APPENDIX 9

ENVIRONMENTAL ASSESSMENT

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CHAPTER 1 EXISTING ENVIRONMENT

1.1 ENVIRONMENTAL LEGISLATION / PROCEDURE

1.1.1 Environmental Legislation

The Government Act No. 23/1997 (amendment of Act No. 4 of 1982) is the basic law for the environmental management of the living environment. Based on Act No. 23/1997, the central government has enacted various regulations and decrees on environment management. Act No. 23/1997 prescribes that the plan or project which has the possibility for causing significant impact on the environment shall conduct Environmental Impact Assessment (EIA/AMDAL: *Analisa Mengenai Dampak Lingkungan*).

The Government Act No.24 of 1992 is the law for spatial arrangement, it stipulates the regulation for spatial usage for protection areas such as protected forest, coastal boarder and national parks.

State Environment Minister Decree No.17/2001 prescribes the activities which should require AMDAL. Decree No.17/2001 regulates the scale of the projects in each sector which should require AMDAL.

The AMDAL process is specified in Government Regulation No.27/1999, while the type of business and activities for which AMDAL is required is regulated in the Decree of the State Minister of Environment No. KEP-39/MENLH/8/1996.

Table 1.1 shows the summary of the laws/regulations relating to environmental management.

Table 1.1 Environmental Legislation

Number	Content/Description
(1) Government Act	
No. 5 of 1960	Principles for the Agrarian
No. 5 of 1990	Principles for the Conservation of Ecosystem and Natural Resources
No. 4 of 1992	Housing and settlement
No. 14 of 1992	Traffic and Transportation
No. 24 of 1992	Spatial Arrangement
No. 23 of 1997	Principles for the Management of Living Environment (amendment of No. 4 of 1982)
(2) Government Regulation	
No. 12 of 1988	Perum Perumnas (National Housing Agency)
No. 20 of 1990	Water Pollution Control
No. 27 of 1999	Process of Environment Impact Analysis (AMDAL)
(3) Presidential Decree	
No. 32 of 1990	Conservation Area Management
No. 36 of 2005	Regulation on Land Acquisition
No. 55 of 1993	Acquisition of Land for Development in the Public Interest
No. 34 of 1994	Institution of Policy and National Housing and Settlement Development Control
(4) State Environment Minister Decree	
No. KEP-49/MENKLH/1/1987	Guidelines for the Determination of Significant Quality
No. KEP-50/MENKLH/1/1987	Guidelines for the Analysis of Environmental Impacts of Proposed Projects
No. KEP-02/MENKLH/1/1988	Manual on Determining Standard Environmental Quality
No. KEP-12/MENLH/3/1994	General Guidelines on UKL and UPL
No. KEP-14/MENLH/3/1994	General Guidelines on AMDAL
No. KEP-57/MENLH/12/1995	AMDAL for Integrated or Multi-sector Activities
No. KEP-14/MENLH/8/1996	AMDAL Screening
No. KEP-17/MENLH/8/2001	Types of Businesses or Activities Required for AMDAL
No. KEP-55/MENLH/11/1996	Regional AMDAL
No. KEP-229/MENLH/11/1996	Technical Guidelines on Social Aspect Assessment of AMDAL
(5) Head of the Environmental Impact Management Agency Decree	
No. KEP-056/1994	Guidelines for the Determination of Significant Impact
(6) Ministry of Public Works Regulation	

Number	Content/Description
No. 46/PRT/1990	Technical Manual on Environmental Impact Assessment
No. 69/PRT/1995	Technical Guidelines of AMDAL for Public Works Projects
(7) Ministry of Public Works Decree	
No. 531/KPTS/1989	Criteria for Settlement Project where AMDAL is necessary
No. 126/KPTS/1990	Determination of Projects in Public Work Department where AMDAL is necessary
No. 506/KPTS/1992	Guidelines of AMDAL, Department of Public Works (DPU)
No. 211/KPTS/1994	Organization and Working Procedures of DPU
No. 04/KPTS/1995	Formation of AMDAL Central Committee in DPU
No. 58/KPTS/1995	AMDAL Approval Guidelines
No. 69/KPTS/1995	Technical Guidelines of AMDAL for Public Works Projects
No. 147/KPTS/1995	Technical Guidelines of KA-ANDAL for Public Works Projects
No. 148/KPTS/1995	Technical Guidelines of RKL and RPL
No. 296/KPTS/1996	Technical Guidelines of UKL and UPL
No. 39/KPTS/1997	Technical Guidelines of AMDAL for Irrigation Project (related to Groundwater and Surface-water)
No. 41/KPTS/1997	Technical Guidelines of AMDAL for Water Supply Project
(8) Minister of Agriculture /Head of National Land Agency Regulation	
No. 4 of 1991	Concerning Land Consolidation
No. 2 of 1993	Guidelines for Land Concession
No. 1 of 1994	Land Acquisition
(9) Environmental Management Agency Decree	
No. KEP-56 of 1994	Guidelines for Determination of Important Impact

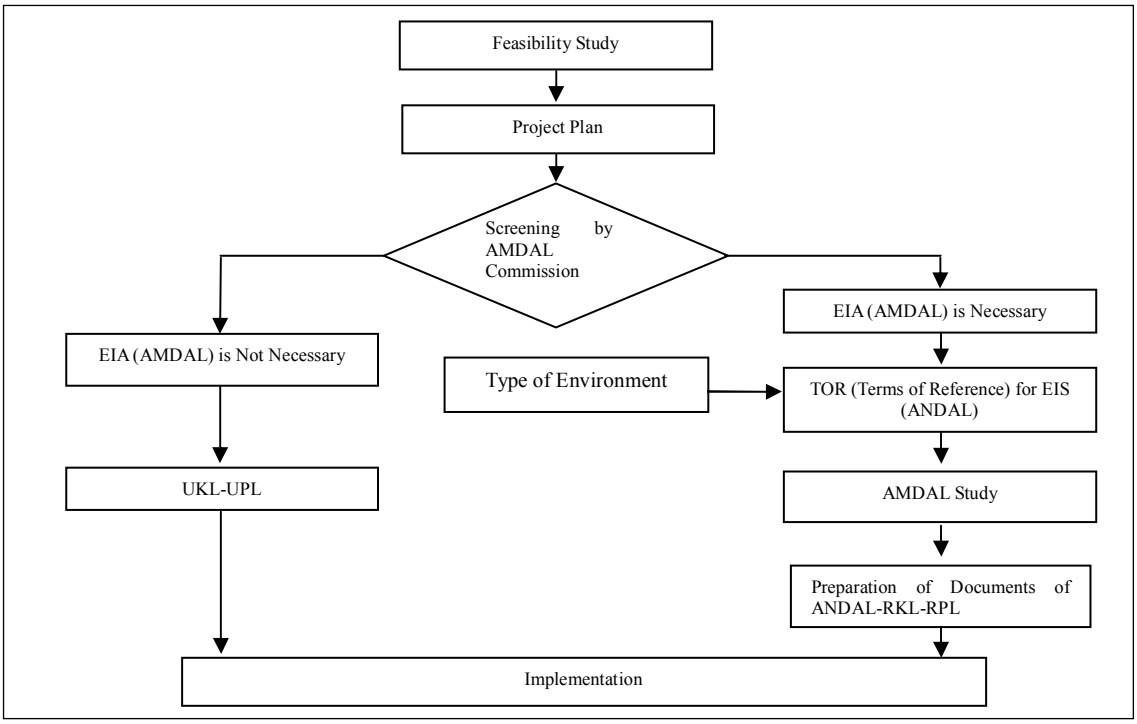
1.1.2 Screening and EIA Process

The Government Regulation No. 27/1999 provides the screening process and AMDAL process for the project which require AMDAL. Figure 1.1 shows the screening process based on Government Regulation No.27/1999. As a first step, project proponent has to prepare a project plan prior to screening for AMDAL. Thereafter, the project is screened in its level of impact to the environment and its location by an AMDAL Commission in the department or agency concerned. In most cases that the project has the potential to cause serious negative impact or is planned in the location with environmentally sensitive areas such as protected forest or national parks, the project should require EIA/AMDAL. In this case, the project proponent has to prepare TOR (Terms for Reference) for EIS (Environmental Impact Statement: ANDAL). After TOR is approved by the above commission, the project proponent should conduct EIA study and prepare Environmental Impact Statement (ANDAL: Analisis Dampak Lingkungan) together with Environmental Management Plan (RKL) and Environmental Monitoring Plan (RPL).

In case that the project is not likely to cause serious negative impact or is not planned in the location with above environmentally sensitive areas, AMDAL is not required for the project. The process is to be done through adhering to Environmental Management Plan (UKL) and Environmental Monitoring Plan (UPL) to be specified by the department, agency, or provincial government responsible.

The RKL specifies all environmental management techniques which must be implemented to reduce or eliminate the predicted significant environmental impacts. This can include design changes, construction and operating procedures, and site rehabilitation measures, along with compliance standards and compensation plans. The RPL specifies the technical details of the monitoring that must be carried out to ensure that the environmental management procedures are indeed

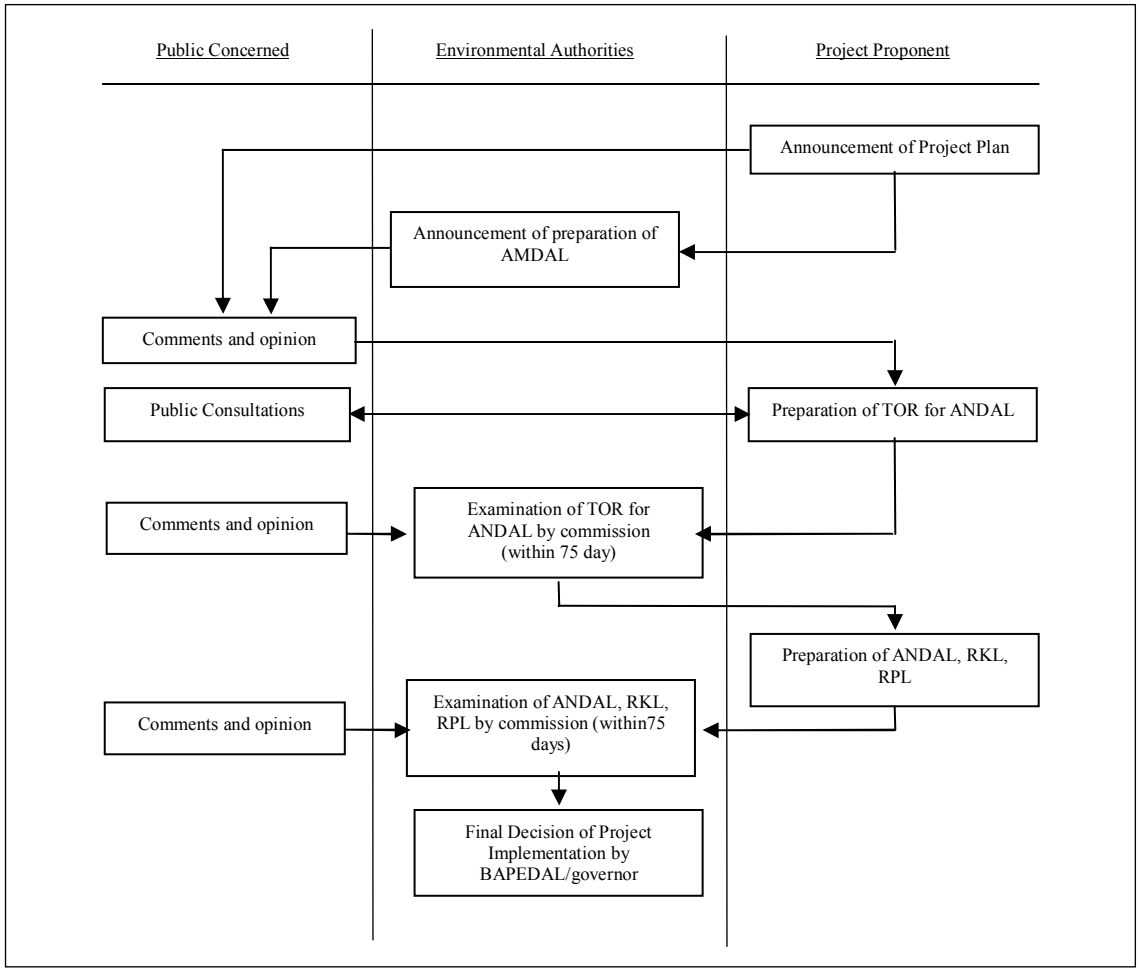
implemented and are effective in mitigating detrimental impacts.



Source: JICA Study Team

Figure 1.1 Screening Process (Government Regulation No.27/1999)

Figure 1.2 shows the EIA (AMDAL) process based on Government Regulation No. 27/1999. Figure 1.2 shows that public consultation and public involvement is included in the process of AMDAL, and that the TOR (Terms of Reference: KA) for EIS (Environmental Impact Statement: ANDAL) and ANDAL is examined by the commission of environmental management authority.



Source: JICA Study Team

Figure 1.2 AMDAL Process (Government Regulation No.27/1999)

1.1.3 Environmental Administration

At the national level, the Ministry of Environment is responsible for environmental standards and policies. At the provincial level, Bapedalda-Aceh (Environmental Impact Management Agency in Aceh Province) is responsible for environmental management, reporting to the Governor. Likewise, Bapedalda-kabupaten (district level) reports to the Bupati (head of district). Bapedaldas submit environmental reports to the Ministry of Environment on a yearly basis.

In case that a project is implemented in Banda Aceh city, Bapedalda Kota Banda Aceh (Banda Aceh Municipality Environmental Impact Management Agency) has the final authority to give environmental impact permission to the project proponent by inquiring to Bapedalda-Aceh as an advisory body.

1.1.4 Project which Requires EIA

The plan aims at the rehabilitation and reconstruction of the post-tsunami affected areas in Banda Aceh city and it ranges the following sectors.

- Disaster mitigation sector
- Road/Transportation sector
- Housing sector
- Water supply
- Urban sanitation sector
- Urban drainage sector
- Education Sector
- Health and medical sector

Table 1.2 shows the legal requirement of AMDAL for the above projects based on Decree No.17/2001 of the State Minister for Environment. Table 1.2 shows the type, scale and major reasons/impacts of projects which require AMDAL.

Table 1.2 Projects which Require AMDAL based on Decree No.17/2001

Sector	Type of Project	Scale of Project
Disaster mitigation	Detached Breakwater	Breakwater over 200 m
	Coastal disaster mitigation facilities (e.g. Sea wall)	Facilities with stretch line over 500 m
Road/Transportation	New construction of roads and bridges	10 km or more in length / 10 ha or more in area (in case of middle city[1)])
Housing	New construction of resettlement	New construction of resettlement with removed household over 200 or coverage area over 100 ha
Water supply	Construction of distribution networks	Network length over 10 km, or, network area over 500 ha
Urban Sanitation	Construction of Human Excrement Treatment Facility	Treatment facility with 2 ha or more
	Construction of final landfill including open dumping	All
	Sanitary landfill	Landfill area over 10 ha
	Wastewater Treatment Facility	Plant area over 3 ha
Urban drainage	Regulating reservoir	Dam height: 15 m or more
	Normalization of rivers and construction of floodways	River length: 10 km Dredging volume: 500,000 m^3 or more (in case of middle city[1)])
Education	Education facilities	Land are over 5 ha or building coverage over 10,000 m^2
Health and medical	New Construction of Hospitals	All

Note:1) Middle city: The city which has the population of 100,000 to 500,000.

1.2 SOCIAL ENVIRONMENTAL

1.2.1 Land Issue

The existing land issue is mainly divided into those of legal, procedural coordination framework for land registration, consolidation and land acquisition. These land issue will be crucial and to be settled for the smooth implementation of the rehabilitation and reconstruction.

(1) Land Registration

The major laws/regulations relating to land registration are Law No. 5/1960, Government Regulation No. 24/1997. Law No.5/1960 regulates the agrarian principles called Undang-Undang Pokok Agraria (Agrarian Principals Regulation). Government Regulation No. 24/1997 regulates principal of land registration implementation, maintenance of land registration data, publishing the new certificate as substitution of those of broken and missing, etc.

In relation to land registration, the Ulema (Muslim Leader) Consultative Council (MPU: Majelis Permusyawaratan Ulama) has stated a binding rule (No.2/2005) stating that "Land owned by a person who has died without leaving heirs will become the property of the Islamic community through the Baitul Maal (House of Assets). However, pursuant to the applicable laws and regulations, the Baitul Maal cannot yet be categorized as a legal entity. Therefore, the further legal assessment will be necessary to examine the legal status of the Baitul Maal as a legal entity that can hold on land, in particular, in the case of "ownerless lands".

Currently, BPN (Badan Pertanahan Nasional) is an administration agency which deals with the land issue.

The activities relating to land registration in Banda Aceh city which have already been launched are as below;

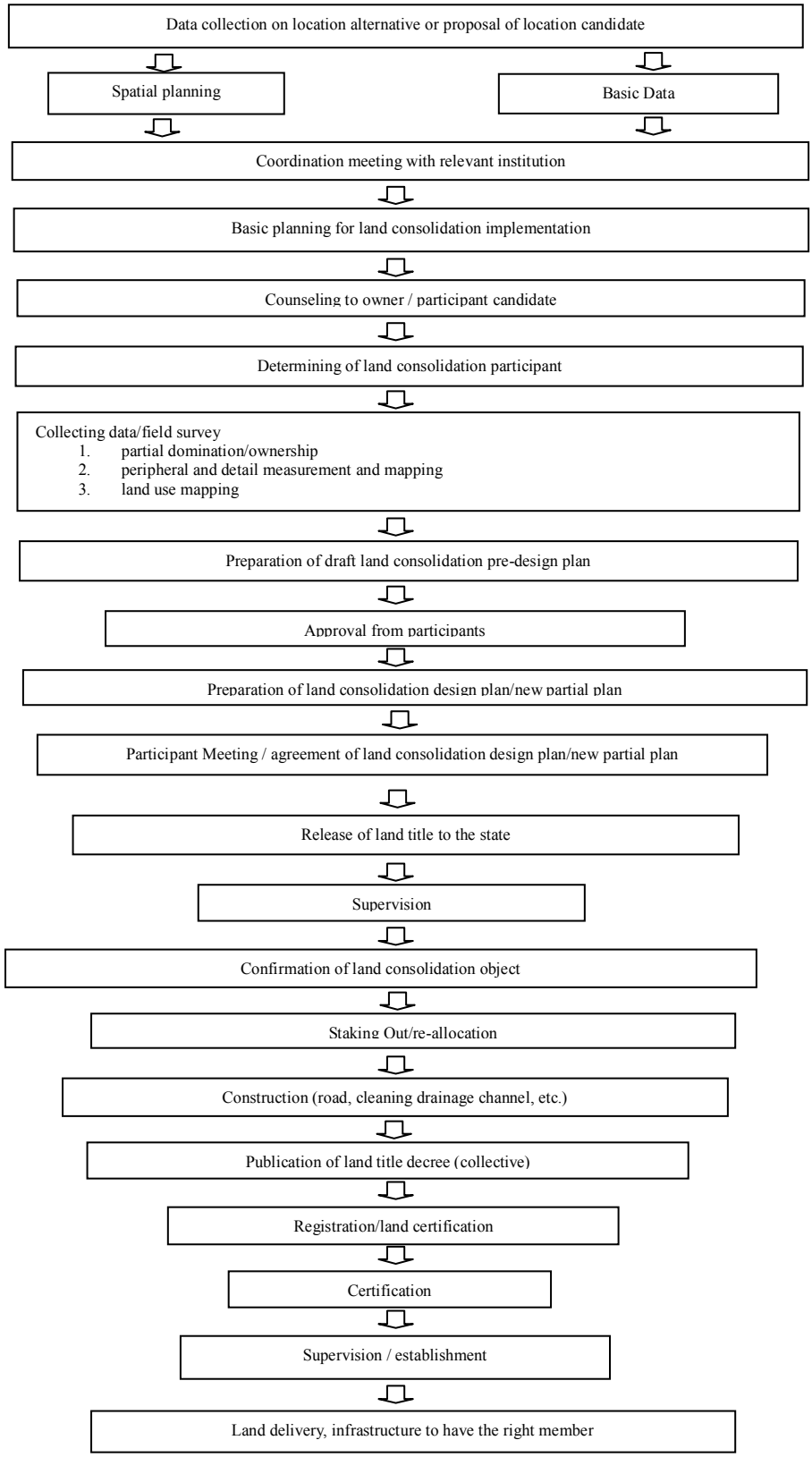
1. Searching of land register by the coordination of BPN, *ARSIP NASIONAL* (National Archive Department) and JICA, which requires high technology and was implemented in Jakarta.
2. Formation of special team procedures for people's complain
3. Land information and formation and activation of POKMASDARTIBNAH (*Kelompok Masyarakat Sadar Tertib Tanah*: Community for land registration survey) in 30 villages in Banda Aceh City
4. Socialization of technical guideline of SK.Ka.BPN No. 57-VII-2005 regarding POKMASDARTIBNAH in Nanggroe Aceh Darussalam Province
5. Installation of boundary sign, measuring and village mapping in 6 villages
6. Installation of 70 unit technical base point for survey in Kota Banda Aceh
7. Decision of land price in damaged areas
8. Preparation of village map based on IKONOS imaging 1 : 2,500 scale
9. Invitation of NGO to land office for coordination
10. Community development in land boundary section by coordination with relevant agencies
11. Identification of damaged areas and land use before and after disaster in 89 village
12. Spatial zoning
13. Formation of BPN province special team in land reconstruction and rehabilitation

(2) Land Consolidation

Land consolidation is prescribed in National Land Agency Regulation No.4/1991, and the details of its execution are regulated in implementation guideline, technical guidelines.

National Land Agency Regulation No.4/1991 regulates land consolidation activity into road infrastructure, irrigation, environment facilities and other facilities.

The procedure for land consolidation based on National Land Agency Regulation No.4/1991 is shown in Figure 1.3.



Source: BPN

Figure 1.3 Land Consolidation Procedure

According to the regulation No.4/1991, land consolidation work can be practically completed if 85% of land owners agree with the land consolidation.

(3) Land Acquisition

Land acquisition for development for public benefit is based on Indonesian Presidential Decree No.36/2005, which was newly enacted on May 2005. This decree is applied for the case of infrastructure projects.

The basic process for land acquisition is;

- Formation of land acquisition committee
- Discussing for agreement on compensation amount other things
- Execution of compensation for land title, building, plant and other things

For the special case of the disaster area in Banda Aceh, new regulation on land acquisition is being discussed in central national land agency.

(4) Stakeholder Meetings / Public Consultations

There have been held several public consultation meetings relating to the rehabilitation and reconstruction plan in Banda Aceh city since March 1st, 2005. The details of the major discussions of the meetings are shown in Table 1.3. The discussions in public consultation range various issues and sectors, and the bottom-up or participatory approaches in transparent manners have been requested from the attendants for the rehabilitation and reconstruction plan.

Table 1.3 Major Discussions in Public Consultation Meetings

Date/Year	Number of Attendants	Major Agenda	Major Comments from the Residents
March 1st, 2005	About 500 persons consisting of Provincial Governor, BAPPEDA, Banda Aceh city, NGOs, citizens, etc.	Spatial Planning prepared by the Government	• The plans should include the issue of floods and land slide. • The plan should discuss regional economic development as an international free port of good sample of Sabang Island. • NGO (World Vision) needs to know the exact locations of the permanent houses for relocation where they can build. • Mangroves cannot be a good protection for tsunami because the forest in Ulee Lhee was washed away. • The plan should consider the alternative economic development replacing oil and gas product. • The issue of relocation should be fully considered. • The fishpond located in the buffer zone between city area and sea should be discussed in more details. • Sewerage system should be built in the city. • The damaged city needs more foreign expertise.
March 2nd, 2005	About 250 persons consisting of BAPENNAS, Environment Association	Natural Resources and Environment	• Mangrove area changed to fish pond, settlement and other infrastructure in pre-tsunami Aceh city. • Mangrove ecosystem has almost been destroyed in Aceh city.

Date/Year	Number of Attendants	Major Agenda	Major Comments from the Residents
	Indonesia, Provincial Environmental Management Agency, Syiah Kuala University, donors, citizens		• The plan should consider the minimization of the risk of future disasters. • The criteria for final landfill site was presented and the site should consider the government decree. • The water quality of shallow well in Ulee Lhee is not healthy for drinking and need more research. • The reconstruction should not be dependent on the central government. • The land matter should be settled to avoid land speculation.
March 2nd, 2005	Provincial Governor, BAPPENAS, BAPEL, Syiah Kuala University, donors	Financing for Redevelopment Strategy	• Identifying and developing an inventory of financing process. • Above developing process include the allocation and channeling the funds from multilateral/bilateral donors and government • The grand design for financing should be formed rather than detailed actions. • BAPEL will endorse the relationship between multi-donor trust and BAPEL for the projects. • The relocation of communities should be made in democratic process. • The support program for the redevelopment should extend to support all regions not only the damaged areas but also other parts of the province. • The reconstruction program should cover a long-term range of 5 to 10 years including the prospects for building ethical and education community. • The information flow between Aceh and Jakarta is insufficient, this means the need on-the-ground basis survey. • The reconstruction program should include a steering committee process involving national and provincial governments, donors and communities. • Auditing process is necessary for auditing funds • The redevelopment plan should view toward future not to recover the damaged area. • Auditing and transparency approach is important.
March 2nd, 2005	Provincial Governor, BAPPENAS, Syiah Kuala University, ILO, NGOs	Economy and Labor Work	• BAPPENAS plans the revitalization projects for fishery ports, markets, irrigation systems and bus stations to be financed by APBN, APBD and donors. • BAPPENAS explains the financial systems which will be prioritized on financial infrastructure, compensation for depositors, etc. • BAPPENAS explains the stimulation of the economy for credit targeting, extending grace period and low interest rates. • The financial system in Aceh needs the legal rules. • BAPPENAS's strategy for implementation includes community based and participatory development. • The master plan for economic recovery has to focus on longer term of 20 years, not only focus on rehabilitation and reconstruction affected by the tsunami. • The master plan should consist of impact planning (1 – 2 years) and strategic planning (2- 10 years). • The economic development has to be comprehensive, not only focus on tsunami impact but also include creating investment climate, revitalization of infrastructure and human resource development, etc. • Future economy should not rely on the oil and gas industry but also agriculture. • The policy of providing the business opportunity for local contractors should be included the reconstruction. • Job creation should be made by private sector lead. • The economy cannot revive without infrastructure

Date/Year	Number of Attendants	Major Agenda	Major Comments from the Residents
			development such as roads, water, sanitation and telecommunication. • Village level business should be export oriented, accordingly loans should be provided for export sector. • Micro credit system should be developed to support BPR (Syariah Micro Banking) which is operating at village and community levels. • The Indonesian Malaysian Thailand Growth Triangle (IMT-GT) should be considered for designing the master plan. • The training for skilled and unskilled labor should be provided in community level. • All projects should be implemented in efficient and transparent manners with full accountability. • The economic redevelopment should be based on Syaliah (Islamic Laws) including banking system. • Tourism has to be in line with Syalia principle. • The leader of fishermen should be involved in the development in the coastal areas.
March 5th, 2005	About 150 – 200 participants from BAPPENAS, Syiah Kuala University, other institutions and citizens	Infrastructure	• The cost of developing future infrastructure will cost more than Rp. 18 Trillion. • The problems relating to infrastructure are 1) limited infrastructure development, 2) difficult accessibility, 3) destruction of public infrastructure due to earthquake and tsunami and 4) lack of natural resource • Future transportation development should include the rehabilitation of damaged infrastructure, shift of transportation route, development of alternative transportation routes and the development of the isolated hinterland areas. • The irrigation development should be reconsidered because many rice fields have been inundated with sea water and mud. • The development centers should also be planned in the west coast area considering the poorer west coast areas compared to the north-east coast. • Environmental infrastructure such as drainage and waste management system is important for housing sector. • The buildings in the drainage areas will block the flow of flood water and wastewater.
March 5th – 7th, 2005	Government officers, citizens, etc.	Social and cultural issues	• Education should be based on Islamic rules. • There are some problems relating to qualified teachers and limited budget. • Islamic education should be in the system as well as in practice. • The teachers are not paid enough. • Quran reading laboratory is important for suitable attitude and ways of thinking of Aceh community. • People working for art has limited chance to get higher income. • The culture development is important and should be based on family and religious value.
March 7th – 8th, 2005	About 200 – 250 participants consisting of BAPPENAS, BPN (Land Management Agency), Aceh Province, Syiah Kuala University and citizens	Legal Issue	• 5 priorities regarding land, family law, infrastructure, human resources, legal and access to justice were focused. • The interaction between Syariah law and national law was a key discussion. • The legal status of Fatwa 2/2005 (Decree based on Islamic Court) should be discussed • Fatwa has no legal standing without national legislation. An amendment in national legislation is necessary. • Legal reconstruction strategy should cover more than the rebuilding of infrastructure. • The victims' lands will be unfairly taken off during the reconstruction.

Date/Year	Number of Attendants	Major Agenda	Major Comments from the Residents
			• Additional support to the disaster widows will be marginalized. • Clarity is required on the presumption of death for missing people. • Bank needs to publicize the availability of unclaimed bank accounts. • Effective control by the legal system over the reconstruction is an equally priority as well as land issue. • Syariah police needs to be empowered.
March 8th – 9th, 2005	Relevant institutions	Accountability and Governance	• The supervision measurement for fund transparency and formulation toward Achenese capacity building is important. • Policy maker should prevent any abuse and corruption on donation. • People perception and good communication is very important in governance.
July 5th, 2005	About 50 attendants consisting of Mayor, Banda Aceh city, the residents of Kuta Raja District, JICA, Local NGOs	Blueprint, residents' needs and project priority in district level	• The projects based on Blueprint should be implemented with community agreement. • 4 working groups consisting land/settlement, education, health and manpower were established in Banda Aceh city. • The work for certificate for land boundary will be finished by December of this year. • All schools in Kuta Raja were destroyed and need to be constructed by the support of NGOs or donors, and the building should be constructed in 2nd floors. • The primary schools should be constructed as soon as possible. • The tsunami waste should be cleaned up in the village. • The drainage condition is bad after tsunami, so the new construction on drainage facility is necessary.
July 6th, 2005 (Morning)	About 30 attendants consisting of Mayor, Banda Aceh city, the residents of Jaya Baru District, JICA, GTZ, Oxfam, Local NGOs	Blueprint, residents' needs and project priority in district level	• The time schedule of the house construction is important. • The Neng river is filled with garbage damped by damped truck, so the cleaning project in the river is necessary.
July 6th, 2005 (Afternoon)	About 40 attendants consisting of Mayor, Banda Aceh city, the residents of Jaya Baru District, JICA, GTZ, Oxfam, Local NGOs	Blueprint, residents' needs and project priority in district level	• The power station has not been installed yet in the village, and the power station should be installed as soon as possible. • The coordination is necessary to avoid the overlap of the support between NGOs and donors. • The rehabilitation of mosque also should be discussed. • The development of the ring road should need the agreement with the residents.

Source: JICA Study Team

(5) Fishery / Fishery Right

Fishery played an important part in pre-tsunami industry in Banda Aceh city. However, their activity was severely damaged by the disaster.

The situation relating to fishery in pre- and post- tsunami Banda Aceh city is shown in Table 1.4.

Table 1.4 Fishery Situation in Pre-tsunami and Post-tsunami Banda Aceh City

Item	Pre-tsunami (A)	Post-tsunami (B)	Change (B/A)(%)
Sea fisherman	1,774 person	503 person	28.4
Aquaculture fisherman in fishpond	538 person	249 person	46.3
Fish processing industry	22 person	6 person	27.3
Fish trader	653 person	233 person	35.7
Gasket worker	82 person	17 person	20.7
Fishpond area	749.4 ha	687.3 ha	91.7
Fishing boat	463 unit	195 unit	42.1

Source: Fishery department, Banda Aceh city

Table1.4 shows that the fishery industry in Banda Aceh city was severely damaged by the disaster. There were 5 fish ponds in the districts of Jaya Baru, Meuraxa, Kuta Raja, Kuta Alam and Syiah Kuala in Banda Aceh city. The fishery right is established only in Syiah Kuala district among the fishponds, while there was no fishery right in rivers, nearest sea area and other fish ponds.

The location site of Syiah Kuala fish pond is shown in Figure 1.4.

(6) Cultural Assets / Properties

The laws/regulation regarding the protection and conservation of cultural assets are prescribed in Law/Regulation of Republic Indonesia on Cultural Asset which was enacted by Education and Cultural Department in 1997.

The law/regulation prescribes the following major regulation relating to protection and conservation of cultural assets;

- Those who destroyed the cultural assets shall be punished based on the law/regulation
- Conservation of cultural assets can only be conducted by the institution in charge of protection of cultural assets.
- The project proponent who intends to implement a project in an area which may have some impact on existing cultural assets shall report to above responsible institute regarding the protection manners for the cultural assets.

There is one cultural asset named Syiah Kulala Muslim tomb which was built in the mid-nineteenth century and it has already been registered by Education and Cultural Department. Its location is shown in Figure 1.4.

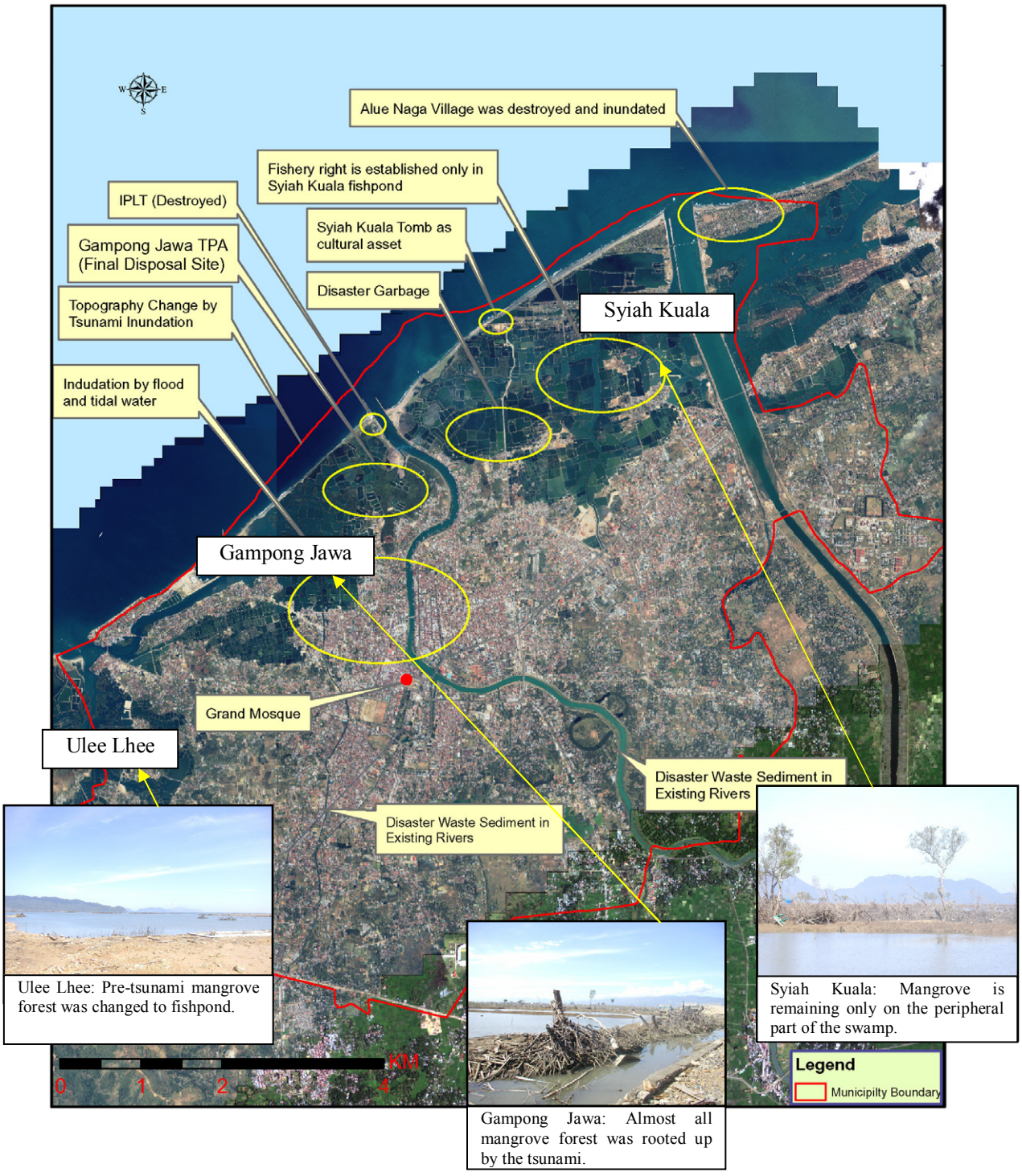


Figure 1.4 Existing Environment Situation in Banda Aceh City

1.3 NATURAL ENVIRONMENT

The study area is located in the North Sumatra, which is dominated by a mountain ridge extending west to southeast. The coastal plains are developed in the area. The study area, Banda Aceh city, has already been urbanized and there is no national park and the national parks. The species of terrestrial ecosystem in the target area are commonly identified in other urbanized areas of Indonesia.

1.3.1 Mangrove Ecosystem

The mangrove areas in and around Banda Aceh have been cleared and converted into fish / shrimp ponds, leaving mangrove areas in shallow lagoons or near river mouths.

To date there is no accurate quantitative data on the damage level on mangrove forest caused by the tsunami. There is only available information of reports from local residents and volunteers who have inspected the situation in the field and also from photographs of the coast taken by volunteers. The mangrove forest of Banda Aceh city was almost destructed by the tsunami.

Figure 1.4 as shown earlier shows the locations of the mangrove forest and the photos of their damage situation in three locations, Syiah Kuala, Gampong Jawa and Ulee Lhee. The figure indicates that almost all mangrove vegetation was uprooted and washed away to inland. The former mangrove area was currently changed into swamp area or fish pond.

Table 1.5 shows that the current situation of mangrove species in Banda Aceh city. One of mangrove species, Rhizaphara muaronata, is only remaining in Banda Aceh city, while there had been diversity of mangrove species in pre-tsunami situation.

Table 1.5 Situation of Mangrove Ecosystem in Banda Aceh City

Location	Pre-tsunami Vegetation	Post-tsunami Vegetation
Ulee Lhee	*Rhizaphora muaronata*	Only *Rhizaphora muaronata* is remaining
Kampung Jawa	- *Rhizaphora muaronata (bakau)* - *Avicennia alba (lampe,api-api)* - *Sanneratia alba (pedada)* - *Nypa fruticans (nipah)* - *Acrosthicum populnea (waru laut)*	Subdominant (*Rhizaphara muaronata*)
Syiah Kuala	- *Rhizaphora muaronata (bakau)* - *Avicennia alba (lampe, api-api)* - *Thesphesia populnea (waru laut)* - *Cosuarina equisetifolia (cemara laut)*	Domination by *Rhizaphara muaronata*

Source: Ministry of Environment

1.3.2 Coastal Ecosystem Conservation Plan

Indonesian Government conducted the rapid assessment the damage situation on the coastal ecosystem for 13 (Thirteen) areas in Aceh Province through Wetlands International – Indonesia Programme (WI-IP). The assessment is made by their recommendation for priority for rehabilitation. Among above 13 areas, 2 areas, Alue Naga and Ulee Lhee, which are located in Banda Aceh City were assessed for high priority for short term rehabilitation.

Table 1.6 shows the assessment results for the coastal ecosystem rehabilitation for above two areas in Banda Aceh city.

Table 1.6 Assessment Results for Coastal Ecosystem Rehabilitation in Banda Aceh

Area		Recommendation for Rehabilitation
Name	**Sub-district**	
Alue Naga	Syiah Kuala	***High priority for short term rehabilitation (2 years)***: Alue Naga used to be the site of WI-IP's program in coastal wetlands rehabilitation through economic activities. Alue Naga was surrounded by coastal vegetation and shrimp pond. Villages reported that the site was breeding area for green turtle.
Ulee Lhee	Meuraxa	***Priority for short term rehabilitation (2 years)***: Ulee Lhee is a well known tourism area for its old seaport and mangrove ecosystem Tsunami has damaged the whole area including mangrove building, bridge and pier.

Source: Wetlands International – Indonesia Programm

The conservation for the damaged mangrove area in Banda Aceh city was attempted by local NGO (e.g. Habitat Indonesia, Meridan) or local residents near the forest area (Tibang village), however, their conservation activity has currently been suspended.

Forestry Department of Banda Aceh Province released the conservation plan for mangrove and other sea vegetation in Aceh Province. Table 1.7 shows the future conservation area for mangrove and other sea vegetation in Banda Aceh city.

Table 1.7 Future Conservation Area for Coastal Ecosystem

Unit in ha

Mangrove	Other Sea Vegetation
3,500	2,000

Source: Forestry Department, Banda Aceh Province

1.4 POLLUTION

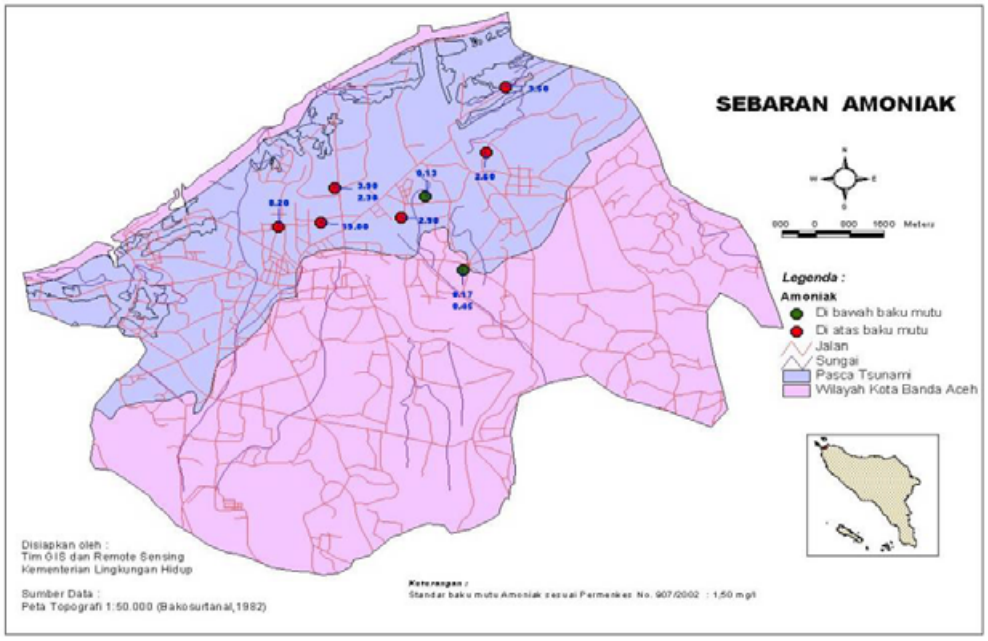
Ministry of Environment conducted a monitoring for water quality and sediment/sludge in Banda Aceh city two weeks after the disaster. The monitoring was made for the following parameters;

Water Quality: pH, temperature, salinity, DO, electricity conductivity, color, BOD, COD, TSS (Total Suspended Solid), NH3, PO4, NO2, As, Hg, Sulfide, Phenol, Cu, Cd, Total Coliform, E.coli (Escherichia Coliform)

Soil/Sediment/Sludge: pH, Heavy Metal (Pb, Cu, Cd, Mn, Zn, As, Hg)

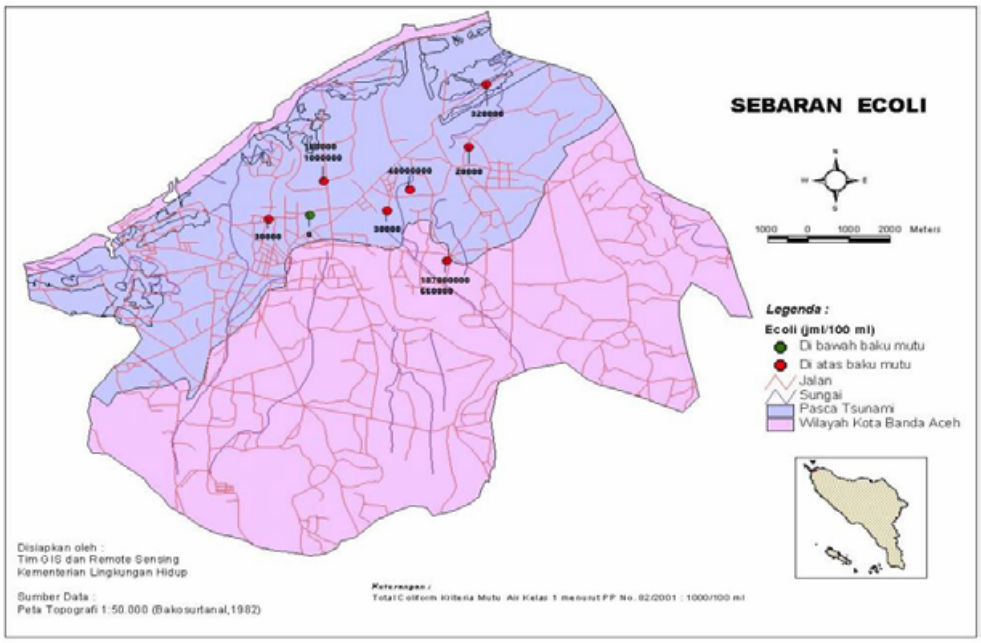
1.4.1 Water Pollution

The analysis result in laboratory for the inland water indicates that 8 to 19 mg/l the ammonium concentration is over the water quality standard (less than 0.5 mg/l for drinking water) regulated by the government regulation of No. 82/2001 (See Figure 1.5). 74,105 to 107,106 per 100ml of total coliform exceeded the water quality standard (less than 1,000/100ml for drinking water and less than 5,000/100ml for fishery), and 1,104 to 9,104 per 100ml of E. Coli exceeded the water quality standard (less than 100/100ml for drinking water and less than 1,000/100ml for fishery) (See Figure 1.6). These results of high concentration of coliforms are estimated to be caused by the post-tsunami decomposition and deterioration process. The concentration of phosphate, sulfide, ammonium, phenol, COD and DO of the sample water from the existing wells shown in Figure 1.7 and A9.1.8 shows that their analysis results exceeded the water quality standards.



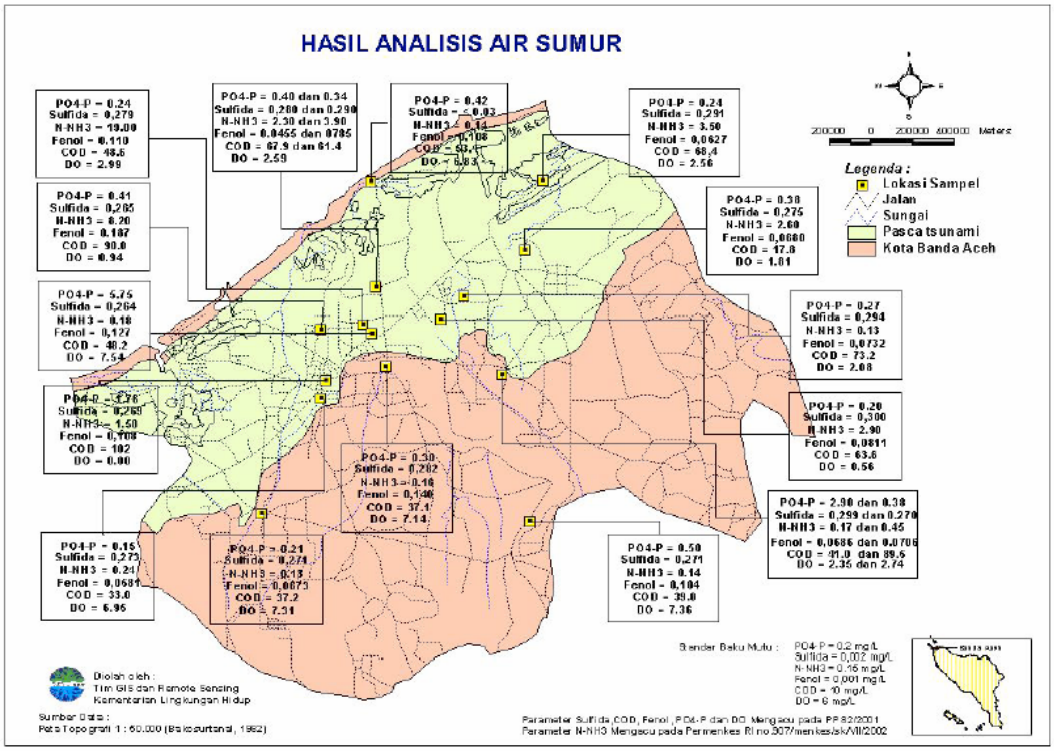
Source: Ministry of Environment

Figure 1.5 Water Sample Distribution for Ammonium Concentration (Post-tsunami)



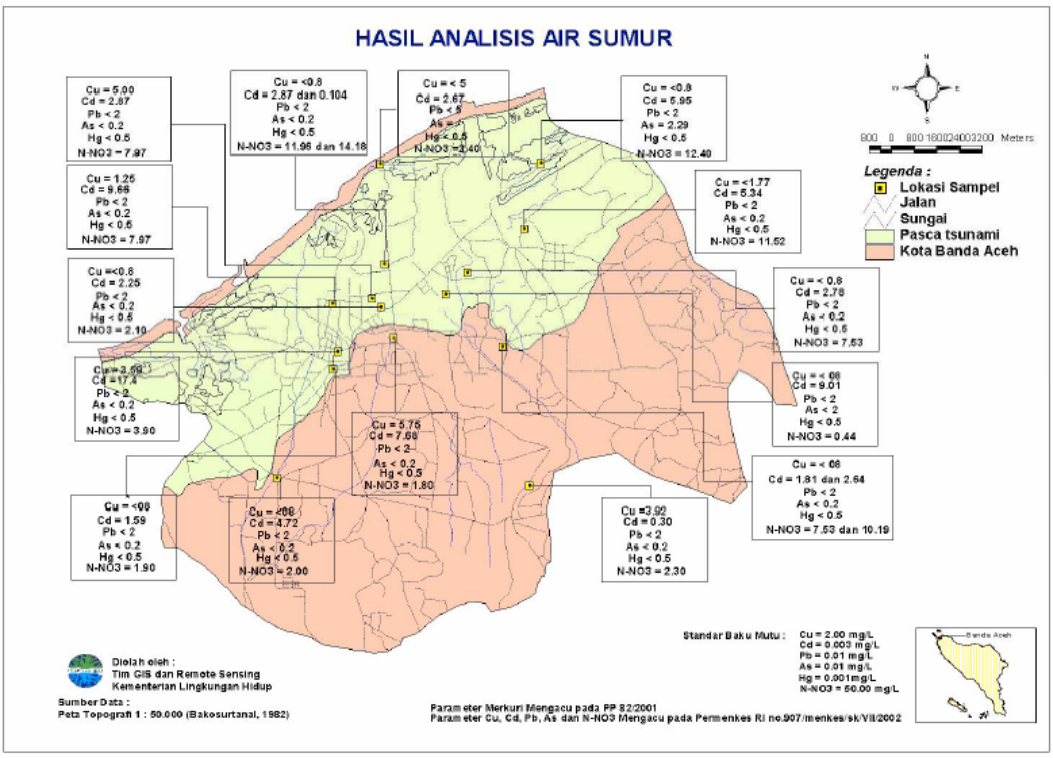
Source: Ministry of Environment

Figure 1.6 Water Sample Distribution for E. Coli Concentration (Post-tsunami)



Source: Ministry of Environment

Figure 1.7 Water Sample Distribution of Existing Wells (1) (Post-tsunami)

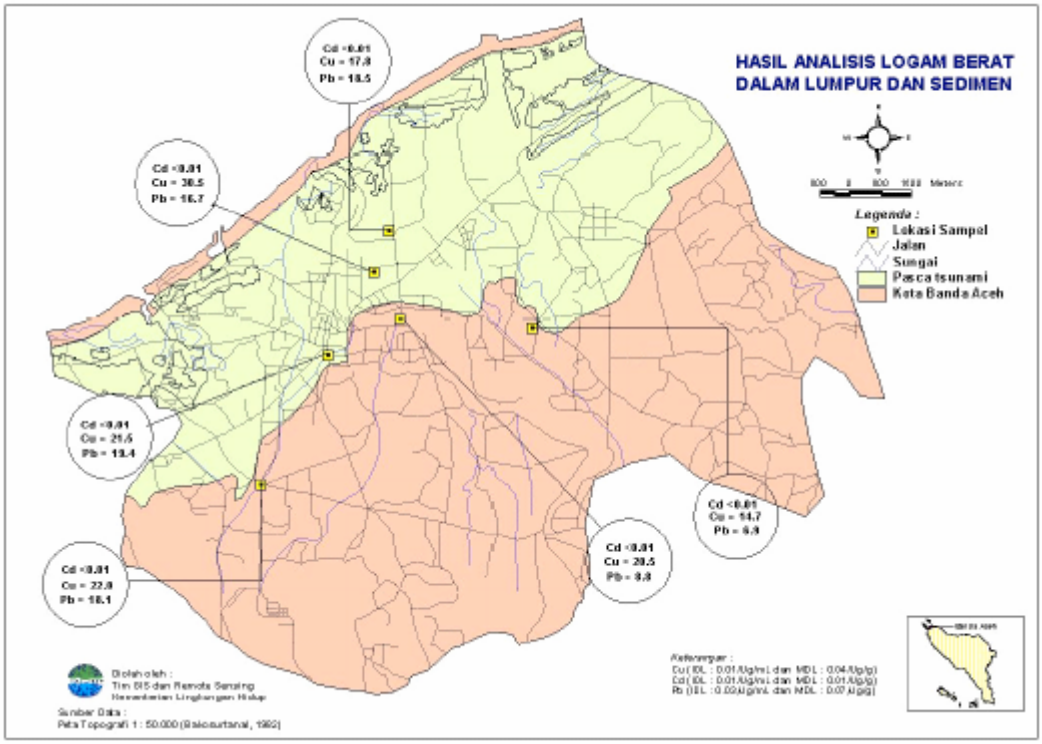


Source: Ministry of Environment

Figure 1.8 Water Sample Distribution of Existing Wells (2) (Post-tsunami)

1.4.2 Soil/Sediment/Sludge Contamination

According to the monitoring results of Ministry of Environment, the heavy metal concentration for sediment is identified in the north part of Banda Aceh city. The concentration of Pb and Cu exceeded the environmental standard. Figure 1.9 shows the distribution of the sediment sample.



Source : Ministry of Environment

Figure 1.9 Water Sample Distribution of Sediment (Post-tsunami)

(1) Destruction of Existing Human Excrement Plant (IPLT)

A human excrement treatment plant (IPLT) had been operated at Gampong Jawa village which was constructed at the downstream of Aceh river in 1995. However, the plant was heavily damaged by the tsunami in its structure and piping facilities and currently stopped its operation. Currently, the destruction of the plant compelled the excrement sludge to discharge to the water area without any treatment. The pre-tsunami treatment of the human excrement in the city areas had been made by septic tank and vacuum cars with their pre-tsunami service rate of 70 - 80 %. However, the pre-tsunami IPLT had the small capacity of 50 - 60 m3/day which was unable to treat the excrement of all city areas. This compelled the surrounding villages to dispose of the excrement sludge from the vacuum cars to the surrounding areas, which caused water pollution. Thus, the urgent rehabilitation of the excrement treatment plant is required.

(2) Solid Waste Management

Only one final disposal site for municipal solid waste (open damping site) in Aceh city is located bordering above IPLT at Gampong Jawa. The disposal area is currently used for the temporary disposal site for construction debris or drift wood, which is rapidly reducing its capacity and the remaining capacity is anticipated as only 2 years. The waste collection at individual houses in city areas is currently implemented three times a week by the sanitation and park department of Banda

Aceh Municipality, however, the separate collection is not made and all waste is dumped at the disposal site. UNDP/UNICEF is currently supporting the waste segregation at the final disposal site (recycling the usable waste and its trading), temporary waste collection and the study for future final disposal. The site selection study for future final disposal site is being conducted by UNDP/GTZ, however, its location has not been determined.

Garbage of housing material or construction debris is deposited in the fishpond in Syiah Kuala district.

CHAPTER 2 SCREENING AND SCOPING FOR ENVIRONMENTAL AND SOCIAL CONSIDERATION

2.1 OUTLINE OF THE URGENT REHABILITATION AND RECONSTRUCTION PLAN

The outline of the plan in each sector is shown in Table 2.1.

Disaster mitigation sector consists of structural measures for disaster mitigation in coastal areas and emergency facility plan in inland area. The disaster mitigation in coastal areas will not require land acquisition because of its development in coastal areas, while the new construction of inland emergency facility plan requires the land acquisition. The plan in this sector basically establishes the mitigation measures to reduce the disaster risk caused by tsunami or earthquake.

Road / transportation sector consists of the rehabilitation of existing roads, bridges, the signal systems and the new construction or extension of arterial, escape and ring roads. The rehabilitation of existing roads does not require the land acquisition, while the extension or new construction of new roads requires the land acquisition. The ring road along the coastal line aims at the functions of both the escape (evacuation) space at emergency of disaster and the dispersion of existing traffic congestion. However, the ring road needs the process of land acquisition and final agreement with land owner and residents since it passes the private lands.

Housing sector consists of the resettlement plan in the new residential complex in the southeast part of Banda Aceh city which receives the some parts of the damaged residents in the coastal areas and the increased population caused by the urbanization of the city. The plan requires the process of land consolidation and the final agreement with land owners and the residents. Some of the residents in the coastal areas are currently returning to their original lands and living the houses supplied by NGOs.

Water supply sector has the expansion projects of water supply networks in city areas. The project is basically implemented in the existing road areas and will require no new land acquisition.

Urban sanitation sector consists of the expansion of existing human excrement plant, small scaled wastewater treatment plant, municipal solid waste final disposal site, recycling and intermediate facility at the existing open dumping site (TPA: Tempat Pembuangan Akhir) in Gampong Jawa. The projects for new landfill and the small scaled wastewater treatment facility require new land, and yet their lands have not been secured. Currently, UN and GTZ are conducting the site selection study for the final landfill site. It is estimated that the existing open dumping site (TPA) at Gampong Jawa has the capacity of only another 2 or 3 years since it has received the disaster waste of the tsunami.

Urban drainage sector consists of the normalization works of the existing river channel, rehabilitation of existing pumping facilities and new construction of existing pumping facility. The new construction of pumping facilities will require new land area. The city area is frequently inundated by flood and tidal water.

Education sector consists of the rehabilitation, reconstruction of existing education facilities and relocation (new construction) of primary and junior high schools in the three districts (Kecamatan) in the coastal areas which have been severely damaged. New land area is necessary for the case of relocation, and yet the relocation site has not been secured.

Health and medical sector consists of the rehabilitation/reconstruction of hospitals and health centers and the relocation of Meuraxa hospital which was completely destroyed by the tsunami. However, the relocation site of Meuraxa hospital has not been identified nor secured.

Table 2.1 Outline of the Urgent Rehabilitation and Reconstruction Plan

No.	Sector / Project	Outline of the Project	Scale / Location
1	Disaster Mitigation Sector		
1-1	Structural Measures		
1-1-1	Detached breakwater	Facility to cut the peak of tsunami wave.	From the ferry terminal to the river-mouth of Aceh river.
1-1-2	Seawall	Facility to cut the peak of tsunami wave.	At the ferry terminal. Minimum crest height: 4m
1-1-3	Coastal Forest	For the mitigation of tsunami inundation, to build greenbelt mixed with mangrove and palm trees which can grow in coastal areas.	Parallel to the coastal line. Greenbelt width: 200 m
1-1-4	Tidal gate	For the mitigation of tsunami run-up, to build tide-water control gate at river mouth.	At the river-mouth of Aceh river.
1-2	Emergency Facility Plan		
1-2-1	Escape building / Escape tower	The building and/or tower for emergency evacuation with height over 10m where people can be escape by the stairs.	Public areas such as mosque, school, shopping center or ferry terminals.
1-2-2	Evacuation Open Space	The open space for evacuation for mitigation from earthquake, tsunami and fires.	The location of existing mosques and the south parts of escape and relief roads.
1-2-3	Tsunami Park	The park for emergency evacuation where a heliport and the storage house equipped with food and tools for overhaul are installed. The tsunami park will be used also for enlightenment for residents. Two types of tsunami parks, Big Tree and Big Ship.	Big Tree: At the temporary Ulee Lheue Ferry Terminal Big Ship: Punge Blangcut district
2	Road / Transportation Sector		
2-1	Rehabilitation of existing arterial roads and bridges (including Escape Bridge)	The rehabilitation works of the existing roads and/or bridges which were damaged by the earthquakes and tsunami.	Existing roads and/or bridges.
2-2	Rehabilitation of signal system	The rehabilitation of the existing signal systems which were damaged by the earthquakes and tsunami.	Existing damaged signals and/or signs.
2-3	Construction / Extension of arterial roads & escape roads	The construction and extension of arterial roads and escape roads.	
2-4	New construction of ring road	New construction of ring road which is planned as an arterial road connecting the east and west areas in the Banda Aceh City. It also has the function of activating an economic growth and escape road which the rescue supply can be transported in case of emergency.	
3	Housing Sector		
3-1	Housing development in south-east part	Housing development in the south-east part of Aceh city based on future population increase.	3 (Three) Kecamatan: Ulee Kareng, Lueng Bata, Banda Raya
4	Water Supply Sector		
4-1	Network development of water supply pipes	Extension of water supply pipe networks	New expansion of water supply pipes
5	Urban Sanitation Sector		
5-1	Expansion of existing human excrement treatment plant	The expansion of existing human excrement treatment facility.	Project site: Gampong Jawa Project area: Not yet decided Treatment capacity: about 150 m^3/day
5-2	Small scaled wastewater treatment facility	The small scaled wastewater treatment facility which will be newly installed in the redevelopment area.	No project sites have been secured.
5-3	Final disposal site for municipal solid waste	Final disposal site for municipal solid waste. The location of final disposal site has not been decided.	No project sites have been secured.
5-4	Recycling facility for	Recycling facility of municipal solid waste in	Project site: Existing

	municipal solid waste	the existing landfill site.	landfill site
5-5	Intermediate treatment facility for municipal solid waste	Intermediate treatment facility of municipal solid waste in the existing landfill site.	Project site: Existing landfill site
6	Urban Drainage Sector		
6-1	River normalization works	Cleaning works of building debris or dredging works of river sediment which was caused by the tsunami.	
6-2	Rehabilitation of existing pumping facilities	Rehabilitation of existing pumping facilities	
6-3	Installation of new pumping facilities	Installation of new pumping facilities	No project sites have been secured.
7	Education Sector		
7-1	Rehabilitation of existing damaged education facilities	The rehabilitation of kindergarten, elementary schools and junior high schools.	
7-2	Reconstruction of existing education facilities	The reconstruction of kindergarten, elementary schools and junior high schools.	
7-3	Relocation of existing education facilities	The relocation of kindergarten, elementary schools and junior high schools.	
8	Health and Medical Sector		
8-1	Rehabilitation / Reconstruction of existing damaged hospitals	The rehabilitation and/or reconstruction of existing damaged hospitals.	
8-2	New construction of hospitals	Meuraxa Hospital is planned to be relocated and newly constructed	
8-3	New construction of health center	New construction of 3 health centers and 11 sub-health centers.	

2.2 SCREENING FOR THE URGENT REHABILITATION AND RECONSTRUCTION PLAN

2.2.1 Possible Impacts caused by the Plan

The possible impacts which may be caused by the plan in each sector are shown in Table 2.2. The alternative of no projects (zero option) is also shown for the comparing of the possible impacts of the plan.

1) Disaster Mitigation Sector

a) Structural Measures

The projects basically reduce the negative impact of the hazard risk to be caused by tsunami and earthquake compared to the alternative of no projects (zero option) for the mitigation of such disaster. However, the projects pf detached breakwater, seawall and tidal gate will cause some impact on sea traffic, coastal zone (oceanographical situation such as ocean current) and coastal ecosystem. Coastal forest and tidal gate possibly have impact on the existing fishery right of the aquaculture near the fishpond by their locations. The projects basically will not require land acquisition because of their facility development in sea area. Positive impact on local economy will be estimated during the increase of employment during construction.

b) Emergency Facility Plan

The projects basically reduce the hazard risk to be caused by the disaster of tsunami and earthquake by developing evacuation facilities of escape building, evacuation open space and tsunami park, while the alternative of no projects (zero option) still have the risk because its no measures for disaster. However, the projects of escape building, evacuation open space and tsunami park will require the process of land acquisition, and the have some negative impact on existing inland traffic during construction, vulnerable people such as handicapped persons in their use of the facilities and the waste treatment to be generated in the facilities. Positive impact on local economy will be estimated during the increase of employment during construction.

2) Road / Transportation Sector

The new construction of escape/ring roads and the extension of arterial roads will have severest negative impact on the resettlement/land issue since they have to secure new lands. They also have the some impact on inland traffic, local economy of aquaculture due to their locations, split of local communities, landscape, water pollution and flora and fauna. Positive impact on local economy will be estimated during the increase of employment during construction.

3) Housing Sector

This project in this sector seems to be severest impact on environment in resettlement/land issue in

the same situation of the road/transportation sector since the project needs the land acquisition. And the necessary transmigration or resettlement from the original settlement area to other areas will cause various impacts on their living situation. The project will also have other impact of local economy, inland traffic, split of local communities, vulnerable people, water pollution, air pollution and waste treatment However, some positive impact on local economy during construction is expected by the increase of employment.

4) Water Supply Sector

The network development project of water supply pipe in this sector has comparatively lower impact on environment among the sectors. However, some impact on inland traffic and air pollution during construction are expected.

5) Urban Sanitation Sector

The projects in his sector improve the sanitary situation in the city area compared to the alternative of no measures (zero option). However, the final disposal project and small-scaled wastewater treatment projects in this sector also seems to have severe impact on environment as road/transportation and housing sector. Above two projects will require the land acquisition process including the agreement of local residents and land owner. The projects, especially, the final disposal project will possibly have impact on wide-range environment such as inland traffic, split of local communities, public health in terms of pest control, soil erosion, water pollution and flora and fauna. However, some positive impact on local economy during construction is expected by the increase of employment.

6) Urban Drainage Sector

The projects improve the existing problems of inundation caused by flood and tidal water, while the alternative of no projects (zero option) take no measures for such disaster. However, the project of new installation of new pumping facility possibly requires the land acquisition of new land which will be the largest impact among other environmental items.

7) Education Sector

The projects in the sector improve the post-tsunami facility situation by rehabilitating, reconstructing and relocating their facilities especially in 3 districts (Kecamatan) of Jaya Baru, Meuraxa and Kuta Raja where such facilities have completely destroyed by the disaster, while the alternative of no projects (zero option) has no development of above education facilities in the damaged areas. However, the relocation of existing education facilities (kindergarten, elementary and junior high schools) will require the process of land acquisition of new facility area, which will be the severest impact in the environmental items. Some positive impact local economy during construction is expected in the environmental items.

8) Health and Medical Sector

The projects in the sector improve the post-tsunami facility situation by rehabilitating, reconstructing and relocating their facilities in the same situation of education sector, while the alternative of no projects (zero option) has no development of above health and medical facilities in the damaged areas. The relocation of hospital and health centers will require the land acquisition for their relocation site which will cause some impact on resettlement or land issue.

Table 2.2(1) Screening Checklist for Disaster Mitigation Sector, Structural Measures (1)

No.	Item	1-1-0 No Plan (Zero Option) in the Sector	1-1-1 Detached Breakwater	1-1-2 Seawall	1-1-3 Coastal Forest
		Evaluation* / Reason for Evaluation	Evaluation* / Reason for Evaluation	Evaluation* / Reason for Evaluation	Evaluation* / Reason for Evaluation
1.	Social Environment				
1.1	Resettlement / Land Issue	0 / No action for causing resettlement.	0 / Its site is located in the sea area.	0 / Its site is located in the sea area.	0 / Its site is located in the sea area.
1.2	Economic Activity	0 / No action related to existing economy.	++ / Some positive economy is expected by the employment during construction.	++ / Some positive economy is expected by the employment during construction.	++ / Some positive economy is expected by the employment during construction.
1.3	Traffic / Public facilities	0 / No action for the sea traffic.	-- / Some impact on the existing ship traffic of fishermen are expected.	-- / Some impact on the existing ship traffic of fishermen is expected.	0 / No action causing the impact on the existing ship traffic of fishermen.
1.4	Split of Communities	0 / No action for split of the local communities	0 / No action for split of the local communities	0 / No action for split of the local communities	0 / No impact on the community is expected because the site is located in the sea area.
1.5	Vulnerable People	0 / No action for causing the impacts on the socially vulnerable people.	0 / No action for causing the impacts on the socially vulnerable people.	0 / No action for causing the impacts on the socially vulnerable people.	0 / No action for causing the impacts on the socially vulnerable people.
1.6	Cultural Properties / Historical Sites	0 / No action for cultural properties and because there is no cultural properties in the sea area.	-- / Some impact on existing historical site named Syiah Kuala Tomb are expected. Further study is required.	0 / No action for cultural properties and because there is no cultural properties in the sea area.	-- / Some impact on existing historical site named Syiah Kuala Tomb are expected. Further study is required.
1.7	Water Right / Fishery Right	0 / No action of water intake and construction activity in sea area.	0 / There is no fishery right in the sea area.	0 / There is no fishery right in the sea area.	-- / Some impact on the fishery right of the existing aquaculture are expected.
1.8	Public Health	-- / Some impact is expected in case of taking the groundwater which may be intruded by the sea water.	0 / No action relating to public health.	0 / No action relating to public health.	0 / No action relating to public health.
1.9	Hazard (Risk)	-- / The risk for the tsunami intrusion still remains because of its no measures for mitigation of tsunami inundation.	-- / Some impact on hazard are expected by the construction works. However, disaster risk for tsunami will be reduced compared to 1-1-0.	-- / Some impact on hazard is expected by the construction works. However, disaster risk for tsunami will be reduced compared to 1-1-0.	-- / Some impact on hazard is expected by the construction works. However, disaster risk for tsunami will be reduced compared to 1-1-0.
2.	Natural Environment				
2.1	Topography / Geology	-- / Some parts of the topographical change from the pre-tsunami situation are identified. Further impact on the topography when no measure for post-tsunami mitigation is taken.	-- / Some impact on the coastal topography is expected by the appearance of the structure.	-- / Some impact on the coastal topography is expected by the appearance of the structure.	0 / No action causing the topography.
2.2	Soil Erosion	0 / No action of reforestation causing soil erosion.	0 / No action of reforestation causing soil contamination.	0 / No action of reforestation causing soil contamination.	0 / No action of reforestation causing soil contamination.
2.3	Groundwater	-- / Some impact on the groundwater use near the coastal area by the sea water intrusion when no measure is taken in the sector.	0 / No action of drawing-up of groundwater.	0 / No action of drawing-up of groundwater.	0 / No action of drawing-up of groundwater.
2.4	Hydrological Situation	0 / No action in river catchment area which may possibly change the hydrological situation.	0 / No action in river catchment area which may possibly change the hydrological situation.	0 / No action in river catchment area which may possibly change the hydrological situation.	0 / No action in river catchment area which may possibly change the hydrological situation.
2.5	Coastal Zone	-- / Some impact on the oceanographic situation such as ocean current caused by the tsunami still remain, when no measures are taken.	-- / Some impact are expected on the oceanographic situation such as ocean current.	-- / Some impact is expected on the oceanographic situation such as ocean current caused.	0 / Small impact is expected on the oceanographic situation such as ocean current, however, its impact level is small compared to the case of the detached breakwater or sea wall.
2.6	Flora and Fauna	0 / No action causing the impact on flora and fauna in the sea area.	-- / Some impact of the existing coastal ecosystem during and after the construction are expected.	-- / Some impact of the existing coastal ecosystem during and after the construction.	0 / Some impact is expected on the coastal ecosystem, however, its impact level is small compared to the case of the detached breakwater or sea wall because the project will regenerate the ecosystem, by planting.
2.7	Meteorology	0 / No action for causing the change of the local meteorology.	0 / No action for causing the change of the local meteorology.	0 / No action for causing the change of the local meteorology.	0 / No action for causing the change of the local meteorology.
2.8	Landscape	0 / No action for changing the landscape.	0 / Small impact is expected on the landscape, however, its impact level will not cause severe problem.	0 / Small impact is expected on the landscape, however, its impact level will not cause severe problem.	0 / Small impact is expected on the landscape, however, its impact level will not cause severe problem.
3.	Pollution				
3.1	Air Pollution	0 / No action causing air pollution	0 / No action causing air pollution	0 / No action causing air pollution	0 / No action of causing air pollution
3.2	Water Pollution	-- / Some impact is expected on the water quality of groundwater by the intrusion of sea water.	0 / Some impact on water pollution is expected because of the excavation works, however, its impact is temporary.	0 / Small impact on water pollution is expected by the turbid water at the excavation works, however, its impact is temporary.	0 / No action of causing water pollution
3.3	Soil Contamination	0 / No action causing soil contamination in the sea area.	0 / No action causing soil contamination.	0 / No action causing soil contamination.	0 / No action of causing soil contamination.
3.4	Waste	0 / No action causing waste in the sea area.	0 / Some impact on waste are expected because of the generation of the excavated soil. However, they will be re-used as construction material.	0 / Some impact on waste are expected because of the generation of the excavated soil. However, they will be re-used as construction material.	0 / No action of causing waste issue
3.5	Noise and Vibration	0 / No action causing noise and vibration..	0 / Some action causing noise is expected, however, its location is far from housing area.	0 / Some action causing noise is expected, however, its location is far from housing area.	0 / No action of causing noise and vibration.
3.6	Land Subsidence	0 / No action causing land subsidence.	0 / No action causing land subsidence.	0 / No action causing land subsidence.	0 / No action of causing land subsidence.
3.7	Odor	0 / No action causing odor.	0 / No action causing odor.	0 / No action causing odor.	0 / No action of causing odor.

Note:*: Categories for Evaluation (---: Serious impact is expected, --: Some impact is expected, 0: Impact level is very small or negligible, ?: Impact level is not clear, ++: Some positive impact of negative and positive is expected)

Table 2.2(2) Screening Checklist for Disaster Mitigation Sector, Structural Measures (2)

No.	Item	1-1-4 Tidal Gate
		Evaluation* / Reason for Evaluation
1.	Social Environment	
1.1	Resettlement / Land Issue	0 / Its site is located in the public area of river mouth.
1.2	Economic Activity	++ / Some positive economy is expected by the employment during construction.
1.3	Traffic / Public facilities	-- / Some impact on the existing ship traffic of fishermen is expected.
1.4	Split of Communities	0 / No impact on the community is expected because the site is located in the public area of river mouth.
1.5	Vulnerable People	0 / No action causing the impacts on the socially vulnerable people.
1.6	Cultural Properties	-- / Some impact on existing historical site named Syiah Kuala Tomb are expected. Further study is required.
1.7	Water Right / Fishery Right	0 / No fishery right is established.
1.8	Public Health	0 / No action relating to public health.
1.9	Hazard (Risk)	-- / Some impact on hazard are expected by the construction works. However, disaster risk for tsunami will be reduced compared to 1-1-0.
2.	Natural Environment	
2.1	Topography / Geology	-- / Some impact on the topography at the river mouth is expected by the reduction of the sediment supply of river.
2.2	Soil Erosion	0 / No action of reforestation causing soil contamination.
2.3	Groundwater	0 / No action of drawing-up of groundwater.
2.4	Hydrological Situation	0 / No action in river catchment area which may possibly change the hydrological situation.
2.5	Coastal Zone	-- / Some impact on the oceanographic change such as ocean current near the river mouth is expected by above topographical change.
2.6	Flora and Fauna	-- / Some impact is expected on the coastal ecosystem.
2.7	Meteorology	0 / No action for causing the change of the local meteorology.
2.8	Landscape	0 / Small impact is expected on the landscape, however, its impact level will not cause severe problem.
3.	Pollution	
3.1	Air Pollution	0 / No action of causing air pollution
3.2	Water Pollution	0 / Some impact on water pollution is expected because of the excavation works, however, its impact is temporary.
3.3	Soil Contamination	0 / No action of causing soil contamination.
3.4	Waste	0 / Some impact on waste are expected because of the generation of the excavated soil. However, they will be re-used as construction material.
3.5	Noise and Vibration	0 / Some action causing noise is expected, however, its location is far from housing area.
3.6	Land Subsidence	0 / No action of causing land subsidence.
3.7	Odor	0 / No action of causing odor.

Note:*: Categories for Evaluation (---: Serious impact is expected, --: Some impact is expected,

0: Impact level is very small or negligible, ?: Impact level is not clear, ++: Some positive impact of negative and positive is expected)

Table 2.2(3) Screening Checklist for Disaster Mitigation Sector, Emergency Facility

No.	Item	1-2-0 No Plan (Zero Option) in the Sector	1-2-1 Escape Building / Escape Tower	1-2-2 Evacuation Open Space	1-2-3 Tsunami Park
		Evaluation* / Reason for Evaluation	Evaluation* / Reason for Evaluation	Evaluation* / Reason for Evaluation	Evaluation* / Reason for Evaluation
1.	Social Environment				
1.1	Resettlement / Land Issue	0 / No action for land acquisition	-- / Some impacts will be expected when the project sites are located in private lands.	-- / The procedure for land acquisition and its final agreement with the residents is required	-- / The procedure for land acquisition and its final agreement with the residents is required
1.2	Economic Activity	0 / No action related to local economy.	++ / Some positive economy is expected by the employment during construction.	++ / Some positive economy is expected by the employment during construction.	++ / Some positive economy is expected by the employment during construction.
1.3	Traffic / Public facilities	0 / The post-tsunami traffic situation will still remain.	-- / Some impact on the traffic is expected during construction.	-- / Some impact on the traffic is expected during construction.	-- / Some impact on the traffic is expected during construction.
1.4	Split of Communities	0 / No action for split of the local communities	0 / No action for split of the local communities	0 / No action for split of the local communities	0 / No action for split of the local communities
1.5	Vulnerable People	D / No action for causing the impacts on the socially vulnerable people.	-- / Some impact on the physically or intellectually handicapped people in case of using the facilities.	0 / No action causing the impacts on the socially vulnerable .people.	0 / No action causing the impacts on the socially vulnerable .people.
1.6	Cultural Properties	0 / No action for cultural properties.	? / Further survey for the location of cultural assets such as historical remains is required.	? / Further survey for the location of cultural assets such as historical remains is required.	? / Further survey for the location of cultural assets such as historical remains is required.
1.7	Water Right / Fishery Right	0 / No action of water intake and invading existing fishery right.	0 / No action of water intake and invading existing fishery right.	0 / No action of water intake and invading existing fishery right.	0 / No action of water intake and invading existing fishery right.
1.8	Public Health	0 / No action for causing public health issue.	0 / No action relating to public health.	0 / No action relating to public health.	0 / No action relating to public health.
1.9	Hazard (Risk)	-- / Some risk for the inundation of tsunami or earthquake will still remain in case of no measures for evacuation..	-- / Some impact on hazard are expected by the construction works. However, disaster risk for tsunami will be reduced compared to 1-2-0.	-- / Some impact on hazard are expected by the construction works. However, disaster risk for tsunami will be reduced compared to 1-2-0.	-- / Some impact on hazard are expected by the construction works. However, disaster risk for tsunami will be reduced compared to 1-2-0.
2.	Natural Environment				
2.1	Topography / Geology	0 / No action causing the change of topography.	0 / There will be no large scaled excavation.	0 / There will be no large scaled excavation.	0 / There will be no large scaled excavation.
2.2	Soil Erosion	0 / No action of reforestation causing soil erosion.	0 / No action of reforestation causing soil erosion.	0 / No action of reforestation causing soil erosion.	0 / No action of reforestation causing soil erosion.
2.3	Groundwater	0 / No action of drawing-up of groundwater.	0 / No action of drawing-up of groundwater.	0 / No action of drawing-up of groundwater.	0 / No action of drawing-up of groundwater.
2.4	Hydrological Situation	0 / No action in river catchment area which may possibly change the hydrological situation.	0 / No action in river catchment area which may possibly change the hydrological situation.	0 / No action in river catchment area which may possibly change the hydrological situation.	0 / No action in river catchment area which may possibly change the hydrological situation.
2.5	Coastal Zone	0 / No action in coastal zone.	0 / No action in coastal zone.	0 / No action in coastal zone.	0 / No action in coastal zone.
2.6	Flora and Fauna	0 / No action causing the impact on flora and fauna	0 / The project sites have already been urbanized and the identified species are commonly identified in other urban areas in Indonesia.	0 / The project sites have already been urbanized and the identified species are commonly identified in other urban areas in Indonesia.	0 / The project sites have already been urbanized and the identified species are commonly identified in other urban areas in Indonesia.
2.7	Meteorology	0 / No action for causing the change of the local meteorology.	0 / No action for causing the change of the local meteorology.	0 / No action for causing the change of the local meteorology.	0 / No action for causing the change of the local meteorology.
2.8	Landscape	0 / No action for changing the landscape.	0 / Small impact is expected on the landscape because of its structure, however, its impact level will not cause severe problem.	0 / Landscape will be improved because tree planting is planned.	0 / Landscape will be improved because tree planting is planned.
3.	Pollution				
3.1	Air Pollution	0 / No action causing air pollution	0 / No action causing air pollution	0 / No action of causing air pollution	0 / No action of causing air pollution
3.2	Water Pollution	0 / No action causing water pollution.	0 / Small impact on water pollution is expected because of the excavation works, however, its impact is temporary and small	0 / No action of causing water pollution	0 / No action of causing water pollution
3.3	Soil Contamination	0 / No action causing soil contamination.	0 / No action causing soil contamination.	0 / No action of causing soil contamination.	D / No action of causing soil contamination.
3.4	Waste	0 / No action causing waste in the sea area.	0 / Small impact on waste is expected during evacuation, however, its impact is temporary.	-- / Some impact on the waste is expected by the garbage generated in the open area.	-- / Some impact on the waste is expected by the garbage generated in the parks.
3.5	Noise and Vibration	0 / No action causing noise and vibration.	0 / Some action causing noise is expected during construction, however, the construction works will be made during day time.	0 / Some action causing noise is expected during construction, however, the construction works will be made during day time.	0 / Some action causing noise is expected during construction, however, the construction works will be made during day time.
3.6	Land Subsidence	0 / No action causing land subsidence such as drawing-up of groundwater.	0 / No action causing land subsidence such as drawing-up of groundwater.	0 / No action of causing land subsidence such as drawing-up of groundwater.	0 / No action of causing land subsidence such as drawing-up of groundwater.
3.7	Odor	0 / No action causing odor.	0 / No action causing odor.	0 / No action of causing odor.	0 / No action of causing odor.

Note:*: Categories for Evaluation (---: Serious impact is expected, --: Some impact is expected, 0: Impact level is very small or negligible, ?: Impact level is not clear, ++: Some positive impact of negative and positive is expected)

Table 2.2(5) Screening Checklist for Road / Transportation Sector (1)

No.	Item	2-0 No Plan (Zero Option) in the Sector	2-1 Rehabilitation of Existing Arterial Roads and Bridges including Escape Bridge	2-2 Rehabilitation of Signal System	2-3 Construction / Extension of Arterial Roads & Escape Roads
		Evaluation* / Reason for Evaluation	Evaluation* / Reason for Evaluation	Evaluation* / Reason for Evaluation	Evaluation* / Reason for Evaluation
1.	Social Environment				
1.1	Resettlement / Land Issue	0 / No action for land acquisition	0 / Project sites are in existing road area and do not require the expansion of existing land area.	0 / No action for land acquisition	--- / The procedure for land acquisition and its final agreement with the residents is required
1.2	Economic Activity	0 / No action related to local economy.	++ / Some positive economy is expected by the employment during construction.	++ / Some positive economy is expected by the employment during construction.	++ / Some positive economy is expected by the employment during construction.
1.3	Traffic / Public facilities	0 / The post-tsunami traffic situation will still remain.	-- / Some impact on the traffic is expected during construction.	-- / Some impact on the traffic is expected during installation. However, its impact is temporary.	-- / Some impact on the traffic is expected during construction.
1.4	Split of Communities	0 / No action for split of the local communities	0 / No action for split of the local communities	0 / No action for split of the local communities	-- / Some impact on split of the local communities by the extension of roads.
1.5	Vulnerable People	0 / No action for causing the impacts on the socially vulnerable .people.	0 / No action for causing the impacts on the socially vulnerable people.	0 / No action for causing the impacts on the socially vulnerable people.	0 / No action causing the impacts on the socially vulnerable people.
1.6	Cultural Properties	0 / No action for cultural properties.	0 / The projects will not be located in the areas of cultural properties.	0 / The project sites are located in the existing road area.	? / Further survey for the location of cultural assets such as historical remains is required.
1.7	Water Right / Fishery Right	0 / No action of water intake and invading existing fishery right.	0 / No action of water intake and invading existing fishery right.	0 / No action of water intake and invading existing fishery right.	0 / No action of water intake and invading existing fishery right.
1.8	Public Health	0 / No action for causing public health issue.	0 / No action relating to public health.	0 / No action relating to public health.	0 / No action relating to public health.
1.9	Hazard (Risk)	-- / Some risk for the inundation of tsunami or earthquake will still remain in case of no measures for the road/transportation sector.	-- / Some impact on hazard are expected by the construction works.	-- / Some impact on hazard are expected by the installing works of signal systems.	-- / Some impact on hazard is expected by the construction works.
2.	Natural Environment				
2.1	Topography / Geology	0 / No action causing the change of topography.	0 / There will be no large scaled excavation.	0 / There will be no large scaled excavation.	0 / There will be no large scaled excavation.
2.2	Soil Erosion	0 / No action of reforestation causing soil erosion.	0 / No action of reforestation causing soil erosion.	0 / No action of reforestation causing soil erosion.	0 / No action of reforestation causing soil erosion.
2.3	Groundwater	0 / No action of drawing-up of groundwater.	0 / No action of drawing-up of groundwater.	0 / No action of drawing-up of groundwater.	0 / No action of drawing-up of groundwater.
2.4	Hydrological Situation	0 / No action in river catchment area which may possibly change the hydrological situation.	0 / No action in river catchment area which may possibly change the hydrological situation.	0 / No action in river catchment area which may possibly change the hydrological situation.	0 / No action in river catchment area which may possibly change the hydrological situation.
2.5	Coastal Zone	0 / No action in coastal zone.	0 / No action in coastal zone.	0 / No action in coastal zone.	0 / No action in coastal zone.
2.6	Flora and Fauna	0 / No action causing the impact on flora and fauna	0 / The project sites have already been urbanized and the identified species are commonly identified in other urban areas in Indonesia.	0 / The project sites are located in the existing road area.	0 / The project sites have already been urbanized and the identified species are commonly identified in other urban areas in Indonesia.
2.7	Meteorology	0 / No action for causing the change of the local meteorology.	0 / No action for causing the change of the local meteorology.	0 / No action for causing the change of the local meteorology.	0 / No action for causing the change of the local meteorology.
2.8	Landscape	0 / No action for changing the landscape.	0 / No action for changing the landscape.	0 / Small impact is expected on the landscape, however, its impact level will not cause severe problem.	0 / Small impact is expected on the landscape, however, its impact level will not cause severe problem.
3.	Pollution				
3.1	Air Pollution	0 / No action causing air pollution	-- / Some impact on air is expected by the dust during construction works.	0 / No action of causing air pollution	-- / Some impact causing air pollution is expected by the increase of traffic volume by the new construction of roads.
3.2	Water Pollution	0 / No action causing water pollution.	0 / Small impact on water pollution is expected because of the excavation works, however, its impact is temporary and small	0 / No action causing water pollution.	0 / No action of causing water pollution
3.3	Soil Contamination	0 / No action causing soil contamination.	0 / No action causing soil contamination.	0 / No action of causing soil contamination.	0 / No action of causing soil contamination.
3.4	Waste	0 / No action causing waste in the sea area.	0 / Small impact on waste is expected during evacuation, and its excavated material is re-used.	0 / No action causing waste in the sea area.	-- / Some impact on the waste is expected by the treatment of excavation materials and garbage during construction.
3.5	Noise and Vibration	0 / No action causing noise and vibration..	0 / Some action causing noise is expected during construction, however, the construction works will be made during day time.	0 / Some action causing noise is expected during construction, however, the construction works will be made during day time.	0 / Some action causing noise is expected during construction, however, the construction works will be made during day time.
3.6	Land Subsidence	0 / No action causing land subsidence such as drawing-up of groundwater.	0 / No action causing land subsidence such as drawing-up of groundwater.	0 / No action causing land subsidence such as drawing-up of groundwater.	0 / Some impact is expected by the new roads. However, its impact level is small.
3.7	Odor	0 / No action causing odor.	0 / No action causing odor.	0 / No action of causing odor.	0 / No action of causing odor.

Note:*: Categories for Evaluation (---: Serious impact is expected, --: Some impact is expected, 0: Impact level is very small or negligible, ?: Impact level is not clear, ±: Both impact of negative and positive is expected)

Table 2.2(6) Screening Checklist for Road / Transportation Sector (2)

No.	Item	2-4 New Construction of Ring Road
		Evaluation* / Reason for Evaluation
1.	Social Environment	
1.1	Resettlement / Land Issue	--- / The procedure for land acquisition and its final agreement with the residents is required
1.2	Economic Activity	++ / Some positive economy is expected by the employment during construction.
1.3	Traffic / Public facilities	-- / Some impact on the traffic is expected during construction and operation stage.
1.4	Split of Communities	-- / Some impact on split of the local communities by the new construction of roads.
1.5	Vulnerable People	-- / Some impact on the resettled people are expected when they include the vulnerable people such as widow, orphans and handicapped people.
1.6	Cultural Properties	? / Further survey for the location of cultural assets such as historical remains is required.
1.7	Water Right / Fishery Right	- / Some impact are expected when the road is crossing the existing fishponds.
1.8	Public Health	0 / No action for causing public health issue.
1.9	Hazard (Risk)	-- / Some impact on hazard is expected by the construction works.
2.	Natural Environment	
2.1	Topography / Geology	0 / Some impact are expected by the excavation works.
2.2	Soil Erosion	0 / No action of reforestation causing soil erosion.
2.3	Groundwater	0 / No action of drawing-up of groundwater.
2.4	Hydrological Situation	0 / No action in river catchment area which may possibly change the hydrological situation.
2.5	Coastal Zone	0 / No action in coastal zone.
2.6	Flora and Fauna	-- / Some impact are expected when the road is crossing the existing fishponds.
2.7	Meteorology	0 / No action for causing the change of the local meteorology.
2.8	Landscape	-- / Some impact on landscape is expected by the appearance of new road..
3.	Pollution	
3.1	Air Pollution	-- / Some impact on the air pollution is expected by the temporary dust during construction and the increase of traffic volume in the new road of ring road during operation. However, the project aims at the dispersion of congested traffic.
3.2	Water Pollution	-- / Some impact are expected by the turbid water at the reclamation works in the swamp area of fish ponds.
3.3	Soil Contamination	0 / No action causing soil contamination.
3.4	Waste	0 / No action causing waste in the sea area.
3.5	Noise and Vibration	0 / Some action causing noise is expected during construction and operation stage, however, the construction works will be made during day time. The noise at the operation stage will be mitigated by the tree planting.
3.6	Land Subsidence	0 / No action causing land subsidence such as drawing-up of groundwater.
3.7	Odor	0 / No action causing odor.

Note:*: Categories for Evaluation (---: Serious impact is expected, --: Some impact is expected,
0: Impact level is very small or negligible, ?: Impact level is not clear, ++: Some positive impact of negative and positive is expected)

Table 2.2(7) Screening Checklist for Housing Sector

No.	Item	3-0 No Plan (Zero Option)	3-1 Housing Development in South-East Part
		Evaluation* / Reason for Evaluation	Evaluation* / Reason for Evaluation
1.	Social Environment		
1.1	Resettlement / Land Issue	0 / No action for land acquisition.	--- / The procedure for land consolidation and its final agreement with the residents is required.
1.2	Economic Activity	0 / No action causing the change of local economy.	++ / Some positive economy is expected by the employment during construction.
1.3	Traffic / Public facilities	0 / No action for the land traffic.	-- / Some impact on the traffic is expected during construction.
1.4	Split of Communities	0 / No action for split of the local communities	-- / Some impact on the split of communities are expected by the land consolidation.
1.5	Vulnerable People	0 / No action for causing the impacts on the socially vulnerable .people (e.g. woman, orphan, etc.)	-- / Some impact on vulnerable people such as widow, handicapped peoples and orphans are expected.
1.6	Cultural Properties	0 / No action for cultural properties.	? / Further survey for the location of cultural assets such as historical remains is required.
1.7	Water Right / Fishery Right	0 / No action of water intake or fishing.	0 / The project site has no water intake or fishing area.
1.8	Public Health	0 / No action causing the public health issue.	0 / No action relating to public health.
1.9	Hazard (Risk)	-- / The risk for the tsunami inundation will still remain when no measures for the housing sector.	-- / Some impact on hazard are expected by the construction works.
2.	Natural Environment		
2.1	Topography / Geology	0 / No action of changing the topography or geology.	0 / Large scaled excavation or embankment is expected.
2.2	Soil Erosion	0 / No action of reforestation causing soil erosion.	0 / No action of reforestation causing soil contamination.
2.3	Groundwater	0 / No action of drawing-up of groundwater	0 / No action of drawing-up of groundwater.
2.4	Hydrological Situation	0 / No action in river catchment area which may possibly change the hydrological situation.	0 / No action in river catchment area which may possibly change the hydrological situation.
2.5	Coastal Zone	0 / No action in coastal zone.	0 / No action in coastal zone.
2.6	Flora and Fauna	0 / No action causing the negative impact on flora and fauna.	0 / The project sites have already been urbanized and the identified species are commonly identified in other urban areas in Indonesia.
2.7	Meteorology	0 / No action for causing the change of the local meteorology.	0 / No action for causing the change of the local meteorology.
2.8	Landscape	0 / No action for changing the landscape.	0 / Small impact is expected on the landscape, however, its impact level will not cause severe problem.
3.	Pollution		
3.1	Air Pollution	0 / No action causing air pollution	-- / Some impact on air is expected by the dust during construction works.
3.2	Water Pollution	0 / No action causing water pollution	-- / Some impact on water pollution is expected because of the construction works and the operation of the facility. Appropriate treatment manners for water pollution is required.
3.3	Soil Contamination	0 / No action causing soil contamination	0 / No action of causing soil contamination.
3.4	Waste	0 / No action causing waste in the sea area.	-- / Appropriate treatment is required for the garbage generated in the new housing area.
3.5	Noise and Vibration	0 / No action causing noise and vibration..	0 / Some action causing noise is expected during construction, however, the construction works will be made during day time.
3.6	Land Subsidence	0 / No action causing land subsidence.	-- / Some impact on the land subsidence is expected. Appropriate construction manner for embankment is required.
3.7	Odor	0 / No action causing odor.	0 / No action of causing odor.

Note:*: Categories for Evaluation (---: Serious impact is expected, --: Some impact is expected, 0: Impact level is very small or negligible, ?: Impact level is not clear, ++: Some positive impact of negative and positive is expected)

Table 2.2(8) Screening Checklist for Water Supply Sector

No.	Item	4-0 No Plan (Zero Option)	4-1 Network Development of Water Supply Pipes
		Evaluation* / Reason for Evaluation	Evaluation* / Reason for Evaluation
1.	Social Environment		
1.1	Resettlement / Land Issue	0 / No action for land acquisition.	0 / Existing public area such as roads will be used.
1.2	Economic Activity	0 / No action causing the change of local economy.	++ / Some positive economy is expected by the employment during construction.
1.3	Traffic / Public facilities	0 / No action for the land traffic.	--/ Some impact on the traffic is expected during construction.
1.4	Split of Communities	0 / No action for split of the local communities	0 / No action for split of the local communities
1.5	Vulnerable People	0 / No action for causing the impacts on the socially vulnerable people.	0 / No action for causing the impacts on the socially vulnerable people.
1.6	Cultural Properties	0 / No action for cultural properties.	? / Further survey for the location of cultural assets such as historical remains is required.
1.7	Water Right / Fishery Right	0 / No action of water intake or fishing.	0 / No action for invading existing fishery right.
1.8	Public Health	-- / Some impact is expected from the existing unsanitary water.	0 / No action relating to public health.
1.9	Hazard (Risk)	-- / The risk for the tsunami inundation still remains when no measures is taken for mitigation of tsunami inundation.	-- / Some impact on hazard are expected by the construction works.
2.	Natural Environment		
2.1	Topography / Geology	0 / No action of changing the topography or geology.	0 / The scale of excavation is small.
2.2	Soil Erosion	0 / No action of reforestation causing soil erosion.	0 / No action of reforestation causing soil contamination.
2.3	Groundwater	0 / No action of drawing-up of groundwater	0 / No action of drawing-up of groundwater.
2.4	Hydrological Situation	0 / No action in river catchment area which may possibly change the hydrological situation.	0 / No action in river catchment area which may possibly change the hydrological situation.
2.5	Coastal Zone	0 / No action in coastal zone.	0 / No action in coastal zone.
2.6	Flora and Fauna	0 / No action causing the negative impact on flora and fauna.	0 / The project sites have already been urbanized and the identified species are commonly identified in other urban areas in Indonesia.
2.7	Meteorology	0 / No action for causing the change of the local meteorology.	0 / No action for causing the change of the local meteorology.
2.8	Landscape	0 / No action for changing the landscape.	0 / No action for changing the landscape.
3.	Pollution		
3.1	Air Pollution	0 / No action causing air pollution	-- / Some impact on air is expected by the dust during construction works.
3.2	Water Pollution	0 / No action causing water pollution	0 / No action causing water pollution
3.3	Soil Contamination	0 / No action causing soil contamination	0 / No action causing soil contamination.
3.4	Waste	0 / No action causing waste in the sea area.	0 / Excavation material will be backfilled.
3.5	Noise and Vibration	0 / No action causing noise and vibration..	0 / Some action causing noise is expected during construction, however, the construction works will be made during day time.
3.6	Land Subsidence	0 / No action causing land subsidence.	0 / No action causing land subsidence.
3.7	Odor	0 / No action causing odor.	0 / No action causing odor.

Note:*: Categories for Evaluation (---: Serious impact is expected, --: Some impact is expected, 0: Impact level is very small or negligible, ?: Impact level is not clear, ++: Some positive impact of negative and positive is expected)

Table 2.2(9) Screening Checklist for Urban Sanitation Sector (1)

No.	Item	5-0 No Plan (Zero Option) in the Sector	5-1 Expansion of Existing Human Excrement Treatment Plant	5-2 Small Scaled Wastewater Treatment Facility	5-3 Final Disposal Site for Municipal Solid Waste
		Evaluation* / Reason for Evaluation	Evaluation* / Reason for Evaluation	Evaluation* / Reason for Evaluation	Evaluation* / Reason for Evaluation
1.	Social Environment				
1.1	Resettlement / Land Issue	0 / No action for land acquisition	0 / Project site located in the existing plant area.	--- / The procedure for land acquisition and its final agreement with the residents is required.	--- / The procedure for land acquisition and its final agreement with the residents is required.
1.2	Economic Activity	0 / No action related to local economy.	++ / Some positive economy is expected by the employment during construction.	++ / Some positive economy is expected by the employment during construction.	++ / Some positive economy is expected by the employment during construction.
1.3	Traffic / Public facilities	0 / No action for the land traffic.	0 / Some impact on the traffic is expected during construction. However, the impact is very small since there is almost no traffic near the existing plant area.	-- / Some impact on the traffic are expected during construction.	-- / Some impact on the traffic are expected during construction and by the waste collection vehicle at operation.
1.4	Split of Communities	0 / No action for split of the local communities	0 / There is no housing near the existing plant area.	-- / Some impact on the split of communities are expected by above land acquisition.	-- / Some impact on split of the local communities by the land acquisition.
1.5	Vulnerable People	0 / No action for causing the impacts on the socially vulnerable .people.	0 / No action for causing the impacts on the socially vulnerable .people.	0 / No action for causing the impacts on the socially vulnerable .people.	0 / No action causing the impacts on the socially vulnerable people.
1.6	Cultural Properties	0 / No action for cultural properties.	0 / The project will not be located in the areas of cultural properties.	? / Further survey for the location of cultural assets such as historical remains is required.	? / Further survey for the location of cultural assets such as historical remains is required.
1.7	Water Right / Fishery Right	0 / No action of water intake and invading existing fishery right.	0 / No action of water intake and invading existing fishery right.	0 / No action of water intake and invading existing fishery right.	0 / No action of water intake and invading existing fishery right.
1.8	Public Health	-- / Unsanitary situation of post-tsunami public health will still remain.	0 / Sanitary situation will be improved by the project.	0 / Sanitary situation will be improved by the project.	-- / Some impact on public health are expected. Appropriate pest control will be necessary.
1.9	Hazard (Risk)	0 / No action for hazard.	-- / Some impact on hazard are expected by the construction works.	-- / Some impact on hazard are expected by the construction works.	-- / Some impact on hazard is expected by the construction works.
2.	Natural Environment				
2.1	Topography / Geology	0 / No action causing the change of topography.	0 / There will be no large scaled excavation.	0 / There will be no large scaled excavation.	-- / Some impact on topography are expected.
2.2	Soil Erosion	0 / No action of reforestation causing soil erosion.	0 / No action of reforestation causing soil erosion.	0 / No action of reforestation causing soil erosion.	-- / Some impact on soil erosion because of its wide area of tree cutting.
2.3	Groundwater	0 / No action of drawing-up of groundwater.	0 / No action of drawing-up of groundwater.	0 / No action of drawing-up of groundwater.	-- / Some impact on groundwater by its leachate water form the landfill.
2.4	Hydrological Situation	0 / No action in river catchment area which may possibly change the hydrological situation.	0 / No action in river catchment area which may possibly change the hydrological situation.	0 / No action in river catchment area which may possibly change the hydrological situation.	0 / Some impact on hydrological situation is expected. However, its impact is small.
2.5	Coastal Zone	0 / No action in coastal zone.	0 / No action in coastal zone.	0 / No action in coastal zone.	0 / No action in coastal zone.
2.6	Flora and Fauna	0 / No action causing the impact on flora and fauna	0 / No important flora and fauna since the project sites have already been developed.	0 / The project sites have already been urbanized and the identified species are commonly identified in other urban areas in Indonesia.	-- / Some impact on flora and fauna are expected in case of the areas which is rich in the species of flora and fauna. Further survey is required.
2.7	Meteorology	0 / No action for causing the change of the local meteorology.	0 / No action for causing the change of the local meteorology.	0 / No action for causing the change of the local meteorology.	0 / No action for causing the change of the local meteorology.
2.8	Landscape	0 / No action for changing the landscape.	0 / No action for changing the landscape.	0 / Small impact is expected on the landscape, however, its impact level will not cause severe problem.	0 / Small impact is expected on the landscape, however, its impact level will not cause severe problem.
3.	Pollution				
3.1	Air Pollution	0 / No action causing air pollution	-- / Some impact on air is expected by the dust during construction works.	-- / Some impact on air is expected by the dust during construction works.	-- / Some impact causing air pollution are expected by the construction works.
3.2	Water Pollution	-- / Dirty water is directly discharged to the water area.	0 / The treated water by the project will be discharged.	0 / The treated water by the project will be discharged.	-- / Some impact are expected by the leachate water from the garbage sediment.
3.3	Soil Contamination	0 / No action causing soil contamination.	0 / No action causing soil contamination.	0 / No action of causing soil contamination.	0 / No action of causing soil contamination.
3.4	Waste	0 / No action causing waste in the sea area.	0 / Sludge after the plant process will be disposed of at the final disposal site and its re-use will be made.	0 / Sludge after the plant process will be disposed of at the final disposal site and its re-use will be made.	-- / Some impact on the waste are expected by the treatment of solid waste.
3.5	Noise and Vibration	0 / No action causing noise and vibration..	0 / Some action causing noise is expected during construction, however, there is no housing near the project area.	0 / Some action causing noise is expected during construction, however, the construction works will be made during day time.	0 / Some action causing noise is expected during construction, however, the construction works will be made during day time.
3.6	Land Subsidence	0 / No action causing land subsidence such as drawing-up of groundwater.	0 / No action causing land subsidence such as drawing-up of groundwater.	0 / No action causing land subsidence such as drawing-up of groundwater.	0 / No action causing land subsidence such as drawing-up of groundwater.
3.7	Odor	-- / Some impact on the odor is expected.	-- / Some impact on odor are expected by the plant process.	-- / Some impact on odor are expected by the plant process.	-- / Some impact on odor are expected by the treatment of garbage.

Note:*: Categories for Evaluation (---: Serious impact is expected, --: Some impact is expected, 0: Impact level is very small or negligible, ?: Impact level is not clear, ++: Some positive impact of negative and positive is expected)

Table 2.2(10) Screening Checklist for Urban Sanitation Sector (2)

No.	Item	5-4 Recycling Facility for Municipal Solid Waste	5-5 Intermediate Treatment Facility for Municipal Solid Waste
		Evaluation* / Reason for Evaluation	Evaluation* / Reason for Evaluation
1.	Social Environment		
1.1	Resettlement / Land Issue	0 / Project site is located in the existing plant area.	0 / Project site is located in the existing plant area.
1.2	Economic Activity	++ / Some positive economy is expected by the employment during construction.	++ / Some positive economy is expected by the employment during construction.
1.3	Traffic / Public facilities	0 / Some impact on the traffic is expected during construction. However, the impact is very small since there is almost no traffic near the existing plant area.	0 / Some impact on the traffic are expected during construction. However, the impact is very small since there is almost no traffic near the existing plant area.
1.4	Split of Communities	0 / There is no housing near the existing plant area.	0 / No action for split of the local communities
1.5	Vulnerable People	0 / No action for causing the impacts on the socially vulnerable .people.	0 / No action for causing the impacts on the socially vulnerable .people.
1.6	Cultural Properties	0 / The project will not be located in the areas of cultural properties.	0 / The project will not be located in the areas of cultural properties.
1.7	Water Right / Fishery Right	0 / No action of water intake and invading existing fishery right.	0 / No action of water intake and invading existing fishery right.
1.8	Public Health	-- / Some impact on public health are expected. Appropriate pest control will be necessary.	-- / Some impact on public health are expected. Appropriate pest control will be necessary.
1.9	Hazard (Risk)	-- / Some impact on hazard are expected by the construction works.	-- / Some impact on hazard are expected by the construction works.
2.	Natural Environment		
2.1	Topography / Geology	0 / No action causing the change of topography.	0 / There will be no large scaled excavation.
2.2	Soil Erosion	0 / No action of reforestation causing soil erosion.	0 / No action of reforestation causing soil erosion.
2.3	Groundwater	0 / No action of drawing-up of groundwater.	0 / No action of drawing-up of groundwater.
2.4	Hydrological Situation	0 / No action in river catchment area which may possibly change the hydrological situation.	0 / No action in river catchment area which may possibly change the hydrological situation.
2.5	Coastal Zone	0 / No action in coastal zone.	0 / No action in coastal zone.
2.6	Flora and Fauna	0 / No important flora and fauna since the project sites have been already developed areas.	0 / No important flora and fauna since the project sites have already been developed areas.
2.7	Meteorology	0 / No action for causing the change of the local meteorology.	0 / No action for causing the change of the local meteorology.
2.8	Landscape	0 / No action for changing the landscape.	0 / No action for changing the landscape.
3.	Pollution		
3.1	Air Pollution	-- / Some impact on air is expected by the dust during construction works.	-- / Some impact on air is expected by the dust during construction works.
3.2	Water Pollution	0 / No action causing water pollution.	-- / Small impact on water pollution is expected from the leachate water from the plant.
3.3	Soil Contaminatio n	0 / No action causing soil contamination.	0 / No action causing soil contamination.
3.4	Waste	-- / Some impact on the waste are expected by the treatment of solid waste.	-- / Some impact on the waste are expected by the treatment of solid waste.
3.5	Noise and Vibration	0 / Some action causing noise is expected during construction, however, there is no housing near the project area.	0 / Some action causing noise is expected during construction, however, there is no housing near the project area.
3.6	Land Subsidence	0 / No action causing land subsidence such as drawing-up of groundwater.	0 / No action causing land subsidence such as drawing-up of groundwater.
3.7	Odor	-- / Some impact on odor are expected by the plant process.	-- / Some impact on odor are expected by the plant process.

Note:*: Categories for Evaluation (---: Serious impact is expected, --: Some impact is expected,
0: Impact level is very small or negligible, ?: Impact level is not clear, ++: Some positive impact of negative and positive is expected)

Table 2.2(11) Screening Checklist for Urban Drainage Sector

No.	Item	6-0 No Plan (Zero Option) in the Sector	6-1 River Normalization Works	6-2 Rehabilitation of Pumping Facilities	6-3 Installation of New Pumping Facilities
		Evaluation* / Reason for Evaluation	Evaluation* / Reason for Evaluation	Evaluation* / Reason for Evaluation	Evaluation* / Reason for Evaluation
1.	Social Environment				
1.1	Resettlement / Land Issue	0 / No action for land acquisition	0 / The project will be implemented in the existing water area of rivers.	0 / The project will be implemented in the existing facility area.	-- / The procedure for land acquisition and its final agreement with the residents is required.
1.2	Economic Activity	0 / No action related to local economy.	++ / Some positive economy is expected by the employment during construction.	++ / Some positive economy is expected by the employment during construction.	++ / Some positive economy is expected by the employment during construction.
1.3	Traffic / Public facilities	0 / No action for the land traffic.	-- / Some impact on river traffic are expected for fishing boats.	-- / Some impact on the traffic are expected during construction.	-- / Some impact on the traffic are expected during construction.
1.4	Split of Communities	0 / No action for split of the local communities	0 / No action for split of the local communities	0 / No action for split of the local communities	0 / No action for split of the local communities
1.5	Vulnerable People	0 / No action for causing the impacts on the socially vulnerable .people.	0 / No action for causing the impacts on the socially vulnerable .people.	0 / No action for causing the impacts on the socially vulnerable .people.	0 / No action for causing the impacts on the socially vulnerable .people.
1.6	Cultural Properties	0 / No action for cultural properties.	0 / No action for cultural properties.	0 / No cultural properties because of existing facility areas.	? / Further survey for the location of cultural assets such as historical remains is required.
1.7	Water Right / Fishery Right	0 / No action of water intake and invading existing fishery right.	0 / No fishery right in river.	0 / No action of water intake and invading existing fishery right.	0 / No action of water intake and invading existing fishery right.
1.8	Public Health	-- / Unsanitary situation will remain at flood inundation in case of no measures for urban drainage.	0 / Unsanitary situation will remain at flood inundation will be improved.	0 / Unsanitary situation will remain at flood inundation will be improved.	0 / Unsanitary situation will remain at flood inundation will be improved.
1.9	Hazard (Risk)	--- / The risk for flood inundation by rainfall and tidal water will remain in case of no measures for urban drainage.	0 / The risk for flood inundation will be reduced.	0 / The risk for flood inundation will be reduced.	0 / The risk for flood inundation will be reduced.
2.	Natural Environment				
2.1	Topography / Geology	0 / No action causing the change of topography.	0 / No action causing the change of topography.	0 / No action causing the change of topography.	0 / No action causing the change of topography.
2.2	Soil Erosion	0 / No action of reforestation causing soil erosion.	0 / No action of reforestation causing soil erosion.	0 / No action of reforestation causing soil erosion.	0 / No action of reforestation causing soil erosion.
2.3	Groundwater	0 / No action of drawing-up of groundwater.	0 / No action of drawing-up of groundwater.	0 / No action of drawing-up of groundwater.	0 / No action of drawing-up of groundwater.
2.4	Hydrological Situation	0 / No action in river catchment area which may possibly change the hydrological situation.	0 / No action in river catchment area which may possibly change the hydrological situation.	0 / No action in river catchment area which may possibly change the hydrological situation.	0 / No action in river catchment area which may possibly change the hydrological situation.
2.5	Coastal Zone	0 / No action in coastal zone.	0 / No action in coastal zone.	0 / No action in coastal zone.	0 / No action in coastal zone.
2.6	Flora and Fauna	0 / No action causing the impact on flora and fauna	0 / No action causing the impact on flora and fauna	0 / No action causing the impact on flora and fauna	0 / No action causing the impact on flora and fauna
2.7	Meteorology	0 / No action for causing the change of the local meteorology.	0 / No action for causing the change of the local meteorology.	0 / No action for causing the change of the local meteorology.	0 / No action for causing the change of the local meteorology.
2.8	Landscape	0 / No action for changing the landscape.	0 / No action for changing the landscape.	0 / No action for changing the landscape.	0 / No action for changing the landscape.
3.	Pollution				
3.1	Air Pollution	0 / No action causing air pollution	0 / No action causing air pollution	0 / No action causing air pollution	0 / No action causing air pollution
3.2	Water Pollution	0 / No action causing water pollution	0 / No action causing water pollution	0 / No action causing water pollution	0 / No action causing water pollution
3.3	Soil Contamination	0 / No action causing soil contamination	0 / No action causing soil contamination	0 / No action causing soil contamination	0 / No action causing soil contamination
3.4	Waste	0 / No action causing waste in the sea area.	-- / Some impact on waste are expected by the generation of dredging sludge.	0 / No action causing waste in the sea area.	0 / No action causing waste in the sea area.
3.5	Noise and Vibration	0 / No action causing noise and vibration..	0 / Some action causing noise is expected during river normalization works, however, it will be implemented during day time.	0 / Some action causing noise is expected during river normalization works, however, it will be implemented during day time.	0 / Some action causing noise is expected during river normalization works, however, it will be implemented during day time.
3.6	Land Subsidence	0 / No action causing land subsidence.	0 / No action causing land subsidence.	0 / No action causing land subsidence.	0 / No action causing land subsidence.
3.7	Odor	0 / No action causing odor.	0 / No action causing odor.	0 / No action causing odor.	0 / No action causing odor.

Note:*: Categories for Evaluation (---: Serious impact is expected, --: Some impact is expected, 0: Impact level is very small or negligible, ?: Impact level is not clear, ++: Some positive impact of negative and positive is expected)

Table 2.2(12) Screening Checklist for Education Sector

No.	Item	7-0 No Plan (Zero Option)	7-1 Rehabilitation of Existing Damaged Education Facilities	7-2 Reconstruction of Existing Education Facilities	7-3 Relocation of Existing Education Facilities
		Evaluation* / Reason for Evaluation	Evaluation* / Reason for Evaluation	Evaluation* / Reason for Evaluation	Evaluation* / Reason for Evaluation
1.	Social Environment				
1.1	Resettlement / Land Issue	0 / No action for land acquisition	0 / The project will be implemented in the existing facility area.	0 / The project will be implemented in the existing facility area.	--- / The procedure for land acquisition and its final agreement with the residents is required.
1.2	Economic Activity	0 / No action related to local economy.	++ / Some positive economy is expected by the employment during construction.	++ / Some positive economy is expected by the employment during construction.	++ / Some positive economy is expected by the employment during construction.
1.3	Traffic / Public facilities	0 / No action for the land traffic.	-- / Some impact on the traffic are expected during construction.	-- / Some impact on the traffic are expected during construction.	-- / Some impact on the traffic are expected during construction.
1.4	Split of Communities	0 / No action for split of the local communities	0 / No action for split of the local communities	0 / No action for split of the local communities	-- / Some impact on split of the local communities by the land acquisition.
1.5	Vulnerable People	-- / There will still remain some children who cannot take education service.	0 / The situation of equal opportunity for taking education will be improved.	0 / The situation of equal opportunity for taking education will be improved.	0 / The situation of equal opportunity for taking education will be improved.
1.6	Cultural Properties	0 / No action for causing the issues relating to cultural properties.	0 / No action for causing the issues relating to cultural properties.	0 / No action for causing the issues relating to cultural properties.	? / Further survey for the location of cultural assets such as historical remains is required.
1.7	Water Right / Fishery Right	0 / No action of water intake and invading existing fishery right.	0 / No action of water intake and invading existing fishery right.	0 / No action of water intake and invading existing fishery right.	0 / No action of water intake and invading existing fishery right.
1.8	Public Health	0 / No action causing the public health issue.	0 / No action causing the public health issue.	0 / No action causing the public health issue.	0 / No action causing the public health issue.
1.9	Hazard (Risk)	-- / The dangerous situation of school building will still remain when no measures for this sector	0 / The dangerous situation of school building will be improved.	0 / The dangerous situation of school building will be improved.	0 / The dangerous situation of school building will be improved.
2.	Natural Environment				
2.1	Topography / Geology	0 / No action causing the change of topography.	0 / No action causing the change of topography.	0 / No action causing the change of topography.	0 / No action causing the change of topography.
2.2	Soil Erosion	0 / No action of reforestation causing soil erosion.	0 / No action of reforestation causing soil erosion.	0 / No action of reforestation causing soil erosion.	0 / No action of reforestation causing soil erosion.
2.3	Groundwater	0 / No action of drawing-up of groundwater.	0 / No action of drawing-up of groundwater.	0 / No action of drawing-up of groundwater.	0 / No action of drawing-up of groundwater.
2.4	Hydrological Situation	0 / No action in river catchment area which may possibly change the hydrological situation.	0 / No action in river catchment area which may possibly change the hydrological situation.	0 / No action in river catchment area which may possibly change the hydrological situation.	0 / No action in river catchment area which may possibly change the hydrological situation.
2.5	Coastal Zone	0 / No action in coastal zone.	0 / No action in coastal zone.	0 / No action in coastal zone.	0 / No action in coastal zone.
2.6	Flora and Fauna	0 / No action causing the impact on flora and fauna	0 / No action causing the impact on flora and fauna	0 / No action causing the impact on flora and fauna	0 / No action causing the impact on flora and fauna
2.7	Meteorology	0 / No action for causing the change of the local meteorology.	0 / No action for causing the change of the local meteorology.	0 / No action for causing the change of the local meteorology.	0 / No action for causing the change of the local meteorology.
2.8	Landscape	0 / No action for changing the landscape.	0 / No action for changing the landscape.	0 / No action for changing the landscape.	0 / No action for changing the landscape.
3.	Pollution				
3.1	Air Pollution	0 / No action causing air pollution	0 / No action causing air pollution	0 / No action causing air pollution	-- / Some impact on air are expected by the dust during construction works.
3.2	Water Pollution	0 / No action causing water pollution	0 / No action causing water pollution	0 / No action causing water pollution	0 / No action causing water pollution
3.3	Soil Contamination	0 / No action causing soil contamination	0 / No action causing soil contamination	0 / No action causing soil contamination	0 / No action causing soil contamination
3.4	Waste	0 / No action causing waste in the sea area.	0 / No action causing waste in the sea area.	0 / No action causing waste in the sea area.	0 / No action causing waste in the sea area.
3.5	Noise and Vibration	0 / No action causing noise and vibration..	0 / Some action causing noise is expected during construction, however, the construction works will be made during day time.	0 / Some action causing noise is expected during construction, however, the construction works will be made during day time.	0 / Some action causing noise is expected during construction, however, the construction works will be made during day time.
3.6	Land Subsidence	0 / No action causing land subsidence.	0 / No action causing land subsidence.	0 / No action causing land subsidence.	0 / No action causing land subsidence.
3.7	Odor	0 / No action causing odor.	0 / No action causing odor.	0 / No action causing odor.	0 / No action causing odor.

Note:*: Categories for Evaluation (---: Serious impact is expected, --: Some impact is expected, 0: Impact level is very small or negligible, ?: Impact level is not clear, ++: Some positive impact of negative and positive is expected)

Table 2.2(13) Screening Checklist for Health and Medical Sector

No.	Item	8-0 No Plan (Zero Option)	8-1 Rehabilitation / Reconstruction of Existing Damaged Hospitals	8-2 New Construction of Hospitals	8-3 New Construction of Health Center
		Evaluation* / Reason for Evaluation	Evaluation* / Reason for Evaluation	Evaluation* / Reason for Evaluation	Evaluation* / Reason for Evaluation
1.	Social Environment				
1.1	Resettlement / Land Issue	0 / No action for land acquisition	0 / The project will be implemented in the existing facility area.	-- / The site for relocation is already identified, however, the situation on land acquisition is not clear.	-- / The procedure for land acquisition and its final agreement with the residents is required for the case of health center.
1.2	Economic Activity	0 / No action related to local economy.	++ / Some positive economy is expected by the employment during construction.	++ / Some positive economy is expected by the employment during construction.	++ / Some positive economy is expected by the employment during construction.
1.3	Traffic / Public facilities	0 / No action for the land traffic.	-- / Some impact on the traffic are expected during construction.	-- / Some impact on the traffic are expected during construction.	-- / Some impact on the traffic are expected during construction.
1.4	Split of Communities	0 / No action for split of the local communities	0 / No action for split of the local communities	0 / No action for split of the local communities	0 / No action for split of the local communities
1.5	Vulnerable People	-- / There will still remain some patients who cannot take health service.	0 / The situation of equal opportunity for taking health service will be improved.	0 / The situation of equal opportunity for taking health service will be improved.	0 / The situation of equal opportunity for taking health service will be improved.
1.6	Cultural Properties	0 / No action for causing the issues relating to cultural properties.	0 / No action for causing the issues relating to cultural properties.	0 / No action for causing the issues relating to cultural properties.	? / Further survey for the location of cultural assets such as historical remains is required.for health center.
1.7	Water Right / Fishery Right	0 / No action of water intake and invading existing fishery right.	0 / No action of water intake and invading existing fishery right.	0 / No action of water intake and invading existing fishery right.	0 / No action of water intake and invading existing fishery right.
1.8	Public Health	-- / The mitigation for infectious diseases will not be improved.	0 / No action of causing the public health issue.	0 / No action causing the public health issue.	0 / No action causing the public health issue.
1.9	Hazard (Risk)	-- / The dangerous situation of health facilities will still remain when no measures for health sector.	0 / The dangerous situation of hospital facilities will be improved.	0 / The dangerous situation of hospital facilities will be improved.	0 / The dangerous situation of hospital facilities will be improved.
2.	Natural Environment				
2.1	Topography / Geology	0 / No action causing the change of topography.	0 / No action causing the change of topography.	0 / No action causing the change of topography.	0 / No action causing the change of topography.
2.2	Soil Erosion	0 / No action of reforestation causing soil erosion.	0 / No action of reforestation causing soil erosion.	0 / No action of reforestation causing soil erosion.	0 / No action of reforestation causing soil erosion.
2.3	Groundwater	0 / No action of drawing-up of groundwater.	0 / No action of drawing-up of groundwater.	0 / No action of drawing-up of groundwater.	0 / No action of drawing-up of groundwater.
2.4	Hydrological Situation	0 / No action in river catchment area which may possibly change the hydrological situation.	0 / No action in river catchment area which may possibly change the hydrological situation.	0 / No action in river catchment area which may possibly change the hydrological situation.	0 / No action in river catchment area which may possibly change the hydrological situation.
2.5	Coastal Zone	0 / No action in coastal zone.	0 / No action in coastal zone.	0 / No action in coastal zone.	0 / No action in coastal zone.
2.6	Flora and Fauna	0 / No action causing the impact on flora and fauna	0 / No action causing the impact on flora and fauna because of the existing land area.	0 / No action causing the impact on flora and fauna	0 / No action causing the impact on flora and fauna
2.7	Meteorology	0 / No action for causing the change of the local meteorology.	0 / No action for causing the change of the local meteorology.	0 / No action for causing the change of the local meteorology.	0 / No action for causing the change of the local meteorology.
2.8	Landscape	0 / No action for changing the landscape.	0 / No action for changing the landscape.	0 / No action for changing the landscape.	0 / No action for changing the landscape.
3.	Pollution				
3.1	Air Pollution	0 / No action causing air pollution	0 / No action causing air pollution	-- / Some impact on air are expected by the dust during construction works.	-- / Some impact on air are expected by the dust during construction works.
3.2	Water Pollution	0 / No action causing water pollution	0 / No action causing water pollution	0 / No action causing water pollution The wastewater is treated appropriately.	0 / No action causing water pollution The wastewater is treated appropriately.
3.3	Soil Contamination	0 / No action causing soil contamination	0 / No action causing soil contamination	0 / No action causing soil contamination	0 / No action causing soil contamination
3.4	Waste	-- / Some impact are expected by the damaged hospital wastes.	0 / Hospital waste will be treated by incinerator.	-- / Some impact are expected by the treatment manners of hospital waste.	-- / Some impact are expected by the treatment manners of hospital waste.
3.5	Noise and Vibration	0 / No action causing noise and vibration..	0 / Some action causing noise is expected during construction, however, the construction works will be made during day time.	0 / Some action causing noise is expected during construction, however, the construction works will be made during day time.	0 / Some action causing noise is expected during construction, however, the construction works will be made during day time.
3.6	Land Subsidence	0 / No action causing land subsidence.	0 / No action causing land subsidence.	0 / No action causing land subsidence.	0 / No action causing land subsidence.
3.7	Odor	0 / No action causing odor.	0 / No action causing odor.	0 / No action causing odor.	0 / No action causing odor.

Note:*: Categories for Evaluation (---: Serious impact is expected, --: Some impact is expected, 0: Impact level is very small or negligible, ?: Impact level is not clear, ++: Some positive impact of negative and positive is expected)

2.2.2 Screening for the Urgent Rehabilitation and Reconstruction Plan

The screening was made for the plan by the JICA Guideline for Environmental and Social Consideration (JICA Guideline) on the viewpoints of the following items.

- Possible negative impact on environment based on the results of the screening checklist
- Comments in the stakeholder meetings relating to the plan
- Legal requirement on EIA based on Indonesian laws/regulation

The following three categories are used for screening based on JICA Guideline;

- Category A: The projects which are likely to have significant adverse impacts
- Category B: The projects which are likely to have less adverse impacts than those of Category A projects.
- Category C: The projects which are likely to have minimal or no adverse impacts.

The result of above screening is shown in Table 2.3.

The following projects in road/transportation, housing, urban sanitation sectors can be classified as Category A projects, taking into consideration the social impacts such as the requirement of land acquisition, appropriate coordination/agreement with residents and other significant adverse impacts.

- Construction/Extension of arterial and escape roads
- New construction of Ring Road
- Housing development in southeast area of Banda Aceh City
- Final disposal site for municipal solid waste
- New construction of hospitals

Above projects should require appropriate coordination with local residents for land acquisition or consolidation and procedure for EIA.

Table 2.3 Screening Table for the Rehabilitation and Reconstruction Plan

No.	Sector / Plan	Major Negative Impacts from Screening Checklist	Relevant Comments in Stakeholder Meetings	Requirement in Indonesian Laws/legislation for EIA	Screening	Reasons for Final Screening
1.Disaster Mitigation Sector						
1-1 Structural Measures						
1-1-1	Detached Breakwater	Sea traffic, cultural properties, hazard risk during construction, coastal zone, flora and fauna of coastal ecosystem	The reconstruction plan should consider the minimization of the risk of future disasters.	Breakwater over 200 m shall require EIA.	B	Negative impact is expected especially on coastal ecosystem. EIA is required in Indonesian legislation by its scale.
1-1-2	Seawall	Sea traffic, hazard risk during construction, coastal zone, flora and fauna of coastal ecosystem	- ditto-	The coastal disaster mitigation facilities (e.g. Sea wall, Tide-water control gate) with the stretch line over 500 m shall require EIA.	B	Negative impact is expected especially on coastal ecosystem. EIA is required in Indonesian legislation by its scale.
1-1-3	Coastal Forest	Cultural properties, fishery right of aquaculture	Mangrove cannot be a good protection for protection from tsunami.	EIA requirement for the greenbelt consisting of mangrove or palm trees is not clear and should require more examinations.	B	The environmental impact is lower than 1-1-1, 1-1-2 and 1-1-4. However, some impact on fishery right in fishpond is expected.
1-1-4	Tidal Gate	Sea traffic, cultural properties, hazard risk during construction, coastal zone, flora and fauna of coastal ecosystem	The reconstruction plan should consider the minimization of the risk of future disasters.	The coastal disaster mitigation facilities (e.g. Sea wall, Tide-water control gate) with the stretch line over 500 m shall require EIA.	B	Negative impact is expected especially on coastal ecosystem. EIA is required in Indonesian legislation by its scale.
1-2 Emergency Facility						
1-2-1	Escape Building / Escape Tower	Resettlement/land, traffic, socially vulnerably people (e.g. handicapped persons)	The reconstruction plan should consider the minimization of the risk of future disasters.	Open space over 5 ha or building over 10,000 m^2 shall require EIA.	B	Resettlement or land acquisition is necessary in case of new lands. Some care for the use by the socially vulnerable people. EIA is required depending the project scale.
1-2-2	Evacuation Open Space	Resettlement/land, traffic, waste management	- ditto-	Open space over 5 ha or building over 10,000 m^2 shall require EIA.	B	Resettlement or land acquisition is necessary in case of new lands. The appropriate waste management is necessary.
1-2-3	Tsunami Park	Resettlement/land, traffic, waste management	- ditto-	Open space over 5 ha or building over 10,000 m^2 shall require EIA.	B	Resettlement or land acquisition is necessary in case of new lands. The appropriate waste management is necessary.
2. Road / Transportation Sector						
2-1	Rehabilitation of Existing Arterial Roads and Bridges (including escape building)	Traffic, air pollution	The economy cannot revive without infrastructure development such as roads.	EIA is not required, and the rehabilitation over 10 km shall require UKL/UPL.	C	Severe negative impact is not expected. EIA is not required.
2-2	Rehabilitation of	Traffic	- ditto-	EIA is not required.	C	Negative impact is smallest in this sector.

	Signal System					
2-3	Construction / Extension of Arterial Roads & Escape Roads	Resettlement/land, traffic, split of local communities, air pollution, waste management	- ditto-	Construction / Extension of roads over 10km shall require EIA*[2]	A	Wide-ranging negative impacts are expected. Special care is required for land management. Stakeholder meetings and final agreement with local residents and land owners is essential. EIA is necessary depending on its scale.
2-4	New Construction of Ring Road	Resettlement/land, traffic, split of local communities, fishery right, air pollution, waste management	The development of ring road should need the agreement with the residents.	Construction / Extension of roads over 10km shall require EIA*[2]	A	Wide-ranging negative impacts are expected. However, the impact level is severer compared to 2-3. Special care is required for land management. Stakeholder meetings and final agreement with local residents and land owners is essential. EIA is necessary depending on its scale.
3. Housing						
3-1	Housing Development in South-East Part	Resettlement/land, traffic, split of local communities, air pollution, water pollution, waste management	The relocation of communities should be made in democratic process. Environmental infrastructure such as drainage and waste management system is important for housing sector.	New construction of resettlement with removed household over 200 or coverage area over 100 ha shall require EIA.	A	Wide-ranging negative impacts is expected, especially the special care is required for the coordination of local residents and land management. EIA is necessary depending on its scale.
4. Water Supply						
4-1	Network Development of Water Supply Pipes	Traffic, hazard during construction, air pollution during construction	The water quality of shallow well in Ulee Lhee is not healthy for drinking and need more research.	Development of water pipe network over 10 km shall require EIA.	B	Some impact on traffic and the hazard risk during construction are expected.
5 Urban Sanitation						
5-1	Expansion of Existing Human Excrement Treatment Plant	Hazard during construction, air pollution during construction, odor	N/A	Human excrement treatment plant with area over 2 ha shall require EIA.	B	Some negative impact is expected. EIA is required depending on its project scale.
5-2	Small Scaled Wastewater Treatment Facility	Resettlement/land, traffic, hazard during construction, air pollution, odor	Sewerage system should be built in the city area.	Wastewater treatment plant with area over 3 ha shall require EIA.	B	Land acquisition is necessary, some impact on hazard during construction odor. EIA is required depending its project scale.
5-3	Final Disposal Site for Municipal Solid Waste	Resettlement/land, traffic, split of local communities, air pollution, water pollution, waste management, odor	The final landfill site should consider the criteria of government decree. The tsunami waste should be cleaned up.	Sanitary landfill with area over 10 ha shall require EIA. All open dumping landfill shall require EIA.	A	Wide-ranging negative impacts are expected. EIA is required depending on its scale and disposal method.
5-4	Recycling Facility for Municipal Solid Waste	Public health, hazard during construction, waste management and odor	N/A	Recycling facility shall require UKL/UPL.	B	Some negative impact on environment.

5-5	Intermediate Treatment Facility for Municipal Solid Waste	Public health, hazard during construction, waste management and odor	N/A	Intermediate treatment facility such as transfer station with capacity 1,000 ton/day shall require EIA	B	Some negative impact on environment. EIA is required depending on its project scale.
6 Urban Drainage						
6-1	River Normalization Works	Ship traffic, waste	The plans should include the issue of floods. The buildings in the drainage areas will block the flow of flood water and wastewater.	River normalization work with length over 10 km or dredging volume over 500,000 m^3 shall require EIA	B	Some negative impact is expected. EIA is required depending on its project scale.
6-2	Rehabilitation of Pumping Facilities	Inland traffic	- ditto-	EIA requirement is not clear and should require more examinations.	C	No major negative impact and no regulation on EIA requirement. However, no severe negative impact is expected.
6-3	Installation of New Pumping Facilities	Resettlement/land, traffic	- ditto-	- ditto-	B	Some negative impact is expected. Legal requirement on EIA should be further examined.
7 Education						
7-1	Rehabilitation of Existing Damaged Education Facilities	Traffic	All schools in Kuta Raja were destroyed. Primary schools should be constructed as soon as possible.	No regulation on rehabilitation.	C	No severe negative impact is expected.
7-2	Reconstruction of Existing Damaged Education Facilities	Traffic	- ditto-	No regulation on reconstruction.	C	No severe negative impact is expected.
7-3	Relocation of Existing Education Facilities	Resettlement, traffic, split of local communities	- ditto-	Education facilities with land are over 5 ha or building coverage over 10,000 m^2 shall require EIA	B	Land acquisition is necessary. EIA is required depending on its project scale.
8 Health and Medical						
8-1	Rehabilitation / Reconstruction of Existing Damaged Hospitals	Traffic	N/A	No regulation on rehabilitation/reconstruction of hospitals.	B	Some negative impact is expected.
8-2	New Construction of Hospitals	Resettlement, traffic, air pollution, waste	N/A	Construction of hospital requires EIA.	A	Land acquisition is necessary. EIA is required.
8-3	New Construction of Health Center	Resettlement, traffic, air pollution, waste	N/A	No regulation on health center.	B	Land acquisition is necessary. The requirement on EIA should be examined.

Notes:
*1, *2: For medium-sized of the population of 100,000 to 500,000

2.2.3 Scoping for the Rehabilitation and Reconstruction Plan

The scoping was made for the expected impacts to be caused by the projects in order to determine the study / survey method and the mitigation measures including its alternatives. The scoping was made by using checklist method. The results of the scoping are shown in Table 2.4.

The new construction of ring road and the new housing development will have the severe impact on the resettlement/land issue by the project proponents' activity of land acquisition and consolidation. The project of final disposal of municipal solid waste has the wide-range environmental impact on resettlement/land, natural environment such as flora and fauna, water pollution and odor.

The project proponents' information disclosures, consultation meetings and agreement with local residents will be necessary for the mitigation measures for land acquisition. The project of final disposal site of municipal solid waste should conduct the wide-ranging survey / study not only the natural environment of topography, reforestation, flora and fauna but also the pollution issues of wastewater treatment, waste and odor.

Table 2.4 Scoping Results for the Rehabilitation and Reconstruction Plan

No.	Sector / Project	Major Possible Impacts at Each Stage			Study / Survey Method for Possible Impacts	Possible Mitigation Measures
		Pre-construction	Construction	Operation		
1.	Disaster Mitigation Sector					
1-1	Structural Measures					
1-1-1	Detached Breakwater		Sea traffic, Hazard risk, Coastal zone, Flora and Fauna	Coastal zone, Flora and Fauna	Navigation survey before construction, Bathymetric survey, Survey for physical and biological marine environment survey such as tidal current, velocity, flora and fauna	Meetings with fishermen, structure design alternatives for conservation of marine ecosystem for prevention closed sea area, Establishment of safety measures for accidents during construction
1-1-2	Seawall		- ditto -	- ditto -	- ditto -	- ditto -
1-1-3	Coastal Forest	Fishery right of aquaculture	Cultural/historical properties, fishery right of aquaculture	Fishery right of aquaculture	Test excavation before construction at project sites near the cultural properties, Interview survey with fishermen	Planting methods by changing its density and type of species, Meetings and agreement regarding compensation with fishermen
1-1-4	Tidal Gate		Sea traffic, cultural properties, hazard risk during construction, coastal zone, flora and fauna of coastal ecosystem	coastal zone, flora and fauna of coastal ecosystem	Navigation survey before construction, Bathymetric survey, Survey for physical and biological marine environment such as tidal current, velocity, flora and fauna	Meetings with fishermen, Structure allotment for prevention closed sea area, Establishment of safety measures for accidents during construction.
1-2	Emergency Facility Plan					
1-2-1	Escape Building / Escape Tower	Resettlement/land, traffic	Traffic	Socially vulnerably people (e.g. handicapped persons)	Land boundary/registration survey, traffic survey, interview survey with handicapped persons	Meetings and agreement with land owners and residents, Facility design alternatives to take care of handicapped persons
1-2-2	Evacuation Open Space	Resettlement/land	- ditto -	Waste management	Land boundary/registration survey, traffic survey, waste generation forecast survey	Meetings and agreement with land owners and residents, Facility plan alternatives to reduce waste quantity
1-2-3	Tsunami Park	- ditto -	- ditto -	- ditto -	- ditto -	- ditto -
2.	Road / Transportation Sector					
2-1	Rehabilitation of Existing Arterial Roads and Bridges (including Escape Bridge)		Traffic, air pollution	Air pollution	Traffic volume survey, traffic volume forecast, monitoring	Alternative road plan for appropriate traffic volume, water spray during construction
2-2	Construction / Extension of Arterial Roads & Escape Roads	Resettlement/land, traffic, air pollution, waste management	Split of local communities, air pollution, waste management	- ditto -	- ditto -	Meetings and agreement with land owners and residents, alternative road plan for appropriate traffic volume, water spray during construction
2-3	New Construction of Ring Road	Resettlement/land	Split of local communities, fishery right for	Air pollution, fishery right for aquaculture	Land boundary/registration survey, Interview survey with aquaculture fishermen, traffic volume forecast, monitoring	Meetings and agreement with land owners, fishermen and residents. Alternative road plans for appropriate traffic volume.

			aquaculture fishermen, air pollution, waste management	fishermen		Water spray during construction
3.	Housing					
3-1	Housing Development in South-East Part	Resettlement/land	Split of local communities, air pollution, waste management	Split of local communities, air pollution, water pollution, waste management	Land boundary/registration survey, traffic volume survey and forecast, monitoring	Meetings and agreement with land owners and residents, facility alternatives for appropriate wastewater treatment and waste management. Water spray during construction
4.	Water Supply					
4-1	Network Development of Water Supply Pipes		Traffic, hazard during construction, air pollution during construction		Traffic volume survey and forecast, monitoring	Appropriate traffic control, Water spray during construction
5.	Urban Sanitation					
5-1	Expansion of Existing Human Excrement Treatment Plant		Hazard during construction, air pollution during construction	Odor	Monitoring	Establishment of safety measures for accidents, water spray during construction
5-2	Small Scaled Wastewater Treatment Facility	Resettlement/land	Traffic, hazard during construction, air pollution	- ditto -	Land boundary/registration survey, traffic volume survey and forecast, monitoring	Meetings and agreement with land owners and residents, appropriate traffic control, facility alternatives for appropriate odor management
5-3	Final Disposal Site for Municipal Solid Waste	Resettlement/land , traffic	Split of local communities, air pollution	Water pollution, public health, waste management, odor	Land boundary/registration survey, traffic volume survey and forecast, monitoring	Meetings and agreement with land owners and residents, appropriate traffic control, facility alternatives for appropriate waste odor management and pest control
5-4	Recycling Facility for Municipal Solid Waste		Hazard during construction	Public health, waste management and odor	Monitoring	Establishment of safety measures for accidents, facility alternatives for appropriate waste odor management and pest control
5-5	Intermediate Treatment Facility for Municipal Solid Waste		- ditto -	- ditto -	- ditto -	- ditto -
6.	Urban Drainage					
6-1	River Normalization Works		Ship traffic, waste		Navigation survey before construction, monitoring	Traffic control for ship, Recycling or reuse of dredging material
6-2	Rehabilitation of Pumping Facilities		Inland traffic		Traffic volume survey	Traffic control during construction
6-3	Installation of New Pumping Facilities	Resettlement/land	Inland traffic		Land boundary/registration survey, traffic volume survey	Meetings and agreement with land owners and residents
7.	Education					
7-1	Rehabilitation of Existing Damaged Education Facilities		Traffic		Traffic volume survey	Traffic control during construction
7-2	Reconstruction of Existing		Traffic		Traffic volume survey	Traffic control during construction

	Damaged Education Facilities					
7-3	Relocation of Existing Education Facilities	Resettlement/land	Traffic, split of local communities		Land boundary/registration survey, traffic volume survey	Meetings and agreement with land owners and residents
8.	Health and Medical					
8-1	Rehabilitation / Reconstruction of Existing Damaged Hospitals		Traffic		Traffic volume survey	Traffic control during construction
8-2	New Construction of Hospitals	Resettlement/land	Traffic, air pollution	waste	Land boundary/registration survey, traffic volume survey	Meetings and agreement with land owners and residents, Traffic control during construction, water sprinkling, appropriate waste management of hospital waste
8-3	New Construction of Health Center		- ditto -	- ditto -	- ditto -	- ditto -

CHAPTER 3 IMPLEMENTATION PROGRAM IN ENVIRONMENTAL SECTOR

The valuable ecosystem of pre-tsunami mangrove was destroyed by the disaster, and the operation of environment-related agencies was also heavily damaged. Considerable number of staffs of the relevant authorities died and the equipment of their operation was damaged or washed away. Two major authorities, Environmental Impact Management Agency in Banda Aceh municipality (*Kota Bapedalda*) and Forestry Department (*Dinas Kehutanan*) in Aceh Province are involved in environmental sector. *Kota Bapedalda* is responsible for environmental management in Banda Aceh city, and *Dinas Kehutanan* is responsible for the forest conservation including coastal ecosystem such as mangrove and coral reef in Banda Aceh.

The local environmental management capacity is essential for the rehabilitation and reconstruction program, for data collection, EIA, licensing, environmental monitoring, ecosystem management.

Following future program will be required in environment sector:

- Capacity building of *Kota Bapedalda* and *Dinas Kehutanan* consisting of reinforcement of its staffs, training and procurement of equipment (e.g. computer, printer, car)
- Conservation of coastal ecosystem in Banda Ache composing of 1) macro/micro base plan/study for mangrove ecosystem and other coastal vegetation, and 2) the implementation of their conservation.

APPENDIX 10

PROJECT OUTLINE OF PRIORITY PROJECTS

URBAN SANITATION AND DRAINAGE

Project Outline

Code No.	Name of Project & Program:	Sector:	Location:
SD-1	Urgent Recovery for Primary Drain Facilities	Urban Sanitation and Drainage	N/A (a several sites are nominated, but not determined at this moment)

Implementation Body:	Ministry in charge	Project cost		Rp. billion	Target group and beneficiaries:
					Whole residents living in Banda Aceh city
Departemen Pekerjaan Umum, Kota Banda Aceh (PU, Dinas)	Badan Rehabilitasi dan Rekonstruksi (BRR), PU		Total	204.13	Major benefit or effect; necessities: Prevention of flood damage, hygiene disease
Operation and Maintenance Body:	Priority:				Financial assistance: Urgently Needed
Departemen Pekerjaan Umum, Kota Banda Aceh (PU, Dinas)	(High) Medium Low				Technical assistance: Needed

Outline of project & programs: Major components:

By the disaster, most of drain facilities have been suffered and devastated, at least main pump facilities and primary channels directly affected to inhabiting areas are very impending factor.
As for urgent recovery, 4 pumping drainage and adjacent drainage areas targeted to be implemented.

- Recovery of 4 pump facilities
- Recovery of major primary channels
- Construction of retarding ponds
- Recovery of important water gates
- Dredge works for congested channels

Environmental and Social impact:

Construction works are done at the same site existing facilities located. Basically no significant changes are expected. When constructing retarding ponds, EIA is necessary.

Public / Community Consultation:

Implementation schedule:	2005	2006	2007	2008	2009	Long term
Preparation	▬					
Design	▬	▬				
Construction		▬	▬			
Project Cost (billion Rp.)	2.04	120.44	81.65			Total: (billion Rp.204.13) Operation and Maintenance Cost (billion Rp./year): Cost Recovery:

URBAN SANITATION AND DRAINAGE

Project Outline

Code No.	Name of Project & Program:	Sector:	Location:
SD-2	Rehabilitation of Primary Drain Facilities	Urban Sanitation and Drainage	N/A (a several sites are nominated, but not determined at this moment)

Implementation Body:	Ministry in charge	Project cost		Rp. billion	Target group and beneficiaries:
					Whole residents living in Banda Aceh city
Departemen Pekerjaan Umum, Kota Banda Aceh (PU, Dinas)	Badan Rehabilitasi dan Rekonstruksi (BRR), PU		Total	54.37	Major benefit or effect; necessities: Prevention of flood damage, hygiene disease
Operation and Maintenance Body:	Priority:				Financial assistance: Urgently Needed
Departemen Pekerjaan Umum, Kota Banda Aceh (PU, Dinas)	(High) Medium Low				Technical assistance: Needed

Outline of project & programs: Major components:

As for rehabilitation, remaining broken pumping drainages and primary channels are targeted.

- Reconstruction of 4 pump facilities
- Reconstruction of damaged primary channels
- Reconstruction of damaged water gates
- Dredge works for congested channels

Environmental and Social impact:

Construction works are done at the same site existing facilities located. Basically no significant changes are expected.

Public / Community Consultation:

Implementation schedule:	2005	2006	2007	2008	2009	Long term
Preparation	—					
Design		—				
Construction			—			
Project Cost (billion Rp.)		13.05	41.32			Total: (billion Rp.54.37) Operation and Maintenance Cost (billion Rp./year): Cost Recovery:

URBAN SANITATION AND DRAINAGE

Project Outline

Code No.	Name of Project & Program:	Sector:	Location:
SD-3	Reconstruction of Drainage Facilities in Devastated Area	Urban Sanitation and Drainage	N/A (a several sites are nominated, but not determined at this moment)

Implementation Body:	Ministry in charge	Project cost		Rp. billion	Target group and beneficiaries:
					Whole residents living in Banda Aceh city
Departemen Pekerjaan Umum, Kota Banda Aceh (PU, Dinas)	Badan Rehabilitasi dan Rekonstruksi (BRR), PU		Total	8.50	Major benefit or effect; necessities: Prevention of flood damage, hygiene disease
Operation and Maintenance Body:	Priority:				Financial assistance: Urgently Needed
Departemen Pekerjaan Umum, Kota Banda Aceh (PU, Dinas)	High (Medium) Low				Technical assistance: Needed

Outline of project & programs: Major components:

Reconstruction of damaged drain system and installation of new primary channels along to designed outer ring road at buffer zone.

- Reconstruction of damaged primary channels at devastated areas
- Reconstruction of damaged water gates at devastated areas
- Installation of new primary channels along to outer ring road
- Dredge works for congested channels

Environmental and Social impact:

Construction works are done at the same site existing facilities located. Basically no significant changes are expected.

Public / Community Consultation:

Implementation schedule:	2005	2006	2007	2008	2009	Long term
Preparation		—				
Design			—			
Construction				—	—	
Project Cost (billion Rp.)			0.43	4.07	4.00	Total: (billion Rp.8.50) Operation and Maintenance Cost (billion Rp./year): Cost Recovery:

URBAN SANITATION AND DRAINAGE

Project Outline

Code No.	Name of Project & Program:	Sector:	Location:
SD-4	Reconstruction of Sewer System for City Central	Urban Sanitation and Drainage	Kanpung Jawa, Kecamatan Kuta Raja

Implementation Body:	Ministry in charge	Project cost		Rp. billion	Target group and beneficiaries:
					Whole residents living in Banda Aceh city
Dinas Kebershihan dan Pertamanan (DKP)	Badan Rehabilitasi dan Rekonstruksi (BRR), PU		Total	325.25	Major benefit or effect; necessities: Improvement of hygiene environment
Operation and Maintenance Body:	Priority:				Financial assistance: Needed
Dinas Kebershihan dan Pertamanan (DKP)	High Medium Low				Technical assistance: Needed

Outline of project & programs: Major components:

To improve sanitary environment and prevent from hygiene oriented diseases sewer system will be introduced into city central district based on existing master plan. Construction conduits networks and sewage treatment plant. Estimated capacity is 10,800m3/day for wastewater treatment plant.

- Construction of sanitary pipes into areas of 349ha
- Construction of primary conduits
- Construction of relay pump station
- Construction of wastewater treatment plant; 6 series of oxidation ditches, 3 final sedimentation tanks, chlorine mixing channel
- Construction of sludge dehydrator and composting yards

Environmental and Social impact:

No significant environmental and social impacts counted because a series of recovery works will be done adjacent to existing IPLT.

Public / Community Consultation:

Implementation schedule:	2005	2006	2007	2008	2009	Long term
Preparation			—			
Design				—		
Construction					—	Construction will continue at least 2 years (-2011)
Project Cost (billion Rp.)				16.26	97.58	Total: (billion Rp.325.25) Operation and Maintenance Cost (billion Rp./year): Cost Recovery:

URBAN SANITATION AND DRAINAGE

Project Outline

Code No.	Name of Project & Program:	Sector:	Location:
SD-5	Rehabilitation of Expansion IPLT (Human Excrement Treatment Plant)	Urban Sanitation and Drainage	Kanpung Jawa, Kecamatan Kuta Raja

Implementation Body:	Ministry in charge	Project cost		Rp. billion	Target group and beneficiaries:
					Whole residents living in Banda Aceh city
UNICEF, IRD (International Relief and Development)	Badan Rehabilitasi dan Rekonstruksi (BRR), PU		Total	4.51	Major benefit or effect; necessities: Improvement of hygiene environment
Operation and Maintenance Body:	Priority:				Financial assistance: Urgently needed
Dinas Kebershihan dan Pertamanan (DKP)	(High) Medium Low				Technical assistance: Needed

Outline of project & programs: Major components:

Existing IPLT has not sufficient capacity to treat whole amount of sludge generated in the city, constructing expansion unit is also impending issue to conduct ideal treatment.

Construction of expansion treatment unit at existing IPLT site. Estimated capacity is 60m3/day.

- Construction of receiving chambers
- Construction of sludge stabilization and stripping unit with bio-gas digesters
- Construction of wastewater treatment reactors
- Construction of sludge drying beds
- Construction of gravel filters and maturation pond

Environmental and Social impact:

No environmental and social impacts counted because a series of recovery works will be done within existing site.

Public / Community Consultation:

Implementation schedule:	2005	2006	2007	2008	2009	Long term
Preparation		▬				
Design		▬				
Construction			▬			
Project Cost (billion Rp.)		0.90	3.61			Total: (billion Rp.4.51) Operation and Maintenance Cost (billion Rp./year): Cost Recovery:

URBAN SANITATION AND DRAINAGE

Project Outline

Code No.	Name of Project & Program:	Sector:	Location:
SD-6	Urgent Recovery of Existing IPLT (Human Excrement Treatment Plant)	Urban Sanitation and Drainage	Kanpung Jawa, Kecamatan Kuta Raja

Implementation Body:	Ministry in charge	Project cost		Rp. billion	Target group and beneficiaries:
					Whole residents living in Banda Aceh city
Dinas Kebershihan dan Pertamanan (DKP)	Badan Rehabilitasi dan Rekonstruksi (BRR), PU		Total	6.13	Major benefit or effect; necessities: Improvement of hygiene environment
Operation and Maintenance Body:	Priority:				Financial assistance: Urgently needed
Dinas Kebershihan dan Pertamanan (DKP)	(High) Medium Low				Technical assistance: Needed

Outline of project & programs: Major components:

Existing IPLT has stopped operation since caused massive damage by the disaster, therefore emitted wastewater and sludge are forced to be thrown directly to the rivers, ocean and mountain untreated, resuming its function is very impending problem.
Recovery works of existing treatment plant. Estimated volume is 60m3/day

- Recovery of 2 imhoff tanks
- Recovery of 2 series of wastewater treatment plant; 2 anaerobic ponds, 2 aerobic (facultative) ponds, 2 maturation ponds
- Reconstruction of sludge drying beds
- Reconstruction of workshop
- Reconstruction of siege walls and entrance gates
- Recovery of pavement of access road

Environmental and Social impact:

No environmental and social impacts counted because a series of recovery works will be done within existing site and frames.

Public / Community Consultation:

Implementation schedule:	2005	2006	2007	2008	2009	Long term
Preparation	▬					
Design	▬					
Construction	▬	▬				
Project Cost (billion Rp.)	4.90	1.23				Total: (billion Rp.6.13) Operation and Maintenance Cost (billion Rp./year): Cost Recovery:

URBAN SANITATION AND DRAINAGE

Project Outline

Code No.	Name of Project & Program:	Sector:	Location:
SD-7	Construction of New TPA (Landfill site)	Urban Sanitation and Drainage	N/A (a several sites are nominated, but not determined at this moment)

Implementation Body:	Ministry in charge	Project cost		Rp. billion	Target group and beneficiaries:
Dinas Kebershihan dan Pertamanan (DKP) / UNDP	Badan Rehabilitasi dan Rekonstruksi (BRR)		Total	130	Whole residents living in Banda Aceh city Major benefit or effect; necessities: Improvement of hygiene environment
Operation and Maintenance Body:	Priority:				Financial assistance: Needed
Dinas Kebershihan dan Pertamanan (DKP)	(High) Medium Low				Technical assistance: Needed

Outline of project & programs: Major components:

Existing Landfill site is subject to be filled out within 2 years, construction of new site is urgent issue.
Construction of new TPA is requested its capacity retaining for 20 years, presently UNDP takes charges to implement.

- Nominating site location
- Construction of landfill site
- Construction of leacheate ponds
- Construction of sanitary landfill and recycling facilities
- Utilization of finished existing TPA

Environmental and Social impact:

When nominating new site location, environmental and social issues must be considered carefully.

Public / Community Consultation:

Implementation schedule:	2005	2006	2007	2008	2009	Long term
Preparation	―					
Design		―				
Construction			―			
Project Cost (billion Rp.)		52	78			Total: (billion Rp.130) Operation and Maintenance Cost (billion Rp./year): Cost Recovery:

ROAD AND TRANSPORT

Project Outline

Code No.	Name of Project & Program:	Sector:	Location:
R1-1	Reconstruction of arterial roads	Road and traffic sector	Banda Aceh city

Implementation Body:	Ministry in charge	Project cost		Rp. billion	Target group and beneficiaries:
					Inhabitants in devastated area and ferry users
Dinas Prasarana Jalan dan Sumber Daya Air Kota Banda Aceh	BRR, PU		Total	75.98 bil Rp	Major benefit or effect; necessities:
Operation and Maintenance Body:	Priority:				Financial assistance:
Dinas Prasarana Jalan dan Sumber Daya Air Kota Banda Aceh	(High) Medium Low				Technical assistance:

Outline of project & programs: Major components:

Following arterial roads were damaged by the earthquake and/or tsunami hit. But those roads are used as arterial roads by inhabitants and also used as an access road to the Ulee Lheue ferry terminal. Therefore it's necessary to reconstruct them soon.

- Lhoknga street with Lamjame bridge
- TGK. ABD Rahman Meunasah Mencab street
- Iskandar Muda street with Laguna I and Punge I bridges
- Habib Abdurrahman street with Laguna II and Titi Tungkat bridges
- Syiah Kuala street with Syiah Kuala I and II bridges
- Lamprit bridge (on the JL.H.M. Daud Beureueh)
- Peunayong bridge (on the JL. Supratman)

Environmental and Social impact:

-

Public / Community Consultation:

Implementation schedule:						Long term
Preparation						
Design						
Construction						
Project Cost (billion Rp.)					75.98	Total: (billion Rp.) 75.98

ROAD AND TRANSPORT

Project Outline

Code No.	Name of Project & Program:	Sector:	Location:
R1-2	Rehabilitation of sub-arterial and other roads	Road and traffic sector	Banda Aceh city

Implementation Body:	Ministry in charge	Project cost		Rp. billion	Target group and beneficiaries:
					Inhabitants in devastated area
Dinas Prasarana Jalan dan Sumber Daya Air Kota Banda Aceh	BRR, PU		Total	543.22 bil Rp	Major benefit or effect; necessities:
Operation and Maintenance Body:	Priority:				Financial assistance:
Dinas Prasarana Jalan dan Sumber Daya Air Kota Banda Aceh	(High) Medium Low				Technical assistance:

Outline of project & programs: Major components:	Environmental and Social impact:
The total length of the damaged sub-arterial and other roads is 165.1km	-
	Public / Community Consultation:

Implementation schedule:	2005	2006	2007	2008	2009	Long term
Preparation						
Design	▬					
Construction		▬▬				
Project Cost (billion Rp.)	271.61	271.61				Total: (billion Rp.) 543.22

ROAD AND TRANSPORT

Project Outline

R1-3	Name of Project & Program: Construction of coastal road (Ring road - north part)	Sector: Road and traffic sector		Location: Banda Aceh city
Implementation Body: Dinas Prasarana Jalan dan Sumber Daya Air Kota Banda Aceh	Ministry in charge: BRR, PU	Project cost	Rp. billion	Target group and beneficiaries: Inhabitants in devastated area
		Total	247.00 bil Rp	Major benefit or effect; necessities:
Operation and Maintenance Body: Dinas Prasarana Jalan dan Sumber Daya Air Kota Banda Aceh	Priority: (Importance) (High) Medium Low			Financial assistance:
				Technical assistance:

Outline of project & programs: Major components:

Coastal road is planned to satisfy the following functions. Therefore it's necessary to construct soon.

- It has the function to separate the buffer zone and the redevelopment area clearly.
- It has the function as the arterial road where the Ulee Lheue port, the Meulaboh district, and the Krueng Raya port are connected.
- It has the function of the ring road partially and it has the bypass function to connect the sub city centers while making a detour.
- It has the function to activate an economic growth in the redevelopment area.
- It has the function as the tide embankment in the redevelopment zone when high tide comes.
- It has the function that the emergency rescue and the rescue supply can be transported in case of emergency.

Environmental and Social impact: -

Public / Community Consultation:

Implementation schedule:					2010-2015	Long term
Preparation						
Design						
Construction						
Project Cost (billion Rp.)					247.00	Total: (billion Rp.) 247.00

ROAD AND TRANSPORT

Project Outline

Code No.	Name of Project & Program:	Sector:	Location:
R1-4	Extension of Jl. Syiah Kuala	Road and traffic sector	Banda Aceh city

Implementation Body:	Ministry in charge	Project cost		Rp. billion	Target group and beneficiaries:
Dinas Prasarana Jalan dan Sumber Daya Air Kota Banda Aceh	BRR, PU		Total	43.87 bil Rp	Major benefit or effect; necessities:
Operation and Maintenance Body:	Priority: (Importance)				Financial assistance:
Dinas Prasarana Jalan dan Sumber Daya Air Kota Banda Aceh	(High) Medium Low				Technical assistance:

Outline of project & programs: Major components:

- Syiah Kuala street connects between north part and center part and it works as an arterial road. Now this road has a plan of extension to connect to Soekarno Hatta street. Some parts of land already finish expropriated. This road is expected the function of arterial road which pass the traffics between north and south and the function of escape road which escape to the inland area when the tsunami hit in the future.
- Total length is 4km.

Environmental and Social impact:

-

Public / Community Consultation:

Implementation schedule:					2010 - 2015	Long term
Preparation						
Design						
Construction						
Project Cost (billion Rp.)					43.87	Total: (billion Rp.) 43.87

ROAD AND TRANSPORT

Project Outline

Code No.	Name of Project & Program:	Sector:	Location:
R1-5	Reconstruction of exiting roads for escape roads	Road and traffic sector	Banda Aceh city

Implementation Body:	Ministry in charge	Project cost		Rp. billion	Target group and beneficiaries:
					Inhabitants in devastated area
Dinas Prasarana Jalan dan Sumber Daya Air Kota Banda Aceh	BRR, PU		Total	19.74 bil Rp	Major benefit or effect; necessities:
Operation and Maintenance Body:	Priority: (Importance)				Financial assistance:
Dinas Prasarana Jalan dan Sumber Daya Air Kota Banda Aceh	(High) Medium Low				Technical assistance:

Outline of project & programs: Major components:

Existing arterial roads which connect between northern and southern parts, such as TGK. ABD Rahman Meunasah Mencab street, Iskandar Muda street, Habib Abdurrahman street, Syiah Kuala street are selected as the escape roads.

- In order to fill the gap of above escape roads, one collector road and two streets are selected.
- Total length is 6km

Environmental and Social impact:

-

Public / Community Consultation:

Implementation schedule:	2005	2006	2007	2008	2009	Long term
Preparation			▬			
Design			▬			
Construction			▬			
Project Cost (billion Rp.)			19.74			Total: (billion Rp.) 19.74

ROAD AND TRANSPORT

Project Outline

Code No.	Name of Project & Program:	Sector:	Location:
R2-1	Reconstruction of traffic management systems	Road and traffic sector	Banda Aceh city

Implementation Body:	Ministry in charge	Project cost		Rp. billion	Target group and beneficiaries:
					Whole citizen
Dinas Perhubungan Kota Banda Aceh	BRR, PU		Total	4.15 bil Rp	Major benefit or effect; necessities:
Operation and Maintenance Body:	Priority:				Financial assistance:
Dinas Perhubungan Kota Banda Aceh	High (circled) Medium Low				Technical assistance:

Outline of project & programs: Major components:

Following traffic management systems were damaged by the disaster. It is necessary to reconstruct because of keeping safe and smooth traffics in Banda Aceh City.

- 9 signals
- 225 traffic signs
- 6km of road marking

Environmental and Social impact:

-

Public / Community Consultation:

Implementation schedule:	2005	2006	2007	2008	2009	Long term
Preparation				▬		
Design				▬		
Construction				▬		
Project Cost (billion Rp.)				4.15		Total: (billion Rp.) 4.15

ROAD AND TRANSPORT

Project Outline

Code No.	Name of Project & Program:	Sector:	Location:
R3-1	Reconstruction of bus (labi-labi) terminal	Road and traffic sector	Banda Aceh city

Implementation Body:	Ministry in charge	Project cost		Rp. billion	Target group and beneficiaries:
Dinas Perhubungan Kota Banda Aceh	BRR, PU		Total	63.39 bil Rp	Major benefit or effect; necessities:
Operation and Maintenance Body:	Priority:				Financial assistance:
Dinas Perhubungan Kota Banda Aceh	(High) Medium Low				Technical assistance:

Outline of project & programs: Major components:

Labi-labi terminal, where was located on the downtown, was destroyed by the earthquake and/or tsunami hit.

Now, labi-labi buses are parking and waiting passengers on the road, and it sometimes causes the traffic congestion. Therefore, it's necessary to reconstruct the labi-labi bus terminal soon.

Area = 34,000m^2

Main contents are pavement of the land, installing the fence, lights, drainage system, platform and construct of the administration building and waiting room and roof over the platform.

Environmental and Social impact:

No

Public / Community Consultation:

No

Implementation schedule:	2005	2006	2007	2008	2009	Long term
Preparation			▬			
Design			▬			
Construction				▬		
Project Cost (billion Rp.)			31.69	31.70		Total: (billion Rp.) 63.39

(Projects R1-6, R2-1 and R3-2 have no project profile sheets because of lower priority. Project R4-1 will be covered by a donor.)

HEALTH AND MEDICAL CARE

Project Outline

Code No.	Name of project/ program:	Sector:	Location:
H-1	Maternal and Child Health System Improvement Project	Health	Banda Aceh City

Executing agency: Provincial Health Office	Ministry in charge: Ministry of Health	Project cost		Rp. billion
Operation body: Provincial Health Office, District/ City Health Office		(¥1=Rp.87)	Total	3.0
Alignment with the Master Plan by GoI: Community Health Program, Basic Health Services Project	Priority: High Medium Low		FC	
			LC	3.0

Target group/ beneficiaries:
Maternal and child health care providers, pregnant women, mothers, children and their family

Major benefit or effect, necessities:
Health status of mothers and children is to be improved.

Financial assistance: n.a.

Technical assistance: JICA

Outline of project & programs:

Overall goal
Health status of pregnant women, mothers and children is improved.

Project Goal
1. 90% of pregnant women receive antenatal checkup properly.
2. 85% of births are attended by skilled health personnel.
3. 90% of children less than 5 years old are monitored their growth regularly.
4. 90% of malnutrition among children and pregnant women is treated properly.

Outputs
1. Knowledge, skills and behavior of health providers are improved.
2. Knowledge and behavior related to maternal and child health of community people is improved.

Activities
1-1. Training for village midwives to be parents' class trainers
1-2. Training for health volunteers to be parents' class organizers
1-3. Practical or on-the-job training on skills of consultation for mothers and fathers
2-1. Parents' classes on maternal and child health utilizing maternal and child health handbook (MCH handbook) held at Posyandu or village birthing homes
2-2. Monitoring on knowledge on contents of MCH handbook
2-3. Establishment or enhancement of community referral system (ex. community ambulance, referral flow, MCH fund, etc.)

Environmental and Social impact:
Social impact assessment on community participation might be required.

Public / Community Consultation:
Community should involve in all steps of the project; planning, implementation, monitoring and evaluation.

Related Programs/Projects:
MCH handbook socialization for NAD Province (WHO/UNICEF)
Emergency Obstetric Care Improvement (UNICEF)

Development schedule:	2005	2006	2007	2008	2009	Long term
Preparation						
Implementation						
Project Cost (billion Rp.)	0.2	0.6	1.1	0.2	0.2	0.2/year for monitoring up to 2015 (0.6) Total: (billion Rp.): 3.0

HEALTH AND MEDICAL CARE

Project Outline

Code No.	Name of project/ program:	Sector:	Location:
H-2	Mental Health Care System Improvement Project	Health	Banda Aceh City, NAD Province

Executing agency: Provincial Health Office	Ministry in charge: Ministry of Health	Project cost		Rp. billion	Target group/ beneficiaries:
					Mental health care providers, patients of mental disorders
Operation body: Provincial Health Office, District/ City Health Office, Mental Hospital		(¥1=Rp.87)	Total	3.0	Major benefit or effect, necessities: Mental disorders are to be treated properly.
Alignment with the Master Plan by GoI:	Priority:		FC		Financial assistance: n.a.
Community Health Program, Basic Health Services Project	High Medium Low		LC	3.0	Technical assistance: JICA

Outline of project & programs:

Overall goal	Project Goal	Environmental and Social impact:
Perception on mental disorders of general population is improved.	1. 70% of ex-patients can return to and live in their community after cure. 2. Bed occupancy rate of the mental hospital is maintained under 110%. 3. Quality of care of mental disorders is improved. 4. Preventive care of mental disorders is provided.	n.a.

Outputs	Activities	Public / Community Consultation:
1. Down referral system (hospital to community) and support system for ex-patients are established.	1-1. Establishment of down referral flow from hospital to community. 1-2. Establishment of intermediate center to take care ex-patients (consultation for medicine management, rehabilitation, returning to social life, etc.) 1-3. Recruit human resources to the intermediate center.	Socialization to community is required.
2. Health human resources to take care discharged patients are developed.	2-1. Training for health center and sub-health center staff on preventive mental health care. 2-2. Provide extra course on mental health in medical and nursing department of Syah Kuala University.	Related Programs/Projects: Integrated community based mental health program (WHO)
3. Mental health resource center provides resource persons, information and training to mental health service providers.	3-1. Training for doctors and provincial health office staff on integrated mental health care including PTSD treatment and care to be resource persons. 3-2. Establishment of coordination flow among stakeholders including health service (ex. Health service providers, police, community leaders, religious leaders, etc.)	

Development schedule:	2005	2006	2007	2008	2009	Long term
Preparation						
Implementation						
Project Cost (billion Rp.)	0.2	0.6	1.1	0.2	0.2	0.7 for future training up to 2015 Total: (billion Rp.): 3.0

HEALTH AND MEDICAL CARE

Project Outline

Code No.	Name of project/ program:	Sector:	Location:
H-3	Communicable Diseases Control Enhancement Project	Health	Banda Aceh City, NAD Province

Executing agency: Provincial Health Office	Ministry in charge: Ministry of Health	Project cost	Rp. billion	Target group/ beneficiaries: Laboratory staff/ population in NAD Province
Operation body: Provincial Health Office, District/ City Health Office		(¥1=Rp.87) Total	7.6	Major benefit or effect, necessities: Communicable diseases controlled properly.
Alignment with the Master Plan by GoI: Diseases Prevention and Control Program, Infectious Diseases Prevention and Control	Priority: [High] Medium Low	FC		Financial assistance: n.a.
		LC	7.6	Technical assistance: JICA

Outline of project & programs:

Overall goal	Project Goal	Environmental and Social impact:
Communicable diseases such as tuberculosis, malaria and dengue controlled properly.	1. 90% of difficult case in health centers are referred to regional laboratory. 2. 90% of detected infectious diseases cases are noticed to the patient and refereed to hospital within 3 days. 3. 90% of communicable diseases outbreak is alerted within 24 hours.	n.a.

Outputs	Activities	Public / Community Consultation:
1. Accuracy and quality control system is established.	1-1. Training on internal quality control and external quality assessment for provincial laboratory staff. 1-2. Training on internal quality control for laboratory staff in all levels. 1-3. Establishment of internal quality control in all levels of laboratory. 1-4. Establishment of provincial quality assessment system.	To be required.
2. Referral system of laboratory examination is established.	2-1. Training on laboratory referral system. 2-2. Establishment of regional laboratory (one for several districts) 2-3. Discussion and coordination on referral flow of laboratory examination from health center, regional laboratory and provincial laboratory among stakeholders.	Related Programs/Projects: Laboratory system improvement (WHO; under planning)
3. Alert system is established.	3-1. Training on alert system. 3-2. Discussion and coordination on alert system among stakeholders.	

Development schedule:	2005	2006	2007	2008	2009	Long term
Preparation						
Implementation						
Project Cost (billion Rp.)	0.6	2.4	3.5	0.2	0.2	0.7 for future training up to 2015 Total: (billion Rp.): 7.6

HEALTH AND MEDICAL CARE

Project Outline

Code No.	Name of project/ program:	Sector:	Location:
H-4	Capacity building for drug and food control	Health	Banda Aceh City, NAD Province

Executing agency: NAD Drug and Food Control Agency	Ministry in charge: Ministry of Health	Project cost		Rp. billion	Target group/ beneficiaries:
					Drug and food control center staff/ population in NAD Province
Operation body: Drug and Food Control Center in Banda Aceh, NAD Drug and Food Control Agency		(¥1=Rp.87)	Total	26.0	Major benefit or effect, necessities: Quality and safety of drugs and foods distributed in NAD Province are ensured.
Alignment with the Master Plan by GoI:	Priority:		FC		Financial assistance: n.a.
Drug and Food Control Program, Revitalization of Drug and Food Control Function	High Medium Low		LC	26.0	Technical assistance: JICA

Outline of project & programs:		Environmental and Social impact:
Overall goal Quality and safety of drugs and foods distributed in NAD Province are ensured.	Project Goal 1. 80% of drugs in market in the Province are examined. 2. 80% of small and medium food related enterprises are examined regularly. 3. Capacity of controlling counterfeit, substandard and illegal drugs is improved. 4. Capacity of laboratory management is improved.	n.a.
Outputs 1. Damaged equipment of the food and drug control center is rehabilitated. 2. Drug control system is reviewed and improved. 3. Food poisoning control system is reviewed and improved. 4. Laboratory management system is reviewed and improved.	Activities 1-1. Rehabilitation of damaged equipment. 2-1. Training on drug control skills and management for drug and food control agency staff. 2-2. Feedback workshop on understanding of improvement of drug control system 2-3. Carrying out of the agreed improvement plan in routine drug control 3-1. Training on food poisoning control skills and management for drug and food control agency staff. 3-2. Feedback workshop on understanding of improvement of food poisoning control system 3-3. Carrying out of the agreed improvement plan in routine food control 4-1. Training on food poisoning control skills and management for laboratory staff 4-2. Feedback workshop on understanding of improvement of laboratory management 4-3. Carrying out of the agreed improvement plan in routine laboratory works	Public / Community Consultation: To be required. Related Programs/Projects: Laboratory system improvement (WHO; under planning)

Development schedule:	2005	2006	2007	2008	2009	Long term
Preparation						
Implementation						
Project Cost (billion Rp.)	8.1	16.4	0.5	0.5	0.5	Total: (billion Rp.): 26.0

EDUCATION

Project Outline

Code No.	Name of Project & Program:	Sector:	Location:
EP-1	Reconstruction and improvement of nucleus school for upgrading science and mathematics education level	Education	Baiturrahman, Meuraxa, Lueng Bata, Ulee Kareng

Implementation Body:	Ministry in charge	Project cost	90 billion Rp.
Education Department of NAD Province and Education Department of Banda Aceh City	MONE		
Operation and Maintenance Body:	**Priority:**		
Nucleus schools of the education cluster system (SD87,SD47, SD16, SD16, SMP Percontohan, SMAN 10)	(High) Medium Low		

Target group and beneficiaries: Students and mathematics/science teachers of the nucleus schools

Major benefit or effect; necessities: Improvement of access to education and quality of education

Financial assistance: Donor country will be preferably.

Technical assistance: Training

Outline of project & programs: Major components:

(1) Background and Objectives

Indonesia has a unique school management system, namely school cluster system. A nucleus school, which is a core school under the cluster system, has functioned to provide the member cluster schools with the teacher training and the use of laboratories for the lessons. The core schools were damaged by the tsunami. On the other hand, science and mathematics education in Banda Aceh city has been required to upgrade the level due to the worst level in Indonesia.

The objectives of the project are to reconstruct the school infrastructures of the nucleus schools and equipment and improve the capacity of the nucleus school teachers for the upgrade of the science and mathematics education level

(2) Component

a) Reconstruction of nucleus schools
b) Procurement of equipment for science and mathematics education
c) Effective in-service teacher training for nucleus school teachers in a science and mathematics, following a small experimental project proposed by nucleus teachers

Environmental and Social impact:

Dormitory for orphan students will be constructed.

Public / Community Consultation:

Public consultation will be made for requirement of school infrastructure.

Implementation schedule:	2005	2006	2007	2008	2009	Long term
Preparation	▪▪▪▪▪▪					
Design		———				
Construction			———	Construction ———		Maintenance is required for the reconstructed schools
Project Cost (billion Rp.)			training	Pilot project		Total: (90 billion Rp.) Operation and Maintenance Cost (billion Rp./year): Maintenance cost =2 billion Rp./year Cost Recovery:

EDUCATION

Project Outline

Code No.	Name of Project & Program:	Sector:	Location:
EP-2	School Relocations in Coastal Areas Heavily Damaged by the Tsunami	Education	Meuraxa, Kuta Raya

Implementation Body:	Ministry in charge	Project cost	59 billion Rp.	Target group and beneficiaries: Students and teachers of schools to be relocated
Education Department of Banda Aceh City	MONE			Major benefit or effect; necessities: Improvement of access to education and emergency measures against tsunami
Operation and Maintenance Body:	Priority:			Financial assistance: Donor country will be preferably.
Relocated schools including 20 elementary schools and 2 junior high schools in 2 kecamatan	(High) Medium Low			Technical assistance: Capacity building

Outline of project & programs: Major components:

(1) Background and Objectives

The Education department of Banda Aceh City formulated a master plan of rehabilitation, reconstruction and relocation of schools located in coastal areas. Most of rehabilitation and reconstruction of schools are committed to implement by some donors but the relocation is not offered to implement by donors.

The objectives of the project are to relocate schools of areas which were the inhabitant population was decreased drastically and to return students to an ordinary study environment in schools. The relocation schools will be combined into some schools.

(2) Component

a) Public Consultation for stakeholders of relocation schools
b) New construction of earthquake-resistant school infrastructures
c) Preparation of emergency evacuation plans

Environmental and Social impact:

Dormitory for orphan students will be constructed. Measures and awareness for disaster will be enhanced by the training of evacuation.

Public / Community Consultation:

Public consultation will be made for the selection of relocation sites and the land acquisitions.

Implementation schedule:	2005	2006	2007	2008	2009	Long term
Preparation	▪▪▪▪▪					
Design		▬▬▬▬				
Construction			▬▬	▬▬		Maintenance is required for the relocated schools.
Project Cost (billion Rp.)						Total: (59 billion Rp.) Operation and Maintenance Cost (billion Rp./year): Maintenance cost = 1.3 billion Rp./year Cost Recovery:

EDUCATION

Project Outline

Code No.	Name of Project & Program:	Sector:	Location:
EP-3	REDIP (Regional Education Development and Improvement Program) in Banda Aceh	Education	Meuraxa, Kuta Raya

Implementation Body:	Ministry in charge	Project cost	14 billion Rp.	Target group and beneficiaries: Both of school masters and teachers of all junior high schools and community people located at kecamatans to have received many displaced students and to have been damaged heavily
Education Department of Banda Aceh City	MONE			Major benefit or effect; necessities: Enhancement of school management
Operation and Maintenance Body:	Priority:			Financial assistance: Donor country will be preferably.
All junior high schools located at kecamatans to have received many displaced students or to have been damaged heavily	High (Medium) Low			Technical assistance: Capacity development

Outline of project & programs: Major components:

(1) Background and Objectives

Aceh PEQIP (Primary education quality improvement project) was conducted in 1996 and 1997. However, the project had discontinued since 1998 due to the conflict. The school based improvement of education quality facilitates community participation to education. REDIP is to reflect real local needs into the school activities in collaboration with local community people.

The objectives of the project are to upgrade the capacity of teachers and head masters and make their proposed experimental learning for improvement of junior high school education quality.

(2) Component

a) Organization of Kecamatan SMP development team
b) Workshop
c) Socialization
d) Implementation of projects by using proposal-based block grant

Environmental and Social impact:

Through community involvement in the project, participation and contribution for education will be enhanced.

Public / Community Consultation:

The project will be implemented in collaboration with community for all the project period.

Implementation schedule:	2005	2006	2007	2008	2009	Long term
Preparation		▪▪▪▪▪▪▪▪				
Design				Including monitoring		
Construction and implementation						Maintenance is required for the constructed facilities and procured equipment.
Project Cost (billion Rp.)			Construction and procurement			Total: (14 billion Rp.) Operation and Maintenance Cost (billion Rp./year): Maintenance Cost = 0.3 billion Rp./year Cost Recovery:

EDUCATION

Project Outline

Code No.	Name of Project & Program:	Sector:	Location:
EP-4	Improvement of Early Age Children Center	Education	Meuraxi、Kuta Raja, Kuta Alam, Jaya Baru, Baiturrahman

Implementation Body:	Ministry in charge	Project cost	8 billion Rp.	Target group and beneficiaries:
				Preschool children and the widowed mothers, and center staff
Education Department of Banda Aceh City Religion Department of Banda Aceh City	MONE			Major benefit or effect; necessities: Development of measures for vulnerable persons
Operation and Maintenance Body:	Priority:			Financial assistance: Donor country will be preferably.
TK Negeri Lamjabat, TK aisyah Banda Aceh, TK Gaseh Poma, RA Al Azmi, RA Indah Sari	High (Medium) Low			Technical assistance: Vocational training and center management

Outline of project & programs: Major components:

(1) Background and Objectives

An early age children center aims at providing preschool education, practical training to make widowed mothers' livelihood, and counsel of health and bringing up their children. The center, moreover, provide traumatized children and mothers with a mental counsel.

The objectives of the project are to provide the widows with self-support means by vocational training of household industry and give their children preschool education and day care, through establishing early age children centers.

(2) Component

a) Construction of the center in place of kindergartens destroyed by the tsunami disaster
b) Procurement of equipment for training and nursery
c) Preparation and execution of vocational training of the center staff

Environmental and Social impact:

Widowed mothers will get self support means by training of household industry in the center.

Public / Community Consultation:

Community consultation will be made for appropriate training items and methods for widowed mothers.

Implementation schedule:	2005	2006	2007	2008	2009	Long term
Preparation	▪▪▪▪▪					
Design		▬▬▬				
Construction			▬▬▬▬ ▬▬ Training			Maintenance is required for the reconstructed centers
Project Cost (billion Rp.)						Total: (8 billion Rp.) : Operation and Maintenance Cost (billion Rp./year): Maintenance Cost =0.1 billion Rp./year Cost Recovery:

EDUCATION

Project Outline

Code No.	Name of Project & Program:	Sector:	Location:
EP-5	Reconstruction of a Senior Vocational High School	Education	SMK 4, the land is approximately 1 ha.

Implementation Body:	Ministry in charge	Project cost	14 billion Rp.	Target group and beneficiaries: Students and teachers of the senior vocational high school
Education Department of NAD province	MONE			Major benefit or effect; necessities: Improvement of education quality
Operation and Maintenance Body:	Priority:			Financial assistance: Donor country will be preferably.
SMK 4	High (Medium) Low			Technical assistance: Curriculum development

Outline of project & programs: Major components:

(1) Background and Objectives

Fisheries industry is one of the most important industry areas in Banda Aceh City. The Tsunami washed away a senior vocational high school as only one school which gave training lessons for a shipbuilding of fishing vessels, fishing gears and fishing methodology.

The objectives of the project are to reconstruct the vocational school to produce technicians for development of the local economy.

(2) Component

a) Reconstruction of the senior vocational high school
b) Procurement of training equipment
c) Curriculum development and training of the new curriculum

Environmental and Social impact:

The graduates from the vocational school will contribute to the fisheries industry which is one of most important industry area.

Public / Community Consultation:

The practical training required from the local industry will be carried out by the industries' participation to preparation of new curriculum.

Implementation schedule:	2005	2006	2007	2008	2009	Long term
Preparation	▪▪▪▪▪					
Design		▬▬▬				
Construction			▬▬▬			Maintenance is required for the reconstructed school.
Project Cost (billion Rp.)						Total: (14 billion Rp.) Operation and Maintenance Cost (billion Rp./year): Maintenance Cost = 0.3 billion Rp./year Cost Recovery:

EDUACTION

Project Outline

Code No.	Name of Project & Program:	Sector:	Location:
EP-6	Reconstruction of In-Service Teacher Training Center	Education	Desa Lamlgang, BandaRaya, land area is approx. 2 has.

Implementation Body:	Ministry in charge	Project cost	7 billion Rp.	Target group and beneficiaries: In-service teachers and instructors of the
Education Department of NAD Province	MONE			Major benefit or effect; necessities: Improvement of quality of education
Operation and Maintenance Body:	Priority:			Financial assistance: Donor country or NGOs will be preferably.
In-Service teacher training center	High (Medium) Low			Technical assistance: training

Outline of project & programs: Major components:

(1) Background and Objectives

The reconstruction of the training center is needed to refresh the in-service teachers including contract teachers because teacher quality in the city is one of the worst levels in Indonesia. Education Department of NAD Province plans to reconstruct the in-service teacher training center after the tsunami. The center consists of 4 buildings. Out of 4 buildings, the media center building and No.1 non formal education facilitator center will be constructed by some donors.

The objectives of the project are to construct the No.2 non formal education facilitator center and the vocational teacher training center and to train in-service teachers for upgrading the teacher quality.

(2) Component

a) Construction of No.2 non formal education facilitator center and the in-service vocational teacher training center
b) Procurement of the vocational training equipment
c) Standardization of teaching method and improvement of curricula of practical courses

Environmental and Social impact:

By linking training for formal and non formal education in the center, comprehensive training experiences will be extended to the public.

Public / Community Consultation:

Public consultation will be made by finding local contents and introducing them into a curriculum

Implementation schedule:	2005	2006	2007	2008	2009	Long term
Preparation		▪▪▪▪▪▪▪				
Design			▬▬▬▬▬			
Construction				▬▬▬▬▬		Maintenance is required for the constructed training buildings
Project Cost (billion Rp.)						Total: (7 billion Rp.) Operation and Maintenance Cost (billion Rp./year): Maintenance Cost = 0.1 billion Rp./year Cost Recovery:

EDUCATION

Project Outline

Code No.	Name of Project & Program:	Sector:	Location:
EP-7	Reconstruction of Boarding Schools	Education	Kuta alam, Jaya Baru, Gue Gajah

Implementation Body:	Ministry in charge	Project cost	17 billion Rp.	Target group and beneficiaries: Orphans and boarding school learners
Education Department of Banda Aceh city	MONE			Major benefit or effect; necessities: Improvement of school management
Operation and Maintenance Body:	Priority:			Financial assistance: NGOs will be preferably.
3 Boarding schools	High Medium (Low)			Technical assistance: school curriculum and school management development

Outline of project & programs: Major components:

(1) Background and Objectives

A boarding school has provided young generation with non-formal education and lodging. The schools also have an issue to modernize physical conditions and school management. Three boarding schools were heavily damaged by the tsunami.

The objectives of the priority project are to foster the school aged orphans and give improved non-formal education to the learners by establishing modern boarding schools.

(2) Component

a) Reconstruction of boarding schools destroyed by the tsunami disaster
b) Procurement of literacy primers and equipment for non-formal education
c) Preparation of a standardization of boarding school management

Environmental and Social impact:

Public / Community Consultation:

Implementation schedule:	2005	2006	2007	2008	2009	Long term
Preparation	▪▪▪▪▪					
Design		▬▬▬▬				
Construction			▬▬▬▬			Maintenance is required for the reconstructed boarding schools.
Project Cost (billion Rp.)			Construction and curriculum/school management development			Total: (17 billion Rp.) Operation and Maintenance Cost (billion Rp./yeat): Maintenance Cost = 0.3 billion Rp./year Cost Recovery:

EDUCATION

Project Outline

Code No.	Name of Project & Program:	Sector:	Location:
EP-8	Capacity Development of Education Administration	Education	Education Department of NAD Province

Implementation Body:	Ministry in charge	Project cost	7 billion Rp.	Target group and beneficiaries: staff for technical management of theDepartment
Education Department of NAD Province	MONE			Major benefit or effect; necessities:
Operation and Maintenance Body:	Priority:			Financial assistance: Donor country
Education Department of NAD Province	High Medium (Low)			Technical assistance: Capacity building

Outline of project & programs: Major components:

(1) Background and Objectives

Education Department of NAD Province had made training of an education administration for the staff. Almost all of staff trained was killed by the Tsunami disaster. Capacity development for education administrators is urgently needed to cope with lower quality of education in the province.

(2) Component

1) Capacity development of a problem analysis of the education administration, a project formulation, an effective finance arrangement, a supervision of schools, an effective public relation, and monitoring and evaluation
2) Overseas training of an education administration for staff selected by a result of capacity development
3) Preparation of a manual of education administration

Environmental and Social impact:

Public / Community Consultation:

Implementation schedule:	2005	2006	2007	2008	2009	Long term
Preparation			▪▪▪▪▪▪▪▪▪			
Design				▬▬▬▬		
Construction				▬		Continuing training is required for keeping and improving the capacity.
Project Cost (billion Rp.)				Capacity building		Total: (7billion Rp.) Operation and Maintenance Cost (billion Rp./yeat): Cost Recovery:

WATER SUPPLY

Project Outline

Code No.	Name of Project & Program:	Sector:	Location:
WS-1	Banda Aceh Water Supply Master Plan 2007-2020	Water Supply	Banda Aceh City

Implementation Body:	Ministry in charge	Project cost		Rp. billion	Target group and beneficiaries:
					All citizens of Banda Aceh City and vicinity
Banda Aceh City	Badan Rehabilitasi dan Rekonstruksi (BRR) Ministry of Public Works		Total	3.14	Major benefit or effect; necessities: Supply water
Operation and Maintenance Body:	Priority:				Financial assistance: Necessary
PDAM Tirta Daroy - Banda Aceh City	High (Medium) Low				Technical assistance: Necessary

Outline of project & programs: Major components:	Environmental and Social impact:
Preparation of the Master Plan in order to define strategic development scenario/scheme to cover future city water demand and appropriate financial plan for PDAM. The study contents shall be included item below: • Potential and possibility on raw water resources • Examination of water treatment process alternatives • Define the appropriate water treatment plant • (Pre) Feasibility study on water treatment plant as a urgent project • Review on distribution water supply system • Pilot project for UFW reduction program Capacity building and public consultation as well as need assessment should be done in cooperation with existing on-going project conducted by USAID.	No environmental and social impacts. Public / Community Consultation: Socialization of the Master Plan will be necessary.

Implementation schedule:	2005	2006	2007	2008	2009	Long term
Preparation		[redacted]				
Study/Design						
Construction						
Project Cost (billion Rp.)		3.14				: