

**NATIONAL DISASTER MANAGEMENT  
AGENCY (BNPB)**

**THE STUDY  
ON  
NATURAL DISASTER MANAGEMENT  
IN  
INDONESIA  
  
FINAL REPORT**

**VOLUME 1:  
SUMMARY**

**MARCH 2009**

**JAPAN INTERNATIONAL COOPERATION AGENCY**

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**ORIENTAL CONSULTANTS CO., LTD.  
ASIAN DISASTER REDUCTION CENTER**

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Foreign Currency Exchange Rates Applied in the Study

Currency	Exchange Rate/USD
Rupiah (IDR)	9430.00
Japanese Yen (JPY)	107.50

(Rate as of October 1, 2008)

## PREFACE

Based on a request from the Government of Republic of Indonesia, the Government of Japan responded by providing a development study to formulate the comprehensive disaster management plan on national and regional levels of Indonesia, and also to enhance the capacity for disaster management. This study was conducted by the Japan International Cooperation Agency (JICA).

For this study, JICA sent a team headed by Mr. Isamu Gunji of the joint venture of Oriental Consultants Co., Ltd. and Asian Disaster Reduction Center, between April 2007 and December 2008. In addition, JICA also set up a monitoring mission to examine the study from specialist and technical point of views.

The team held discussions with the officials of the Government of Indonesia. They also conducted field surveys at the study areas. The final report and further studies were performed after the team returned back to Japan.

I hope that this report will contribute to the promotion of the project in Indonesia, and also enhance friendly relationships between our two countries.

Finally, I would like to express my sincere appreciations to the officials of the Government of Indonesia for their close cooperation extended to the study team.

March, 2009

Ariyuki MATSUMOTO

Vice-President

Japan International Cooperation Agency

March 2009

Mr. Ariyuki MATSUMOTO  
Vice-President  
Japan International Cooperation Agency  
Tokyo, Japan

**Letter of Transmittal**

Dear Sir,

We are pleased to inform you that the team has finalized the study for formulating the comprehensive disaster management plan on national and regional levels of Indonesia, and development of capacity for disaster management. And the final report, “The Study on Natural Disaster Management in Indonesia” has been submitted.

The study was performed from March 2007 to March 2009 by the joint venture of Oriental Consultants Co., Ltd. and Asian Disaster Reduction Center in accordance with the contracts between the Japan International Cooperation Agency and the joint venture. During the study, the team devoted their best efforts for formulating the comprehensive disaster management plan on national and regional levels of Indonesia, and development of capacity for disaster management.

All members of the study team wish to express their sincere appreciations to the personnel of your agency, monitoring mission, and the Embassy of Japan in Indonesia, and also to the officials of the Government of the Republic of Indonesia, Badan Nasional Penanggulangan Bencana (BNPB), SATKORLAKs of East Java Province and West Sumatra Province, SATLAKs of Kabupaten Jember, Kabupaten Padang Pariaman and Kota Pariaman including other related agencies for their cooperation extended to the study team.

The team sincerely hopes that the results of the study will contribute to the promotion of disaster management plans on national and regional levels of Indonesia.

Yours faithfully,

Isamu Gunji  
Team Leader

The Study on Natural Disaster Management in Indonesia

# THE STUDY ON NATURAL DISASTER MANAGEMENT IN INDONESIA

## OUTLINE

### 1 SCOPE OF THE STUDY

#### 1.1 Background of the Study

On December 26, 2004, the countries surrounding the Indian Ocean suffered unprecedented damage by a giant earthquake of magnitude 9.0 with a hypocenter in the coast of Sumatra in Indonesia and a sequent tsunami. The international community offered massive aid to assist in disaster recovery, and Japan also executed international emergency relief operations and urgent rehabilitation and reconstruction support.

In July 2005, the President of Indonesia H.E. Susilo Bambang Yudhoyono and the Prime Minister of Japan H.E. Junichiro Koizumi recognized that capacity development for reducing damage by natural disaster including earthquake and tsunami are priority issues for Indonesia, and agreed to establish the “Committee on Disaster Reduction” in order to mitigate natural disasters in Indonesia and strengthen cooperation to develop a disaster reduction system.

Under these circumstances, the Government of Japan agreed to the request of Government of Indonesia, and decided to implement the Study for formulation of comprehensive disaster management plan on national and regional levels of Indonesia and development of capacity for disaster management.

In December 2006, the Japan International Cooperation Agency (“JICA”) dispatched the Preparatory Study Team to Indonesia for the preliminary survey as well as discussion of the Scope of Work for the Study. Between the Preparatory Study Team and the National Coordinating Board for Disaster Management (“BAKORNAS PB”), the Scope of Work and the Minutes of Meeting were agreed on December 11, 2006.

This Study was conducted from March 2007 to March 2009 in accordance with the Scope of Work.

BAKORNAS PB was reformed to BNPB in 2008 during the Study.

#### 1.2 Objectives of the Study

The overall goal of the Study is to enhance the natural disaster management capacities in Indonesia and to facilitate the creation of necessary institutional mechanisms to achieve it through the formulation of disaster Management Plan at national and regional levels. Aiming at achieving the overall goal, the following activities against natural disasters targeting flood, sediment disasters, earthquake and tsunami, were implemented in this Study:

- To formulate comprehensive disaster management plan in national and regional levels of Indonesia
- To develop capacity of national and regional organizations concerned and communities.

### 1.3 Study Area

- National Level:  
Entire Country
- Regional Level:  
Two pilot regions have been selected for the comprehensive disaster management plan at Kabupaten and Kota level as follows:
  1. Kabupaten Jember in East Java Province
  2. Kabupaten Padang Pariaman and Kota Pariaman in West Sumatra Province

### 1.4 Study Components

The Study is composed of the following components:

Component 1: Formulation of Natural Disaster Management Plan	Component 1-1: Formulation of National Disaster Management Plan
	Component 1-2: Formulation of Regional Disaster Management Plan for Pilot Regions
Component 2: Capacity development of the organizations concerned	Component 2-1: Capacity development of BAKORNAS PB/BNPB
	Component 2-2: Capacity development of regional organizations concerned
	Component 2-3: Capacity development of the communities
Component 3: Preparation of general guideline for formulation of Regional Disaster Management Plan for the other regions in Indonesia	

## 2 OUTPUTS OF THE STUDY

### 2.1 National Disaster Management Plan

National Disaster Management Plan was formulated through a series of workshops with BNPB and relevant government agencies for disaster management based on the following general principle and basic policy discussed and agreed with BNPB.

#### General Principle

- To apply the Disaster Management Plan of Japan.

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- After this Study, the Plan needs to be further reviewed and checked in detail, and will be finalized in the official format of Government of Indonesia and formulated through the necessary official process.

#### Basic Policy and Strategy

- National Disaster Management Plan of Indonesia is drafted based on the discussions and reviews of Disaster Management Plan of Japan. During the effort of drafting the Plan, the characteristic of Indonesia that are different from those of Japan are supposed to be incorporated. To be more precise, the JICA Study Team introduces and elaborates the Disaster Management Plan of Japan to BNPB.
- In this Study, we focus on four disaster types including earthquake, tsunami, flood and sediment disasters. BNPB will formulate the parts for other types of disasters and accommodate the Plan for those disasters that are not dealt with in this Study in the future.
- As for the structure of the Plan, the Plan has a separate part for each disaster type. Each part basically consists of three sections including (1) Pre-Disaster Measures, (2) Emergency Response Measures and (3) Post Disaster Measures for rehabilitation and recovery along with the disaster management cycle. In the part for Earthquake Disaster Measures; the earthquake and tsunami measures are discussed and in the part for Rain and Storm Disaster Measures; the flood and sediment disasters are discussed.
- The National Plan has the similar format to that of the “Regional Disaster Management Plans” in order to enable to make the comparison and reference among the national and regional plans and make the coordination more effective and appropriate when implementing the disaster management efforts by the national and regional authorities.
- The Plan is formulated with the recognition that the Plan complements and enhances the items stipulated in the relevant Presidential Regulation and Government Regulations.
- The National Disaster Management Plan needs to have such flexibility that enables the relevant government agencies to incorporate the unique mission and mandate for the disaster management efforts of the agencies since those agencies would find it difficult to stipulate the mission and mandate in the National Plan.
- The National Disaster Management Plan is formulated on the basis that it will be reviewed periodically once in five years and when a big disaster happens.

Structure of formulated National Disaster Management Plan is as follows. The contents of each Part are shown in Figure 1.

#### Part 1: General

- Objectives and structure of the Plan, Basic Strategy, Background



Part 2: Earthquake Disaster Measures

- Activities, and their responsible and relevant organizations of disaster management items in each disaster phase (Pre-disaster, Emergency Response, Post disaster)

Part 3: Rain and Storm Disaster Measures

- Activities, and their responsible and relevant organizations of disaster management items in each disaster phase (Pre-disaster, Emergency Response, Post disaster)

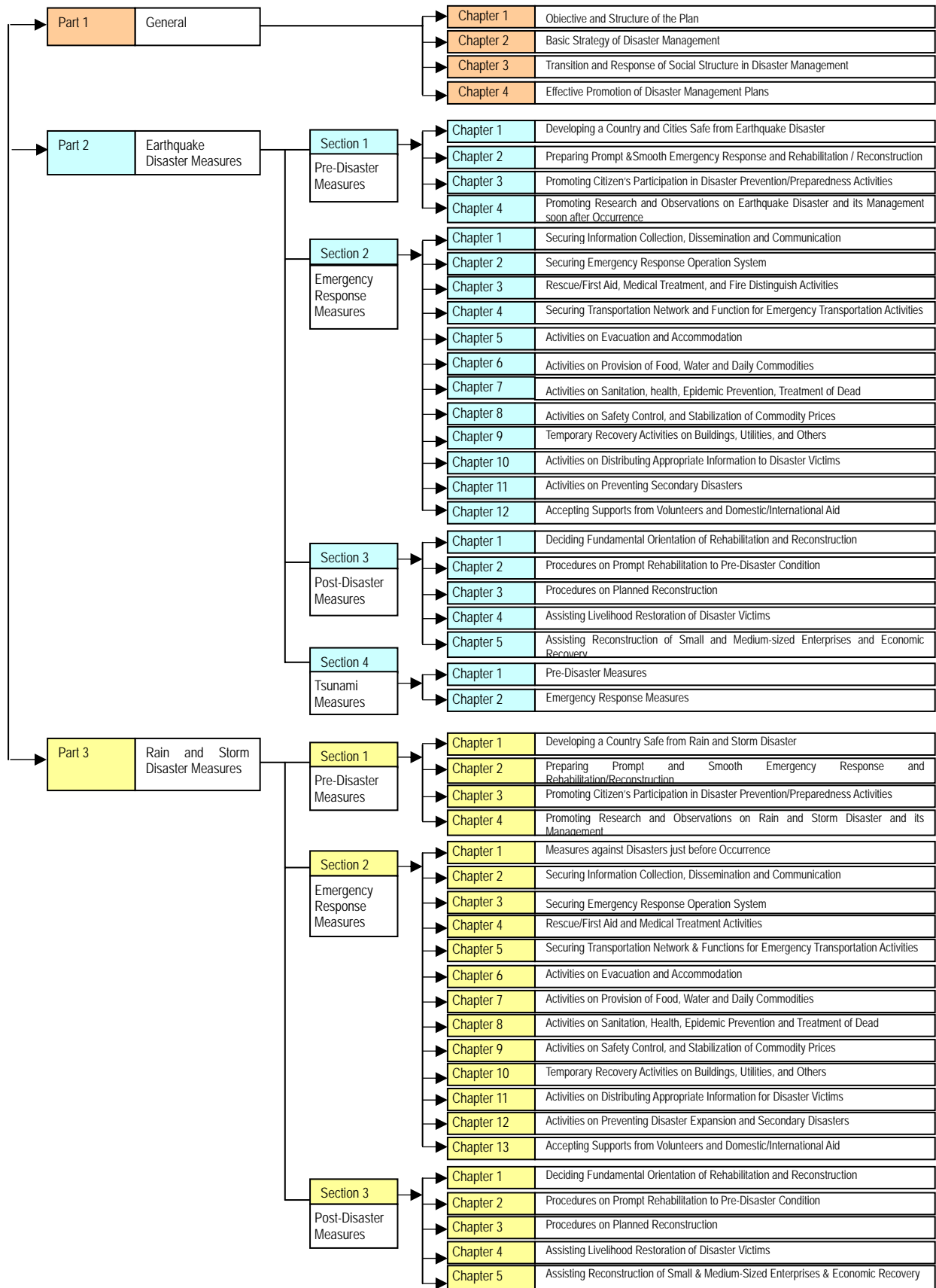


Figure 1 Structure and Contents of National Disaster Management Plan

## 2.2 Regional Disaster Management Plan

Regional Disaster Management Plans were formulated through active discussions in a series of workshops between counterparts of pilot regions and the Study Team based on the following basic policy discussed and agreed with counterparts.

### Basic Policy

- Target disasters for formulating disaster management plan in this Study are four (4) kinds of natural disaster (earthquake, tsunami, flood and sediment disaster). Therefore, in the future, Kabupaten and Kota need to formulate and add parts for other disasters.
- The plan has two “Parts” for type of disasters. “Earthquake Disaster Measures” part deals with earthquake and tsunami, and “Rain and Storm Disaster Measures” part deals with flood and sediment disaster. Each “Part” basically consists of four (4) sections, “General”, “Pre-Disaster Measures”, “Emergency Response Measures” and “Post Disaster Measures” along with disaster management cycle.
- Contents of the plan are prepared based on the Japanese plan, but modified the contents to be suitable for the current conditions of Indonesia.
- Finalization of the plan toward authorization and promulgation will be conducted by Indonesian side based on the plans formulated as outputs of this Study.

### 1) Kabupaten Jember Regional Disaster Management Plan

Structure of Kabupaten Jember Regional Disaster Management Plan is as follows. The contents of each Part are shown in Figure 2 & 3.

Part 1: Rain and Storm Disaster Measures

Part 2: Earthquake Disaster Measures

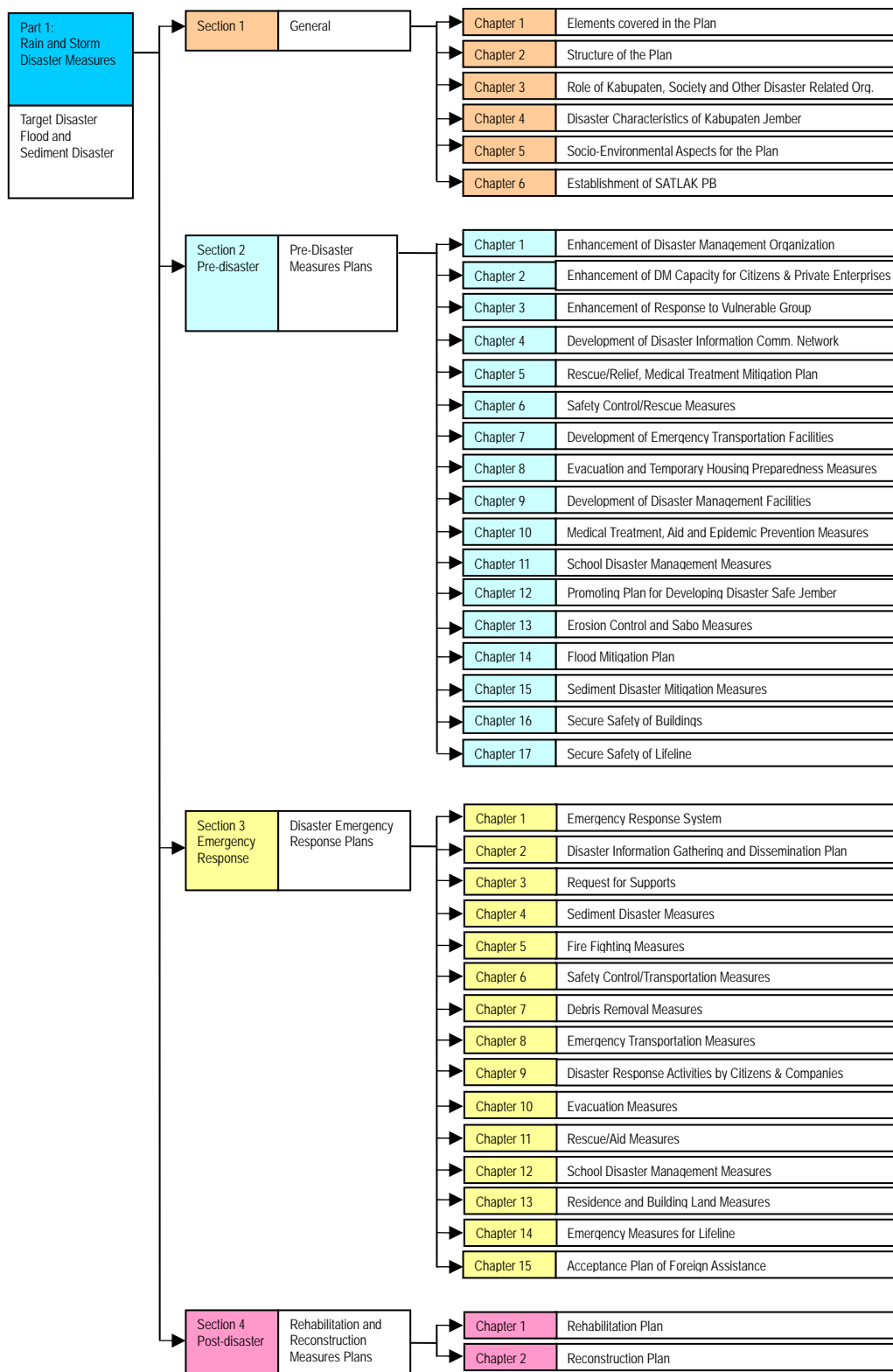
- Main disasters in the area are flood and sediment disasters, therefore, “Rain and Storm Disaster Measures” is set as Part 1.
- Structure of both of Part 1 and Part 2 is same and consists of 4 sections.
- In Section 1 “General” includes natural conditions, social conditions, history of disasters, hazard maps and risk maps as Disaster Characteristics of pilot regions.
- Section 2 to Section 4 describe activities, and their responsible agencies of disaster management items in each disaster phase (Pre-disaster, Emergency Response, Post disaster).

**2) Kabupaten Padang Pariaman Regional Disaster Management Plan**

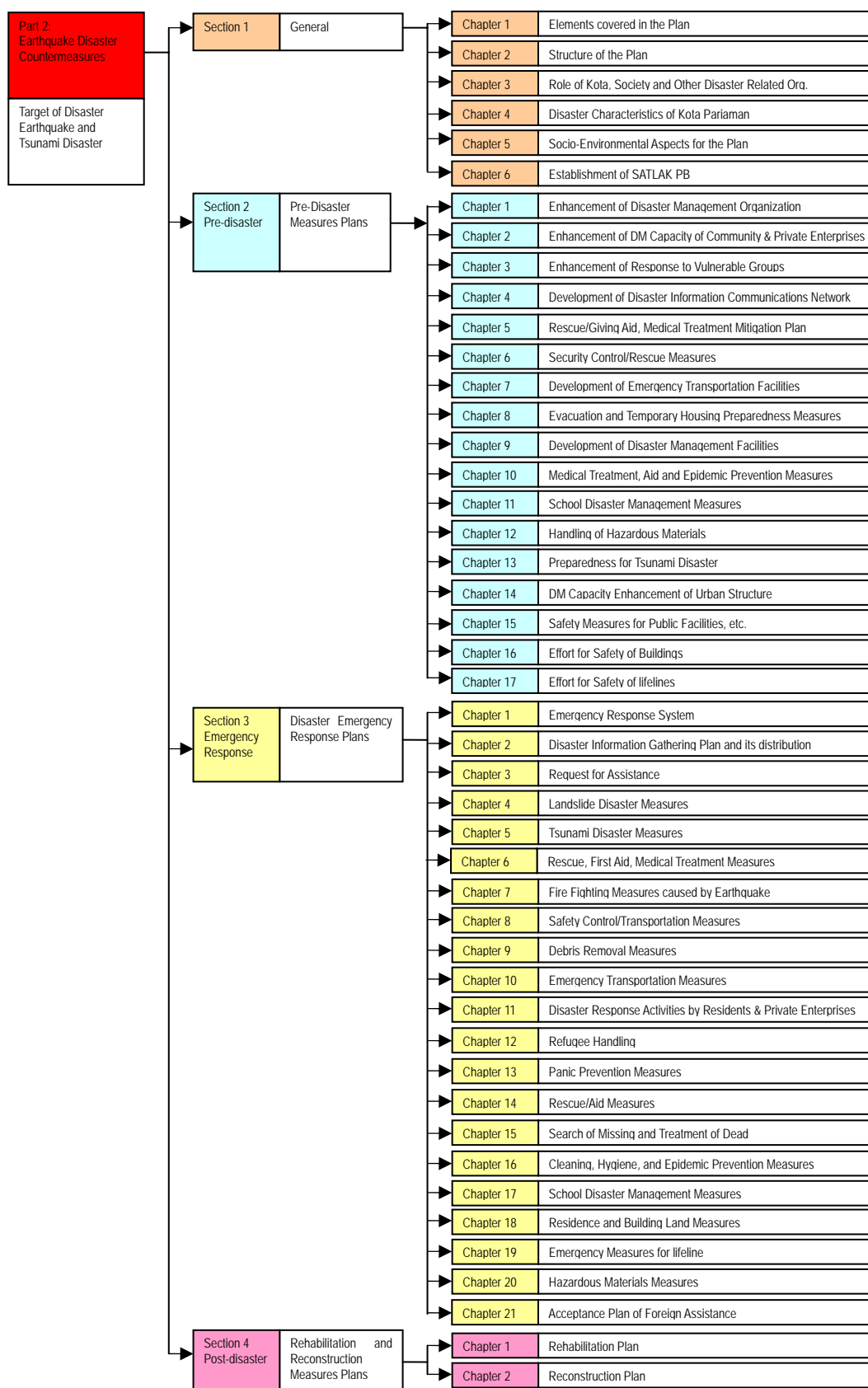
Main disasters in the area are earthquake and tsunami disasters, therefore, “Earthquake Disaster Measures” is set as Part 1, and “Rain and Storm Disaster Measures” is set as Part 2. Structure of Sections and Chapters in each Part are same as Jember’s one.

**3) Kota Pariaman Regional Disaster Management Plan**

Main disasters in the area are earthquake and tsunami disasters, therefore, “Earthquake Disaster Measures” is set as Part 1, and “Rain and Storm Disaster Measures” is set as Part 2. Structure of Sections and Chapters in each Part are same as Jember’s one.



**Figure 2** Structure and Contents of “Rain and Storm Disaster Measures” Part of Regional Disaster Management Plan



**Figure 3 Structure and Contents of “Earthquake Disaster Measures” Part of Regional Disaster Management Plan**

### 2.3 General Guideline for Formulation of Regional Disaster Management Plan

Guideline to enable Kabupaten and Kota governments to formulate Regional Disaster Management Plan by themselves, was prepared based on the activities for formulating Regional Disaster Management Plans in three pilot regions.

Structure of Guideline is as follows.

Part 1 : General Guideline

Part 2 : Appendixes

Appendix 1: Guideline for Creation of Hazard Maps and Risk Maps for Natural disasters

Appendix 2: Guideline for Community-based Disaster Risk Management (CBDRM) Activities in Indonesia

Main contents of Part 1 “General Guideline” as the main part of the guideline are short and emphasize on describing the whole concept of the plan. This is because a sample Regional Disaster Management Plan is assumed to be attached to be able to smoothly understand the whole contents of the plan, when this guideline will be distributed by Indonesian side.

Appendix 1 describes methodology for creation of hazard maps and risk maps based on the activities in this Study, and Appendix 2 shows procedures of activities for community based disaster risk management along with the activities in this Study.

## 3 ACTION PLAN FOR CAPACITY ENHANCEMENT OF DISASTER MANAGEMENT

Items of the Action Plan for further developments and enhancement of capacity of disaster management mostly at the national level over the next five years are shown below. They have been identified in the course of the joint study by BNPB Team and JICA Study Team as well as discussions with relevant government agencies.

1	Legal and Institutional Development	
	1.1	National Disaster Management Plan (NDMP)
	1.1.1	Authorization of NDMP, Earthquake & Tsunami, and Rain & Storm Disasters
	1.1.2	Preparation and Authorization of Guidelines/Manual for NDMP outside Earthquake & Tsunami, and Rain & Storm Disasters
	1.1.3	Preparation and Authorization of NDMP outside Earthquake & Tsunami, and Rain & Storm Disasters
	1.2	Regional (Local) Disaster Management Plans (RDMP)
	1.2.1	Authorization of RDMP: Jember District, Padang Pariaman District, Pariaman City: Earthquake & Tsunami, and Rain & Storm Disasters
	1.2.2	Preparation and Authorization of Guidelines/Manual for Planning of RDMP: Earthquake & Tsunami, and Rain & Storm Disasters
	1.2.3	Preparation and Authorization of Guidelines/Manual for Regional (Local) Disaster Management Plans outside Earthquake & Tsunami, and Rain & Water Disasters
	1.2.4	Preparation and Authorization of RDMP outside Earthquake & Tsunami, and Rain & Storm Disasters
	1.3	Regional (Local) Disaster Management Agency (BPBD)

	1.3.1	Preparation and Authorization of Guidelines for Establishing BPBD
	1.3.2	Establishment of BPBD (total 33 Provinces and over 483 Districts. Prioritization needed)
	1.4	National Disaster Management Operation Plans (NDMOP)
	1.4.1	Preparation and Authorization of Guidelines/Manual for NDMOP
	1.4.2	Preparation and Authorization of NDMOP: General Issues
	1.4.3	Preparation and Authorization of NDMOP: Particular Issues
	1.5	Regional (Local) Disaster Management Operation Plans (RDMOP)
	1.5.1	Preparation and Authorization of Guidelines/Manual for Regional (Local) Disaster Management Operation Planning
	1.5.2	Preparation and Authorization of RDMOP
	1.6	National and Regional (Local) Level Contingency Plans
	1.6.1	Preparation and Authorization of Guidelines/Manual for National Level Contingency Planning
	1.6.2	Preparation of Contingency Plans by National Government Agencies
	1.6.3	Preparation and Authorization of Guidelines/Manual for Regional (Local) Level Contingency Planning
2		Human Resources Development (HRD) and Capacity Development
	2.1	HRD at National and Regional (Local) Levels
	2.1.1	Programming and Planning of Comprehensive HRD
	2.1.2	Preparation of Guidelines/Manual for HRD of National Government Agencies and Institutions
	2.1.3	Implementation of HRD and Manpower Training for Government Agencies and Institutions
	2.1.4	Preparation of Guidelines/Manual for HRD and Manpower Training of Life-line Infrastructure Corporations
	2.1.5	Implementation of HRD of Life-line Infrastructure Corporations
	2.1.6	Preparation of Guidelines/Manual for HRD of Local Governments and Concerned Organizations
	2.1.7	Implementation of HRD of Local Governments and Concerned Organizations
	2.1.8	Establishment of Certification/Qualification Systems of Disaster Management Expert
	2.2	Human Resources Development (HRD) at School Education
	2.2.1	Programming and Planning of School Education on Disaster Management from Primary to High Education Levels
	2.2.2	Preparation of Guidelines/Manual for School Education on Disaster Management at each level
	2.2.3	Implementation of School Education on Disaster Management at each level
	2.3	Enhancement of People's Awareness of Disaster Management
	2.3.1	Programming and Planning of Comprehensive Enhancement of People's Awareness of Disaster Management
	2.3.2	Implementation of Production and Dissemination Tools of Disaster Management Information to General Public
	2.3.3	Implementation of Disaster Management Drills, at National Level, Local Government Level, and Community Level
3		Nation-wide Communication Network Development for Sharing Disaster Information
	3.1	Development of Disaster Information Sharing System for Emergency Response
	3.1.1	Master Planning Study on Disaster Information Sharing System for Emergency Response (DISSER)
	3.1.2	Implementation of Development of DISSER
	3.2	Development of Regional Depot
4		Data Digitization Development for Disaster Management Information
	4.1	Survey and Database Development
	4.1.1	Development of Data Standardization for Digital Maps, GIS-base Database, Information Formats, etc
	4.1.2	Survey and Database Development (1) Major Transportation Facilities, to be inputs to Hazard Mapping and Spatial Planning
	4.1.3	Survey and Database Development (2) Lifeline Infrastructure Facilities, to be inputs to Hazard Mapping and Spatial Planning
	4.1.4	Survey and Database Development (3) Public Facilities, to be inputs to Hazard Mapping and Spatial Planning
	4.2	Hazard Maps
	4.2.1	Preparation and Authorization of Guidelines/Manual for Hazard Mapping at District Level (based on Hazard Maps prepared for Jember District)
	4.2.2	Preparation of Hazard Maps for Priority Areas



	4.2.3	Preparation of Consolidated Master Hazard Map of Indonesia based on the Latest Information and Data as of 2012
	4.3	Spatial Plans
	4.3.1	Preparation of Guidelines for Updating Spatial Planning, reflecting Hazard Mapping and Disaster Management Information
	4.3.2	Updating Existing Spatial Plans at Provincial and District Levels reflecting Hazard Mapping and Disaster Management Information
	4.4	Large City's Disaster Management Measures on Earthquake Disaster to be considered at National Level
	4.4.1	Preparation of Framework and Methodology and Guidelines for Large City's Disaster Management Measures
	4.4.2	Preparation of Hazard Maps which indicate every physical structure including roads, bridges, buildings (both permanent and temporary), public facilities and open spaces actually surveyed.
	4.4.3	Analysis of Earthquake Disaster Impact and Prepare Risk Map
5		Other Actions to be taken immediately after the authorization of National Disaster Management Plan
	5.1	Enhancement of Awareness of Earthquake Resistant Structure
	5.2	Reporting Systems Development, and Publishing of Disaster Management Information
	5.2.1	Reporting Systems
	5.2.2	Publishing Disaster Management Information

#### 4 RECOMMENDATIONS

Recommendations from this Study are summarized below.

- 1) The national and regional disaster management plans formulated in this Study should be widely disseminated. The plans should be reviewed periodically.
- 2) A comprehensive disaster management plan including all disaster types should be formulated.
- 3) In a plan for other disasters, the activity areas for each disaster phase have to be clearly described, and the plan needs to identify the stakeholders that are responsible for each area.
- 4) BNPB will take the lead to coordinate the local disaster management plan to maintain consistency between the national and the regional plans.
- 5) Disaster management operation plans/manuals needs to be formulated by each government ministry, agency, local government and entities for use when people are actually implementing the actions that are stipulated in the national and regional disaster management plans.
- 6) The final results of regional disaster management plan including planning know-how should be disseminated to Provinces in East Java and West Sumatra and related municipalities so they can establish the necessary coordination among disaster management agencies.

- 7) Collection and preparation of detailed scientific data to support practical planning work is necessary. For example, development of large scale topographic maps, and fixedness and digitalization of desa boundary should be promoted.
- 8) For flood disaster management, observation and collection of rainfall amount and water level at least in main watersheds are necessary. Data integration and database development of rainfall and hydrological conditions should be promoted to provide a scientific base for disaster management plans at both national and regional level.
- 9) Historical disaster data/records should be collected and accumulated. Disaster data accumulation should be promoted at national and local levels using specific format and obtaining accuracy.
- 10) Geographic database system for disaster management should be effectively used for planning work in each relevant agency.
- 11) Public awareness on disaster management should be raised through school education and community disaster management activities lead by national and local governments.
- 12) Existing capacity of firefighting including improvement of equipment, rescue operation system and human resource development should be enhanced.
- 13) Emergency medical service system should also be improved.
- 14) Preparation of earthquake disaster management plan for large cities such as Jakarta Metropolitan Area, Bandung, Medan and local capital cities located earthquake prone area should be promoted.
- 15) Disaster management in big cities located at coastal area should be discussed from the global warming point of view.

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The Study on Natural Disaster Management in Indonesia

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Part 1: Rain and Storm Disaster Measures

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Volume 2-4: Kabupaten Padang Pariaman Regional Disaster Management Plan

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Volume 2-5: Kota Pariaman Regional Disaster Management Plan

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Volume 4: General Guideline for Formulation of Regional Disaster Management Plan

Part 1 : General Guideline

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## Abbreviations

<b>Terms</b>	<b>Bahasa</b>	<b>English</b>
APBN	Anggaran Pendapatan dan Belanja Negara	State Annual Budget
APBN-P	APBN - Perubahan	Revision of APBN– normally in October
APBD	Anggaran Pendapatan dan Belanja Daerah	Local government annual budget
BAKORNAS PB	Badan Koordinasi Nasional Penanganan Bencana	National Coordinating Board for Disaster Management
BAKOSURTANAL	Badan Koordinasi Survei dan Pemetaan	National Coordination Agency for Survey & Mapping
BAPPENAS	Badan Perencanaan Pembangunan Nasional	National Development Planning Agency
BKKBN	Badan Koordinator Keluarga Berencana Nasional	National Coordinator Agency for Family Planning
BMG	Badan Meteorologi dan Geofisika	Agency of Meteorology and Geophysics
BNPB	Badan Nasional Penanggulangan Bencana Alam	National Agency for Disaster Management
BOS	Bantuan Operasional Sekolah	School operational fund
BPHTB	Bea Perolehan Hak atas Tanah dan/Bangunan	Tax on every land & building transaction
BPPT	Badan Pengkajian dan Penerapan Teknologi	Agency for Assessment and Application of Technology
BPS	Badan Pusat Statistik	Statistic Indonesia
BRR NAD & Nias	Badan Rehabilitasi dan Rekonstruksi Nangroe Aceh Darusallam & Nias	Agency of Rehabilitation and Reconstruction for the Region and Community of Aceh and Nias
CPI	Indeks Harga Konsumen (IHK)	Consumer Price Index
DEPDAGRI	Departemen Dalam Negeri	Department of Home Affairs
DEPDIKNAS	Departemen Pendidikan Nasional	Department of National Education
DEPKES	Departemen Kesehatan	Department of Health
DEPHAN	Departemen Pertahanan	Department of Defense
DIPA	Daftar Isian Pelaksanaan Anggaran	Spending Warrant
DKP	Departemen Kelautan dan Perikanan	Department of Marine and Fisheries Affairs
DPD	Dewan Perwakilan Daerah	Council of Region Representative (Senator)
DPR	Dewan Perwakilan Rakyat	House of Representative (Parliament)
ESDM	Departemen Energi dan Sumber Daya Mineral	Department of Energy and Mineral Resources
GDP	Produk Domestik Bruto (PDB)	Gross Domestic Product
INPRES	Instruksi Presiden	Presidential Instruction
KEPPRES	Keputusan Presiden	Presidential Decree
LAPAN	Lembaga Penerbangan dan Antariksa Nasional	National Institute of Aeronautics and Space
LIPI	Lembaga Ilmu Pengetahuan Indonesia	Indonesian Institute of Science)
MPR	Majelis Permusyawarahan Rakyat	People's Consultative Assembly
NSPM	Norma,Standart, Pedoman, Manual	Norm, Standardization, Guideline and Manual
PBB	Pajak Bumi dan Bangunan	Land & Building Tax
PERDA	Peraturan Daerah	Local Government Regulation
PERMEN	Peraturan Menteri	Ministerial Regulation
PERPRES	Peraturan Presiden	Presidential Regulation
PERPU	Peraturan Pengganti Undang-Undang	Government Regulation in Lieu of Law
PP	Peraturan Pemerintah	Government Regulation
PPh	Pajak Penghasilan	Income Tax
PPN	Pajak Pertambahan Nilai	Value Added Tax (VAT)
PPnBM	Pajak Pertambahan Nilai Barang Mewah	Luxurious Goods VAT
PT. KAI	PT. Kereta Api Indonesia	State owned Train company
PT. PELNI	PT. Pelayaran Nasional Indonesia	State owned Shipping Company
PT. Pos Indonesia	PT. Pos Indonesia	Indonesian Post
PU	Departemen Pekerjaan Umum	Department of Public Works
RAPBN	Rancangan APBN	Draft of APBN
RKA-KL	Rencana Kerja Anggaran – Kementrian/Lembaga	Ministries/Agencies annual working plan
UUD 1945	Undang-Undang Dasar 1945	Constitution
UU	Undang-Undang	Law



## **CHAPTER 1 INTRODUCTION**

### **1.1 Background of the Study**

On December 26, 2004, the countries surrounding the Indian Ocean suffered unprecedented damage by a giant earthquake of magnitude 9.0 with a hypocenter in the coast of Sumatra in Indonesia and a sequent tsunami. The international community offered massive aid to assist in disaster recovery, and Japan also executed international emergency relief operations and urgent rehabilitation and reconstruction support.

In July 2005, the President of Indonesia H.E. Susilo Bambang Yudhoyono and the Prime Minister of Japan H.E. Junichiro Koizumi recognized that capacity development for reducing damage by natural disaster including earthquake and tsunami are priority issues for Indonesia, and agreed to establish the “Committee on Disaster Reduction” in order to mitigate natural disasters in Indonesia and strengthen cooperation to develop a disaster reduction system.

Under these circumstances, the Government of Japan agreed to the request of Government of Indonesia, and decided to implement the Study for formulation of comprehensive disaster management plan on national and regional levels of Indonesia and development of capacity for disaster management.

In December 2006, the Japan International Cooperation Agency (“JICA”) dispatched the Preparatory Study Team to Indonesia for the preliminary survey as well as discussion of the Scope of Work for the Study. Between the Preparatory Study Team and the National Coordinating Board for Disaster Management (“BAKORNAS PB”), the Scope of Work and the Minutes of Meeting were agreed on December 11, 2006.

This report presents all the result of the Study on Natural Disaster Management in Indonesia (“the Study”), which was conducted from March 2007 to March 2009 in accordance with the Scope of Work.

### **1.2 Scope of the Study**

#### **1.2.1 Objectives of the Study**

The overall goal of the Study is to enhance the natural disaster management capacities in Indonesia and to facilitate the creation of necessary institutional mechanisms to achieve it through the formulation of disaster Management Plan at national and regional levels. Aiming at achieving the overall goal, the following activities against natural disasters targeting flood, sediment disasters, earthquake and tsunami, were implemented in this Study:

- To formulate comprehensive disaster management plan in national and regional levels of Indonesia

- To develop capacity of national and regional organizations concerned and communities.

### 1.2.2 Study Area

- National Level:
  - Entire Country
- Regional Level:
  - Two pilot regions have been selected for the comprehensive disaster management plan at Kabupaten and Kota level as follows:
    1. Kabupaten Jember in East Java Province
    2. Kabupaten Padang Pariaman and Kota Pariaman in West Sumatra Province

### 1.2.3 Study Components

The Study is composed of three components, namely: 1) Formulation of Natural Disaster Management Plan, 2) Capacity Development of the organizations concerned and 3) Preparation of general guideline for formulation of Regional Disaster Management Plan. It has the following components:

**Table 1.2.1 Study Components**

<b>Component 1:</b>  <b>Formulation of Natural Disaster Management Plan</b>	<b>Component 1-1: Formulation of National Disaster Management Plan</b>
	<ol style="list-style-type: none"> <li>1. Review of existing disaster management framework</li> <li>2. Seminar on disaster management plan formulation</li> <li>3. Formulation of National Disaster Management Plan</li> <li>4. Formulation of Action Plan for National Disaster Management</li> </ol>
	<b>Component 1-2: Formulation of Regional Disaster Management Plan for Pilot Regions</b>
<b>Component 2:</b>  <b>Capacity development of the organizations concerned</b>	<ol style="list-style-type: none"> <li>1. Review of existing disaster management framework at regional level</li> <li>2. Formulation of comprehensive Regional Disaster Management Plan</li> <li>3. Study on Regional Disaster Management Plan on Priority Disaster</li> </ol>
	<b>Component 2-1: Capacity development of BAKORNAS PB/BNPB</b>
	<ol style="list-style-type: none"> <li>1. Needs assessment for BAKORNAS PB/BNPB and provision of technical advice to BAKORNAS PB/BNPB Staff</li> <li>2. Recommendation of Institutional Strengthening</li> <li>3. On the Job Training through formulation of National Disaster Management Plan</li> <li>4. Workshops and Seminars for the staff of the organizations</li> <li>5. Disaster Management Training for counterparts</li> </ol>
	<b>Component 2-2: Capacity development of regional organizations concerned</b>

	<ol style="list-style-type: none"> <li>1. Needs assessment for the organizations and provision of technical advice to the staff of the organizations concerned</li> <li>2. On the Job Training thorough formulation of Regional Disaster Management Plan</li> <li>3. Workshops and seminars for the staff of the organizations concerned</li> <li>4. Disaster Management Training for counterparts</li> </ol>
	<b>Component 2-3: Capacity development of the communities</b>
	<ol style="list-style-type: none"> <li>1. Public education and community awareness campaign</li> <li>2. Recommendation on community based disaster management</li> <li>3. Implementation of evacuation training</li> </ol>
<b>Component 3:</b> <b>Preparation of general guideline for formulation of Regional Disaster Management Plan for the other regions in Indonesia</b>	

#### 1.2.4 Schedule of the Study

The Study has been implemented for a period of 25 months between March 2007 and March 2009. Detailed schedule of the Study is shown in Figures 1.2.1 (1) to (3).

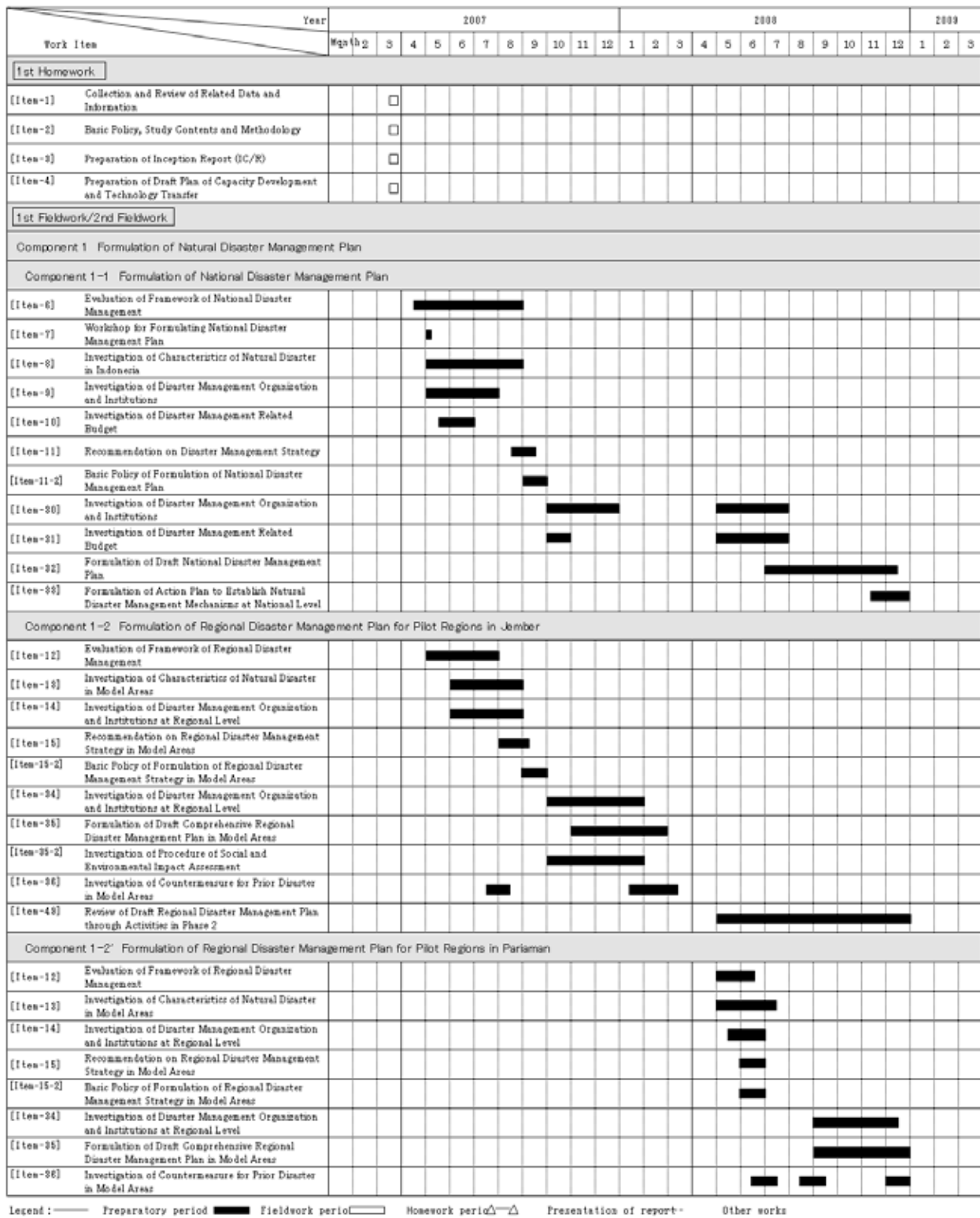


Figure 1.2.1(1) Study Schedule

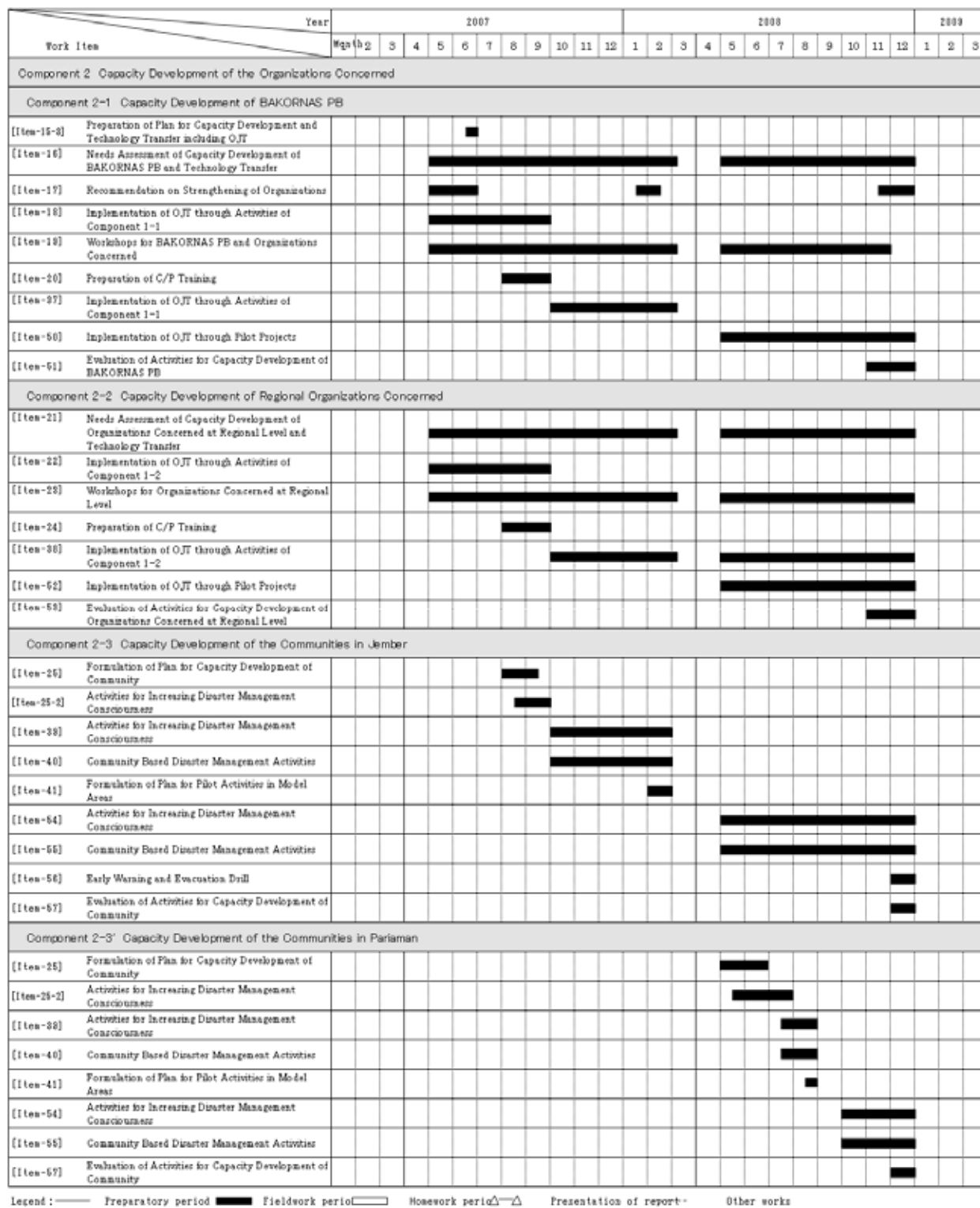


Figure 1.2.1(2) Study Schedule

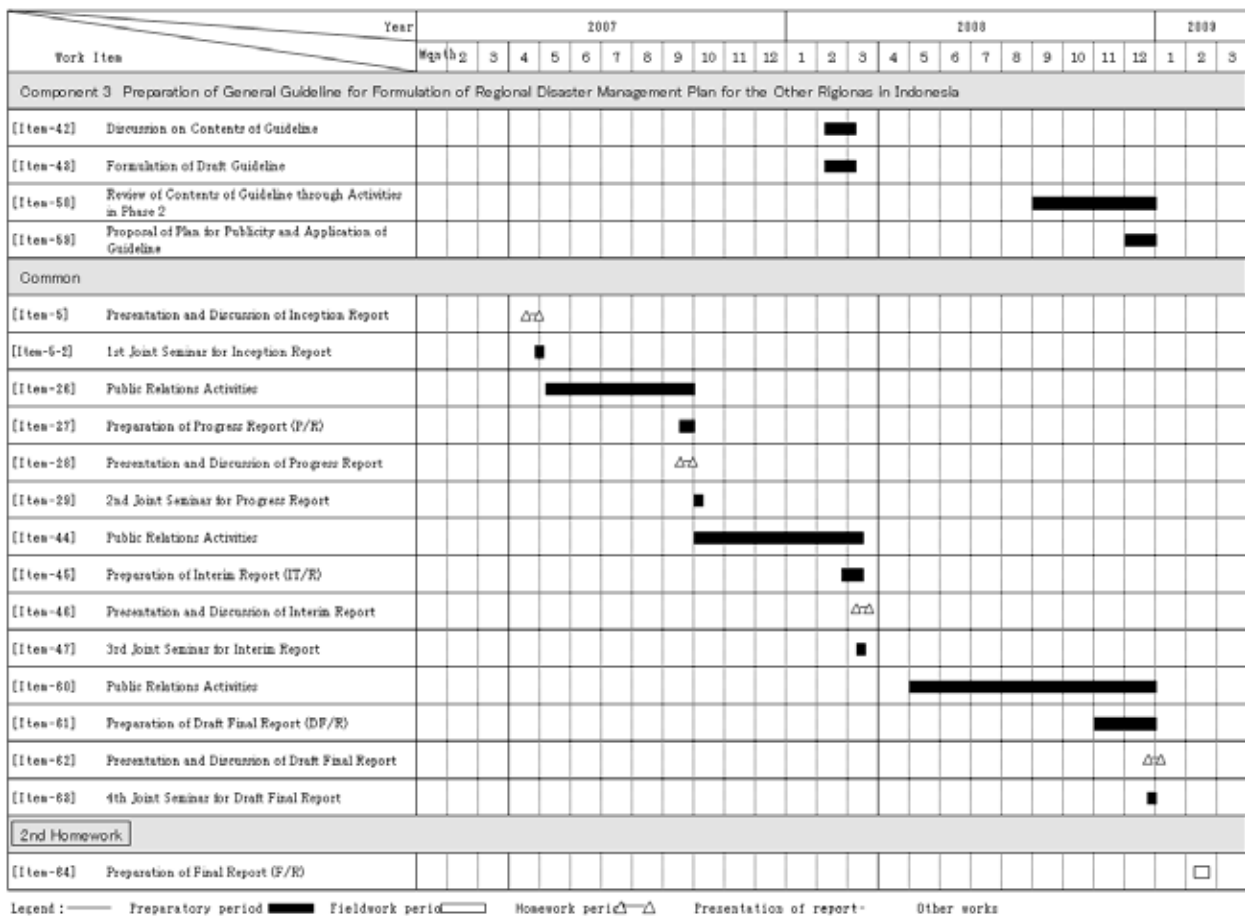


Figure 1.2.1(3) Study Schedule

### **1.2.5 Counterparts and Steering Committee**

The Study has been conducted through the close coordination between the Study Team and the counterparts. The counterpart organizations are as follows:

- (1) BAKORNAS PB/BNPB (BAKORNAS PB was reformed to BNPB in 2008)
- (2) SATKORLAK in West Sumatra Province and East Java Province
- (3) SATLAK in Kabupaten Padang Pariaman, Kota Pariaman and Kabupaten Jember

The Steering Committee is comprised of the following departments and organizations.

- (1) Ministry of Research and Technology
- (2) Ministry of Public Works
- (3) Ministry of Energy and Mineral Resources
- (4) Coordinating Ministry for People's Welfare
- (5) Meteorological and Geophysical Agency
- (6) National Coordinating Agency for Survey and Mapping
- (7) Directorate General of Community Development, Ministry of Home Affairs
- (8) West Sumatra Province, East Java Province
- (9) Kabupaten Padang Pariaman, Kota Pariaman, Kabupaten Jember
- (10) JICA Indonesia Office

### **1.3 Structure of This Report**

This report presents all results of the Study conducted during the period from March 2007 to December 2008. The report consists of the following Volumes:

- Volume 1: Summary

- Volume 2: Main Report

Volume 2-1: Study Activities and Findings

Volume 2-2: National Disaster Management Plan

Part 1: General

Part 2: Earthquake Disaster Measures

Part 3: Rain and Storm Disaster Measures

Volume 2-3: Kabupaten Jember Regional Disaster Management Plan

Part 1: Rain and Storm Disaster Measures

Part 2: Earthquake Disaster Measures

Volume 2-4: Kabupaten Padang Pariaman Regional Disaster Management Plan

Part 1: Earthquake Disaster Measures

Part 2: Rain and Storm Disaster Measures

Volume 2-5: Kota Pariaman Regional Disaster Management Plan

Part 1: Earthquake Disaster Measures

Part 2: Rain and Storm Disaster Measures

Volume 3: Supporting Report

Volume 4: General Guideline for Formulation of Regional Disaster Management Plan

Part 1 : General Guideline

Part 2 : Appendixes

Appendix 1: Guideline for Creation of Hazard Maps and Risk Maps for Natural disasters

Appendix 2: Guideline for Community-based Disaster Risk Management (CBDRM) Activities in Indonesia



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## **CHAPTER 2 STUDY ACTIVITIES AND FINDINGS AT NATIONAL LEVEL**

### **2.1 Disaster Management System at National Level**

#### **2.1.1 Existing Government Structure for Disaster Management at National Level**

##### **1) Government Agencies/Institutions concerned with Disaster Management and, their activities**

###### **(1) Particular Institutions**

###### **A. BNPB**

The government institution that responsible for disaster management at the national level is **National Disaster Management Agency** (Badan Nasional Penanggulangan Bencana, herein after referred as “BNPB”). The establishment is based on the Presidential Regulation No.8 Year 2008, and it is the result of institutional reform which has been implemented in the last several years. The previous organizations were as follows:

- i) Keppres No. 106, year 1999: Bakornas PB (Disaster Management),
- ii) Keppres No. 3, year 2001: Bakornas PBP (Disaster management & refugee handling)
- iii) Keppres No. 111, year 2001: Regarding amending presidential regulation No3, year 2001, ,
- iv) Perpres No.83, year 2005: Regarding Bakornas PB

BNPB is a non departmental agency that is responsible directly to the President. The organization has two basic components. One is the “Steering Committee” chaired by the Head of BNPB with 19 members (10 echelon-1 level official from the concerned ministries plus 9 experts / community leaders). The other one is called as Executing Body consisting of 1 Prime Secretariat & 1 Prime Inspectorate and 4 Deputies.

The number of permanent staff of BNPB is 93 (registered as of December, 2007) and their activities are now covering all stages of disaster, from pre-disaster, emergency response to post-disaster. According to Perpres No. 8/2008, the tasks of BNPB are following:

- i) Provide guidance & directing on all disaster management activities which include prevention, emergency respond, rehabilitation & reconstruction fairly & equally.
- ii) Determine the standardization & requirement of disaster management efforts.
- iii) Inform the community on all disaster related activities.
- iv) Report the President on all disaster management activities once a month in normal situation and every moment in disaster responding stages.
- v) Use & take responsibilities for all local/international donations.
- vi) Take responsibilities for usage of BNPB budget from National Budget (APBN).
- vii) Execute other obligations according to the regulations

- viii) Compile the Guideline regarding to the establishment of Local Disaster Management Agency (Badan Penanggulangan Bencana Daerah, hereinafter referred as “BPBD”)

At the local government level, BNPB will be assisted by BPBD. As of September 2008, establishment of these organizations are still in progress.

## **B. BRR NAD-Nias**

**Nanggroe Aceh Darussalam and Nias Agency for Rehabilitation and Reconstruction** (Badan Rehabilitasi dan Rekonstruksi Nanggroe Aceh Darussalam dan Nias, hereinafter referred as “BRR”)

BRR was established by the President on 28 April 2005. The organization structure consists of Implementing Agency, a Steering Board, and an Oversight Board. BRR central office is in Banda Aceh and has two branch offices in Nias and Jakarta.

From the national budget, BRR has the allocation of IDR 12 trillion (2006), IDR 10 trillion (2007) and IDR 7 trillion (2008) respectively.

After April 2009, BRR will be officially dissolved and the remaining tasks will be handed over to the local government of Aceh and Nias. It is being in plan that the new structure of the local BRR will be divided into six regional offices: five in Aceh and one in Nias (province of North Sumatera).

### **(2) Major Departments concerned to Disaster Management**

Before the BNPB was established, government of Indonesia that didn't have any clear fixed regulation regarding which agencies are responsible for in a specific disaster. In practice, the central government has formed a special task force or a new agency if any big disaster occurred, like Aceh tsunami (new agency, BRR); Sidoarjo Hot Mud (a special task force, chaired by Public Works), etc. For a “small” & “routine” disaster like flood or landslide, government agencies have their own activities and in some cases, overlapping of activities & responsibilities between agencies were found. Currently BNPB is in progress to map all activities & the related agencies on particular disaster. The aim is to have sophisticated coordination among government agencies on disaster management activities. The following is the list of pertinent past disasters indicating the related agencies that have activities in this field, as investigated & published by State Ministry of Research and Technology in 2007:

**Table 2.1.1 List of Past Disasters & Related Government Agencies**

No	Agency	Type of Disaster		
		Earthquake & Tsunami	Flood	Sediment (Landslide)
1	<i>BNPB</i>	•	•	•
2	Meteorological & Geophysics Agency( <i>BMG</i> )	•	•	•
3	Volcanologist & Disaster Mitigation ( <i>ESDM</i> )	•		•
4	Research & Technology ( <i>Ristek</i> )	•	•	•
5	Assessment & Application of Technology Agency ( <i>BPPT</i> )	•	•	•
6	Indonesia Research Institute ( <i>LIPI</i> )	•	•	•
7	National Coordinating Agency for Survey & Mapping ( <i>Bakosurtanal</i> )	•	•	
8	Aeronautics & Space ( <i>LAPAN</i> )	•	•	•
9	Department of Public Works ( <i>PU</i> )	•	•	•
10	Department of Forestry ( <i>Dephut</i> )		•	•
11	Department of Social Affairs ( <i>Depsos</i> )	•	•	•
12	Department of Health ( <i>Depkes</i> )	•	•	•
13	Department of Agriculture ( <i>Deptan</i> )			•
14	Department of Communication & Informatics ( <i>Depkominfo</i> )	•	•	•
15	Department of Home Affairs ( <i>Depdagri</i> )	•	•	•
16	National Agency for Search & Rescue ( <i>BASARNAS</i> )	•	•	
17	National Armed Forces & National Police ( <i>TNI/POLRI</i> )	•	•	
18	Institute Technology Bandung ( <i>ITB</i> ) Gadjah Mada University ( <i>UGM</i> )	•	• (plus <i>ITS</i> & <i>UI</i> )	• (plus <i>UI</i> )

## 2.1.2 Budget and Finance on Disaster Management

### 1) Economic Loss caused by Disaster in Indonesia

In the period 2004 – 2007, Indonesia suffered from not less than seven (7) major disasters, including two earthquake and two tsunami, major flood in Jakarta and its surrounding area (Jabodetabek), Avian Flu and one industrial disaster in Sidoarjo, East Java. All of this caused an economic loss of US\$ 12 billion, directly and indirectly. This amount is equal to almost 3.1% of

Indonesian GDP in 2007 or equal to 15.8% of Indonesia Annual National Budget (APBN) from 2007.

**Table 2.1.2 List of Major Disasters with Economic Loss in Indonesia (2004 – 2007)**

No	Name	Economic Losses (US\$ billions)		
		Direct	Indirect	Total
1	Aceh & Nias Tsunami – December 26, 2004	2.92	1.53	4.45
2	Avian Flu (2004 -2005)	0.6	-	0.6
3	Merapi Eruption – April 2006	No data	No data	20,000 people evacuated
4	Jogjakarta Earthquake – Mai 27, 2006	2.5	0.7	3.1
5	Mud Volcano in Sidoarjo – East Java – Mai 29, 2006	1.2	1.8	3
6	South Java Tsunami – July 17, 2006	0.031	0.063	0.094
7	Flood in Jakarta & surrounding area (Jabodetabek) – February, 2007	0.7	-	0.7
TOTAL (US\$ billions)				12
→ 3.1% from Indonesia GDP-2007				(IDR 110.4 trillion)
→ 15.8% from APBN 2007				

## 2) Existing Budgeting and Funding for Disaster Management

### (1) Budget for BAKORNAS PB in the past years

**Table 2.1.3 BAKORNAS PB Budget & Its On Call Money (2004 – 2008)**

No	ITEM	BAKORNAS PB Total Budget (IDR billions)				
		2004	2005	2006	2007	2008
1	State Annual Budget (APBN)	3.94	5.01	43.78	61.49	111.3
2	ON CALL Money	65.84	13.77	328.00	15.00	NA*
	Total	69.79	18.78	371.08	76.49	111.3

Note: \* in the draft government regulation on managing the disaster management fund, stated that the national reserve fund for disaster management allocation will be budgeted by BNPB (article 12 point C). In 2008, the amount is IDR 3 trillion.

### (2) PARTICULAR FUND FOR EXTRA-ORDINARY DISASTERS

Beside *BAKORNAS PB*, there are many allocations in other departments/agencies that are related to disaster management activities. The biggest one is the allocation until April 2009 on BRR for Aceh and Nias as mentioned above. The second biggest one is the allocation for recovery of Yogyakarta earthquake disaster. Public Works and Department of Social Services also have a very significant allocations to handle disaster issues. For each year in 2007 and 2008, Department of Public Works had an allocation for flood controlling infrastructure development not less than IDR 2 trillion. Department of Social Services also have budget for emergency response that totaled IDR 0.55 trillion in 2008. Government of Indonesia also allocated national fund for disaster management in APBN. This fund had amounts of IDR 3 trillion (2008), IDR 2 trillion (2007),

IDR 2.9 trillion (2006) and IDR 3.2 trillion (2005). This fund is not allocated for specific departments/agencies, but will be used by the government as needed and for all disasters in the whole Indonesia.

**Table 2.1.4 Indonesian Total Budget for Disaster Management (2005 – 2007)**

No	Items	Budget (in IDR trillion) (Exchange Rate 1 US\$ = IDR 9150, - July 2007)			
		2005	2006	2007	2008
1	Disaster Management Reserve Fund (central government)	3.2	2.9	2	3
2	<i>BAKORNAS PB</i> annual budget + ON Call Money	0.019	0.37	0.076	0.111
3	Public Works allocation for Flood controlling system	1.3	2	2	2
4	Dept. of Social allocation for emergency response (2008: IDR 0.55 trillion)	No data	No data	No data	0.55
5	BRR (Aceh)	0	12	10	10.19
6	Yogyakarta & Central Java Earthquake	0	0	2.7	0.65
7	BPLS (The Sidoarjo Mudflow Mitigating Agency)	0	0	0	1.1
	<b>TOTAL Budget</b>	<b>4.519</b>	<b>17.27</b>	<b>16.776</b>	<b>18.29</b>
	GDP (Current Price) – IDR trillion	2,785	3,338	3,760	4,497
	Percentage to GDP (Current Price)	0.16 %	0.5%	0.45%	0.42%

**Table 2.1.5 List of Disaster Related Activities in 2009 and Their Anticipated Budgets (RKP 2009)**

No	Focus/ Activities	Implementing Agency	Budget Indication (IDR billion)
1	Social Aid distribution	Social Affairs	515
2	Flood controlling & coastal salvage infrastructure	Public Works	1,922
3	Sidoarjo Hot Mud	<i>BPLS</i>	1,172
4	Aceh & Nias	Public Works, Transportation, Home Affairs, Religion, Ministry for Acceleration of Development in Backward Regions, National Land Agency, local government.	1,784
5	Crisis Management – tackle health issues in disaster affected area	Health	200
<b>Priority 2 – Focus 5: Mitigation capacity enhancement &amp; adaptation to the global climate change</b>			
1	Various activities, include: Forest rehabilitation; enhancement of organic & sustainable agriculture; sea conservation; controlling the land, forest fire & environment destruction; Meteorological Early Warning System; Spatial planning; IDSN development & research for local border conflict resolution	Agriculture, Marine & Fisheries, Forestry, Environment, BMG, Home Affairs, Public Works, <i>Bakosurtanal</i> , <i>BNPB</i>	1,730

**Table 2.1.6 List of Disaster Related Activities in 2008 and Their Respective Budgets (RKP 2008)**

No	Focus/ Activities	Implementing Agency	Budget Indication (IDR billion)
1	Social Aid distribution	Social Affairs	550
2	Flood controlling & coastal salvage infrastructure	Public Works	2,000
<b>Priority 8: Disaster Management, Disaster Risk Reduction &amp; Improvement on Eliminating the communicable Diseases (total IDR 9,439.8 billion)</b>			
1	Rehabilitation & Reconstruction programs in Aceh & Yogya	<i>BRR</i> & various agencies	7,380
2	Simplification of Disaster Risk Reduction Action Plan	<i>BNPB, Ristek, LIPI, DKP</i>	127
3	Institutional & Human Resources Capacity Building in early warning system & disaster mitigation	Home Affairs, <i>BNPB, Depkominfo, Social Affairs, Bakosurtanal, Ristek, Lapan, BMG</i>	1,028
4	Utilization of national and regional Spatial Use Management with concern of disaster risk reduction	<i>Bakosurtanal, Public Work, Home Affairs, DKP</i>	304
5	Improvement on Eliminating Communicable Disease and Tackling the Avian Influenza	Health, Agriculture, <i>Depkominfo</i>	604

### 3) Assumed Appropriate National Budget for Disaster Management: Considerations and Conclusions

According to the new Government Regulation No.22, 2008, there are two sources of disaster management funding: one is from the government and the other is from the NGOs. Government fund can be classified as follows:

- Disaster management Reserve fund, allocated in APBN.
- BNPB budget, allocated in APBN
- BPBD budget, allocated in APBD<sup>1</sup>.
- Donation/ Disaster Grant in APBN/APBD and Foreign Loan (PHLN)
- Pre- and Post disaster activities allocation in departments/agencies.

Non Government fund are sourced from:

- Fund raising by the community organizations, mass media and other community based organizations.
- Disaster Insurance of non-governmental institution assets

For all funding that was sourced from the government, in 2008, more than IDR 5.113 trillion will be available for disaster management activities. This amount comes from allocation in the departments/agencies (APBN 2008 that focusing on disaster management IDR 2 trillion, excluding the Aceh & Yogyakarta allocation), Disaster Management Reserve Fund IDR 3 trillion and BAKORNAS PB (BNPB) budget for 2008 IDR 0.113 trillion.

<sup>1</sup> APBD = local government budget

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From past experience (2004-2007), BAKORNAS PB didn't have any control over these funds unless it was in their own budget. There are three important points in the new regulations on managing the disaster management fund, which can be a very positive development not only for BNPB, but also for all disaster related activities in Indonesia:

1. BPBD shall be established and get funds from the local government budget.  
With the establishment of BPBD, there is a big chance that disaster management related activities can be better planned, coordinated and implemented.
2. The Law also states that the reserve fund for disaster management will be managed by BNPB. This fund has been very significant: IDR 3 trillion (2008), 2 trillion (2007), 2.9 trillion (2006) and 3.2 trillion (2005). All this time, this fund is not allocated to specific departments/agencies, but will be used as needed by the government and mainly in the emergency response & post-disaster stages only.
3. It is to be understood that budget allocation for pre and post disaster management to the departments will be coordinated by BNPB. In other words, all disaster related activities/projects in other departments/agencies, both in pre and post disaster stage, must be planned and coordinated by and with BNPB. They must be informed of and approved all projects related to disaster issues.

At the present stage (as of October 2008 when the time the budget 2009 has not been formally confirmed.), regarding the study on funding and budgeting for disaster management at the national level, the analysis is concluded as follows:

1. The budget for disaster management needs to be sufficient within the capacity of the whole government annual funding, taking into consideration the events in the past years when Indonesia has been heavily affected by disasters, particularly those occurring in the three years (2004 – 2007) with economic loss estimated to total US\$12 billion (IDR.110 trillion). The gravity of budget allocation should be shifted from post-disaster to pre-disaster, and sufficient budget should be allocated to all relevant government agencies and local governments under single directives and coordination by concerned authorities including BAPPENAS, Department of Finance as well as BNPB.
2. Annual budget 2008 has been authorized and the total amount for disaster management to be allocated to the relevant agencies is assumed to be approximately IDR.5.1 trillion as described.
3. Regarding to the above assumed government budget, there are two points to be noted. (a) The allocation of 2 trillion to relevant agencies should be under coordination and monitoring by BNPB. The allocation for 2009 should be under the initiatives and

- coordination by BNPB with BAPPENAS. (b) IDR.111 billion for general expenses of BNPB is unlikely to be sufficient. The budget should be double or more.
4. If the amount is proportionally the same as that of the above mentioned IDR 2 trillion for activities by various concerned agencies of the central government, the budget for all the local governments on disaster management might be approximately IDR 2.15 trillion, since available amount to the central government after exclusion of “subsidies”, “loan interest payments”, “social aids”, and so forth is IDR.261 trillion, and the IDR 2 trillion is 0.7% of it, and 0.7% from total local government budget as mentioned IDR 271 trillion is equivalent to IDR 2.15 trillion.
  5. The mechanism of funding and budgeting of BNPB as well as BPBD points of view need to be discussed further, with consideration of their responsibilities and capacity. If the total budget assumption is the same as the result of the previous analysis, then the available funds and its budget allocation for the disaster management will be approximately IDR 7.26 trillion (including for BPBD) which is equivalent to 0.85% out of the total government annual budget of 2008, or 1.2% out of the total government annual budget excluding for subsidies, loan interest payments, social aids, and so on. In comparison with that of Japan (5% out of general account, or 1% of the total special accounts), it seems sufficient.
  6. The current status shows that some local governments, especially in disaster prone areas, are actively increasing their own capacity in disaster risk reduction since those local governments are now very aware of disaster issues. However, on the other side, this shows the importance of coordination & efforts regarding the planning & institutionalization of disaster management. Disaster management activities should not be a “stand alone” effort, but they should be comprehensive & cross agency activities that are coordinated systematically in order to prevent overlapping between agencies.
  7. Lastly, BNPB with the concerned authorities at the top of the government administration should be directly concerned with international cooperation which may be extended to Indonesia at the time any big disaster occurs in Indonesia.

### **2.1.3 Indonesian Disaster Management Reform through Law No.24**

There are five areas in the law that need particular focus, when compared to the Japanese disaster management system. These include:

- National disaster management plan;
- Development and disaster management;
- Early warning;
- Budget allocations and international supports; and
- National Disaster Management Authority (BNPB) and central disaster management council.



**National disaster management plan:** The law describes that Indonesian development policy needs to adapt a perspective of disaster risk mitigation, which is one of the visions adapted in Hyogo Framework for Action, 2005. The effort of Indonesian Government toward better disaster management is valuable.

On the other hand, the Law stresses the responsibilities of the Government to review the disaster management plan as proactive measure, with the support of BNPB to do drafting. The Government is further responsible for updating disaster management plans by localities regularly based on relevant data, perhaps hazard maps, yet the Law does not have an article describing BNPB to take the lead. This structure of making the Government responsible for developing and updating disaster management plan is not practical, with the basis of comprehending and institutionalizing that system in Indonesia. BNPB as the secretariat needs to play a leading role in the Government.

**Development and disaster management:** There is an article stating that any development activities which may accompany high disaster risks need to be assessed on the size of disaster risks within the authority of the nation, in the context of disaster management. In line with this, BNPB is responsible for identifying a method for disaster risk assessment as well as evaluating and monitoring risks that are identified.

There is also an article about spatial planning aiming to reduce risks through satisfying safety standards while penalize the violators. However, this article refers only to the responsibilities of national government in implementing spatial planning and adapting safety standards, and nothing specific is mandated to the BNPB. Specific responsibilities are needed to be given to BNPB for them to practically participate and take actions in such proactive measures.

**Early warning:** Article 7 refers to the needs on proclaiming status and level of disasters at both national and regional levels. It mentions that those agencies responsible for the citizen's evacuation shall direct and orchestrate to take actions, yet it does not identify any responsible organizations and agencies. Early warning to the public is mandated to regional government in case of Japan, unless otherwise responsibilities are given to particular agencies by regulations. The public area to be left behind in the case of calamity without clearly assigning any responsibilities on early warnings to agencies, thus, responsibilities of early warning are needed to be assigned.

**Budget allocations and international donations:** The law states that the President is responsible for securing both national budget for disaster management and funds for emergency response upon calamities. Stating the responsibility of the President in allocating the budget in the law is big progress from the previous structure; however, there is a need to make a system that supports efficient disaster management policy by BNPB to make this statement functional. BNPB needs to

have an authority to crosscheck and monitor relevant budgets allocated for disaster management by other agencies.

The President is responsible for controlling foreign and international cooperation to national disaster management policy under the law. Utilizing cooperation from external agencies and also keeping stable relationships with cooperative countries are one of the important disaster management strategies for a country like Indonesia, where disaster risks are high in large hazardous areas and which are exposed to social and physical vulnerabilities.

BNPB needs to be responsible for coordinating national budgets, donations and cooperation for domestic and foreign calamities, and act as a central agency for all financial matters on disasters for sound and sequential action. Transparency of funding, both incoming and outgoing is particularly important when all mandates and responsibilities on financial matters are collected to BNPB.

**BNPB and Central Disaster Management Council:** The BNPB is positioned on a lower level (or the same at most) in terms of hierarchy of the government system than the national line ministries. This positioning of agency would be an obstruction in initiating practical action for disaster management, as disaster management needs cross-sectoral coordination. Because formulation of national disaster management is declared in the new law, establishing a central disaster management council with members of ministers and chaired by the President, enabling cross-sectoral arrangement, is essential. In developing such central disaster management council, BNPB is supposed to act as a secretariat. Responsibilities lie in the Cabinet Office regarding disaster management coordination, with Minister as head, in case of Japan. Currently, this structure of disaster management council is more enhanced by making the Prime Minister be the head and Ministers of relevant ministries be the members.

The law also states that a member of the BNPB shall be assigned to the government officials and specialists, which implies difficulties of practical coordination on policies among ministries. Similarly, executing body appoints disaster management specialists outside the government as members, difficulties in inter-ministerial coordination are anticipated to develop in cases such as emergency response.

Overall, enacting the Law No. 24 is a big step forward in the history of Indonesian disaster management, which includes the role transformation of national disaster management agency from the coordinating board for the emergency response to a comprehensive disaster management agency, including all stages of disaster phases of prevention, emergency response, rehabilitation, and reconstruction.

#### **2.1.4 Institutional Reform: BAKORNAS PB to BNPB**

There are pros and cons regarding the course of institutional transformation. Positive aspects include:

1. BNPB is a permanent body having authorities to decide and implement disaster management related activities. This is clearly seen in the Article 5 c in the Presidential Regulation in which it says that BNPB consists of the executer body of disaster management. BAKORNAS PB was designed as a coordinating agency, but with no authority and power for taking actions.
2. The position of non-permanent secretariat in BAKORNAS PB, was upgraded to the secretary of BNPB that is permanent.

There also are some recedings that need to be noted:

1. The post for chairman in BNPB is degraded to a level of state minister from vice president in the structure of BAKORNAS PB, which makes coordination for disaster management among line of ministries rather difficult.
2. Members of current council had been constituted by ministers; however, BNPB's steering committee would be degraded to any executive officers in relevant positions.

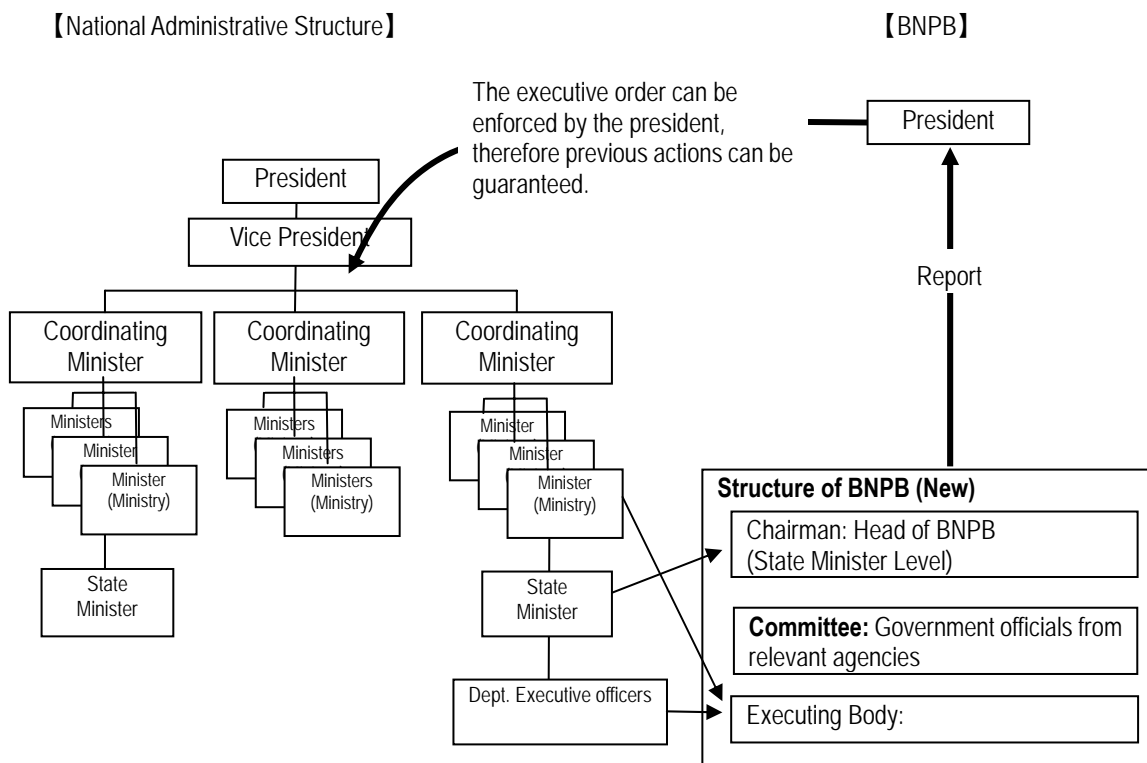
These last two issues listed reveal that leaderships and powers of BNPB may be hindered in comparison to the previous structure of BAKORNAS PB, particularly on activities related to mitigation and prevention phase where the good coordination among the relevant line ministries and government agencies are required

The national level disasters would require the President to take the initiative in the emergency response phase. It would give the spotlight to the President as the national leader. In this context, even if they do not have the appropriate coordinating scheme, the coordination among the line ministries for emergency situation would work well under the strong leadership of the President. But disaster management has to cover other phases than emergency response. Policies and measures for mitigation and preparedness phases are the critical for enhancing the capacity of the country and communities for disaster risk reduction and those for recovery are the most effective to make the more resilient society to natural hazards. Since those policies and measure for process need time and better coordination, they tend to attract small attention from the public. It is less likely for the politicians to take the strong leadership in those phases. Therefore a practical coordinating scheme is required in the disaster management system. Unfortunately the new Indonesian disaster management system based on the Law and Presidential Regulation raises certain concerns in this regard. The coordination works only when the chairmanship is associated with higher ranking than those who are coordinated by the chair.

Instead of having an ambiguous coordinating scheme, the new agency acquires a very effective tool; that is, the reporting to the President. This reporting covers not only emergency, but also non-emergency. By making most use of this function, the new agency could assist and advise the President to make appropriate policies and measures for disaster risk reduction.

Some key personnel, however, perceive that new disaster management agency may enhance its capacity to take disaster management action, because the members of BNPB would be located directly below the President. As Law No 24 states, the new disaster management agency, BNPB, has an obligation to report their activities on disaster management to the President every month.

Figure 2.1.1 shows a comparative institutional structure between national administration and BNPB. National administrative structure is shown in the left, where there are a vice president and coordinating ministers below the President. Ministers are positioned below coordinating minister in a line ministry, and state ministers positioned below ministers, and department executive officers are located beneath. The structure of BNPB is shown on the right. BNPB includes a chairman, a steering committee, and an executing body. Chair of the BNPB has similar power and authorities as state minister, while steering committee members are a collective unit of higher government officials who are in positions relevant to disaster management. An executing body, however, is enhanced from the previous executive body of BAKORNAS PB as coordinating office to a group of members of ministers and ministry executive officers.



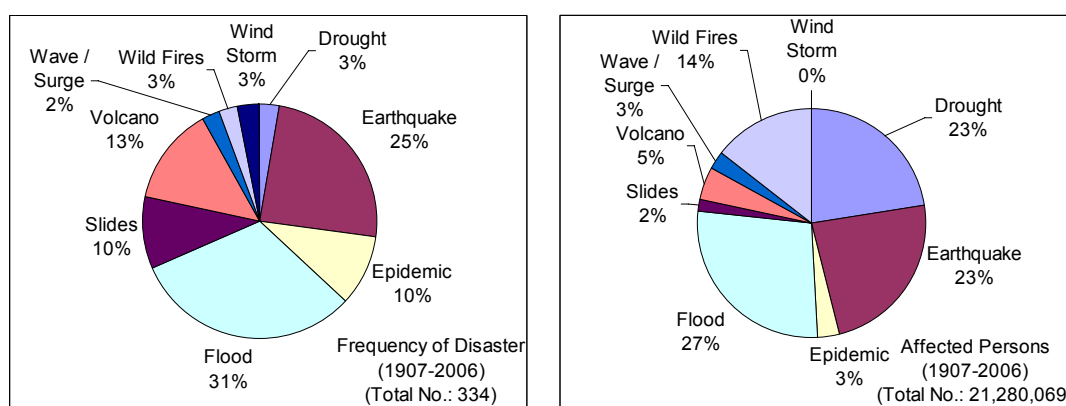
**Figure 2.1.1 Comparative Institutional Structure between National Administration and BNPB**

## 2.2 Disaster Characteristic at National Level

### 1) Long-term Trend of Disaster

The long-term trend of disasters in Indonesia is examined using EM-DAT: The OFDA/CRED International Disaster Database.

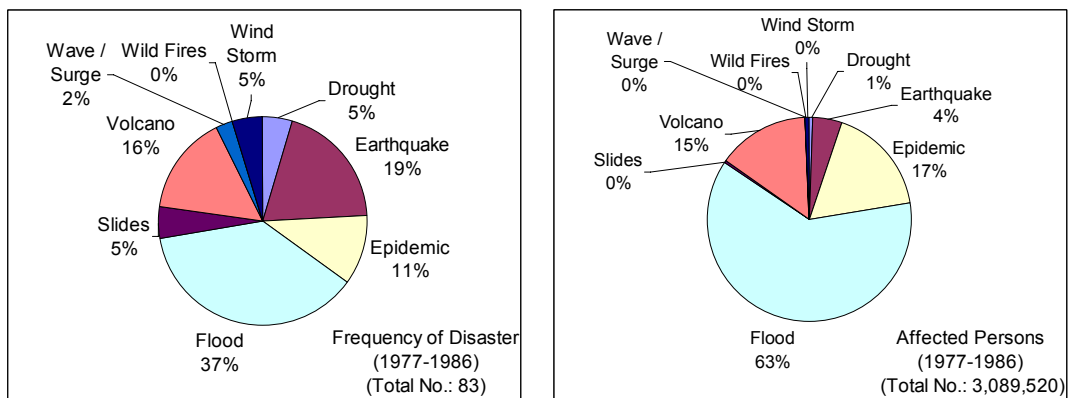
The following figure shows the frequency of disasters and affected persons by disasters during past 100 years in Indonesia based on the data of EM-DAT. As shown in the figure, high frequency disasters in Indonesia are flood, earthquake, volcano, slides and epidemic, and those which highly influenced people are flood, earthquake, drought and wildfires.



Source: EM-DAT: The OFDA/CRED International Disaster Database

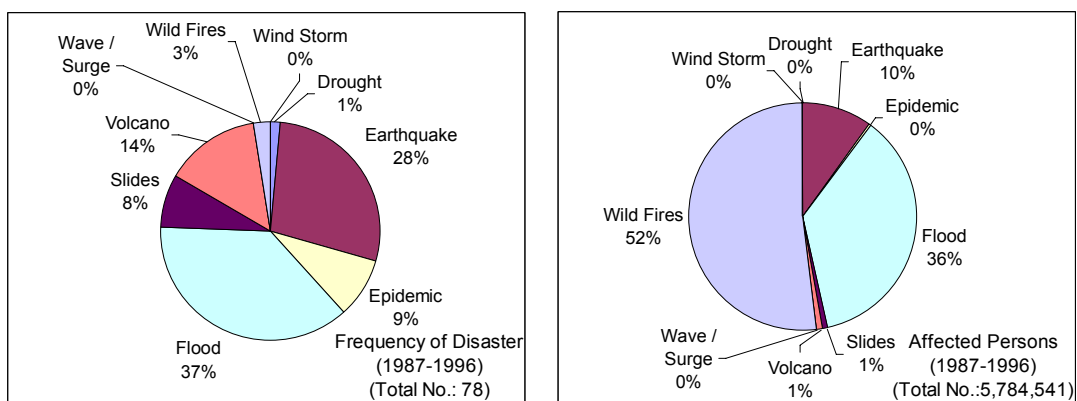
**Figure 2.2.1 Frequency of Disasters and Affected Persons in 1907 - 2006**

Figure 2.2.2 to 2.2.4 show the frequency of disasters and affected persons by disasters in 10 year periods from 1977 in Indonesia based on the data of EM-DAT. From the figures, it is clear that both of frequency of disasters and affected persons tend to increase over time. Disasters which frequently occur are almost same in each period. Flood, earthquake and volcano are high frequency disasters. On the other hand, the disasters most affecting people varied by period. Flood disasters occurred in 1977-1986, wildfires in 1987-1996, and earthquakes in 1997-2006. In addition, frequency of landslides and wildfires tended to increase over time, which may be caused by growing human activities such as logging.



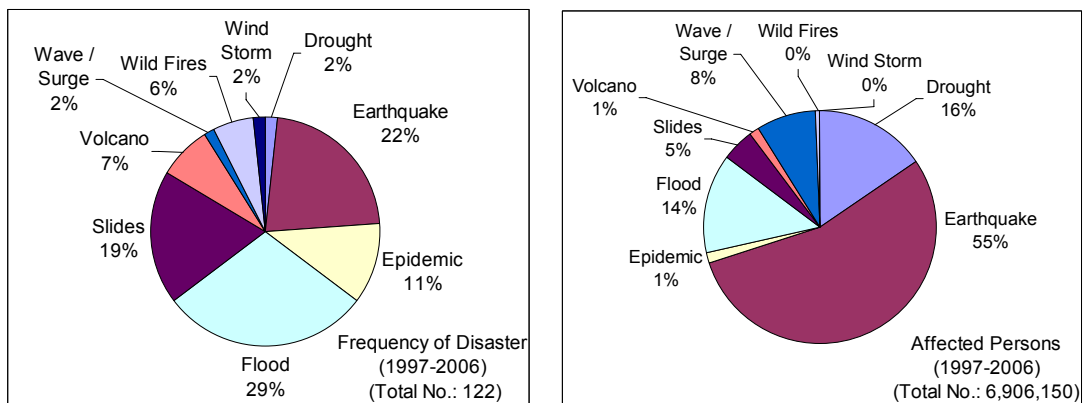
Source: EM-DAT: The OFDA/CRED International Disaster Database

**Figure 2.2.2 Frequency of Disasters and Affected Persons 1977 - 1986**



Source: EM-DAT: The OFDA/CRED International Disaster Database

**Figure 2.2.3 Frequency of Disasters and Affected Persons 1987 - 1996**



Source: EM-DAT: The OFDA/CRED International Disaster Database

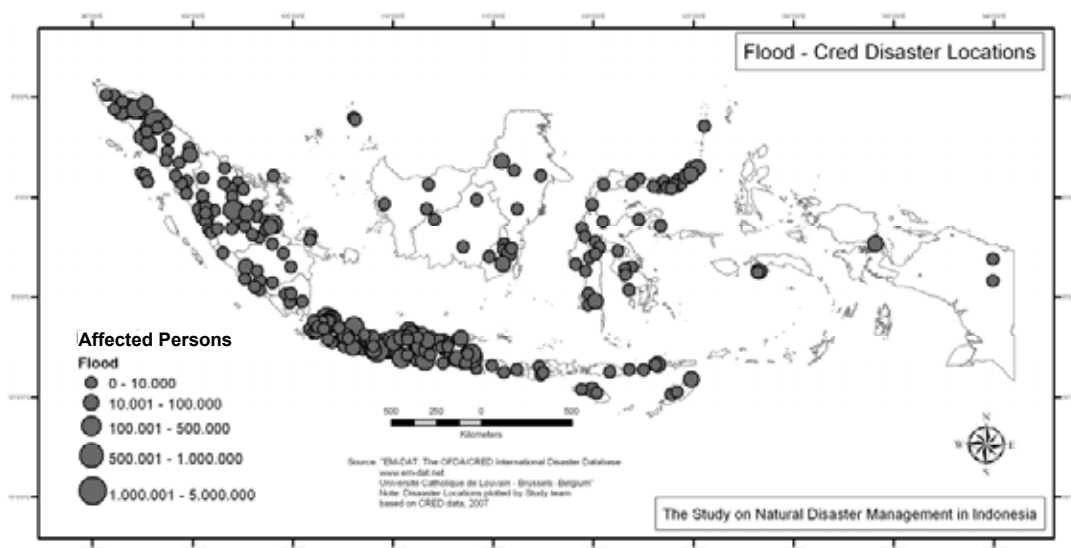
**Figure 2.2.4 Frequency of Disasters and Affected Persons 1997 - 2006**

## 2) Areal Distribution of Disaster

Figure 2.2.5, 2.2.6, 2.2.7 and 2.2.8 show the location and number of affected persons by target disasters of this Study (flood, landslides, earthquake and tsunami) during past 100 years based on the EM-DAT.

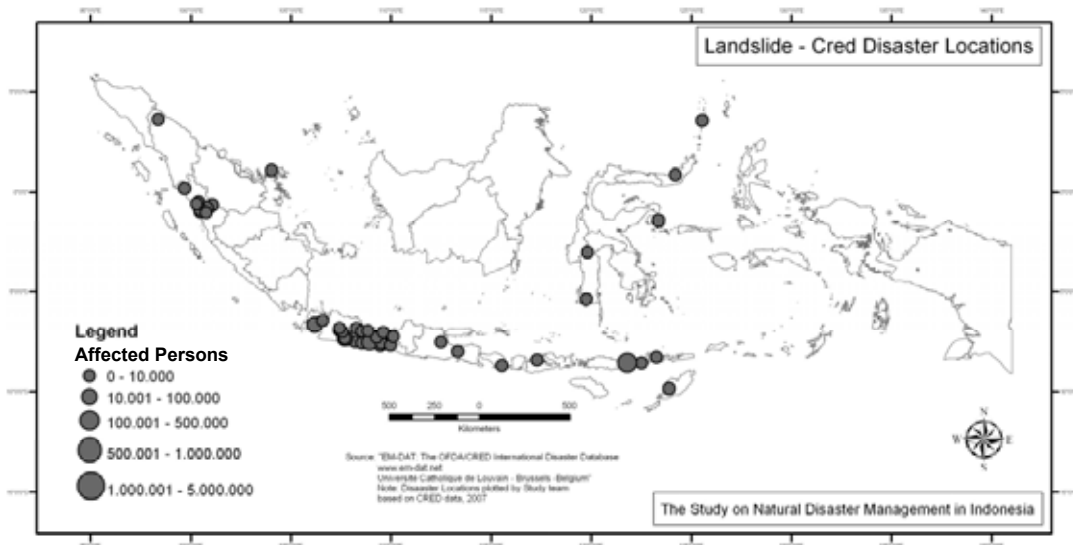
From the figures, highly disaster prone areas of each target disaster are summarized as follows.

- Flood: Sumatra, Central Java, Kalimantan, Sulawesi and Nusa Tenggara
- Landslides: North-western part of Sumatra, Java, Sulawesi and Nusa Tenggara
- Earthquake: Sumatra's west coast, Java's south coast, Sulawesi, Nusa Tenggara, Maluku and Papua
- Tsunami: Sumatra's west coast, Java's south coast, Sulawesi and Nusa Tenggara



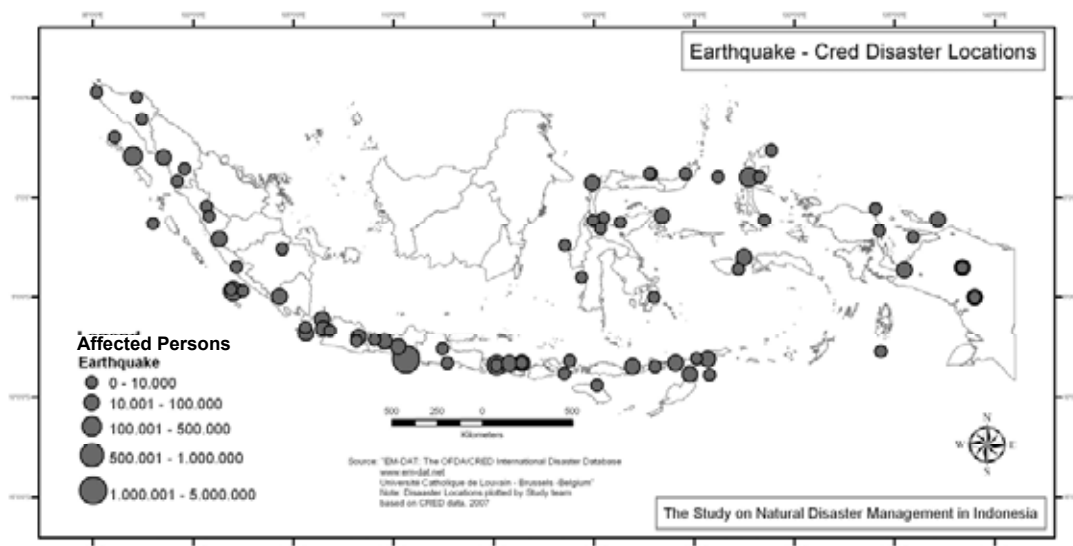
Source: EM-DAT: The OFDA/CRED International Disaster Database

**Figure 2.2.5 Location and Number of Affected Persons by Flood**



Source: EM-DAT: The OFDA/CRED International Disaster Database

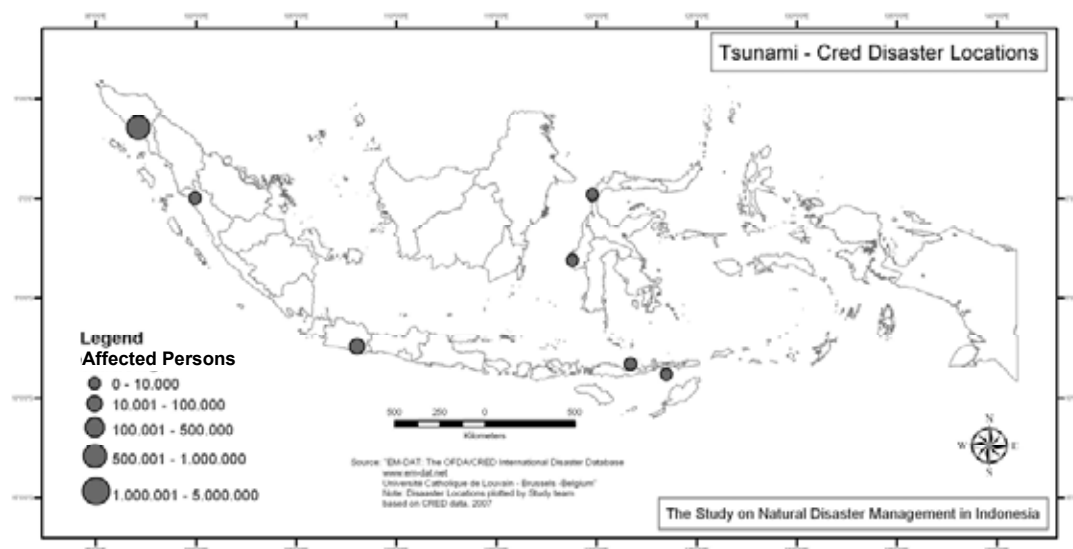
**Figure 2.2.6 Location and Number of Affected Persons by Landslide**



Source: EM-DAT: The OFDA/CRED International Disaster Database

**Figure 2.2.7 Location and Number of Affected Persons by Earthquake**





Source: EM-DAT: The OFDA/CRED International Disaster Database

**Figure 2.2.8 Location and Number of Affected Persons by Tsunami**

## 2.3 Public Awareness and Education

### 2.3.1 Current Framework for Public Awareness and Education for Disaster Risk Reduction in Indonesia

#### 1) Law of the Republic of Indonesia No. 24

The Article 26-(1)-b & c of the Law of the Republic of Indonesia No. 24 stipulates public awareness and education for disaster reduction as part of social rights of every person.

*(1) Every person is entitled to:*

*b. education, training, and skills in organization of disaster management;*

*c. access written and/ or verbal information on disaster management policies;*

*(extracts from the Article 26-(1))*

The Article 37-(2)-c of the Law stipulates “promotion of a culture of disaster awareness” is one of the activities for disaster reduction which shall be implemented during pre-disaster phase. The Article 43 of the Law stipulates that disaster management education and training are implemented and stipulated by Government in accordance with regulations of law.

#### 2) Government Regulation of Republic of Indonesia No. 21 Concerning Disaster Management Operations

The article 14 of the Government Regulation, which was stipulated in the Law of the Republic of Indonesia No. 24, clearly defines the below:

*(1) Education and training as meant in Art. 5 para. (1) letter g purpose to increase awareness, care, capacity, and preparedness of public in facing disaster.*

*(2) Education and training as meant in para. (1) are operated by Government and regional government in form of formal, non-formal, and informal education which takes form of basic, advanced, technical trainings, simulations, and drills.*

*(3) Instrumentality/ institution/ organization linked to disaster management may operate disaster management education and training in accordance with its mandate and authority, based on guidelines which are enacted by Head of BNPB.*

*(Preliminary English translation)*

### **3) National Action Plan to Reduce Disaster Risk 2006-2009**

This Plan was developed for providing guidelines and information that will facilitate decision makers to pledge commitment to cross-sectoral and jurisdictional priority programs based on a strong and systematic foundation.

In the Plan, “use knowledge, innovation and education to build a culture of safety and resilience at all level” is defined as one of the five key priority areas. Further, “Information Management and Information Exchange”, “Education and Training”, and “Public Awareness” are mentioned as part of the activities to fulfill the key area.

In addition, the matrix to make clear the status of planned activities categorized by the priority areas in the Plan shows the involvement of various organizations in the activities related to public awareness and education. They are BNPB (former BAKORNAS PB), LIPI, PMI, MPBI, etc.

#### **2.3.2 Identified Actions for Promoting Public Awareness and Disaster Risk Reduction Education in accordance with the National Disaster Management Plan**

There are many activities for public awareness and education that have been conducted by various organizations in Indonesia. However, most of the activities have been conducted on a project-basis and contain problems with sustainability.

For better public awareness and disaster risk reduction education in this country, the actions below were identified for promoting public awareness and disaster risk reduction education, reflecting the National Disaster Management Plan.

- **Designation of Disaster Risk Reduction Day/Week/Month:** There is no nationwide Disaster Risk Reduction Day in Indonesia, although 26 December is considered as the Tsunami Memorial Day in some parts of Indonesia. If the Disaster Risk Reduction Day/Week/Month was designated in Indonesia, various activities on disaster risk reduction such as trainings, drills, poster contests, exhibitions can be conducted in coordinated manner,

in cooperation with various organizations such as relevant governmental agencies, international organizations, NGOs, Mass media, schools etc.

- **Integration of disaster risk reduction into school system (formal, non-formal and informal education):** It is effective to disseminate the information on disaster risk reduction through school education (including formal, non-formal and informal education). Through school education, children can learn about natural hazards and how to protect themselves from the hazards regularly. From the learning, their body will also learn how to respond to natural hazards and will remember it even they grow up. Children tend to tell what they have learnt at school to their parents, therefore school education also contribute to raising the awareness of parents. Through school disaster risk reduction education, school communities can be also educated.

It seems to be already occupied if there is another subject added to the school curriculum in Indonesia, however it won't be too difficult to integrate disaster risk reduction into the current subjects such as Bahasa, physics, social studies, integrated subjects, etc. BNPB and the Ministry of National Education (in cooperation with the Consortium of Disaster Education) are encouraged to work together to integrate disaster risk reduction into school system in the aim of safer school and communities.

- **Community Organizations for Disaster Preparedness:** First responders to natural hazards are always individuals and community. If people know how to respond to natural hazards, they could save many of lives before official rescuers will arrive. Especially since there is no established system of rescue and fire fighting in Indonesia, community people themselves need to be well prepared for natural hazards. Utilizing existing community groups such as religious groups, women group, etc., disaster-related community groups are recommended to be organized. BNPB and local governments need to closely work together on the organization.
- **Promotion of Disaster Risk Reduction Activities by Corporations:** Companies need to prepare for natural disasters, making contingency plans as well as Business Continuity Plan (BCP), securing employee safety, and providing supports to disaster victims in the event of a disaster. They are also encouraged to conduct evacuation drills with employees.
- **Cooperation with Mass Media for Raising Awareness of People:** In order to disseminate the disaster risk reduction information effectively to wider audience, the cooperation with mass media such as TV, radio, community radio, newspapers, and magazines are crucial.
- **Inclusion of Gender/Disaster-vulnerable's Point of Views:** All the above activities or efforts need to integrate the point of view of gender and disaster-vulnerables.

## **2.4 Environmental Assessment Process**

### **2.4.1 Basic Environmental Laws and Regulations**

The original basic law on environment was promulgated by the Government of Indonesia (GOI) in 1982 (Law/UU No.4/1982). This law was updated in 1997 to become the new basic environmental law of the times (law concerning environmental management) as Law No.23/1997.

This new basic environmental law (No. 23/1997) under Article 15 stipulates the conduct of environmental impact analysis for projects with significant impacts. Consequently Government Regulation No.27/1999 (PP27/1999) was published on the process of the conduct of Environmental Impact Assessment (EIA/AMDAL).

### **2.4.2 EIA/AMDAL Regulations and Processes**

The EIA process in Indonesia known as AMDAL (Analysis Mengenai Dampak Lingkungan) is characterized by its absence of IEE (Initial Environmental Examination) in a formal/legal sense and the EIA is basically project based.

The AMDAL process was originally included in law through Government Regulation No. 29 of 1986 (PP29/1986), promulgated under Law No. 4/1982 as noted above. It is noted that Law No. 4/1982 has been replaced with Law No. 23/1997 and PP29/1986 with PP27/1999 as also referred above.

Other significant regulations (decrees) and guidelines that have to be followed in the conduct of AMDAL (EIA) study are given below.

1. Decree of the Minister of State for Environment No.2/2000 on Guidance on the Evaluation of the EIA (AMDAL) Document.
2. Decree of the Minister of State for Environment No.5/2008 on Guidance on the Working Procedure of the EIA Commission.
3. Decree of the Minister of State for Environment No.6/2008 on Guidance on the Standardization of Commission for the EIA Evaluation in Regency/City.
4. Decree of the Minister of State for Environment No.42/2000 on Guidance on the Formation of Evaluation Team and Technical Team Members for the EIA.
5. Decree of the Minister of State for Environment No.11/2006 on Types of Business and /or Activities that are Required to be Provided with EIA.
6. Decree of the State Minister of Environment No.8/2006 on Compilation Guidelines on Preparation of the EIA Document.
7. Decision of the Environmental Impact Management Agency No.8/2000 on Guidance on Public Participation and Information Disclosure of the EIA Process.

### **2.4.3 Land Acquisition and Compensation Regulations**

Land acquisition and related compensation for housing and other lost properties for the provision of public sector facilities have been a contentious issue in Indonesia until recently that has resulted in conflict between the affected property owners and the relevant public sector institutions.

However, in recent years (since 2005) two Presidential Regulations (Presidential Regulation of 2005 and its amendment in 2006) and the subsequent most recent Decision No.3/2007 by the National Land Administration Agency (*Badan Pertanahan Nasional/BPN*), all at national level covering the entire territory of Indonesia, specifies land tax value (known as Tax Objective Sale Value or *Nilai Jual Objek Pajak/NJOP*) of the property with no consideration to the market value will only be the initial basis for the negotiation with affected property owners on compensation and the actual compensation could be market value of the affected properties, thereby facilitating the provision of fair compensation for the project affected persons (PAPs) and hence eliminating the most contentious issue concerning land acquisition for public sector development projects.

### **2.4.4 Conclusions and Recommendations**

It is concluded that the project-based EIA process in Indonesia incorporates disaster risk assessment as a requirement. Hence it is important to ensure that this requirement is duly followed in the formulation of EIA documentation. In this respect it is recommended that any natural disaster prone nature of a project area shall be initially duly identified and evaluated under (existing/baseline) environmental condition and such natural disaster prone baseline condition shall be further used for significant impact evaluation including disaster risk assessment as specified in Chapter VI on Significant Impact Evaluation of Attachment II of Decree No.8/2006.

Moreover, the EIA process in Indonesia is only project-based and hence does not cover spatial development plans, policies and programs that essentially form the basis of subsequent project formulations. Accordingly, it is recommended that the natural disaster risk assessment of such plans and policies shall be conducted by the newly formed respective disaster risk management agency at central, provincial, district (Kabupaten) or city (Kota) administrative level (BNPB, BPBD Province, BPBD Kabupaten or BPBD Kota as the responsible disaster management agency at local level) depending on such factors like the scale, complexity, sensitivity of such plans, conforming to the Presidential Regulation on National Agency for Disaster Management No.8/ 2008 and also the Law on Regional Autonomy (Law No.32/2004).

## **2.5 Principle and Strategy for Formulation of National Disaster Management Plan for Selected Natural Disaster of Indonesia, and Efforts for Formulation of the Plan**

### **2.5.1 Principles and Strategy for Formulation of National Disaster Management Plan**

The National Disaster Management Plan of Indonesia is the basis for disaster management policy of Indonesia and its implementation. National Disaster Management Agency (BNPB) is the total authority that is responsible for formulating the Plan. The Agency is supposed to take the initiative and to lead the relevant government agencies and local authorities for implementing the efforts which are stipulated in the Plan.

JICA Study Team proposed that BNPB should apply the Disaster Management Plan of Japan when it formulates the National Disaster Management Plan of Indonesia since the characteristics of natural hazards, geographic conditions and administration system for disaster management have a lot in common in both Indonesia and Japan. Because this National Disaster Management Plan of Indonesia includes earthquake, tsunami, flood and sediment disasters, BNPB will formulate and add the parts for the other types of disasters in the Plan. The format of the Disaster Management Plan of Japanese will enable BNPB to add the parts for other disasters. The proposal by JICA Study Team was formally approved in the meeting with the Head and the other senior officials of BNPB on May 15<sup>th</sup> 2008. The BNPB was established in January 2008 and the Head of BNPB was assigned in May 2008.

The National Disaster Management Plan of Indonesia was formulated in collaboration with the JICA Study Team, BNPB and the relevant government agencies. After the assignment of JICA Study Team, the Plan needs to be further reviewed and checked in detail by BNPB and the relevant government agencies from wider perspectives including administration and financial system. It is assumed that the Plan will be finalized in the official format of Government of Indonesia and formulated through the necessary official process.

The principles and strategy for formulating the National Disaster Management Plan of Indonesia are hereby confirmed based on the above mentioned rationale.

- 1) National Disaster Management Plan of Indonesia will be drafted based on the discussions and reviews of Disaster Management Plan of Japan. During the effort of drafting the Plan, the characteristic of Indonesia that are different from those of Japan are supposed to be incorporated. To be more precise, the JICA Study Team introduces and elaborates the Disaster Management Plan of Japan to BNPB. The Team drafts the plan that incorporates the particular elements of Indonesia that the Team got to know. The draft Plan will be

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reviewed and discussed in the meetings chaired by BNPB and participated in relevant government agencies. Through those coordination processes, it will be finally drafted as the practical and implementable plan in Indonesia.

- 2) Though National Disaster Management Plan of Indonesia should include the parts for the accidents and man-made disasters in addition to disasters as shown in the Figure 2.5.1 “Component of Disaster Management Plan in Japan”, we focus on four disaster types including earthquake, tsunami, flood and sediment disasters in this Study. It is advised that in the future BNPB would formulate the parts for other types of disasters and to accommodate the Plan for those disasters that are not dealt with in this draft.
- 3) The structure of the Plan is the same as that of the Disaster Management Plan of Japan, which has a part for each disaster type. Each part has several sections which, along with the disaster management cycle, fundamentally consist of three sections including (1) Pre-Disaster Measures, (2) Emergency Response Measures and (3) Post Disaster Measures for rehabilitation and recovery. This structure enables BNPB to a) describe the appropriate and practical plan which incorporates the characteristics of each disaster type for each disaster management cycle and b) formulate and add the other disaster types that are not included in the draft Plan. This JICA Study includes the four types of disasters and in the part for Earthquake Disaster Measures; the earthquake and tsunami measures are discussed and in the part for Rain and Storm Disaster Measures; the flood and sediment disasters are discussed. Figure 2.5.2 shows you the structure for National Disaster Management Plan of Indonesia formulated based on the principles.
- 4) They took the following background into account in the three sections. (1) In the first section for Pre-Disaster Measures, Government of Indonesia successfully allocated a certain amount of budget for the efforts of disaster preparedness and prevention by the relevant government agencies since the Government of Indonesia has played a proactive role to disaster management when they faced the huge socio-economic losses and impacts due to the tsunami disaster in Aceh 2004 and the consecutive big disasters. (2) In the second section for Emergency Response Measures, they assume and expect that BNPB will play the leading role in the emergency response. (3) In the third section for Post Disaster Measures, they assume that disaster management efforts for this stage should be elaborated in the “Recovery Plan”, which is formulated by the national and/or local governments in collaboration with the organizations and institutes for disaster management based on the characteristics of the disaster affected area, magnitude of disaster impact and disaster types. Therefore the JICA Study Team assumes that the description of the section for Post Disaster Recovery should be limited to the fundamental items. It also understands that

some of the efforts for recovery and rehabilitation should substantially contribute to enhancing the capacity for disaster preparedness.

- 5) The National Plan has the similar format to that of the “Regional Disaster Management Plans” that the JICA Study Team started to formulate from May 2007 for Kabupaten Jember in East Java Province in collaboration with SATKORLAK and SATLAK, which are both regional disaster management authorities. The common structures for both national and regional disaster management plan enable them to make the comparison and reference among the national and regional plans and make the coordination more effective and appropriate when they implement the disaster management efforts by the national and regional authorities. The regional disaster management plans for Kabupaten Padang Pariaman and Kota Pariaman in the West Sumatra Province that they started to formulate in May 2008 have some particular items which reflect the regional characteristics but basically share the same structure.
- 6) This National Disaster Management Plan was formulated under Disaster Management Law No.24-2007 approved in April 2007. The Plan was formulated with the recognition that the Plan would complement and enhance the items stipulated in the Presidential Regulation No.8-2008 and Government Regulation No.21-2008. The Presidential Regulation No.8-2008 approved in January 2008 stipulates the responsibility and mandate of BNPB. The Government Regulation No.21-2008 stipulates the roles and missions for disaster management taken by the relevant stakeholders and regional authorities.
- 7) The National Disaster Management Plan needs to have such flexibility that enables the relevant government agencies to incorporate the unique mission and mandate for the disaster management efforts of the agencies since those agencies would find it difficult to stipulate the mission and mandate in the National Plan. In other words, the National Plan is supposed to facilitate each relevant government agency to formulate its own Disaster Management Operation Plan. Disaster Management Operation Plans formulated by the relevant government agencies based on the single National Disaster Management Plan are expected to facilitate the cooperation among the government agencies in terms of their responsibilities and functions for disaster management.
- 8) Additionally they need to check and review the once-formulated National Disaster Management Plan for keeping consistency and avoiding gaps between the National Plan and the Local Plans. This process would fill the vacancy of the mandate and responsibility for disaster management efforts where no national and local authorities deem to have their own.



- 9) The Disaster Management Plan of Japan has been reviewed and revised seven times including two times of fundamental revision. The National Disaster Management Plan of Indonesia as well needs to be reviewed by BNPB and the relevant government agencies. It needs to be reviewed periodically once in five years as is requested in the regulation. Especially when a big disaster happens, they have to review it if necessary. The National Disaster Management Plan is formulated on the basis that it would be reviewed in such ways that were mentioned above.

## 2.5.2 Efforts to formulate National Disaster Management Plan

The JICA Study Team formulated the National Disaster Management Plan based on the aforementioned principles and the study results in the past sections.

The Plan was formulated by the joint effort of the JICA Study Team and BNPB Task Team that was the counterpart in BNPB of the JICA Study Team. The Plan has been discussed in the series of workshops in which BNPB and relevant government agencies for disaster management participated. The report of the discussions in the workshops is described in Chapter 4. The drafted National Disaster Management Plan formulated in this Study is included in the Volume 2-2 of this report.

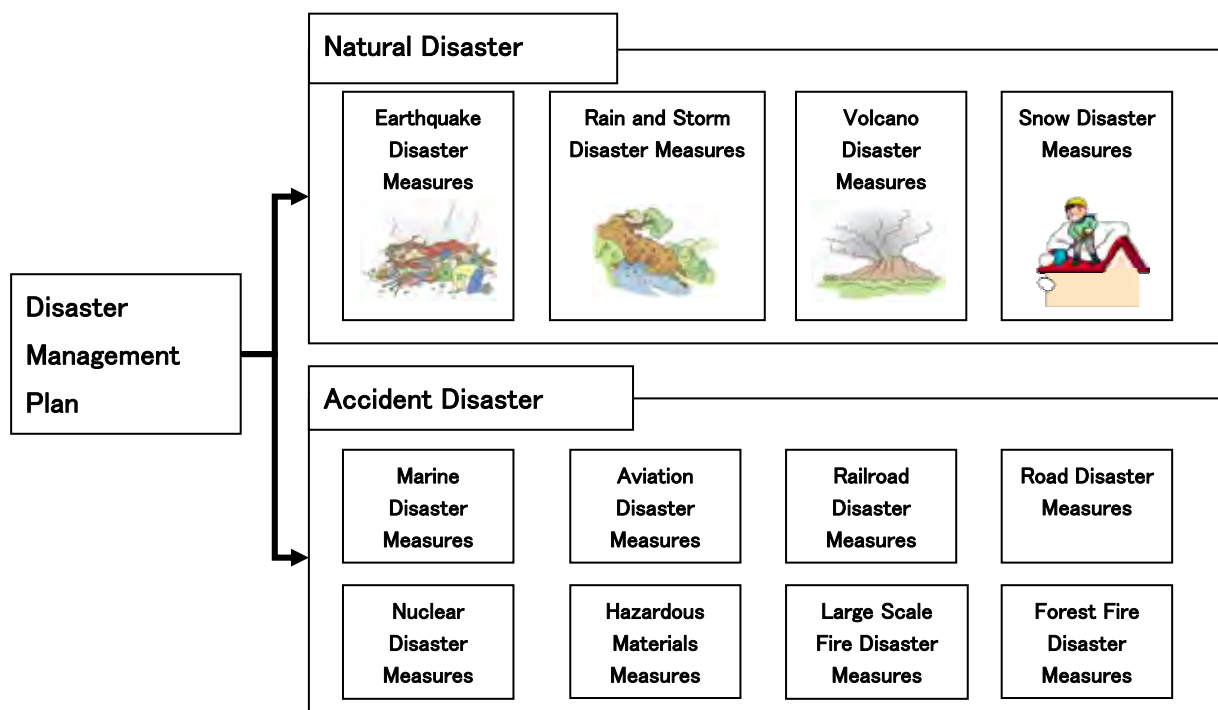


Figure 2.5.1 Components of Disaster Management Plan in Japan

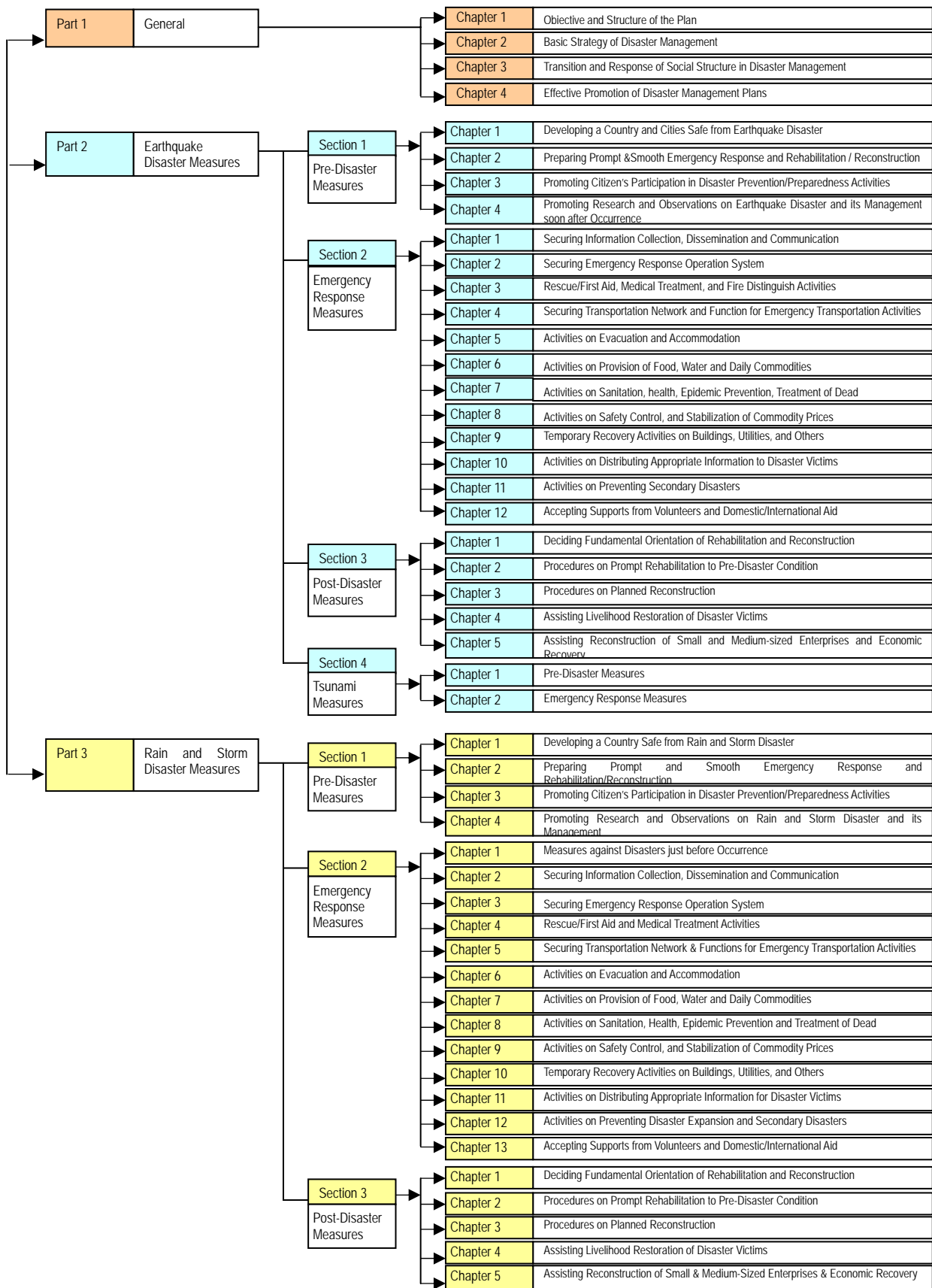


Figure 2.5.2 Structure of National Disaster Management Plan

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## **2.6 Action Plan for Capacity Enhancement**

### **2.6.1 Introduction**

In the course of the joint study by BNPB Team and JICA Team as well as discussions with relevant government agencies, the following areas have been identified for further developments and enhancement of capacity of disaster management mostly at the national level.

Major actions to be commenced (partially already on going) mostly under the initiative of the newly established BNPB are listed below. The implementation of each action will be mostly done by the relevant agencies and institutions, coordinated by BNPB. If it is regional (Local) level, BPBD will act similarly to BNPB.

1. Legal and Institutional Development
2. Human Resources Development (HRD) and Capacity Development
3. Nation-wide Communication Network Development for Sharing Disaster Information
4. Data Digitization Development for Disaster Management Information
5. Other Actions to be taken immediately after the authorization of National Disaster Management Plan

The activities in the above listed areas will be implemented within five (5) years. It is expected that this first five-year implementation will construct a strong foundation for disaster management of Indonesia. Assumed responsible agencies, indicated with underlines in this Action Plan, and assumed term of each implementation (commencing year and completion year are indicated for each action) will be defined through further discussions among concerned government agencies under the initiative and coordination of BNPB, especially in consideration of institutional and financial aspects.

### **2.6.2 Disaster Management Action Plan, 2009 – 2013**

The Action Plan is shown in the Table below.

<b>1</b>	<p><b>Legal and Institutional Development</b></p> <p>After the legislation of Disaster Management Law No.24, 2007 in April, 2007, National Disaster Management Agency (BNPB) was established under Presidential Regulation No.8, 2007 in January 2008, and subsequently Government Regulations No.21, 22, and 23, 2008 were promulgated in February, 2008. Those Law with Regulations will be applied as bibles of disaster management of Indonesia, however they should be more elaborated into certain details as actually applicable measures to regulate activities of government agencies with relevant institutions for smoother and more effective disaster management. Those legal and institutional developments should be given the highest priority of the government activities. It is the basis of capacity enhancement of disaster management of Indonesia as a whole,</p> <p>Upon authorization of National Disaster Management Plan, it is recommendable to legalize "Statutory Period of Disaster Management Development" in order to enhance motivation of all those concerned to start up implementation of all higher priority "Action Plans". The period will be one year, or designate 2009 as "Disaster Management Development Year".</p>
<b>1.1</b>	<p><b>National Disaster Management Plan (NDMP)</b></p> <p>The results of joint study by BNPB and JICA Teams with relevant Government Agencies will be completed in March 2009. It will be thoroughly reviewed, adjusted to meet with the situation of Indonesia, and authorized in official formats. It will become "Standard National Disaster Management Plan". The structure of the plan will be applied to these disaster events of "Natural Disaster in Indonesia" like Volcanic Disaster, Forest Fire Disaster, etc that are not covered by currently discussed NDMP.</p> <p><b>1.1.1 Authorization of NDMP, Earthquake &amp; Tsunami, and Rain &amp; Storm Disasters</b></p> <p>The joint study by BNPB and JICA Team will be completed in March, 2009. <u>BNPB supported by concerned government agencies</u> will finalize the plan in the official format and the plan will be authorized as the supplemental regulations to Government Regulations No.21,2008 as well as Disaster Management Law No.24, 2007.</p> <p>----- [ Implementation Term: 2009 – 2009 ]</p> <p><b>1.1.2 Preparation and Authorization of Guidelines/Manual for NDMP outside Earthquake &amp; Tsunami, and Rain &amp; Storm Disasters</b></p> <p>Based on the authorized NDMP for Earthquake &amp; Tsunami, and Rain &amp; Storm, <u>BNPB</u> will formulate Guidelines/Manual for preparation of disaster management plans of other disaster events such as Volcanic Disaster, Forest Fire Disaster and so on.</p> <p>----- [ Implementation Term: 2009 – 2009 ]</p> <p><b>1.1.3 Preparation and Authorization of NDMP outside Earthquake &amp; Tsunami, and Rain &amp; Storm Disasters</b></p> <p>In compliance with the authorized Guidelines/Manual for preparation of NDMP on other disaster events, the relevant government agencies such as <u>Department of Health for Epidemic Disaster</u>, and <u>Department of Energy, Mineral Resources for Volcanic Disaster</u>, and <u>Department of Forestry for Forest Fire Disaster</u>, coordinated by <u>BNPB</u> will prepare the plans.</p> <p>----- [ Implementation Term: 2009 – 2009 ]</p>
<b>1.2</b>	<p><b>Regional (Local) Disaster Management Plans (RDMP)</b></p> <p>In principle, each local government is responsible for its own RDMP, but there should be some standardized measures to be applied to 33 provinces and 483 districts for smoother coordination and cooperation among local governments as well as between local governments and national government represented by BNPB in disaster management activities.</p> <p><b>1.2.1 Authorization of RDMP: Jember District, Padang Pariaman District, Pariaman City: Earthquake &amp; Tsunami, and Rain &amp; Storm Disasters</b></p> <p>Similarly to BNPB/JICA joint study on preparation of NDMP, joint studies by the local government counterparts and JICA Team are being conducted in Jember District, East Java Province, Padang Pariaman District and Pariaman City in West Sumatra Province. The results of the study will be reviewed by <u>BNPB</u> and authorized in an official formats by the pertinent <u>local governments</u> in official formats.</p> <p>----- [ Implementation Term: 2009 – 2009 ]</p>

	<b>1.2.2</b>	<p><b>Preparation and Authorization of Guidelines/Manual for Planning of RDMP: Earthquake &amp; Tsunami, and Rain &amp; Storm Disasters</b></p> <p>Based on the authorized RDMPs for two districts and one city, Guideline/Manual will be prepared by <u>BNPB</u> in coordination with <u>BPBDs of the pertinent districts and the municipalities</u>. The authorized Guideline/Manual will be applied to preparation of RDMP of other local governments in Indonesia</p> <p>-----</p> <p>[ Implementation Term: 2009 – 2009 ]</p>
	<b>1.2.3</b>	<p><b>Preparation and Authorization of Guidelines/Manual for Regional (Local) Disaster Management Plans outside Earthquake &amp; Tsunami, and Rain &amp; Water Disasters</b></p> <p>It is similarly to National Disaster Management Plan; <u>BNPB with BPBD of Jember District, Padang Pariaman District, and Pariaman City</u> will prepare Guidelines/Manual for Regional Disaster Management Plans outside Earthquake &amp; Tsunami, and Rain &amp; Water Disasters.</p> <p>-----</p> <p>[ Implementation Term: 2009 – 2009 ]</p>
	<b>1.2.4</b>	<p><b>Preparation and Authorization of RDMP outside Earthquake &amp; Tsunami, and Rain &amp; Storm Disasters</b></p> <p>In compliance with authorized Guidelines/Manual for RDMP outside Earthquake &amp; Tsunami and Rain &amp; Storm Disasters will be prepared by <u>BPBD</u> of every local government (33 provinces and 483 districts/cities). Due to imparity among those local governments in terms of economy, capacity, etc, as well as natural and cultural difference, the preparation of plans will not be implemented simultaneously and the total completion of all local governments will take probably longer time.</p> <p>-----</p> <p>[ Implementation Term: 2009 – 2010 ]</p>
	<p><b>1.3 Regional (Local) Disaster Management Agency (BPBD)</b></p> <p>In compliance with Disaster Management Law No.24, 2007, BPBD should be established by every local government. The Law indicates the timing of establishment is to be one year after April 2007, but no BPBD has been established with very limited exception. The establishment of BPBD is very much essential as a fundamental of disaster management not only regional (local) level but also national level.</p>	
	<b>1.3.1</b>	<p><b>Preparation and Authorization of Guidelines for Establishing BPBD</b></p> <p><u>BNPB</u> has prepared Draft Guidelines for establishing BPBD and the draft is being reviewed by <u>the Authority</u>. Earlier formal conclusion is expected, which enables every local government to commence the establishment of BPBDs at both provincial and district/city levels.</p> <p>-----</p> <p>[ Implementation Term: 2008 – 2009 ]</p>
	<b>1.3.2</b>	<p><b>Establishment of BPBD (total 33 Provinces and over 483 Districts. Prioritization needed)</b></p> <p>Upon the authorization of Guidelines/Manual for establishing BPBD, every local government will establish BPBD. Due to imparity among those local governments in terms of economy, capacity, etc, as well as natural and cultural difference, the preparation of plans will not be implemented simultaneously and the total completion of all local governments will take probably longer time.</p> <p>-----</p> <p>[ Implementation Term: 2008 – 2010 ]</p>
	<p><b>1.4 National Disaster Management Operation Plans (NDMOP)</b></p> <p>Government Regulation No.21, 2008 stipulates "Operation" for (1) Pre-Disaster, (2) Emergency Response, and (3) Post-Disaster. However, the regulations are overall and comprehensive. NDMP, based on the Regulation No.21,2008, being prepared is not yet in detail enough for actual operation to be taken in place by various concerned government agencies with relevant institutions and organizations. Disaster Management Operation Plan (NDMOP) of each concerned relevant government agency will be prepared so as to enable an agency for smooth and effective operation individually as well as organically in coordination with other concerned agencies. It is considered that the Operation Plans are the supplemental regulations to NDMP as well to the Government Regulation No.21, 2008.</p>	
	<b>1.4.1</b>	<p><b>Preparation and Authorization of Guidelines/Manual for NDMOP</b></p>

		<p><u>BNPB</u> will prepare Guidelines/Manual for NDMOP: Particular Issues, and distribute to relevant government agencies and institutions.</p> <p>-----</p> <p>[ Implementation Term: 2009 – 2009 ]</p>
	<b>1.4.2</b>	<p><b>Preparation and Authorization of NDMOP: General Issues</b></p> <p><u>BNPB</u> will prepare NDMOP: General Issues, which defines the necessity, objectives, framework, and outline of operation plans.</p> <p>-----</p> <p>[ Implementation Term: 2009 – 2009 ]</p>
	<b>1.4.3</b>	<p><b>Preparation and Authorization of NDMOP: Particular Issues</b></p> <p>Based on the Guidelines/Manual prepared by <u>BNPB</u> and authorized by authorities, the Particular Issues of NDMOP will be prepared by every concerned agency such as <u>Department of Public Works</u>, <u>Department of Health</u>, <u>Department of Social Affairs</u>, <u>Indonesian National Armed Forces</u>, and so on. <u>A committee</u> will be established headed and coordinated by <u>BNPB</u>.</p> <p>-----</p> <p>[ Implementation Term: 2009 – 2010 ]</p>
<b>1.5</b>	<b>Regional (Local) Disaster Management Operation Plans (RDMOP)</b>	
	<p>A part of National Disaster Management Plan being prepared is an indication of relationship between National Disaster Management Plan and RDMP.</p> <p>In the Joint Study by RDMP, Coordination Unit (SATKORLAK and SATLAK) and JICA Team for RDMP for Jember District of East Java Province, Padang Pariaman District and Pariaman City of West Sumatera Province, it is discussed that some items of operational activities are to be coordinated with <u>BNPB</u>. The relationship between Regional (Local) and National levels will be clarified and defined in RDMOP.</p>	
	<b>1.5.1</b>	<p><b>Preparation and Authorization of Guidelines/Manual for Regional (Local) Disaster Management Operation Planning</b></p> <p>By reviewing RDMP, <u>BNPB</u> will identify the relationship between National and Local levels, and prepare Guidelines for Regional (Local) Disaster Management Operation Planning. Special attention is to be paid to define roles and responsibilities between <u>BNPB</u> and <u>BDPB</u>, as well as between National Government Agencies and Local Government Agencies.</p> <p>-----</p> <p>[ Implementation Term: 2009 – 2009 ]</p>
	<b>1.5.2</b>	<p><b>Preparation and Authorization of RDMOP</b></p> <p><u>BPBD with relevant local government agencies</u> will prepare RDMOP. <u>BNPB</u> will coordinate with <u>BPBD</u> especially on the definition of roles and responsibilities of National Government to be identified in RDMOP.</p> <p>-----</p> <p>[ Implementation Term: 2009 – 2010 ]</p>
<b>1.6</b>	<b>National and Regional (Local) Level Contingency Plans</b>	
	<p>One of essential parts of "Emergency Response Measures" is "Logistics for supplying required staff and goods". National and Regional (Local) levels Contingency Plans which regulate prompt and efficient operational activities of logistics for disaster affected areas, and mitigate further disaster damages.</p>	
	<b>1.6.1</b>	<p><b>Preparation and Authorization of Guidelines/Manual for National Level Contingency Planning</b></p> <p><u>BNPB</u> will prepare Guidelines for National Level Contingency Planning. <u>Indonesian National Armed Forces</u> and <u>Indonesian National Police</u> will act as important coordinators in the preparation of Guidelines.</p> <p>-----</p> <p>[ Implementation Term: 2008 – 2009 ]</p>
	<b>1.6.2</b>	<p><b>Preparation of Contingency Plans by National Government Agencies</b></p> <p><u>Every concerned relevant agency</u> will prepare NDMOP for its own use and for the purposes of coordination with other agencies. Contingency Plan is an elaboration of "Emergency Response" in NDMOP of each agency. Every agency will follow the authorized Guidelines/Manual prepared by <u>BNPB</u>. The preparation is under the coordination by <u>BNPB</u>.</p> <p>-----</p> <p>[ Implementation Term: 2009 – 2009 ]</p>

	<b>1.6.3</b>	<p><b>Preparation and Authorization of Guidelines/Manual for Regional (Local) Level Contingency Planning</b></p> <p>Every BPBD will prepare guidelines/Manual for Regional (Local) Level Contingency Planning. It will be much more in detail compared with National Level Contingency Plan, but clarify and define the relationship between National and Region (Local) at an occurrence of natural disaster particularly when BPBD recognizes necessity of a support by BNPB is required.</p> <p>-----</p> <p>[ Implementation Term: 2009 – 2010 ]</p>
<b>2</b>	<b>Human Resources Development (HRD) and Capacity Development</b>	
	<p>Simultaneously with establishing Legal and Institutional matters, capacity enhancement of government agencies concerned to disaster management will be urgently planned and implemented by Human Resources Development (HRD) including Manpower Training. Moreover, not only for government officials but also for general public through schools and local communities will be targeted including enhancement of people's awareness of disaster management. Without knowledge and training of those officials and people, any Disaster Management Plans and related Operation Plans are not workable.</p>	
	<b>2.1</b>	<p><b>HRD at National and Regional (Local) Levels</b></p> <p>Firstly, capacity of BNPB personnel will be enhanced, and simultaneously capacity of government officials in charge of disaster management at both national and regional (local) levels will be developed. There are totally approx. 65 national government agencies (departments, state ministries, and agencies), 33 provinces and 483 districts/cities. One department has 4 to 5 directorate generals. So, government officials of total approx. 670 units or more will be targeted for capacity enhancement program. If one unit requires at least 10 well trained officials, total number of those persons will be 6,700 or more.</p>
	<b>2.1.1</b>	<p><b>Programming and Planning of Comprehensive HRD</b></p> <p>BNPB with relevant agencies will prepare program and plan of a comprehensive HRD for disaster management by concerned government officials, primarily targeting the above indicated 6,700 or more persons. Besides government agencies, such Guidelines/Manual will be prepared for some important organizations such as life-line infrastructure corporations which will be involved in disaster management. In principle, Laws and Regulations of disaster management, either National or Regional (Local) Disaster Management Plan, and phenomenon of each natural disaster are common subjects to be studied by all trainees, and Disaster Management Operation Plans of either National or Regional (Local) level are particularly learned by each agency individually.</p> <p>Identification of competent experts who will be lectures/trainers is important as one of the first steps of programming and planning. Training program and plan for potential people to be lectures/trainers is secondly important. Involvement of academic sector (R &amp; D institutions and universities, etc) that may have manuals of HRD is supportive. Indonesian National Armed Forces and Indonesian National Police, and National Research and Rescue Agency will be much involved in programming and planning particularly at "Emergency Response". Text books will be prepared.</p> <p>-----</p> <p>[ Implementation Term: 2009 – 2009 ]</p>
	<b>2.1.2</b>	<p><b>Preparation of Guidelines/Manual for HRD of National Government Agencies and Institutions</b></p> <p>For materializing the Program and Plan of Comprehensive HRD, BNPB with relevant agencies will prepare Guidelines/Manual for HRD actually implemented by every concerned relevant agencies and organizations.</p> <p>[ Implementation Term: 2009 – 2009 ]</p>
	<b>2.1.3</b>	<p><b>Implementation of HRD and Manpower Training for Government Agencies and Institutions</b></p> <p>Under supervision and/or coordination by BNPB, HRD will be implemented for each agency.</p> <p>-----</p> <p>[ Implementation Term: 2009 – 2010 ]</p>
	<b>2.1.4</b>	<p><b>Preparation of Guidelines/Manual for HRD and Manpower Training of Life-line Infrastructure Corporations</b></p>

	<p>Similarly to the ones for government officials, <u>BNPB</u> coordinated with government agencies which are supervising life-line infrastructure corporations such as <u>Department of Energy and Mineral Resources</u> for Electric and Gas Supply Companies, <u>Department of Communications and Informatics</u> for telecom. companies, <u>Department of Public Works</u> for water supply companies will prepared Guidelines/Manual for staff of life-line infrastructure corporations.</p> <p>-----</p> <p>[ Implementation Term: 2009 – 2009 ]</p>
<b>2.1.5</b>	<p><b>Implementation of HRD of Life-line Infrastructure Corporations</b></p> <p>According to Guidelines/Manual prepared by <u>BNPB</u> and government agencies, <u>every life-line infra. Corporations</u> will conduct and implement HRD.</p> <p>-----</p> <p>[ Implementation Term: 2009 – 2011 ]</p>
<b>2.1.6</b>	<p><b>Preparation of Guidelines/Manual for HRD of Local Governments and Concerned Organizations</b></p> <p>It is considered that capacity enhancement of Regional (Local) Government is under responsibility of <u>BNPB</u> at least at provincial level (existing SATKORLAK). <u>BNPB</u> will prepare standard Guidelines/Manual for HRD targeting officials of BPBD.</p> <p>-----</p> <p>[ Implementation Term: 2009 – 2010 ]</p>
<b>2.1.7</b>	<p><b>Implementation of HRD of Local Governments and Concerned Organizations</b></p> <p><u>Each BPBD</u> will customize Guidelines/manual to make applicable to each specific characteristics of the pertinent regional (local) situation, and will conduct HRD for themselves and concerned government officials.</p> <p><u>Each BPBD</u> will put efforts to expand HRD to outside government officials at least within government related institutions and organizations. Among those institutions and organizations, persons who will be responsible for "Rescue and Relief" are priority target of HRD. They are, for instance, persons from Fire Brigade, Police, Hospitals, and so on.</p> <p>-----</p> <p>[ Implementation Term: 2009 – 2011 ]</p>
<b>2.1.8</b>	<p><b>Establishment of Certification/Qualification Systems of Disaster Management Expert</b></p> <p>It is recommendable to establish Certification/Qualification Systems by <u>BNPB and relevant government agencies supported by relevant academic and research institutions</u>. <u>BNPB and/or BPBD</u> will issue certification/qualification to whom has passed examination conducted by <u>BNPB and BPBD</u>. The number of certification/qualification holders will be indicative of the capacity of disaster management at national level, at provincial level and district/city level, and it will be referenced to further improvement of disaster management programming and planning.</p> <p>-----</p> <p>[ Implementation Term: 2009 – 2009 ]</p>
<b>2.2</b>	<p><b>Human Resources Development (HRD) at School Education</b></p> <p>It is desirable to start enhancing people's awareness about disaster management from primary education level, and it will be continued step by step to intermediate and higher education levels. Within this first Five-Year Action Plan, all pupils and students at every education level will be simultaneously given certain education and training. However, prior to the education and training, it is needless to say but teachers and lecturers will be firstly educated and trained.</p>
<b>2.2.1</b>	<p><b>Programming and Planning of School Education on Disaster Management from Primary to High Education Levels</b></p> <p><u>BNPB</u> and <u>Department of National Education with concerned universities and institutions</u> will prepare overall program and plan of HRD firstly for school management/operation side, and secondly for pupils/students sides.</p> <p>-----</p> <p>[ Implementation Term: 2009 – 2009 ]</p>
<b>2.2.2</b>	<p><b>Preparation of Guidelines/Manual for School Education on Disaster Management at each level</b></p>



		<p>Guidelines/Manuals will be prepared by <u>Department of National Education</u>, coordinated by <u>BNPB</u>, probably for three levels, i.e., primary, intermediate, and higher educations. Guideline/Manual will indicate for forming curriculum and text books of disaster management. It is particularly considered to establish a department of disaster management within appropriate faculty (either Natural Science or Social Science) or independently at relevant universities.</p> <p>-----</p> <p>[ Implementation Term: 2009 – 2009 ]</p>
	<b>2.2.3</b>	<p><b>Implementation of School Education on Disaster Management at each level</b></p> <p>After the preparation of Comprehensive Program and Plan of School Education on Disaster Management, as well as authorization of Guidelines/Manual, <u>every school and/or university</u> will implement its education on disaster management. It is time to time monitored by <u>BNPB and BDPB</u> following progress of capacity enhancement at national and regional (local) levels.</p> <p>-----</p> <p>[ Implementation Term: 2010 – 2013 ]</p>
	<b>2.3</b>	<p><b>Enhancement of People's Awareness of Disaster Management</b></p> <p>Majority of people of the nation are outside government officials and school pupils/students. They should be targeted people for capacity enhancement. However, due to various constraints and restrictions, it is hardly performed to conduct similar HRD for government officials and school pupils/students. Enhancement of awareness about natural disaster management to general public will be still possible and inevitable factor for national and regional (local) disaster management operation.</p>
	<b>2.3.1</b>	<p><b>Programming and Planning of Comprehensive Enhancement of People's Awareness of Disaster Management</b></p> <p>There are a few ways for enhancement. They are (1) to develop and disseminate Disaster Management Information to general public, and (2) to plan and conduct Disaster Management Drills at national and regional (local) levels. Basis of dissemination materials and basic scenario of drills will be prepared by <u>BNPB with relevant agencies</u> but detail programming and planning will be supported by various government agencies and related organizations including mass media corporations. Also, in the planning, it will be considered that the participation of local resident's communities, NGOs, and Volunteers.</p> <p>-----</p> <p>[ Implementation Term: 2009 – 2009 ]</p>
	<b>2.3.2</b>	<p><b>Implementation of Production and Dissemination Tools of Disaster Management Information to General Public</b></p> <p>According to prepared program and plan, dissemination tools such as booklets, leaflets, posters, calendars, and so on will be produced and disseminated to general public through appropriate government facilities, publishers, mass media such as <u>TV and Broadcasting, Newspaper, Magazines and Journals</u>, etc. Immediately after the programming and planning, it is considered that special campaign for awareness of disaster management will be carried out for a certain period (1month or 3 months) in order to initiate various activities of disaster management being listed herein.</p> <p>-----</p> <p>[ Implementation Term: 2009 – 2010 ]</p>
	<b>2.3.3</b>	<p><b>Implementation of Disaster Management Drills, at National Level, Local Government Level, and Community Level</b></p> <p>According to prepared scenario, disaster management drills (earthquake, tsunami, flood and sediment) will be conducted at national, regional (local) and community levels, and also at each organization of government office and institution, school, university and private corporation. Those drills will be held as parts of above mentioned special campaign. Besides, it is recommendable to designate "Disaster Management Development Year", "Disaster Management Month", "Disaster Management Week" and/or "Disaster Management Day" either in comprehensive manner or individually on the different disaster. National level designation will be by Presidential or Government Regulation, Regional (Local) level will be by Governor's Decision and/or Decision of Head of District/Mayor of City. And/or, each government agency at national and local level will designate such month, week and day. It will be applied to any other organization including schools, corporations, and local communities.</p> <p>-----</p> <p>[ Implementation Term: 2009– 2013 ]</p>

<b>3</b>	<b>Nation-wide Communication Network Development for Sharing Disaster Information</b>	
	Together with Legal and Institutional Development and HRD and Capacity Enhancement, a comprehensive real-time Information Sharing Systems will be inevitable particularly as Emergency Response Measurement which ensures prompt and appropriate information exchange by reliable communication means and systems among those well trained people of various agencies and institutions especially at an occurrence of heavy natural disaster. BNPB supported by BPBD and various concerned agencies and institutions will develop a nation wide comprehensive communication network for disaster management.	
<b>3.1</b>	<b>Development of Disaster Information Sharing System for Emergency Response</b>	
	Not only Warning information, information at every stage (Pre-Disaster, especially Emergency Response, and Post Disaster). As National Disaster Management Plan being studied in 2008 urges the development of securing effective communication systems for sharing information among those concerned. It will appear, for instance, Chapter 1. Securement of Information Gathering, Dissemination, and Communication, and Chapter 10. Appropriate Information Dissemination to Disaster Victims as Emergency Response Measures.	
<b>3.1.1</b>	<b>Master Planning Study on Disaster Information Sharing System for Emergency Response (DISSER)</b>	
		BNPB will conduct a study of Master Planning of nation wide communication systems. It will involve survey of existing cable and radio telecommunication infrastructure development, effectiveness of those means at emergency occurrences, reliability of two-way communication (warning, commanding, reporting, etc), and so on. In the course of the study, first urgent priority project will be identified, and its technical as well as financial feasibility will be studied. ----- [ Implementation Term: 2009 – 2010 ]
<b>3.1.2</b>	<b>Implementation of Development of DISSER</b>	
		With allocated available fund after the conclusion of the above mentioned Master Planning study, DISSER Project will be implemented. It will be implemented for multi-years. Temporary but effective communication systems will be established among <u>BNBP and a few selected priority BPBDs</u> for examining the systems being studied, as a pilot project. ----- [ Implementation Term: 2010 – 2013 ]
<b>3.2</b>	<b>Development of Regional Depot</b>	
	A first prompt action is essential in order to gather information of disaster being occurring, instantly analyzing damages of both happened and predicted, deciding and commanding mobilization of every necessary staff and goods to the affected area within the shortest time, and so on. Depot which store such necessary first-aid staff and goods will be developed targeting all over Indonesia (12 regional depots). Emergency transportation means which are well-equipped with communication and information high-tech instruments will be provided at every depot. Depot will probably act as a regional first-aid center as well as regional information center in coordination with Crisis (Operation) Centers of BPBDs. ----- [ Implementation Term: 2008 – 2010 ]	
<b>4</b>	<b>Data Digitization Development for Disaster Management Information</b>	
	For analysis of disaster damages, experiences referred data being accumulated and systematically filed are very much useful. An accurate analysis guides to appropriate decision on taking exactly right actions at the time of Emergency Response. All documents, maps, plans, and any information concerning to disaster management will be digitized and filed systematically.	
<b>4.1</b>	<b>Survey and Database Development</b>	
	The national government will take initiative to survey all the existing major facilities (Major Transportation Facilities, Lifeline Infrastructure facilities, and Public Facilities) and systematically file the results of survey in database to be developed. Available maps, plans, drawings, and any useful information will be referred to the survey results and composited in the database.	
<b>4.1.1</b>	<b>Development of Data Standardization for Digital Maps, GIS-base Database, Information Formats, etc</b>	

		<p>As it is observed at present, many agencies/institutions have developed GIS for each one's specific use and the data formats are different from each other, and therefore their data are not exchangeable and not can be shared. The Government will develop and establish Data Standardization for Digital Maps, GIS-base Database, Information Formats, etc to be used among government agencies and institutions. The responsible agencies for the development are <u>Department of Communications and Informatics</u>, <u>Department of Public Works</u>, <u>National Survey and Mapping Coordinating Agency (BAKOSURTANAL)</u>, <u>Research and Application of Technology Agency (BPPT)</u>, etc, and <u>BNPB</u> acts as the coordinator. GIS-based database is one of the most effective tools for disaster management.</p> <p>-----</p> <p>[ Implementation Term: 2009 – 2010 ]</p>
	<b>4.1.2</b>	<p><b>Survey and Database Development (1) Major Transportation Facilities, to be inputs to Hazard Mapping and Spatial Planning</b></p> <p><u>Department of Transport</u> will conduct survey of existing transportation facilities. The facilities are including major roads and express toll roads, railroads and stations, airports, and seaports, and so on. Actual survey will be performed by pertinent corporations. Prior to the actual survey, an implementation plan will be prepared for programming and scheduling survey works with prioritization and phasing, etc. The survey is mainly for identification of vulnerable parts of facilities against earthquake/tsunami and flood/sediment attacks. The surveyed data/information will be filed systematically and stored in database for the use of preparation of "hazard Maps" and "Spatial Plan". The data will be used for "repair and maintenance" of the pertinent facilities.</p> <p>-----</p> <p>[ Implementation Term: 2010 – 2013 ]</p>
	<b>4.1.3</b>	<p><b>Survey and Database Development (2) Lifeline Infrastructure Facilities, to be inputs to Hazard Mapping and Spatial Planning</b></p> <p><u>Department of Energy and Mineral Resources</u>, <u>Department of Pubic Works</u>, and <u>Department of Communications and Informatics</u> will conduct survey of existing life-line infrastructure facilities. The facilities are including electrical power supply, water supply, telecommunication network, and so on. Actual survey will be performed by <u>pertinent corporations</u>. Prior to the actual survey, an implementation plan will be prepared for programming and scheduling survey works with prioritization and phasing, etc. The survey is mainly for identification of vulnerable parts of facilities against earthquake/tsunami and flood/sediment attacks. The surveyed data/information will be filed systematically and stored in database for the use of preparation of "hazard Maps" and "Spatial Plan". The data will be used for "repair and maintenance" of the pertinent facilities.</p> <p>-----</p> <p>[ Implementation Term: 2010 – 2013 ]</p>
	<b>4.1.4</b>	<p><b>Survey and Database Development (3) Public Facilities, to be inputs to Hazard Mapping and Spatial Planning</b></p> <p><u>All government agencies and institutions</u>, without exception, will survey and check every building and heavy structure including office buildings, assembly halls, city halls, religious facilities, etc. Prior to the actual survey, an implementation plan will be prepared for programming and scheduling survey works with prioritization and phasing, etc. The survey is mainly for identification of vulnerable parts of facilities against earthquake/tsunami and flood/sediment attacks. The surveyed data/information will be filed systematically and stored in database for the use of "Earthquake Resistance Reinforcement", and for preparation of "Hazard Maps" and "Spatial Plans".</p> <p>-----</p> <p>[ Implementation Term: 2010 – 2013 ]</p>
	<b>4.2</b>	<p><b>Hazard Maps</b></p> <p>A hazard map using GIS-based database is one of the most effective tools for disaster management. In principle, hazard maps will be produced for whole the national's territory. It is for local level (regency, district/city, and province) and for national level. Standardization is essential. National Survey and Mapping Coordinating Agency (BAKOSURTANAL), coordinated by BNPB will act as the leading agency for production of hazard maps.</p>
	<b>4.2.1</b>	<p><b>Preparation and Authorization of Guidelines/Manual for Hazard Mapping at District Level (based on Hazard Maps prepared for Jember District)</b></p>

	<p>The joint study by Regional (Local) Disaster Management Coordinating Agency (SATLAK) and JICA Team at Jember District are concluding Jember Disaster Management Plan including production of Hazard Maps of Jember District. The system of mapping and formats will be authorized not only by <u>Jember District Government</u> but also by <u>the central government</u> as a pilot model of "Hazard Map" to be diffused to all other districts/cities in Indonesia. Systems and formats for the Hazard Maps being prepared at <u>Padang Pariaman District</u> and <u>Pariaman City</u> will be also authorized as pilot models. By standardized systems of Hazard Mapping, communication between central and local, between Province and District/City, as well as among Districts, it will be drastically improve accurate information exchange and appropriate coordination. <u>Department of Home Affairs</u> will coordinate for diffusion of the systems.</p> <p>-----</p> <p>[ Implementation Term: 2009 – 2010 ]</p>
<b>4.2.2</b>	<p><b>Preparation of Hazard Maps for Priority Areas</b></p> <p>BNPB will select the most vulnerable districts/cities against earthquake/tsunami disaster and flood/sediment disasters, and particularly supervise <u>the selected district governments</u> for preparation of more accurate and appropriate Hazard Maps for smoother communication and coordination between BNPB and the pertinent district government.</p> <p>(Special attention is paid to highly populated cities. "Large City's Disaster Management Measures on Earthquake Disaster" is described at 4.4 herein.)</p> <p>-----</p> <p>[ Implementation Term: 2010 – 2012 ]</p>
<b>4.2.3</b>	<p><b>Preparation of Consolidated Master Hazard Map of Indonesia based on the Latest Information and Data as of 2012</b></p> <p>Upon completion (assuming that 80% of completion will be by 2012) of every hazard maps at district/city level, every province will consolidate district level hazard maps and prepare summarized provincial hazard map. Then <u>BNPB</u> will consolidate all provincial level hazard maps and prepare summarized National Master Hazard Map.</p> <p>-----</p> <p>[ Implementation Term: 2012 – 2013 ]</p>
<b>4.3</b>	<p><b>Spatial Plans</b></p> <p>Spatial plans are prepared by Department of Public Works and every local government. On the occasion of nation-wide campaign of Disaster Management, all existing spatial plans will be updated by implanting the latest data and information as well as disaster management measurement to be integrated.</p>
<b>4.3.1</b>	<p><b>Preparation of Guidelines for Updating Spatial Planning, reflecting Hazard Mapping and Disaster Management Information</b></p> <p>Guidelines for up-dating spatial plans will be prepared by <u>Department of Public Works</u> and <u>National Survey and Mapping Coordinating Agency (BAKOSURTANAL)</u>, assisted by <u>Department of Communications and Telematics</u> and <u>BPPT</u>, and coordinated by <u>BNPB</u>.</p> <p>-----</p> <p>[ Implementation Term: 2009 – 2010 ]</p>
<b>4.3.2</b>	<p><b>Updating Existing Spatial Plans at Provincial and District Levels reflecting Hazard Mapping and Disaster Management Information</b></p> <p>Based on authorized Guidelines, up-dating spatial plan will be implemented by <u>every provincial and district/city level</u>, coordinated by <u>BPBD</u>. The existing spatial plans will be up-dated by having inputs of the latest data and information (survey results, etc.), as well as by integrated with hazard maps.</p> <p>-----</p> <p>[ Implementation Term: 2010 – 2013 ]</p>
<b>4.4</b>	<p><b>Large City's Disaster Management Measures on Earthquake Disaster to be considered at National Level</b></p> <p>A large city, with high population and high density, is vulnerable against a big natural disaster. Special attention will be paid to those large cities in Indonesia. The <u>metropolitan Jakarta</u> with <u>adjacent cities (so called JABOTABEKBK)</u>, the second largest city <u>Surabaya</u>, located in earthquake/tsunami prone region, <u>Medan</u> and <u>Padang</u>, and million cities, <u>Bandung</u>, <u>Semarang</u>, <u>Makasar</u>, etc. Conjecturing magnitude of damages if happened, disaster management measurements for those large cities are to be considered at national Level.</p>
<b>4.4.1</b>	<p><b>Preparation of Framework and Methodology and Guidelines for Large City's Disaster Management Measures</b></p>

		<p><u>All concerned agencies and institutions of national government and representatives from those cities</u> will form a committee lead by <u>BNPB and BAPPENAS</u> to set up Program and Plan, and prepare Methodology and Guideline for Large City's Disaster Management focusing on, among aspects of legal, institutional and financial matters, preparation of hazard maps. The survey and data gathering of existing conditions will be more detailed compared to other areas outside large cities.</p> <p>-----</p> <p>[ Implementation Term: 2009 – 2010 ]</p>
	<b>4.4.2</b>	<p><b>Preparation of Hazard Maps which indicate every physical structure including roads, bridges, buildings (both permanent and temporary) , public facilities and open spaces actually surveyed.</b></p> <p>Every municipality of designated large city will firstly survey existing conditions to be put in hazard maps. The survey will be coordinated by <u>BPBD of each city</u>. <u>National Survey and Mapping Coordination Agency (BAKOSURTANAL)</u> will also act as coordinator and supervise the survey and mapping.</p> <p>-----</p> <p>[ Implementation Term: 2010 – 2012 ]</p>
	<b>4.4.3</b>	<p><b>Analysis of Earthquake Disaster Impact and Prepare Risk Map</b></p> <p>In association with hazard maps, Risk Maps will be prepared by each municipality in accordance with Methodology and Guidelines prepared and authorized by the above mentioned committee. Risk Maps will be produced on GIS-base associated by various applications to analyze disaster phenomenon and risk damages.</p> <p>-----</p> <p>[ Implementation Term: 2011 – 2013 ]</p>
<b>5</b>	<b>Other Actions to be taken immediately after the authorization of National Disaster Management Plan</b>	
	Besides the mentioned actions, there are a few important actions to be taken immediately after authorization of National Disaster Management Plan.	
	<b>5.1</b>	<b>Enhancement of Awareness of Earthquake Resistant Structure</b>
		<p>The information of results of research and development and various studies regarding Earthquake Resistance Buildings and Structures will be disseminated to general public through relevant public and private organizations. The newly build buildings and structures will be approved by authorities prior to and during construction. <u>The government</u> will prepare visual materials and disseminate them by putting efforts on enhancing reinforcement for existing buildings and structures.</p> <p>-----</p> <p>[ Implementation Term: 2009 – 2009 ]</p>
	<b>5.2</b>	<b>Reporting Systems Development, and Publishing of Disaster Management Information</b>
		<p>Information formats, filing systems, circulation systems and so on will be developed by relevant agencies and institutions. In principle, <u>BNPD at the national level</u> and <u>BPBD at the regional (local) level</u> will comprehend any information (data, report, and so on) regarding to disaster management informed by any other agencies, institutions and organizations.. Such information will be digitized put in database, and shared among relevant agencies, institutions, and organizations. The information will be disseminated, distributed and exchanged through DISSER.</p>
	<b>5.2.1</b>	<b>Reporting Systems</b>
		<p>Using the established information formats and circulation systems, information (reports) will be disseminated, distributed, and exchanged among relevant agencies, institutions and organizations. Substantial reporting is (1) Analysis and Assessment of disaster occurred, to be referred to preparation of Pre-Disaster Measures, and (2) Commanding/Requesting information and action at Emergency Response. All the information will be digitized and disseminated, circulated, delivered on line and be shared among those concerned to disaster management at either national and local levels.</p> <p>-----</p> <p>[ Implementation Term: 2009 – 2013 ]</p>
	<b>5.2.2</b>	<b>Publishing Disaster Management Information</b>

		<p><u>BNPB</u> will conduct compile and edit all major activities of disaster management taken place in the previous fiscal year and report to President. The same report with associated detail will be published as "Disaster management White Paper of the Year". The report will be including not only activities taken and those assessments, but also the policy and strategy of Disaster Management for coming years. All are to be known by general public by publishing books as well as on Websites.</p> <p>-----</p> <p>[ Implementation Term: 2009 – 2013 ]</p>
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