2.3 ROAD AND TRANSPORT

2.3.1 Mission, Strategies and Goals

Mission, strategy and goals of the urgent rehabilitation and reconstruction plan are shown as below.

Table 2.3.1 Mission, Strategies and Goals for Road and Transport

Mission
▸ To re-build efficient and effective transportation array within and to and from outside Banda Aceh City ▸ To restore main arterial and arterial roads promptly as possible to accelerate rehabilitation and reconstruction activities as a whole ▸ To be align the road network systematically in conformity with the proposed city development of Banda Aceh City and be effective in view of evacuation/relief against future possible disaster
Strategies
▸ To rehabilitate ferry terminal to sustain to enhance economic development activities in harmony of Banda Aceh City and remote islands ▸ To employ local technology as much as possible in order to save rehabilitation and reconstruction cost ▸ To deploy priority implementation approach in order to minimize concentration of investment in short time
Goals
▸ To rehabilitate substantial portion of main arterial and arterial roads within a rehabilitation period, by 2007 ▸ To rehabilitate damaged bridge also until 2006 ▸ To also restore substantial portion of collector and street until 2006 ▸ To reconstruct Ulee Lheu ferry terminal by 2009 ▸ To restore *Labi Labi* bus terminal and road traffic signal and warning lights by 2006

2.3.2 Roads in Most Devastated Areas

(1) Arterial Road

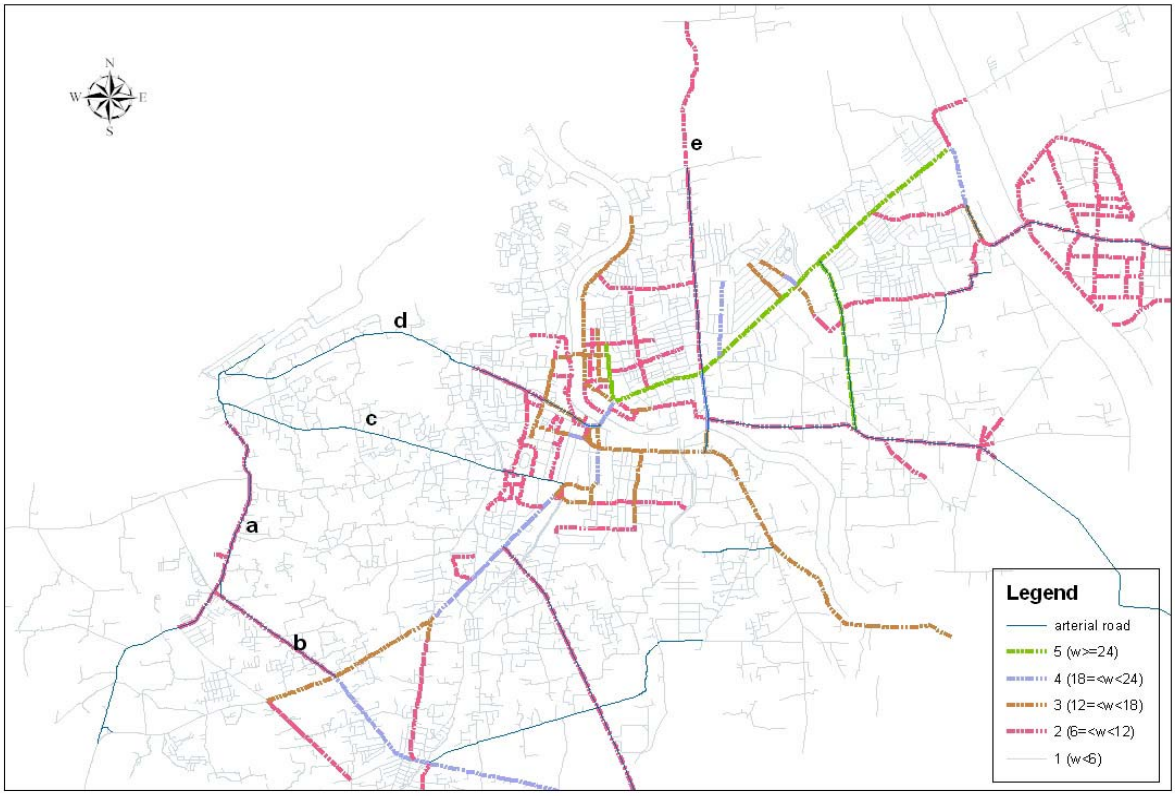
Through the investigation of the arterial roads the following five (5) roads are judged to be rehabilitated in conjunction with bridge rehabilitation urgently as possible.

Table 2.3.2 Damaged Arterial Roads

ID	Roads	Road Width	Bridge condition	
A-a	JL. Lhoknga	6-12m	Lamjame	Heavily damaged
A-b	JL. TGK. ABD Rahman Meunasah Mencab	6-12m	-	
A-c	JL. Iskandar Muda	6-12m	Laguna I	Slightly damaged
			Punge I	Slightly damaged
A-d	JL. Habib Abdurrahman	Less than 6m	Laguna II	Fallen
			TitiTungkat	Heavily damaged
A-e	JL. Syiah Kuala	6-12m	Syiah Kuala I/II	Heavily damaged

Source: JICA Study Team

The locations of the above roads are as shown in Figure 2.3.1.

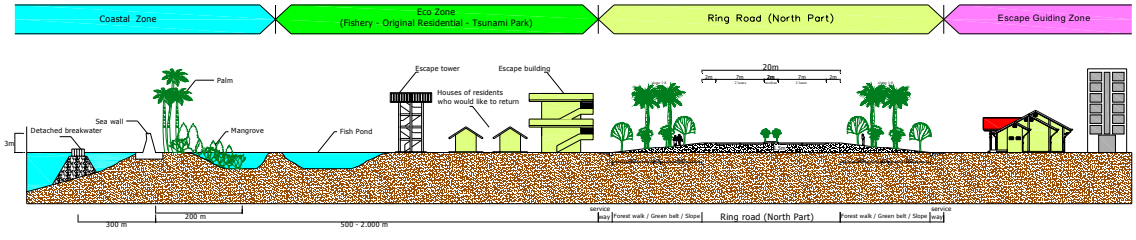


Source: JICA Study Team

Figure 2.3.1 Location of Damaged Arterial Roads

(2) Ring Road (north part)

The ring road (northern part) comprises part of the arterial roads and is proposed to be completed at earlier stage of rehabilitation and reconstruction.

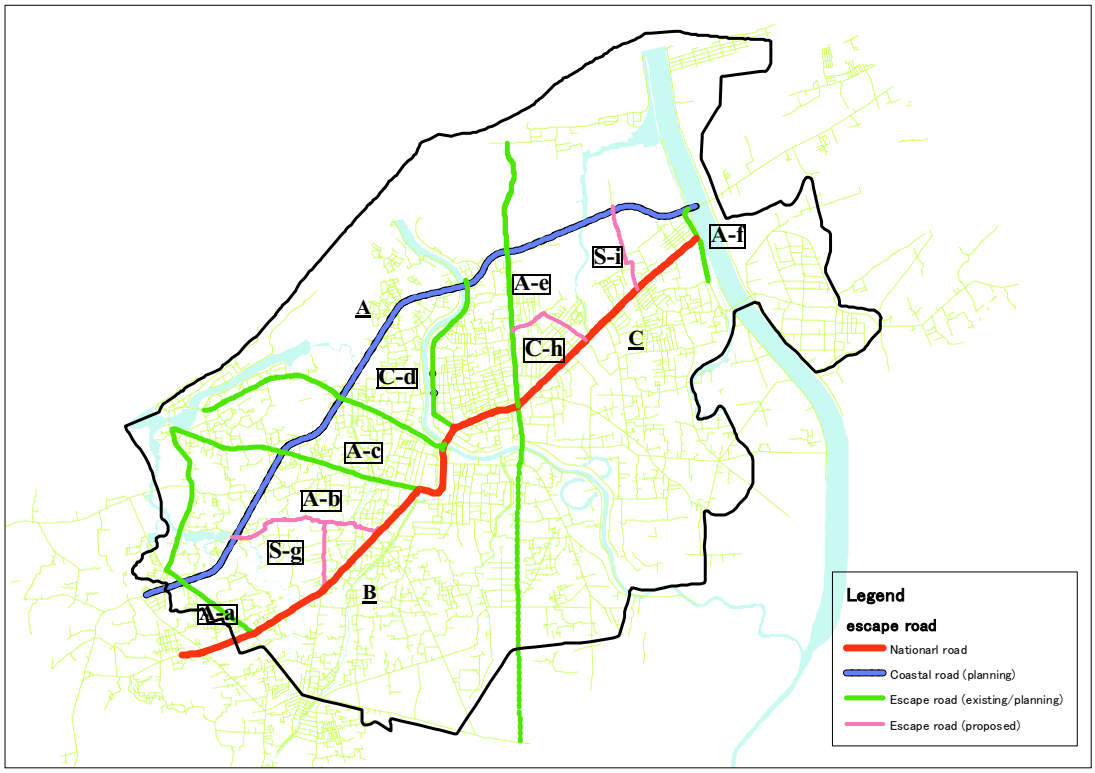


Source: JICA Study Team

Figure 2.3.2 Schematic Section of the Ring Road (North Part) and Coastal Area

(3) Escape Road

Escape roads are planned so that the citizens can escape promptly and safely to the escape facilities (escape buildings, mosques, schools and communal facilities, etc.).



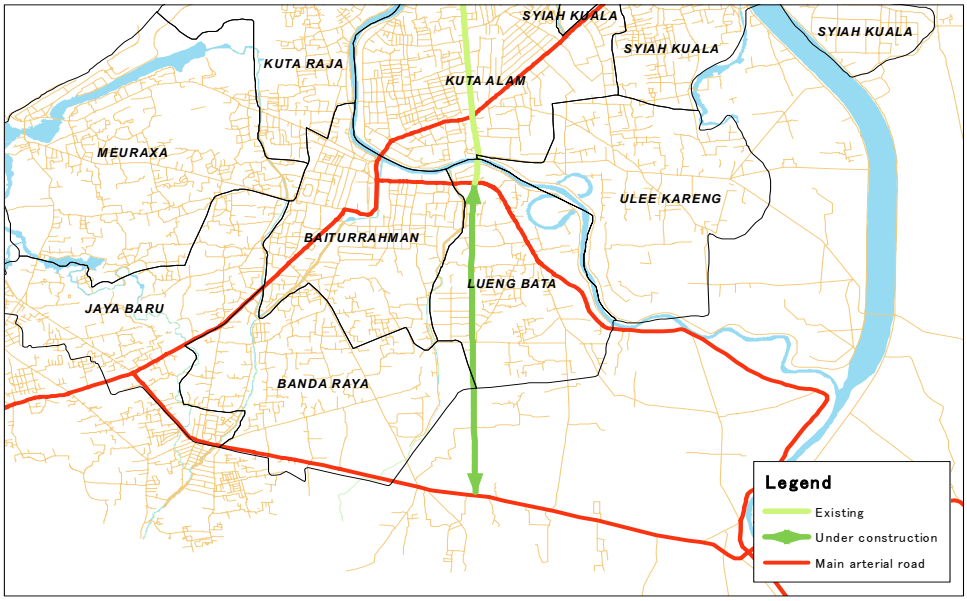
Source: JICA Study Team

Figure 2.3.3 Escape road

2.3.3 Road Plan in Less Devastated Area

(1) Extension of Jl. Syiah Kuala

Jl. Syiah Kuala lies between north part and center part and forms a part of arterial road. It is also designated to be integral part of main relief roads. The extension to connect to Jl. Soekarno Hatta is under construction. Layout of extension plan is as shown in Figure 2.3.4.

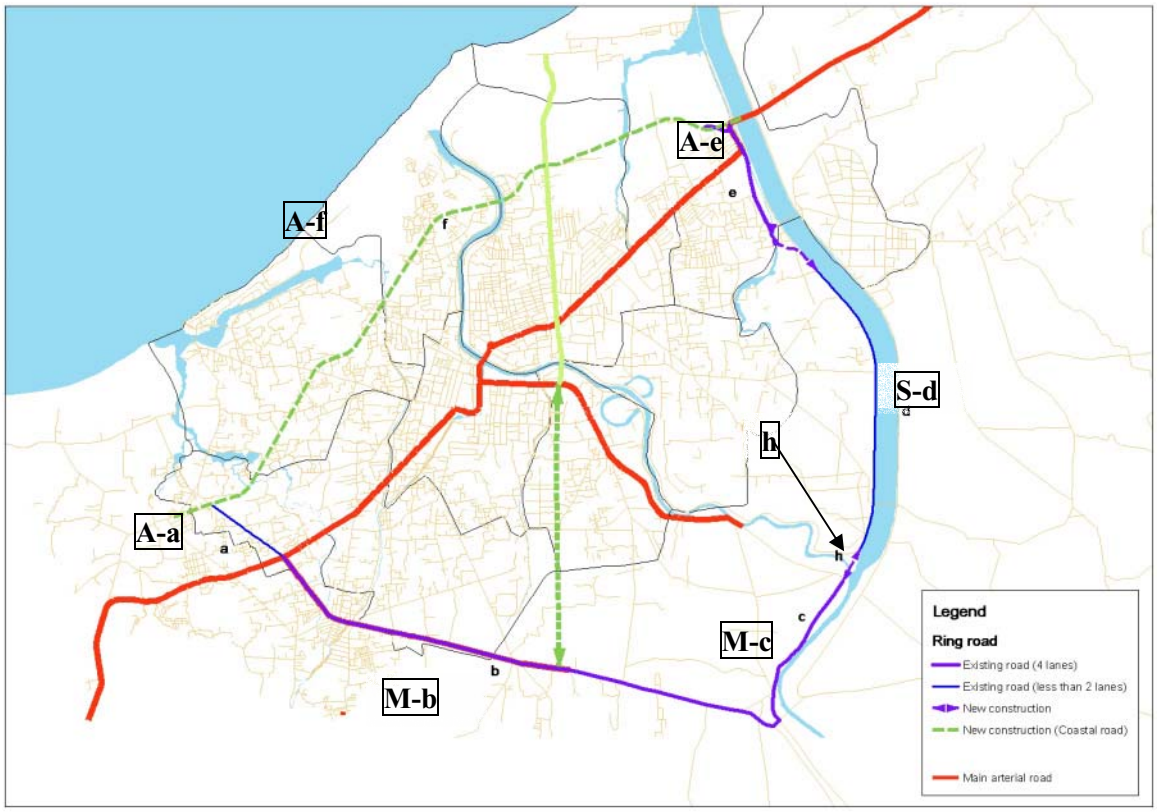


Source: JICA Study Team

Figure 2.3.4 Extension of Jl. Syiah Kuala

(2) Ring Road (south part)

This contemplated road consists of existing Jl. TGK. ABD Rahman Meunasah <A-a>, Jl. Soekarno Hatta <M-b>, Jl. Imum Lueng Bata <M-c>, the left bank road of Aceh floodway <S-d>, Jl. Laksamana Malahayati <A-e>, and road <A-f>. In order to complete the ring, the roads <M-c> and <S-d> are to be constructed including bridge <h>.



Source: JICA Study Team

Figure 2.3.5 Ring Road

(3) Third East-West Road

The third east-west road is planned to run in parallel with the national roads.

2.3.4 Other Plans

Other plans for facilities such as signal, traffic sign and road making, parking lot, car inspection place, bus terminal and truck terminal were studied.

2.3.5 Preliminary Cost Estimate

It is proposed to implement the following rehabilitation and reconstruction works for road and road traffic facilities: Their locations are presented in Figure 2.3.6.

Table 2.3.3 Proposed Rehabilitation and Reconstruction Works for Roads and Road Traffic Facilities

No.	Works	Work Items	Features of Works
R1: Road			
R1-1	Rehabilitation of arterial road	JL. Lhoknga (incl. Lamjame bridge)	Road: 2.6km; Bridge: 33m
		JL. TGK. ABD Rahman Meunasah Mencab	Road: 1.6km
		JL. Iskandar Muda (incl. Punge I, Laguna I bridge)	Road: 3.6km; Bridge: 80m
		JL. Habib Abdurrahman (incl. Titi Tungkat, Laguna II bridge)	Road: 3.7km; Bridge: 56m
		JL. Syiah Kuala (incl. Syiah Kuala I/II bridge)	Road: 3.9km; Bridge: 43m
R1-2	Rehabilitation of sub-arterial and other roads	Roads in the city	Road: 165.1 km
R1-3	Construction of coastal road (Ring road, north part)	Road construction with bridges, road facilities and drain facilities (box culvert etc.)	Road: 10.2km, (20-25m wide, 1.5m elevation, 5-15m slope both sides), Bridge: 150m
R1-4	Extension of Jl. Syiah Kuala	Road construction	Road: 4 km
R1-5	Improvement of escape roads	Road improvement	Road: 6 km
R1-6	Completion of the ring road and construction of new arterial roads (incl. 3rd east-west road)	Road and bridge construction	Road: , Bridge
R2: Traffic Safety Facilities			
R2-1	Reconstruction of traffic management systems	Signals Traffic signs Road marking	9 signals 225 traffic signs 6km road marking
R3: Road Traffic Facilities			
R3-1	Reconstruction of bus (labi-labi) terminal	Construction of bus terminal (building, traffic management, utilities)	Area: 34,000 m^2
R3-2	Vehicle inspection center		
R3-3	Car park	-	-
R3-4	New bus terminals	-	-
R3-5	Truck terminal and Logistic Center	-	-
R4: Ferry Terminal		-	-
R3-2	Reconstruction of ferry port	To be implemented by Australian Government	-

Source: JICA Study Team

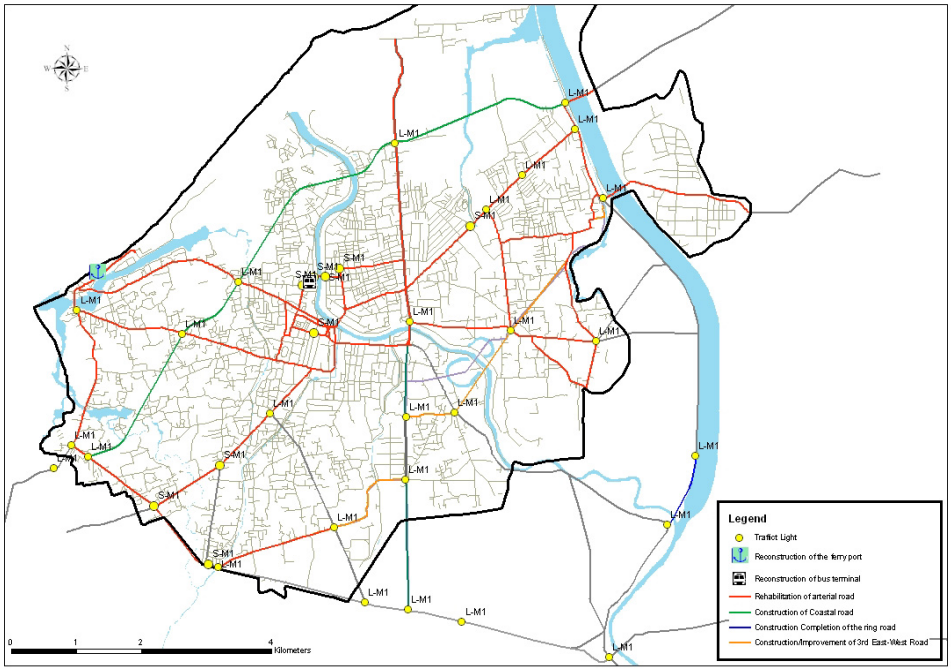
The preliminary cost estimate is made under the conditions and assumptions set forth below:

(1) Land acquisition and compensation cost is not included.

(2) The direct construction cost is assumed not to include the amount of VAT and but include import duties.

(3) The physical and price contingencies are assumed to be 10 % of the direct construction cost respectively.

(4) The engineering services is assumed also to be 10 % of the direct construction for design and construction supervision.



Source: JICA Study Team

Figure 2.3.6 Location of Proposed Rehabilitation and Reconstruction Works

Based on the above conditions, assumptions, unit prices and proposed rehabilitation and reconstruction works, the project cost is estimated as shown in Table 2.3.4.

Table 2.3.4 Preliminary Cost Estimate

(Rp. billion)

Proposed Project/Program	Works	Amount
A. Projects		
Road	(1) Rehabilitation of Arterial Roads and Bridges	75.98
	(2) Rehabilitation of Sub-arterial and Other Roads	543.22
	(3) Construction of Coastal Road	247.00
	(4) Extension of Jl. Syiah Kuala	43.87
	(5) Improvement of Existing Road for Escape Road	19.74
	(6) Construction of New Arterial Roads	200.22
Traffic Safety Facility	(7) Reconstruction of Traffic Management System	4.15
	(8) Improvement of Signals	9.21
Road Traffic Facility	(9) Reconstruction of Bus Terminal	63.39
	(10) Construction of Terminals and Inspection Center	93.21
Ferry Terminal	(11) Construction of Ferry Terminal	67.60
	Total	1,367.59

Source: JICA Study Team

2.3.6 Tentative Implementation Plan

(1) Priority for Implementation

The target years of rehabilitation and reconstruction works are set at 2006 and 2009

respectively. However there are a huge amount of works on roads, road traffic facilities and others such as ferry terminal. The works will therefore be implemented in a stage-wise way. Two different development scenarios are set as summarized in Table 2.3.5.

Table 2.3.5 Development Scenario

Priority	Stage	Proposed Works
Scnario-1 (Realistic)		
1	Rehabilitation	Rehabilitation of arterial roads and bridges
		Rehabilitation of damaged sub-arterial and other roads
2	Reconstruction	Reconstruction of road safety facilities
		Reconstruction of bus (labi-labi) terminal
3	Long term	Construction of coastal road and extension of Jl. Syiah Kuala (north-south road)
		Completion of the ring road and construction of new arterial roads
		Construction of transportation facilities
Scenario-2 (Effectiveness of Transport)		
1	Rehabilitation	Rehabilitation of arterial roads and bridges
		Rehabilitation of damaged sub-arterial and other roads
2	Reconstruction	Reconstruction of traffic management systems and transportation facilities
		Reconstruction of bus (labi-labi) terminal
		Construction of coastal road and extension of Jl. Syiah Kuala (north-south road)
3	Long term	Completion of the ring road and construction of new arterial roads

Source: JICA Study Team

(2) Tentative Implementation Plan

Tentative implementation plans according to the above development scenario-1 is shown in Table 2.3.6.

Table 2.3.6 Implementation Plan (Scenario-1)

Projects/Programs		Implementation Schedule				
		Rehabilitation Stage		Reconstruction Stage		
		2005	2006	2007	2008	2009
A. Projects						
Road	(1) Rehabilitation of Arterial Roads and Bridges	■	■			
	(2) Rehabilitation of Sub-arterial and Other Roads	■	■			
	(3) Construction of Coastal Road	Beyond 2009				
	(4) Extension of Jl. Syiah Kuala	Beyond 2009				
	(5) Improvement of Existing Road for Escape Road			■		
	(6) Construction of New Arterial Roads	Beyond 2009				
Traffic Safety Facility	(7) Reconstruction of Traffic Management System				■	
	(8) Improvement of Signals	Beyond 2009				
Road Traffic Facility	(9) Reconstruction of Bus Terminal			■	■	
	(10) Construction of Terminals and Inspection	Beyond 2009				
Ferry Terminal	(11) Construction of Ferry Terminal			■	■	■

Source: JICA Study Team

2.4 HEALTH AND MEDICAL CARE

2.4.1 Mission, Strategies and Goals

Based on the analyses on the current situation and related plans, mission, strategies and goals of the urgent rehabilitation and reconstruction plan are presented below.

Table 2.4.1 Mission, Strategies and Goals for Health and Medical Care

Mission	Strategies
1. Revitalization of health service providing system.	1-1. Rehabilitation and reconstruction of health facilities and equipment at all levels.
2. Providing sustainable health services to maintain and improve physical and mental health condition of people properly and equally.	1-2. Capacity building of implementing organizations and service providers. 2-1. Development of human resources including doctors, co-medical staff, government officials and health volunteers to provide health services for people. 2-2. Strengthen of referral system among community, health centers and those networks and hospitals. 2-3. Consideration for vulnerable groups such as children, aged people and women.
3. Encouraging people to take initiative in health development.	3-1. Mobilization of community to sustain primary health care and health promotion activities

2015	**Overall goal:** Health indicators are improved as a result of sustainable health development.
~2009	Reconstruction Stage: Revitalizing and sustaining of health services to maintain and improve health service indicators.
	1-1-1. Permanent health human resources receive necessary refresher's training. 2-1-1. Maintenance system of health facilities and equipment is established. 2-1-2. Policy planning and management capacity is revitalized. 2-2-1. Health education institutions turn out health personnel regularly. 2-2-2. Health personnel and health volunteers receive regular training. 2-3-1. Patients refereed to appropriate health facilities properly. 2-4-1. Vulnerable people (the poor, women and children) can access to appropriate health services. 3-1-1. Primary health care system in the community is revitalized.
~2006	Rehabilitation Stage: Recovering of damages and losses of health service providers
	1-1-1. Damaged health facilities including equipment are rehabilitated, reconstructed or repaired. 1-1-2. Damaged drug and medical supply system are rehabilitated. 1-1-3. Lost human resources are recruited by temporally human resources. 2-1-1. Health information system is established. 3-1-1. Community awareness rising system is established.

2.4.2 Urgent Rehabilitation and Reconstruction Plan

Urgent rehabilitation and reconstruction plan for health sector in Banda Aceh City are formulated based on the following criteria:

(1) Resuming of regular health service providing system by restoring damaged facilities and lost human resources.

(2) Coherence with related plan of the Government of Indonesia, including "Master Plan for Rehabilitation and Reconstruction Aceh Region and Nias", health sector action plan of Banda Aceh City, and other health sectoral plan and strategy such as "Healthy Indonesia 2010".

Based on the above criteria, following projects are proposed for Urgent Rehabilitation and Reconstruction Plan.

Table 2.4.2 Urgent Rehabilitation and Reconstruction Plan

Project	Major Activities
Environmental health	
Improvement of environmental health	- Improvement of environmental condition in tsunami affected areas - Sensitization on environmental health and hygiene practice for general population - Monitoring and control of quality of drinking water
Health service	
Rehabilitation/ reconstruction of damaged health centers and those networks	- Rehabilitation of 6 damaged health centers/ sub health centers - Reconstruction of 12 destroyed health centers and sub health centers
Reconstruction of destroyed and damaged public hospitals	- Relocation and reconstruction of Meuraxa Hospital - Rehabilitation of Zainoel Abidin Hospital
Revitalization of basic health services including primary care, public health programs and health promotion, and referral services	- Training on technical and management skills improvement for health personnel and community - Awareness rising on community health for general population
Maternal and child health system improvement	- Training on maternal and child health for health workers and community - Establishment of community referral system
Community nutrition improvement	- Provision of supplemental nutrition (vitamin A, iron tablets, etc.) - Establishment of nutrition surveillance system - Training on nutrition surveillance system
Mental Health Care Improvement	- Training on physiological care for health personnel at all levels - Establishment of down referral system for ex-patients
Trauma treatment for tsunami victims	- Establishment of trauma rehabilitation center and rehabilitation programs - Training on trauma treatment and rehabilitation for health personnel and community
Diseases prevention and control	
Revitalization of infectious diseases prevention and control system	- Post-tsunami epidemiology survey - Establishment of health information system and regular epidemiology surveillance system

Project	Major Activities
	- Training on health information system and epidemiology surveillance
Communicable diseases control enhancement	- Capacity building on quality control of laboratory works - Establishment of laboratory referral system - Establishment of communicable diseases alert system
Drug and medical supply	
Rehabilitation of drug and medical supply system	- Rehabilitation of drug and medical distribution facilities and equipment including storage and transportation - Revitalization of drug and medical management system
Health resources	
Health human resources development	- Revitalization of health education facilities - Educating and encouraging local human resources
Health development policy and management	
Revitalization of Banda Aceh City Health Office	- Rehabilitation of Banda Aceh City Health Office - Capacity building for health policy development and management - Establishment of program coordination body - Establishment of health database
Drug and food control	
Revitalization of drug and food security system	- Rehabilitation of Drug and Food Control Center - Capacity building for drug and food control system
Emergency Health and Medical Services	
Emergency health and medical service system development	- Establishment and development of emergency service providing structure among health service providers - Training on emergency health and medical services

Source: JICA Study Team

2.4.3 Preliminary Cost Estimate and Tentative Implementation Schedule

Preliminary project cost for the urgent rehabilitation and reconstruction works proposed in this study is estimated based on the following conditions and assumptions. However, these are subject to change due to finalization of the Indonesian authorities.

Conditions and Assumptions for Preliminary Cost Estimate

(1) Physical contingency and price escalation are assumed to be 10 % each of the direct construction cost.

(2) Engineering service is assumed to be 10 % of the direct construction cost for detailed study & design and construction supervision.

(3) If project is purely program type and/or procurement, only price contingency is considered.

(4) VAT is included in the cost, however, import duties are not included in the cost.

(5) Land acquisition and compensation costs are not included in the Project cost.

Total project cost is shown below. Each project cost estimated based on the city action plan and other related data and information is presented in the foregoing tentative implementation schedule.

Table 2.4.3 Preliminary Cost Estimate

(Rp. billion)

Proposed Project/Program	Works	Amount
A. Projects	(1) Improvement of Environmental Health	58.40
	(2) Basic Health Service/Referral Services	255.00
	(3) Infectious Diseases Prevention and Control	17.60
	(4) Preparation of Medicine and Medical Supply	1.00
	(5) Dispatching Health Personnel and Revitalization of Education Facilities	94.50
	(6) Improving Health Development Policy and Management	19.90
	(7) Revitalization of Drug and Food Security Function	26.00
	(8) Emergency Health and Medical Services	25.40
	Total	497.8

Source: JICA Study Team

Note: Costs for land acquisition and compensation are not included.
*1: CHO=Banda Aceh City Health Office
*2: PHO=NAD Provincial Health Office
*3: BPOM=Drug and Food Control Center

Tentative implementation plans is shown as follow:

Table 2.4.4 Tentative Implementation Schedule

Projects/Programs	Implementation Schedule				
	Rehabilitation Stage		Reconstruction Stage		
	2005	2006	2007	2008	2009
A. Projects					
(1) Improvement of Environmental Health					
(2) Basic Health Service/Referral Services					
(3) Infectious Diseases Prevention and Control					
(4) Preparation of Medicine and Medical Supply					
(5) Dispatching Health Personnel and Revitalization of Education Facilities					
(6) Improving Health Development Policy and					
(7) Revitalization of Drug and Food Security Function					
(8) Emergency Health and Medical Services					

Source: JICA Study Team

Following projects are identified for higher priority projects for health sector rehabilitation and reconstruction in Banda Aceh City and the affected areas.

a) Rehabilitation/ Reconstruction of Damaged/ Destroyed Health Centers and Sub Health Centers

b) Rehabilitation/ Reconstruction of Damaged/ Destroyed Public Hospitals

c) Rehabilitation of Drug and Medical Supply System

d) Maternal and Child Health System Improvement Project

e) Mental Health Care System Improvement Project

f) Communicable Diseases Control Enhancement Project

g) Capacity Building for Drug and Food Control

2.5 EDUCATION

2.5.1 Mission, Strategies and Goals

Mission, strategies and goals of the urgent rehabilitation and reconstruction plan are shown as below.

Table 2.5.1 Mission, Strategies and Goals for Education

Mission
▸ To increase net enrollment at least to the national average ▸ To level up educational level of the province to the national level ▸ To strengthen education facilities not only in terms of school buildings but also of teaching material and equipment ▸ To design and locate the school building safe against disaster and in harmony with disaster mitigation plan
Strategies
Access to Education a) To rehabilitate, restore and/or reconstruct damaged school at new location b) To provide education services to orphans and widowed mothers to make their livelihood easy c) To reconstruct and improve non-formal education infrastructure d) To rehabilitate and reconstruct damaged higher education infrastructure and equipment **Quality of Education** a) To produce teachers and improve in-service teachers' capacities b) To improve teaching and learning for mathematics and science c) To improve vocational education to contribute to enhancement of local economy d) To enhance profession of teaching and learning materials **Management of Education** a) To improve education administrative capacity b) To strengthen community participation in education c) To modernize non-formal education
Goals
▸ All students can learn with the minimum learning materials at rehabilitated, reconstructed and newly constructed schools and accordingly the enrollment rate will be higher ▸ Education level will be higher by increase of trained teachers and development of the teaching-learning process and curriculum ▸ An efficient and effective education administration will be carried out by the capacity development of administrators

2.5.2 Urgent Rehabilitation and Reconstruction Plan

Urgent rehabilitation and reconstruction plan for education sector is shown as follows:

(1) Rehabilitation and reconstruction of damaged schools and establishing new schools, and maintaining the improved schools

(2) Recruiting temporary educators and permanent teachers and training in-service teachers and administrators

(3) Providing emergency schools and the class lessons

(4) Providing textbooks/learning materials and school furniture

(5) Providing the affected students/teachers with scholarship/subsidy and counseling traumatized students/teachers

(6) Developing teaching-learning process and curricula, and providing developed learning materials

(7) Modernizing non formal education

(8) Developing school management

2.5.3 Preliminary Cost Estimate and Tentative Implementation Schedule

Preliminary implementation cost is estimated at Rp. 969 billion based on the following conditions.

(1) An allowance of 20 % is however added on that estimate as the school building would be reinforced for use as an escape building especially in the coastal area in future.

(2) The cost does not include the land acquisition and compensation cost.

(3) The cost includes physical contingency (10 %), price escalation (10 %) and engineering services (10 %). The costs for procurement and other program include only a price escalation.

(4) The direct construction cost is assumed to include the amount of VAT and but not to include import duties.

The preliminary implementation cost and tentative implementation schedule as shown in Table 2.5.2 and Figure 2.5.1 will be finalized by the Indonesian authorities.

Table 2.5.2 Preliminary Cost Estimate

(Rp. billion)

Proposed Project/Program	Works	Amount
A. Projects	(1) Rehabilitation and reconstruction of damaged school, Phase I	460.00
	(2) Rehabilitation and reconstruction of damaged school, Phase II	241.00
	(3) Rehabilitation and reconstruction of damaged school, Phase III	25.00
	Sub-total for Project	726.00
B. Programs	(1) Recruitment of temporary educator and permanent teachers, Phase I	33.00
	(2) Recruitment of temporary educator and permanent teachers, Phase II	6.00
	(3) Emergency school and lesson	61.00
	(4) Provision of text books/learning materials	22.00
	(5) Provision of scholarship/subsidy and counseling traumatized students/teachers, Phase I	45.00
	(6) Provision of scholarship/subsidy and counseling traumatized students/teachers, Phase II	14.00
	(7) Developing teaching-learning process and curricula, and providing developed learning materials	17.00
	(8) Modernizing non formal education	3.00
	(9) Developing school management	42.00
	Sub-total for Programs	243.00
	Total	969.00

Source MONE and JICA Study Team

In the light of the rehabilitation and reconstruction target and urgency in need, tentative implementation schedule is set as follows:

Table 2.5.3 Tentative Implementation Schedule

Projects/Programs	Implementation Schedule				
	Rehabilitation Stage		Reconstruction Stage		
	2005	2006	2007	2008	2009
A. Projects					
(1) Rehabilitation and reconstruction of damaged school, Phase I	■	■			
(2) Rehabilitation and reconstruction of damaged school, Phase II			■	■	■
(3) Rehabilitation and reconstruction of damaged school, Phase III	Beyond 2009				
B. Programs					
(1) Recruitment of temporary educator and permanent teachers, Phase I	■	■			
(2) Recruitment of temporary educator and permanent teachers, Phase II			■	■	■
(3) Emergency school and lesson	■	■			
(4) Provision of text books/learning materials	■	■			
(5) Provision of scholarship/subsidy and counseling traumatized students/teachers, Phase I	■	■			
(6) Provision of scholarship/subsidy and counseling traumatized students/teachers, Phase II			■	■	■
(7) Developing teaching-learning process and curricula, and providing developed learning materials			■	■	■
(8) Modernizing non formal education			■	■	■
(9) Developing school management			■	■	■

Source MONE and JICA Study Team

2.5.4 Priority Projects Identified

The above-noted project/program is aggregate of a number of sub-projects/programs. In terms of degree of damages of existing structures and human resources/education materials, there would be in difference in urgency of implementation. An attempt is made to prioritize such sub-project and program from the viewpoints of (i) increase in net enrollment rate, (ii) increase in trained teachers, (iii) increase in trained administrators, (iv) encourage of community participation, and (v) attention to orphans and widowed mothers. As a result the following 8 priority sub-projects/programs are selected:

As a result, following eight (8) priority projects are identified. Details are presented Appendix-7.

(1) Reconstruction and improvement of nucleus school for upgrading science and mathematics education level

(2) School relocations in coastal areas heavily damaged by tsunami

(3) REDIP (Regional Education Development and Improvement Program) in Banda Aceh City

(4) Improvement of early age children center

(5) Reconstruction of a senior vocational high school

(6) Reconstruction of in-service teacher training center

(7) Reconstruction of boarding schools

(8) Capacity development of education administration

2.6 ENVIRONMENT

2.6.1 Scoping for Urgent Rehabilitation and Reconstruction Plan

The scoping was made for the expected impacts to be caused by the proposed 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 Appendix-9.

It is evaluated that new construction of ring road and the new housing development impose severe impact on the resettlement/land issue such as land acquisition and consolidation. The project of disposal site of municipal garbage would also create the wide-range environmental impact on land and 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 to establish appropriate measures for land acquisition. The project of disposal site of municipal garbage is requires the wide-ranging survey/study not only the natural environment (topography, reforestation, flora and fauna) but also wastewater treatment and odor.

2.6.2 Future Program in Environmental Sector

The valuable ecosystem such as 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 lost their lives and the equipment of their operation was damaged or washed away. Two major authorities, Environmental Impact Management Agency in Banda Aceh city (*Bapedalda Kota*) and Forestry Department (*Dinas Kehutanan*) in Aceh Province are involved in environmental sector. *Bapedalda Kota* 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:

(1) Capacity building of Bapedalda Kota and Dinas Kehutanan consisting of reinforcement of its staffs, training and procurement of equipment (e.g. computer, printer, car).

(2) Conservation of coastal ecosystem composing of; (1) macro/micro base plan/study for mangrove ecosystem and other coastal vegetation, and (2) the implementation of their conservation.

For environmental perspective, Strategic Natural Resources and Environmental Assessment (SNREA) shall be promoted, which is the same concept with the Strategic Environmental Assessment (SEA).

2.7 SOCIAL IMPACT CONSIDERATIONS

2.7.1 Priorities for Social Impact Considerations

High priorities for social impact considerations were identified: (i) Job creation, (ii) Vulnerable people, (iii) Participation, and (iv) Community development. These are based on guidelines for social considerations[1] with adjustment to the specific post-disaster conditions in the Study Area[2].

2.7.2 Key Issues for Social Considerations

The planning process for each sector as described by this report considered key social issues. Those key issues within four (4) identified priorities are summarized in table below:

Table 2.7.1 Key Issues for Social Impact Considerations

Priority	Key Issues
Job creation	▸ Labor intensive technologies ▸ Labor intensive maintenance systems ▸ Based on local workers and local resources ▸ Based on selected target group (sustainable job creation) ▸ Recovery of former economic activities and facilitation of further development
Vulnerable people	Respond to needs, create skills and employment for IDPs, especially: ▸ Children & youth ▸ Women/ single mothers ▸ Handicapped ▸ Poor
Participation	▸ Public consultation (required commitment of central/ local administration to apply legal regulations) ▸ Participation of local stakeholders in rehabilitation reconstruction projects: formulation, implementation and monitoring & evaluation ▸ Socialization process ▸ Creating participation through labor intensive approach
Community development	▸ Community planning and prioritizing of works ▸ Based on locally available labor, services and construction materials ▸ Community-based skills training ▸ Community-based training in planning operation and maintenance of essential utilities ▸ Post-training services ▸ Support for entrepreneurship ▸ Local capacity building: community based organizations, business associations, NGOs, etc.

Source: JICA Study Team

2.7.3 Social Impact Considerations by Sector

Social impact considerations were included in the planning process for each sector. Details are shown in Section 5.7 of the Main Report.

[1] JICA Guidelines for Environmental and Social Considerations, April 2004; JBIC Guidelines for Confirmation of Environmental and Social Considerations, October 2003

[2] Based on the information collected by: (i) participation in coordination meetings, (ii) contacts with international organizations, (iii) international NGOs, (iv) local NGOs, (v) universities, and (vi) local administration. List of interviews is available in the Project files.

3. IMPLEMENTATION PLAN AND SCHEDULE

3.1 PROJECT LIST (2005-2015)

3.1.1 Overall Program

The implementation schedule are mainly divided into three (3) phases; namely,

(1) Rehabilitation phase (2005-2006)

(2) Reconstruction phase (2007-2009)

(3) Long-term phase (2010 -2015)

The rehabilitation and reconstruction phases are presumed as the period for restoration of pre-tsunami social and environmental conditions, while long-term phase is the development period to accomplish city planning with disaster preparedness.

3.1.2 Preliminary Project Cost

Project costs for rehabilitation stage (2005-2006), reconstruction stage (2007-2009) and long term stage (2010-2015) are broken down in accordance with the implementation plan and schedule. Preliminary project cost and tentative implementation plan in each sector are subject to change by the related Indonesian authorities.

Preliminary project cost includes 10 % physical contingency, 10 % price escalation and 10 % engineering services fee of the direct cost, and Value Added Tax (VAT). Import duty, land acquisition cost and compensation fee are not included in the cost. The total project cost is estimated at Rp. 6,618 billion for rehabilitation and reconstruction programs and Rp. 9,292 billion including Long-term programs as summarized below.

Table 3.1.1 Summary of Project Cost

(Rp. billion)

SECTOR	Rehabilitation (2005 – 2006)	Reconstruction (2007 – 2009)	Long-term (2010 – 2015)	TOTAL
A. Housing	780.0	524.9	588.9	1,893.8
B. Electricity & Communication	651.3	1,281.2	780.0	2,712.5
C. Water Supply	115.9	8.2	21.7	145.8
D. Drainage and Sanitation	324.2	357.9	176.7	858.8
E. Road and Transport	619.2	154.9	593.5	1,367.6
F. Health	324.6	84.9	88.3	497.8
G. Education	621.0	323.0	25.0	969.0
H. Disaster Preparedness	25.0	172.9	321.8	519.7
J. Public Market etc.	112.1	136.5	78.0	326.6
TOTAL	3,573.3	3,044.4	2,673.9	9,291.6

Source : JICA Study Team

3.1.3 Program by Sector

(1) Housing Program

Housing program formulated in the Blueprint considered 16,000 houses for rehabilitation phase and 4,000 houses for reconstruction phase. These numbers are updated based on the actual survey carried out by IOM in March 2005 and the direct cost for rehabilitation/reconstruction of housing was recalculated accordingly.

Although the reconstruction of new houses are on-going in accordance with village plans with funding of donors and NGOs, the number of reconstructed houses as of July 2005 is far behind the schedule of the proposed numbers in the Village Plan.

(2) Electricity and Communication

Electricity and communication facilities are being rehabilitated by the electricity corporation and telecommunication company, respectively. The cost is based on their program.

(3) Water Supply System

Among the basic infrastructures, the water supply system is being rehabilitated urgently as a part of Quick Impact Projects under Japanese aid program.

(4) Necessity of Restoration of Road Network

The most serious concern of this Study is to restore the social and economical activities under pre-disaster condition. Among the proposed programs, the priority is given to the restoration of road construction, since the programs proposed in the other sectors depend largely on the access to the communities.

(5) Improvement of Drainage System

Land subsidence due to earthquake is the most serious issue for formulating people-centered housing plan, so-called village plan, especially in the coastal area where dislocated families want to return their homeland, but they are frequently submerged into sea water during high tide.

(6) Health and Medical Care

As well as the rehabilitation of basic infrastructures the priority programs for health and medical care focus on the rehabilitation of damaged health care centers and to resume regular health services in rehabilitation stage by 2006.

(7) Education

Tsunami caused casualties to 13,500 students and 820 teachers in Banda Aceh City.

Although there were 66,000 students in an elementary and high school in 2004, the number of students has dropped by 55 %. Also, about 60 % of schools were damaged.

Among the education sector programs, the priority project is mainly divided into four (4) categories; namely, (i) restoration of school infrastructures, (ii) teacher production and training for in-service teachers, (iii) scholarship to orphans who lost parents by tsunami, and (iv) upgrading the capacity of education administrators.

(8) Disaster Preparedness

The most effective method against a huge-scale natural disaster is to ensure escaping, evacuation and relief activities through well-arranged road network. Among the structural measures proposed in this study, coastal forest utilizing natural force of vegetation would be raised with priority, while the reinforced-concreted structures such as seawall and detached breakwater would be part of reconstruction plan after the completion of effective road network.

Simultaneously, public education and disaster awareness is regarded as one of the long-term efforts to achieve disaster preparedness and the people are able to understand well the importance of disaster preparedness immediately after the disaster.

The early implementation of non-structural measure is favorable for disaster preparedness taking into account the lesser investment cost and long-range acquired of disaster mitigation effects, as well as administrative guidance for the installation of external stairs to existing buildings and newly-built public facilities as escape buildings.

(9) Public Market, etc.

The direct cost for rehabilitation/reconstruction of public markets, government buildings and religious buildings was calculated according to the number of damaged building units by the survey carried out by IOM on March 2005.

3.2 PRIORITY PROJECT (2005-2009)

The priority projects were selected basically from those in the rehabilitation and reconstruction stage (2005-2009). The projects cover all sectors. The implementation schedule was adjusted to average the total cost by year.

(1) Road and Transportation

Rehabilitation of the damaged roads and bridges are selected. The rehabilitation of arterial roads will have more priority than other minor roads. Reconstruction of traffic management system and reconstruction of transport facilities include the bus (*labi-labi*) terminal and ferry terminal.

(2) Urban Sanitation and Drainage

Urban drainage rehabilitation in the devastated area and city center is prioritized including rehabilitation of pump facilities, primary channels and water gates, construction of retarding ponds and dredging of channels. Recovery and expansion of human excrement treatment plant (IPLT) is indispensable from environmental point of view. As the existing dumping site will be filled up in about two years, new site for sanitary landfill should be secured as soon as possible.

(3) Health and Medical Cares

The following seven (7) packages of specific projects are identified.

a) Rehabilitation/ Reconstruction of Damaged/ Destroyed Health Centers and Sub Health Centers

b) Rehabilitation/ Reconstruction of Damaged/ Destroyed Public Hospitals

c) Rehabilitation of Drug and Medical Supply System

d) Maternal and Child Health System Improvement Project

e) Mental Health Care System Improvement Project

f) Communicable Diseases Control Enhancement Project

g) Capacity building for drug and food control

(4) Education

The following specific project packages in the education sector are identified.

a) Reconstruction and improvement of nucleus school for upgrading science and mathematics education level

b) School Relocations in Coastal Areas Heavily Damaged by the Tsunami in disaster preparedness

c) REDIP (Regional Education Development and Improvement Program) in Banda Aceh City.

d) Improvement of Early Age Children Center

e) Reconstruction of a Senior Vocational High School

f) Reconstruction of In-Service Teacher Training Center

g) Reconstruction of Boarding Schools

h) Capacity Development of Education Administration

(5) Disaster Mitigation

Priority is given to the implementation of non-structural measure; especially warning system and disaster awareness, taking into account the lesser cost and long range acquired of disaster mitigation effects. Coastal forest will be raised as part of structural measure, while the reinforced-concreted structures such as seawall and detached breakwater will be later part of reconstruction plan.

3.3 ORGANIZATION

Banda Aceh City and NAD Province are the implementing bodies for the rehabilitation and reconstruction projects for the city, while BRR plays an important role as a coordinating agency to ensure transparency, accountability and speed in the reconstruction of Aceh and Nias.

BRR was set up for a four-year period by the President on April 16, 2005 through Regulation in Lieu of a Law (*Perpu*) No. 2/2005. As part of the BRR's commitment to abide by stringent guidelines and the highest professional standards, the *Perpu* specifies that rehabilitation and reconstruction activities will be implemented based on the principles of transparency, accountability, participation and responsibility by prioritizing public interest and remaining free of corruption, collusion, and nepotism.

BRR has been granted an unprecedented level of authority and responsibility to enable it to rapidly address the needs of the affected regions. The establishment of two (2) independent oversight boards, made up of a number of national and regional officials, civil society representatives, and reconstruction and technical experts, have been providing the highest level of civilian supervision and accountability in order to ensure full transparency and oversee governance, operations and fund disbursement.

Dr. Kuntoro Mangkusubroto was appointed on April 29, 2005 as a Director of the Rehabilitation and Reconstruction Executing Agency (*Badan Pelaksana Rehabilitasi dan Rekonstruksi*) for Aceh and Nias. He is a man of high integrity with a proven track record of effective management.

There are eight (8) departments in the BRR. They are; (i) Planning and Programming, (ii) Institutional Development & Empowerment, (iii) Housing, Infrastructure & Land Use, (iv) Economic & Business Development, (v) Religion, Social & Culture, (vi) Education & Health, (vii) Finance & Funding, and (viii) Communications, Information & Inst. Relation.

Operation principles and roles of the BRR are:

(1) To act as a "market place", bringing together project proposals that address important needs with available funds,

(2) To facilitate local government and civil society bodies in implementation of projects, capacity building where needed,

(3) To lever stakeholders resources (e.g., donors) , external agencies and existing mechanism wherever possible,

(4) To monitor progress of on-budget and off-budget projects, conducting spot-checks and full audits where necessary, and

(5) To focus on agency capacity-building, and fast tracking suitable projects.

4. COMMUNITY EMPOWERMENT PROGRAM (CEP)

4.1 OBJECTIVE

Objective of Community Empowerment Program (CEP) for Rehabilitation/Reconstruction of Aceh and North Sumatra is to revive the community's lives for the improvement of their livelihood and welfare in the affected areas by the earthquake and tsunami that occurred on December 26, 2004, with integrated approach, including social and cultural aspects of the community.

4.2 COMPONENTS OF 12 CEPS

Components of 12 CEPs are presented in Table 4.2.1, while details of the projects are described in Appendix-1. Strategies applied for the CEP Projects are as follows:

(1) Reviving People's Livelihood as the Core

(2) Special Attention to Acehnese Religion and Culture

(3) Ensuring Regional Balance

(4) Gender Issue by Locality

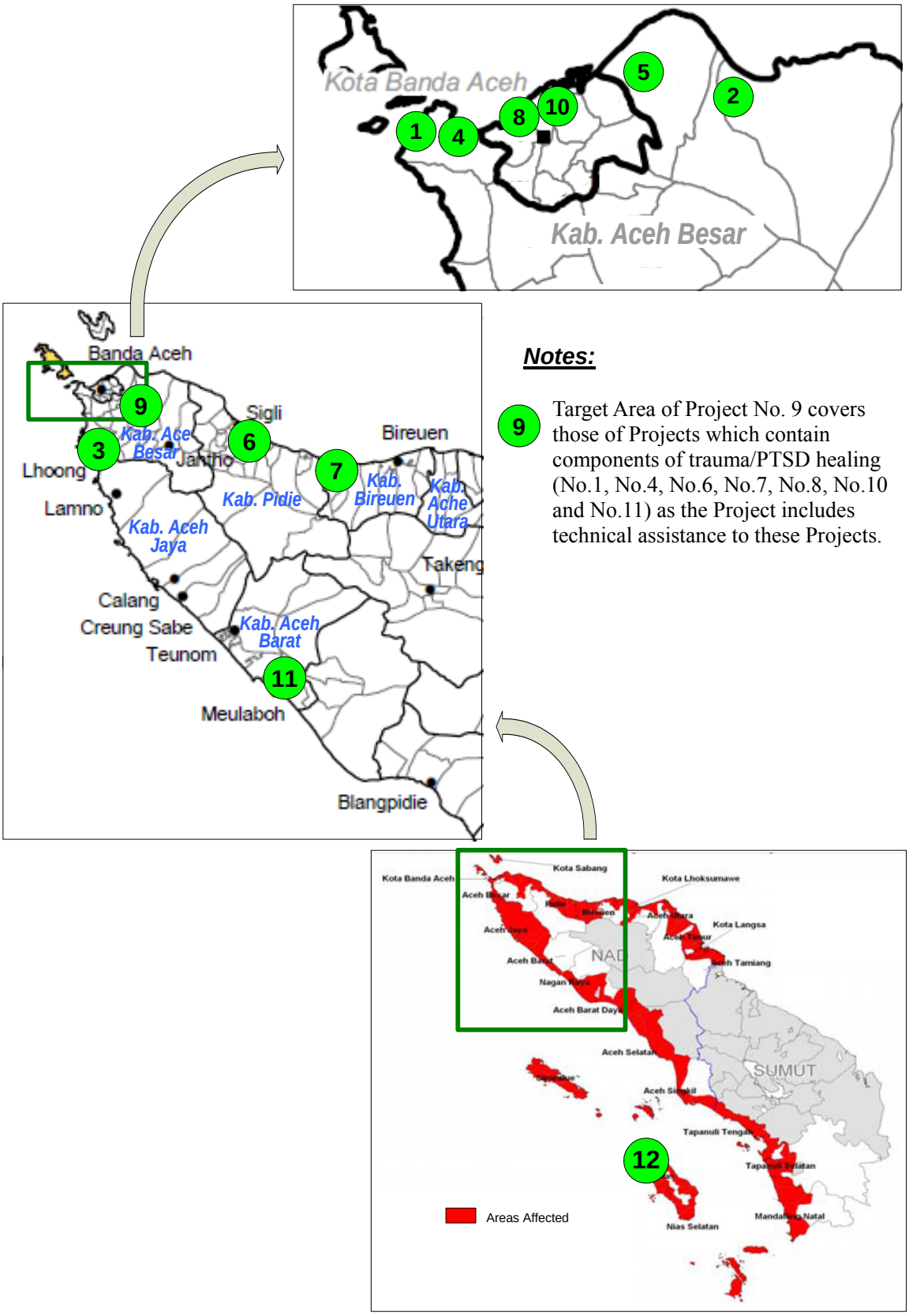
Location map of 12 CEPs is shown in Figure 4.2.1.

Table 4.2.1 Components of 12 CEPs

Project No.	Livelihood	Water/Sanitation/ Environment	Trauma/PTSD	Capacity Development
1.	●	●	●	●
2.		●		●
3.		●		●
4.	●	●	●	●
5.	●	●	●	●
6.	●			●
7.	●			●
8.	●			●
9.			●	●
10.			●	●
11.			●	●
12.	●			●

4.3 MONITORING PROGRESS

As a progress of monitoring, there are not significant problems. Monitoring progress for each project is explained in detailed in Appendix-1. Monitoring results will be finally presented at the end of this Program in March 2006.



Notes:

9 Target Area of Project No. 9 covers those of Projects which contain components of trauma/PTSD healing (No.1, No.4, No.6, No.7, No.8, No.10 and No.11) as the Project includes technical assistance to these Projects.

Figure 4.2.1 Location Map of 12 CEPs