Indonesian Profile of Environmental and Social Considerations

September 2011

Japan International Cooperation Agency（JICA)

Table of Contents

Annexes

List of Charts

List of Tables

List of Abbreviations

- IBA: Important Bird Area
- IBSAP: Biodiversity Strategy and Action Plan
- IMF: International Monetary Fund
- IUCN: The World Conservation Union
- JATAM: Jaringan Advokasi Tambang (Mining Advocacy Network)
- JICA: Japanese International Cooperation Agency
- KA-ANDAL: Kerangka Acuan ANDAL (ANDAL Terms of Reference)
- KIP: Kampong Improvement Program
- KTP: Kartu Tanda Penduduk
- LARAP: Land Acquisition, Resettlement and Assistance Plan
- LIPI: Lembaga Ilmu Pengetahuan Indonesia
- LNG: Liquified Natural Gas
- LPG: Liquefied Petroleum Gas
- MPR: Majelis Permusyawaratan Rakyat (People Consultative Assembly)
- ODS: Ozone Depleting Substances
- OPEC: Organization of the Petroleum Exporting Countries
- OPM: Organisasi Papua Merdeka (Free Papua Organization)
- PCB: Polychlorinated Biphenyl
- PDAM: Perusahaan Air Minum Daerah (Local Water Supply Authority)
- PERPAMSI: Perusahaan Air Minum Seluruh Indonesia (Indonesian Water Supply Enterprises)
- POPs: Persistent Organic Pollutants
- PROKASIH: Program Kali Bersih (Clean River Program)
- PROPENAS: Program Pembangunan Nasional (National Development Program)
- PM: Particle Matter
- RKL: Rencana Pengelolaan Lingkungan (Environmental Management Plan)
- RPL: Rencana Pemantauan Lingkungan (Environmental Monitoring Plan)
- RT: Rukun Tettanga (Neighborhood Association)
- RW: Rukun Warga (Community Association)
- SUPERKASIH: Surat Pernyataan Program Kali Bersih (Clean River Program Statement)
- TDS: Total Dissolved Solid
- TNC: The Nature Conservancy
- TSP: Total Suspended Particles
- UKL: Upaya Pengelolaan Lingkungan (Environmental Management Procedure)
- UNDP: United Nations Development Program
- UNEP: United Nations Environment Program
- UNESCO: United Nations Educational, Scientific and Cultural Organization
- UNFCCC: United Nations Framework Convention on Climate Change
- UN-HABITAT: United Nations Human Settlements Program
- UNIDO: United Nations Industrial Development Organization
- UPL: Upaya Pemantauan Lingkungan (Environmental Monitoring Procedure)

- USAID: United States Agency for International Development
- WALHI: Wahana Lingkungan Hidup Indonesia (Indonesian Forum for Environment)
- WHO: World Health Organization
- WRI: World Resources Institute

Chapter 1 Overview

1.1 Overview of the Subjected Country

The overview of Indonesia is summarized in Table 1.1-1

Table 1.1-1 Overview of Indonesia

General Information	
Area	1,919,440km^2（826,440km^2 of land, 93,000km^2 of rivers and lakes）
Population	238 million (estimated by the Indonesian government in 2010)
Capital	Jakarta
Race and Ethnic	Javanese 40.6%, Sundanese15.0%, Madurese 3.3%, Minangkabau 2.7%, Batak 2.4%, Bugi 2.4%, Bantenese 2.0%, Banjares 1.7%, Others 29.9% (2000 Census)
Language	Indonesian, English, Dutch, dialects（mainly Javanese）
Religion	Islam 88.6%, Christian 8.9% (Protestant 5.8%, Catholic 3.1%), Hindu 1.7%, Buddhist 0.6%, Confucian 0.1%, Others 0.1% (Source: Indonesian Central Statistics Agency)
Political System	
Political Entity	Republic
Head of State	President Susilo Bambang Yudhoyono （Assumed his second 5-year-term on October 20, 2009）
Parliament	(1) Diet（DPR）: 560 seats (2) National Council（MPR）: 692 seats（including 560 Diet members and 132 local assembly members）
Domestic Policy	(1) Yudhoyono was reelected at the Presidential election held in July 2009 by gaining 60% of the votes, and formally sworn in as the President of Indonesia for the second 5-year term. (2) The second-term Yudhoyono Administration declared to make the following policies as the core of the new 5-year plan. a) improvement of people's welfare, b) establishment of democracy, and c) practice of justice. He placed such matters as the economic development with competitiveness, effective utilization of natural resources and improvement of human resources, as the priority issues of the government.
Economy	
Major Sectors	Mining（oil, LNG, aluminum, tin）, agriculture（rice, rubber, palm oil）, industry（wood products, cement, fertilizer）
GDP	$707.1billion (Indonesian government statistics of 2010)
GDP Per Capita	$3,005 (Indonesian government statistics of 2010)
Real Growth Rate of GDP	6.1% (Indonesian government statistics of 2010)
Rate of Increase in CPI	7.0% (Indonesian government statistics of 2010)
Unemployment Rate	7.1% (estimated in 2010)
Amount of Trade	(1) Export: $157.7 billion (Indonesian government statistics of 2010) (2) Import: $135.6 billion (Indonesian government statistics of 2010)

Major Traded Goods	(1) Export: oil & gas (17.8%), mineral fuels (11.9%), animal oil & plant oil (10.3%) (2) Import: oil & gas (20.2%), general machinery and equipment (14.8%), parts of machinery and electric appliance (11.5 %) (Indonesian government statistics of 2010)
Major Trading Partners	(1) Export: Japan (12.7%), China (10.9%), USA (10.3%) (2) Import: China (18.2%), Japan (15.6%), Singapore (9.3%) (Indonesian government statistics of 2010)
Currency	Rupia
Rate of Foreign Exchange	$1＝Rp 8,573（as of May 19, 2010; by Indonesian Central Bank）
Economic Outlook	After the outbreak of Asian Financial Crisis in July 1997, the Indonesian government decided on reforming the economic structure based on its agreement with IMF. Starting in 2005, the rate of economic growth reached the level of 5.5% to 6% by grace of strong private consumption and export. Despite the adverse impact of World Financial and Economic Crisis in 2009, by virtue of the government's financially stabilizing policy and economic stimulus policy as well as robust domestic consumption, the growth rate remained at a comparatively worldwide high level of 4.5%. The solid economic growth was maintained in 2010, and the year-on-year rate increased to 6.1%.

Source: CIA of USA, The World Factbook – Indonesia ,
https://www.cia.gov/library/publications/the-world-factbook/geos/id.html
Website of Japan's Ministry of Foreign Affairs,
http://www.mofa.go.jp/mofaj/area/indonesia/data.html

Source: US, CIA, The World Factbook - Indonesia

Chart 1.1-1 Map of Indonesia

1.1.1 Climate

Indonesia's climate is mainly characterized by the tropical rain forest climate and the monsoon climate. The November-March period is the rainy season under the impact of the North East trade wind and the June-October period is the dry season under the impact of wind from the Oceania Continent. Its humidity is generally high and approximately 80% throughout the year. The daily average temperature of 23～30°C is hardly subjected to seasonal changes.

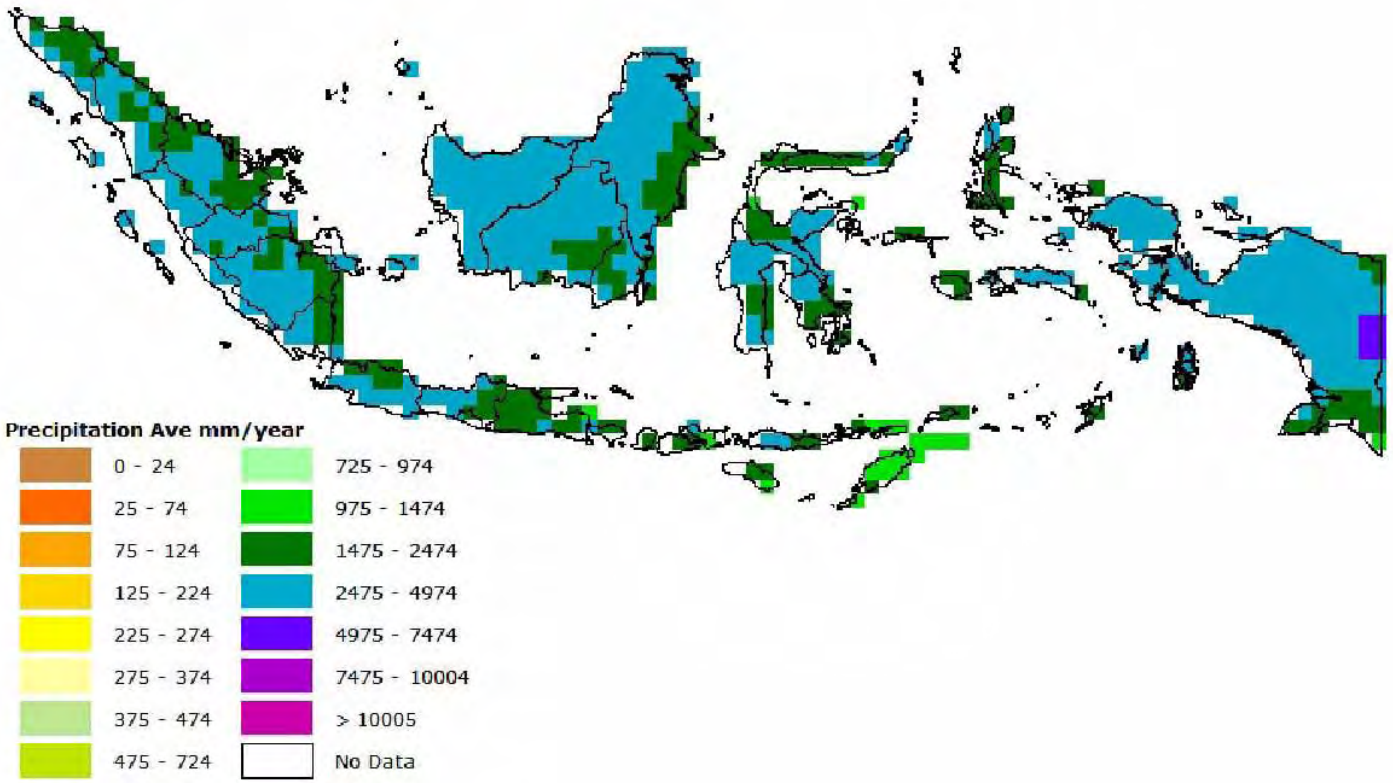
The annual precipitation in the lowland regions is approximately 1,800 ～ 3,200mm and approximately 6,100mm in the mountain regions. In the northern regions right on the equator、 there is not much difference in precipitations between the rainy season and the dry season. In Medan on the Sumatra Island where the tropical rain forest climate reigns, the rainy season is long and with a relatively large amount of rainfalls throughout the year. In Jakarta the precipitation is small in the dry season centering around August.

Table 1.1-2 Temperature in Major Cities（℃） & Precipitation（mm）

	Jakarta（Java Island）			Denpasar（Bali Island）			Medan（Sumatra Island）		
	Max. temp.	Min. temp.	Prec.	Max. temp.	Min. temp.	Prec.	Max. temp.	Min. temp.	Prec.
Jan.	27	25	458	31	24	347	27	25	129
Feb.	28	24	265	31	24	288	27	25	93
Mar.	28	25	234	31	24	214	27	24	99
Apr.	28	26	121	32	23	95	27	26	155
May	28	26	100	31	23	76	29	26	219
June	28	25	92	30	22	71	28	26	157
July	28	25	65	30	22	50	28	26	174
Aug.	28	25	78	30	23	24	28	25	206
Sep.	28	25	68	31	23	41	28	26	213
Oct.	29	26	88	31	23	90	27	25	256
Nov.	28	25	117	32	24	155	28	25	259
Dec.	27	25	185	31	24	293	27	24	150

Note: 1. Max. temp. = Maximum temperature 2. Min. temp. = Minimum temperature

Source: World Weather Information Service



Source: Prepared on the basis of FAO Country Profiles and Mapping Information System

Chart 1.1-2 Precipitations in Indonesia

1.1.2 Hydrometeor

Indonesia's domestic water resources (including surface and underground water) as of 2007 amount to 2,838km ^{3} and account for approximately 6% of the world total（table1.1-3）. However, the amount of water resources largely differs for each island, depending upon their precipitations. In Indonesia there are 136 basins and 28 water systems as well as 28 lakes with sizes of more than 10km^2. In addition, the rainy season gives rise to a large number of flood lakes of large areas peculiar to the tropical regions. Kapuas River that flows in West Kalimantan Province is the longest in Indonesia, with a total length of approximately 1,143km and is the longest in the world as a river within an island. The basins include Sentarum Lake region, a large Reserve consisting of the marshes and fresh water lakes.

In Indonesia there are many lakes and marshes with problems of high pollution loads and eutrophication due to insufficient drainage systems. There are also lakes and marshes with algal bloom and with serious silting problems caused due to inappropriate land utilization.

1.2 Laws/Regulations and Policies Relevant to Environmental and Social Considerations

The Indonesian government enacted Revised Environmental Protection and Management Law replacing the 1997 Environmental Protection and Management Law. The revised law aims at creating an environmentally sustainable development through establishing an environmental planning policy, and enhancing the rational exploitation, development, maintenance, restoration, supervision and control of the environment. The revised law reflects the present policy intention of the Indonesian government.

Table 1.2-1 Evolution of Environmental Policies (summary)

Year	Fields of natural environment	Fields of environmental management
1972		National Policy on the Environment referred to in the 2nd 5-Year Development Plan
1978		Ministry of Development Surveillance & Environment established
1982		Law No.4/1982 concerning the Basic Provision for Environmental Management
1983		Ministry of Population & Environment established
1990	Law No.5/1990 concerning Conservation of biological Resources and their Ecosystems	BAPEDAL established
1991	Biodiversity Action Plan（BAPI）	
1993		"Environmental activities towards sustainable development" referred to in the 6th 5-Year Development Plan
		The Ministry of the Environment separated from the Ministry of Population & Environment
1994		The function of BAPEDAL strengthened
1997		Law No.23/1997 concerning Environmental Management
1999	Law No.41/1999 concerning Forestry	Law No.22/1999 concerning Regional Autonomy
		"Sustainable natural resources management for increasing welfare" referred to in the 5-Year National Development Program（PROPENAS）
2002		BAPEDAL absorbed into the Ministry of the Environment

Year	Fields of natural environment	Fields of environmental management
		Law concerning Regional Autonomy enforced
2003	Ecosystem Strategy Action Program （IBSAP）	
2004	Law No. 7/2004 concerning Water Resources National Commission on Climate Change established (April), Enactment and coming into force of Kyoto Protocol Ratification Act (June), ratification of Kyoto Protocol (December)	
2007	”National Action Plan to Cope with Climate Change” announced	
2008	Waste Management Act No.18/2008	State Minister of Environment Decree No. 5: Stipulations on EIA Authorized Agencies (the Central Government, Provinces, Prefectures and Cities)
2009	Indonesian Road Map by Climate Change Sector announced	Environment Protection Management Law (Law No.32/2009); Revision of 1997 Law No 23

1.3 Administrative Agencies Relevant to Environmental and Social Issues

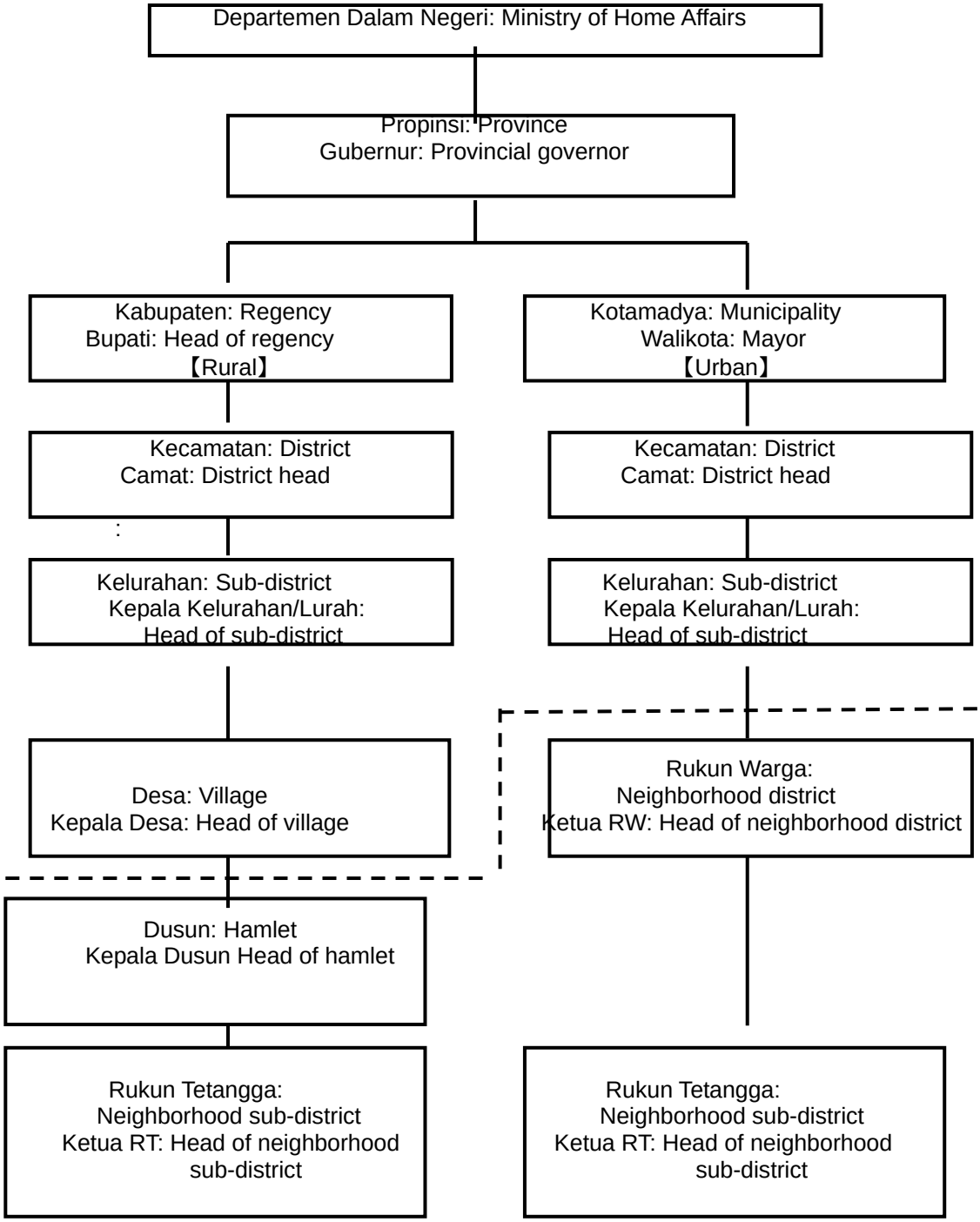
In Indonesia, many ministries and agencies have relevance to environmental issues. Table 1.3-1 shows ministries and agencies relevant to environmental issues together with their roles.

Table 1.3-1 Ministries and Agencies Relevant to Environmental issues

Name of Ministry	Major Roles
National Development Planning Agency（BAPPENAS）	This Agency has the leading roles in the promotion of development and improvement of infrastructure in urban and rural areas, water supply and sewage systems, waste management, transportation, and agricultural reform. This Agency is also responsible for conducting investigations relevant to major water-supply and sewage- related issues.
Ministry of Public Works	This Ministry supervises government-funded projects, and establish technical criteria, conduct designing, technical development and assistance to local governments, relevant to water resources, drainage, waste management, transportation and town/city planning. This Ministry has Directorate Generals in the following sectors. (i) Water Resources Directorate General: One of the core members of the Water Resource Council and controling the water resources utilization plan. (ii) Housing Directorate General: Implementing agency of water supply and sewage projects since 1990’s.
Ministry of Housing	In 2005, the former Ministry of Housing and Regional Infrastructure Development was divided in 2005 into two

Name of Ministry	Major Roles
	ministries, namely Ministry of Public Works and Ministry of Housing. Ministry of Housing is the agency to implement large-scale housing projects, and it also performs physical and social infrastructure assistance.
Ministry of Home Affairs	This Ministry supervises the state and performance of decentralization.（It provides assistance to local companies in non-technical areas, assists creation of new sectors, administers the state-owned Water Supply and Sewage Company, set monetary guidelines, and monitor/evaluate the economic/ operational performance of Water Supply and Sewage Company.）
Ministry of Health	This Minister provides/improves public health services, and guides/assists the monitoring of drinking water quality. The Ministry also provides guidance to local governments concerning the spread of sewage system and the improvement of working environment. The Ministry is also involved in the issues of water supply and sewage systems aided by donors, on the level of communities.
Ministry of Forestry	This Ministry plans the national forestry policy. The Ministry also supervises land protected areas.
Ministry of Maritime and Fisheries	This Ministry supervises marine resources and provides technical assistance to local governments concerning the drawing-up of policies and the protection/administration of sea areas. The Ministry also supervises marine protected areas.
Ministry of Agriculture	This Ministry plans the national agriculture policy.

On the other hand, as for the local self-governing bodies, Regional Environmental Impact Control Board (BAPEDALDA) had been established in many of the local governments as the local-level organization of the Environmental Impact Assessment Agency (BAPEDAL) in the past, but after the implementation of decentralization policy, sections in charge of environmental issues on the level of prefectures and cities have assumed the responsibility. (Although BAPEDAL is no more in existence, BAPEDALDA remains as it is in prefectures.) Following the transfer of authorities on environmental administration to the level of prefectures and cities, their environmental sections have come to assume important roles, but they have not yet been well organized, and even if sections in charge of environmental issues are in place, there is in fact a big difference among prefectures/cities in their implementing capability.



(Note) The upper row shows the name of an Administrative Unit and the lower row shows the name of the Head of the Said Administrative Unit.

The Heads of Administrative Units indicated above the broken line are designated by the Administrative Authorities ,and those indicated below the broken line are nominated by the local residents.

Chart 1.3-1 Indonesia's Regional Administrative Organizations

1.4 Environmental Laws and Regulations

Among the environmental laws and regulations enacted by the Indonesian government, the one issued in October 3, 2009 known as "Law No. 32/2009 concerning Environmental Protection and Management" is regarded the most important one. The characteristics of the new Environmental Protection and Management are as follows:

(i) To emphasize the principles of transparency, participation by the public, accountability and partiality in the environmental protection and management.

(ii) To clearly mention the necessity for all projects and activities of conducting Environmental Impact Assessment (AMDAL) if there is a possibility of giving significant impact on the environment, and of conducting environmental management and monitoring plan (UKL-UPL) even if there is no possibility of giving significant impact on the environment.

1.5 Activities of International Aid Agencies

By the end of 2006, Japan had been the biggest ODA donor for Indonesia with an accumulative total amount of $25 billion, while The World Bank (WB) and Asian Development Bank (ADB) had been the 2nd and 3rd donors, respectively providing $8.5 billion and $8.4 billion on an accumulative base[1]. Although it is not clear whether Japan has still been the top donor of ODA to Indonesia after 2006, it is evident that it has lost the top place since the end of 2005, when considering it on an annual base[2].

WB and ADB have been the major donors for Indonesia in terms of policy-making, education and human resources development. Other donors include UNDP, UNESCO etc., but their donation amount is relatively small.

Table 1.5-1Major Aid Organizations

State /Region	Name of Organs
Canada	Canadian International Development Agency – CIDA
German	German Technical Cooperation – GTZ
Japan	Japan International Cooperation Agency – JICA
USA	United States Agency for International Development – USAID
Austraria	The Australian Government's Overseas Aid Program – AusAID
Denmark	Danish International Development Assistance – DANIDA
UK	Department for International Development – DFID
Sweden	Swedish International Development Agency – SIDA
EU	—
Multi-national/ International	United Nations Environment Program – UNEP
	United Nations Educational, Scientific and Cultural Organization – UNESCO
	United Nation Development Programme – UNDP
	World Bank
	Asian Development Bank – ADB

1.6 Others

1.6.1 Mass Media Agencies

[1] US CIA – The World Facebook – Indonesia

[2] Japan's Ministry of Foreign Affairs "ODA Whitepaper, Japan's International Cooperation, 2010", Chapter IV "Reference Materials"

Owing to the fact that the number of those journalists versed in environmental issues is still small, information transmission in this field by mass media is not sufficient. However, articles dealing with environmental issues are be found occasionally in major newspapers and news service agencies. “Antara” has created a column specialized in environmental issues in its newspaper. Also, “Kliping Lingkungan Hidup” has a website publishing articles specially dealing with environmental issues.

1.6.2 NGO

The importance of the role NGO in Indonesia is playing has been increasing, with the government’s effort of debureaucratization and decentralization in progress. In a developing country like Indonesia where the civic society is under-developed, NGO is expected to play a vital role in promoting its development. At present, there exist a great number of NGOs in Indonesia, which is said to be more than several thousands, or even as big as several tens of thousands. However, most of them are based in regency (county) or district, or even further lower level of villages, while the number of those with a base at province level or cross-province level or nation-wide level is still small.

1.6.3 Websites

Useful Websites are listed below;

(1) Indonesia National Commission on CDM
URL：http://dna-cdm.menlh.go.id/en/
Information on Indonesia’s CDM projects and policies is made available in English

(2) Ministry of Environment
URL：http://www.menlh.go.id
On the Indonesian language version Website Pages, information on a variety of items including AMDAL and wastage are made available。

(3) ECOLEX
URL：http://www.ecolex.org/index.php
Information on environmental laws and systems of various countries of the world can be searched.

(4) ASEAN Center for Biodiversity
URL：http://www.aseanbiodiversity.org/
Information on actions and measures to protect biodiversity within the ASEAN Region including Indonesia as well as information on search engines concerning precious species in various countries and interactive maps of Reserves and Sanctuaries are available.

(5) Brung Indonesia: Birdlife International Indonesia
URL：http://www.burung.org/
Information on bird species inhabiting in Indonesia and EBA/IBA are available (only in the Indonesian language).

(6) Center for International Forestry Research (CIFOR)

URL：http://www.cifor.cgiar.org/

Information on CIFOR activities and research outcome data can be down loaded from the Website.

(7) Coral Reef for Indonesia

URL：http://www.coremap.or.id/

The summary information and data of various researches and studies on coral reefs are available under the title of COREMAP (Coral Reef Rehabilitation and Management Program).

(8) FAOSTAT

URL：http://faostat.fao.org/

Statistical data on agricultural, fishery and forestry production in various countries including Indonesia is available.

(9) Global Coral Reef Monitoring Network

URL：http://coris.noaa.gov/welcome.html

One can get information on coral reefs throughout the world provided by Natioinal Oceanic and Atmospheric Administration of USA.

(10) Indonesia Oceanic Cetacean Program

URL：http://www.apex-environmental.com/

This is a Website run by an Australian environmental organization, which provides information on activities for the conservation of whale species and on marine environments in various regions of Indonesia.

(11) Komodo National Park

URL：http://www.komodonationalpark.org/

One can get information on the communities, cultures, anthropological characteristics, land & marine ecosystems, causes of environmental degradation and environmental protection activities on and around Komodo Island, etc.

(12) The Nature Conservancy

URL：http://www.nature.org/

Information on natural environment protection activities in Indonesia and on Conservation Training and Resource Center established through cooperation between the Indonesian Government and international organizations is available.

(13) WWF Indonesia

URL：http://www.wwf.or.id/en/

This Website provides information on natural environmental protection activities of WWH Indonesia under the headings of Climate Change and Energy, Forestry, the Ocean and the Animal and Plant Species。

(14) Yayasan Pelangi

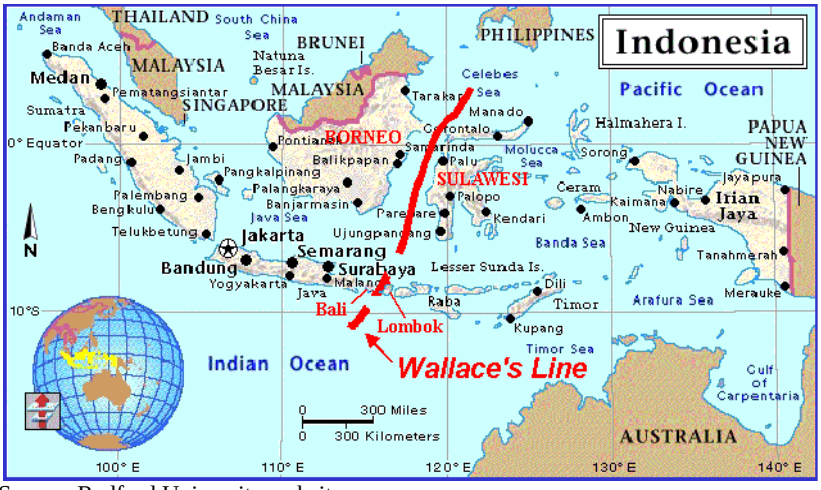
URL：http://www.pelangi.or.id/

This is a Website of a NGO deeply involved in Indonesia ‘s climate change related policies and it provides information on climate change partly in English.

Chapter 2 Natural Environment

2.1 Overview

Indonesia is known as one of the countries in the world with the highest degree of biodiversity, in that while it possesses not more than 1.3% of the total land area of the world, there are as many as 300,000 species of animals making their habitat here, accounting for as high as 17% of the world's total species. According to the data provided by ASEAN Center for Biodiversity, there were 800 mammal species (including 251 endemic species), 1,666 Avian species (515 endemic species), 426 amphibian species (176 endemic species), 703 reptilian species (52 endemic species), 1,104 branchura species (340 endemic species), 801 libellulidae species (without endemic species) and 11,657 plant species (7,203 endemic species) recorded as of 2008.[1] In addition, according to the report of study in 2010 by the European Tropical Forest Research Network, the numbers of plant species, mammal species and avian species in Indonesia respectively account for 11%、10%、16% of the world's total.[2] Moreover, as revealed by the World Bank's information as of 2011, the degree of Indonesian biodiversity accounts for around 40% of the whole of the Asia-Pacific area .[3]



Source: Radford University website:

Chart 2.1-1 Wallace's Line

In 1993, The "Biodiversity Action Plan of Indonesia" (BAPI) was drawn up by BAPPENAS, which, although aiming at holding back the continuous decrease of vital organism species, efforts to develop the data regarding domestic ecosystems and to achieve the sustainable utilization of natural resources, fell short in terms of improving awareness and independent mind on the part of the communities and other stakeholders due to the insufficient participation of NGOs and the top-down approach taken by the government. It is in view of this problem with BAPI that later in 2003, BAPPENAS formulated the "Indonesian Biodiversity Strategy and Action Plan (2003-2020)" (IBSAP).

The authorities directly responsible for the conservation of natural environment is the Indonesian Ministry of Forestry's Nature Conservation and Forest Protection Agency (PHKA). Within the Ministry of the Environment there are Departments and Bureaus, which are in charge of natural environmental matters, though their activities are of limited scope. These organizations mainly play a coordinative role in the government activities likely to have impacts on the natural environment and carry out the analysis of the laws and regimes related to the natural environment and information &

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[1] ASEAN Secretariat, "Fourth ASEAN State of the Environment Report 2009"

[2] European Tropical Forest Research Network, "Biodiversity Conservation in Certified Forests" Issue No.51, September, 2010

[3] World Bank website

data collection. At a regional level, Environmental Impact Management Agency (BAPEDAL) of provincial governments used to be in charge of natural environment preservation. However, ever since the decentralization Dinas Kehutanan/Forestry Offices at levels of provinces and prefectures are responsible.

Among laws and regulations concerning the preservation of biospecies there is Law No.5/1990 concerning Conservation of Biological Resources and their Ecosystem. Under this Law, emphasis is placed on the preservation of ecosystems based on the faith that animals and plants are God's gracious gifts and as a tool for the preservation of ecosystems, Wildlife Reserves (Sanctuaries) such as National parks are designated. Mining and agricultural activities within Reserves (Sanctuaries) are prohibited unless authorized under special permits.

2.2 Wildlife Species

Indonesia is reported to be a country with the largest number of endangered species in the world. It is also a country with the largest number of unidentified species, as exemplified by the fact that in 2004 in Kalimantan and in 2005 in Papua were discovered several dozens of new species such as species of birds, butterflies and plants, etc.

2.2.1 Endemic Species

In Indonesia there exists a very high rate of endemic species. However, the rates of existence differ with islands. Sulawesi and New Guinea Islands are with the highest rates of existence of endemic species. Similar trends are witnessed with regard to fauna and flora other than avian and mammal species.

Endangered species in the world are monitored by IUCN. The Red List on endangered species compiled by IUCN is based on the following categorization. （For further details, see http://www.biodic.go.jp/rdb/category_def.pdf）

2.2.2 Endangered Species

Endangered species existing in Indonesia are indicated in the following table.

Table 2.2-1 Endangered Species in Indonesia

taxon	Critically Endangered (I_A)	Endangered (I_B)	Vulnerable (II)	Total
Evian species	16	33	72	121
Mammal species	15	44	87	146
Reptilan species	8	9	11	28
Amphibian species	3	10	26	39
Fish species	6	6	25	37
Plants	115	73	206	394

Sources：1.Plant species：IUCN Red List version 2011.1 (Table 6b)
2.Animal species：2006 IUCN Red List of Threatened Species (2006)

2.3 Significant Ecosystems and Habitats

As Indonesia has ratified the Convention on Biological Diversity, it has formulated the guidelines for the selection, installment and management of Reserves in accordance with the said Convention.

The management of Reserves is carried out in accordance with Basic Forestry Law No. 41/1999[4]. Under the said Law the Reserves are divided into 6 categories, namely Nature Reserve, Wildlife Reserve, National Park, Nature Recreational Park, Hunting Park and Grand Forest Park.

Table 2.3-1 Categories of Reserves and Definitions

Categories	Definitions
Nature Reserve	・The most important zone for the preservation and protection of biodiversity。 ・Habitats for rare animal and plant species ・Zone where a thorough management, operation, regulation and protection are required。
Wildlife Reserve	・Important zone for the preservation and protection of biodiversity ・habitats for rare animal and plant species ・Zone where a thorough management, operation, regulation and protection are required。。
National Park	・Important zone for the preservation and protection of biodiversity ・Habitats for rare animal and plant species ・Can be possible to utilize as recreational ground for the general public
Nature Recreational Park	・Zone where the importance for the preservation and protection of biodiversity is relatively low ・Habitats for rare animal and plant species ・Can be possible to utilize as recreational ground for the general public
Hunting Park	・Zone where the importance for the preservation and protection of biodiversity is low ・Habitats for rare animal and plant species ・Hunting limited to the specific animal species (wild boars, deer, part of fishes)
Great Forest Park	・Zone where the protection of water reservoirs is required

Sources：Basic Forest Law(No 41/1999)

As of 2007, the total area of Reserves on land amounts to 10% of Indonesia's total area of land territory. These Reserves include those being under the jurisdiction of the Ministry of Forestry and the Ministry of Marine Fisheries respectively. The Reserves under the jurisdiction of the Ministry of Forestry consist of 495 Sites on land (an area of 22.7 millions ha) and 40 Sites on the sea(an area of 11,6 million ha). On the other hand, the Ministry of Marine Fisheries has under its jurisdiction 88 Sites of Reserves on the sea (an area of 3.4 millions ha).

Many of Indonesia's Reserves have been instituted ever since the 1980s and the Indonesian Government has continued to invest funds in these Reserves. The number of Reserves has increased and the amount of investment per unit area has also mounted, with the amount of investment per hectare having jumped from 0.44 dollars in 2004 to 2.35 dollars in 2007.

Table 2.3-2 Breakdown of Reserves under the Jurisdiction of the Ministry of Forestry and Area（2007）

Categories	Number of Reserves （Sites）	Area（ha）
Nature Reserve	247	4,707,609.65
Land	240	4,338,499.65
Ocean	7	369,110.00
Wildlife Reserve	77	5,389,855.64
Land	70	5,051,737.39
Ocean	7	338,118.25
National Park	51	22,280,792.64
Land	43	12,237,251.34
Ocean	7	4,045,049.00
Nature Recreational Park	123	1,039,336.56

[4]In accordance with the Said Law, the category of Hunting Parks has been newly added to 5 kinds of categories of Reserves existing under Law No,5/1990 Concerning Conservation of Living Resources and Their Ecosystem

Land	105	256,903.35
Ocean	18	770,120.00
Great Forest Park	21	343,454.41
Hunting Park	14	226,200.69
Total	531	27,987,249.59

Resource：USAID, “Conservation of Tropical Forests and Biological Diversity in Indonesia” (2008)
Source：MOE, “State of the Environment 2008”

Table 2.3-3 Breakdown and Area of Reserves under the Jurisdiction of the Ministry of Marine Fishery （2007）

Breakdown	Number of Reserves(Sites)	Area（ha）
Regional Marine Reserve	28	3,281,922.66
Planned Regional Marine Reserve	23	13,611,823.48
Marine Reserve & Mangrove Reserve	27	2,085.90
No-fishing zone	10	453.23
Total	88	16,896,285.27

Resource：USAID, “Conservation of Tropical Forests and Biological Diversity in Indonesia” (2008)
Original Resource：MOE, “State of the Environment 2008”

Table 2.3-4 Categories of Reserves and Permitted & Prohibited Matters

Reserve	Indonesian name	Outline	Cultivation of food crop	Cultivation of fruits	Immigration	Commercial deforestation	Collection of useful plants & tree and	Hunting	Fishery	Camping	Collection for academic purposes	Management of ecosystem	Introduction and trasnplantation of	Collection of rattan and bamboos	Mining resources development	Wildlife management	Entry of tourists	外国種の移入・移植
Nature Reserve (IUCN Ia)	Cagar Alam	Extremely important zone for the preservation of ecosystems and protection & preservation of rare life forms and requires particularly rigorous management	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
National Park (IUCN II)	Taman Nasional	Important zone for the preservation of ecosystems and protection & preservation of rare life forms but opened to the residents for recreational purposes	×	×	×	×	×	×	○	○	○*	○	○	×	○*	○	○	×
Nature Recreational Park (IUCN III)	Taman Wisata Alam	Importance for the preservation of ecosystems and for the protection and preservation of rare life forms is relatively small. Opened to the residents for recreational purposes.	×	○	×	×	×	×	×	○	○*	○	○	○*	○*	○	○	×
Wildlife Reserve (IUCN IV)	Suaka Margasatwa	Important zone for the preservation of ecosystems and for the protection and preservation of rare life forms and requires severe management	×	×	×	×	○	×	×	○	○*	○	○	×	○*	○	○	×
Hunting Game Reserve (IUCN IV)	Taman Buru	Importance for the preservation of ecosystems and for the protection and preservation of rare life forms is small.。 hunting and catch of designated animals (wild boars, deer and fishes) shall be authorized	×	○	×	×	×	○	○	○	○*	○	○	×	○*	○	○	×
Grand Forest	Taman	Zone where the protection of forests is	×	○	×	×	○	○	○	○	○*	○	○	×	○*	○	○	○

Park (non-category)	Hutan Raya	required for the protection of watersheds, but the importance for the preservation of ecosystems and for the protection and preservation of rare species is small.																	

*Permitted when specially authorized

Source：Field Report of UNDP/FAO National Park Development Project INS/78/061

What follows below is a description of the current conditions of marshes, etc.

①Marshes

Marshes to be selected for the List under Ramsar Convention are considered to be those selected on account of their international significance in terms of ecology, botany, zoology, limnology or hydrology, or those considered to be of international importance to waterfowls. Indonesia is a country with the most wide-ranging and the most diversified marshes in the Asia Pacific region where there are several hundreds of nation widely distributed marshes, which are designated under Marshes International-Indonesia Programme.[5] Indonesia has ratified Ramsar Convention under Presidential Decree No. 48/1991 and ever since has played a leading role in promoting Ramsar Convention within the South East Asia region. Presently 3 National Parks of Berbak, Danau Sentarum and Wasur are on the Ramsar Convention List as Ramsar Convention Registered Marshes.

Chart 2.3-1 Ramsar Convention Registered Marshes

②Coral Reefs

The coral reefs inhabiting in the coastal zones (excluding the remote ocean zones) of Indonesia range over approximately 51,000 km in length. They represent 51% of the coral reefs of South East Asia Region and 18% of the world total. Many of these coral reefs are found in the archipelago zones rather on the Eastern side such as Sumatra Island, Java Island, Bali Island, Flores Island, Banda Island and Sulawesi Island. According to the data as of 2007 of the Ministry of the Environment, two thirds of Indonesia's total length of coastlines (108,920 km) are surrounded by coral reefs of the total area of 20,731,840 ha [6].There are various types of coral reefs in Indonesia such as fringing reefs, barrier reefs and atolls[7], of which fringing reefs are the most numerous. They are found along the coastlines of Sulawesi Island, Maluku Islands, Papua and Bali Island as well as of the islands off Sumatra. According to the data as of 2002[8]、artificial reefs in Eastern Indonesia are considered to be one of the world's most marine resources rich zones, inhabited by more than 480 species amounting to approximately 60% of the world total and more than 16,50 fish species. However, much research has not been made yet on coral reefs especially in Eastern Indonesia. Much on their importance remains unknown.

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[5] For information on wetlands under Wetlands International-Indonesia Programme, see Wetland Database (http://www.wetlands.or.id/wdb/wdb.php)

[6] World Research Institute, "Reefs at Risk in Southeast Asia (2002)"

[7] Fringing reefs; : Coral reefs developed adjacent to costal zones

Barrier Reefs : Reefs surround the exterior side of an island like as a water break (exterior reef) and between the reef and the island there is a rather deep reef lake

Atolls : There is no island in the center of reefs and there are only circular exterior reefs and reef lakes

[8] World Research institute," Reefs at Risk in South East Asia (2002)"

③Mangroves

The mangrove is a generic name for vegetation that grows in coastal sediments exposed to tidal waves and mangrove zones are found in coastal zones where tidal waves crash against coral reefs, sunken rocks and sand beaches, etc. Mangrove forests in Indonesia are found mainly along coastlines, in delta zones, estuaries, lagoons and on remote islands. According to the USAID report, as of 2006 Indonesia's mangrove zones have a total area of approximately 0.44 million ha and are inhabited by 42 mangrove species. As regards the geographical distribution of mangrove habitats in Indonesia, Papua Island has the largest mangrove forest habitat in Indonesia with an area of 75% of Indonesia's total.

It is reported that at the time of the Great Tsunami in the aftermath of the Off Sumatra Earthquake, the mangrove forests along the coast lines served as the buffer to diminish the destructive power of the Tsunami and contributed to lower the extent of damages. Mangroves have their respective peculiar configurations of roots, which are firmly and solidly embedded in the sediments while upper bodies of mangrove trees have great flexibility and resilience. These very properties of mangroves enabled them to serve as the natural breakwater against the Tsunami of as high as over 10 m and contributed to absorbing the destructive energy of the Tsunami. It is increasingly being appreciated that Mangrove forests are able to perform effective and valid functions as a means to counter possible disasters in the coastal zones.

④Forest Management Rlated Laws and Regulations

Article 33 of the Indonesian Constitution (1945) stipulates that "land, water and nature utilization shall be managed by the State and shall be utilized for the prosperity of the people". Under this Article Forestry Law (Law No. 41/1999) was enacted and forest management shall be carried out for the 3 objectives of economic development, fair distribution of benefit to society and sustainable environmental management. Article 4 stipulates that it shall be the responsibility of the Government to enact laws, frame systems and institutions, establish organizations concerning forestry management, that it shall fall under the jurisdiction of the Government to designate Forested Areas and Non-Forest Areas and that forestry management by the Government shall respect customary law unless it contradicts the national interest of Indonesia.

Under "The Guidelines concerning the Lease of Forest Areas for the Purpose of Development (State Minister of Forestry Decree No. 14/ /2006), it is stipulated that in the event that commercial exploitation takes place in forests, a site for reforestation twice as large as the deforested area shall be ensured in a location adjacent to a Protected Forest and that reforestation shall be accordingly carried out in the Said location.

Furthermore, as regards the conversion of forest functions for the purposes of optimization and stabilization, the Minister of Forestry Decree No. 34 of 2010, authorizes, subject to the required conditions met, the conversion of forest functions between and among Protected Forests (Hutan Konservasi), Reserved Forests (Hutan Lindung) and Production Forests (Hutan Produksi). However, in Provinces whose forest area is less than 30 % of the total land area, no such conversion shall be authorized.

⑤Forest Function Classification

The Forest Law of 1999 stipulates that National Forests (State Owned Forests) consist of Production Forests, Protected Forests and Reserved Forests. The Said Law also refers to Customary Forests (adat forest). Furthermore, in 2007, Government Regulation No.6/2007 has been enacted as an amendment to Government Regulation No.34/2002, in which the legal status of Village Forests and Community Forests are defined. It is also stipulated that in the forests whose utilization have been already authorized or in the forests being under the management of State owned corporations, the Government shall take measures to allow the local residents in these forest areas to cooperate with the undertakings of these business entities with a view to enhancing the welfare of the local residents. Against State Owned Forests, forests owned by private entities are called Entitled Forests. The Table below indicates the size of areas by function of State Owned Forests;

Table 2.3-5 Major Forest Functions and Their Respective Area

Forest functions	Area of forests	
	(ha)	(%)
Natural Protected Forests（Kawasan Hutan Suaka Alan）	23,304,018	17.4
Reserved Forests（Hutan Lindung）	31,604,032	23.6
Limited Production Forests（Hutan Produksi Terbatas）	22,502,724	16.8
Permanent Production Forests（Hutan Produksi Tetap）	36,649,918	27.4
Conversion Forests（Hutan Konversi）	22,795,961	17.1
Hunting Parks	233,815	0.2
Total area of State Owned Land Forests	133,694,685	100.0

(Note) Natural Protected Forests include Water Source Nurturing Lands of 3,395,783ha

Sources：Ministry of Forest, Eksekutif data strategis kuhutanan (2008)

i) Production forests（Hutan Produksi）

These are forest areas with the functions of producing forest products. Depending upon their gradient, kind of soil and precipitation, etc. these forests are divided into Limited Production Forests (Futan Produksi Terbatas)(where selective commercial partial cutting is permitted), Permanent Production Forests(Futan Produksi Tetap)(where selective partial cutting or clear-cutting is permitted) and Conversion Forests (Hutan Konversi)(where clear-cutting is permitted).

ii) Protected Forests （Hutan Konservasi）: These are forests with the functions of preserving biodiversity and ecosystems and are divided into Nature Protection Forest Zones（Kawasan Hutan Suaka Alan）and Nature Preservation Forest Zones（Kawasan Hutan Plestarian Alan, etc. In these Zones commercial forest cutting and other resources development are prohibited.

iii) Reserved Forests（Hutan Lindung）: These are forests with the functions of preserving water & soil such as nurturing water sources as well of preventing floods, sedirnent run-off and sea water intrusion . Their primary objective is for basin management. In these forests commercial forest cutting is prohibited.

iv) Customary Forests（Hutan Adat）: These are State Owned Forests existing within Customary Law Resident Areas. The Government designates Customary Law Forests based on the fact of existence of Customary Law Residents and valid for a period where such existence can be authorized. Customary Law Residents are authorized to cut trees within Customary Law Forests for their own proper consumption. The management of such Forests can be carried out in according with customs & practices remaining within the scope of not conflicting with law.

v) Village Forests(Hutan Desa) : These are State Owned Forests managed and utilized by the villages themselves for the purpose of their welfare. Village Forests can be designated within Reserve Forests and Production Forests and forest cutting is authorized only within Production Forests. For all utilizations within the Village Forest, monetary contributions to the Afforestation Fund and payment of Forest Resources Fees are mandatory.

vi) Community forests（Hutan Kemasyarakatan）: These are State Owned Forests mainly for the purpose of revitalizing the resident community. The Government grants to the cooperative established by the community residents the right to use in exchange for payment of a rental fee. Community Forests may be designated within Protected Forests, Reserved Forests and Production Forests other than the central zones of the strict nature protection areas and National Parks, with the proviso that tree cutting can be authorized only within Production Forests.

vii) Entitled Forests（Hutan Hak）: These are privately owned forests under the title of landownership,

etc. These forests are regulated under the Province & City Area Utilization Plan as forests charged with the functions of protection, preservation and production Forest utilization within Entitled Forests with the functions of protection and preservation is limited to the collection of non-timber forestry products and environmental service and activities such as tree harvesting, construction of facilities for harvesting, transplantation of alien species and other activities for damaging the protection functions of forests, are prohibited. Forest utilization within Entitled Forests charged with production functions are limited to that of timber forestry products, non-timber forestry products and environmental services, and timber forestry product utilization is limited to business undertakings for the afforestration of single tree or mixed tree species.

2.4 Other Matters

The following are other matters summarized concerning natural environment.

①Critical land

"Critical Land" is a term defined by the Indonesian Government in the context of its Basin Management Program. An area of 23 millions ha (approximately 12% of Indonesia's land territory) fall under this definition. Critical Lands are to be assessed in terms of the extent of land degradation and the extent of decline in ecosystem functions such as the status of land utilization, the conditions of slope configurations and the conditions of soil erosion. According to the USAID analysis [9], in West Indonesia where the population concentration is high, the ratio of critical lands is high. Furthermore, the rate of critical lands on Bali Island and Nusa Tenggara Islands is as high as 23%(twice as high as the national average) because of relatively small precipitations and many slope lands on these islands.

②Mining development

The total area of mining development in Indonesia is reported to be 84 million ha, of which 11.03 million ha are reported to be located around Reserves. Mining operations, especially strip mining require large-scale removals of flora and cause disturbances and divisions in the habitats of fauna. It may be true that in recent years awareness on ecosystems on the part of large-scale mining companies has been enhanced because of mounting worldwide environment friendly mind. However, many small-scale mining operations and illegal mining activities are also going on and land-refilling operations at closed mining sites or resuscitation of flora hardly receive decent consideration. In interviews with the Ministry of the Environment, it has been revealed that it is difficult to catch illegal mining operators since they are engaged in illegal mining operations by migrating from one site to another in the remotest regions.

③Disasters

In recent years Indonesia have suffered from numerous natural disasters including earthquakes. In these disasters it is noted that ecosystem degradation such as a decline in the forest area has contributed to magnifying and intensifying damages. In 2003 the floods in North Sumatra caused 180 deaths because appropriate basin management measures had not been in place. In Jakarta annual floods are increasingly becoming serious. In the event of the floods that broke out in February 2007, 270,000 citizens were obliged to take refuge and 29 persons died. Moreover, it is suspected that deficiencies in basin management are responsible for the recent trends toward increased frequency of floods in Bontang and Medan.

[9] USAID Indonesia, Report on Biodiversity and Tropical Forests in Indonesia (2004)

Chapter 3 Anti-Pollution Measures

3.1 Overview

Although the rapid economic growth of Indonesia has improved the people's living standard, on another front it has caused serious pollution issues which brought damage to the environment and human health. Particularly in large cities including the metropolitan area of Jakarta, there is a pressing need to address the issues such as water contamination from domestic wastewater and industrial effluents, air pollution caused by vehicles and industrialization, increase of solid wastes, hygienic issues entailed by the lagged life infrastructure. The Indonesian government has implemented various measures to address this situation, and the measures have yielded some results including the abolition of leaded gasoline and ozone-layer destructive substances, but a lot of issues are left unresolved.

3.2 Air Pollution

Indonesia began to see an increase of air pollution in 1980s, when there was a rapid industrialization and a population influx into urban areas. The sectors of energy (production/transportation/conversion), civilian, industrial and traffic may be cited as the causes of human-induced air pollution. The main air pollutants include lead, particle matter (PM), carbon monoxide (CO), nitrogen oxide (NO_x), hydrocarbon (HC), and sulfur dioxide (SO_x).

The basic law governing air pollution is the "Air Pollution Control Act" (the Government Regulation No. 41/1999), which is regarded as an implementing decree in the field of anti-air pollution provided in the "Environment Act" of 1997 (the Environment Act No.23/1997). The Environment Act prescribes SO_2, CO, NO_2, ozone, hydrocarbon, PM_{10}, $PM_{2.5}$, total suspended particles (TSP), lead, sedimented dust、fluoride, chlorine/chlorine dioxide, hydrosulfate etc. in its environmental standards, and also describes the analytical methods and analytical equipments used.

Meanwhile, "the State Minister of Environment Decree on the Control of Emissions from Fixed Emission Sources" (the State Minister of Environment Decree No. 13/1995) prescribes the emission standards for iron manufacture, pulp/paper-manufacture, coal-fired power generation, cement and other industries as a regulation on fixed emission sources, but since 2007, new Ministerial Decrees have been applied to the emission control at fixed sources in "steam generation plants using various types of fuels" and "thermal power generation plants".

Furthermore, Act No.22/2009 on Traffic and Road Transportation, a new road traffic law passed in 2009, regulates the mobile emission sources. This Act is the basic law on the management of land transportation, but it also includes the regulations on vehicle exhaust gas, and specifically, it prescribes that vehicle exhaust gas inspection is a part of the suitability inspection for road transit and the implementing obligation rests with the road transportation sector. This Act, however, limits the targeted vehicles of this exhaust gas inspection to public vehicles.

As for the regulation on the exhaust gas of vehicles, the "State Minister of Environment Decree No.141/2003: New Type and Current Production Motor Vehicle Exhaust Emission Standards" was published in 2003. This Decree prescribed that the Euro 2 exhaust gas standards shall be applied to the vehicles sold in Indonesia after January 2005, but the actual enforcement of this Decree was put off till 2007 due to the fact that it took a while to phase out leaded gasoline from the market. This Decree was later updated by the "State Minister of Environment Decree No.4/3/2009", published in March 2009. This new Decree was enacted to allow for the exhaust gas inspection on all types of vehicles using various fuels.

The main governmental agencies which manage the air environment in Indonesia are the Ministries of the Environment and Transportation, Directorate General of Oil and Gas (DITJEN MIGAS), Research and Development Centre for Oil and Gas Technology (LEMIGAS), provincial environmental agencies (BAPEDALDA), and prefectural/municipal environmental authorities.

Table 3.2-1 Competent Agencies and Their Functions

Name of Agencies	Functions
Ministry of the Environment	To support the President of Indonesia in environmental management, institutional infrastructure development and Government work coordination and to formulate emission standards, etc. with reference to world standards. To formulate policies and measures to cope with Ozone Depleting Substances (ODS) and problems of climate change
Ministry of Transportation	Motor vehicle exhaust gas tests are undertaken by Agencies responsible for road traffic such as Traffic and Road Transportation Agency。
Directorate General of Oil and Gas （DITJEN MIGAS）	To mandate the formulation of fuel standards under the Ministry of the Environment and the Ministry of Energy and Mineral Resources
National R & D Centre for Oil and Gas Technology （LEMIGAS）	To carry out research on fuel quality under the Ministry of the Environment and the Ministry of Energy and Mineral Resources
Provincial level Environmental Agencies （BAPEDALDA）	To monitor environmental air quality. To implement on the road monitoring, to formulate automobile exhaust gas standards at regional government levels and to carry out coordination with competent agencies and centers concerning a variety of environmental problems.
Environment authorities at provincial & municipal levels	To prepare regional traffic plans and land utilization plans and to monitor environmental air quality. Following the regional decentralization reform, prefectures and cities are also authorized to formulate their own standards。

3.3 Water Contamination

The water quality of Indonesia has been getting worsened year after year, and the use of safe surface water and groundwater has been gradually limited along with the increase of pollution. The main sources of water pollution include ordinary domestic wastewater, industrial effluents, agricultural effluents, and the leachates from wastes under inadequate management. Additionally, an excessive use and inadequate storage of agrichemicals and pesticides have also contributed to water contamination. The contamination of river water and groundwater has harmful effects not only on the health of the inhabitants using the water but also on the ecological system of coastal areas and sea areas.

Indonesia controls water quality and regulates water pollution on the basis of the “Government Regulation No. 82/2001”. Although this government regulation is applied to surface water and groundwater including aquifers, springs, rivers, lakes/ponds, artificial lakes and estuary reservoirs, it is not applied to sea water or fossil water (water which is confined in cleavages etc. while rocks are formed by means of sedimentation). This regulation prescribes the environmental water quality standards for the physical properties, inorganic/organic chemical substances, microbes and radioactive materials.

As for potable water, the “State Minister of Health Decree No. 907/MENKES/SK/VII/2002” was developed by the Ministry of Health in 2002, and this Decree is supposed to be applied to potable water supply. This Decree was updated in 2010 by the “State Minister of Health Decree No. 492/MENKES/PER/IV/2010”.

Class I	Water that can be used as raw water for drinking water and/or other uses requiring the same water quality standards
Class II	Water that can be used for recreation, freshwater fish aquaculture, farming, plantation irrigation purposes and/or other uses requiring the same water quality standards
Class III	Water that can be used for freshwater fish aquaculture, animal husbandry, plantation irrigation purposes and/or other uses requiring the same water quality standards.
Class IV	Water that can be used for plantation irrigation purposes and/or other uses

requiring the same water quality standards.

As for the licensing of effluents from factories etc., the “State Minister of Environment Decree No.111/2003 on the licensing requirements and procedures for permitting the discharge of polluted effluents to streams or reservoir areas (rivers or lakes etc.)” was published in 2003, and was later revised by the “State Minister of Environment Decree No.142/2003” in the same year.

Under State Minister of Environment Decree No.51/2004(Sea Water Quality) of 2004, the standards for seawater quality have been set in respect of each mode of utilization for Ports, Recreational Areas and Sea Area Biota Protection Areas. The designation of Sea Area Types falls under the jurisdiction of each Province.

As regards the rules on the authorization of drainage of effluents from the factories, etc, they used to be regulated under State Minister of Environment Decree No.111/2003) announced in 2003. However, the Decree was revised by State Minister of Environment Decree No.142/2003 of the same year.

As for industrial effluent standards, the “State Minister of Environment Decree No. 51/1995” prescribes the effluent standards for the targeted major industries.

Since the decentralization in 2001, the status of water quality has been improved to some extent on local level because the decision-making process has been brought down to the provincial level or below. Meanwhile, it has become difficult to capture the whole picture of the current status of water quality in Indonesia because of the new regulation that allows the monitoring results etc. not to be submitted to the central government. The measures against water contamination have not been well pursued due to the fact that many governmental agencies and local governments are involved in the process, the relationships of rights and obligations are complicated, and that the skills of and the punitive provisions for local officials are inadequate etc.

As for the water contamination in urban areas, the Indonesian government has been pursuing a water purification program (PROKASIH), a statement program for high-quality river water (SUPERKASIH), supply of potable water, management of marine/coastal areas, and oil spill measures, all under the assistance of the international aid community.

Under the water quality related laws including the above-mentioned Water Quality Contamination Prevention Law, Regional Governments have the powers to set stipulate water quality environmental standards and drainage standards of their own (regional standards more stringent than the national standard). Among those having set their own water quality standards are Special Province of Jakarta, South Kalimantan Province, East Kalimantan Province, Riau Province, South Sumatra Province, North Sumatra Province, East Java Province and West Java Province.

The Water Quality Contamination Prevention Law of 2001 has the following stipulations on water quality contamination prevention management in Indonesia ;

- The responsibility for water quality contamination prevention management shall be transferred from the Central Government to Governments of Provinces, Prefectures and Cities.
- The Ministry of the Environment shall be responsible for the formulation of basic national policies on water quality contamination prevention management.
- The responsibility to deal with cross-provincial border or cross-national border water problems shall rest with the Central Government.

Under other laws, however, a number of Central Government Agencies & Departments have the powers to intervene in the matters concerning the management of water sources and wastewater. Among major competent Ministries concerned are the Ministry of Industry, the Ministry of Energy and Mineral Resources, the Ministry of Health, the Ministry of Agriculture and the Ministry of Public Works, etc. As regards marine areas, the Ministry of Environment and the Ministry of Marine Fishery, which are the two major surveillance agencies, have defined their respective management responsibilities after mutual consultation as follows;

- As regards water quality management in sea areas, its management responsibility shall be transferred to Prefecture and City Governments.
- At the level of the Central Government, the Ministry of Marine Fishery shall be responsible

for the management of water quality and marine ecosystems.

3.4 Wastes

In Indonesia, wastes are categorized into harmful wastes called B3 (Bahan Berbahaya dan Beracum) wastes, an acronym of the Indonesian words for “dangerous”, “harmful” and “toxic”, and general wastes (medical wastes are included in harmful wastes). The amount of wastes in Indonesia has been increasing along with the increase of population and domestic garbage, as well as with the development of economic activities, leading to a variety of environmental concerns such as illegal dumping of untreated wastes, heavy infestations of rats, emerging infectious diseases, foul odors, fires at treatment plants, water pollution due to leachates from wastes etc. The total amount of generated wastes including both harmful and general wastes was 38.5 million tons in 2006, of which domestic wastes accounted for the largest share at a little more than 40%.

Table 3.4-1 Categories of Wastes under the Waste Management Act (2008)

Category of Wastes	Contents
General Waste (Household waste)	Waste generated from daily family life but not including feces and Special Waste。
General Waste Equivalents	Waste generated from commercial facilities, industrial parks, community public facilities and other facilities, etc.
Special Waste	Waste requiring special management due to their special properties as follows ・Waste containing noxious materials and substances ・Hazardous waste ・Waste generated from disasters ・Materials and substances remaining in the ruins of buildings ・Waste impossible to process due to technological constraint ・Irregularly generated waste

Sources: Waste Management Act No.18/2008

① Harmful Wastes

In Indonesia, “The Decree on the Management of Harmful Wastes” (The Government Regulation No.18/1999 and No.85/1999) defines harmful wastes as “wastes which have any one of the properties of explosiveness, inflammability, reactivity, toxicity, infectiousness or corrosiveness, or which have been certified as harmful wastes as a result of characteristic tests”. The fundamentals of the definition of harmful wastes in Indonesia are as follows:

- Waste organic solvents, waste acids and waste alkalis are regarded as harmful wastes without regard to their sources.
- Wastes from hospitals are regarded as harmful wastes.
- Wastes from oil/gas/geothermal exploration/production activities, oil/gas refining, mining and coal fired power generation plants are, depending on the results of characteristic tests, in principle not regarded as harmful wastes.

② Domestic wastes

According to the statistical data of 2005 provided by the Environment Ministry of Indonesia, the amount of wastes generated in Indonesia increased by 2.4% to not less than 6,000m^3/day in urban areas and to 3,000m^3/day in large cities in one year from 2004, and it has a growing trend. Looking at the composition of urban wastes in 2007, the share of organic wastes related to food is large, accounting for 63% of the total amount. In addition, the amount of generated paper and plastic wastes is relatively large, accounting for 11% and 10%, respectively. The Environment Ministry predicts that the amount of per capita wastes generated will increase to as much as 0.91kg/person/day by 2020, compared with 0.8kg/person/day in 1995[3].

The Indonesian system of law concerning general and harmful wastes began to be formulated

[3] Institute of Developing Economies, JETRTO, “A Survey Report on the Informative Projects on the Policies of Industrial Wastes/Recycling in Asian Countries”.

around the beginning of 1990s, and the system has gone through three phases, namely the period up till the decentralization in 1999, the first stage of decentralization (1999-2004) and the later stage of decentralization (after 2005, during which period the Waste Management Act was formulated).

① Harmful wastes

In Indonesia, the first regulation for harmful wastes was enacted in 1994, and after revision the current regulation of the Government Regulation No. 18/1999 was enacted.

According to the Government Regulation No.18/1999, the import of harmful wastes into Indonesia has been prohibited since September 2002. And the Government Regulation No.74/2001, which was formulated by developing the Government Regulations No.18/1999 and No.85/1999, lists 209 substances which belong to the B3 category. Besides, it is also prohibits in principle to import waste plastics.

② General wastes

The Government Decree No.18/1999 prescribes that those wastes which do not belong to the category of harmful wastes must be disposed of adequately. While no regulations have ever been enacted which provide only for the treatment/disposal of domestic wastes, the "Waste Management Act" of 2008, described later in this document, is applied also to these types of activities.

The Government Decree No. 85/1999 regulates that the responsibility for the management/disposal of harmful wastes lies with businesses and the supervisory responsibility lies with the Environment Ministry. The management of general wastes is overseen by the Division for the Evaluation of Contamination in Household and Middle/Small-Sized Businesses, Environmental Pollution Evaluation Department, and the management of harmful wastes is overseen by the B3 Management Regulatory Department. As many governmental agencies were involved in the management of actual wastes in the past, the responsibility of each agency was ambiguous, which hampered the operation of laws on wastes. However, since the decentralization program was implemented, it has been made possible to plan and operate waste management programs in a more community-conscious manner.

The collection method of domestic wastes vastly differs depending on the status of urbanization, culture and economic conditions as well as in each Province, and 50% of the total wastes are collected by the public service providers, while in large cities about 75% are collected.

③Administrative organization

Under the Government Decree No. 85/1999, the responsibility for the management and disposal of waste shall rest with business operators. And the responsibility for the surveillance of such business operators shall rest with the Ministry of Environment. As regards general waste, it is Household and Small & Medium Size Enterprise Pollution Assessment Division of Environmental Pollution Assessment Bureau that is responsible. As regards noxious waste, B3 Management & Regulation Bureau is responsible. Actually in the operation of waste management a lot of Government Agencies have so far been involved. Consequently, the borderlines between and among the responsibilities of various Ministries have always tended to be blurred. Consequently, difficulties have been caused in the operation of laws and systems concerning waste management. However, ever since the regional decentralization reform was implemented in the direction of greater regional autonomy, the planning and operation of waste management more tuned to the local conditions has become possible. However, as far as B3 waste is concerned, Regional Governments exercise merely surveillance powers, with the powers of authorization remaining with the Ministry of Environment. Under Government Decree No. 85/1999, the Ministry of Environment is expected to shift, though slowly and gradually, more of its powers on B3 waste to Regional Governments, while intensifying efforts to enhance the expertise of Regional Governments on B3 waste and to promote through Regional Governments capacity building on the part of residents and enterprises. The Ministry of Public Works is also promoting its own activities for the collection and disposal of waste.

Indonesia has ratified Basel Convention (Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal). And under the said Convention the South East Asia Regional Center has been opened in Jakarta.

Recent measures and challenges concerning pollution in Indonesia are as follows:

① Enactment of the “Waste management Act”

The “Waste Management Act” of Indonesia (Waste Management Act No.18/2008) was introduced in May 7, 2008 as the Act No.18 in the same year. The new Act adopts the concept of 3Rs (Reduce, Reuse and Recycle) on a massive scale, and addresses such issues as segregation of wastes. Although the Act clearly prescribes that the management of wastes falls under the responsibility of the government, but it delegates the development of specific implementation methods to other decrees which are to be formulated later on. Since waste treatment needs to be conducted on the local level in principle, related systems are to be instituted in each locality after the enforcement of this Act.

② 3Rs assistance

The Indonesian government has been pouring its efforts into the promotion of 3rs under a unified strategy for the reduction and minimization of generated wastes, seeking to apply relevant schemes in this country by means of training projects for local governments on 3Rs and visitation to countries which have advanced 3Rs-related systems etc.

③ Disposal/treatment facilities of B3 wastes

According to the National Mid-term Development Program which was implemented from 2004 to 2009, it was aimed to develop a system and a mechanism for managing B3 wastes as well as to construct at least one facility for the disposal/treatment of B3 wastes. In line with this program, the Environment Ministry began to approve newly established companies specialized in the treatment/disposal of harmful wastes one after another in 2009, and that resulted in a total of 9 companies that are now qualified to receive harmful wastes from outside as of November 2010.

④ Final disposal facilities for general wastes

Bekasi Controlled Landfill Disposal Facility, located in the suburbs of Jakarta, started operation in 1989, and it now receives about 6,000 tons/day of wastes. However, in addition to the management status which cannot be considered adequate because of the lack of both finance needed and knowledge of the workers on the wastes etc., the amount of wastes brought into the facility has already surpassed its capacity, and accidents have occurred including the collapse of piled-up wastes. Jakarta City had originally planned to construct another treatment/disposal facility to replace this, but the plan has been suspended due to the objections of the citizens etc.

3.5 The Status of Other Pollution Issues and Efforts to Address Them

① Persistent organic substances

Indonesia signed the “Stockholm Convention on Persistent Organic Pollutants (POPs)” in May 2001. However, as the government doesn’t apply it strictly internally, it is said that POPs-containing substances are still distributed in large quantities in the market.

② Soil pollution

Soil pollution has emerged as a new problem due to oil/gas exploration, oil refining, mining and recent industrialization. Moreover, in agricultural communities agrichemicals and fertilizers are causing serious soil pollution. Nevertheless, up to now, no regulations have ever been enacted concerning soil pollution, and the “State Minister of Environment Decree No.128/2003: Guideline for Hydrocarbon Waste and Contaminated Soil Treatment Using Biological Method” only provides for a technical guidance for oil-polluted soils with no standards for the soil environment.

③ Ambient noise

Indonesia has enacted the State Minister of Environment Decree (No.48 /1996) as a regulation for curbing ambient noise, and this Decree obligates all the businesses and activities to meet the ambient noise standards, install sound-deadening devices and equipments, implement monitoring and to report it at least every 3 months.

As for the noise derived from vehicles, “State Minister of Environment Decree No.7/2009: Noise Level Standard for New Motor Vehicles”, instituted in April 2009, sets the limiting values for the noise

level of new model vehicles. Please refer to the accompanying material (-3⑫) for the limiting values.

Chapter 4 Social Environment

4.1 Overview

According to Statistics Indonesia (Biro Pusat Statistik: BPS), the population density of Java, which has more than half of the Indonesian population, stands at not less than 1,000 persons/km^2, considerably surpassing the national average of 116 persons/km^2, and though a resettlement policy has been implemented since 1970s in order to mitigate the over-populated situation of Java, its over-population is still a serious problem. While the aggregate land area of Java and its adjacent Bari and Madura islands accounts for only 7% of the total land area of Indonesia, the aggregate population of these three islands amount to about 120 million, accounting for about 60% of the national overall population[4].

However, looking at the population growth rate of each province from 2000 to 2010, Kalimantan Timur province has the largest rate at 3.8%, while the respective provinces of Java Island, represented by such large cities as Jakarta and Jogjakarta has seen a moderate decrease of 0.7%-1.9% in their population growth rate, putting a curb on the population growth rate of the metropolitan Jakarta at the national average value.

4.2 Major Topics in the Aspect of Social Environment

①Ethnic groups

Indonesia consists of more than 17,000 islands with hundreds of different languages and cultures, and ethnic problems have often led to regional conflicts. Most of the Indonesians are the descendants of Mongoloids (yellow race) who immigrated after 1500 B.C. and are called Malayan-Indonesians. Malayan-Indonesians can be subdivided into the following categories depending on the different languages/cultures:

- Javans: Java Tribe, Sunda Tribe, Madura Tribe, Bari Tribe, Sasak Tribe etc.
- Sumatrans: Batak Tribe, Ache Tribe etc.
- Kalimantanians: Dayak Tribe, Iban Tribe etc.

The national census conducted in 2000 summarizes the population ratio of each ethnic group as follows. As seen from this Figure, Javans account for the largest share (41%), and the Chinese people are said to account for about 5% of the rest.

②Religions

The religions in Indonesia have a significant impact on politics, culture and economy. In addition to the generally well-known religions, many primitive religions and creeds exist in some regions including Kalimantan Island and Papua Island. Common religions include Islam, Christianity (Catholic, Protestant), Hinduism and Buddhism. Article 29 of the Indonesian Constitution assures freedom of religion, but it is necessary to select one of the above 5 categories of religion for the National ID Card (Kartu Tanda Penduduk: KTP).

③Poverty rate

The poverty rate in Indonesia gradually decreased after 1976, but it went up again to 23.6% in 1999 due to Asian Currency Crisis. Since then a moderate decreasing trend has been observed, and as of 2004, it has been recovered to the level before Asian Currency Crisis. In Indonesia, there exists a certain extent of disparity between urban areas and farming areas, and, seen from the perspective of geographical conditions of a rectangular area spanning from east to west, the poverty rate goes up toward the east, while the number of the poor is by far the largest in Java Island, where the population is concentrated. [5] Nevertheless, due to the recent ongoing economic growth and the enhancement of governmental poverty relief programs, both urban and rural areas have seen a decrease in the poverty

[4] Expat Web Site Association, “Living in Indonesia”

[5] ADB, Report “From Poverty to Prosperity: A Country Poverty Analysis for Indonesia” (June 2006)

rate. According to the announcement of Statistics Indonesia, the poverty rate in March 2009 was down by 2.43 million people from the same period of the previous year, and it further declined by 1.5 million people by March 2010 from the same period a year ago. Out of the number of poor people reduced each year by March 2010, 810,000 were reduced in urban areas and 690,000 in rural areas[6].

④Gender

As a result of the Presidential Decree of 2000[7], which established the framework for gender mainstreaming, and a guideline for gender mainstreaming formulated by the Ministry for Women's Empowerment in 2002, the sexual discrimination has been reduced during the past 10 years in Indonesia. Further, the National Development Plan for 2004- 2009 also emphasizes gender mainstreaming as one of the targets of the National Development Plan. However, under the influence of decentralization etc. after 2001, the Gender Development Index (GDI) of 0.680 in Indonesia ranks 100_{th} of 169 countries (2008)[8], and various problems still exist as regards gender.

Table 4.2-1 Gender Profile

	Men	Womer	Year
Employment rate（% of the labor force）	80	44	2008
－Industry （% of its total number of employees ）	21	15	2007
－Agriculture（% of its total number of employees）	41.1	41.4	2007
－ Service industry (% of its total number of employees)	37.8	43.5	2007
The number of immigrants from overseas（person）	138,292	541,708	2006
Average longevity (year)	68.8	72.8	2008
Illiteracy rate （% of the population of age of 15 and above）	4.8	11.2	2006
Primary school (Age7-12) matriculation rate	44.1	45.9	2007
Junior high school (Age13-15) matriculation rate	75.6	76	2007
Senior high school (Age16-18) matriculation rate	18	18	2007

Source：Encyclopedia of the Nations: World Statistics (Website)

⑤Slum

U.N. Human Settlements Programme (UN-HABITAT) defines slum as "a densely-populated run-down area of a city characterized by substandard housing and squalor". 50-70% of the city-dwellers live in densely-built-up areas in Indonesia, and slums are formed in or near waste treatment facilities, railroadside areas, and under expressways etc. Flooding occurs every year in Jakarta City, which has particularly many slums, and every time dozens of riverside slums are swept away, but the inhabitants of the slums persistently refuse to move for the reason that they have no other place to live in.

Regional conflicts

In some parts of Indonesia, there are continuing conflicts between the central area and local areas as well as Javans and non-Javans. The cause of these conflicts can be found in the difference in religion,

6 The Jakarta Post,(July 2, 2010)

7 Presidential Decree No 9/2000: Gender Mainstreaming in National Development

8 UNDP, Human Development Report (2010)

culture and ethnic groups which are intricately intertwined with one another, and it is said that the resettlement policy, which the Indonesian Government have pursued to move some population from the densely-populated areas of Java Island etc. to less populated areas, have sometimes contributed to making the situation even more complicated. The World Bank took note of the relationship between conflicts and development in Indonesia, and initiated the Conflict and Development Program in 2007 with a view of conducting surveys on the relations among conflicts, poverty and development by means of its experience and analysis of field study data.

1) Aceh

In Aceh situated in the north of Sumatra Island, Free Aceh Movement(Gerakan Ache Merdeka: GAM) (guerrilla organization) has demanded its separation and independence from Indonesia ever since 1976. However, with the Great Tsunami Disaster in late 2004, which caused calamities as the turning point, the peace agreement was signed between GAM and the Indonesian Government. In April 2008, GAM renamed itself as Partai Aceh and seems to have definitely shifted their strategy from armed battle to political struggle movement. [9]

(2) Maluku

In the Maluku region (Maluku Province and North Maluku Province) in the North of East Timor nearly half of the population is Christians. Tense relations have existed between the Christian community and the Moslem community since 1999. Over the recent years no open conflicts of large scale have broken out between the two communities. This regional conflict represents one of the basic undercurrents of social instability that have since long troubled Indonesia ‘s national unity in various regions of Indonesia.

(3) Sulawesi

In Poso Prefecture of Central Sulawesi Province the Christian community and the Moslem community have been in conflict situations ever since May 2000 when a group of Christians launched attacks on the Moslem residential quarter. Since 2007 gun fighting have been witnessed between Government security forces and Moslem radical groups, etc. Even now the situation there is unpredictable and could aggravate at any moment.

(4) Kalimantan

Conflicts in West Kalimantan Province between indigenous Dayak people and immigrant Madura people have continued since more than 50 years ago. The Government is arranging for a new destination of settlement other than Madura Island and Kalimantan Island. It is feared that such re-emigration project might give rise to another conflict with indigenous people in the new destination as on Kalimantan Island。

(5) Papua Province and West Papua Province

In Papua clamor has been increasingly mounting for separation and independence since the collapse of the Suharto regime. It is Free Papua Organization (Organisasi Papua Merdeka: OPM) that leads this movement for independence. The declaration of a new Nation State Papua by the Papua people in 2000 shocked Indonesia. Ever since the leader of the independence movement has been assassinated, the movement has become stagnant. However, as Bird’s Head Region in the Western part of Papua has been separated as West Papua Province in 2003 in spite of local residents’ opposition, the independence movement seems to have become more active.

(6) Other conflicts

Apart from those conflicts mentioned above, tensions within the Chinese Indonesian community and the Malay Indonesian community must be mentioned. During the period of colonial rule, the Dutch

[9] Aguswandi, Wolfram Zunzer, “From Politics to Arms to Politics Again: The Transition of the Gerakan Aceh Merdeka (Free Aceh Movement - GAM”, 2008

have discriminated against the Malay Indonesians and the Chinese Indonesians. Land ownership for the Malay Indonesians was denied and their commercial activities were limited. However, since Wahid came to power, discrimination against the Chinese Indonesian community tends to disappear. Chinese radio broadcasts and celebration of Chinese New Year have been officially permitted.

4.3 Cultural Heritage

The Indonesian Government approved the International Treaty on the Protection of Cultural and Natural Heritage on July 6, 1989, and enacted the Law No. 5/1992 concerning Cultural Heritage Objects in 1992. This Law defines a cultural heritage (Benda Cagar Budaya) as “an object which was manufactured by humankind or nature more than 50 years ago, and has historic, scientific or cultural values” and cultural remains (Situs) as “the place which has a cultural heritage”. This Law grants the national government the authority to protect and manage cultural heritages, and the Ministry of Education and Culture was responsible for the protection and management of cultural heritages until 1999. After the Ministry of Education and Culture was reorganized into the Ministry of National Education by the restructuring of governmental agencies in 1999, the Ministry of Culture and Tourism became the central agency for the protection and management of cultural heritages.

Indonesia has 3 cultural heritages and 4 natural heritages which have been registered as the world heritages at UNESCO. The cultural heritages include Borobudur Temple Compounds (registered in 1991), Prambanan Temple Compounds (registered in 1991), Sangiran Early Man Site (registered in 1996), and the natural heritages include Ujung Kulon National Park (registered in 1991), Komodo National Park (registered in 1991), Lorentz National Park (registered in 1999) and Tropical Rainforest Heritage of Sumatra (registered in 2004).

On the other hand, the registered intangible cultural heritages include Wayang (registered in 2003), Keris (registered in 2005), Batik (registered in 2009) and Angk Lung (registered in 2010).

Indonesia has pursued the protection of cultural and natural heritages with the collaboration of experts, including the delegations from foreign aid agencies, as well as the Indonesian Government and NGOs. Although there have been few adequate protective activities due to lack of finance except for those under foreign aids, protection of heritages is being pursued recently based on the financial sources from tourism revenues.

Chart 4.3-1 UNESCO World Heritages

Provisional list of World Heritage（The year in the parenthesis shows the year of listing on the UNESCO List）

- Trowulan Ancient City (1995)
- Banten Ancient City (1995)
- Ratu Boko Temple Complex (1995)
- Maros Prehistoric Cave (1995)
- Great Mosque of Demak (1995)
- Toraja (1995)
- Yogyakarta Palace Complex (1995)
- Waruga Burial Complex (1995)
- Ngada traditional house and megalithic complex (1995)
- Penataran Hindu Temple Complex (1995)
- Sukuh Hindu Temple (1995)
- Besakih (1995)
- Belgica Fort (1995)
- Pulau Penyengat Palace Complex (1995)
- Elephant Cave (1995)
- Gunongan Historical Park (1995)
- Betung Kerihun National Park (Transborder Rainforest Heritage of Borneo) (2004)
- Bunaken National Park (2005)
- Raja Ampat Islands (2005)
- Banda Islands (2005)
- Taka Bonerate National Park (2005)
- Wakatobi National Park (2005)
- Derawan Islands (2005)
- Cultural Landscape of Bali Province (2007)
- Tana Toraja Traditional Settlement (2009)
- Bawomataluo Site (2009)
- Muara Takus Compound Site (2009)
- Muarajambi Temple Compound (2009)
- Trowulan - Former Capital City of Majapahit Kingdom (2009)
- Prehistoric Cave Sites in Maros-Pangkep (2009)

Chapter 5 Climate Change

5.1 Impacts of Climate Change

Indonesia is the third largest country after the United States and China in the world in terms of emissions of greenhouse gases arising from factors such as impacts from serious problems of forest fires and from degradation of peat lands. Added to these factors is its rapid industrial development, which is responsible for aggravating further Indonesia's emissions of greenhouse gases. On the other hand, Indonesia seriously suffers from large damages resulting from increase of phenomena of extreme climatic changes and great floods due to heavy precipitations, etc.

The largest CO_2 emissions in Indonesia come from the forest sector, of which CO2 emissions resulting from forest devastation and a decline in the forest area have greatly increased. According to the 2009 FAO report "Global Forest Resources Assessment 2005". Indonesia's forest area has declined at an annual rate of 2% between 2000 and 2005. According to the 2005 report "Global Forest Resources Assessment 2005" of the same Organization, Indonesia's forest area has declined by a total of 24% (more than 28 millions ha) between 1990 and 2005. [10]

The amount of CO_2 emissions from the energy sector at the current stage is still in the small order of 9% (Equivalent to 275 Mt CO_2) of Indonesia's total domestic CO_2 emissions, but is rapidly expanding with its industrial development and economic growth. The amount of Indonesia's emissions is expected to triple over the next 25 years because of the Government policy to expand the use of fossil fuels as well as because of the limits in the use of renewable energy resources.

Its emissions from the agriculture and wastes sectors are very small. Greenhouse gases emitted in these sectors are mainly methane gas and N_2O. In spite of the fact, Indonesia is the 6th largest country in the world in terms of emissions from the wastes sector (Equivalent to 32-60 Mt CO_2)

5.2 Related Laws and Institutional Set-ups

In 1994 Indonesia has ratified the UN Framework Convention on Climate Change。 In 1998 Indonesia has signed the Kyoto Protocol and following the enactment of and coming into force of the Law No.17/2004 concerning Ratification of the Kyoto Protocol in 2004, it ratified the Kyoto Protocol. Awareness and understanding on climate change within Indonesia have been deemed sufficient. However, with the 13th Conference of the Parties (COP13) of the UN Framework Convention on Climate Change which was held in Indonesia in December 2007, there has been mounting awareness on and interest in the matter of climate change and Clean Development Mechanism (CDM).

As the Designated National Authority (DNA) for implementation of CDMs, National Commission on CDM was instituted in October 2005 under the State Minister for Environment Decree No.206/2005 Regarding National Commission on Clean Development Mechanism promulgated. Subsequently, the State Minister for Environment Decree No.206/2005 was replaced by the State Minister for Environment Decree No.522/2009 Regarding National Commission on Clean Development Mechanism, which was promulgated in September 2009. There are the Technical Team and the Secretariat set up under the Said Commission.

Those proposing CDM projects must prepare a National Approval Application Form, a Project Design Document (PDD), an Environment Impact Assessment Report (only if needed), a copy of the Public Hearing Meeting Record and a Recommendation Letter from the Ministry of Forestry (only in the case of a forestry CDM project) and other documents for justifying the project in order to undergo the procedures for obtaining approval on the CDM project. Those proposing a project who have prepared the related documents, shall go through the procedures as indicated in the following flow chart. The criteria applied by the National Commission on CDM in the approval process are as indicated in the following table.

[10] The Orangutan Foundation, "Indonesian Forest Facts"(Updated in 2010)

Table 5.2-1 Approval Criteria and Index

Criteria	Index
A. Environmental aspects	
Environmental sustainability in terms of protection of natural resources and biodiversity	Local ecosystem functions shall be maintained ➢ Environmental quality standards at national and regional levels shall not be surpassed. ➢ Genetic, species and ecosystem biodiversity shall be maintained and no genetic contamination shall arise ➢ The existing land utilization plans shall be observed
Good health and safety of local residents	➢ There shall be no health hazards. ➢ Labor safety and sanitation laws and regulations shall be observed ➢ Appropriate procedures for action to be taken to prevent and control possible accidents shall be well documented in advance and put in place.
B. Economic aspects	
Welfare for local residents	➢ Income levels of local residents shall not decline. ➢ Appropriate measures shall be taken if income levels of local residents decline due to the impacts from the implementation of the project. ➢ The quality of local public services shall not be lowered ➢ If there should arise any conflicts of interest among the Parties concerned, agreement shall be reached in accordance with the existing laws by coping with any lay-off problem that may arise.
C. Social aspects	
Local residents' participation in the project	➢ Those implementing the project, have conducted with local residents consultation relating to the project. ➢ Comments and complaints that have been made by local residents on the project have been well addressed and action has been taken accordingly.
Stability of the local community	➢ Care shall be taken so as not to arouse any conflict between and among the local residents
D. Technical aspects	
Transfer of technologies	➢ Foreign Parties shall not be solely depended upon for knowledge and for the management of the facilities (Transfer of know-how) ➢ No experimental or obsolete technologies shall be depended upon. ➢ Capacity building shall be promoted and local technologies shall be made use of .

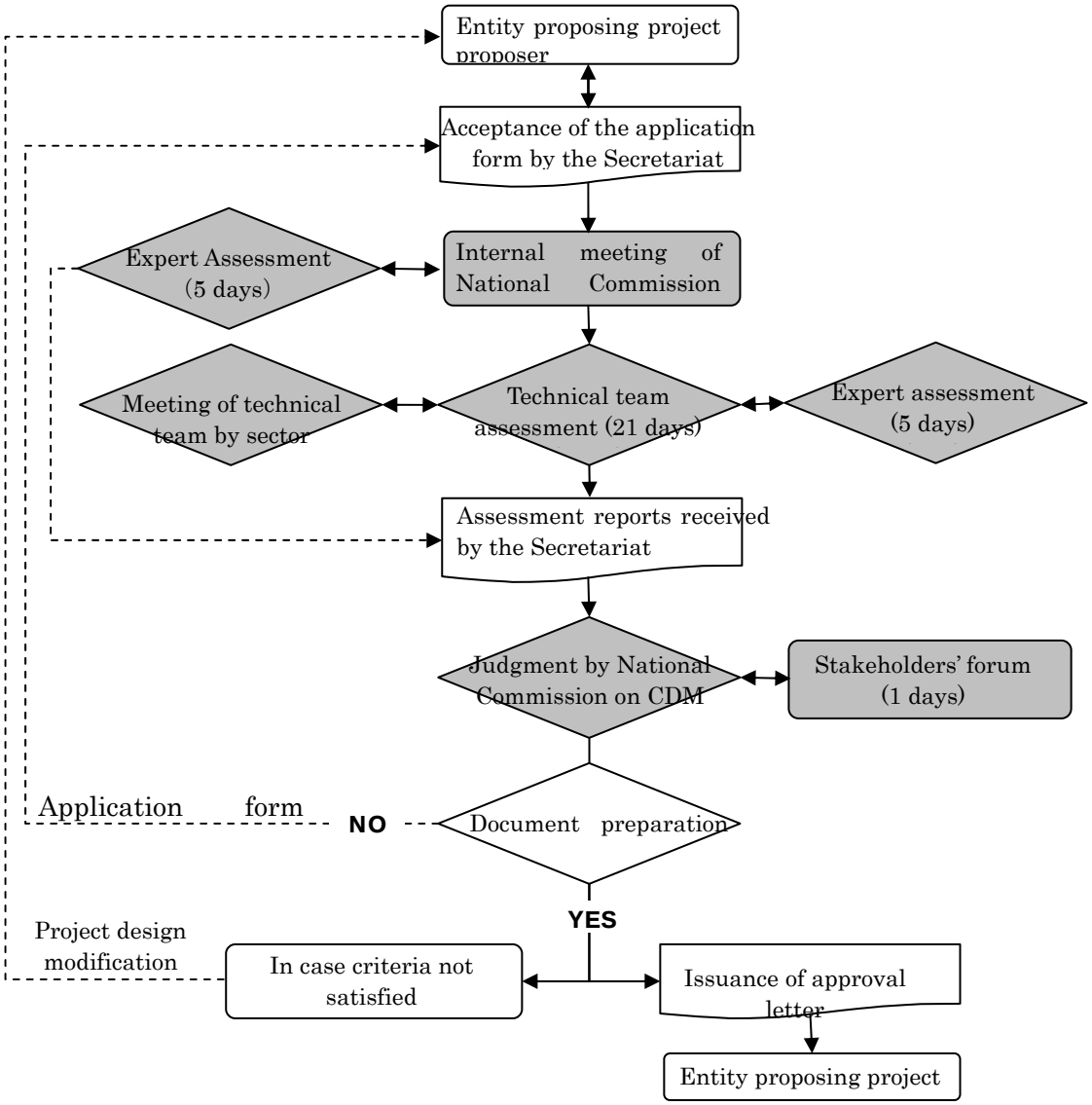


Chart 5.2-1 Flows of CDM Procedures

The number of CDM projects approved by the Indonesian Government as of March 31, 2011 is 133 while the number of projects registered with CDM Executive Board is 27 as of June 6,2011. In terms of the number of projects by sector, a relatively large number of biomass and renewable energy and biogas projects, etc have been registered.

5.3 Counter-measures for Climate Change

In November 2007, the Indonesian government made public the National Action Plan Addressing Climate Change for the Republic of Indonesia. Chapter 3 of the Said Plan made clear its environmental impact release measures for the 3 sectors of energy, LULUCF (Land Use, Land-Use Change and Forestry) and ocean fishery, cross-sector adjustment measures covering 6 sectors of water resources, agriculture, marine fishery, infrastructure, health & sanitation and forestry as well as the whole gamut of sectors. The keynote speech of the President of Indonesia included as the introductory note of the Action Plan states that the Action Plan shall be incorporated into the 2005-2025 Mid-Term

and Long-Term Development Program.

Table 5.3-1 Adjustment Measures for 6 Sectors and Cross-sectors

Areas	Targets	Major strategies
Water resources	The following vision the Indonesian government has in the area of water resources shall be supported. ・To ensure the stable, efficient and effective utilization of water resources for the welfare of the whole people.	a. To prepare a nationwide inventory list of drinking water resources areas likely to be affected by the rising sea water level and to work out counter-measures b. To prepare an inventory list of waters basins in Java with a high utilization rate but contaminated, and to study counter-measures c. To implement water reservoirs development programs in Java, Sumatra, Sulawesi, Maluku, Bali, NTB and NTT d. To carry out continued save-water campaigns in all the fields e. To prepare an inventory list of peat lands which shall be classified according to their properties and to work out spacing programs according to such properties, etc.
Agriculture	To provide support to realize the following vision on the area of agriculture. ・To achieve competitive and sustainable agricultural industry systems that will enable food safety and farmers' welfare to be ensured.	a. Management of data and information b. Management of agricultural activities C. Management of agricultural irrigation infrastructure d. Management for institutionalization e. Research f. Awareness enhancement and public relations activities g. Promoting foodstuff diversification policies h. Formulation of water supply programs for agricultural activities, etc.
Ocean, coasts and fishery	To provide support to achieve the following vision on the area of marine fisheries ・To achieve the sustainable and responsible management of oceans and fishery resources conducive to the unification and welfare of the Indonesian people.	a. To improve the welfare of fishermen's communities, and fish cultivating and other coastal communities b. To raise the priority order of the marine fishery sector as a source of economic growth c. To sustain or strengthen the capabilities of freshwaters, coastal areas, small islands and oceans which enable them to respond effectively to climate change, and to strengthen environmental quality e. To fortify the people's intellectual capacity and health through encouraging increased consumption of fishes f. To enhance the motivational factors of oceans to promote the national solidarity of the Indonesian people and to strengthen the marine culture industry.

Areas	Targets	Major strategies
Infrastructure	To plan and develop infrastructure to enable it to cope with extreme climatic conditions	a. To modify the standards for planning and execution of infrastructure development and for management and maintenance of infrastructure b. To ensure the concurrent development of high quality water drainage and water reservoir facilities in road construction works c. To develop green belts on the sideways of roads, on bicycle passage roads and on both sides of roads d. To promote architectural designing well prepared for tropical typhoons, highly concentrations of precipitations and extreme draughts e. To solve the problem of land shortage in the metropolitan areas of Java through encouraging increased construction of vertical (multi-layered) housing f. Road construction that takes into due account spacing planning and rising sea water levels
Health & sanitation	To ensure that the people may live in a healthy environment, that they may engage in clean and healthy daily life activities, that they may enjoy high quality health services, and that they may maintain a high level of health.	a. To improve public health & sanitation by developing health standard guidelines b. Research designed for early discovery of various diseases that may result from the impacts of climate change c. To strengthen activities for the surveillance of diseases as well as to develop institutional set-ups for their prevention d. To develop and strengthen health & sanitation services e. To strengthen measures to control life forms serving as viral vectors and germs that spread diseases f. To improve awareness enhancing activities through enhancing communication, information & education for such purposes g. To develop an early warning system that enables to tackle effectively with disasters and accidents or incidents of emergency nature that may occur.
Forests and biodiversity	To make sure that various regional communities in Indonesia, through responsible management for welfare enhancement, may take more interest in, preserve and utilize, biodiversity in an optimal, fair and sustainable manner.	a. To protect and preserve forest ecosystems that will enable to control regional climate conditions, and to supply users living in local communities and in down-stream areas as well as various biological resources areas with Nature's bounties such as water and forestry products such as lumber & wood, rattan, honey and medicinal herbs, etc. b. To prepare an inventory list of biodiversity in Indonesia

Areas	Targets	Major strategies
Cross sectors		a. To strengthen and enhance institutional capabilities to provide related data & information and technologies that enable precise climatic and weather forecasts b. To develop and make available information maps covering areas & regions liable to disasters, and to develop and put in place an early warning system and its management criteria and procedures with a view to enabling local communities and government departments to take more institutionalized response measures in the event of disasters resulting from climate change that may have occurred.

Sources: prepared based on the National Action Plan Addressing Climate Change

Chapter 6 Legal System and Procedure for Environmental Assessment

6.1 Summary

Article 15 of the Environmental Management Law (Law No. 23/1997 concerning Environmental Management) enacted in 1997, requires the compilation of Environmental Impact Assessment (AMDAL) documents concerning all business projects and activities that could potentially have material impact on the environment. The AMDAL documentation consists of five documents—the AMDAL Terms of Reference (KA-ANDAL[11]), the Environmental Impact Assessment (AMDAL), the Environmental Management Plan (RKL), the Environmental Monitoring Plan (RPL), and a summary.

The 1997 law was replaced by the Environmental Protection and Management Law in October 2009 (Law No. 32/2009 on Environmental Protection and Management). This law stipulates that environmentally sustainable growth be pursued through compilation of an environmental plan and through reinforced use, development, maintenance, recovery, monitoring, and management, of the environment. The new law is characterized by a strong stress placed upon transparency, wider participation, accountability, and fairness in environmental protection and management.

Further, the new law provides that AMDAL be implemented for any business project or activity potentially having material impact on the environment and requires the implementation of an environmental management initiative (Upaya Pengelolaan Lingkungan/UKL) and an environmental monitoring initiative (Upaya Pemantauan Lingkungan /UPL) for any business project or activity potentially having little impact on the environment. The AMDAL procedure is detailed in Government Regulation No. 27/1999.

Head of BAPEDAL Decree No. 08/2000 is a regulation stipulating residents participation and information disclosure with respect to AMDAL. In 2006, the decree amended the screening method and information required in AMDAL documentation, while keeping the AMDAL process unchanged.

The Environmental Management Law, the base for domestic environmental management, was revised in October 2009. Successive revisions are planned for more detailed procedure of the AMDAL process.

Table 6.1-1 Laws Related to AMDAL

Name of law	Outline
Head of BAPEDAL Decree No. KEP-299/11/1996	Technical guidelines for the assessment of social aspects in AMDAL
Head of BAPEDAL Decree No. KEP-105/1997	Monitoring guidelines (former version) for the implementation of RKL・RPL*
Head of BAPEDAL Decree No. KEP-124/12/1997	Guidelines for the assessment of sanitation and public health aspects in AMDAL
Government Regulation No. 27/1999	AMDAL Procedures
State Minister of Environment Decree No. 2/2000 (superseding Decree No. KEP-29/MENKLH/7/1992)	Guidelines for AMDAL assessment
State Minister of Environment Decree No. 4/2000	Guidelines for the formulation of AMDAL for the integrated settlement of residents
State Minister of Environment Decree No. 5/2000	Guidelines for the formulation of AMDAL for wetland development
State Minister of Environment Decree No. 40/2000	Guidelines for the working procedures of ADMAL

[11] Abbreviation KA is used in the 2009 Law No.32 on Protection and Management of Environment.

Head of BAPEDAL Decree No. 08/2000	Residents' participation and information disclosure in the AMDAL process
Head of BAPEDAL Decree No. 09/2000	Guidelines for the preparation of AMDAL (former version)
State Minister of Environment Decree No. 86/2002	Guidelines for the implementation of UPL/UKL
State Minister of Environment Decree No. 17/2001	Undertakings and activities where AMDAL procedures are mandatory (former version)
State Minister of Environment Decree No.45/2005	Guidelines for RKL/RPL reporting
State Minister of Environment Decree No.49/2005	Delegation of authority for KA-ANDAL authorization
State Minister of Environment Decree No.308/2005	Procedures for AMDAL and UKL/UPL in North Sumatra Province, Aceh Special Province and Nias Island
State Minister of Environment Decree No.8/2006	Guidelines for the preparation of ADMAL
State Minister of Environment Decree No.11/2006	Undertakings and activities where AMDAL procedures are mandatory
State Minister of Environment Decree No.5/2008	Responsibilities and powers of AMDAL Committee

6.2 Projects Subject to Environmental Assessment

The types and sizes of business projects subject to AMDAL, initially stipulated by State Minister of Environment Decree No. 17/2001, were revised by State Minister of Environment Decree No.11/2006. The following (1), (2), (3) and (4) projects requires AMDAL.

(1) Activities likely to have impacts on the environment (Attached materials -10)

It is with the proviso that in the case of the project where the following conditions are applicable, it shall be excluded from the list (Article 7). In such a case the State Minister for Environment shall make a decision on the basis experts' opinion. The list shall be revised once every 5 years.

a. When it proves that the impacts on the environment from such activities can be coped with according to the scientific and technical assessment

b. When no impact on the environment is expected from the actual activities.

(2) When the activities, though not falling under (1) above, are to be carried out in sites adjacent to any of the following:

①Reserve Forest ②Peat lands ③Watershed Protection Zone
④Sea Coasts ⑤Rivers Lakes &Water Reservoirs
⑦Spring Water Zone ⑧Land Reserve Zone ⑨Marine Reserve Zone
Mangrove Forests ⑪National Park
⑫Grand Forest Park ⑬Nature Recreational Park

(3) These are cases where the project activities, though they are on a smaller scale than those falling under (1) above, are considered to have large impacts on the natural environment in the light of the nature and scale of the project and the natural environment surrounding the project site and the Governor of the Prefecture, the Mayor of the City concerned or the Governor of the Special Province of Jakarta considers that AMDAL is necessary.

(4) These are cases where the project activities, though falling under none of (1) above, but in the STEP 1-5 screening process, have received from other concerned Ministries demand for the implementation of ADMAL and the State Minister of Environment has also considered that such implementation of ADMAL is necessary.

STEP 1 : Screening on the project site is carried out (Attached materials –11)

STEP 2 : Screening on the project activities is carried out (Attached materials –11) In the event that the response is "YES", it is likely that the preparation of AMDAL is required.

STEP : As regards "YES" items in STEP1 and STEP 2, the assessment of whether or not there may be major impacts on the natural environment shall be made in the light of the following points;

① The number of people to be impacted
② The area to be impacted
③ The length of period where the natural environment is to be impacted and the intensity of such impacts
④ Other environmental factors to be impacted
⑤ Cumulative impacts
Reversibility and irreversibility

STEP : Investigation on whether or not similar project activities have caused the following phenomenon shall be carried out;

a. There have been always similar adverse impacts.
b. There is no technology and means available by which the adverse impacts likely to be caused by the project activities can be alleviated.

STEP 5 : In the event that it falls under STEP 4, AMDAL becomes necessary.

6.3 Implementation and Approval Procedures for Environmental Assessment

6.3.1 Approval Authority and Other Related Organizations

Stakeholders involved in the AMDAL process mainly include private businesses, regulatory authorities, the AMDAL Committee, environmental authorities, approval authorities, affected residents, and NGOs. The following shows the main steps of the AMDAL approval procedure:

(1) Project Operators

The Project Operator is an entity responsible for the planning and implementation of the project. The Project Operator is under obligation to disclose to the local residents the contents of the project. In many cases the consultant employed by the project operator will carry out investigation & research in the AMDAL process.

(2) Project Authority

It is an administrative organ having the project under its jurisdiction and having the authority to grant permits for the implementation of the project 。

(3) AMDAL Committees

According to State Minister of Environment Decree No. 5/2008, AMDAL Committee shall be established by the State Minister of Environment, by Governor of Province, by Governor of Prefecture or by Mayor of City respectively for each project at a Central level or at a Regional level (namely at a level of Province, Prefecture or City). It is also called Evaluation Commission. Depending upon the kind and scale, etc. of the project, AMDAL Committees are divided into the following 3 types ;

a) Central AMDAL Committee :

It is a Committee at a State level with AMDAL Bureau of the Ministry of Environment serving as its Secretariat and chaired by the Deputy Director General of AMDAL Bureau. This Committee carries out AMDAL assessment on the project meeting the following conditions.

- Strategic projects and activities affecting national defense and national security as well as other particular projects and activities (such as dumping tailings into the sea bottom, launching artificial satellites, genetic engineering and oil & gas development, etc.)
- Projects or activities stretching over more than 2 Provinces
- Projects or activities to be sited in areas of conflicts with other countries
- Projects or activities to be sited within the sea zone lying beyond 12 nautical miles from the coasts
- Projects or activities to be sited at the border areas between Indonesia and other countries

b) Province AMDAL Committee：

This Committee carries out AMDAL assessment on the projects meeting the following conditions;

- Projects or activities likely to have adverse impacts upon a wide range of local residents but not meeting the conditions necessary for assessment by Central AMDAL Committee as indicated in (a) above.
- Projects or activities stretching over more than 2 Prefectures /Cities
- Projects or activities to be sited within the sea zone (4-12 nautical miles from the coasts)

c) Prefecture AMDAL Committee (or City AMDAL Committee)：

Prefecture AMDAL Committee (or City AMDAL Committee) carries out AMDAL assessment on projects or activities to be implemented within one single Prefecture (or within one single City) but not meeting the conditions for assessment by Central AMDAL Committee or Province AMDAL Committee as indicated (a) and (b) above

(4) Authority Responsible for the Environment and the Approval Authority

Based upon the outcome of review of the AMDAL documents, AMDAL Committees shall seek approval for their proposals and considerations from the Approval Authority. The Authority to approve Project AMDAL is as follows;

- In the case of projects assessed at the Central AMDAL Committee: State Minister of Environment (with the proviso that the powers to approve KA-AMDAL at the Center level rests with the Director General of AMDAL Bureau)[12].
- In the case of projects assessed at Province AMDAL Committee：Governor of Province
- In the case of projects assessed at Prefecture or City AMDAL Committee ：Governor of Prefecture or Mayor of City

Furthermore, State Minister of Environment Decree No. 5/2008 stipulates that the duties of Technical Teams working under the AMDAL Committees are to conduct an actual examination of KA-ANDAL, ANDAL, RKL and RPL at the request of AMDAL Committees,.

(5) Local residents affected

The members of the community to be affected by the proposed project or activities have the right to obtain information on the project, to submit their proposals, opinions and comments as well as the right to sit on the AMDAL Committee as its Member, etc.

(6) NGO

Indonesian NGOs have the right to become Members of the AMDAL Committee. The NGOs

[12] State Minister of Environment Decree No.49/2004: Delegation of Authority for Signing Decision Letter of KA-ANDAL

thus designated may express their opinions as Members of AMDAL Committee by way of representing the interest of the wider community.

6.3.2 Procedural Flow

The flow of EIA approval procedures can be visualized largely at 3 levels. The following shows the major steps in the AMDAL approval process.

(1) Screening

a) Project operators shall notify the Project Authority concerned of the proposed implementation of the project. Upon receipt of the project plan, AMDAL Committee or the Project Authority concerned shall start the screening process in accordance with State Minister of Environment Decree No.11/2006.AMDAL. In the event that the proposed project falls under none of those listed on the AMDAL project implementation list, Regional Governments or the State Minister of Environment shall consider whether or not the AMDAL process is necessary.

b) As regards the project having been judged to require AMDAL, the project operator shall publicly announce the project plan according to the schedule authorized by the Project Authority concerned. As regards the project whose environmental impacts have been judged to be light, the project operator shall prepare UPL/UKL under the guidance of the Project Authority concerned.

c) During a period of 30 business days starting from the date of the public announcement, residents' comments, proposals and opinions shall be received.

(2) Scoping

a) The project operator shall prepare the KA-ANDAL, having regard to residents' comments, proposals and opinions.

b) The project operator shall submit the KA-ANDAL to the AMDAL Committee. The AMDAL Committee shall issue its note of receipt to the project operator.

c) If needed, residents may submit to the AMDAL Committee their documented opinions on KA-ANDAL, with their copy being simultaneously sent to the project operator.

d) The AMDAL Committee shall review KA-ANDAL and residents' documented opinions. The project operator shall revise the KA-ANDAL in accordance with the comments of the AMDAL Committee and the documented opinions of residents.

e) The AMDAL Committee shall submit the outcome of assessment on KA-ANDAL to the Authority Responsible for the Environment for approval by the Approval Authority.

(3) AMDAL Examination

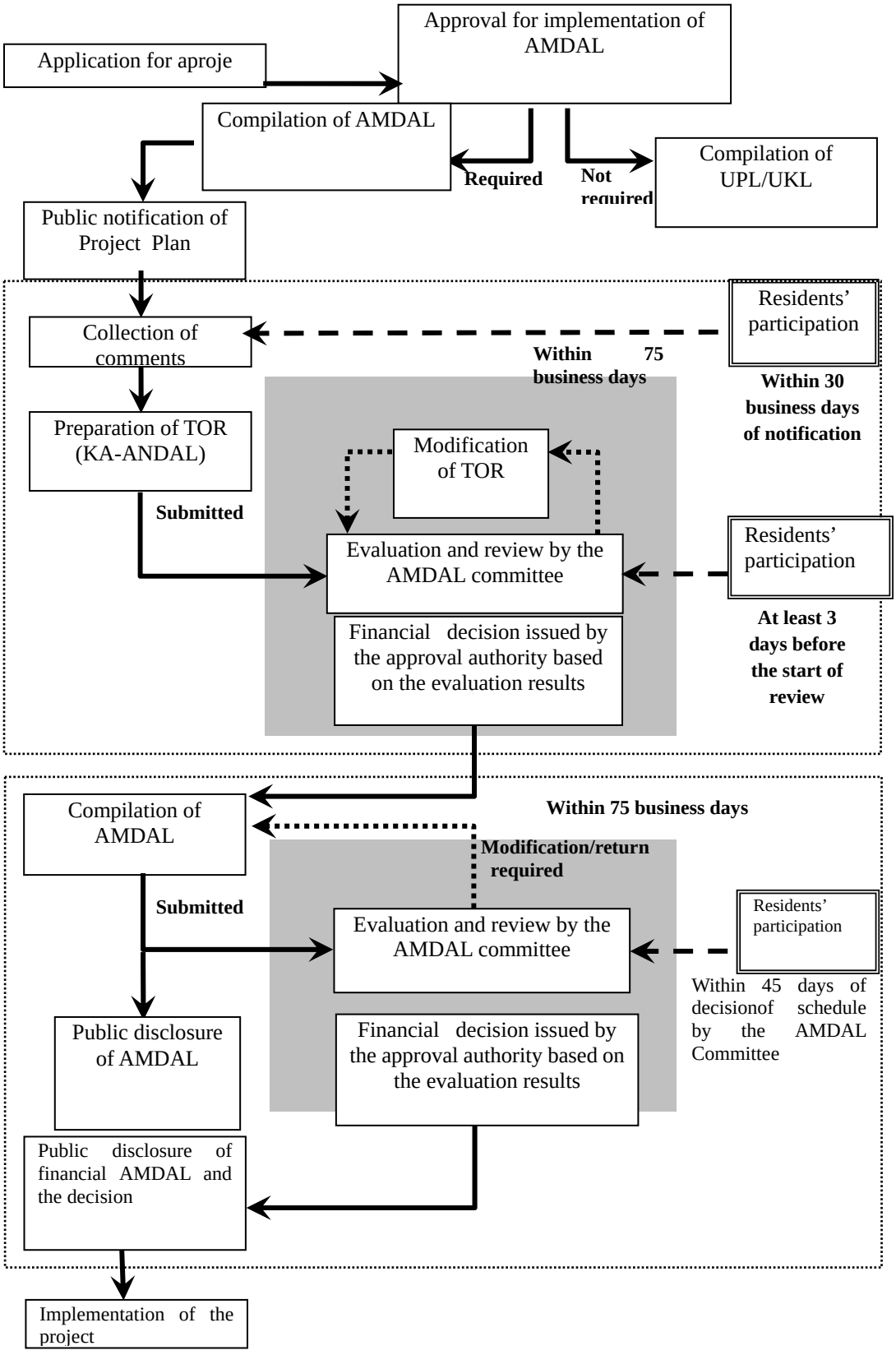
a) The project operator shall prepare the AMDAL documents (ANDAL、RKL、RPL) and submit them to the AMDAL Committee. The AMDAL Committee shall issue its note of receipt to the project operator.

b) The project operator shall publicly disclose the AMDAL documents. If needed, the residents may submit to the AMDAL Committee and the project operator their documented opinions.

c) The AMDAL Committee shall review the contents of the AMDAL documents and Residents' documented opinions and shall make AMDAL assessment. If necessary, the AMDAL Committee may make comments to the project operator.

d) The project operator shall revise the AMDAL documents in accordance with the comments of the AMDAL Committee and residents' documented opinions and shall submit the revised AMDAL documents to the AMDAL Committee.

e) Based on the outcome of assessment of the AMDAL Committee, the Approval Authority of the Authority Responsible for the Environment (Mayor of City, Governor of Prefecture, Governor of Province and State Minister of Environment) will issue the final decision document (approval document). Such final decision document may contain collateral conditions (conditional approval). The final version of the AMDAL documents shall be publicly disclosed together with the final decision document.



Source: compiled from Government Regulation No. 27/1999

Chart 6.3-1 AMDAL Procedure

6.3.3 Schedule

According to Government Regulation No. 27/1999, the following time schedule is applied. The length of period between the start of AMFAL and its approval is not officially provided. In practice, however, the AMDAL process normally takes 36 to 52 weeks.

6.3.4 Termination and Lapse of AMDAL Approval

Article 24 of Government Regulation No. 27/1999 stipulates that AMDAL approval for any proposed project lose effect unless the project is implemented within three years of the issuance of the final decision. After the 3-year period, AMDAL documentation must be re-submitted in a re-application. Upon receiving the re-application, the environmental authority determines whether the submitted AMDAL documentation is still valid or whether new AMDAL documentation requires compilation. In the event that there should arise substantial changes in the project plan such as changes in the process and in the project site, new AMDAL documentation must be re-submitted (Government Regulation No. 27/1999 Articles 25-27). Though there are no express stipulations as to the AMDAL process applicable in applying for re-approval, the basic process flow seems to be similar to that applicable in the new project application

6.3.5 Documentation to be submitted

According to Head of BAPEDAL Decree No. 9/2000, the AMDAL documentation consists of the following five types of mutually related documents although the decree was later replaced by Decree No.8/2006:

a) ANDAL Terms of Reference (KA-ANDAL)
b) Environmental Assessment Report (ANDAL)
c) Environmental Management Plan (RKL)
d) Environmental Monitoring Plan (RPL)
e) Summary

The compilation of AMDAL documentation is regulated by the AMDAL Compilation Guidelines (State Minister of Environment Decree No.8/2006: Guidelines for the compilation of the analysis on AMDAL), which replaced Head of BAPEDAL Decree No. 9/2000 specifying information to be given in AMDAL documentation.

To implement new project activities, the applicant is required first to obtain a general approval (Principle Permission) from the government authority controlling the project. Such controlling authority may be a provincial or municipal department or a central government agency.

In the general approval phase, the controlling authority checks the details of the proposed project activities against general laws, regulations, and guidelines. It also verifies the space plan against the project site. In this phase, AMDAL does not need implementing. The project approval procedure does not enter the next phase, which requires the implementation of AMDAL, until a general approval is obtained.

Thus, a general approval from the controlling authority is a prerequisite for implementation of AMDAL.[13]

6.4 Information disclosure and residents participation in the environmental assessment process

6.4.1 Stakeholders' rights

With respect to residents participation and information disclosure, Head of BAPEDAL Decree No. 8/2000 stipulates the rights of residents, and the obligations of government agencies and private businesses in each of the AMDAL process.

[13] The results of a hearing with the Ministry of Environment, the Department of Environmental Impact Research and with East Kalimantan State Government, Investment Authorization Agency （Badan Perijinan & Penamanan Modal Daerah Provinsi Kalimantan Timur/ BPPMD）

(1) Objectives

The objectives of residents' participation and information disclosure in the AMDAL process are as follows;

- To protect residents' rights。
- To have residents' opinions reflected in the decision-making for the implementation of a project likely to have impacts on the environment.
- To ensure transparency in the AMDAL process. 。
- To enhance the community awareness of all concerned 。

(2) Residents to be impacted

The residents targeted for residents' participation and information disclosure, are defined as those residents to be impacted positively or negatively by the project implemented or the project suspended not only in terms of natural environmental aspects but also in terms of economic and social aspects.

(3) The rights of residents to be impacted

- The right to obtain information

  The residents to be impacted have the right to obtain "information on the project contained in the AMDAL documentation" and information on AMDAL documentation (including KA-ANDAL), information on "the contents and outcomes of discussions in the AMDAL Committee", information on " the responses of the Project Authority to residents' proposals, opinions and comments " and information on " the results of review and assessment of AMDAL documentation".
- The right to make proposals, to express opinions and to make comments

  Residents to be impacted have the right to make proposals, to express opinions and to make comments on the AMDAL documents. These proposals, opinions and comments shall take documented forms such as letters, e-mails and Letters to the Editor of Newspapers and the language used must be the easily intelligible Indonesian language.
- The right to sit on the AMDAL Committee as a Member
  - Residents' representatives designated by the Approval Authority of Government organizations (Minister of State for Environment, Governor of Province, Governor of Prefecture and Mayor of City) can become Members of AMDAL Committees.

(4) Obligations of the project operator

- The obligation to publicly disclose information on the project (it shall be announced through newspapers)
- The obligation to hold consultation with the residents in the process of preparation of KA-ANDAL
- The obligation to provide information on AMDAL documentation in response to residents' demands
- The obligation to make public residents' the proposals, opinions and comments.

(5) The obligation of the Project Authority of Government Organizations

- The obligation to publicly disclose information on the project
- The Project Authority of Government Organizations has the obligation to publicly disclose information on the project in the Indonesian language and through bulletin boards, newspapers, television & radio broadcasts, etc prior to the implementation of AMDAL
- The obligation to compile residents' proposals, opinions and comments and to report them to AMDAL Committees/
- The obligation to publicly disclose to the residents the contents of review and the decisions by AMDAL Committees
- The obligation to guide the project operator to carry out properly and appropriately residents' participation and information disclosure.

6.4.2 Provision of information and residents' participation in the AMDAL process

As regards the provision of information and residents' participation at each stage in the AMDAL process, there are stipulations as follows;

(1) AMDAL Preparation Stage

- The project operator shall make a public notification on its project and activities according to the schedule approved by the Project Authority.
- The contents of such public notification shall include the name and address of the project operator, the site, the contents and map of the project, the kind of the project and activities, the kind of products, the kind, quantity and management system of waste to be generated, the impacts on the natural environment to be foreseen, the deadline date of acceptance of residents' comments, proposals and opinions, the address to which residents' comments, proposals and opinions must be sent (name and address of the organization in charge), etc.
- The residents can submit to the AMDAL Committee their documented opinions within 30 business days from the date of such public notification, with their copy sent to the project operator.

(2) KA-ANDAL Preparation Stage

- The project operator must hold consultation with interested residents
- The project operator must publicly notify the meeting place, form and method (citizens' assembly, workshop, seminar, etc.) of such consultation to be held.
- The project operator must provide information concerning the outlines of the project (its kind, size and site), significant environmental factors to be impacted and problems of environmental impacts likely to be generated

(3) KA-ANDAL Assessment Stage

- Those representing residents likely to be directly or indirectly affected can become Members of AMDAL Committees.
- Local residents to be directly or indirectly affected can submit their documented opinions (those in simple formats will do) to AMDAL Committee and (or) the project operator 3 days and more than 3 days prior to the initiation of review and examination of KA-ANDAL by the AMDAL Committee.

(4) AMDAL Assessment Stage

- Residents to be affected can, through their representatives designated, have their opinions reflected in the discussions of the AMDAL Committee。
- Those interested in the project can submit in writing their comments, proposals and opinions to the AMDAL Committee and (or) the project operator within a period of less than 45 business days after the meeting schedule of the AMDAL Committee has been officially and publicly notified。

6.4.3 Status of affairs on the implementation of residents 'participation and information disclosure

The idea of residents participation and information disclosure set forth in Head of BAPEDAL Decree No. 8/2000 has been distributed widely throughout the country. It is reported that project plans are posted in newspapers and that people are allowed to present documented opinions. In fact, however, only a limited number of residents are willing to express their opinions in a document.

6.5 Business projects and activities not subject to environmental assessment

As mentioned earlier, UKL and UPL documents require compilation for projects not subject to AMDAL. The UKL/UPL compilation guidelines are provided in State Minister of Environment

Decree No. 86/2002. UKL and UPL, not intended as preliminary survey, briefly describe expected environmental impacts, environmental preservation measures, and the monitoring plan. Both documents are needed to obtain approval from the project controlling authority. UKL and UPL documents are compiled by businesses under the guidance of regional and the environmental authorities. They are submitted to the provincial or municipal government if the project is to be carried out within the municipality, to the state government if the project covers two municipalities, and to the national government if it involves two or more states or countries.

6.6 Monitoring

Businesses are required to implement monitoring in accordance with the plan stated in the RPL document. The RKL/RPL Implementation Reporting Guidelines (State Minister of Environment Decree No.45/2005) provides the following reporting requirements for the purpose of verifying the RKL/RPL implementation circumstances, enabling smooth solutions of various RKL/RPL issues, and improving implementation-oriented environmental management through continuous collection of monitoring data. However, these are the minimum requirements to which more requirements will be added depending on the circumstances affecting the implementation of the project.

- RKL/RPL implementation reports shall be submitted to the Project Authority and the Authority Responsible for Environment at levels of the Central Government, Province, Prefecture and City.
- In addition to the contents of RKL/RPL, the collateral conditions attached in the AMDAL approval document must be properly coped with.
- Reports should be in the form of a booklet. It is advisable that an electronic version (CD-ROM, etc,) be attached.
- Apart from submitting documents to Government Organizations, it is highly recommendable that RKL/RPL information should be actively disclosed to residents at the initiative of the project operator (disclosure by means of booklets or through electronic media such as on the Internet)
- The submission of reports should be according to the frequency prescribed in the AMDAL final decision document. Unless otherwise provide for, they should be submitted every six months.
- Reports should be prepared and compiled on the basis of the basic contents of reports prescribed in Decree No.45/2005.

6.7 Issues

(1) Capacity of regional governments to conduct AMDAL review

Many provincial and municipal governments lack the capacity to conduct AMDAL review although they have been given AMDAL approval authority as the national government decentralized its decision-making process. According to a hearing with the Ministry of Environment, only a half of the country's regional AMDAL committees have conducted AMDAL review to date. This means that many regional governments lack the capacity to exercise their authority to conduct such review.

(2) Justification for screening

Under State Minister of Environment Decree No.11/2006, the number of sectors subject to AMDAL screening has been narrowed down to 60. According to a hearing with the Ministry of Environment, the current thresholds established for sector screening are not scientifically justified but are simply taken from international or other countries' standards. The ministry pointed out the need to set up scientifically justified thresholds to match the domestic circumstances of Indonesia.

(3) AMDAL compilation

The AMDAL process under Governmental Regulation No.27/1999 does not require AMDAL compilation in the event of an emergency. Nevertheless, State Minister of Environment Decree No.308/2005 was issued at the request of donor organizations to stipulate an AMDAL process for emergencies with respect to reconstruction after an earthquake in Ache and Nias. This decree requires that the government take the initiative to have KA-ANDAL compiled by government-appointed consultants instead of other consultants who should perform compilation on normal occasions.

6.8 Comparison with the JICA Guidelines

Table 6.8-1 JICA-Indonesia Comparison of Sectors Subject to Environmental Assessment

JICA guideline (2010)	State Minister of Environment Decree No. 11/2006
Examples of sectors having potential impact on the environment	**Project activities required for AMDAL**
(1) Mine development (including petroleum and natural gas development)	Development of minerals, coal, and geothermal heat
	Development of petroleum and gas
(2) Pipeline	Petroleum/gas marine pipeline
(3) Industrial development	Mineral processing using cyanogen
	Petrochemical
	Refineries
	Production of pulp or pulp/paper (excluding pulp/paper production reusing waste paper)
(4) Thermal power generation (including geothermal heat generation)	Construction of power generation plants
(5) Hydraulic power generation, dam, reservoir	
(6) Transformation and distribution (involving large-scale relocation of non-voluntary residents, large-scale deforestation, or undersea power cables)	Construction of power transmission lines
(7) River, sand erosion control	
(8) Road, railroad, bridge	Construction of toll roads, road construction or extension involving land acquisition, and construction of grade separations or underground passages
(9) Airport	Construction of airports, extension of airports and relevant facilities
(10) Seaport	Construction of seaports and docks
(11) City water and sewage system and wastewater processing (those which have components that may potentially impact the environment or that are located in regions highly subject to environmental impact)	Sewage system
(12) Waste processing/disposal	Processing of waste (excluding hazardous waste), processing of hazardous waste
(13) Agriculture (involving large-scale reclamation/irrigation)	Cultivation of food and horticultural crops, irrigation
—	Manufacture of forest products
—	Tourist spots, recreation parks, golf links
2. Examples of properties having potential impact	
(1) Large-scale non-voluntary residents relocation	Some sectors provide project scale requirements for "relocation of residents," "groundwater withdrawal," "landfill, land formation,
(2) Large-scale groundwater withdrawal	

JICA guideline (2010)	State Minister of Environment Decree No. 11/2006
(3) Large-scale landfill, land formation, reclamation	reclamation," or "deforestation."
(4) Large-scale deforestation	
3. Examples of regions subject to impact	
(1) National parks, state-protected regions (e.g. state-designated coasts, marshes, regions for minorities or aborigines, and cultural assets)	The screening procedure is stipulated for location and activities (but no mention is made about minorities and aborigines).
(2) Regions requiring careful consideration by the national or regional government	

Table 6.8-2 Comparison between the JICA Guideline and Indonesia's AMDAL System

i) Compatibility with the JICA Guidelines on Environmental Assessment Reporting Required for Category A (p.22)

JICA Guidelines	Indonesia's AMDAL system	Main difference
If the country has an environmental assessment procedure in place and the procedure is applicable to the project, then the procedure shall be officially completed, and the approval shall be obtained from the country.	An environmental assessment (AMDAL) system is in place.	—
Environmental assessment reports (or named otherwise, depending on the system) shall be written in the official language of the country where the project is to be implemented. Such documents shall be produced in a language and in a form that can be easily understood by local residents.	AMDAL reports are written in an official language of Indonesia. Also explanations to local residents are made in an official language (in consultations, caricatures and illustrations are used as necessary, although not specifically provided in a regulation).	—
Environmental assessment reports shall be disclosed and made available at any time to local residents and other stakeholders. Copying of such documents shall be permitted.	All AMDAL documents after being submitted to the government are made available for viewing to any person. Businesses provide local residents upon request with information related to AMDAL documents. The government recommends disclosure of monitoring implementation reports.	No reference is made to acquisition of copies.
Before the compilation of environmental assessment reports, sufficient information shall be disclosed, consultation carried out with local residents and other stakeholders, and consultation records compiled.	In the AMDAL preparation phase, consultation is conducted after project activities are officially disclosed. Businesses disclose proposals, opinions and comments collected from local residents. Consultation records are attached to	—

	KA-ANDAL documents.	
Consultation with local residents and other stakeholders shall be conducted throughout the whole process of project preparation and implementation, in particular, at the time of selecting evaluation items for environmental impact and at the time of compiling a draft.	In the KA-ANDAL compilation phase, consultation is conducted. Representatives of local residents are allowed to participate in the AMDAL Committee to express their opinions.	Consultation at the time of draft compilation is not stipulated.

ii) Compatibility of AMDAL with the JICA Guidelines on Environmental Assessment Reporting Required for Category A (p.22 and p.23)

JICA Guidelines	**Indonesia's AMDAL system**	**Main difference**
[Outline] Briefly explain important results and recommended actions.	[Summary version] Briefly describe the background to the project and other basic information, material impact on the environment, and environmental management and monitoring.	―
[Policy, legal, and administrative framework] Describe a policy, legal, and administrative framework for implementation of environmental assessment reports.	Describe systems, including their background, applicable to documentation implemented under Indonesia's AMDAL system framework.	―
[Description of the project] Briefly describe subsistence requirements and geographical, ecological, social, and timeline factors. Include all descriptions of necessary investments outside the project site (e.g. exclusive pipelines, access roads, power generation plants, water supply systems, housing, raw materials, and product storage facilities). Clarify the needs for a resident relocation plan, aborigine protection plan, or social development plan. Generally include a map showing the project region and the scope of impact of the project.	Outline the background to, the need for, and the nature of, each phase of the project, and provides alternative proposals and site information (including maps of the site and its surroundings).	―

[Basic information] Evaluate the characteristics of the survey site and describes relevant physical, biological, and socio-economic conditions, including anticipated changes in condition after the implementation of the project. Also consider ongoing or proposed developments not directly related to the project within the project region. Information provided here should relate to decisions on the location, design, operation, and mitigation measures with respect to the project. Also refer to the accuracy, reliability, and sources of statistical figures.	[ANDAL] Strictly detail the surrounding environment, including the environment of the survey area s (including details of the circumstances likely to be materially affected by the project), qualitative and quantitative condition of the natural environmental. Make clear descriptions by using maps, tables, graphs, and photos. Also refer to unrelated activities being carried out around the project site, to enable determination of cumulative impact.	—

JICA Guidelines	Indonesia's AMDAL system	Main difference
[Impact on the environmental] Make quantitative estimation and evaluation to the extent possible of positive and negative impacts of the project. Identify mitigation measures and all unmitigable negative environmental impacts. Seek opportunities to improve the environment. Identify the scope and quality of available information, missing important information, and uncertainties accompanying estimates. Also identify items not requiring further consideration.	[ANDAL] Estimate impact before construction, during construction, during operation, and after operation. In the estimation, analyze the environmental condition for differences between implementation and non-implementation of the project. Also consider direct and indirect impacts. In the impact estimation, use a mathematical approach where possible. Analyze estimated impacts from various perspectives in a consistent manner. Identify assumed material impacts that would need control.	―
[Analysis of alternative proposals] Systematically compare valid alternative proposals for the location, technology, design, and operation of the project (including a proposal for not implementing the project) in terms of impact of the environment, possibility of mitigating such impact, initial and recurring expenses needed, compatibility with the regional circumstances, and necessary system improvement / training / monitoring. Quantify to the extent possible environmental impact of each alternative proposed project. If possible, economic evaluation of the alternative proposals. Describe justifications for selecting specific project design proposals and justify desirable emissions levels and contamination prevention / reduction measures.	[ANDAL] Describe how to review alternative proposals concerning the environmental aspects of the products (including location, design, process, and layout of major and incidental facilities). Also explain each alternative proposal. If the results of review of alternative proposals at the time of AMDAL compilation, then conduct impact estimation and evaluation for each alternative proposal.	―
[Environmental management plan (EMP)] Address measures and monitoring systems to remove, offset, or reduce negative impacts.	[RKL] A document used to cope with material environmental impact of the project, including information on measures to prevent, control, and mitigate negative impact .	―

[Consultation] Maintain records of consultation meetings (including dates and sites of consultation meetings, description of participants, proceedings, and opinions of important local stakeholders and responses to such opinions). Also include records on meetings with affected residents and local non-government organization (NGOs) and on meetings held by the regulatory authority after providing relevant information in order to collect their opinions.	[KA-ANDAL] Important documents compiled following consultations with and opinions from residents are attached as appendixes.	—

Chapter 7 Legal System and Procedures Relevant to Land Acquisition and Involuntary Resettlement

7.1 Related Laws and Regulations

The land in Indonesia has been administered based on Law No. 5/1960 concerning the Basic Agrarian Law enacted in 1960 by the central government. For development projects, land acquisition procedures for public interest purposes had been stipulated by Presidential Decree No. 55/1993, but Presidential Decree No. 36/2005 concerning the Acquisition of Land for Public Interest Purposes was promulgated in 2005, replacing the former Presidential Decree. Although the government intended to promote land acquisition by the private sector through the promulgation of this new Decree, it invited protest movement from society due to the recognition that it would allow forcible land acquisitions for profit-making purposes. To cope with the situation, the government made certain modifications to the Decree, including those to the effect (i) to reduce the number of important public estates from 21 to 7, (ii) to delete the provision concerning the deprivation of land ownership rights, and (iii) to introduce a new provision concerning the compensation, and re-promulgated Revised Presidential Decree No. 65/2006 in 2006.

- **Law No.5/1960 concerning Basic Agrarian Law**

Under this Basic Law of Land , the supreme right of management of the entire land territory of the country rests with the State. Therefore, the individual or the enterprise is supposed to acquire, with the permission of the State, the right of land and thus to own land. This law stipulates expressly that the Government may acquire the land to be used for the public interest by way of undergoing due process and by way of paying due compensation.

- **Law No.20/1961 concerning Revocation of Right to Land and Materials on the Land**

This is a law that has stipulations on the expropriation of land by the Government (compulsory acquisition of land executed regardless of the intention of the holder of the land right). The law stipulates that the expropriation of land is the last resort in the acquisition of land for the public interest. The residents becoming the target of land expropriation will lose houses, income, and other means of living in the process of the project being implemented. They may be owners of lands & buildings, land leaseholders and tenant farmers.

- **Law No.24/1992 concerning Spatial Use Management**

This law, which is something like a law in which Japan's National Land Utilization Law and City Planning Law are amalgamated, have stipulations on the right of individuals to participate in the utilization, planning and management of land.

- **Presidential Decree No. 55/1993: Land Acquisition for the Developments in the Public Interest**

  This Decree used to provide for the procedures for the acquisition of land for the purposes of the public interest. Since Presidential Decree No.36/2005 has been enacted, this Decree has lapsed.

- **State Minister of Agrarian Affairs/Head of National Land Agency No.1/1994: Operational Directive of Presidential Decree No.55/1993**

  This Directive provides for the detailed rules concerning land acquisition, consultation mechanism, method of fixing the amount of compensation and processing of complaints, etc. in accordance with Presidential Decree No. 55/1993.

- **Government Regulation No. 24/1997: Land Registration**

  Article 24 stipulates that an individual holding no title document of land ownership may apply for acquisition of a Land Ownership Certificate if he is able to prove the fact of land possession continuing over a period of more than 20 years.

- **State Minister of Agrarian Affairs Decree No. 5/1999: Guideline for the Settlement of**

Problems related to the Communal Reserved Land of the Customary-law-abiding Community (Adat land)

In Indonesia, particularly in the regional community, customary (Adat) law reigns with absolute rigor. This Law defines the rights of the community concerning lands in customary law (Adat land) (rights concerning the utilization of lands necessary for making living and the right to collect Nature's bounty and natural resources, etc.) and recognizes community Adat land ownership if such lands exist for communities.

- **Presidential Decree No.36/2005: Procurement of Land for Realizing the Development for Public Interest**

  This Decree, replacing Presidential Decree No.55/1993, provides for official land acquisition procedures

- **Presidential Decree No.65/2006: Amendment to Presidential Decree No.36/2005: Procurement of Land for Realizing Development for Public Interest**

  This Decree amends Presidential Decree No.36/2005. The amended Decree defines land acquisition as " acts to acquire lands by way of compensating those people obliged to abandon lands, buildings and things relating to lands"(Article 1(3)) and stipulates that land acquisition for the purpose of the public interest may be executed by the Central Government and Regional Governments in terms of transfer of ownership"(Article 2)

- **Government Regulation No.2/2006: Procedure for Realization of Loans and/or Grants and Allocation of Foreign Loans and/or Grants**

  Article 14 of this Regulation stipulates that in spite of the land acquisition & resident resettlement plan being in place, no negotiation can be initiated with overseas donors in the event that preparatory work such as procurement of funds has not been completed.

- **Head of National Land Agency Decree No.3/2007: Guidelines for Land Acquisition for Public Facilities**

  This Decree, in accordance with Presidential Decree No.36/2005 and Presidential Decree No.65/2006, provides for detailed rules on land acquisition, consultation, method of decision-making for compensation and procedures for processing complaints, etc.

Within Indonesia, especially in local areas, customary laws (so-called "Adat") have been strictly abided by in social life. In the Abat, various rights of the communities in the Adat land (such as the use of land for daily life and collection of natural resources) are clearly defined, and in the case where Adat land exists within the communities, the law recognizes the ownership of the land by the communities in question. With respect to the existence of Adat land, investigations by local governments are conducted in consultation with legal experts, communities, NGOs and relevant governmental agencies. However, this process does not apply to the lands already registered or acquired through a proper process.

In the meantime, because the guidelines indicating the details of the land acquisition and the resettlement of inhabitants are not established on the level of the central government, certain provinces (including Provinces of Aceh, Bali, East Java, North Sumatra, West Sumatra and Riau) have drew up their own guidelines. The guidelines of the Provinces of Aceh and Bali[14] were established reflecting the actual situation of the country and the provinces in accordance with the policies of the World Bank. With respect to the resettlement of inhabitants in particular, the guidelines by the provinces assume advanced approaches including the instructions to draw up a document showing the plan for the

[14] [Special Province of Aceh] The Governor of Aceh Decree No. 1/1998: Guidelines for Land Acquisition, Resettlement and Assistance for the Persons Affected by the Aceh Regional Roads Project.
[Province of Bali] The Governor of Bali Decree No. 3/1997: Guidelines for Land Acquisition, Resettlement and Assistance for the Persons Affected by Bali Urban Infrastructure Project.

resettlement of inhabitants, when you compare with the situation where only a brief reference is made and no details are described in the decree of the central government on the resettlement of inhabitants. These provincial guidelines (provisions) are applied to the projects that obtain loans from the World Bank, and the guidelines of the Special Province of Aceh are applied to road projects only, while the guidelines of the Province of Bali apply to infrastructure projects. The following matters are stipulated in the guidelines of both Provinces.

(1) Baseline investigations
(2) Land acquisition, resettlement and assistance plan (LARAP)
(3) Consultation and disclosure of information
(4) Compensation
(5) Life rehabilitation and assistance
(6) Place to resettle
(7) Training and assistance
(8) Life and living evaluation after one year

7.2 Procedures for Land Acquisition

Procedures for land acquisition for development projects for public interest purposes are defined in Presidential Decree No. 36/2005, and the corresponding modified provisions are stated in Presidential Decree No. 65/2006. (The following numbers of provisions are based on Presidential Decree No. 36/2005.) Meanwhile, Head of National Land Agency No. 3/2007 describes details of the actual enforcement. The projects to which the above provisions are applied are the following.

a. Public roads, highways, railroads (surface railroads, elevated railroads, subways), water supply and sewage facilities
b. Dikes, reservoirs, irrigation systems, other water-source management facilities
c. Seaports, airports, railroad stations, terminals
d. Facilities to prevent flood, debris flow and other types of disasters
e. Waste treatment facilities
f. Naturel and culture preservation areas
g. Power generating stations, transformer substations, transmission lines

As the organizations related to land acquisition, the following two organizations are established, besides the project-implementing governmental agency ("Implementing Agency"), central and local governments ("Authorizing Agency") and affected communities.

(1) Land Provision Committee

This is a committee established by the Governors and mayors of affected Provinces and cities to provide assistance at the occasion of land acquisition for land use for public interest purposes. The Committee is composed of representatives from the related organizations in local areas and National Land Affairs Agency. However, the Committee should include the Governor in the case of Special District of Jakarta, the Governor(s) of the affected Provinces when the contemplated land for acquisition extends over plural regions, and representatives from the related local governments when the land extends over plural Provinces, and the Committee is established by the Ministry of General Affairs.

Table 7.2-1 Particulars Concerning Land Provision Committee

	Prefecture/City level	Province level	Central Government level
Reason of establishment	Land existing within one Prefecture/City	Land ranging over 2 and more Prefectures /Cities	Land ranging over 2 and more Provinces
Chairman	Governor of Prefecture/Mayor of City	Governor of Province	Director General of Local Government, Ministry of Public Management
Vice-Chairman	Officer in charge appointed by Governor of Prefecture/Mayor of City	Local Governor of Prefecture/Mayor of City	Officer in charge of Ministry of Public Works

Committee Members	Director General of Land Bureau of Prefecture/City or Officer in charge appointed by Governor of Prefecture/Mayor of City	Head of Regional Office of National Land Agency	Officer in charge of National Land Agency
	Head of District related to land acquisition (Head of County/Village) or Officer in charge appointed by Governor of Prefecture/Mayor of City	Head of District related to land acquisition (Head of County/Village) or Officer in charge appointed by Governor of Prefecture/Mayor of City	Officers in charge of Ministry /Agency related to land acquisition
			Governor of Province concerned or Officers appointed
			Mayor of City/Governor of Prefecture or appointed officers、

Source: Head of National Land Agency Decree No.3/2007

(2) Land Price Appraising Team

At the request of Land Provision Committee, Land Price Appraising Team calculates the basic agreement price for land compensation by analyzing official and actual sale/purchase prices based on the location, utilization situation, layout, classification under the land use plan of the local government, level of infrastructure and so forth. The calculated result is submitted to Land Provision Committee. The Team is composed of experts and representatives from independent professional organizations, and organized by the Authorizing Agency.

a. Organizations related to land /agricultural products
b. Organizations related to National Land Agency
c. Organizations related to land/building taxes
d. Experts on land price evaluation
e. Organizations related to land/building and prices of agricultural products
f. NGO（if necessary）

7.2.3 Outline of the Procedures

The basic flow of procedures stipulated in Presidential Decree No. 36/2006 and No. 65/2006, and Head of National Land Agency Decree No. 3/2007 is as follows:

① The Implementing Agency shall prepare an application for land acquisition for development one year in advance. Such land acquisition application shall include the following information. As regards the expected site of development and the area of such land, however, the Implementing Agency may seek opinions from National Land Agency (or its Regional Office). In the case of national defense facilities or Emergency Disaster Relief activities, no such application is required.

- Purpose of development
- Planned site of development
- Expected area of development
- Budget
- Information on the surrounding natural environment likely to be impacted by such development
- Proposals concerning the measures to mitigate likely environmental impacts

② The land acquisition application shall be submitted to the Competent Authority of Prefecture/ City concerned (To Province when the proposed land ranges over more than 1 Prefectures/Cities and to the National land Agency when the proposed land ranges over 2 and more Provinces)

③ Upon receipt of the application, the Competent Authority will review and examine the application and a permit for land acquisition is granted with the following period of time. If more than 75% of the land is acquired within the following period of time, the permit for land acquisition shall be extended by one year. If the prescribed time of period has lapsed and if this condition is not met, the Implementing Agency will consider an alternative land.

④

Land of less than 25ha：less than 1year,
Land of more than 25ha and less than 50 ha：2 years,
Land of more than 50ha：3 years

⑤ The Implementing Agency having been granted a land acquisition permit shall publicly disclose information concerning the implementation of the project and the acquisition of land within a period of 14 days either directly or through mass media, etc. to the related communities.

The Land Provision Committee is formed. Activities will be initiated in cooperation with the Implementing Agency. Approaches will be made to the communities to collect their opinions (counseling). In spite of the efforts for the collection of opinions and consultations, if more than 75% of land owners prove to be opposed to the transfer of the land, the Land Provision Committee will propose an alternative land to the Implementing Agency. The opinions collected shall be summarized in a report.

⑦ In the event that agreement has been reached with the community on the transfer of the land, the Land Provision Committee will make an inventory list of the land rights, buildings, agricultural products and other matters relating to the land. The inventory investigation shall include the following items. If necessary, a Land Price Evaluation Team may be formed to support the Land Provision Committee.

- The Borderlines of the Land
- Land/Building Rating Assessment
- Mapping of Land/Building
- Finalization of the Borderlines of Land/Building
- Investigation on the Status of Land Utilization
- Compilation of a List of the Owners of Land/Building/Agricultural Products
- Right Holders of Land/building/Agricultural Products
- Other Necessary Items

⑧ The results of the investigation conducted by Land Provision Committee will be publicly disclosed through administrative organizations such as Village/Ward/City /Prefecture, on the Internet (for a period of 7 days) and by way of press releases to mass media (at least twice) to collect community opinions and reactions. In the event that dissenting opinions have been expressed on the results of the investigation, which warrant re-investigation, the Land Provision Committee will undertake such re-investigation and hold consultation to solve problems. In the event that problems are not solved through consultation, the Land Provision Committee will propose consultation involving the court.

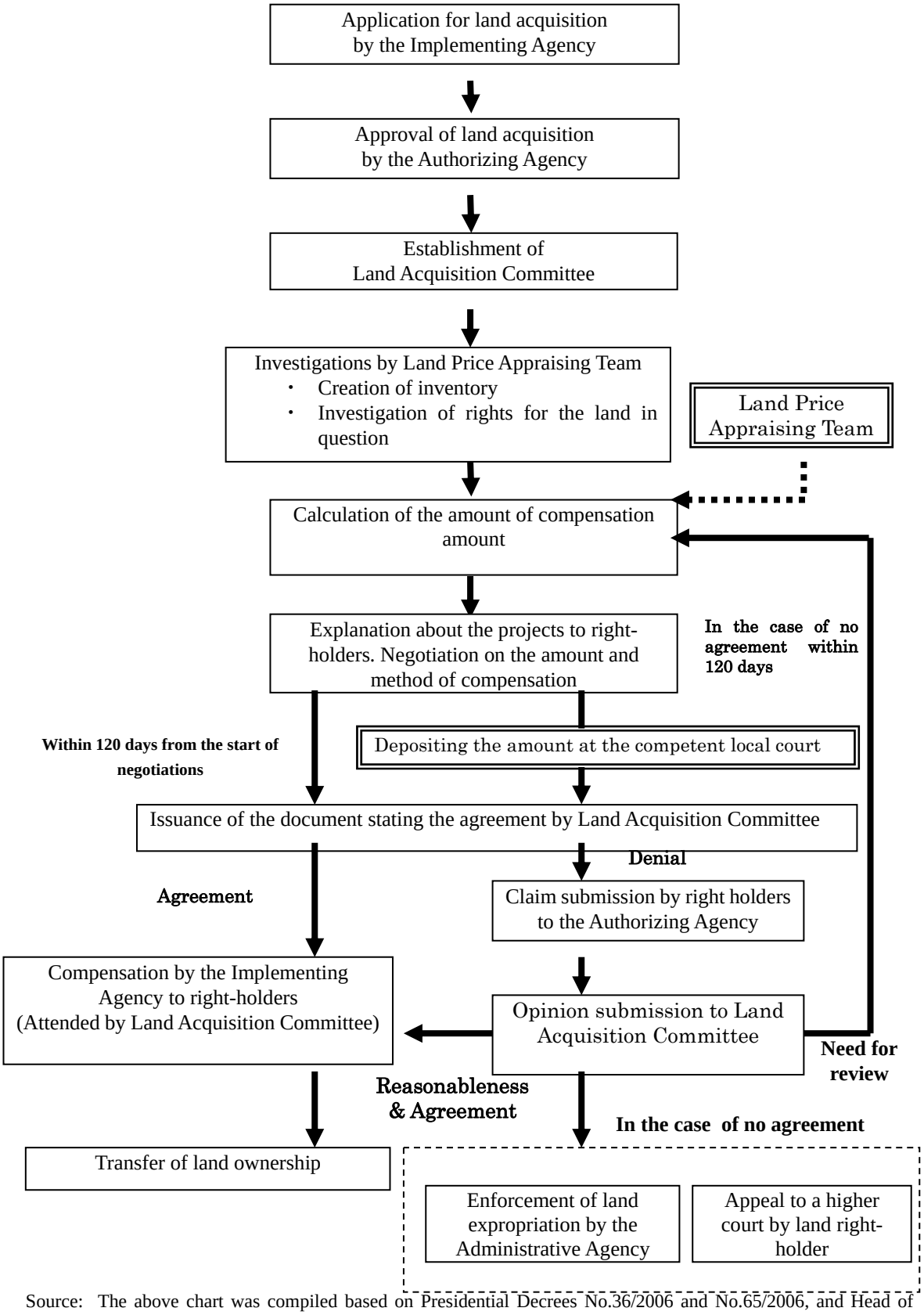
⑨ The Land Provision Committee will make coordinative efforts for the negotiations between the Implementing Agency and the landowners (The schedule of negotiations shall be informed with a notice of 3 days). The negotiations shall be presided over by the Chairman of the Land Provision Committee and discussions shall be guided to bring the Parties concerned to a compromise and to reach agreement on compensation, etc.

In the event that 75% of the landowners agree to the method and amount of compensation or in the event that the acquisition of 75% of the land has been completed, the implementation of the project at the proposed site becomes possible and the land acquisition process can be continued. If agreement has been reached in the counseling and the negotiations, the acquisition of the land according to the agreed method and amount of compensation shall take place. If no agreement has been reached within 120 days from the initiation of consultation, the money shall be deposited with the court with jurisdiction(in this case, however, the form of compensation shall be only in money).

⑪ The Land Provision Committee shall prepare a report on the results of the consultation and publish an agreed decision document, which will be sent to the organizations concerned. Landowners taking exception to the agreed decision document may appeal to the Competent Authority within a period of 14 days. The Competent Authority shall take action within a period of 30 days.

⑫ In the event that no agreement has been reached even in the consultation following the objection and appeal and that the land concerned is an irreplaceable one whose acquisition is essential, the expropriation of the land shall be executed under Law No.20/1961.

⑬ Compensation by money shall be implemented within a period of 60 days after the agreement has been reached and compensation by other means shall be implemented within the period agreed. The payment of compensation money shall take place at the date and time designated by the Land Provision Committee by way of assembling all the persons to be compensated and in the presence of all of them (The expected implementation of the compensation shall be notified with a notice of 3 days)



Source: The above chart was compiled based on Presidential Decrees No.36/2006 and No.65/2006, and Head of National Land Agency Decree No.3/2007

Chart 7.2-1 Procedures for Land Acquisition for Public Interest Purposes

7.3 Compensation

Under Presidential Decree No. 36/2005, compensation for the land is given against the following materials to the persons who are possessed of land ownership legally and also to the persons who were contributed certain land religiously.

a. Land ownership
b. Buildings
c. Agricultural products
d. Other materials relevant to the land in question

As the means of compensation, there are the following methods.

a. Money
b. Substitute land
c. Resettlement
d. Combination of the above a. ~ c.
e. Other methods agreed upon among stakeholders

The calculation of the amount of compensation is conducted based on the following prices; namely, the land price calculated by Land Price Appraising governing buildings and the price of agricultural products calculated by the local governmental agency governing agricultural products.

7.4 Procedures for the Resettlement of Inhabitants

As mentioned before, guidelines concerning the land acquisition and resettlement of inhabitants have been established on the level of Province based on the safeguard policies of the World Bank, as exemplified by the cases of Special Province of Aceh and Province of Bali, but there is no clear-cut regulations nor guidelines about the resettlement of inhabitants on the level of the central government.

7.5 Comparison with JICA Guidelines

Table 7.5-1 shows the comparison between JICA's New Environment Guidelines as well as the World Bank's safeguard policies on non-spontaneous resettlement of inhabitants and the relevant regulatory system in Indonesia. As indicated in the Table, while there are no clear-cut laws/regulations concerning the resettlement of inhabitants in Indonesia, there are laws/regulations in place which more or less satisfy the requirements stipulated in JICA's New Environment Guidelines as well as the World Bank's safeguard policies with respect to the laws/regulations on the acquisition of land.

Table 7.5-1 Comparison between JICA's New Environment Guidelines & the World Bank's Safeguard Policies and the Regulatory System in Indonesia Concerning the Resettlement of Inhabitants and the Land Acquisition

Measures comprehending the New Environment Guidelines and the World Bank's safeguard policies	Indonesia's domestic laws and regulations	Major differences (Features of Indonesia's domestic laws and regulations)
Non-spontaneous resettlement of inhabitants and loss of means of living must be avoided by all means by studying all possible means. In the case that the avoidance of such matters' taking place is not possible even after thorough considerations, it is necessary to try to minimize the impact and to take effective countermeasures based on the mutual agreement with the affected people.	- It is possible for the government to acquire land for public interest purposes under an appropriate compensation scheme. (Law No. 5/1960) - Land acquisition must be done based on the agreement with land right holders by listening to their comments and also by disclosing information and conducting consultation. (Presidential Decree No. 36/2005)	While there are provisions concerning appropriate compensation and agreement with land right holders in the laws and regulations of Indonesia, there aren't provisions concerning the avoidance of non-spontaneous resettlement of inhabitants nor minimization of impacts.
For all projects in which resettlement of inhabitants is required, it is necessary to draw up a resettlement plan for inhabitants and to consider compensation to the affected people. Careful attention must be paid to poor and socially vulnerable people in particular. In the resettlement plan for inhabitants, such matters as assistance at appropriate timing, financing, expenses associated with resettlement, contents of compensation, and recovery means of living standard, need to be included.	- Although there aren't clear-cut laws / regulations concerning non-spontaneous resettlement of inhabitants, resettlement and offering of substitute land are stipulated as examples of means of compensation in Presidential Decree No. 36/2005. - Land Acquisition Committee must investigate such matters as land, buildings, plants and land-related materials that are to be disposed of, and prepare for an inventory. (Presidential Decree No. 36/2005) - In the case of compensation for Adat land based on the right of communities, it is also possible for the government to offer public facilities or such facilities that are useful to communities. (Presidential Decree No. 36/2005) - The guidelines of the Province of Bali and of the Special Providence of Aceh include appropriate compensation and implementation of living assistance so that baseline investigations, socio-economic studies and improvement of life assistance become feasible.	While there aren't legal provisions concerning the drawing-up of a resettlement plan for inhabitants nor consideration about poor and socially valuable people on the level of the entire nation, there are guidelines established in the Province of Bali and in the Special Province of Aceh on the baseline investigation, socio-economic studies, appropriate compensation enabling improved living standard, and implementation of life assistance.
To the affected people, compensation based on the full replacement costs must be offered against the loss of their land and other properties. Furthermore, it is necessary to endeavor to improve or at least recover the living standard, income opportunities and production level realized before the resettlement.	- Compensation for land acquisition needs to be done in a way that improvement in the quality of economic and social life over the previous living standard is realized vis-à-vis physical and non-physical losses. (Presidential Decree No. 36/2005)	There isn't any provision on the calculation of compensation expenses based on reacquisition expenses against loss of properties owned by affected inhabitants.
It is necessary to discuss with the affected people, communities in the sites for resettlement, NGOs, etc. and to offer opportunities for their participation in the drawing-up, implementation and monitoring activities of the resettlement plan for inhabitants.	- In the agreement process for compensation, it is prerequisite that disclosure of information to the inhabitants who hold rights and discussions/negotiations with such inhabitants are conducted. (Presidential Decree No. 36/2005)	When affected inhabitants have dissatisfaction, it is possible for them to appeal to a higher court, but there isn't any provision on the treatment of complaints.

In addition, it is also necessary to prepare for a mechanism to deal with complaints from affected people and/or communities.	- It is possible for land right holders who do not agree to the established amount of compensation on the ground that the amount is not sufficient, to appeal to a higher court. (Presidential Decree No. 65/2006, Article 18A)	
Money-borrowing countries need to assume responsibilities to conduct appropriate monitoring and evaluation of the resettlement of inhabitants. For the monitoring, it is necessary to see if unforeseen events are not taking place and confirm the implementation status of alleviation measures. Monitoring by external organizations is also required. Monitoring reports need to be made open to the public.		There isn't any provision concerning the implementation of monitoring and evaluation.

Chapter 8 Legal System and Procedures Relevant to Considerations of Indigenous People

8.1 Present Situation of Indigenous People

Although there isn't a concept for indigenous people in Indonesia to begin with, there is a term indicating a similar concept to some extent. That is a term called KAT (Komunistas Adat Terpencil). According to Presidential Decree No. 111/1999, KAT means a local, isolated, socio-cultural group of people, who cannot get access to none of the social, economic and political networks and services.
In the meantime, an NGO in Indonesia called "AMAN" (Aliansi Masyarakat Adat Nusantara/Indigenous People Alliance of the Archipelago) opposes to the use of the term having a contemptuous meaning like "isolated" or "insulated" and insists on using the name of Masyarakat Adat (Indigenous peoples).
The names of indigenous peoples and their regional distribution in Indonesia are as shown in the Table below.

Table 8.1-1 Indigenous Peoples and Their Regional Distribution in Indonesia

Names of Indigenous Peoples	Regional Distribution
Orang Kanekes（Orang Badui）	Banten Province in West Java
Orang Ama Toa（Orang Kajang Dalam）	Bulukumba Area at the South-West Peninsula of Sulawesi Island
Kasepuhan	Southern part of Banten Province
Orang Tengger	East Java Province
Orang Using	East Java Province
Sedulur Sikep	Central Java Province
Pemukiman（Gampong）	Aceh
Horja（Bius）	Batak land (Toba)
Nagari	Minangkabau
Laggai/Uma	Mentawai Islands
Marga（Kebatinan、Negeri）	Central and Southern Sumatra
Banua（Binua、Ketemenggungan、Balai、Lowu、Lewu）	Inland of Kalimantan
Lembang（Penanian）	Tana Toraja
Ratchap（Ohoi'）	Kei Islands
Bajo	Coastal areas of Indonesia's all islands

Source: 1. "Country Technical Notes on Indigenous Peoples' Issues: Indonesia" (AMAN, July 2010)
2. "The Bajo and the Ocean" (http://indonesia-tourism.com/blog/tag/indonesia-tribe/

Although it is difficult to clearly comprehend the economic situation of indigenous peoples in Indonesia due to the lack of correct data regarding the population and distribution of the indigenous peoples, we can roughly grasp the poverty situation and their demographic distribution from the data on the ratio of poor people by region in each province, because it is said that they belong to the "poorest class of the poverty population". [15]

8.2 Governmental Agencies Concerned and Relevant Laws/Regulations

8.2.1 Governmental Agencies Concerned

Major governmental ministries and agencies concerned with the issues relevant to indigenous peoples in Indonesia are listed in the Table below. Among the ministries/agencies, the one which is allocating professional resources to the measures for issues associated with indigenous peoples is for now only the Ministry of Social Welfare. This Ministry is not only acting as the counterpart of the Regional Indigenous Peoples' Programme (RIPP) implemented by United Nations Development Programme (UNDP) in Indonesia but also is involved in aid programs promoted by other donor organizations in which the Ministry of People's Welfare and the Ministry for the Promotion of Underdeveloped

[15] AMAN, "Country Technical Notes on Indigenous Peoples' Issues": Indonesia (July 2010)

Regions act as the counterparts.

Table 8.2-1 Major Governmental Ministries and Agencies Involved in the Issues Relevant to Indigenous Peoples

Name of Governmental Agency concerned	Relations of this Agency with the issues related to Indigenous Peoples
Directorate for the Empowerment of Isolated Indigenous Communities of the Ministry of Social Welfare.	The Ministry of Social Welfare is the only agency allocating professional resources to the measures for issues associated with indigenous peoples, among various governmental agencies in Indonesia. This Ministry has its branch offices in each Province and on the level of prefectures and cities, and is conducting various programs aiming at improving the status of indigenous peoples.
Ministry of People's Welfare	Indonesia is implementing programs to aid indigenous peoples, with cooperation from international organizations, and the Ministry of Social Welfare is also involved in such programs.
Ministry for the Promotion of Underdeveloped Regions	
Ministry of Internal Affairs	This Ministry is responsible for treating and solving problems/incidents associated with indigenous peoples.
Bappeda; Local-level Planning Agency	This Agency has the authority to give permits to implement projects in which indigenous people are involved.
BPMD Local-level Village Community Empowerment Agency	In this Agency, a professional group dealing with people's culture and customs is established, but that group does not have cooperative relations with other ministries/agencies concerned with indigenous peoples (such as local offices of the Ministry of Social Welfare).
Ministry of Forestry	These ministries/agencies are responsible for the protection of the interest of indigenous peoples, and their local offices are particularly important in performing their responsibilities.
National Land Agency	
Ministry of Energy and Mineral Resources	
Ministry for Marine and Fisheries	

Source: 1. "Country Technical Notes on Indigenous Peoples' Issues: Indonesia" (AMAN, July 2010)
2. Information obtained through hearings with ministries and agencies concerned.

8.2.2 Related Laws

Among Indonesia's existing laws and regulations, major laws and regulations relevant to indigenous peoples are compiles in the Table below.

Table 8.2-2 Major Laws/Regulations Relevant to Issues Associated with Indigenous Peoples

Laws/Regulations	Relationships with Indigenous Peoples
Second Amendment to the 1945 Indonesian Constitution, 2000	・Respect of traditional rights of tribal communities which follow customary laws (Chapter VI) ・Respect of cultural diversity（Chapter XA）
Indonesian Forestry Act No. 41/1999	・Designation of forests in which indigenous people live as national forests, and recognition of traditional right of indigenous people to use forests (Chapter 1,2) ・Return of forests to the management by the government when no indigenous people live there (Chapter 9)
Local Government Act No. 22/1999	・Recognition and respect of legal autonomous rights and customs derived from the history of tribal communities（chapter 1, 11）
Act No. 39 of 1999 on Human Rights	・Emphasis of the recognition and protection of indigenous people' rights as part of the protection of human rights（Article 6） ・Emphasis of property right (ownership) and the right to acquire it as part of protection of indigenous people's rights

	(Article 36,37)
Presidential Decree on Social Welfare Coaching for Isolated Tribe Community, No.111/1999	・Emphasis of the government's responsibility to give guidance to isolated tribal communities（Article 3） ・Concrete obligations of the Minister of Social Welfare (Article 4) ・Establishment of a cooperative forum concerning the guidance to isolated tribal communities (Article 9)
People's Consultative Assembly Decree No.9/2001 on Agrarian Reform and Natural Resource Management	・ Respect of human rights in agricultural reform and management of natural resources, as well as respect of the rights and cultural diversity of tribal communities which follow customary laws（Article 4） ・ Abolition of all decrees which do not match with the policies of this Decree
Minister of Social Welfare's Decree on Guideline for Isolated Tribe Community Empowerment Implementation, No. 6/2002	・ Missions and targets of the empowerment measures implemented for isolated tribal communities（Article 4, 5） ・Principles for implementation (Article 7） ・Policies and strategies（Article 12, 13） ・Major program activities (Article 16)
Act No. 27/2007 on Coastal and Small Islands Management	・Recognition of the right of indigenous people for coasts and small islands ・Respect of indigenous people's knowledge in preservation of coastal areas and small islands
Minister of Internal Affairs' Regulation on Guidance for Preservation and Development of Community Tradition and Socio-cultural Value, No.52/2007	・Basic concept concerning the tradition and culture of tribal communities（Article 4） ・Basic program and strategies to implement it (Article 5, 6)

Sources： 1. "Country Technical Notes on Indigenous Peoples' Issues: Indonesia" (AMAN, July 2010)
2. Information obtained from hearings with ministries/ agencies concerned.
3. Information obtained from the websites of ministries/agencies concerned.

8.2.3 Policies to Protect and Foster Indigenous Peoples

Policies of the Indonesian government to protect and foster indigenous peoples are shown in the afore-mentioned Presidential Decree on Social Welfare Coaching for Isolated Tribe Community, No.111/1999 and Minister of Social Welfare's Decree on Guideline for Isolated Tribe Community Empowerment Implementation, No. 6/2002.

●Presidential Decree on Social Welfare Coaching for Isolated Tribal Communities (No. 111/1999）

It is stipulated in this Decree that social welfare coaching to isolated tribal communities are the shared responsibility of the Central Government and Local Governments. The Decree allocates the following two roles to the Ministry of Social Welfare in terms of such coaching;

①To identify isolated tribal village communities and to carry out mapping

② o formulate and implement social welfare coaching plans for isolated tribal village communities after having listened to the opinions of Regional Governments and each of the related organizations.

It is stipulated that social welfare coaching activities for isolated tribal village communities shall cover areas of settlement, population management, religion, agriculture, health & sanitation, education, etc and that more particularly tools such as counseling, tutoring, services and aid shall be resorted to.

Moreover, the Decree refers to the establishment of a Coordination Forum/ Forum Koordinasi with the Ministry of Social Welfare as the leading organizer in connection with coaching activities for isolated tribal village communities and defines the objectives, powers and tasks of the Forum defined.

- **Minister of Social Welfare Decree on Guideline for Isolated Tribe Community Empowerment Implementation (No6/2002)**

The Ministry of Social Welfare announced this Decree in 2002. In the Decree the following 5 points are prioritized in terms of the mission to promote measures for enhancing the status of isolated tribal village communities;

①To enhance the dignity of isolated tribal village communities.

②To improve the quality of life of isolated tribal village communities.

③To fortify social service networks

④To develop the lifestyles and institutions applicable to isolated tribal village communities

⑤To strengthen the role of the regional community in coping with measures for the enhancement of the status of isolated tribal village communities

The following 4 points have been highlighted with respect to policy orientations:

①To enhance professional expertise with respect to the social services of the Governments, the regional communities and the business community

②To expand and diffuse fair and equitable social services

③To strengthen social service management with a view to improving the quality of services for isolated tribal village communities and improving explanation capability in this context

④To promote participation in social services for isolated tribal village communities by way of mobilizing regional community related factors

The contents of program activities for the above-mentioned coaching shall include the following areas;

①House construction plan ②Settlement ③Population management ④Religion ⑤Agriculture Health & sanitation ⑦Education ⑧Social welfare ⑨Community life, etc.

Based on the above-mentioned Presidential Decree and Minister of Social Welfare Decree, the Ministry of Social Welfare, in cooperation with Regional Governments and universities, selects each fiscal year specific “isolated” indigenous peoples’ villages and implements 3-year termed aid programs.

Chapter 9 Environmental and Social Considerations under the Assistance Projects of Other Donors

9.1 World Bank

The safeguard policy of WB provides for the implementation of environmental assessment as shown below. There seems to be no considerable difference between the safeguard policy of WB and the Indonesian policy for implementing environmental assessment.

Table 9.1-1 EIA Reports of the WB Projects

Project	Submission Date	Approval Date of the Project	Of Special Note
Dam Operational Improvement and Safety Project	November, 2008	March, 2009	Projected environmental impacts include traffic jam, air pollution, water contamination, regular garbage, construction garbage, ambient noise, soil corrosion, and sediments, for which six types of measures are required under the provision.
The Strategic Roads Infrastructure Project	January, 2010	July, 2006	Projected environmental impacts include traffic jam, air pollution, surface water contamination, ambient noise etc., for which various measures are implemented such as water quality inspection and earth excavation for temporary channels during the construction period.
Promoting Sustainable Production Forest Management to Secure Globally Important Biodiversity Project	May, 2011	Now under the approval procedure[2]	Projected environmental impacts include air pollution, garbage, ambient noise, soil corrosion, and impacts on environmentally-vulnerable areas, for which six types of measures are provided. The measures include the procedure for selecting the specific sites in consultation with each local community.
Upper Cisokan Pumped Storage (UCPS) Power Project	March, 2011	May, 2011	Projected environmental impacts include release of soot and smoke, release of exhaust gas and other air pollutants, ambient noise/vibration, use of construction roads by construction vehicles, removal of vegetation etc., for which five types of measures are to be implemented for the purpose of minimizing the negative impacts of pollution and environmental devastation etc.

Source: Website of WB (accesses in July 2011)

In addition, based on the results of the questionnaire hearing investigation to the WB Jakarta office (conducted in March 2011) and later questionnaire phone calls (conducted in July 2011), the following issues have been pointed out on the Indonesian Government side on the land acquisition/non-voluntary resettlement, as shown in the table below:

Table 9.1-2 Issues on the Land Acquisition/Involuntary Resettlement

Item	Issues
Regulating body	- Indonesia doesn't have any regulating body for resettlement nor does it have any authoritative body for restraining resettlement concerning the indigenous population. - As a result of the increased authority of provincial and prefectural/municipal governments due to decentralization, respective local governments are acting on their own initiatives on the resettlement issue.

Resettlement planning	- Indonesia lacks the technique for resettlement planning.
Budget allocation	- Budget allocation needs to be ensured not only for environmental considerations but also for social considerations.
Implementation of resettlement	- When resettlement plans are worked out, ambiguity regarding land owners sometimes becomes controversial due to the fact that inheritance of some lands from deceased parents or grandparents is unclear (not yet assigned to the descendants), or that the inheritor doesn't possess any land ownership certificate for some reason etc. - Implementation of resettlement plans are delayed due to the opposition by landowners for reasons of a low amount of compensation for the identifiable assets targeted for resettlement, or difference in compensation amount from other identifiable assets etc. - As for the resettlement of deforciants, many of such people tend to relocate again to urban lawless areas because the new address is far from their workplace or for lack of economic/social services.
Monitoring & evaluation	- The implementing body of the projects has low capability in terms of monitoring and evaluation concerning resettlement plans.

Source: Results of the questionnaire hearing investigation to the WB Jakarta Office (March and July, 2011)

Compared with the results of the WB safeguard policy, the Indonesian laws concerning the indigenous population have no provisions on the resettlement planning of the indigenous population. That is, in the case of the land acquisition/non-voluntary resettlement in Indonesia, the indigenous population are supposed to be treated as general population. The current Indonesian law on the indigenous population focuses on the enhancement of social welfare instruction to allow for the accessibility to the social service network by the indigenous population, and it has no provisions as yet on the special protection and supportive measures against the impacts of the land acquisition/non-voluntary resettlement on the indigenous population.

Additionally, Indonesian laws do have provisions on the publication of environmental assessment documents, but have no provisions on the disclosure of information on resettlement plans.

9.2 Asian Development Bank

In 2009, ADB revised its safeguard policy (Safeguard Policy Statement, SPS), which addresses such issues as the environment, indigenous population and non-voluntary resettlement, and has applied it to all the projects under ADB assistance implemented in developing countries, but there seems to be no significant difference between the SPS of ADB and the Indonesian policy for implementing environmental assessment.

On the other hand, although no significant difference lies between the SPS of ADB and the Indonesian policy for considering the indigenous population, Indonesia doesn't have any regulation on the resettlement planning of the indigenous population. Moreover, the procedure for filing an opposition is not adequate.

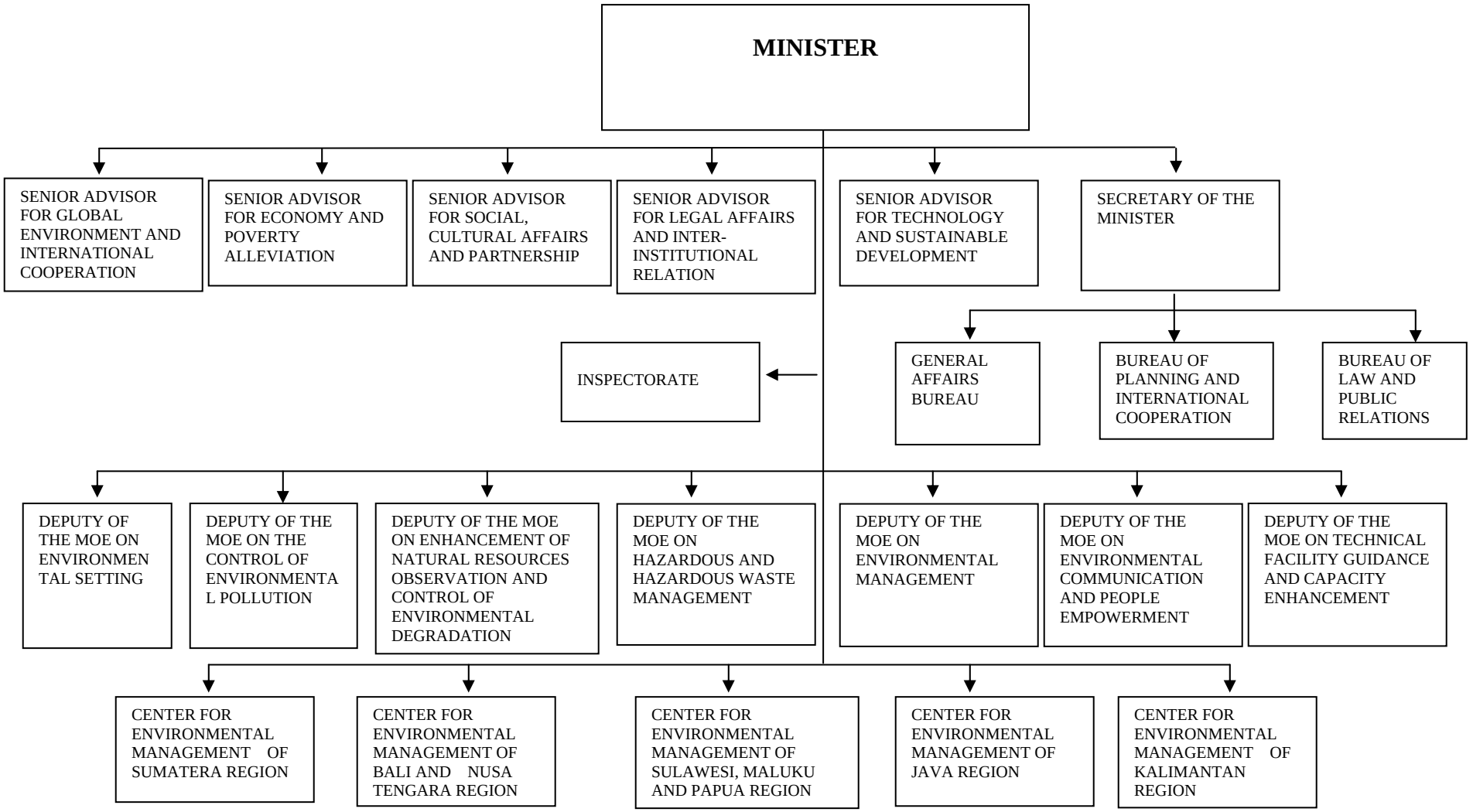
In Indonesia, although there are no significant difference in the monitoring activity concerning the environmental impact assessment between the SPS of ADB and the Indonesian policy for the indigenous population, it provides no regulation on the monitoring of resettlement. While Indonesia doesn't provide any laws or regulations on the indigenous population like ADB, which prescribes the implementation of the development plans for the indigenous population under each project, the Presidential Decree and the Ministerial Decree of the Social Welfare Ministry provide for the general social welfare instructions for the indigenous population. However, Indonesia has no provisions for the monitoring concerning the implementation of social welfare plans.

While Indonesia has provisions on the publication of environmental assessment documents (however, it has no specific prescriptions on the number of days and the methods for information disclosure), it has no provisions on the resettlement plans or the implementation of the plans for the indigenous population right from the start, nor does it have any regulations on information disclosure.

Meanwhile, although the EIA reports, resettlement plans and the plans for the indigenous population under each project are presented on the website of ADB (as of August 2011), we couldn't

find any reports written in languages other than English.

Annex 1　Organizational Chart of the Ministry of Environment of Indonesia



出典：インドネシア政府環境省ウェブサイト（2011 年 6 月）

Annex 2 International Conventions Relevant to Environment Ratified by Indonesia

Name of Convention/Treaty	Regulation
Air and Atmosphere	
Kyoto Protocol to The United Nations Framework Convention on Climate Change	Law No. 17/2004
United Nations Framework Convention on Climate Change	Law No. 6/1994
Vienna Convention the Protection of the Ozone Layer	Presidential Decree No. 23/1992
Montreal Protocol on Substances that Deplete the Ozone Layer	Presidential Decree No. 92/1998
Montreal Amendment To The Montreal Protocol On Substances That Deplete The Ozone Layer	Presidential Decree No. 46/2005
Beijing Amendment To The Montreal Protocol On Substances That Deplete The Ozone Layer	Presidential Decree No. 33/2005
Marine	
Convention on the High Sea	Law No. 19/1961
United Nations Convention on the Law of the Sea	Law No. 17/1985
International Convention for the Prevention of Pollution from Ships 1973	Presidential Decree No. 46/1986
Convention on Civil Liability for Oil Pollution Damage	Presidential Decree No. 18/1978
International Convention on Establishment of an International Fund for Oil Pollution Damage	(1978)
Protocol Of 1992 To Amend The International Convention On Civil Liability For Oil Pollution Damage, 1969	Presidential Decree No. 52/1999
Civil Liability Convention 1969 and Protocol	
Biodiversity	
United Nations Convention on Biological Diversity	Law No. 5/1994
Convention on Wetland of International Importance Especially as Waterfowl Habitat	Presidential Decree No. 48/1991
Convention on International Trade in Endangered Species of Wild Fauna and Flora	Presidential Decree No. 43/1978
Amendment 1979 to Convention On International Trade In Endangered Species Of Wild Fauna And Flora, 1973	Presidential Decree No. 1/1987
Convention concerning the Protection of the World Cultural and Natural Heritage	Presidential Decree No. 17/1989
ASEAN Agreement on the Conservation of Nature and Natural Resources	Presidential Decree No. 26/1986
International Plant Protection Convention	Presidential Decree No. 2/1977
Cartagena Protocol on Biosafety to The Convention on Biological Diversity	Law No. 21/2004
Hazardous Waste	
Basel Convention on the Control of Transboundary Movements of	Presidential Decree No. 61/1993

Name of Convention/Treaty	Regulation
Hazardous Waste and their Disposal	
Ratification of Framework Agreement Between The Government Of The Republic Of Indonesia And The Secretariat Of The Basel Convention On The Control Of Transboundary Movements Of Hazardous Wastes And Their Disposal On The Establishment Of A Basel Convention Regional Centre For Training And Technology Transfer For Southeast Asia	Presidential Decree No. 60/2005
Amendment To The Basel Convention On The Control Of Transboundary Movements Of Hazardous Wastes And Their Disposal	Presidential Decree No. 47/2005
Forestry	
United Nations Convention to Combat Desertification in those Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa	Presidential Decree No. 135/1998
International Tropical Timber Agreement	Presidential Decree No. 4/1995
Other	
Convention on Nuclear Safety	Presidential Decree No. 106/2001
Paris Convention For The Protection Of Industrial Property Dan Convention Establishing The World Intellectual Property Organization	Presidential Decree No. 15/1997
Convention On Assistance In The Case Of A Nuclear Accident Or Radiological Emergency	Presidential Decree No. 82/1993
Convention On Early Notification Of A Nuclear Accident	Presidential Decree No. 82/1993
Convention On The Physical Protection Of Nuclear Material	Presidential Decree No. 49/1986

Annex-3 Indonesian Environmental Standards and Emission Standards

① Air Quality Standards

（Government Regulation No. 41/1999: Control of Air Pollution）

Item	Measurement Period	Reference Value
Sulfur Dioxide （SO_2）	1 hour	900 μ g/Nm^3
	24 hour	365 μ g/Nm^3
	1 year	60 μ g/Nm^3
Carbon Monoxide CO）	1 hour	30 mg/Nm^3
	24 hour	10 mg/Nm^3
	1 year	—
Nitrogen Oxide (NO_x）	1 hour	400 μ g/Nm^3
	24 hour	150 μ g/Nm^3
	1 year	100 μ g/Nm^3
Ozone （O_3）	1 hour	235 μ g/Nm^3
	1 year	50 μ g/Nm^3
Hydrocarbon (HC)	3 hour	160 μ g/Nm^3
PM_{10}	24 hour	150 μ g/Nm^3
$PM_{2.5}$	24 hour	65 μ g/Nm^3
	1 year	15 μ g/Nm^3
Total Suspended Particles （TSP）	24 hour	230 μ g/Nm^3
	1 year	90 μ g/Nm^3
Lead	24 hour	2 μ g/Nm^3
	1 year	1 μ g/Nm^3
Fall dust	30 day	(Residential Area) 10 t/km^2/month
		(Industrial Area) 20 t/km^2/month
Fluoride	24 hour	3 μ g/Nm^3
	90 day	0.5 μ g/Nm^3
Flour Index	30 day	（Caustic lime filter paper） μ g/100m^2 40
Chlorine & Chlorine dioxide	24 hour	150 μ g/Nm^3
Sulfate Index	30 day	1 mg SO_3/ 100m^3-PbO_2

② Air Pollutants Emission Standards

（State Minister of Environment Decree No. 13/1995: Emission Standards for Stationary Sources）

Emission Source		Item	Reference Value (mg/m^3)
Iron Manufacture	Heating of Raw Materials	TSP	150
	Oxidizing Furnace	TSP	150
	Reheating Furnace	TSP	150
	Annealing Furnace	TSP	150
	Acid Cleaning	TSP Hydrogen Chloride	150 15
	Boiler for Power Generation	TSP Sulfur Dioxide （SO_2） Nitrogen Dioxide (NO_2）	230 800 1,000
	All Emission Sources	Permeation Rate	20%
Pulp and Paper Making	Recovery Furnace	TSP TRS	230 10
	Lime Kiln	TSP TRS	350 28
	Melting Tank	TSP TRS	260 28
	Digester	TRS	10
	Bleaching Equipment	Chlorine Chlorine Dioxide	10 125
	Boiler for Power Generation	TSP Sulfur Dioxide （SO_2） Nitrogen Dioxide (NO_2）	230 800 1,000
	All Emission Sources	Permeation Rate	35%
Coal-fired Thermal Power Station		TSP Sulfur Dioxide （SO_2） Nitrogen Oxide (NO_x） Permeation Rate	150 750 850 20%
Cement Industry	Kiln	TSP Sulfur Dioxide （SO_2） Nitrogen Oxide (NO_x） Permeation Rate	80 800 1,000 20 %
	Clinker	TSP	80
	Smashing, transporting, bagging	TSP	80
	Boiler for Power Generation	TSP Sulfur Dioxide （SO_2） Nitrogen Oxide (NO_x）	230 800 1,000

Emission Source	Item	Reference Value (mg/m^3)
Other Industries	Ammonia	0.5
	Chlorine Gas	10
	Hydrogen Chloride	5
	Hydrogen Fluoride	10
	Nitrogen Oxide (NO_x)	1000
	Permeation Rate	35 %
	TSP	350
	Sulfur Dioxide （SO_2）	800
	TRS	35
	Mercury	5
	Arsenic	8
	Antimony	8
	Cadmium	8
	Zinc	50
	Lead	12

③ Air Pollutants Emission Standards（Steam Boiler）

（State Minister of Environment Decree No. 7/2007: Emission Standards for Stationary Sources of Steam Boiler）

[ATTACHMENT I] Biomass Boiler Using Palm Shells

Item	Reference Value (mg/m^3)
PM	300
SO_2	600
NO_2	800
Hydrogen Chloride	5
Chlorine Gas	5
Ammonia	1
HydrogenFluoride	8
Permeation Rate	30%

[ATTACHMENT II] Biomass Boiler Using Sugarcane Hulls

Item	Reference Value (mg/m^3)
PM	250
SO_2	600
NO_2	800
Permeation Rate	30%

[ATTACHMENT III] Boiler Fueled by Other Biomass Materials

Item	Reference Value (mg/m^3)
Nonmetal	
PM	350
SO_2	800
NO_2	1000
Hydrogen Chloride	5
Chlorine Gas	10
Ammonia	0.5
Hydrogen Fluoride	10
Permeation Rate	30%
hydrogen Sulfide	35
Metal	
Mercury	5
Arsenic	8
Antimony	8
Cadmium	8
Zinc	50
Lead	12

[ATTACHMENT IV] Coal Boiler

Item	Reference Value (mg/m^3)
PM	230
SO_2	750
NO_2	825
Permeation Rate	20%

[ATTACHMENT IV] Oil Boiler

Item	Reference Value (mg/m^3)
PM	200
SO_2	700
NO_2	700
Permeation Rate	15%

[ATTACHMENT IV] Gas Boiler

Item	Reference Value (mg/m^3)
SO_2	150
NO_2	650

[ATTACHMENT IV] Boiler fueled by Mixed Materials

$$BME_{(x,m)} = [(BME_{(x,f1)} \times Q_{(f1)}) + (BME_{(x,f2)} \times Q_{(f2)}] / Q_t$$

$BME_{(x,m)}$ = Emission standard for boiler fueled by mixed materials

$BME_{(x,F1)}$ =Emission Standard for boiler using fuel 1 (f1)

$Q_{(f1)}$ =Heat quantity of f1

$BME_{(x,f2)}$ = Emission Standard for boiler using fuel 2 (f2)

$Q_{(f2)}$ = Heat quantity of f2

Q_t = Total heat quantity

④ Air Pollutants Emission Standards（Oil and Gas）
（State Minister of Environment Decree No. 13/2009: Emission Standards for Stationary Sources of Oil and Gas Industry Activities）

[Attachment I] Combustion Process

1.a. Emission Standards for Combustion Process of Internal Combustion Engine

No	Capacity	Fuel Type	Item	Critical Concentration (mg/Nm3)	Methodology
1.	< 570 KWth	Oil	NO_2	1000	SNI 19-7117.5-2005
			CO	600	SNI 19.7117.10-2005
		Gas	NO_2	400	SNI 19-7117.5-2005
			CO	500	SNI 19.7117.10-2005
2.	> 570 KWth	Oil	PM	150	SNI 19-7117.12-2005
			SO_2	800	SNI 19-7117.3.1-2005 or Method 6, 6C USEPA
			NO_2	1000	SNI 19-7117.5-2005 or Method 7 , 7E USEPA
			CO	600	SNI 19.7117.10-2005 or Method 3, 3A dan 3B USEPA
		Gas	PM	50	SNI 19-7117.12-2005
			SO_2	150	SNI 19.7117.10-2005 or Method 6, 6C USEPA
			NO_2	400	SNI 19.7117.10-2005 or Method 7 , 7E USEPA
			CO	500	SNI 19.7117.10-2005 or Method 3, 3A dan 3B USEPA

1.b. Emission Standards for Combustion Process of Gas Turbine

No	Fuel Type	Item	Critical Concentration (mg/Nm3)	Methology
1.	Oil	PM	100	SNI 19-7117.12-2005
		SO_2	650	SNI 19-7117.3.1-2005 or Method 6, 6C USEPA
		NO_2	450	SNI 19-7117.5-2005 or Method 7 , 7E USEPA
		Permeation Rate	20 %	SNI 19.7117.11-2005
2.	Gas	PM	50	SNI 19-7117.12-2005
		SO_2	150	SNI 19-7117.3.1-2005 or Method 6, 6C USEPA
		SO_2	150	SNI 19-7117.3.1-2005
		NO_2	320	SNI 19-7117.5-2005 or Method 7 , 7E USEPA

1.c. Emission Standards for Combustion Process of Boiler, Steam-electric Generator, Heater, Dehydrator

No	Fuel Type	Item	Critical Concentration (mg/Nm3)	Methology
1.	Oil	P M	150	SNI 19-7117.12-2005
		SO_2	1200	SNI 19-7117.3.1-2005 or Method 6, 6C USEPA
		NO_2	800	SNI 19-7117.5-2005 or Method 7 , 7E USEPA
		Permeation Rate	20 %	SNI 19.7117.11-2005
2.	Gas	P M	50	SNI 19-7117.12-2005
		SO_2	150	SNI 19-7117.3.1-2005 or Method 6, 6C USEPA
		NO_2	400	SNI 19-7117.5-2005 or Method 7 , 7E USEPA
		Permeation Rate	20 %	SNI 19.7117.11-2005

1.d. Emission Standard for Combustion Process of Flare Gas Unit

No	Item	Critical Concentration (%)	Methodology
1.	Permeation Rate	40	40 SNI 19.7117.11-2005

[Attachment II] Manufacturing Process

2.a. Emission Standards for Sulfur Recovery Unit

No	Sulfur Emission (ton/day)	Minimum Sulfur Recycling Rate (%)	Methodology
1.	<2	70 %	USEPA 40CFR Part 60 subpart 60.644
2.	2-10	85 %	
3.	10-50	95 %	
4.	> 50	97 %	

2.b. Emission Standard for Oxidized Sulfur Pollutant Gas Treating Unit

No	Item	Emission Standard (mg/Nm3)	Methodology
1.	SO_2	2600	SNI 19-7117.3.1-2005

2.c. Emission Standard for Glycol Dehydration Unit

No	Item	Emission Standard	Methodology
1.	VOC sebagai Total Petroleum Hidrokarbon	Efisiensi pengolahan Emisi kandungan hidrokarbon minimum 95 %, atau 0,8 kg VOC sebagai TPH per mscf gas terhidrasi diratarata kan selama 24 jam	Perhitungan Neraca Massa EPA Method 8260

2.d. Emission Standards for Air Catalyst Dissolution Unit

No	Item	Emission Standard (mg/Nm3)	Methodology
1.	PM	400	SNI 19-7117.12-2005
2.	SO_2	1500	SNI 19-7117.3.1-2005 or Method 6, 6C USEPA
3.	NO_2	1000	SNI 19-7117.5-2005 or Method 7 , 7E USEPA
4.	Hydrocarbon (HC)	200	-

2.e. Emission Standards for Sulfur Recycling System without Gas Furnas

No	Item	Emission Standard (mg/Nm3)	Methodology
1.	PM	400	SNI 19-7117.12-2005
2.	Detected Sulfur Element	450	SNI 19-7117.7-2005
3.	NO_2	1000	SNI 19-7117.5-2005 or Method 7 , 7E USEPA
4.	Hydrocarbon (HC)	200	-

2.f. Emission Standards for Sulfur Recycling System with Gas Furnas

No	Item	Emission Standard (mg/Nm3)	Methodology
1.	PM	400	SNI 19-7117.12-2005
2.	SO_2	1500	SNI 19-7117.3.1-2005 or Method 6, 6C USEPA
3.	NO_2	1000	SNI 19-7117.5-2005 or Method 7 , 7E USEPA
4.	Hydrocarbon (HC)	200	-

[Attachment III] Emission Standards for Mixed Fuels

$$BME\ (x,m) = [(BME(x,f1) \times Q(f1)) + (BME(x,f2) \times Q(f2))] / Qt$$

$BME_{(x,m)}$ =Emission standard for mixed fuels

$BME_{(x,F1)}$ = Emission standard for fuel 1 (f1)

$Q_{(f1)}$ =Heat quantity of f1

$BME_{(x,f2)}$ = Emission standard for fuel 2 (f2)

$Q_{(f2)}$ = Heat quantity of f2

Q_t = Total heat quantity

- Total Required Heat Quantity (Q_t) : 5×106 Kcal
- Real Heat Quantity from Gas Q(f1) : 2×106 Kcal
- Real Heat Quantity from oil Q(f2) : 3×106 Kcal
- Emission Standard for Boiler in Oil Refinery Process BME(f1) : 0 mg/Nm3 (gas fuel)
- Emission Standard for Boiler in Oil Refinery Process BME(f2) : 300 mg/Nm3 (oil fuel)

$BME(pm) = [0 \times 2 \times 106] + [300 \times 3 \times 106] / 5 \times 106 = 180$ mg/Nm3

⑤ Air Pollutant Emission Standards (Old Motor Vehicles)

(State Minister of Environment Decree No. 5/2006: Emission Standards for Old Motor Vehicles)

A. Two-wheel Vehicle (Range of Application: L)

Range of Application	Year of Manufacture	Parameter		Measuring Method
		CO (%)	HC (ppm)	
Two-wheel (2 cylinder)	< 2010	4.5	12000	Idle
Two-wheel (2 cylinder)	< 2010	5.5	2400	Idle
Two-wheel (2 & 4 cylinder)	> 2010	4.5	2000	Idle

B. Automobile (Range of Application: M, N, O)

Range of Application	Year of Manufacture	Parameter			Measuring Method
		CO (%)	HC (ppm)	Opasitas (% HSU)*	
Gasoline Vehicle	< 2007	4.5	1200		Idle
Diesel Vehicle	> 2007	1.5	200		
- GVW < 3.5 ton	< 2010			70	Random Speed
	> 2010			40	
- GVW > 3.5 ton	< 2010			70	
	> 2010			50	

⑥ Water quality standard（surface water and ground water）

（Government Regulation No.82/2001: Control of Water Pollution）

Item	Unit	Standards			
		class Ⅰ	class Ⅱ	class Ⅲ	class Ⅳ
temperature	℃	water temperature±3	water temperature±3	water temperature±3	water temperature±3
dissolved solid	mg/l	1,000	1,000	1,000	2,000
suspended matter		50	50	400	400
pH		6～9	6～9	6～9	5～9
BOD	mg/l	2	3	6	12
COD	mg/l	10	25	50	100
dissolved oxygen	mg/l	6	4	3	0
phosphate	mg/l	0.2	0.2	1	5
nitrate nitrogen	mg/l	10	10	20	20
ammonia nitrogen	mg/l	0.5	—	—	—
arsenic	mg/l	0.05	1	1	1
cobalt	mg/l	0.2	0.2	0.2	0.2
barium	mg/l	1	—	—	—
boron	mg/l	1	1	1	1
selenium	mg/l	0.01	0.05	0.05	0.05
cadmium.	mg/l	0.01	0.01	0.01	0.01
hexavalent chromium	mg/l	0.05	0.05	0.05	1
copper	mg/l	0.02	0.02	0.02	0.2
iron	mg/l	0.3	—	—	—
lead	mg/l	0.03	0.03	0.03	—
manganese	mg/l	0.1	—	—	—
mercury	mg/l	0.001	0.002	0.002	0.005
zinc	mg/l	0.05	0.05	0.05	2
chlorine	mg/l	600	—	—	—
cyanide	mg/l	0.02	0.02	0.02	—
fluoride.	mg/l	0.5	1.5	1.5	—
nitrate	mg/l	0.06	0.06	0.06	—
sulfate	mg/l	400	400	—	—
free chlorine	mg/l	0.03	0.03	0.03	—
sulfides	mg/l	0.002	0.002	0.002	—
feces colon bacillus	mml/100 ml	100	1,000	2,000	2,000
colon bacillus	mml/100 m l	1,000	5,000	10,000	10,000
Radioactive substance. α ray β ray	Bq/l	 0.1 1	 0.1 1	 0.1 1	 0.1 1
animal and vegetable oils	mg/l	1	1	1	—

surfactant	mg/l	0.2	0.2	0.2	—
phenol	μg/l	1	1	1	—
BHC	μg/l	210	210	210	—
aldrin dieldrin	μg/l	17	—	—	—
chlordane	μg/l	3	—	—	—
DDT	μg/l	2	2	2	2

⑦ Water quality standard (sea water)

（State Minister of Environment Decree No.51/2004: Sea Water Quality）

[ATTACHMENT I] Harbour

Item	Unit	Standards
Physical		
transparent	M	>3
odor	-	not detected
suspended matter	mg/l	80
rubbish	-	Nil
water temperature	℃	natural condition
oil film	-	Nil
Chemical		
pH	-	6.5-8.5
salinity concentration	‰	natural condition
ammonia（NH_3-N）	mg/l	80
salfade（H_2S）	mg/l	0.03
hydrocarbon	mg/l	1
phenol	mg/l	0.002
PCB	μg/l	0.01
detergency	mg/1MBAS	1
oil	mg/l	5
TBT（tributyltin）	μg/l	0.01
Metal		
mercury（Hg）	mg/l	0.003
cadmium（Cd）	mg/l	0.01
copper（Cu）	mg/l	0.05
lead（Pb）	mg/l	0.05
zinc（Zn）	mg/l	0.1
Biological		
colon bacillus	MPN/100ml	1000

[ATTACHMENT II] Marine tourism area

Item	Unit	Standards
Physical		
color	Pt. Co	30
odor	-	not detected
transparency	M	>6
turbidity	Ntu	5
suspended matter	mg/l	20
water temperature	℃	Natural State
rubissh	-	Nil
oil film	-	Nil
Chemical		
pH	-	7-8.5
salinity concentration	‰	Natural State
dissolved oxygen (DO)	mg/l	>5
BOD5	mg/l	10
ammonia (NH_3-N)	mg/l	Nil
phosphate (PO_4-N)	mg/l	0.015
nitrate (NO_3-N)	mg/l	0.008
sulfide. (H_2S)	mg/l	Nil
phenol	mg/l	Nil
PAH	mg/l	0.003
PCB	μg/l	Nil
surfactant	mg/1MBAS	0.001
oil	mg/l	1
agricultural chemical.	μg/l	Nil
Metal		
mercury (Hg)	mg/l	0.002
hexavalent chromium (Cr6)	mg/l	0.002
arsenic (As)	mg/l	0.025
cadmium (Cd)	mg/l	0.002
copper (Cu)	mg/l	0.05
lead (Pb)	mg/l	0.005
zinc (Zn)	mg/l	0.095
nikkel (Ni)	mg/l	0.075
Biological		
colon bacillus	MPN/100ml	200
total colon bacillus	MPN/100ml	1000
Nuclide composition		
unspecified composition	Bq/l	4

[ATTACHMENT III] Marine biota and protected area

Item	Unit	Standards
Physical		
transparency	M	coral reef：>5 mangrove：－ sea weed：>3
odor	-	natural condition
turbidity	Ntu	<5
suspended matter	mg/l	coral reef : 20 mangrove：80 sea weed：20
rubbish	-	Nil
water temperature	℃	natural condition coral reef：28－30 mangrove：28－32 sea weed：28－30
oil film	-	Nil
Chemical		
pH	-	7-8.5
salinity concentration	‰	natural condition coral reef：33－34 mangrove：max 34 sea weed：33－34
dissolved oxygen（DO）	mg/l	>5
BOD5	mg/l	20
ammonia（NH_3-N）	mg/l	0.3
phosphate（PO_4-N）	mg/l	0.015
nitrate（NO_3-N）	mg/l	0.008
cyanide （CN-）	mg/l	0.5
sulfide（H_2S）	mg/l	0.01
phenol	mg/l	0.003
PAH	mg/l	0.002
PCB	μg/l	0.01
surfactant	mg/1MBAS	1
oil	mg/l	1
TBT（tributyltin）	μg/l	0.01
Metal		
mercury（Hg）	mg/l	0.001
hexavalent chromium（Cr6）	mg/l	0.005
arsenic	mg/l	0.012
cadmium（Cd）	mg/l	0.001
copper（Cu）	mg/l	0.008
lead（Pb）	mg/l	0.008
zinc（Zn）	mg/l	0.05
nikkel（Ni）	mg/l	0.05

Biological		
colon bacillus	MPN/100ml	1000
pathogen	Cell/100ml	Nil
plankton	Cell/100ml	not mass generated
Nuclide composition		
unspecified composition	Bq/l	4

⑧ Effluent water quality standard

（State Minister of Environment Decree No. 51/1995: Quality Standards of Liquid Waste for Industrial Activities）

Item	Unit	Maximum density	
		class - Ⅰ	class - Ⅱ
Physical			
temperature	℃	38	40
dissolved solid	mg/l	2,000	4,000
suspended matter	mg/l	200	400
Chemical			
pH	mg/l	6～9	—
dissolved iron	mg/l	5	10
dissolved mangan	mg/l	2	5
barium	mg/l	2	3
copper	mg/l	2	3
zinc	mg/l	5	10
hexavalent chromium	mg/l	0.1	0.5
total chromium	mg/l	0.5	1
cadmium	mg/l	0.05	0.1
mercury	mg/l	0.002	0.005
lead	mg/l	0.1	1
tin	mg/l	2	3
arsenic	mg/l	0.1	0.5
selenium	mg/l	0.05	0.5
nickel	mg/l	0.2	0.5
cobalt	mg/l	0.4	0.6
cyan	mg/l	0.05	0.5
sulfurous acid.	mg/l	0.05	0.1
fluorine.	mg/l	2	3
free chlorine	mg/l	1	2
ammonium nitrogen	mg/l	1	5
nitric acid.	mg/l	20	30
nitrous acid	mg/l	1	3
BOD 5	mg/l	50	150
COD	mg/l	100	300
methylene blue active substance	mg/l	5	10

（MBAS）			
phenol	mg/l	0.5	1
animal and vegetable oils	mg/l	5	10
mineral oil	mg/l	10	50
radioactive		to be followed other standard	to be followed other standard

class - Ⅰ : factories that applies advance water processing technology

class - Ⅱ : factories that applies simple water processing technology

⑨ Effluent water quality standard（vinyl chloride）

（State Minister of Environment Decree No.10/2006: Quality Standards of Liquid Waste for Vinyl Chloride Industrial Activities）

Item	**Vinyl chloride monomer**		**Polyvinyl chloride (PVC)**		**Vinyl chloride monomer and polyvinyl chloride (PVC)**	
	standard (mg/L)	max load (gram/production ton)	standard (mg/L)	max load (gram/production ton)	standard (mg/L)	max load (gram/production ton)
BOD	100	700	75	202,5	93	902,5
COD	250	1750	150	405	222	2155
TSS	100	700	100	270	100	970
TDS	(-)	(-)	(*)	(*)	(*)	(*)
copper(Cu)	2	14	(-)	(-)	0,2	14
chlorine (Cl_2)	1	7	(-)	(-)	0,1	7
pH	6,0 – 9,0		6,0 – 9,0		6,0 – 9,0	
effluent limit	7 m_3/ton		2,7 m_3/ton		7 m3/ton VCM +2, 7 m3/ton PVC	

⑩ Effluent water quality standard（purified terephtalic acid and poly ethylene terephthalate）
（State Minister of Environment Decree No.10/2007: Quality Standards of Liquid Waste for Purified Terephthalic Acid and Poly Ethylene Terephthalate Industrial Activities）

[ATTACHMENT I] Effluent water quality standard of purified terephtalic acid

Item	Standard(mg/L)
BOD	150
COD	300
TSS	100
oil and fat	15
phenol	1
manganese (Mn)	3
Cobalt (Co)	1
iron	7
PH	6,0 – 9,0

Effluent limit	4,5 m3/ton Product

[ATTACHMENT II] Effluent water quality standard of purified poly ethylene terephthalate

Item	Standard (mg/L)
BOD	75
COD	150
TSS	100
oil and fat	10
chromium (Cr)	1
copper (Cu)	3
zinc (Zn)	10
PH	6,0 – 9,0

Effluent limit	2 m3/ton Production

[ATTACHMENT III] Formula for figure out effluent water quality standard of PTA and PTE factories that equipped water treatment facilities

Debit air limbah maksimum gabungan :
Total volume of effluent water

$$Q = (PPTA * QPTA) + (PPET * QPET)$$

Kadar air limbah maksimum gabungan untuk parameter i :
Total density of effluent water

$$Ci = (CPTA,i * PPTA * QPTA) + (CPET,i * PPET * QPET) / Q$$

Q (m3/日) :total volume of effluent water
QPTA (m3/ton) : max volume of effluent water from PTA factories
: 4,5 m3/ton product PTA.
QPET (m3/ton) : max volume of effluent water from PET factories
: 2 m3/ton product PET
PPTA (ton/hari) : total production of PTA
PPET (ton/hari) : total production of PET
Ci (mg/L) : total maximum density
CPTA,i (mg/L) : maximum density of PTA factory
CPET,i (mg/L) : maximum density of PET factory

Item	Standard (mg/L)
BOD	60
COD	150
TSS	100
sulfate	0,3
zinc(Zn)	5
PH	6,0 – 9,0

Maximum limit of effluent water	130 m3/ton production

⑪ Noise Level Standards

（State Minister of Environment Decree No. 48/1996: Noise Level Standards）

Item	Noise Level Standards dB(A)
A. Land-use Classification	
1. Residential area	55
2. Commercial area	70
3. Office area	65
4. Green zone	50
5. Industrial area	70
6. Government and public area	60
7. Recreation area	70
8. Special area	
- airport	Based on stipulations of Ministry of Communications
- station	Based on stipulations of Ministry of Communications
- harbor	70
- culturally protected area	60
B. Surrounding Environment	
1. Hospital etc.	55
2. School etc.	55
3. Places for religious purpose etc.	55

⑫ Noise Level Standards（New Motor Vehicles）

（State Minister of Environment Decree No.7/2009: Noise Level Standards for New Motor Vehicles）

A. New Motor Vehicles (Four wheels or more; application range: M, N, and O)

Range		Power	L Max dB(A)	
			(i)	(ii)
M1 (≤ 9 seats)		-	80	77 (2,3)
Bus	GVW ≤ 2 T	-	81	78 (2)
	2 T < GVW ≤ 3,5 T	-	81	79 (2,3)
	GVW > 3,5 T	P < 150 kW	82	80 (3)
	-	150 kW ≤ P	85 (1)	83 (3)
Truck	GVW ≤ 2 T	-	81	78 (2)
	2 T < GVW ≤ 3,5 T	-	81	79 (2,3)
	GVW > 3,5 T	P < 75 kW	86	81 (3)
	-	75 kW ≤ P < 150 kW	86	83 (3)
	3,5 T < GVW ≤ 12 T	150 kW ≤ P	86 (1)	84 (3)
	GVW > 12 T	-	88 (1)	84 (3)
Measuring Method			ECE R51	ECE R51-01

B. New Motor Vehicles (Four wheels or more; application range: Based on number of seat and condition of chassis, including M, N, and O)

Range		Power	L Max dB(A)	
			(i)	(ii)
M1 (≤ 9 seats)		-	90	87 (2,3)
Bus	GVW ≤ 2 T	-	91	88 (2)
	2 T < GVW ≤ 3,5 T	-	91	89 (2,3)
	GVW > 3,5 T	P < 150 kW	92	90 (3)
	-	150 kW ≤ P	95 (1)	93 (3)
Measuring Method			ECE R51	ECE R51-01

⑬ Damage Criteria for Ecosystem

Although the stipulations of "Damage Criteria for Ecosystem" are included in Chapter 21, "The Range of Indicators for Destruction of Living Environment" of the Law No. 32/2009 on Environmental Protection and Management, the specific types of damage criteria are based the various decrees issued so far as quoted below.

1. Range of Criteria for Damage to Soil Resulted from Biomass Production

（State Minister of Environment Decree No.150/2000: Control of Damage to Soil Due to Biomass Production）

A. Range of Criteria for Damage Resulted from Serious Water Immersion in Arid Land

Land	Border line for risk of water immersion		Measuring method	Equipment
	（1）	（2）		
	Ton/ha/year	mm/10 year		
< 20 cm	0,1 - < 1	>0,2 - >1,3	1.Gravity measurement 2.Direct measurement	1.Weight scale Measure of mass Meter of water discharge in catchment area 2.Gauge of water immersion
20 - <50 cm	1 -< 3	1,3 - <4		
50- <100 cm	3 - < 7	4,0 - <9,0		
100-<150 cm	7 – 9	9,0 – 12		
>150 cm	>9	>12		

B. Range of Criteria for Damage of Soil in Arid Land

No.	Item	Border line of risk	Measuring method	equipment
1	Surface layer of soil	<20 cm	Direct measurement	Measure
2	Surface layer of stone	>40%	Direct measurement	Measure
3	Stratal structure	<18%choroid >80% sandstone	Judgment by sand color Specific gravity measurement	Cylinder

4	Specific gravity	1,4g/ cm^3	gravity measurement	Cylinder
5	Rock porosity	<30%;>70%	Specific gravity measurement	Specific gravity meter
6	Water permeability	<0,7 cm/hour >8,0 cm/hour	Water permeation reaction	Ring sampler
7	pH(H2O) 1:2,5	<4,5;>8,5	Potential difference measurement	pH meter, pH stick
8	Conduction capacity/DHL	>4,0 mS/cm	Power durability measurement	EC meter
9	Redox reaction	<200mV	Voltage measurement	pH meter
10	Microbial biomass	$<10^2$cfu/g soil	Plating technology	Colony counter

2. Range of Criteria for Damage to Coral
（State Minister of Environment Decree No.4/2001: Standards of Damage to Coral）

Range of Criteria for Damage to Coral

Item	Range of Criteria for Damage to Coral (%)		
Area of coral existing	Bad condition	Bad	0 – 24,9 %
		Normal	25 – 49,9 %
	Good condition	Good	50 – 74,9 %
		Very good	75 100 %

3. Range of Criteria for Damage to Mangrove
（State Minister of Environment Decree No.201/2004: Range of Standards and Guidelines for Damage to Mangrove）

Range of Criteria for Damage to Mangrove

Thickness condition	Range of inhabitation（%）	Degree of thickness (number of plant/ha)
Very good	>75 %	>1500
Normal	>50 - <75 %	>1000 - <1500
Bad	<50 %	<1000

Annex 4 Major NGO in Indonesia

Name	Address	Contact	Website
Biodiversity Conservation Indonesia (BCI)	Jl. Paus 8A Kompleks IPB Sindangbarang I Loji-Bogor	Tel/Fax: +62-251-318671 bci@indo.net.id	http://www.bci.or.id/
Burung Indonesia (Birdlife Indonesia)	Jl. Dadali No. 32, Bogor 16161, West Jawa	Tel: +62-251-357222 Fax: +62-251-357961 info@burung.org	http://www.burung.org/
CARE International Indonesia	Jl. Pattimura No. 33 Kebayoran Baru Jakarta Selatan 12110	Tel: +62-21-72796661 Fax: +62-21-7222552 info@careind.or.id	http://www.careindonesia.or.id/
Center for International Forestry Research (CIFOR)	Jalan CIFOR Situ Gede, Sindangbarang Bogor Barat 16115	Tel: +62-251-622622 Fax: +62-251-622100 cifor@cgiar.org	http://www.cifor.cgiar.org/
Conservation International Indonesia	Jl. Pejaten Barat No. 16A Kemang Jakarta 12550	Tel: +62-21-78838624 /78838626/78832564 Fax: +62-21-7806723 ci-indonesia@conservation.org	http://www.conservation.or.id/
Dana Mitra Lingkungan (Friends of the Environment Fund)	ITC Fatmawati (Komplek Duta Mas) Blok B1 No.12, Jakarta 12150	Tel: +62-21-7248884/7248885 Fax: +62-21-7204367	http://www.dml.or.id/dml5/
Fauna and Flora International – Aceh Programme			http://www.ffi.or.id/
Forest Watch Indonesia			http://www.fwi.or.id/
Hans Seidel Foundation - Indonesia	Menara Cakrawala (Skyline Building) 9th Floor Jl. M.H. Thamrin 9 Jakarta 10340	Tel: +62-21-3902369/31417 08 ext. 2910 & 2911 Fax: +62-21-3902381 hsfindo@hsfindo.org	http://www.hsfindo.org/
Indonesian Center for Environmental	Jl. Kerinci IX/24, Kebayoran Baru, Jakarta 12120	Tel: +62-21-7394432 icel@indo.net.id	http://www.icel.or.id/

Name	Address	Contact	Website
Law			
International NGO Forum on Indonesian Development	Jl. Mampang Prapatan XI No. 23, Jakarta 12790	Tel: +62-21-79196721 Fax: +62-21-7941577	http://www.infid.org/
Jaringan Advokasi Tambang/JATAM (Mining Advocacy Network)	Jl. Mampang Prapatan II/30 Jakarta 12790	Tel: +62-21-7941559 Fax : +62-21-79181683 jatam@jatam.org	http://www.jatam.org/
Jaringan Pendidikan Lingkungan Hidup/JPL (Environmental Education Network)	Jl. Sempur no. 55 Bogor 16154	Tel: +62-251-320253/ 311097 Fax: +62-251-320253 jpl@jpl.or.id	http://www.jpl.or.id/
Komite Penghapusan Bensin Bertimbal			http://www.kpbb.org/
Komisi Nasional Hak Asasi Manusia/Komnas HAM (National Human Rights Commission of Indonesia)	Jl. Latuharhari 4B, Menteng, Jakarta 10310	Tel: +62-21-3925230 Fax: +62-21-3925227 info@komnasham.go.id	http://www.komnasham.go.id/
Lembaga Ekolabel Indonesia (The Indonesian Ecolabelling Institute)	Jl. Taman Bogor Baru Blok BIV No. 12, Bogor 16152 - Indonesia	Phone : +62-251-340744 Fax : +62-251-321739	http://www.lei.or.id
Nature Conservancy	Jl. Wijaya XIII No. 9 Kebayoran Baru Jakarta Selatan 12160 Indonesia	Tel: +62-21-7247152 Fax: +62-21-7247162 indonesia@tnc.org	http://www.nature.org/wherewework/asiapacific/indonesia/
Sawit Watch	Jl. Sempur Kaler No. 28	Tel: +62-251-352171	http://www.sawitwatch

Name	Address	Contact	Website
	Bogor 16129 Jawa Barat Indonesia	Fax: +62-251-352047	.or.id/
The Habibie Center (THC)	The Habibie Center, Jl. Kemang Selatan No. 98, Jakarta 12560	Tel: +62-021-7817211 Fax: +62-21-7817212 thc@habibiecenter.or.id	http://www.habibiecenter.or.id/
Wahana Lingkungan Hidup Indonesia / WALHI (Indonesian Forum for Environment)	Jl. Tegal parang Utara No. 14 Jakarta 12790	Tel: +62-21-79193363 Fax: +62-21-7941673 info@walhi.or.id	http://www.walhi.or.id/
Wetlands International – Indonesia Programme	Jl. Ahmad Yani No. 53 Bogor 16161	Tel: +62-251-312189 Fax: +62-251-325755 admin@wetlands.or.id	http://www.wetlands.or.id/
World Wide Fund for Nature (WWF Indonesia)	Kantor Taman A9, Unit A-1 Kawasan Mega Kuningan Jakarta 12950	Tel: +62-21-5761070 Fax: +62-21-5761080 wwf-indonesia@wwf.or.id	http://www.wwf.or.id
Yayasan Keanaekaragaman Hayati Indonesia/KEHATI (Indonesian Biodiversity Foundation)	Jl. Bangka VIII No. 3B Pela Mampang Jakarta	Tel: +62-21-7183185 Fax: +62-21-7196131 kehati@indo.net.id	http://www.kehati.or.id/
Yayasan Lembaga Bantuan Hukum Indonesia	Jl. Diponegoro No. 74 Menteng, Jakarta 10310	Tel: +62-21-3104510 Fax: +62-21-31930140 info@ylbhi.or.id	http://www.ylbhi.or.id/index.php?cx=7&cb=1
Yayasan Pelangi Indonesia	Jl. Pangeran Antasari No. 10, Kebayoran Baru, Jakarta 12150	Tel: +62-21-72801172 Fax: +62-21-72801174	http://www.pelangi.or.id/
Yayasan Pembangunan	Jl. BDN II No. 35 Jakarta 12430	Tel: +62-21-7695491 Fax : +62-21-75816938	http://www.ypb.or.id/

Name	Address	Contact	Website
Berkelanjutan (Foundation for Sustaiable Development)		mailadm@ypb.or.id	
Yayasan Pengembangan Biosains dan Bioteknologi	Jl. Awiligar Ria II No. 01 Bandung 40191	Tel: +62-22-2505881 did24165@melsa.net.id	http://ypbb.terranet.or.id/about.htm
Yayasan Pribumi Alam Lestari/YPAL (Indigenous Nature Conservation Society)	Jl. Paledang No. 20, Cibeureum, Bandung 40184	Tel: +62-22-6070139 Fax: +62-22-6070139 ypal@ypal.or.id	http://www.ypal.or.id/
Aliansi Masyarakat Adat Nusantara（AMAN/Indigenous People Alliance of the Archipelago）	Jl. B No. 4 RT/RW 001/006 Komp. Rawa Bambu I Pasar Minggu Jakarta Selatan Indonesia	Tel/Fax: +62-21-7802771 rumahaman@cbn.net.id	1.http://dte.gn.apc.org/AMAN/english/eng.html 2.http://aman.or.id/ (New)

Annex 5　Protective Species Based on Domestic Law（Government Regulation No.7/1999）

1. Mamal

No	Indonesian	Japanese	English	Scientific name
1	Landak Irian, Nokdiak	ミツユビハリモグラ	Spiny Anteater	*Zaglossus bruijni*
2	Kanguru Tanah	カンガルーの一種	Wallaby	*Dorcopsis muelleri*
3	Kangguru Pohon	セスジキノボリカンガルー	Ornata Tree Kangaroo	*Dendrolagus goodfellowi*
4	Kanguru Pohon	ドリアキノボリカンガルー	Uncolored Tree Kangaroo	*Dendrolagus dorianus*
5	Kanguru Pohon	クロキノボリカンガルー	Dusty Tree Kangaroo	*Dendrolagus ursinus*
6	Kanguru Pohon	ゴマシオキノボリカンガルー	Grizzles Tree Kangaroo	*Dendrolagus inustus*
7	Kanguru Tanah	アカアシヤブワラビー	Red Legged Pademelon	*Thylogale stigmatica*
8	Kanguru Tanah	コゲチャワラビー	Dusky Pademelon	*Thylogale brunii*
9	Kubung, tando	マレーヒヨケザル	Flying Lemur	*Cynocephalus variegates*
10	Malu-malu	スローロリス	Slow Loris	*Nycticebus coucang*
11	Binatang Hantu, Singapuar	ニシメガネザル	Tarsier	*Tarsius bancanus*
12	Orang Utan, Mawas	オランウータン	Orang Utan	*Pongo pygmaeus*
13	Jenis-jenis Owa tak Berbuntut	クロッステナガザル	Kloss Gibbon	*Cercopithecidae*
14	Ungko	アジルテナガザル	Dark Handed Gibbon	*Cercopithecidae*
15	Owa	ワウワウテナガザル	Silvery Gibbon	*Hylobates moloch*
16	Klampiau	ミューラーテナガザル	Grey Gibbon	*Hylobates muelleri*
17	Sarudung	シロテナガザル	White Handed Gibbon	*Hylobates lar*
18	Kahau	テングザル	Proboscis Monkey	*Nasalis larvatus*
19	Monyet dihe	クロザル	Crested Celebes Macaque	*Macaca nigra*
20	Monyet Buntung	オナガザルの一種	Booted Macaque	*Macaca bruescans*
21	Monyet dare	ムーアモンキー	Moor Macaque	*Macaca maura*
22	Monyet digo	トンケアンマカクザル	Tonken Macaque	*Macaca tonkeana*

No	Indonesian	Japanese	English	Scientific name
23	Bakkoi, Beruk Mentawai	ブタオザルの一種	Mentawai Pigtailed Macaque	*Macaca pegensis*
24	Jaya, luntung mentawai	メンタワイコノハザル	Mentawai Langur	*Presbytis potenziani*
25	Lutung merah	ルリイロコノハザル	Maroon Leaf Monkey	*Presbytis rubicunda*
26	Rungka, Kedih	トーマスリーフモンキー	Banded Leaf Monkey, Thomas Leaf Monkey	*Presbytis thomasi*
27	Lutung surili	スレンダーリーフモンキー	Javan Leaf monkey	*Presbytis aygula*
28	Luntung Dahi Putih	オナガザルの一種	White Fronted Leaf Monkey	*Presbytis frontata*
29	Simakobu, Simpai, Mentawai	オナガザルの一種	Pigtailed Langur, Snubnosed Monkey	*Simias concolor*
30	Monyet hitam sulawesi	セレベスクロザル	Celebes Crested Macaque	*Cynopithecus niger*
31	Trenggiling	センザンコウ	Scaly Anteater, Pangolin	*Manis javanica*
32	Bajing tanah, tupai tanah	リスの一種	Three-striped Ground Squirrel	*Lariscus insignis*
33	Jelarang	クロオオリス	Black Giant Squirrel	*Ratufa bicolor*
34	Cukbo, bajing terbang	モモンガの一種	Spotted Giant Flying Squirrel	*Petaurista elegans*
35	Bajing terbang ekor merah	モモンガの一種	Red Tailed Flying Squirrel	*Iomys horsfieldii*
36	Kelinci liar sumatera	スマトラウサギ	Sumatran Short-eared Rabbit	*Nesolagus netscheri*
37	Bajing tanah bergaris empat	リスの一種	Four-striped Ground Squirrel	*Lariscus hosei*
38	Kuskus	ブチクスクス	Spotted Cuscus	*Phalanger maculatus*
39	Kuskus	ハイイロクスクス	Common Phalanger	*Phalanger orientalis*
40	Kuskus	クロクスクス	Bear Phalanger	*Phalanger ursinus*
41	Kuskus	ヒメクスクス	Celebes Phalanger	*Phalanger celebensis*
42	Kuskus	クロフクスクス	Black Phalanger	*Phalanger atrimaculatus*
43	Kuskus	セスジクスクス	Gray Phalanger	*Phalanger gymnotis*
44	Landak	マレーヤマアラシ	Porcupine	*Hystrix brachyura*
45	Sigung, Toledu	アナグマの一種	Malay Stink Badger	*Mydaus javanensis*

No	Indonesian	Japanese	English	Scientific name
46	Pulusan	ホッグノーズヤマアラシ	Hognose Badger	*Arctonyx collaris*
47	Beruang madu	マレーグマ	Malayan Sun Bear	*Helarctos malayanus*
48	Musang air	キノガーレ	Otter Civet	*Cynogale bennetti*
49	Musang congkok	ブチリンサン	Banded Linsang	*Prionodon linsang*
50	Musang sulawesi	セレベスパームシベット	Celebes Palm Civet	*Macrogalidia musschenbroeki*
51	Binturung	ビントロング	Ninturung	*Arctictis binturong*
52	Harimau jawa	ジャワトラ	Javan Tiger	*Panthera tigris sondaica*
53	Harimau Sumatra	スマトラトラ	Sumatran Tiger	*Panthera tigris sumatrae*
54	Macan kumbang, macan Tutul	ヒョウ	Leopard Panther	*Panthera pardus*
55	Harimau dahan	ウンピョウ	Clouded Leopard	*Neofelis nebulosa*
56	Kucing hutan, meong coongklok	ベンガルヤマネコ	Leopard Cat	*Felis bengalensis*
57	Luwak	マーブルキャット	Marble Cat	*Felis marmorata*
58	Kucing merah	ワイルドキャット	Borneo Bay Cat	*Felis badia*
59	Kucing emas	アジアゴールデンキャット	Golden Cat	*Felis temmincki*
60	Kucing dampak	マレーヤマネコ	Flat headed Cat	*Felis planiceps*
61	Kucing bakau	フィッシングキャット	Fishing Cat	*Felis viverrinus*
62	Ajag	アカオオカミ	Asiatic Wild Dog	*Cuon alpinus*
63	Gajah	アジアゾウ	Asian Elephant	*Elephas maximus*
64	Tapir, cipan, tanuk	マレーバク	Malay Tapir	*Tapirus indicus*
65	Badak sumatera	スマトラサイ	Sumatran Rhino	*Dicerorhinns sumatrensis*
66	Badak Jawa	ジャワサイ	Javan Rhino	*Rhinoceros sondaicus*
67	Babi rusa	バビルーサ	Babirusa	*Babyrousa babyrussa*
68	Rusa	ルサジカ	Deer	*Cervus timorensis*
69	Sambar	サンバー	Sambar	*Cervus unicolor*

No	Indonesian	Japanese	English	Scientific name
70	Rusa Bawean	バウェアンジカ	Bawean Deer, Kuw's Deer	*Hylelaghus kuhlii (axis kuhlii)*
71	Kijang	ホエジカ	Barking Deer	*Muntiacus Muntjacs*
72	Kancil	ジャワマメジカ	Lesser Mouse Deer	*Tragulus javanicus*
73	Napu	オオマメジカ	Large Mouse Deer	*Tragulus napu*
74	Banteng	バンテン	Banteng	*Bos javanicus*
75	Anoa dataran rendah	アノア	Lowland Anoa	*Bubalus depressicornis*
76	Anoa pegunungan	ヤマアノア	Highland Anoa	*Babulus quarlesi*
77	Kambing Sumatra	シーロー	Sumatran Serow	*Capricornis sumatrensis*
78	Lumba-lumba timah	マダライルカの一種	Plumboeus Dolphin	*Sotalia plombea*
79	Lumba-lumba borneo	マダライルカの一種	Indonesian White Dolphin	*Sotalia borneensis*
80	Lumba-lumba cina	シナウスイルカ	Chinese White Dolphin	*Sotalia chinensis*
81	Lumba-lumba gigi kasar	シワハイルカ	Rough Toothed Dolphin	*Steno bredanensis*
82	Lumba-lumba Malaya	アラリイルカ	Malayan Dolphine	*Stenella malayana*
83	Lumba-lumba delpis	マイルカ	Comon Dolphin	*Delphinus delphis*
84	Lumba-lumba perut merah	アカハラマイルカ	Red bellied Dolphin	*Delphinus roseiventris*
85	Lumba-lumba irawadi	イラワジイルカ	Irrawadi Dolphin	*Orcaella brevirostris*
86	Lumba-lumba botol	バンドウイルカ	Bottle Nose Dolphin	*Tursiops spp.*
87	Pesut	カワイルカの一種	Mahakam Dolphin	*Orcella sp.*
88	Lumba-lumba gromphus	ハナゴンドウ	Bottle Nose Grampus	*Grampus griseus*
89	Lumba-lumba pemangsa kecil	カズハゴンドウ	Little Killer, Melon-headed whale	*Peponocephala electra*
90	Paus paruh angsa	アカボウクジラ	Cuvier's Beaked Whale	*Ziphius cavirostris*
91	Lumba-lupaus paruh angsamba tak bersirip punggung	スナメリ	Black Finless Porpoise	*Neophocaena phocaenoides*
92	Paus biru	シロナガスクジラ	Blue Whale	*Balaenoptera musculus*
93	Paus bersirip	ナガスクジラ	Fin Whale, Razorback	*Balaenoptera physalis*

No	Indonesian	Japanese	English	Scientific name
94	Paus bongkok	ザトウクジラ	Humpback Whale	*Megaptera novaeangliae*
95	Paus	クジラ	Whale's (all species)	*Cetacea*
96	Duyung	ジュゴン	Dugong	*Dugong dugon*

2. Birds

No	Indonesian	Japanese	English	Scientific name
1	Kasuari kerdil	コヒクイドリ	Dwarf Cassowary	*Casuarius bennetti*
2	Kasuari gelambir ganda	ヒクイドリ	Southern Cassowary	*Casuarius casuarius*
3	Kasuari gelambir Tunggal	パプアヒクイドリ	Northern Cassowary	*Casuarius unappendiculatus*
4	Undan kacamata	コシグロペリカン	Australian Pelican	*Pelecanus conspicillatus*
5	Undan putih	モモイロペリカン	Great White Pelican	*Pelecanus onocrotalus*
6	Undan paruh botol	ハイイロペリカン	Spot-billed Pelican	*Pelecanus philippensis*
7	Gangsa batu abotti	モモグロカツオドリ	Abbott's Booby	*Papasula abbotti*
8	Gangsa batu muka biru	アオツラカツオドリ	Masked Booby	*Sula dactylatra*
9	Gangsa batu coklat	カツオドリ	Brown Booby	*Sula leucogaster*
10	Gangsa batu kaki merah	アカアシカツオドリ	Red-footed Booby	*Sula sula*
11	Pecuk ular	アジアヘビウ	Oriental Darter	*Anhinga melanogaster*
12	Bintayung P. Christmast	シロハラグンカンドリ	Christmas Island Frigatebird	*Fregata andrewsi*
13	Kuntul besar	ダイサギ	Great Egret	*Ardea alba*
14	Kuntul sedang	チュウサギ	Intermediate Egret	*Ardea intermedia*
15	Kuntul kecil	コサギ	Little Egret	*Egretta garzetta*
16	Kuntul china	カラシラサギ	Chinese Egret	*Egretta eulophotes*
17	Kuntul karang	カラシラサギ	Chinese Egret	*Egretta eulophotes*
18	Kuntul kerbau	アマサギ	Cattle Egret	*Bubulcus ibis*
19	Kowak merah	ハシブトゴイ	Rufous Night-Heron	*Nycticorax caledonicus*

No	Indonesian	Japanese	English	Scientific name
20	Bangau hitam	エンビコウ	Woolly-necked Stork	*Ciconia episcopus*
21	Bluwok putih	シロトキコウ	Milky Stork	*Mycteria cinerea*
22	Bangau tongtong	コハゲコウ	Lesser Adjutant	*Leptoptilos javanicus*
23	Bluwok berwarna	インドトキコウ	Painted Stork	*Mycteria leucocephala*
24	Ibis putih kepala hitam	クロトキ	Black-headed Ibis	*Threskiornis melanocephalus*
25	Ibis bahu putih	カタジロトキ	White-shouldered Ibis	*Pseudibis davisoni*
26	Roko-roko ibis hitam	ブロンズトキ	Glossy Ibis	*Plegadis falcinellus*
27	Alap-alap	タカサゴダカ	Shikra	*Accipiter badius*
28	Alap-alap berkalung	モルッカツミ	Rufous-necked Sparrowhawk	*Accipiter erythrauchen*
29	Alap-alap coklat	アカハラオオタカ	Brown Goshawk	*Accipiter fasciatus*
30	Alap-alap sulawesi	セレベスオオタカ	Sulawesi Goshawk	*Accipiter griseiceps*
31	Alap-alap kepala putih	チャバラオオタカ	Moluccan Goshawk	*Accipiter henicogrammus*
32	Alap-alap punggung hitam	クロアカオオタカ	Black-mantled Goshawk	*Accipiter melanochlamys*
33	Alap-alap meyer	シロハラオオタカ	Meyer's Goshawk	*Accipiter meyerianus*
34	Alap-alap kecil sulawesi	セレベスツミ	Small Sparrowhawk	*Accipiter nanus*
35	Alap-alap putih	オーストラリアカワリオオタカ	Grey Goshawk	*Accipiter novaehollandiae*
36	Alap-alap kepala kelabu	ハイガシラオオタカ	Grey-headed Goshawk	*Accipiter poliocephalus*
37	Alap-alap Sulawesi	ムネアカツミ	Vinous-breasted Sparrowhawk	*Accipiter rhodogaster*
38	Alap-alap China	アカハラダカ	Chinese Goshawk	*Accipiter soloensis*
39	Alap-alap Jambul	カンムリオオタカ	Crested Goshawk	*Accipiter trivirgatus*
40	Alap-alap ekor bintik	シラボシオオタカ	Spot-tailed Goshawk	*Accipiter trinotatus*
41	Alap-alap burung	ミナミツミ	Besra	*Accipiter virgatus*
42	Alap-alap kadal jambul	チャイロカッコウハヤブサ	Jerdon's Baza	*Aviceda jerdoni*
43	Alap-alap kukuk	カンムリカッコウハヤブサ	Pacific Baza	*Aviceda subcristata*

No	Indonesian	Japanese	English	Scientific name
44	Elang Kelabu	サシバ	Grey-faced Buzzard	*Butastur indicus*
45	Elang coklat	チャバネサシバ	Rufous-winged Buzzard	*Butastur liventer*
46	Elang Rawa	ヨーロッパチュウヒ	Western Marsh-Harrier	*Circus aeruginosus*
47	Elang Tutul	ウスユキチュウヒ	Spotted Harrier	*Circus assimilis*
48	Elang Tikus	カタグロトビ	Black-winged Kite	*Elanus caeruleus*
49	Elang China	マダラチュウヒ	Pied Harrier	*Circus melanoleucos*
50	Elang Laut perut putih	シロハラウミワシ	White-bellied Sea-Eagle	*Haliaeetus leucogaster*
51	Elang Bodol, Wulung	シロガシラトビ	Brahminy Kite	*Haliastur Indus*
52	Elang Siul	フエフキトビ	Whistling Kite	*Haliastur sphenurus*
53	Elang Irian	パプアオウギワシ	New Guinea Eagle	*Harpyopsis novaeguineae*
54	Elang	オナガハチクマ	Long-tailed Honey-buzzard	*Henicopernis longicauda*
55	Elang Kecil	アカハラクマタカ	Rufous-bellied Eagle	*Hieraaetus kienerii*
56	Elang Kecil Australi	アカヒメクマタカ	Little Eagle	*Hieraaetus morphnoides*
57	Elang Laut Kelabu	ウオクイワシ	Grey-headed Fish-Eagle	*Ichthyophaga ichthyaetus*
58	Elang Laut Kecil	コウオクイワシ	Lesser Fish-Eagle	*Ichthyophaga humilis*
59	Elang Jambul Hitam	カザノワシ	Black Eagle	*Ictinaetus malayensis*
60	Alap-alap Kelelawar	コウモリダカ	Bat Hawk	*Macheiramphus alcinus*
61	Alap-alap Doria	パプアオオタカ	Doria's Goshawk	*Megatriorchis doriae*
62	Alap-alap malam	ニシトビ	Black Kite	*Milvus migrans*
63	Alap-alap belang	ヨコジマハチクマ	Barred Honey-buzzard	*Pernis celebensis*
64	Alap-alap Madu	ハチクマ	Oriental Honey-buzzard	*Pernis ptilorhyncus*
65	Elang Ular	ミナミカンムリワシ	Crested Serpent-Eagle	*Spilornis cheela*
66	Bido Sulawesi	スラウェシチュウヒワシ	Sulawesi Serpent-Eagle	*Spilornis rufipectus*
67	Bido Andaman	アンダマンカンムリワシ	Andaman Serpent-Eagle	*Spilornis elgini*

No	Indonesian	Japanese	English	Scientific name
68	Elang Jawa	ジャワクマタカ	Javan Hawk-Eagle	*Spizaetus bartelsi*
69	Elang Hitam	カワリクマタカ	Changeable Hawk-Eagle	*Spizaetus cirrhatus*
70	Elang Gurne	モルッカイヌワシ	Gurney's Eagle	*Spizaetus gurneyi*
71	Elang Hitam Putih	カオグロクマタカ	Blyth's Hawk-Eagle	*Spizaetus alboniger*
72	Elang Sulawesi	クマタカ	Mountain Hawk-Eagle	*Spizaetus nipalensis*
73	Elang Sulawesi Jambul	セレベスクマタカ	Sulawesi Hawk-Eagle	*Spizaetus lanceolatus*
74	Elang Biliton/Elang Wallace	ウォーレスクマタカ	Wallace's Hawk-Eagle	*Spizaetus nanus*
75	Garuda Australia	オナガイヌワシ	Wedge-tailed Eagle	*Aquila audax*
76	Garuda Irian	モルッカイヌワシ	Gurney's Eagle	*Aquila gurneyi*
77	Elang Ikan	ミサゴ	Osprey	*Pandion haliaetus*
78	Sikap Elang	ハヤブサ	Peregrine Falcon	*Falco peregrinus*
79	Alap-alap Macan	ミナミチゴハヤブサ	Oriental Hobby	*Falco severus*
80	Alap-alap	チョウゲンボウ	Common Kestrel	*Falco tinnunculus*
81	Alap-alap kecil	オーストラリアチゴハヤブサ	Australian Hobby	*Falco longipennis*
82	Alap-alap Irian	オーストラリアチョウゲンボウ	Australian Kestrel	*Falco cenchroides*
83	Alap-alap Menara	モルッカチョウゲンボウ	Spotted Kestrel	*Falco moluccensis (Falco nolvecensis)*
84	Elang Belalang	モモグロヒメハヤブサ	Black-thighed Falconet	*Microhierax fringillarius*
85	Elang Kecil Borneo	ボルネオヒメハヤブサ	White-fronted Falconet	*Microhierax latifrons*
86	Maleo	セレベスツカツクリ	Maleo	*Macrocephalon maleo*
87	Burung gosong	オーストラリアツカツクリ	Orange-footed Scrubfowl	*Megapodius reinwardt*
88	Burung gosong	ツカツクリの仲間	不明	*Megapodius arfakinus*
89	Burung gosong	ツカツクリの仲間	不明	*Megapodius bruijni*
90	Burung gosong	モルッカツカツクリ	Moluccan Scrubfowl	*Megapodius wallacei (Eulipoa wallacei)*
91	Gosong	ニューギニアツカツクリ	New Guinea Scrubfowl	*Megapodius affinis*

No	Indonesian	Japanese	English	Scientific name
92	Gosong	ニコバルツカツクリ	Nicobar Scrubfowl	*Megapodius nicobariensis*
93	Gosong	タニンバルツカツクリ	Tanimbar Megapode	*Megapodius tenimberensis*
94	Kamur	ハシグロツカツクリ	Black-billed Brush-turkey	*Talegalla fuscirostris*
95	Umgran	チャエリツカツクリ	Brown-collared Brush-turkey	*Talegalla jobiensis*
96	Kuao	セイラン	Great Argus	*Argusianus argus*
97	Merak	マクジャク	Green Peafowl	*Pavo muticus*
98	Merakkerdil	マレーエボシコクジャク	Malayan Peacock-Pheasant	*Polyplectron malacense*
99	Beleang bulwor	オジロウチワキジ	Bulwer's Pheasant	*Lophura bulweri*
100	Jenjang	オオヅル	Sarus Crane	*Grus antigone*
101	Mandar sulawei	セレベスクイナ	Snoring Rail	*Aramidopsis plateni*
102	Trulek jawa	ムナオビトサカゲリ	Banded Lapwing	*Vanellus tricolor*
103	Blekek asia	シベリアオオハシシギ	Asian Dowitcher	*Limnodromus semipalmatus*
104	Gegajahan besar	ダイシャクシギ	Eurasian Curlew	*Numenius arquata*
105	Gegajahan sedang	チュウシャクシギ	Whimbrel	*Numenius phaeopus*
106	Gegajahan paruh besar	ホウロクシギ	Far Eastern Curlew	*Numenius madagascariensis*
107	Gegajahan kecil	コシャクシギ	Little Curlew	*Numenius minutus*
108	Trinil asita	カラフトアオアシシギ	Nordmann's Greenshank	*Tringa guttifer*
109	Trulak lidi	セイタカシギ	Black-winged Stilt	*Himantopus himantopus*
110	Wili-wili	チドリの仲間	不明	*Esacus magnirostris*
111	Dara laut berjambul	ヒガシシナアジサシ	Chinese Crested-Tern	*Sterna bernsteini (Sterna ziumermani)*
112	Camar coklat	クロアジサシ	Brown Noddy	*Anous stolidus*
113	Camar kerudi putih	ヒメクロアジサシ	Black Noddy	*Anous minutus*
114	Camar hitam	インドヒメクロアジサシ	Lesser Noddy	*Anous tenuirostris*
115	Dara laut kumis	クロハラアジサシ	Whiskered Tern	*Chlidonias hybridus*

No	Indonesian	Japanese	English	Scientific name
116	Dara laut sayap hitam	ハシグロクロハラアジサシ	Black Tern	*Chlidonias niger*
117	Dara laut sayap putih	ハジロクロハラアジサシ	White-winged Tern	*Chlidonias leucopterus*
118	Dara laut paruh hitam	ハシブトアジサシ	Gull-billed Tern	*Sterna nilotica (Gelochelidon nilotica)*
119	Camar putih mata cincin	シロアジサシ	Common White-Tern	*Gygis alba*
120	Dara laut kecil	コアジサシ	Little Tern	*Sterna albifrons*
121	Dara laut Kendal	マミジロアジサシ	Bridled Tern	*Sterna anaethetus*
122	Dara laut jambu kecil	ベンガルアジサシ	Lesser Crested-Tern	*Sterna bengalensis*
123	Dara laut jambu besar	オオアジサシ	Great Crested-Tern	*Sterna bergii*
124	Dara laut dougalii	ベニアジサシ	Roseate Tern	*Sterna dougallii*
125	Dara laut hitam	セグロアジサシ	Sooty Tern	*Sterna fuscata*
126	Dara laut hirunda	アジサシ	Common Tern	*Sterna hirundo*
127	Dara laut tengkuk hitam	エリグロアジサシ	Black-naped Tern	*Sterna sumatrana*
128	Junai emas	ミノバト	Nicobar Pigeon	*Caloenas nicobarica*
129	Mambruk skop makeri	ムネアカカンムリバト	Southern Crowned-Pigeon	*Goura scheepmakeri*
130	Mambruk biasa	カンムリバト	Western Crowned-Pigeon	*Goura cristata*
131	Mabruk viktroria	オウギバト	Victoria Crowned-Pigeon	*Goura Victoria*
132	Kakatua putih besar, jambul kuning	キバタン	Sulphur-crested Cockatoo	*Cacatua galerita*
133	Payap	オウムの仲間	不明	*Lorius roratus*
134	Serindit sulawesi	コハナサトウチョウ	Red-billed Hanging-Parrot	*Loriculus exilis*
135	Nuri merah kapala hitam	ズグロインコ	Purple-naped Lory	*Lorius domicella*
136	Nuri merah kepala hitam dada biru	オトメズグロインコ	Black-capped Lory	*Lorius lory*
137	Kakatua raja, kakatua hitam	ヤシオウム	Palm Cockatoo	*Probosciger aterrimus*
138	Kastuari raja	不明	不明	*Prittrichax fulgidas*
139	Nuri sulawesi	ササハインコ	Azure-rumped Parrot	*Tanygnathus sumatranus*

No	Indonesian	Japanese	English	Scientific name
140	Kasturi sulawesi	ズグロゴシキインコ	Ornate Lorikeet	*Trichoglossus ornatus*
141	Celepuk biak	セレベスコノハズク	Sulawesi Scops-Owl	*Otus manadensis*
142	Kasumba	バラエリキヌバネドリ	Diard's Trogon	*Harpactes diardii*
143	Kasumba punggung ungu	コシアカキヌバネドリ	Scarlet-rumped Trogon	*Harpactes duvaucelii*
144	Kasumba kepala merah	ズアカキヌバネドリ	Red-headed Trogon	*Harpactes erythrocephalus*
145	Kasumba merah	アカエリキヌバネドリ	Red-naped Trogon	*Harpactes kasumba*
146	Kasumba dada oranye	ヤマキヌバネドリ	Orange-breasted Trogon	*Harpactes oreskios*
147	Kasumba tanaangang cinnamas	ズグロキヌバネドリ	Cinnamon-rumped Trogon	*Harpactes orrhophaeus*
148	Kasumba ekor biru	キノドキヌバネドリ	Blue-tailed Trogon	*Harpactes reinwardtii*
149	Kasumba kalimantan	ノドグロキヌバネドリ	Whitehead's Trogon	*Harpactes whiteheadi*
150	Raja udang sungai	カワセミ	Common Kingfisher	*Alcedo atthis*
151	Raja udang biru kecil	ヒメアオカワセミ	Cerulean Kingfisher	*Alcedo coerulescens*
152	Raja udang binti	アオムネカワセミ	Blue-banded Kingfisher	*Alcedo euryzona*
153	Raja udang meninting	ルリカワセミ	Blue-eared Kingfisher	*Alcedo meninting*
154	Raja udang biru	ルリミツユビカワセミ	Azure Kingfisher	*Alcedo azurea*
155	Raja udang kuku tiga	ミツユビカワセミ	Oriental Dwarf Kingfisher	*Ceyx erithacus*
156	Raja udang kerdil sulawesi	セレベスカワセミ	Sulawesi Dwarf Kingfisher	*Ceyx fallax*
157	Raja udang elok	マメカワセミ	Variable Dwarf Kingfisher	*Ceyx lepidus*
158	Raja udang kecil	ヒメミツユビカワセミ	Little Kingfisher	*Alcedo pusilla (Ceyx pusillus)*
159	Raja udang hut, punggung merah	セアカミツユビカワセミ	Rufous-backed Kingfisher	*Ceyx rufidorsa*
160	Raja udang sul, telinga biru	アオミミショウビン	Lilac-marked Kingfisher	*Cittura cyanotis*
161	Raja udang paruh sendok	ハシブトカワセミ	Shovel-billed Kookaburra	*Clytoceyx rex*
162	Raja udang besar paruh merah	チャバラワライカワセミ	Rufous-bellied Kookaburra	*Dacelo gaudichaud*
163	Raj udang irian sayap biru	アオバネワライカワセミ	Blue-winged Kookaburra	*Dacelo leachii*

No	Indonesian	Japanese	English	Scientific name
164	Raja udang aru besar	アルーワライカワセミ	Spangled Kookaburra	*Dacelo tyro*
165	Raja udang timor	チモールショウビン	Cinnamon-banded Kingfisher	*Todiramphus australasia*
166	Raja udang kalung putih	ナンヨウショウビン	Collared Kingfisher	*Todiramphus chloris*
167	Raja udang kalung coklat	アオヒゲショウビン	Rufous-collared Kingfisher	*Actenoides concretus*
168	Raja udang merah	アカショウビン	Ruddy Kingfisher	*Halcyon coromanda*
169	Raja udang biru jawa	ジャワショウビン	Javan Kingfisher	*Halcyon cyanoventris*
170	Raja udang	ハルマヘラショウビン	Sombre Kingfisher	*Todiramphus funebris*
171	Raja udang	コシジロショウビン	White-rumped Kingfisher	*Caridonax fulgidus*
172	Raja udang hutan	モリショウビン	Forest Kingfisher	*Todiramphus macleayii*
173	Raja udang punggung paruh kuning	ヤマキバシショウビン	Mountain Kingfisher	*Syma megarhyncha*
174	Raja udang	チャバラショウビン	Green-backed Kingfisher	*Actenoides monachus*
175	Raja udang biru hitam	アオグロショウビン	Blue-black Kingfisher	*Todiramphus nigrocyaneus*
176	Raja udang kuduk hitam	ヤマショウビン	Black-capped Kingfisher	*Halcyon pileata*
177	Raja udang leher putih	アオショウビン	White-throated Kingfisher	*Halcyon smyrnensis*
178	Raja udang	チャイロショウビン	Scaly Kingfisher	*Actenoides princeps*
179	Raja udang	ヒジリショウビン	Sacred Kingfisher	*Todiramphus sanctus*
180	Raja udang kepala putih	シロガシラショウビン	Beach Kingfisher	*Todiramphus saurophaga*
181	Raja udang paruh kuning kecil	キバシショウビン	Yellow-billed Kingfisher	*Syma torotoro*
182	Raja udang	ミナミモルッカショウビン	Lazuli Kingfisher	*Todiramphus lazuli*
183	Raja udang pita	カザリショウビン	Banded Kingfisher	*Lacedo pulchella*
184	Raja udang paruh bengkok	カギハシショウビン	Hook-billed Kingfisher	*Melidora macrorrhina*
185	Raja udang	コウハシショウビン	Stork-billed Kingfisher	*Pelargopsis capensis*
186	Raja Raja Udang Perut Hitam	セレベスコウハシショウビン	Black-billed Kingfisher	*Pelargopsis melanorhyncha*
187	Raja Udang Numfot	アオムネラケットカワセミ	Numfor Paradise-Kingfisher	*Tanysiptera carolinae*

No	Indonesian	Japanese	English	Scientific name
188	Raja Udang Kafiaa	シロハラケットカワセミ	Kofiau Paradise-Kingfisher	*Tanysiptera ellioti*
189	Raja Udang Ekor Panjang	ラケットカワセミ	Common Paradise-Kingfisher	*Tanysiptera galatea*
190	Raja Udang Aru	アルーラケットカワセミ	Little Paradise-Kingfisher	*Tanysiptera hydrocharis*
191	Raja Udang Kemerah-merahan	アカハラケットカワセミ	Red-breasted Paradise-Kingfisher	*Tanysiptera nympha*
192	Raja Udang Biak	ビアクケットカワセミ	Biak Paradise-Kingfisher	*Tanysiptera riedelii*
193	Raja Udang Ekor Putih	シラオケットカワセミ	Buff-breasted Paradise-Kingfisher	*Tanysiptera Sylvia*
194	Raja Udang Punggung Coklat	チャガシラケットカワセミ	Brown-headed Paradise-Kingfisher	*Tanysiptera danae*
195	Raja Udang	不明	不明	*Tapysiptera dane*
196	Rangkok Buton	アカコブサイチョウ	Knobbed Hornbill	*Aceros cassidix*
197	Kangkareng	サイチョウの仲間	サイチョウの仲間	*Rhyticeros coronatus*
198	Rangkok Sumba	スンバシワコブサイチョウ	Sumba Hornbill	*Aceros everetti*
199	Burung Tahun	アカハシサイチョウ	White-headed Hornbill	*Aceros leucocephalus*
200	Burung Lipat	パプアシワコブサイチョウ	Papuan Hornbill	*Aceros plicatus*
201	Enggang Musim	シワコブサイチョウ	Wreathed Hornbill	*Aceros undulatus*
202	Enggang jambul putih	シロクロサイチョウ	White-crowned Hornbill	*Aceros comatus*
203	Enggang Konde	ムジサイチョウ	Bushy-crested Hornbill	*Anorrhinus galeritus*
204	Enggang Hitam	クロサイチョウ	Black Hornbill	*Anthracoceros malayanus*
205	Rangkok Kecil	カササギサイチョウ	Malabar Pied-Hornbill	*Anthracoceros malayanus*
206	Rangkok Badak	サイチョウ	Rhinoceros Hornbill	*Buceros rhinoceros*
207	Rangkok Papan	オオサイチョウ	Great Hornbill	*Buceros bicornis*
208	Enggang Gading	オナガサイチョウ	Helmeted Hornbill	*Buceros vigil*
209	Rangkok Irian	パプアシワコブサイチョウ	Papuan Hornbill	*Aceros plicatus*
210	Rangkong Sulawesi	カオジロサイチョウ	Sulawesi Hornbill	*Penelopides exarhatus*
211	Maruku	チャノドゴシキドリ	Brown-throated Barbet	*Megalaima corvina*

No	Indonesian	Japanese	English	Scientific name
212	Tulum Tumpuk	シシガシラゴシキドリ	Black-banded Barbet	*Megalaima javensis*
213	Cangkarang	ズアオゴシキドリ	Flame-fronted Barbet	*Megalaima armillaris*
214	Paok Kepala Biru	ズアオヤイロチョウ	Blue-headed Pitta	*Pitta baudii*
215	Paok Sayap Biru	インドヤイロチョウ	Indian Pitta	*Pitta brachyura*
216	Paok Besar Biru	オニヤイロチョウ	Giant Pitta	*Pitta caerulea*
217	Paok Dada Merah	アカハラヤイロチョウ	Red-bellied Pitta	*Pitta erythrogaster*
218	Paok Garnet	ムラサキヤイロチョウ	Garnet Pitta	*Pitta granatina*
219	Paok Ekor Biru	キマユシマヤイロチョウ	Banded Pitta	*Pitta guajana*
220	Paok Halmahera	オオヤイロチョウ	Ivory-breasted Pitta	*Pitta maxima*
221	Paok Maluku	ミナミヤイロチョウ	Blue-winged Pitta	*Pitta moluccensis*
222	Paok Schneideri	キタスマトラヤイロチョウ	Schneider's Pitta	*Pitta schneideri*
223	Paok Topi	ズグロヤイロチョウ	Hooded Pitta	*Pitta sordida*
224	Paok Biru	アオオビヤイロチョウ	Blue-banded Pitta	*Pitta arquata*
225	Paok	ノドグロヤイロチョウ	Noisy Pitta	*Pitta versicolor*
226	Burung Kipas Biru	不明	不明	*Moscivapa ruceki*
227	Burung Kipas	ムナオビオウギビタキ	Pied Fantail	*Rhipidura Javanica*
228	Burung Kipas Ekor Merah	アカオオウギビタキ	Rufous-tailed Fantail	*Rhipidura phoenicura*
229	Burung Kipas Gunung	シロハラオウギビタキ	White-bellied Fantail	*Rhipidura euryura*
230	Burung Gelatik	ジャワエナガ	Pygmy Tit	*Psaltria exilis*
231	Burung Madu Sangir	サンギヘタイヨウチョウ	Elegant Sunbird	*Aethopyga duyvenbodei*
232	Burung Madu	シロフサタイヨウチョウ	White-flanked Sunbird	*Aethopyga eximia*
233	Burung Madu Merah	ヒイロタイヨウチョウ	Scarlet Sunbird	*Aethopyga mystacalis*
234	Burung Madu Merah jingga	キゴシタイヨウチョウ	Crimson Sunbird	*Aethopyga siparaja*
235	Burung Madu	チャノドコバシタイヨウチョウ	Plain-throated Sunbird	*Anthreptes Malacensis*

No	Indonesian	Japanese	English	Scientific name
236	Burung Madu/Jantingan	ノドアカコバシタイヨウチョウ	Red-throated Sunbird	*Anthreptes rhodolaema*
237	Burung Madu Pipi Merah	ホオアカコバシタイヨウチョウ	Ruby-cheeked Sunbird	*Anthreptes singalensis*
238	Burung Jantung Kelabu	ハイムネクモカリドリ	Grey-breasted Spiderhunter	*Arachnothera affinis*
239	Burung Jantung Kecil	キミミクモカリドリ	Yellow-eared Spiderhunter	*Arachnothera chrysogenys*
240	Burung Madu Paruh Tebal	ハシブトクモカリドリ	Thick-billed Spiderhunter	*Arachnothera crassirostris*
241	Burung Jantung Besar	オオキミミクモカリドリ	Spectacled Spiderhunter	*Arachnothera flavigaster*
242	Burung Jantung Besar	ハシナガクモカリドリ	Long-billed Spiderhunter	*Arachnothera robusta*
243	Burung Madu	コクモカリドリ	Little Spiderhunter	*Arachnothera longirostra*
244	Burung Madu Kuduk Ungu	タイヨウチョウの仲間	不明	*Nectarinia hypogramica*
245	Burung Madu Tenggorokan Ungu	ムネアカタイヨウチョウ	Purple-throated Sunbird	*Nectarinia sperata*
246	Burung Madu Tenggorokan Pitang	ノドアカタイヨウチョウ	Copper-throated Sunbird	*Nectarinia calcostetha*
247	Burung Madu Kuning	キバラタイヨウチョウ	Olive-backed Sunbird	*Nectarinia jugularis*
248	Burung Madu Hitam	タイヨウチョウの仲間	不明	*Nectarina seriscea*
249	Burung Kacamata leher abu-abu	ジャワハイノドメジロ	Javan Grey-throated White-eye	*Lophozosterops javanicus*
250	Burung Madu Dada Coklat	ノドジロムジミツスイ	Rufous-banded Honeyeater	*Conopophila albogularis*
251	Burung Madu Mata Biru	アオツラミツスイ	Blue-faced Honeyeater	*Entomyzon cyanotis*
252	Burung Madu Mata Putih	メジロミツスイ	Green-backed Honeyeater	*Glycichaera Fallax*
253	Burung Madu Kuping Putih	ミミジロオリーブミツスイ	Silver-eared Honeyeater	*Lichmera alboauricularis*
254	Burung Madu	チモールオリーブミツスイ	Yellow-eared Honeyeater	*Lichmera flavicans*
255	Burung Madu Hijau	オリーブミツスイ	Olive Honeyeater	*Lichmera argentauris*
256	Burung Madu	ブルオリーブミツスイ	Buru Honeyeater	*Lichmera deningeri*
257	Burung Sedap Madu Coklat	サメイロミツスイ	Brown Honeyeater	*Lichmera indistincta*
258	Burung Madu Lombok	ロンボクミツスイ	Scaly-crowned Honeyeater	*Lichmera lombokia*
259	Burung Madu	セラムオリーブミツスイ	Seram Honeyeater	*Lichmera monticola*

No	Indonesian	Japanese	English	Scientific name
260	Burung Madu	ウェタルオリーブミツスイ	Black-chested Honeyeater	*Lichmera notabilis*
261	Burung Madu	ウロコオリーブミツスイ	White-tufted Honeyeater	*Lichmera squamata*
262	Burung Madu Belford	アオガオヤマミツスイ	Belford's Honeyeater	*Melidectes belfordi*
263	Burung Madu	ススイロヤマミツスイ	Sooty Honeyeater	*Melidectes fuscus*
264	Burung Madu Muka Putih	シロガオヤマミツスイ	Vogelkop Honeyeater	*Melidectes leucostephes*
265	Burung Madu Gunung	ウロコヤマミツスイ	Cinnamon-browed Honeyeater	*Melidectes ochromelas*
266	Burung Madu Kumis	シラヒゲヤマミツスイ	Long-bearded Honeyeater	*Melidectes princeps*
267	Burung Madu Kumis	ノドジロヤマミツスイ	Short-bearded Honeyeater	*Melidectes nouhuysi*
268	Burung Madu Dada Coklat	ニクダレヤマミツスイ	Ornate Honeyeater	*Melidectes torquatus*
269	Burung Madu	ハシブトミツスイ	Long-billed Honeyeater	*Melilestes megarhynchus*
270	Burung Madu Bercak Putih	シロフサミツスイ	Scrub Honeyeater	*Meliphaga albonotata*
271	Burung Madu	ミドリキミミミツスイ	Mimic Honeyeater	*Meliphaga analoga*
272	Burung Madu	オリーブキミミミツスイ	Puff-backed Honeyeater	*Meliphaga aruensis*
273	Burung Madu Kuring	キスジキミミミツスイ	Yellow-gaped Honeyeater	*Meliphaga flavirictus*
274	Burung Madu Paruh Langsing	ハシボソキミミミツスイ	Graceful Honeyeater	*Meliphaga gracilis*
275	Burung Madu Besar	ムナボシキミミミツスイ	Mottle-breasted Honeyeater	*Meliphaga mimikae*
276	Burung Madu Telinga Putih	ミヤマミミジロミツスイ	Forest Honeyeater	*Meliphaga Montana*
277	Burung Madu Dada Tutul	コムナボシキミミミツスイ	Hill-forest Honeyeater	*Meliphaga orientalis*
278	Burung Madu	ウタイミツスイ	Singing Honeyeater	*Lichenostomus virescens*
279	Burung Madu	キホオミツスイ	Smoky Honeyeater	*Melipotes fumigatus*
280	Burung Madu Arfak	ニシキホオミツスイ	Arfak Honeyeater	*Melipotes gymnops*
281	Burung Madu Sulawesi	チャイロセレベスミツスイ	Dark-eared Myza	*Myza celebensis*
282	Burung Madu	セレベスミツスイ	White-eared Myza	*Myza sarasinorum*
283	Burung Madu Gunung Merah	ヤマズアカミツスイ	Mountain Myzomela	*Myzomela adolphinae*

No	Indonesian	Japanese	English	Scientific name
284	Burung Madu	アンボンミツスイ	Drab Myzomela	*Myzomela blasii*
285	Burung Madu Merah	アカミツスイ	Red Myzomela	*Myzomela cruentata*
286	Burung Madu Rawa	ズアカミツスイ	Red-headed Myzomela	*Myzomela erythrocephala*
287	Burung Madu	アカボシミツスイ	Red-throated Myzomela	*Myzomela eques*
288	Burung Madu	シロハラミツスイ	Crimson-hooded Myzomela	*Myzomela Kuehni*
289	Burung Madu Hitam	クロミツスイ	Black Myzomela	*Myzomela nigrita*
290	Burung Madu	コゲチャミツスイ	Dusky Myzomela	*Myzomela obscura*
291	Burung Madu	クロアカミツスイ	Red-collared Myzomela	*Myzomela rosenbergii*
292	Burung Madu	クレナイミツスイ	Scarlet Myzomela	*Myzomela sanguinolenta*
293	Burung Madu	チモールミツスイ	Red-rumped Myzomela	*Myzomela vulnerata*
294	Burung Madu Pigmi	コビトミツスイ	Pygmy Longbill	*Oedistoma pygmaeum*
295	Burung Madu	ミツスイの仲間	不明	*Oedistoma iliologphum*
296	Burung Madu Pipi Merah	オオキミミミツスイ	Orange-cheeked Honeyeater	*Oreornis chrysogenys*
297	Burung Madu	パプアミミジロミツスイ	Obscure Honeyeater	*Lichenostomus obscurus*
298	Burung Madu Kerongkongan Hitam	オリーブハゲミツスイ	Brass's Friarbird	*Philemon brassi*
299	Burung Madu Besar/Cikus-kus	オリーブハゲミツスイ	Brass's Friarbird	*Philemon brassi*
300	Burung Madu Kerongkongan Kuning	ヒメハゲミツスイ	Little Friarbird	*Philemon citreogularis*
301	Burung Madu Besar	モロタイハゲミツスイ	Dusky Friarbird	*Philemon fuscicapillus*
302	Burung Madu Besar	ハルマヘラハゲミツスイ	White-streaked Friarbird	*Melitograis gilolensis*
303	Burung Madu Besar	チモールハゲミツスイ	Plain Friarbird	*Philemon inornatus*
304	Burung Madu Besar	チャイロハゲミツスイ	Meyer's Friarbird	*Philemon meyeri*
305	Burung Madu Besar	モルッカハゲミツスイ	Black-faced Friarbird	*Philemon moluccensis*
306	Burung Madu Irian	パプアハゲミツスイ	New Guinea Friarbird	*Philemon novaeguineae*
307	Burung Madu Besar Seram	セラムハゲミツスイ	Grey-necked Friarbird	*Philemon subcorniculatus*

No	Indonesian	Japanese	English	Scientific name
308	Burung Madu	ワキアカセスジミツスイ	Rufous-sided Honeyeater	*Ptiloprora erythropleura*
309	Burung Madu Pinggang Merah	セスジミツスイ	Rufous-backed Honeyeater	*Ptiloprora guisei*
310	Burung Madu Bergaris	オリーブセスジミツスイ	Olive-streaked Honeyeater	*Ptiloprora meekiana*
311	Burung Madu	オオセスジミツスイ	Black-backed Honeyeater	*Ptiloprora perstriata*
312	Burung Madu	ネズミセスジミツスイ	Leaden Honeyeater	*Ptiloprora plumbea*
313	Burung Madu Kelabu	ハイイロミツスイ	Marbled Honeyeater	*Pycnopygius cinereus*
314	Burung Madu Coklat	チヤイロミツスイ	Plain Honeyeater	*Pycnopygius ixoides*
315	Burung Madu Paruh	パプアハゲミツスイ	New Guinea Friarbird	*Philemon novaeguineae*
316	Burung Madu Pipi Kelabu	ミツスイの仲間	不明	*Toxorhampus poliopterus*
317	Burung Madu Kerudung Setrip	スジボウシミツスイ	Streak-headed Honeyeater	*Pycnopygius stictocephalus*
318	Burung Madu Perut	ミツスイの仲間	不明	*Toxorhampus iliolophus*
319	Burung Madu Gunung	ヒメヤブミツスイ	Olive Straightbill	*Timeliopsis fulvigula*
320	Burung Madu Paruh Lurus	ヤブミツスイ	Tawny Straightbill	*Timeliopsis griseigula*
321	Burung Madu Sederhana	ウロコミツスイ	Brown-backed Honeyeater	*Ramsayornis modestus*
322	Beo Nias	キュウカンチョウ	Hill Myna	*Gracula religiosa*
323	Jalak Putih Bali	カンムリシロムク	Bali Myna	*Leucopsar rothschildi*
324	Jalak Putih	ソデグロムクドリ	Black-winged Starling	*Sturnus melanopterus*
325	Burung Kucing Telinga Putih	ミミジロネコドリ	White-eared Catbird	*Ailuroedus buccoides*
326	Burung Kucing Telinga Hitam	ミミグロネコドリ	Spotted Catbird	*Ailuroedus melanotis*
327	Burung Serambi	チャイロニワシドリ	Vogelkop Bowerbird	*Amblyornis inornatus*
328	Burung Namdur Jumbai	キエボシニワシドリ	Golden-fronted Bowerbird	*Amblyornis flavifrons*
329	Burung Namdur Jambul	カンムリニワシドリ	Macgregor's Bowerbird	*Amblyornis macgregoriae*
330	Burung Namdur Hitam	パプアニワシドリ	Archbold's Bowerbird	*Archboldia papuensis*
331	Burung Namdur Coklat	チャバラニワシドリ	Fawn-breasted Bowerbird	*Chlamydera cerviniventris*

No	Indonesian	Japanese	English	Scientific name
332	Burung Namdur Kuning Muda	キバラニワシドリ	Yellow-breasted Bowerbird	*Chlamydera lauterbachi*
333	Burung Namdur Emas	オウゴンフウチョウモドキ	Flame Bowerbird	*Sericulus aureus*
334	Burung Dewata Ekor Panjang	オナガフウチョウ	Arfak Astrapia	*Astrapia nigra*
335	Burung Dewata	フトオオナガフウチョウ	Splendid Astrapia	*Astrapia splendidissima*
336	Burung Raja	ヒヨクドリ	Magnificent Bird-of-paradise	*Cicinnurus regius*
337	Burung Dewata Raja Kecil	キンミノフウチョウ	Magnificent Bird-of-paradise	*Cicinnurus magnificus*
338	Burung Dewata Waigeo	アカミノフウチョウ	Wilson's Bird-of-paradise	*Cicinnurus respublica*
339	Burung Dewata Paruh Panjang	クロカマハシフウチョウ	Black-billed Sicklebill	*Epimachus albertisi*
340	Burung Dewata Paruh Sabit Putih	シロカマハシフウチョウ	Pale-billed Sicklebill	*Epimachus bruijnii*
341	Burung Dewata Paruh Sabit Coklat	チャイロカマハシフウチョウ	Brown Sicklebill	*Epimachus meyeri*
342	Burung Dewata Paruh Sabit Hitam	オナガカマハシフウチョウ	Black Sicklebill	*Epimachus fastuosus*
343	Burung Dewata Berpial	ツノハシフウチョウモドキ	Yellow-breasted Bird-of-paradise	*Loboparadisea sericea*
344	Burung Dewata Superba	カタカケフウチョウ	Superb Bird-of-paradise	*Lophorina superba*
345	Burung Dewata Loria	ルリフウチョウモドキ	Loria's Bird-of-paradise	*Cnemophilus loriae*
346	Burung Gagak Surga	カラスフウチョウ	Paradise-crow	*Lycocorax pyrrhopterus*
347	Burung Dewta Topeng	ハナガオフウチョウ	Macgregor's Bird-of-paradise	*Macgregoria pulchra*
348	Burung Dewata Jobi	コテリカラスフウチョウ	Jobi Manucode	*Manucodia jobiensis*
349	Burung Dewata Hijau	アオムネカラスフウチョウ	Crinkle-collared Manucode	*Manucodia chalybata*
350	Burung Dewata	テリカラスフウチョウ	Glossy-mantled Manucode	*Manucodia atra*
351	Cendrawasih Berpial	キヅノフウチョウ	Long-tailed Paradigalla	*Paradigalla carunculata*
352	Cendrawasih Berpial Ekor Pendek	タンビキヅノフウチョウ	Short-tailed Paradigalla	*Paradigalla brevicauda*
353	Cendrawasih Kuning Besar	オオフウチョウ	Greater Bird-of-paradise	*Paradisaea apoda*
354	Cendrawasih Kuning Kecil	コフウチョウ	Lesser Bird-of-paradise	*Paradisaea minor*
355	Cendrawasih Merah	ベニフウチョウ	Red Bird-of-paradise	*Paradisaea rubra*

No	Indonesian	Japanese	English	Scientific name
356	Cendrawasih Jingga	アカカザリフウチョウ	Raggiana Bird-of-paradise	*Paradisaea raggiana*
357	Burung Dewata Bulu Enam Putih	ワキジロカンザシフウチョウ	Carola's Parotia	*Parotia carolae*
358	Burung Dewata Bulu Enam	カンザシフウチョウ	Western Parotia	*Parotia sefilata*
359	Burung Dewata Pembawa	フキナガシフウチョウ	King-of-Saxony Bird-of-paradise	*Pteridophora alberti*
360	Burung Dewata Trumpet	ナキカラスフウチョウ	Trumpet Manucode	*Manucodia keraudrenii*
361	Cendrawasih Memenjat	オオウロコフウチョウ	Magnificent Riflebird	*Ptiloris magnificus*
362	Burung Dewata Duabelas kawat	ジュウニセンフウチョウ	Twelve-wired Bird-of-paradise	*Seleucidis melanoleuca*
363	Burung Plat	シロハタフウチョウ	Standardwing Bird-of-Paradise	*Semioptera wallacii*
364	Burung Dewata Ekor Panjang	不明	不明	*Preudastrapia lobata*
365	Burung Dewata Elliot	不明	不明	*Astrapimachus elliotti*
366	Brecet Wergan	ジャワチメドリ	Javan Fulvetta	*Alcippe pyrrhoptera*
367	Burung Matahari	ジャワワキフチメドリ	Spotted Crocias	*Crocias albonotatus*
368	Burung Kuda	チャビタイガビチョウ	Rufous-fronted Laughingthrush	*Garrulax rufifrons*
369	Burung Tepus Dada Putih	シロハラモリチメドリ	White-breasted Babbler	*Stachyris grammiceps*
370	Burung Tepus Pipi Perak	ミカズキモリチメドリ	Crescent-chested Babbler	*Stachyris melanothorax*
371	Itik Liar	ハジロモリガモ	White-winged Duck	*Cairina scutulata*
372	Burung Kipas Biru	ミミグロヒメアオヒタキ	Rueck's Blue-Flycatcher	*Cyornis ruckii*
373	Bangau Putih Susu, Bluwok	シロトキコウ	Milky Stork	*Mycteria cinerea*
374	Trulek jawa, Trulek Ekor Putih	ジャワトサカゲリ	Javanese Lapwing	*Vanellus macropterus*
375	Pergam Raja	クリスマスミカドバト	Christmas Island Imperial-Pigeon	*Ducula whartoni*
376	Burung Hantu Biak	ビアクコノハズク	Beccari's Scops-Owl	*Otus beccarii*
377	Bluwok Berwarna	インドトキコウ	Painted Stork	*Mycteria leucocephala*
378	Burung Kaca Mata Leher Abu-abu	ジャワハイノドメジロ	Javan Grey-throated White-eye	*Lophozosterops javanicus*

3. Reptiles

No	Indonesian	Japanese	English	Scientific name
1	Tuntong	バタグールガメ	River Terrapin	*Batagur baska*
2	Kura-kura	ボルネオカワガメ	Aquatic Tortoise	*Orlitia borneensis*
3	Kura-kura Irian	スッポンモドキ	Irian Tortoise	*Carettochelys insculpta*
4	Kura-kura Irian Leher Pendek	ニューギニアカブトガメ	New Guinea Snapper	*Elseya novaeguineae*
5	Kura-kura Irian Leher Panjang	ニューギニアナガクビガメ	Long necked Tortoise	*Chelodina novaeguineae*
6	Penyu Belimbing	オサガメ	Leatherback Turtle	*Dermochelys coriacea*
7	Penyu Ridel	ヒメウミガメ	Grey Olive Loggerhead	*Lepidochelys olivacea*
8	Penyu Tempayan	アカウミガメ	Red Brown Loggerhead	*Caretta caretta*
9	Labi-labi Besar	コガシラスッポン	Giant Fresh Water Turtle	*Chitra indica*
10	Buaya Siam	シャムワニ	Siamese Crocodile	*Crocodylus siamensis*
11	Buaya air tawar Irian	ニューギニアワニ	New Guinea Fresh Water Crocodile	*Crocodylus novaeguineae*
12	Buaya muara	イリエワニ	Marsh Crocodile	*Crocodylus porosus*
13	Buaya capit senyu long	マライガビアル	Malayan Gavial, False Gavial	*Tomistoma*
14	Bunglon sisir Bunglon raksasa	カメレオンの一種	Giant Chameleon	*Gonyocephalus dilophus*
15	Soa-soa	キノボリトカゲの一種	Fantailed Lizard	*Hydrasaurus ambonensia*
16	Biawak Komodo	コモドオオトカゲ	Komodo Dragon	*Varanus komodoensis*
17	Biawak Maluku	マングローブモニター	Indian Water Monitor	*Varanus indicus*
18	Biawak Toglan	オオトカゲの一種	Togian Monitor	*Varanus salvator togianus*
19	Biawak Coklat	ヒャクメオオトカゲ	Brown Monitor	*Varanus gouldii*
20	Biawak Abu-abu	オオトカゲの一種	Grey Monitor	*Varanus bengalensis*
21	Biawak Hijau	エメラルドツリーモニター	Green Monitor Lizard	*Varanus prasinus*
22	Biawak Timor	チモールモニター	Timor Lizard	*Varanus timorensis*
23	Biawak Kalimantan	オオトカゲの一種	Cantarus Lizard	*Varanus borneansis*
24	Soa Payung	エリマキトカゲ	Collar Skin Flapped Lizard	*Chlamydosaurus kingi*

No	Indonesian	Japanese	English	Scientific name
25	Ular Kaki Empat, Biawak Panama	オオアオジタトカゲ	Giant Skink	*Tiliqua gigas*
26	Sanca Bodo	インドニシキヘビ	Rock Python	*Python molurus*
27	Sanca Hijau	ミドリニシキヘビ	Green Python	*Morelia (chondropyhton) viridis*
28	Sanca Timor	チモールパイソン	Timor Python	*Python timorensis*

4. Insect

No.	Indonesian	Japanese	English	Scientific name
1	Kupu sayap burung goliat	アゲハチョウ	Birdwing Butterfly	*Ornithoptera goliath*
2	Kupu sayap burung surga	アゲハチョウ	Paradise Birdwing Butterfly	*Ornithoptera paradisea*
3	Kupu sayap burung peri	アゲハチョウ	Chimaera Birdwing Butterfly	*Ornithoptera chimaera*
4	Kupu raja Miranda	アゲハチョウ	Birdwing Butterfly	*Troides Miranda*
5	Kupu raja hipolitus	アゲハチョウ	Birdwing Butterfly	*Triodes hypolitus*
6	Kupu raja halifrom	アゲハチョウ	Birdwing Butterfly	*Triodes haliphinon*
7	Kupu raja radaman	アゲハチョウ	Birdwing Butterfly	*Triodes rhadamantus*
8	Kupu raja odromas	アゲハチョウ	Birdwing Butterfly	*Triodes andromane*
9	Kupu raja amprisus	アゲハチョウ	Birdwing Butterfly	*Triodes amparysus*
10	Kupu raja plato	アゲハチョウ	Birdwing Butterfly	*Triodes plato*
11	Kupu raja ridel	アゲハチョウ	Birdwing Butterfly	*Triodes reideli*
12	Kupu raja Helena	アゲハチョウ	Birdwing Butterfly	*Triodes Helena*
13	Kupu raja vandepel	アゲハチョウ	Birdwing Butterfly	*Triodes vadepolli*
14	Kupu raja neoris	アゲハチョウ	Birdwing Butterfly	*Triodes meoris*
15	Kupu raja kriton	アゲハチョウ	Birdwing Butterfly	*Triodes oriton*
16	Kupu tragon	アゲハチョウ	Trogon Butterfly	*Trogonotera brookiana*
17	Kupu bidadari	アゲハチョウ	Nympa Butterfly	*Cethosia myrina*

No.	Indonesian	Japanese	English	Scientific name
18	Kupu burung rotsil	アゲハチョウ	Birdwing Butterfly	*Ornithoptera rotschildi*
19	Kupu burung fiton	アゲハチョウ	Birdwing Butterfly	*Ornithoptera tithonus*
20	Kupu burung priamus	アゲハチョウ	Birdwing Butterfly	*Ornithoptera priamus*

5. Fish

No.	Indonesian	Scientific name	Japanese
1	Selusur Maninjau	*Homaloptera gymnogaster*	コイ目、タツノボリ科
2	Ikan raja laut	*Latimeria chalumnae*	シーラカンス
3	Belida Jawa, Lopis Jawa (semu jenis dari genus Notopterus)	*Notopterus spp.*	ナイフフィッシュの一種
4	Pari Sentani, Hiu Sentani (sem jenis dari genus Pritis)	*Pristiopsis spp.*	ノコギリエイの一種
5	Wader goa	*Puntius microps*	コイ科
6	Peyang malaya, Tangkelasa	*Scleropages formosus*	アジアアロワナ
7	Arowana Irian, Peyang Irian, Kaloso	*Scleropages jardini*	ノーザンバラムンディ

6. Coral reef

No.	Indonesian	Scientific name	Japanese
1	Akar bahar, Koral hitam (semua jenis dari genus Anthiphates)	*Anthiphates spp.*	クロサンゴ類

7. Others

No.	Indonesian	Scientific name	Japanese
1	Ketam kelapa	*Birgus latro*	ヤシガニ
2	Kepala kambing	*Cassis cornuta*	巻貝
3	Triton terompet	*Charonia tritonis*	ホラガイの一種
4	Kima tapak kuda, Kima kuku beruang	*Hippopus hippopus*	二枚貝
5	Kima Cina	*Hippopus porcellanus*	シャコガイの一種
6	Nautilus berongga	*Nautilus pompilius*	オウムガイ
7	Ketam tapak kuda	*Tachypleus gigas*	カブトガニの一種
8	Kima kunia, Lubang	*Tridacna crocea*	シャコガイの一種

No.	Indonesian	Scientific name	Japanese
9	Kima selatan	*Tridacna derasa*	シャコガイの一種
10	Kima raksasa	*Tridacna gigas*	シャコガイの一種
11	Kima kecil	*Tridacna maxima*	シャコガイの一種
12	Kima sisik, Kima seruling	*Tridacna squamosa*	シャコガイの一種
13	Troka, Susur bundar	*Trochus niloticus*	巻貝
14	Batu laga, Siput hijau	*Turbo marmoratus*	巻貝

8. Plants

No.	Indonesian	Scientific name
Ⅰ.Cocos		
1	Bunga bangkai jangkung	*Amorphophallus decussilvae*
2	Bunga bangkai raksasa	*Amorphophallus titanum*
3	Bindang, Budang	*Borrassodendron borneensis*
4	Palem raja/Indonesia	*Caryota no*
5	Palem Jawa	*Ceratolobus glaucescens*
6	Pinang merah Kalimantan	*Cystostachys lakka*
7	Pinang merah Bangka	*Cystostachys ronda*
8	Bertan	*Eugeissona utilis*
9	Daun payung	*Johanneste ijsmaria altifrons*
10	Palem kipas Sumatera (semua jenis dari genus Livistona)	*Livistona spp.*
11	Palem Sumatera	*Nenga gajah*
12	Korma rawa	*Phoenix paludosa*
13	Manga	*Pigafatta filaris*
14	Pinang Jawa	*Pinanga javana*
Ⅱ.Raflesia		
1	Rafflesia, Bunga padma (semua jenis dari genus Rafflesia)	*Rafflesia spp.*
Ⅲ.Anggrek		
1	Anggrek kebutan	*Ascocentrum miniatum*
2	Anggrek hitan	*Coelogyne pandurata*
3	Anggrek koribas	*Corybas fornicatus*
4	Anggrek hartinah	*Cymbidium hartinahianum*
5	Anggrek karawai	*Dendrobium catinecloesum*
6	Anggrek albert	*Dendrobium d'albertisii*
7	Anggrek stuberi	*Dendrobium lasianthera*
8	Anggrek jamrud	*Dendrobium macrophyllum*
9	Anggrek karawai	*Dendrobium ostrinoglossum*
10	Anggrek larat	*Dendrobium phalaenopsis*

No.	Indonesian	Scientific name
11	Anggrek raksasa Irian	*Grammatophyllum papuanum*
12	Anggrek tebu	*Grammatophyllum speciosum*
13	Anggrek ki aksara	*Macodes petola*
14	Anggrek kasut kumis	*Paphiopedilum chamberlainianum*
15	Anggrek kasut berbulu	*Paphiopedilum glaucophyllum*
16	Anggrek kasut pita	*Paphiopedilum praestans*
17	Anggrek bulan bintang	*Paraphalaenopsis denevei*
18	Anggrek bulan Kaliman Tengah	*Paraphalaenopsis laycockii*
19	Anggrek bulan Kaliman Barat	*Paraphalaenopsis serpentilingua*
20	Anggrek bulan Ambon	*Phalaenopsis amboinensis*
21	Anggrek bulan raksasa	*Phalaenopsis gigantea*
22	Anggrek bulan Sumatera	*Phalaenopsis sumatrana*
23	Anggrek kelip	*Phalaenopsis violacose*
24	Anggrek jingga	*Renanthera matutina*
25	Anggrek sendok	*Spathoglottis zurea*
26	Vanda mungil Minahasa	*Vanda celebica*
27	Vanda pensil	*Vanda hookeriana*
28	Vanda mini	*Vanda pumila*
29	Vanda Sumatera	*Vanda sumatrana*
Ⅳ.Nephentes		
1	Kantong semar (semua jenis dari genus Nephentes)	*Nephentes spp.*
Ⅴ. Diptercorp		
1	Tengkawang	*Shorea stenopten*
2	Tengkawang	*Shorea stenoptera*
3	Tengkawang	*Shorea gysberstiana*
4	Tengkawang	*Shorea pinanga*
5	Tengkawang	*Shorea compressa*
6	Tengkawang	*Shorea semiris*
7	Tengkawang	*Shorea martiana*
8	Tengkawang	*Shorea mexistopteryx*
9	Tengkawang	*Shorea beccariana*
10	Tengkawang	*Shorea micrantha*
11	Tengkawang	*Shorea palembanica*
12	Tengkawang	*Shorea lepidota*
13	Tengkawang	*Shorea singkawang*

Annex 6 Major Laws and Regulations Relevant to Environment in Indonesia

Item	Name of laws	Availability of English version
Environmental Management	Law No. 23/1997 concerning Environmental Management	
	Law No. 32/2009 on Environmental Protection and Management.	
Decentralization	Law No. 22/1999 concerning Regional Autonomy	
	Law No. 25/1999 concerning Fiscal Balance between the Centre and the Regions	
Natural Environment	Law No. 5/1990 concerning Conservation of Biological Resources and their Ecosystem	
	Government Regulation No.6/1998: Forest exploitation and collection of forest products in production forests	
	Law No. 41/1999 concerning Forestry	
	Government Regulation No.7/1999: The Preservation of Plants and Animals	
	Government Regulation No.34/2002: Forest Structuring and Making of Forest management Plans, Utilization of Forests and Use of Forest Areas	
	Presidential Instruction No.4/2005: Eradication of Illegal Logging in Forest Areas and Distribution throughout the Territory of the Republic of Indonesia	
	State Minister of Forestry Decree No. 14/2006: Guidelines for Leasing of Forest Land for Exploitation Purpose	
	Government Regulation No.6/2007: Forest Arrangement and Formulation of Forest Management Plan as well as Forest Exploitation	
	State Minister of Forestry Decree No.43/ 2008: Guidelines for Leasing of Forest Land	
	Government Regulation No. 10/2010: Procedure for the Changeover of Forestry Land Status and Function	
	State Minister of Forestry Decree No.34/ 2010: Procedure for Forest Function Changeover	
Cultural heritage	Law No. 5/1992 concerning Cultural Heritage Objects	
Resettlement	Law No.5 of 1960 concerning Basic Agrarian Law	○
	http://faolex.fao.org/docs/pdf/ins3920.pdf	
	Law No.20/1961 concerning Revocation of Right to Land and Materials on the Land	
	Law No. 24 of 1992 concerning Spatial Use Management	

Item	Name of laws	Availability of English version
	Government Regulation No. 24/1997: Land Registration	
	The Governor of Bali Decree No. 3/1997: Guidelines for Land Acquisition, Resettlement and Assistance for the Persons Affected by Bali Urban Infrastructure Project	
	The Governor of Aceh Decree No. 1/1998: Guidelines for Land Acquisition, Resettlement and Assistance for the Persons Affected by the Aceh Regional Roads Project	
	State Minister of Agrarian Affairs Decree No.2/1999: Location Permit	
	State Minister of Agrarian Affairs Decree No.5/1999: Guideline for the Settlement of Problems related to the Communal Reserved Land of the Customary-law-abiding Community (Adat Land)	
	Presidential Decree No.36/2005: Procurement of Land for Realising the Development for Public Interest	○
	http://faolex.fao.org/docs/pdf/ins53445.pdf	
	Presidential Decree No.65/2006: Amendment to Presidential Decree No.36/2005	○
	http://faolex.fao.org/docs/pdf/ins66235.pdf	
	Government Regulation No.2/2006: Procedure for Realization of Loans and/or Grants and Allocation of Foreign Loans and/or Grants	
	National Land Agency Decree No.3/2007: Guidelines for Procurement of Land for Realizing the Development for Public Interest	○
Air quality control	State Minister of Environment Decree No. KEP-13/MENLH/3/1995: Emission Standards for Stationary Sources	
	Government Regulation No.41/1999: Control of Air Pollution	
	State Minister of Environment Decree No.129/2003: Emission Standards for Oil and Gas Business and/or Activities	
	State Minister of Environment Decree No.141/2003: New Type and Current Production Motor Vehicle Exhaust Emission Standards	
	State Minister of Environment Decree No.133/2004: Emission Standards for Fertilizer Industry Activities	
	State Minister of Environment Decree No.5/2006: Exhaust Emission Standards for Old Motor Vehicle	

Item	Name of laws	Availability of English version
	State Minister of Environment Decree No.7/2007: Emission Standards for Stationary Sources of Steam Boiler	
	State Minister of Environment Decree No.21/2008: Emission Quality Standard for Thermal Energy Generation	
	State Minister of Environment Decree No. 13/2009: Emission Standards for Stationary Sources of Oil and Gas Industry Activities	
Water quality control	State Minister of Environment Decree No. 51/1995: Quality Standards of Liquid Waste for Industrial Activity	
	State Minister of Environment Decree No. 52/1995: Effluent Standard for Hotel Activities	
	State Minister of Environment Decree No. KEP-58/MENLH/10/1995: Effluent Standard for Hospital Activities	
	State Minister of Environment Decree No. KEP-03/MENLH/1/1998: Effluent Standard for Industrial Areas	
	Government Regulation No.82/2001: Control of Water Pollution	
	State Minister of Health Decree No. 907/MENKES/SK/VII/2002: Requirements and Supervision of Drinking Water	
	State Minister of Environment Decree No. 112/2003: Domestic Wastewater Standard	
	State Minister of Environment Decree No.113/2003: Effluent Standard for Coal Mining Business and/or Activities	
	Law No.7/2004 concerning Water Resources	
	State Minister of Environment Decree No.51/2004: Sea Water Quality Standards	
	State Minister of Environment Decree No. 122/ 2004: Effluent standard for Fertilizer Industry	
	State Minister of Environment Decree No.202/2004: Effluent Standard for Gold and/or Copper Ore Mining Business and/or Activities	
	State Minister of Environment Decree No.2/2006: Effluent Standard for Slaughterhouse Business and/or Activities	
	State Minister of Environment Decree No.9/2006: Effluent Standard for Nickel Ore Mining Business and/or Activities	

Item	Name of laws	Availability of English version
	State Minister of Environment Decree No.10/2006: Effluent Standard for Vinyl Chloride and Polyvinyl Chloride Industry Business and/or Activities	
	State Minister of Environment Decree No.4/2007: Effluent Standard for Oil, Gas and Geothermal Business and/or Activities	
	State Minister of Environment Decree No.5/2007: Effluent Standard for Fruit and/or Vegetables Processing Business and/or Activities	
	State Minister of Environment Decree No.6/2007: Effluent Standard for Fishery Product Processing Business and/or Activities	
	State Minister of Environment Decree No.8/2007: Effluent Standard for Upstream Petrochemical Industry Business and/or Activities	
	State Minister of Environment Decree No.9/2007: Effluent Standard for Purified Terephthalic Acid and Polyethylene Terephthalate Industry Business and/or Activities	
	State Minister of Environment Decree No.10/2007: Effluent Standard for Purified Terephthalic Acid and Polyethylene Terephthalate Industry Business and/or Activities	
	State Minister of Environment Decree No.4/2009: Effluent Standard for Cooking Oil Industry	
	State Minister of Environment Decree No.13/2009: Effluent Standard for Coconut Oil Industry	
	State Minister of Environment Decree No.10/2009: Effluent Standard for Oleochemical Industry	
	State Minister of Environment Decree No.21/2009: Effluent Standard for Iron Mining Industry	
	State Minister of Environment Decree No.34/209: Effluent Standard for Bauxite Industry	
Solid waste	Government Regulation No.18/1999: Management Procedures for Hazardous and Toxic Waste	
	Government Regulation No.85/1999: The Amendment of the Government Regulation No. 18/1999	
	Government Regulation No.74/2001: Hazardous Material Management	
	Waste Management Act No.18/2008	
Environmental impact assessment	Government Regulation No. 27/1999: Environmental Impact Assessment	

Item	Name of laws	Availability of English version
	State Minister of Environment Decree No.2/2000: Guidelines for Evaluation of AMDAL Documents	
	State Minister of Environment Decree No. 4/2000: Guidelines for AMDAL Compilation for Integrated Residential Settlement	
	State Minister of Environment Decree No.5/2000: Guidelines for AMDAL Compilation for Developments in Wetland Areas	
	State Minister of Environment Decree No.40/2000: Guidelines for AMDAL Commission Working Procedures	○
	http://faolex.fao.org/docs/pdf/ins36725.pdf	
	Head of BAPEDAL Decree No.8/2000: Community Participation and Information Transparency in AMDAL Process	
	Head of BAPEDAL Decree No. 9/2000: Guidelines for AMDAL Compilation	
	State Minister of Environment Decree No.86/2002: Guidelines for UKL and UPL Implementation	
	State Minister of Environment Decree No.19/2004: Management Guidelines of Complaint for Pollution Case and/or Environmental Destruction	
	State Minister of Environment Decree No.45/2005: Guidelines on Formulation of Report on the Realization of RKL and RPL	○
	http://faolex.fao.org/docs/pdf/ins65986.pdf	
	State Minister of Environment Decree No.49/2005: Delegation of Authority for Signing Decision Letter of KA-ANDAL	
	State Minister of Environment Decree No.308/2005: Implementation of AMDAL, RPL, RKL and Reconstruction of Nanggroe Aceh Darussalam Province and Nias Archipelago, North Sumatra Province	○
	http://faolex.fao.org/docs/pdf/ins66237.pdf	
	State Minister of Environment Decree No.8/2006: Guidelines for the compilation of the analysis on AMDAL	
	Ministry of Environment Decree No.11/2006: Type of Business and/or Activity Plan that Requires AMDAL	
	State Minister of Environment Decree No.5/2008: Working Procedure of AMDAL Commission	
Noise and vibrations	State Minister of Environment Decree No. KEP-48/MENLH/11/1996：Environmental Noise Standards	

Item	Name of laws	Availability of English version
	State Minister of Manpower Decree No.KEP-51/MEN/1999: Physical threshold values at work sites	
	State Minister of Environment Decree No.7/2009: Noise Level Standards for New Motor Vehicles	

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