decree 181, Articles 162, 263, and 164. During the period of the proceeding on the formal objection, the targeted individual for relocation must, according to the Decision on the land expropriation, deliver the land by the deadline as planned.

7.3 Information Disclosure and Monitoring

(1)Information Disclosure of Resettlement Plan (Decree197 Article 34)

About information disclosure:It is necessary that organizations/institutions appointed by province-level People's Committee, notify provisional resettlement plan to households affected by land acquisition and resettlement and announce resettlement plan by posting notice at the head offices of organizations/institutions and at People's Committee at commune level, from 20 days before resettlement plan is approved by relevant institutions.

(2)Written contents of provisional resettlement plan before disclosure(Circular 116 Part VI)

When publishing resettlement plan, the following contents should be included.

a)Full name and address of land acquiree

b)Area, class, category, situation, origin of the recovered land of the land. In addition, the amount or volume of lost asset, remaining portion, etc.

c)Basic data for calculating compensation and assistance allowances(For exemple,land price, housing and building prices, the people number of household, the number of workers before retirement, the number of social allowances receivers, resettlement location, etc.)

d) Households and individuals that need resettlement assistance

7.4 Comparison of Accordance and Gap among Local Legal System and New Environmental Guideline, Safeguard Policy of World Bank

The following Table 7-4 describes about the comparison of Japan International Cooperation Agency Guidelines for Environmental and Social Considerations (hereinafter reffered as to New Environmental Guidelines)proclaimed in April 2010, Safeguards of the World Bank and related laws in Vietnam about land acquisition and people resettlement.

Table 7-4 Comparison of New Environmental Guidelines/Safeguards of the World Bank and related laws in Vietnam about Land Acquisition and People Resettlement

Items	Response policy of comprising New Environmental Guidelines and Safeguard policy of the World Bank	Relevant laws in Vietnam	Main diffenent point
Minimize involuntary resettlement and adverse social impacts	Involuntary resettlement and loss of livelihood should be avoided by exploring all viable alternatives. When, after such an examination, avoidance is provided unfeasible, effective measures must be taken to minimize impacts and to compensate loss in consultation with affected people.	Impacts should be minimized by giving priority to resettlement of nearby area from the actual residential place. (Decree197 Article 34)	(There is not difference in particular.)
Resettlement Plan	All projects which result is involuntary resettlement, resettlement action plan must be formulated and compensation for affected people must be considered. Particular attention must be payed to the poor and the vulnerable.Resettlement action plan includes timely assistance, budget, cost for relocation, contents of compensation and rehabilitation of means og livelihood.	Institutions in charge of people resettlement formulate. (Local people resettlement committee/Land Fund Development Organization)(Decree197 Article 40). In addition, Decree 69 issued in October 2009 has enlarged assistance for people to be displaced. Assistance for living and productivity isdecided based on actual level by Provincial-level People's Committee (e.g. plant seed, animal breeds for agricultural production crop, agricultural promotion, forestry promotion, plan ptotection, veterinary services, cultivation, and husbandry. Supports for creating some trades and occupations in resettlement areas(Deree197 Articles 36,37)	【Difference】 (There is not difference in particular.) 【To be noted】 There are some cases that land holders with investment objective do not relocate. For smooth implementation of projects, legal measure is needed. As background that people resettlement is not carried out smoothly, there is a possibility that feasibility of resettlement plan is not verified sufficiently.

Items	Response policy of comprising New Environmental Guidelines and Safeguard policy of the World Bank	Relevant laws in Vietnam	Main diffenent point
Compensation for affected people	Full replacement cost must be provided to affected people as compensation for loss of land and other assets.	Land price brackets (Khung Gia Dat) are established. “Basing on the actual land use right transfer price in localities, the provincial-level People’s Committees can decide on the specific land prices within the permitted limits of increase of not more than 20 % compared with the maximum price level and decrease of not more than 20 % compared to the minimum price level of the bracket of prices of land of the same category.(Decree188/2004/ND-CP Article6-2). “ When the common land use right transfer prices fluctuate for 60 consecutive days or more as compared with the maximum land price or decrease by 30 % or more as compared with the minimum land price, the Finance Ministry shall formulate new land price brackets and submit then to the Government for proper adjustment. (Same as above: Article 7) Also, land price brackets of special cities(Hanoi and Ho Chi Minh are not clearly specified) are set at the highest level. There were several supplements in Decree188/2004/ND-CP in 2007, by which, land price brackets were segmentalized by Delta commune, Midland commune, Mountain commune.Currently, 123/2007/ND-CP is the latest.	There are 3 types of land price settings: “the same kind” , “rural and special city”, “Delta, Midland and Mountain. However verification is needed to confirm if it is possible to reacquire land by these land price settings.
Stakeholder participation, grievance redress mechanism	Consult affected people, host community and NGO etc. at an appropriate time, then provide them opportunities to participate in the planning, implementation and monitoring of resettlement plan. Grievance mechanisms must be established for the affected people and their communities.	Disclose provisional resettlement plan, receive comments and is discussed publicly (Article 34 of Decree197)A redness of grievance is able to be submitted under Article 138 of the Land Law, Articles 162,163,164 of Decree 181.	Comments are accepted and public consultation is carried out, howevert there is not a legal system which stipulates participation into monitoring activities.
Livelihood rehabilitation assistance	Efforts should be made to improve the levels of living, income opportunity and productivity or at least restore them to the same as before resettlement. level The levels of living, productivity	Assistance for living and productivity at resettlement sites is decided based on the actual status by the Provincial-level People’s committees. Exemple: (Plantseeds, animal breeds for agricultural production crop, agricultural promotion, forestry promotion, plant protection, veterinary services, cultivation, and husbandry. Supports for creating some trades and occupations in resettlement areas(Deree197 Articles 36,37)	(There is not a difference in particular.)

Items	Response policy of comprising New Environmental Guidelines and Safeguard policy of the World Bank	Relevant laws in Vietnam	Main diffenent point
Monitoring	The borrower is responsible for implementing adequate monitoring & evaluation on resettlement. The borrower monitors whether any unforeseeable situations occur and the performance and effectiveness of mitigation measures. Also monitoring is implemented by external institution. In addition, monitoring statement is made public.	Decree197 does not stipulate clearly monitoring. As for projects implemented by doners, doners arrange independent institutions themselves and monitoring is carried out.	On Vietnam side, monitorin is not carried out themselves.

Source:New Environmental Guidelines, World Bank Safeguard policy, Related laws in Vietnam

Chapter 8 Legal System and Procedure for Indigenous People Considerations

8.1 Distribution of Indigenous People and Ethnic Minorities

Kinh race including the majority Hoa race in Vietnam are agricultural people cultivating wet-paddy rice mainly in lowland, accounts for 85% of the total population. Kinh race is distributed mainly in Delta Area from northern to southern Vietnam and in coast areas. Also, 53 ethnic minorities spread nationwide[19], and account for 15% of the total population. Of which, 4 ethnic minorities have more than 1 hundred populations. On the other hand, of which, 5 ethnics have less than 1,000 populations. They live mainly in mountain areas or highlands, their livelihood is mainly agriculture.Each ethnic has particular culture and custom. Mountain areas and highlands in Vietnam ,where poverty problem is enormous, are less developed than paddy low-zones settled by Race Kinh(Source:Implementation of Poverty Reduction Policies in Ethnic Minority Regions in Vietnam: Evidence form CBMS, Socio-Economic Development Centre, 2004).

The definitions of ethnic minorities in Vietnam by Committee of Ethnic Minority Affairs are as below.

a) Having self-consciousness
b) Having a language used internal of ethnic groups
c) Having a different culture from other ethnics (For example, how to build or decorate houses)

Currently, there are 30 languages used by ethnic minorities, of which, 12 languages are used in schoolbook

[19] According to the cencus 2009, the number of Kinh race is 73.59 million and the number of Tay race ranked secondly is 1.63 million. For details, refer to http://www.gso.gov.vn/default_en.aspx?tabid=515&idmid=5&ItemID=10799 (Bureau of statistics)

The Northen Delta and uplands
1.Kinh(=Viet)
2. Muong
3. Tho
4. Chut

The Northeast
5. Tay
6. Nung
7. San Chay
8. Giay
9. Bo Y
10. San Diu
11. Ngai
12. La Chi
13. Co Lao
14. Pu Peo
15. Hmong
16. Dao
17. Pa Then
18. Lo Lo

The Northwest
19. Thai
20. Lao
21. Lu
22. Kho-mu
23. Xinh-mun
24. Khang
25. Mang
26. O-du
27. La-ha
28. Ha Nhi
29. Phu La
30. La Hu
31. Cong
32. Si La

The Truong-Son / Tay-nguyen
33. Bru-Van Kieu
34. Co-tu
35. Ta-oi
36. Ba-na
37. Xo-dang
38. Hre
39. Co
40. Gie-Trieng
41. Ro-mam
42. Brau
43. E-de
44. Gia-rai
45. Mnong
46. Co-ho
47. Xtieng
48. Ma
49. Cho-ro

South-Central Coast Region
50. Cham
51. Ra-glai
52. Chu-ru

The Plain of Nam-Bo
53. Khmer
54. Hoa

Figure 8-1 Distribution of ethnic minority population

8.2 Sosial/economic situation of indigenous /minority population

(1) Social-economic state of Indigenous and Minority people

In Vietnam, governance system by the Communist Party and the Central Government prevails to rural. The life style of ethnic minorities and non-ethnic minorities different considerably. However, this is rarely the cause of ethnic conflicts. The aim of the State is to achive development as Vietnam people regardless of living areas or social classes, and the State ensures that people have right of gaining development benefits regardless of ethnics by contributing to the development of the State equally.

(2) Requirements and protection rules for designated communities

Joint Circular No.819/2004/TTLT-UBDT-KHDT-TC-XD-NNPTNT, enacted in November 2004, under the Prime Minister resolution No.134/2004/QD-TTg, enacted on July 20, 2004, stipulates support for the cultivation areas, habitation areas, houses, daily-life water for the ethnic minority population in narrow means.

The targets are households and communities, and each of them must meet all the requirements shown below. The targeted areas include cultivation areas, habitation areas and daily-life water (refer to Joint Circular No.819/2004/TTLT-UBDT-KHDT-TC-XD-NNPTNT).

① Requirements for the targeted households

a) The households which fall under the definition of a poor household contained in the resolution of Decision No. 1143/2000/QD-LDTBXH of Nov. 1, 2000. These households make their living by agriculture or forestry, and they are not provided with enough cultivation areas, habitation areas and daily-life water.

b) The households are made up of ethnic minority population. This includes the cases where the spouse belongs to ethnic minority.

c) The households which has already been provided with cultivation areas, habitation areas and daily-life water under the existing regulations, but are in narrow means, and are without enough cultivation areas or habitation areas, with problems in their houses and daily-life water.

② The requirements for the target villages and colonial communities

Villages and colonial communities are defined under the Home Affairs Minister's Decision No.13/2002/QD-BNV of December 6, 2002, which promulgates the rules for the management of those villages and inhabited areas where the ethnic minority households with difficulty in their daily-life water account for not less than 20% of the total population.

③ Support and the coverage

a) House

＜Requirements＞

Any household with housing problems is qualified for receiving the kind of support defined under the Circular, Section II, clause 1, Point a, provided that it meets at least one of the following requirements.

・Does not have any house to live in, or rents a house from some non-governmental entity.

・Living in a damaged temporary home.

b)Daily-life water

＜Requirements＞

The households with difficulties in daily-life water are qualified for the support policy, but meeting at least any one of the following requirements is enough to acquire a title to be included in the target households defined under the same circular, Section II, Clause 1, Point a.

・Although having a daily-life water supply system, it is unstable and storage tanks cannot be installed in the area.

・Living in an area without water streams, and storage tanks for groundwater or rainwater cannot be installed in the area.

Or, in case of villages and colonial communities with difficulties in daily-life water defined as the target households for support in the same Circular, Section II, Clause 1, Point b, although the development of daily water supply sources is possible, no investment has ever been made, and there are difficulties in any engineering works for water supply.

c) Cultivation areas and habitation areas

＜requirements＞

As the household doesn't have any habitation area, or has inadequate habitation area, it is qualified as a target household for support, and if it meets any one of the following requirements, it falls under the definition of the same Circular Section II, Clause 1 Point a.

・Households without any habitation area

・In case where the habitation area is on the level stipulated in Decision No. 134/TTg or below the level which the relevant locality (city, provincial town, or direct township) stipulates, Based on the Land Fund and the situation of the habitation area, the household needs the consent of the provincial People's committee.

If the household doesn't have any cultivation area and is a supportable target household, it falls under the definition of the same Circular, Section II, Clause 1, Point a if it meets any of the following requirements.

・Doesn't have any cultivation area.

・If the habitation area is on the level which is stipulated in Decision No. 134/TTg (not more than 0.15ha for double-cropping rice fields; not more than 0.25ha for single cropping rice fields; not more than 0.5ha for terraced rice fields) or not less than the level already stipulated in the

documents issued by the Prime Minister, the supportive measure for the household which doesn't have enough cultivation area shall be determined by the county People's Committee, in consideration of the specific situation.

Cultivation areas and the area for constructing houses include the land categories stipulated in Decision No.134/TTg, Article 3.

② Implementing organization

It shall be a permanent organization under the charge of the National Committee, coordinate with the Ministry of Planning and Investment, the Ministry of Finance, the Ministry of Construction, and the Ministry of Agriculture and Rural Development, supports the reporting on the implementation according to the control, supervision, promotion, inspection and rules of the Prime Minister. Moreover, the county and direct-controlled municipality level People's Committees have direct and comprehensive responsibility for the implementation of supportive measures.

8.3 Relevant Legal System on Indigenous People Consideration

In Vietnam, as indigenous people, there is Bubeo race in northern mountain areas. However, described in 8.2, by recent relevant law, description as to ethnic minorities is only as "mountain areas", so assistance system is not categorized as indigenous people. However, obviously, indigenous people are included in covered areas and it can be viewed that the way to respond to them is the same as to ethnic minorities.

8.4 Procedure for Indigenous People Consideration in Development Project

According to the ethnic minorities committee, it is ruled that ethnic minorities are provided job training, 10 thousand people received job training until now, 2 thousand people are dispatched abroad.

Moreover, banks are assisted so that they are able to finance people having desire to have own business at a low interest rates.

In addition, in case that industrial zones are constructed in the near areas where the ethnic minorities live, companies are encouraged to employ them preferentially. On the other hand, for that, incentives such as tax exemption are provided.

8.5 Affirmative Action for Indigenous People

UNDP has departments in charge of poverty reduction and social development and also has departments that have directly contacts with ethnic minorities. For example, if forestry management is working enough, it leads to green house gas reduction. For realizing this, ethnic minorities living in the forestry understand mostly the local natural environment .For this,

UNDP collects directly ethnic minorities' opinions and seeks possibilities of promoting poverty reduction. In Vietnam, the pioneering project is carried out in Lam Dong province, ethnic minorities and poverty group are interested in these projects.
On the other hand, ADB considers northern mountain areas and central mountain areas as affirmative action is needed, and Vietnam government has recognition that they have to deal with these issues.

8.6 Policy and System related to Minority People who are not designated as Indigenous People

Policies related to ethnic minorities have been implemented from the 1960s, when the State started intensively investment is since issuing "Resolutions related to guidelines and policies about several major economic-socio development in mountain areas by the Political department of Communist Party in November 1989."[21] Recently, the focus is put on policies such as school construction, job training for ethnic minorities in 62 municipalities.

Ethnic minorities have the following rights.

a) Being political equal, having vote right at the age of 18, being able to become candidate
b) Being equal economically, having own business.

Moreover, preferential assistance measures such as housing assistance (Decree NO.134) or financing without interest (Decree126) are introduced for people living in mountain areas. In particular, for 5 ethnics, 100 % of living cost is ensured and the goverment assists maintenance and improvement of road at 100 %. In addition, there are radio and television emissions for ethnic minorities for 300 hours a week.

8.7 Other problems and tasks

By "Assistance policy for Gender Equality Activities for Ethnic Minorities and in Extremmely Difficult Communes 2011-2015" formulated by Committee for Ethnic Minority Affairs in 2010, employment, education, ensurance are designated as emergent problems.Women of ethnic minorities have limited opportunities of receiving education or acquiring techniques and employment. Even if they are employed, they are exploited with low wages. So there are many issues to be improved.For these problems, assistance are planned in the following 4 important fields: "Awareness enhancement for

[21] The background of the issuing of this resolution is that Soviet was losing political stability due to ethnic problems in various regions at that time. It is imaginable that it was necessary forVietnam govermentm to prevent socio-economic dissatisfaction of ethnic minorities spreads in nationwide mountain areas.

gender conscious", "Improvement of employment and income", "Literacy and education" "Maternal and child health"

8.8 Analysis of Gap and Accordance between local law system, New Environmental Guidelines and Safeguard Policies of the World Bank

The following table 8-1 describes about the comparison of Japan International Cooperation Agency Guidelines for Environmental and Social Considerations (hereinafter reffered as to New Environmental Guidelines)proclaimed in April 2010, Safeguards of the World Bank and related laws in Vietnam about Ethnic Minorities.

Table 8-1 Comparison of New Environmental Guidelines/Safeguards of the World Bank and related laws in Vietnam about Indigenous Peoples/ethnic minorities

	Response policy of comprising New Environmental Guidelines and Safeguard policy of the World Bank	Indigenous Peoples / ethnic minorities related laws in Vietnam	Main diffenent point
Avoidance of Impacts by projects	Any adverse impacts that a project may have on indigeous peoples are to be avoided when feasible by exploring all viable alternatives. When, after such an examination, avoidance is provided unfeasible, effective measures must be taken to minimize impacts and to compensate Indigeous Peoples for their losses.	There is not a law which stipulates "Avoidance of Impacts by project", however the current legal system is established based on the "resolution of major guidelines and policies for economic-social development in mountain areas" formulated by the Political Agency of the Communist Party in November 1989, so it is considered that the measures for disadvantages for Indigenous People are taken.	(There is not a difference in particular.)
Condent with Indigenous Peoples	When the projects may have adverse impacts on indigenous peoples, rights of indigenous peoples with land and resources must be respected based on international declaratios or treaties on indigenous peoples. In addition, efforts must be made to obtain the consent of indigenous peoples in a process of free, priort, and informed consultation.	Educational literacy improvement, human resources development program implementation, assistance for knowledgement enhancement of legal system are provided so that indigenous people and ethnic minorities' rights with land and resources should be respected and projects should create employment opportunities for indigenous people and ethnic minorities and help to reduce poverty. However, agreement with indigenous people about these policies is not recognized. Also, there is not legal system which provides prior consultation and consent about project implementation.	There is not legal system which provides prior consulation and consent about project implementation.

	Response policy of comprising New Environmental Guidelines and Safeguard policy of the World Bank	Indigenous Peoples / ethnic minorities related laws in Vietnam	Main diffenent point
Information Disclosure On IPP	Measures for the affected indigenous peoples must be prepared as an IPP (in some cases, it may be a part of the documents related to environmental and social considerations) and must be made public in compliance with the relevant laws and ordinances of the host country.	As for actions for indigenous people and ethnic minorities, there are Resolution of the Political Agency of the Communist Party in 1989, "Assistance policy for Gender Equality Activities for Ethnic Minorities and in Extremmely Difficult Communes 2011-2015" formulated by Committee for Ethnic Minority Affairs etc. However there is not legal system which stipulates the necessity of IPP.	There is not legal system which stipulates the necessity of IPP.

Chapter 9 Environmental and Social Consideration in Projects supported by other Donors

9.1 Current State and Problems in Environmental and Social Consideration in Projects supported by World Bank

The World Bank has formulated Safeguard Policies to put emphasis on evaluation and management of impacts and risks towards environment and society and ensure that projects financed by the World Bank do not bring adverce impacts on the life and environment of the host country. The Safeguard Policies are comprised of the following 10 operational policies. Only projects financed by the World Bank are applied.

a) Environmental Assessment (OP/BP4.01)
b) Natural Habitas (OP/BP4.04)
c) Forests
d) Pest Management
e) Physical Cultural Resources
f) Involuntary Resettlement
g) Indigenous Peoples
h) Safety of Dams
i) Projects on International Waterways
J) Projects in Disputed Areas

In recent years, the World Bank has been making efforts acitively to solve problems Vietnam faces, where rapide economic growth has been progressing, such as exposure of poverty by enlargement of income disparity.

9.2 Current State and Problems of Environment and Social Consideration in Assistance Projects by Local Development Bank

Assisted areas by ADB are mainly northern mountain areas, central mountain areas. These areas are ones that the government also considers to deal with. However, the point that it is difficult for ADB to judge is that if measures provided for assisting their lives are necessary for them. However, recently, ADB considers not only main roads, but also roads or local roads that connect main roads as their business area. ADB also considers municipality water business for ethnic minorities assistance in northern Vietnam as ADB business area

9.3 Current State and Problems of Environment and Social Consideration in Projects supported by other main donors

The following opinions are collected for the hearing conducted for this investigation by UNDP.
UNDP addresses resources environmental protection, hunger eradication and poverty reduction with

Vietnam government. Also, UNDP is implementing many programs in cooperation with foreign donors in Vietnam. Moreover, in cooperation with other UN organizations, they assist Vietnam government to create policy and law. In 2004, they assisted for creating Law on Environmental Protection formulated in 2005. They also assisted in drawing up Land Law, Forest Development Law, Water Resources Law, Bio-diversity law, etc. Currently they assist Energy Saving Law.

UNDP has departments in charge of poverty reduction and social development and also has departments that have directly contacts with ethnic minorities. For example, if forestry management is working enough, it leads to green house gas reduction. For realizing this, ethnic minorities living in the forestry understand mostly the local natural environment .For this, UNDP collects directly ethnic minorities' opinions and seeks possibilities of promoting poverty reduction.

On the other hand, the recent significant problem is climate change. Especially, Delta Are of Hong river and Mekong river, are mainly plain areas. So they are vulnerable to climate change. Over the recent years, Vietnam has been developing legal system, in some local administrative organizations, compliance with legal system is not enough. For this, UNDP has been making efforts for improving these problems through capacity building.