

**NATIONAL DISASTER MANAGEMENT
AGENCY (BNPB)**

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

FINAL REPORT

VOLUME 2:

MAIN REPORT

**VOLUME 2-5: KOTA PARIAMAN
REGIONAL DISASTER MANAGEMENT PLAN**

MARCH 2009

JAPAN INTERNATIONAL COOPERATION AGENCY

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

**NATIONAL DISASTER MANAGEMENT
AGENCY (BNPB)**

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

FINAL REPORT

VOLUME 2:

MAIN REPORT

**VOLUME 2-5: KOTA PARIAMAN
REGIONAL DISASTER MANAGEMENT PLAN**

MARCH 2009

JAPAN INTERNATIONAL COOPERATION AGENCY

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

Table of Contents on the Final Report of
The Study on Natural Disaster Management in Indonesia

Structure of Final Report

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

KOTA PARIAMAN REGIONAL DISASTER MANAGEMENT PLAN

PART 1 EARTHQUAKE DISASTER MEASURES



March 2009



SATLAK PB KOTA PARIAMAN

In cooperation with



JICA STUDY TEAM

Oriental Consultants Co., Ltd.
Asian Disaster Reduction Center

Table of Contents
KOTA PARIAMAN DISASTER MANAGEMENT PLAN
-Earthquake Disaster Measures -

Section 1: GENERAL (Basic Concept of the Plan)

Number	Title	Page
CHAPTER 1	ELEMENTS COVERED IN THE PLAN	1-1
1.1	Objective of the Plan	1-1
1.2	Interrelations between National Disaster Management Plan and Regional Disaster Management Plan	1-1
1.3	Revision of the Plan	1-1
CHAPTER 2	STRUCTURE OF THE PLAN	1-2
2.1	Structure of the Plan	1-2
CHAPTER 3	ROLE OF KOTA, SOCIETY AND OTHER DISASTER RELATED ORGANIZATIONS	1-4
3.1	Obligations of Kota Pariaman in Disaster Management	1-4
3.2	Obligations of Disaster Management related Organizations	1-4
CHAPTER 4	DISASTER CHARACTERISTICS OF KOTA PARIAMAN	1-5
4.1	Natural Conditions	1-5
4.2	Social Conditions	1-12
4.3	History of Earthquake and Tsunami Disasters	1-20
4.4	Earthquake and Tsunami Disaster Hazard	1-24
CHAPTER 5	SOCIO-ENVIRONMENTAL ASPECTS FOR THE PLAN	1-29
5.1	Learning from Past Disasters	1-29
5.2	Development of Computerized Information System	1-29
5.3	Security of Emergency Transportation Network	1-30
5.4	Providing Lifeline During Disaster	1-30
5.5	Social Expectation to Volunteers and NGOs/NPOs	1-30
5.6	Special Care for Vulnerable Group	1-30
5.7	Guidelines for Society Regarding Disaster Mitigation Awareness	1-30
CHAPTER 6	ESTABLISHMENT OF SATLAK PB	1-31
6.1	Definition of SATLAK PB	1-31
6.2	Obligations of SATLAK PB in Disaster Management Cycle	1-32
6.3	Members and Organization Structure of SATLAK PB	1-33
6.4	Obligations of SATLAK PB Members	1-34

Section 2: Pre-Disaster

(Pre-Disaster Management Plan)

Number	Title	Responsible Agency	Page
CHAPTER 1	CAPACITY DEVELOPMENT OF DISASTER MANAGEMENT ORGANIZATION		2-1
1.1	SATLAK PB	SATLAK PB	2-1
1.2	Improvement of RUPUSDALOPS PBP	Mayor	2-2
1.3	Supports from Other Area	Social and Labor Agency	2-4
CHAPTER 2	ENHANCEMENT OF DISASTER MANAGEMENT CAPACITY FOR RESIDENTS AND PRIVATE COMPANY		2-5
2.1	Expectation to Residents	SATLAK PB	2-5
2.2	Expectation to Society	SATLAK PB	2-8
2.3	Expectation to Private Company	Cooperation, Industry & Trading Agency	2-11
2.4	Volunteer Organization	Kesbangpol Linmas Office (National Unity & Public Protection Office)	2-13
2.5	Dissemination of Disaster Management Knowledge	Transportation, Communication and Information Agency and Public Relations Division	2-14
CHAPTER 3	RESPONSE ENHANCEMENT FOR VULNERABLE RESIDENTS		2-18
3.1	Measures for Vulnerable Group	Social and Labor Agency	2-18
3.2	Foreigner Management	Demographic and Civil Statistics Agency	2-20
3.3	Safety of Infants and Children	Health Agency	2-21
CHAPTER 4	DEVELOPMENT OF DISASTER INFORMATION COMMUNICATION NETWORK		2-22
4.1	Design of Disaster Communication System	Transportation, Communication and Information Agency, City Government Public Relations Division	2-22
4.2	Operation of Disaster Information Communication Network	Transportation, Communication and Information Agency, City Government Public Relations Division	2-25

4.3	Operational Skill Improvement for Staff	Transportation, Communication and Information Agency, City Government Public Relations Division	2-26
CHAPTER 5	RESCUE/RELIEF, MEDICAL TREATMENT MITIGATION PLAN		2-27
5.1	Capacity Development of Fire Fighting	Firefighter	2-27
5.2	Education for Residents and Communities	SATLAK PB	2-29
CHAPTER 6	SAFETY CONTROL/RESCUE MEASURES		2-31
6.1	Safety Control and Rescue Preparedness Measures by Police	Police Head (POLRESTA) and Police Syndic (Pol. PP)	2-31
6.2	Safety Control and Rescue Preparedness Measures in Water	Marine Affairs and Fishery Agency	2-32
CHAPTER 7	DEVELOPMENT OF EMERGENCY TRANSPORTATION FACILITIES		2-33
7.1	Development of Emergency Transportation Facilities	Transportation Agency	2-33
CHAPTER 8	EVACUATION AND PREPAREDNESS OF TEMPORARY HOUSING		2-37
8.1	Temporary Evacuation Area	Public Works Agency	2-37
8.2	Evacuation Facilities	Public Works Agency	2-38
8.3	Formation of Evacuation Plan	National Unity & Public Protection Office	2-41
8.4	Preparedness of Temporary Housing	SATLAK PB, Public Works Agency	2-41
CHAPTER 9	DEVELOPMENT OF DISASTER MANAGEMENT FACILITIES		2-42
9.1	Supply of Disaster Management Equipments and Goods	Public Works Agency	2-42
9.2	Supply of Emergency Foods and Commodities	Social and Labor Agency, People Welfare Division	2-43
9.3	Supply of Drinking Water, and etc.	Regional Drinking Water Company	2-44
CHAPTER 10	MEDICAL TREATMENT AID AND INFECTION DISEASE PREVENTION MEASURES		2-45
10.1	Development of Activity Base of Medical Treatment	Health Agency	2-45
10.2	Medicine Supply and Medical Equipments	Health Agency	2-46
10.3	Prevention of Infectious Disease	Health Agency	2-47
10.4	Preparedness Measures of Corpse	Health Agency & Indonesian Red Cross	2-48
CHAPTER 11	DISASTER MANAGEMENT IN SCHOOL		2-49

11.1	Formulation of Evacuation Plan	Youth and Sport Education Agency	2-49
11.2	Preparedness Measures of School Facilities for Emergency Situation	Youth and Sport Education Agency	2-51
11.3	Disaster Management Education	Development Planning Board (BAPPEDA), Youth and Sport Education Agency	2-52
CHAPTER 12	MEASURES FOR FACILITIES HANDLING HAZARDOUS MATERIALS		2-53
12.1	Preparedness Measures for Hazardous Materials	Police Head (POLRESTA)	2-53
12.2	Preparedness Measures for LPG, etc	Police Head (POLRESTA), National Unity & Public Protection Office	2-54
12.3	Preparedness Measures for Toxic and Hazardous Substances	Police Head (POLRESTA)	2-55
CHAPTER 13	PREPAREDNESS FOR TSUNAMI DISASTER		2-56
13.1	Estimation of Tsunami Hazard in Kota Pariaman	National Unity & Public Protection Office	2-56
13.2	Tsunami Information Transmission Framework	Transportation, Communication and Information Agency	2-57
13.3	Preparation of Tsunami Hazard Map	National Unity & Public Protection Office	2-58
13.4	Formulation of Tsunami Evacuation Plan	National Unity & Public Protection Office	2-59
13.5	Secure and Designate Evacuation Facilities	Police Head (POLRESTA) and Police Syndic (Pol. PP)	2-60
13.6	Knowledge Dissemination regarding Tsunami	Transportation, Communication and Information Agency, City Government Public Relations Division	2-61
CHAPTER 14	DISASTER MANAGEMENT CAPACITY DEVELOPMENT OF URBAN STRUCTURE		2-62
14.1	Guideline towards Disaster Safe Urban Structure	Spatial Plan Agency	2-62
14.2	Disaster Mitigation at Urban Area	Spatial Plan Agency, Public Works Agency	2-65
14.3	Sediment Disaster Mitigation	Spatial Plan Agency, Public Works Agency	2-67
14.4	Earthquake related Fire Mitigation	Firefighter	2-69
CHAPTER 15	SAFETY MEASURES FOR PUBLIC FACILITIES, ETC		2-70
15.1	Road Facility Measures	Public Works Agency	2-70
15.2	River Measures	Public Works Agency	2-72

15.3	Important Structure Measures	Public Works Agency	2-73
CHAPTER 16	SECURE SAFETY OF BUILDINGS		2-74
16.1	Secure Safety of Private Buildings	Public Works Agency	2-74
16.2	Secure Safety of Public Buildings	Public Works Agency	2-76
CHAPTER 17	SECURE SAFETY OF LIFELINE		2-78
17.1	Coordination Enhancement among Lifeline Provider Companies and Kota Government	Social & Labor Agency, Regional Drinking Water Company, National Electricity Company, TELKOM	2-78
17.2	Water Supply Facility	Public Works Agency, Regional Drinking Water Company	2-79
17.3	Electric Facility	National Electricity Company	2-82
17.4	Telecommunications Facility	TELKOM	2-83

Section 3: Emergency Response

(Disaster Emergency Response Plan)

Number	Title	Responsible Agency	Page
CHAPTER 1	EMERGENCY RESPONSE SYSTEM		3-1
1.1.	Initial Response System (IRS)	Mayor Office	3-1
1.2.	Rupusdalops PBP (Emergency Response Headquarters) and SATLAK PBP	Mayor	3-2
1.3.	Mobilization of Rupusdalops PBP Staff	Mayor	3-8
1.4.	Staff Mobilization for Tsunami Warnings	Transportation Agency	3-11
CHAPTER 2	DISASTER INFORMATION GATHERING AND DISSEMINATION PLAN		3-12
2.1	Communication Tools	Transportation Agency, Public Relations Division	3-12
2.2	Establishing Disaster Communication Operation System	Transportation, Communication & Information Agency, Public Relations Division	3-14
2.3	Collection of Disaster Information	Information and Communication Office	3-16
2.4	Publication of Disaster Information	Public Relations Division	3-21
CHAPTER 3	REQUEST FOR SUPPORTS		3-23
3.1.	National and Province	Social and Labor Agency	3-23
3.2.	Peripheral Kabupaten/Kota	Social and Labor Agency	3-24
3.3.	Disaster Management at Related Agencies	Kesbangpol Linmas Office (National Unity & Public Protection Office)	3-25
3.4.	Military, etc.	Commander of District Military 0308	3-26
3.5.	Volunteers	Kesbangpol Linmas Office	3-27
CHAPTER 4	SEDIMENT DISASTER MEASURES		3-29
4.1.	Warning, Evacuation, and Guidance Measures	Kesbangpol Linmas Office	3-29
4.2.	Preventive Measures for Secondary Disaster	Public Works Agency	3-30
4.3.	Publication and Dissemination of Information to Community	Public Relations Division	3-31
CHAPTER 5	TSUNAMI DISASTER MEASURES		3-32
5.1.	Receiving and Transmitting Weather Forecasts and Warnings	Transportation Agency, TNI, Polresta, BMG	3-32
5.2.	Measures after Tsunami Occurs	SATLAK	3-34

5.3.	Evacuation without Receiving Warnings	Mayor, Camat and Head of Village/Lurah	3-35
CHAPTER 6	RESCUE, FIRST AID AND MEDICAL TREATMENT MEASURES		3-36
6.1.	Rescue, First Aid and Medical Treatment Measures	Health Agency	3-36
6.2.	Medical Treatment System	Health Agency, Indonesian Red Cross	3-38
6.3.	Procurement of Medicines and Medical Equipments	Health Agency	3-39
6.4.	Mental Health Care	Health Agency, Religious Organization	3-39
CHAPTER 7	FIRE FIGHTING MEASURES CAUSED BY EARTHQUAKE		3-40
7.1.	Firefighter Office	Firefighter Office	3-40
7.2.	Emergency Call and Mobilization	Transportation, Communication & Information Agency	3-40
7.3.	Information Gathering System	Public Relations Division, Transportation, Communication & Information Agency	3-41
7.4.	Fire Fighting Activity	UPT Firefighter	3-42
7.5.	Initial Fire Fighting Activity	UPT Firefighter	3-43
CHAPTER 8	SAFETY CONTROL / TRANSPORTATION MEASURES		3-44
8.1.	Safety Control Measures by Police	Police Head (POLRESTA)	3-44
8.2.	Sea Safety Control and Security Measures	Marine Affairs & Fishery Agency, Police and Pol. PP	3-45
8.3.	Road Transport Management	Transportation Agency	3-46
CHAPTER 9	DEBRIS REMOVAL MEASURES		3-47
9.1.	Removal Target	Public Works Agency	3-47
9.2.	Removal Officer	Spatial Plan Agency and Environmental Office	3-47
9.3.	Removal Method	Cooperation	3-48
9.4.	Temporary Storage Sites for Debris	Spatial Plan Agency and Environmental Office	3-48
CHAPTER 10	EMERGENCY TRANSPORTATION MEASURES		3-49
10.1.	Securing Transport Equipments	Transportation, Communication & Information Agency	3-49
10.2.	Securing Transportation Network	Transportation, Communication & Information Agency	3-52
CHAPTER 11	DISASTER RESPONSE ACTIVITIES BY COMMUNITY AND PRIVATE ENTERPRISES		3-53
11.1.	Disaster Response Activities by Citizens	Mayor	3-53

11.2.	Disaster Response Activities by Community Groups	Mayor	3-54
11.3.	Disaster Response Activities by Private Company	Private Company	3-55
CHAPTER 12	REFUGEE HANDLING		3-56
12.1.	Evacuation Plan	Kesbangpol Linmas Office	3-56
12.2.	Announcement of Evacuation Warnings	Kesbangpol Linmas Office	3-58
12.3.	Set up of Alert Area	Kesbangpol Linmas Office	3-61
12.4.	Advice for Evacuation and Transfer	Kesbangpol Linmas Office	3-63
12.5.	Set up of Temporary Evacuation Site and Its Management and Operation	Kesbangpol Linmas Office	3-65
CHAPTER 13	PANIC PREVENTION MEASURES		3-72
13.1.	Panic Prevention due to Lack of Information	Polresta	3-72
13.2.	Transportation for Panic Prevention	Transportation, Communication & Information Agency	3-73
13.3.	Panic Prevention during Evacuation	Mayor	3-74
13.4.	Panic Prevention at Public Facilities	Polresta	3-75
CHAPTER 14	RESCUE/AID MEASURES		3-76
14.1.	Food Provision	Social and Labor Agency, Indonesian Red Cross	3-76
14.2.	Water Provision	Regional Water Company, Public Works Agency	3-78
14.3.	Provision of Daily Needs	Social and Labor Agency,	3-79
14.4.	Acceptance of Materials from Other Area	Social and Labor Agency	3-80
14.5.	Set up of Temporary Toilet	Health Agency, Public Works Agency	3-80
CHAPTER 15	SEARCHING FOR MISSING VICTIM AND CASUALTIES TREATMENT		3-81
15.1.	Searching for Missing Victim and Casualties Treatment	SAR, Health Agency, Kesbangpol Linmas Office	3-81
15.2.	Autopsy and Transport of Dead Casualties	Health Agency	3-82
15.3.	Identification of Dead Casualties	Health Agency	3-82
15.4.	Treatment for Dead Casualties	Health Agency	3-83
15.5.	Burial or Cremation of Dead Casualties	Cleanliness and Environment Agency	3-83
15.6.	Provision of Information to Citizens	Public Relations Division	3-83
CHAPTER 16	CLEANING, HYGIENE, AND EPIDEMIC PREVENTION MEASURES		3-84
16.1.	Health Care and Hygiene Measures	Health Agency	3-84
16.2.	Solid Waste treatment Management	Spatial Plan Agency	3-84
16.3.	Human Waste Management	Spatial Plan Agency, Environment Office	3-85
16.4.	Epidemic Prevention Measures	Health Agency	3-85

CHAPTER 17	SCHOOL DISASTER MANAGEMENT MEASURES		3-86
17.1.	Management of School Facilities	Youth and Sport Education Agency	3-86
17.2.	Measures for Students	Youth and Sport Education Agency	3-87
17.3.	Procurement and Provision of School Supplies, etc.	Youth and Sport Education Agency	3-88
17.4.	Management of Education Facilities	Youth and Sport Education Agency	3-88
CHAPTER 18	RESIDENCE AND BUILDING MANAGEMENT		3-89
18.1	Investigation of Damaged Buildings	Public Works Agency	3-89
18.2	Survey of Damaged Residential Land	Public Works Agency	3-90
18.3	Construction of Temporary Housing and Emergency Restoration of Damaged Buildings	Public Works Agency, BPM, Social and Labor Agency	3-91
CHAPTER 19	EMERGENCY MEASURES FOR LIFELINE		3-92
19.1	Recovery Information of Lifeline	Public Works Agency, Kesbangpol Linmas Office	3-92
19.2	Water Supply Facility	Public Works Agency, Regional Water Company	3-93
19.3	Electric Supply Facility	National Electric Company	3-94
19.4	Telecommunication Facility	Telkom	3-96
CHAPTER 20	MEASUREMENT OF HAZARDOUS MATERIAL		3-98
20.1	Hazardous Materials Storage Facility	Polresta	3-98
20.2	Vehicles for Transporting Hazardous Materials	Polresta	3-99
CHAPTER 21	ACCEPTANCE PLAN OF FOREIGN ASSISTANCE		3-100
21.1	Information Sharing with National and Provincial Organization	Kesbangpol Linmas Office	3-100
21.2	Acceptance of Foreign Assistance	Social and Labor Agency	3-100

<p>Section 4: Post-Disaster</p> <p>(Rehabilitation and Reconstruction Plan)</p>

Number	Title	Responsible Agency	Page
CHAPTER 1	REHABILITATION PLAN		4-1
1.1.	Recovery Measures to Normal Life	Social and Labor Agency and Social Welfare Section	4-1
1.2.	Rehabilitation of Public Facilities	Public Works Agency	4-3
1.3.	Declaration of National Disaster	Mayor	4-4
CHAPTER 2	RECONSTRUCTION PLAN		4-5
2.1	Gathering of Relevant Information for Preparation of Reconstruction	Development Planning Board	4-5
2.2	Basic Concept Formulation of Urban Reconstruction	Development Planning Board	4-6

Section 1:GENERAL

(Basic Concept of the Plan)

CHAPTER 1. ELEMENTS COVERED IN THE PLAN

1.1 Objective of the Plan

SATLAK PB Kota Pariaman collaborated with JICA Study team aims to formulate Regional Disaster Management Plan based on Law No. 24 2007 regarding Disaster Management enacted on 29 April 2007. This plan clearly mentions whole picture of disaster management in chronological order, consists of actions of measures in Disaster Mitigation, Preparedness of the Disaster, Emergency Response, Rehabilitation and Reconstruction. This plan aims to implement emergency response activity based on pre-prepared comprehensive plan, and reduce damages and save residents lives and their assets, as well as to maintain social order and public welfare from disaster.

1.2 Interrelations between National Disaster Management Plan and Regional Disaster Management Plan

This plan is interrelated with National Disaster Management Plan prepared by PNBP, and Provincial Regional Disaster Management Plan, which will be formulated in near future.

1.3 Revision of the Plan

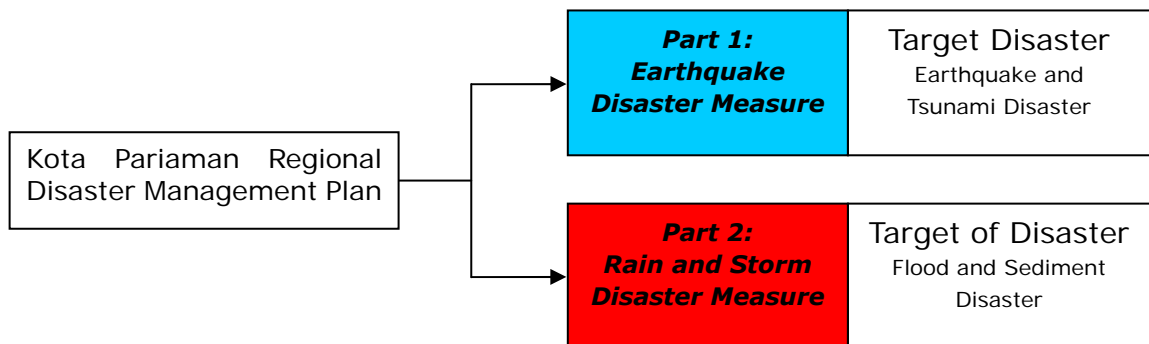
This plan is revised periodically and/or when required to keep efficiency of disaster management. In every revision, SATKORLAK PB should carefully investigate the contents of the draft version of revised regional disaster management plan to keep the interrelation with disaster management plan in other area and in higher level.

CHAPTER 2. STRUCTURE OF THE PLAN

2.1 Structure of the Plan

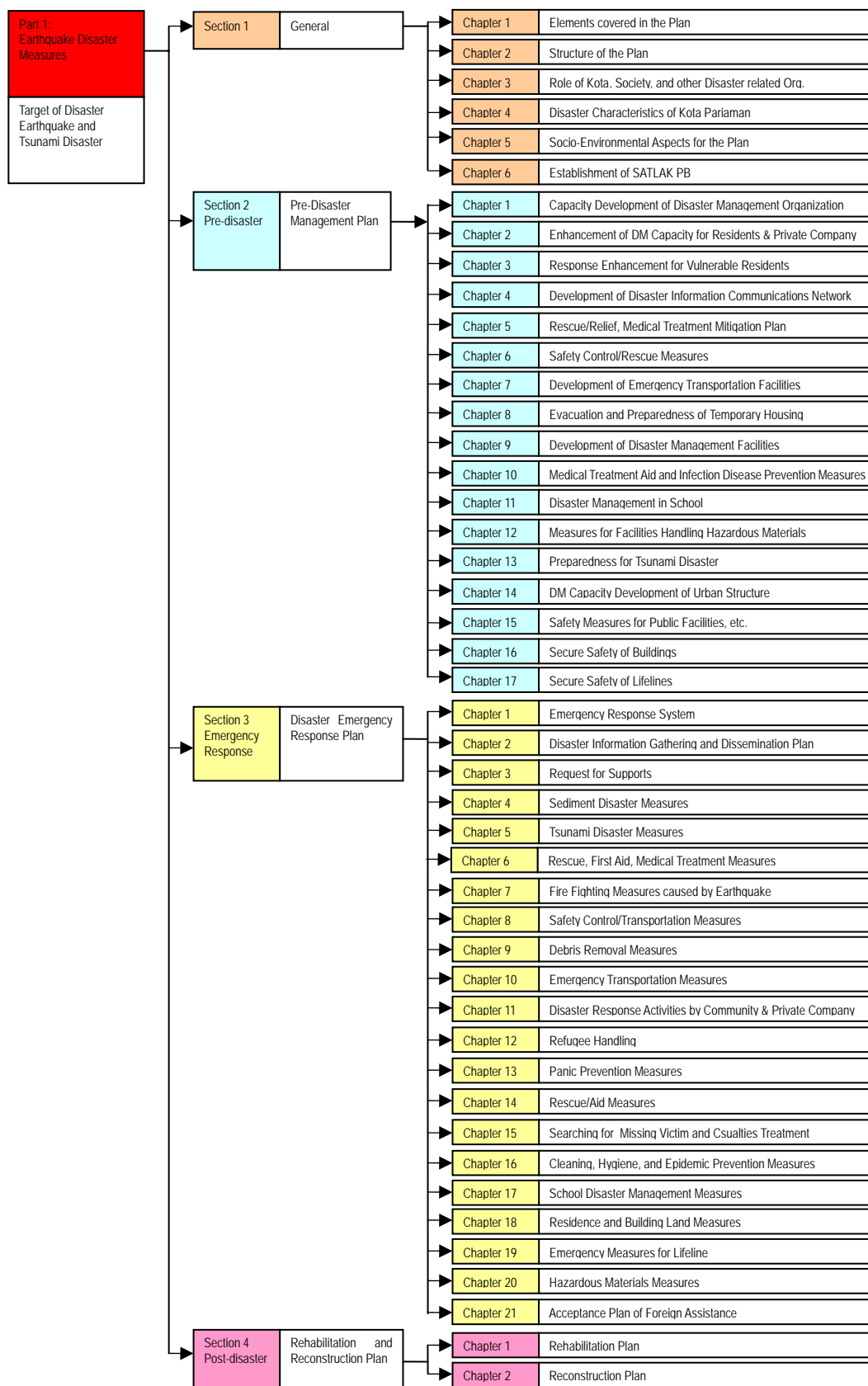
1) Composition of the Plan

This plan is formulated as a basic plan to deal with possible disasters in Kota Pariaman, and it composed of “Part 1: Earthquake Disaster Measure”, and “Part 2: Rain and Storm Disaster Measure”. This part of the plan contains “Part 1: Earthquake Disaster.



2) Contents of the Plan (Part 1: Earthquake Disaster Measures)

Contents of “Earthquake Disaster Measure” are as follows;



CHAPTER 3. ROLE OF KOTA, SOCIETY AND OTHER DISASTER RELATED ORGANIZATIONS

Kota Pariaman government and disaster management related organizations have mandate to prevent occurrence of disaster, or to mitigate damage, and for securing resident’s life and their assets.

3.1 Obligations of Kota Pariaman in Disaster Management

The disaster management and refugee handling at local region through following actions/implementations:

1. Mayor as a chief of Administrator Unit of the disaster management and handling of refugees (SATLAK PBP) responsible for coordinating, leading, and controlling, the regional structural and non structural activities in implementing disaster management and refugees handling in Kota area before, during, and after disaster and evacuation.
2. Camat as Chief of Operational Unit of the disaster management and refugees handling (Unit Ops PBP) is responsible for coordinating the sub-regional structural and non structural activity in implementation before, during, and after disaster and evacuation in Kecamatan area.
3. Chief of Village/Lurah as Chief of Hanship/Linmas Unit responsible for coordinating and controlling the communities activity in implementation of disaster management and refugee handling, before, during, and after disaster in village/kelurahan area.

3.2 Obligations of Disaster Management related Organizations

Disaster management related organizations have obligation to support and help activity to mitigate damage by prompt action and with close coordination with Kota Pariaman in case of disaster occurrence.

CHAPTER 4. DISASTER CHARACTERISTICS OF KOTA PARIAMAN

4.1 Natural Conditions

Kota Pariaman is one of the 19 Kabupaten/Kota in West Sumatera Province. Kota Pariaman is officially formed as Autonomic City by the issuance of Law No. 12 R Year 2002. Kota Pariaman is geographically located in 0°33'00" - 0°40'43" South Latitude and 100°10'33" - 100°10'55" East Longitude. Kota Pariaman is laid on strategic lane of West side of Sumatera that connects the North Sumatera Province and the capital of West Sumatera Province, Kota Padang with distance about 35 km from the Minangkabau International Airport – West Sumatera.

As the enlargement region of Kabupaten Padang Pariaman, therefore most of the boundaries surrounded by Kabupaten Padang Pariaman, such as follow:

- North : Kecamatan Sungai Limau, V Koto Kp. Dalam, and V Koto Timur
- East : Kecamatan VII Koto Sungai Sarik
- South : Kecamatan Nan Sabaris and Ulakan Tapakis
- West : Indonesian Ocean

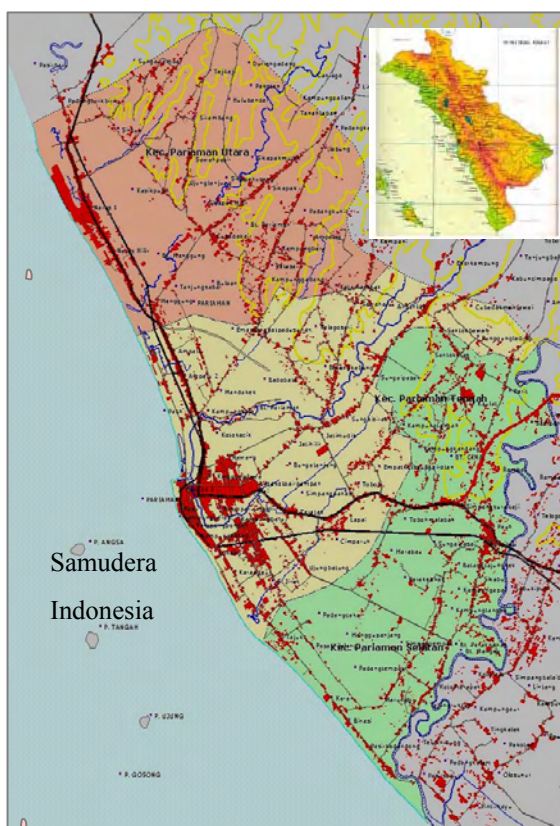


Figure 4.1.1 Administrative Boundaries of Kota Pariaman

Kota Pariaman is an old city located in the west coast of Sumatera Island, which has been known since year 1500. As an area located in the coastal, Pariaman has flat lowland. Similar to other regions in the coastal line, the topographical condition, geomorphology and the shape of the area all together create a pattern of river flow. Kota Pariaman is passed through by four rivers; those are Batang Manggung passing through Kecamatan North Pariaman, Batang Pariaman and its tributary Batang Jirak passing through Kecamatan Central Pariaman, and Batang Mangau passing through Kecamatan South Pariaman.

The Topographical condition of Kota Pariaman can be grouped into types of morphology level with the elevation between 2 – 35 meters above the sea level with the land area of 73.54 km² and the water area of 282.69 km² with six small islands; Bando Island, Gosong Island, Ujung Island, Tengah Island, Angso Island and Kasiak Island. The length of the coast is approximately 12.7 km. The spread of the coral and group of small islands make this region rich of maritime resources. There are at least more than 70 species of fishes in the sea of Kota Pariaman. This is a potential of maritime resources that undeveloped yet.

Kota Pariaman region only has few amounts of hills. Here, the agriculture plants are thrived, such as rice, palawija, coconut, melinjo and other horticulture plants. The area by the slope can be detailed shown as follows:

Topographical Condition	North Pariaman	Central Pariaman	South Pariaman	Total (ha)
Flat (0-2%)	2479	2313	1994	6786
Wavy (3-15%)	0	64	120	184
Steep (16-40%)	366	0	0	366
Very Steep (>40%)	0	0	0	0
Total (ha)	2845	2377	2114	7336

1) Landform of Kota Pariaman

West Sumatra Province is a mountainous region with the level of 3,000 meters above sea level that formed by Paleozoic sedimentary rock and igneous rock that lays along the active volcanoes to the east. The Great Sumatran Fault segregates the province in the center — the topography fault clearly visible — in the North-northwest (NNW) to the South-southeast (SSE) direction. The stretch of land between the central mountain range and the shore is made of volcanic uplands and pyroclastic flow uplands with a narrow coastal plain distributed along the seacoast.

Kota Pariaman is located in about 20 km distance from Maninjau caldera lake, Tandikat volcano with 2,347m elevation and its twin Singgalang volcano with 2,877m, which provided large amount of volcanic products to Kota Pariaman. Most of volcanic uplands spreading over wide area of Kota Pariaman consist of massive amount of pyroclastic flow deposit by huge eruption that formed the Maninjau caldera lake 52,000 years ago. The elevation of volcanic uplands is several tens meter in western end of Kota Pariaman, and about 50 m in eastern side. The deposited material is unconsolidated and includes fine-grained material used for brick production.

The lowlands in Kota Pariaman are coastal plain along coastline and valley bottom plain on the rivers in volcanic uplands.

The coastal plain is distributed in long and thin range along seashore. Sand bars, beach ridges and sand dunes in parallel with coastline are formed by well-sorted sand layer, whose thickness exceeds 5m. Marsh argillaceous deposit is distributed in inter-levee lowland. The city center of Kota Pariaman is located on the old sand bars and beach ridges belt with 5 m elevation above sea level. The river mouths are blocked by sand bars and cause poor drainage in many rivers.

The geomorphologic map legend and results are given in Table 4.1.1 and Figure 4.1.2.

Table 4.1.1 Geomorphologic Map Legend of Kota Pariaman

Landform Group	Landform type	State of landform
Lowland	Sand bar, Beach ridge and Sand dune	High land along the coast
	Coastal plain	The plain along the coast
	Meander belt	Flood plain with clear meander trace
	Alluvial fan	Flat lowland from mountain area to the coast consist of fluvial deposits
	Valley plain	Flat lowland in the valley
	Flood plain	Flat lowland by sequential floods
	Back marsh	Marsh behind the river channel
Terrace	River terrace	Fluvial terrace
Volcano	Low relief hill	Low relief hills formed by Maninjau Caldera eruption. Because of the fine materials, many small valleys are developed.
	Pyroclastic flow upland	Pyroclastic flow upland formed by Maninjau Caldera eruption. Flat surface remains more than low relief hills .

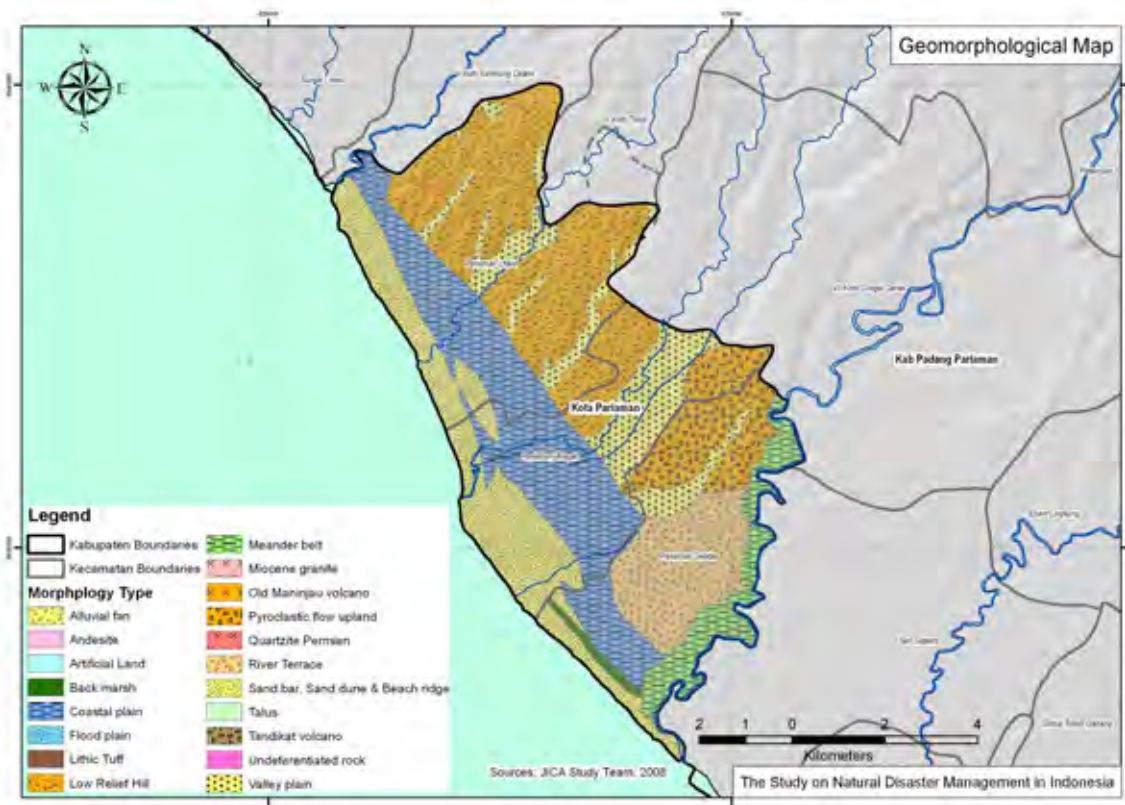


Figure 4.1.2 Geomorphologic Map of Kota Pariaman

2) Geology

The stratigraphy of this region is a unit from the recent period to Permian Paleozoic.

Table 4.1.2 shows the geology of Kota Pariaman.

Table 4.1.2 Geology of Kota Pariaman

Geologic Age	Geology	Rock Type and Stratigraphy
Quaternary	Alluvial Deposits	Eolian deposit
		Fluvial deposit
		Marine deposit
		Debris flow deposit
	Volcanic Products	Volcanic ash
		Edifice collapse deposit of Tandikat volcano
		Volcanic Products of Tandikat volcano
		Pyroclastic rock and pyroclastic flow deposit from the Old Maninjau volcano

- Alluvial Deposits

There is a large amount of alluvial deposits that can be divided into fluvial deposits and marine deposits. The river basin consists of fluvial deposits spread in the upland and hills. The main sediment is sand and gravel, while the main feature near the estuary is sandy and clayey sediments. The layers are an alternation of beds of clay and gravel. The main sediment of the fluvial deposit of Kota Pariaman is pumiceous sand.

Marine deposits are found in a long narrow strip along the seashore, mainly at the city center of Kota Pariaman. The sand bars, beach ridges and sand dunes along the coast form a sand bed made of uniform grain size that exceeds 5 meters in depth. The inter-levee lowland features marshy, argilliferous sediment.

- Quaternary Volcanic Products

There is a huge amount of pyroclastic products from the Old Maninjau volcano which consists mostly of a large number of pyroclastic deposits from the huge eruption 52,000 years ago that formed the Maninjau caldera. North-eastern part of Kota Pariaman is covered by pumiceous sand. Pyroclastic flow deposits that appear in plateau cliffs are at least 30 meters thick.

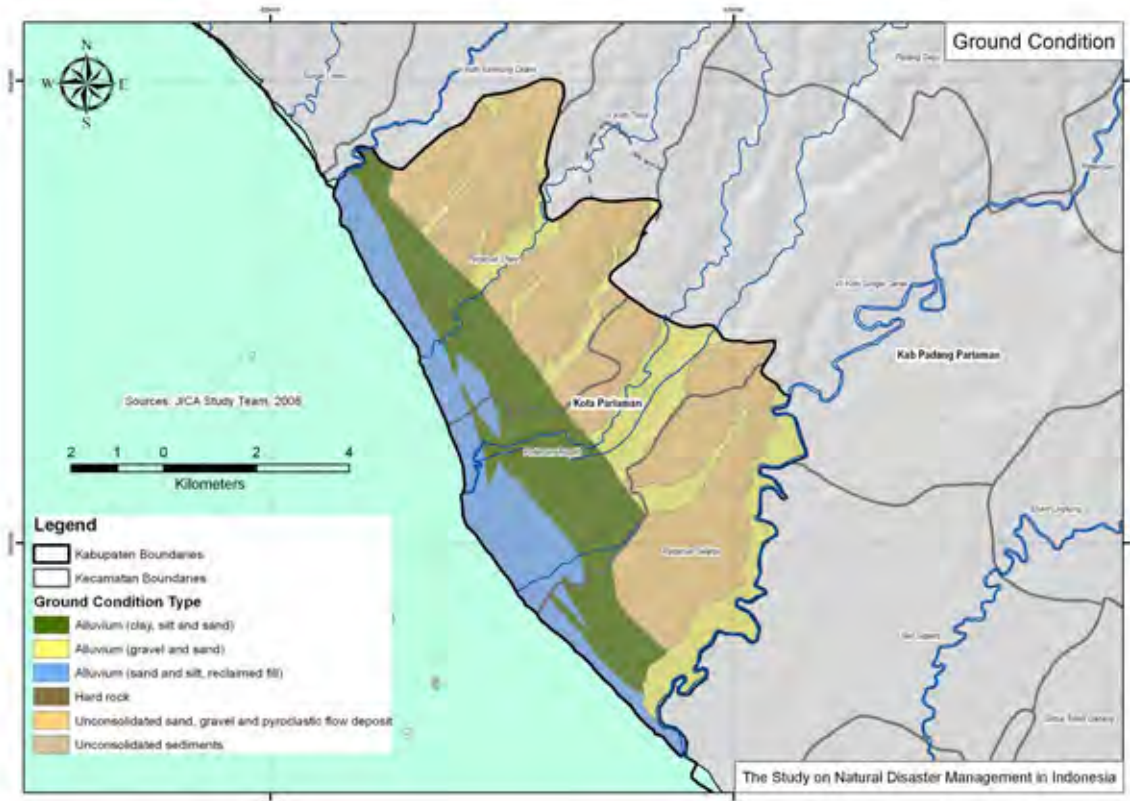


Figure 4.1.3 Ground Condition Map

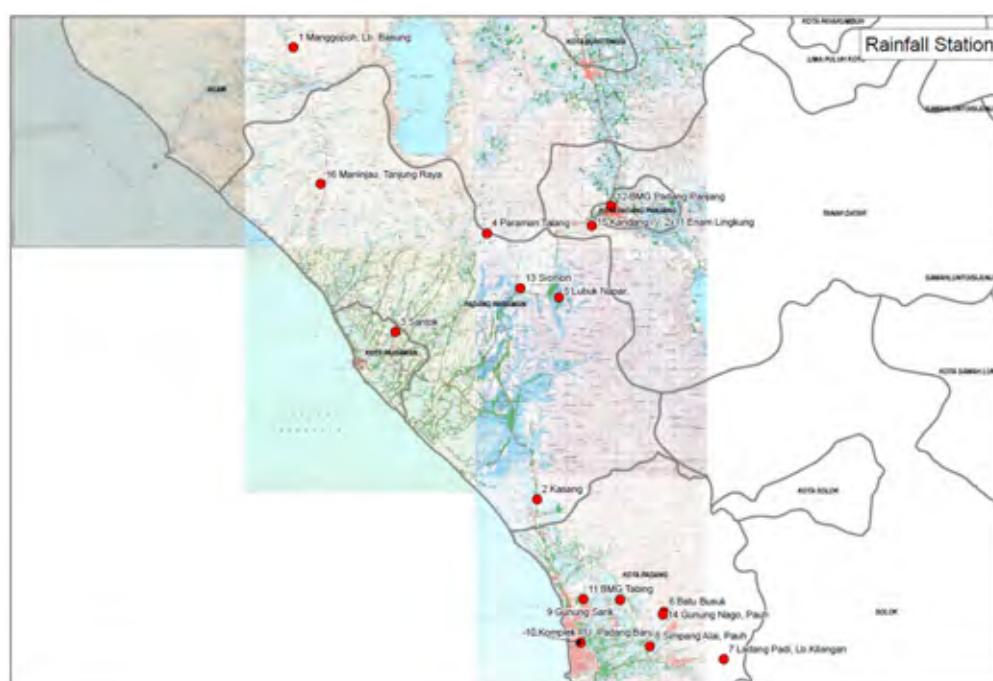
3) Climate

Rainfall characteristics of Kota Pariaman are as follows. The rainfall data used was collected and organized by PSDA (Dinas Pengelolaan Sumber Daya Air (Water Resource Management Agency)) from the following organizations:

- BMG : Badan Meteorologi dan Geofisika (Meteorological and Geo-physical Agency)
- PLN : Perusahaan Listrik Negara (National Electricity Company)
- DPU : Dinas Pekerjaan Umum (Public Works Department)
- Kimpraswil : Pemukiman Prasarana Wilayah (Region Settlements and Infrastructures)
- Dep Pertanian Irigasi (Agriculture and Irrigation department)

Table 4.1.3 Rain Gauge Stations and Annual Rainfall

No.	Name of Station	Southern Latitude (LS)	Eastern Longitude (BT)	River Basin	Kabupaten	Administrator	MEAN	Observation Period
1	Manggopoh, Lb. Barung	00° 17' 02" LS	100° 03' 10" BT	Setang Antokan	Agam	DFU Kab.	2922.4	25
2	Kasang	00° 46' 30" LS	100° 19' 00" BT	Setang Anai	Padang Pariaman	Kimpraswil	4574.9	27
3	Santok	00° 35' 35" LS	100° 09' 48" BT	Setang Pariaman	Padang Pariaman	Dep Pertanian	3875.9	29
4	Pariaman Talang	00° 29' 10" LS	100° 15' 45" BT	Setang Mangau	Padang Pariaman	Kimpraswil	5052.4	23
5	Lubuk Nepar	00° 33' 20" LS	100° 20' 25" BT	Setang Anai	Padang Pariaman	PSDA/Kimpraswil	4488.4	29
6	Batu Surok	00° 53' 50" LS	100° 27' 15" BT	Setang Kuranji	Padang Pariaman	PSDA/Kimpraswil	3876.3	29
7	Ladang Padi, Lb. Kilangan	00° 56' 35" LS	100° 31' 08" BT	Setang Arau	Padang	PSDA/Kimpraswil	4113.1	31
8	Simpang Alai, Pauh	00° 56' 04" LS	100° 26' 20" BT	Setang Kuranji	Padang	PSDA/Kimpraswil	4024.2	31
9	Gunung Sarik	00° 53' 02" LS	100° 24' 24" BT	Setang Air Dingin	Padang	PSDA/Kimpraswil	4110.6	31
10	Komplek DU, Padang Baru	00° 55' 50" LS	100° 21' 50" BT	Setang Arau	Padang	PSDA/Kimpraswil	3459.5	20
11	BMG Tabing	00° 53' LS	100° 22' BT	Stg. Kuranji	Padang	BMG	4198.9	32
12	BMG Padang Panjang	00° 27' 24.6" LS	100° 23' 49.2" BT	Stg. Anai	Padang Panjang	BMG	3516.4	31
13	Sidin	00° 32' 44" LS	100° 17' 54" BT	Stg. Anai	Padang Pariaman	BMG	4178.0	20
14	Gunung Nago, Pauh	00° 54' 00" LS	100° 27' 10" BT	Setang Kuranji	Kodya Padang	Kimpraswil	4087.9	19
15	Kandang IV, Jk11 Enam Lingsung	00° 28' 40" LS	100° 22' 33" BT	Setang Anai	Padang Pariaman	Dep Pertanian	5167.6	23
16	Maninjau, Tanjung Raya	00° 25' 57" LS	100° 04' 57" BT	Setang Antokan	Agam	PLN	3542.8	22

**Figure 4.1.4 Rain Gauge Station Map**

Annual average rainfall distribution map of Kota Pariaman was created using the annual average rainfall data from all stations. The result is shown in Figure 4.1.5.

The results show that the distribution of annual average rainfall is between 3,000 mm/year - 5,000 mm/year. Kota Pariaman receives comparatively small precipitation.

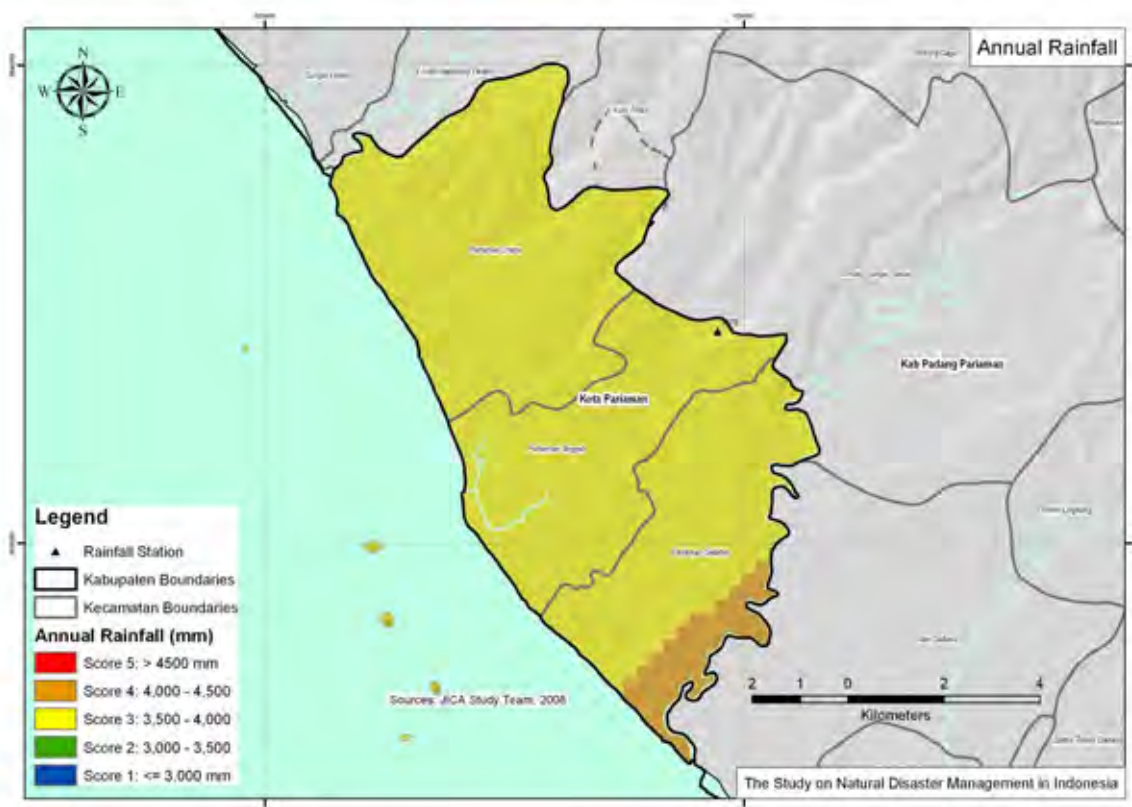


Figure 4.1.5 Annual Mean Rainfall Distribution Map of Kota Pariaman

4.2 Social Conditions

1) Population

Refers to the Population Data from Board of Population, Civil Registration and Family Planning of Kota Pariaman per August 2005, the total population of Kota Pariaman recorded as much as 78,758 people, consists of 37,452 males and 41,306 females, with average population density of 1,074 people/km². The most densely area is in Kecamatan Pariaman Tengah, which is 33,691 people.

The details about the total number of the village, household and population density can be seen in the table below:

Table 4.2.1 Population and Household Dissemination by Village/ Kelurahan in the Year of 2005

NO	NAME OF KECAMATAN	TOTAL		TOTAL POPULATION				POPULATION DENSITY
		VILLAGE	KELURAHAN	M	F	TOTAL	HOUSEHOLD	
1	PARIAMAN UTARA	21	0	11,733	13,230	24,963	4,663	877
2	PARIMAN TENGAH	13	16	16,117	17,574	33,691	6,347	1,417
3	PARIAMAN SELATAN	21	0	9,602	10,502	20,104	3,724	951
JUMLAH		55	16	37,452	41,306	78,758	14,734	1,074

The residents of Kota Pariaman are Minangkabau (in the race of Minangkabau) and use the Minang language. They are well-known as the tough and unique who integrate the values of tradition and religion (Islam) in their daily life and also practice the kinship of matrilineal (follow the mother's line). The Life Philosophy is Tradition Based on Habits, and Habits based on Kitabullah (the Holy Book of Al Qur'an).

The total population based on age shows that the young age residents under 15 years old is high, which is 27,073 people or about 35.07% from the total amount of Kota Pariaman population. This kind of composition describe the age dependence especially the young age is still rather high. It means that the economics burden of the productive age communities (15-64 years old) is quite heavy.

Generally, the comparison of the total number of males and females is close to one, that is 0.92 means the number of females are more than the males. It seems so clear in the group of age of 15-19 years old and above. We can see the table of the total number of population based on age below:

Table 4.2.2 Total Number of Population Based on Age

Golongan Umur / Age Group		Laki-Laki / Male	Perempuan / Female	Jumlah / Total
(1)		(2)	(3)	(4)
0	- 4	4 597	4 204	8 801
5	- 9	4 593	4 197	8 790
10	- 14	4 913	4 567	9 480
15	- 19	4 337	4 907	9 244
20	- 24	2 613	3 060	5 673
25	- 29	2 205	2 710	4 915
30	- 34	2 342	2 556	4 898
35	- 39	2 405	2 480	4 885
40	- 44	2 215	2 255	4 470
45	- 49	1 689	1 874	3 563
50	- 54	1 236	1 405	2 641
55	- 59	1 015	1 210	2 225
60	- 64	976	1 342	2 318
65	- 69	759	1 133	1 892
70	- 74	713	1 113	1 826
	75 +	530	1 050	1 580
Jumlah /	2006	37 138	40 063	77 201
Total	2005	37 446	39 560	77 006
	2004	36 390	39 016	75 406
	2003	35 449	38 007	73 456
	2002	34 475	37 924	72 399

A Table below is the details of total number of population based on Village/ Kecamatan.

**KECAMATAN NORTH PARIAMAN
July 2005**

NO	NAME OF DESA/ KELURAHAN	TOTAL NUMBER OF POPULATION		TOTAL
		MALE	FEMALE	
1	AMPALU	987	1,088	2,075
2	APAR	414	442	856
3	MANGGUNG	793	876	1,669
4	TANJUNG SABAR	287	276	563
5	KAMPUNG GADANG	702	700	1,402
6	KP.BARU PADUSUNAN	575	558	1,133
7	TALAGO SARIAK	437	522	959
8	SIKAPAK TIMUR	423	591	1,014
9	SIKAPAK BARAT	703	913	1,616
10	CUBADAK AIR	584	721	1,305
11	CBD AIR SELATAN	342	399	741
12	CBD AIR UTARA	650	762	1,412
13	TUNGKAL SELATAN	457	562	1,019
14	TUNGKAL UTARA	495	452	947
15	SUNGAI RAMBAI	432	518	950
16	PAKASAI	251	322	573
17	PDG.BIRIK-BIRIK	525	518	1,043
18	BALAI NARAS	830	829	1,659
19	NARAS I	1,006	1,312	2,318

20	NARAS HILIR	510	527	1,037
21	SINTUK	330	342	672
	TOTAL	11,733	13,230	24,963

**KECAMATAN SOUTH PARIAMAN
JULY 2005**

NO	NAME OF DESA/ KELURAHAN	TOTAL NUMBER OF POPULATION		TOTAL
		MALE	FEMALE	
1	BALAI KURAITAJI	472	665	1,137
2	SIMPANG	272	345	617
3	PUNGG.LADING	744	819	1,563
4	PS.SUNUR	144	145	289
5	TOBOH PALABAH	492	550	1,042
6	PAUH KURAITAJI	339	417	756
7	KP. KANDANG	688	560	1,248
8	KP. TANGAH	308	251	559
9	KAJAI	336	320	656
10	KALUAT	233	362	595
11	PDG.CAKUR	183	166	349
12	MARABAU	369	379	748
13	SIKABU	120	125	245
14	PL.ANEH	372	453	825
15	SEI.KASAI	233	190	423
16	BTG.TAJONGKEK	343	371	714
17	TALUK	1,179	1,140	2,319
18	KP.APAR	358	320	678
19	RAMBAI	358	464	822
20	BUNGO TANJUNG	875	1,136	2,011
21	MARUNGGI	1,184	1,324	2,508
	TOTAL	9,602	10,502	20,104

**TOTAL NUMBER OF POPULATION OF KECAMATAN CENTER PARIAMAN
JULY 2005**

NO	NAME OF DESA/KELURAHAN	POPULATION		TOTAL
		MALE	FEMALE	
1	JAWI-JAWI II	680	688	1,368
2	ALAI GELOMBANG	507	635	1,142
3	JALAN KERETA API	282	336	618
4	KP. PONDOK	767	750	1,517
5	RAWANG	557	478	1,035
6	AIR SANTOK	532	563	1,095
7	TARATAK	436	425	861
8	JAWI-JAWI II	507	441	948

9	PAUH BARAT	848	775	1,623
10	PONDOK II	595	577	1,172
11	CUBADAK MENTAWAI	255	299	554
12	KAPUNG JAWA II	475	465	940
13	JALAN BARU	447	836	1,283
14	SUNGAI SIRAH	165	189	354
15	PASIR	526	600	1,126
16	KAMPUNG PERAK	478	493	971
17	LOHONG	649	655	1,304
18	KARAN AUR	750	1,030	1,780
19	JATI HILIR	317	307	624
20	JATI MUDIK	297	259	556
21	CIMPARUH	1,065	1,115	2,180
22	PAUH TIMUR	700	704	1,404
23	KAMPUNG BARU	1,603	1,741	3,344
24	BATO	320	378	698
25	SUNGAI PASAK	407	490	897
26	UJUNG BATUNG	360	580	940
27	KAMPUNG JAWA I	450	517	967
28	BATANG KABUNG	510	544	1,054
29	KOTO MARAPAK	632	704	1,336
TOTAL		16,117	17,574	33,691

The map below shows the administrative boundaries based on Kecamatan and Desa in Kota Pariaman.

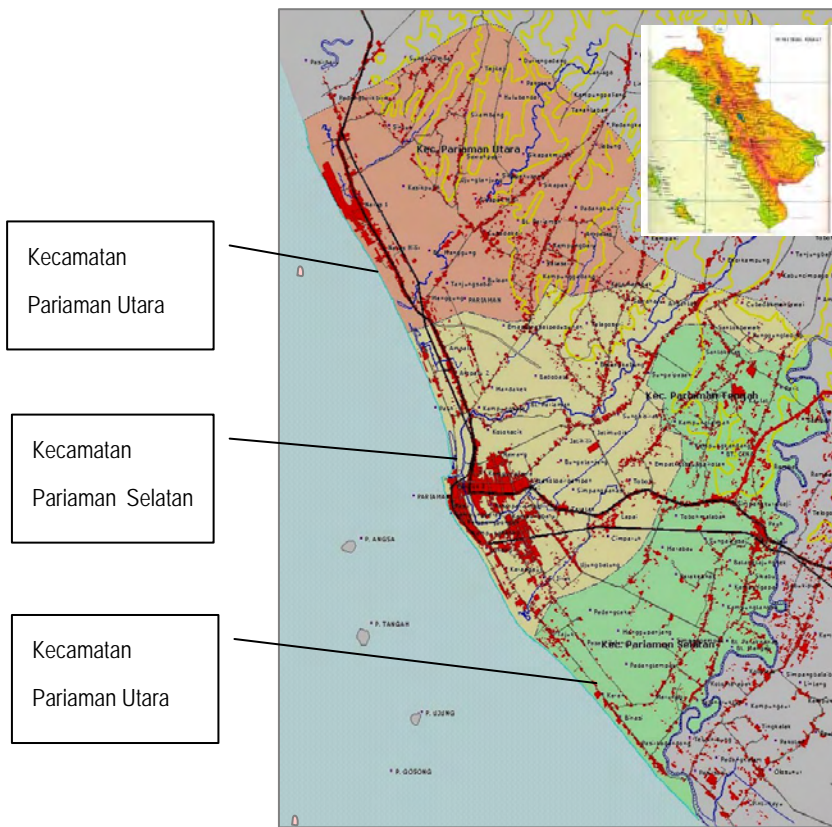


Figure 4.2.1 Administrative Boundaries

Figure 4.2.2 shows the gross population of Kota Pariaman. To come up with more realistic population density map, Figure 4.2.3 shows the net distribution of population density. To create this map, population data was linked to both administrative boundaries and built up area from BPN (National Board of Land Affairs), 2000. The map clearly shows that the population is mainly distributed along the national/provincial and kabupaten roads connecting the west to the east part of Kota Pariaman. Some of the significant settlement cluster can be found in the coastal areas.

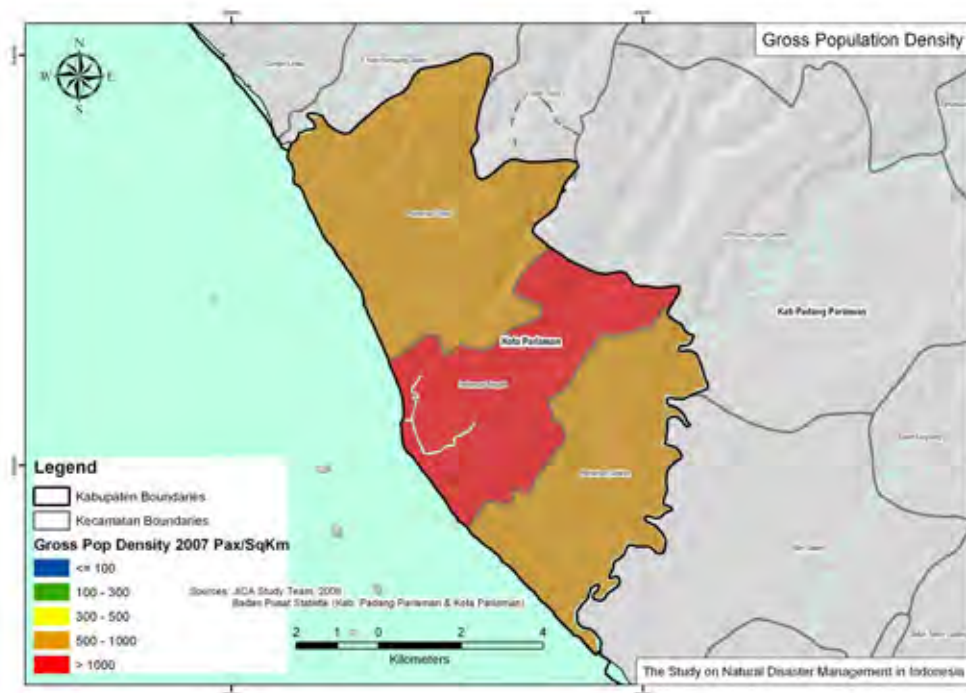


Figure 4.2.2 Gross Population Density of Kota Pariaman

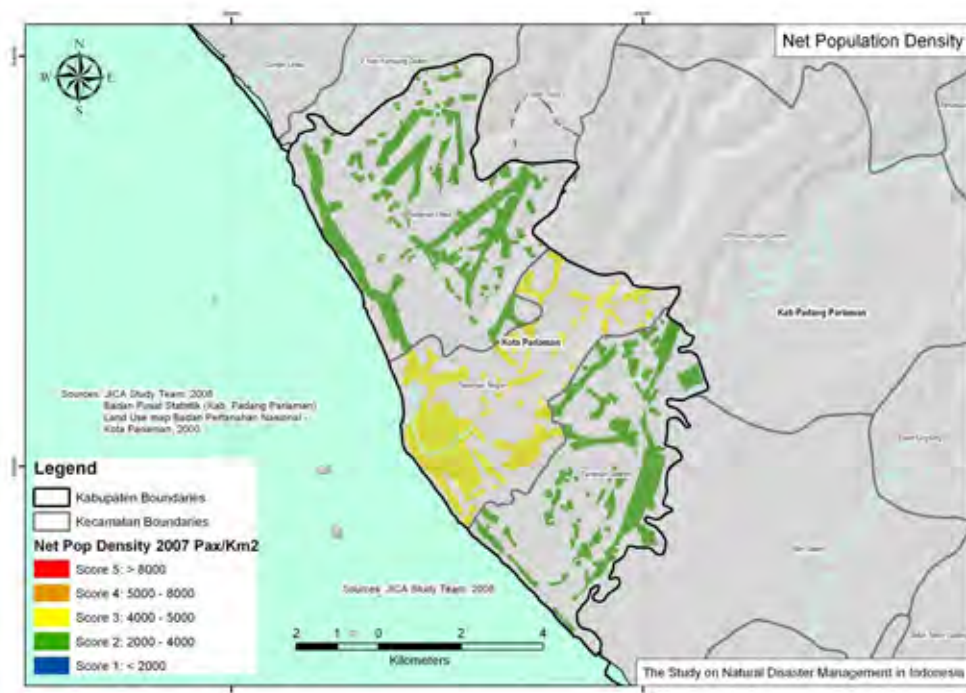


Figure 4.2.3 Net Population Density of Kota Pariaman

2) Building Structure

Information regarding building structure is another important consideration in disaster management. For Kota Pariaman, the main source of the building inventory data is Bidang Data dan Pengembangan BAPPEDA Kota Pariaman (Data and Research Division of BAPPEDA Kota Pariaman). They conducted a building type survey in May 2008. Table 4.2.3 summarizes the building data collected by kecamatan.

Table 4.2.2 Total Number and Type of Buildings by Kecamatan

Kecamatan	Total Number	Masonry	Concrete Masonry	Wood	RC	Other
Pariaman Utara	4,838	955	2,679	387	220	598
Pariaman Tengah	6,468	1,276	3,582	517	293	799
Pariaman Selatan	4,062	802	2,250	325	184	502
	15,368	3,033	8,511	1,229	697	1,899

Source: BAPPEDA KOTA PARIAMAN, 2008

Figure 4.2.4 is a thematic map showing building distribution by type in Kota Pariaman.

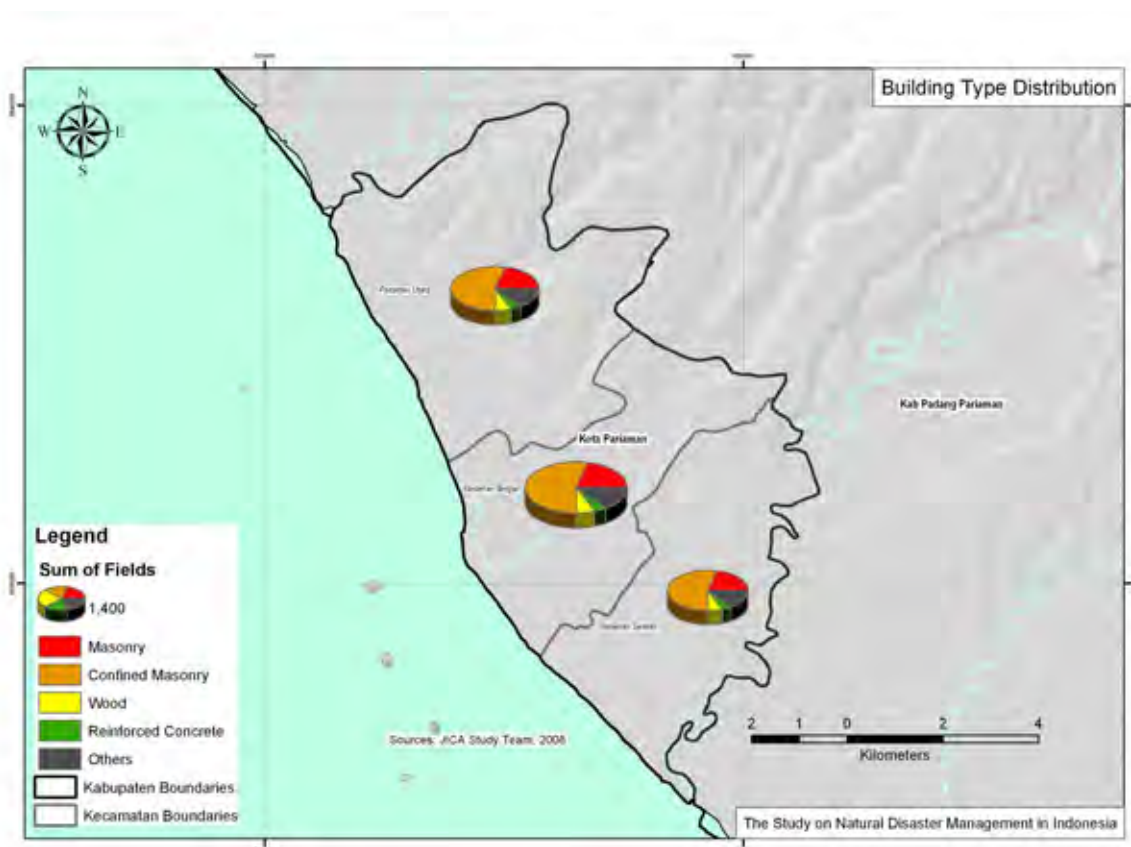
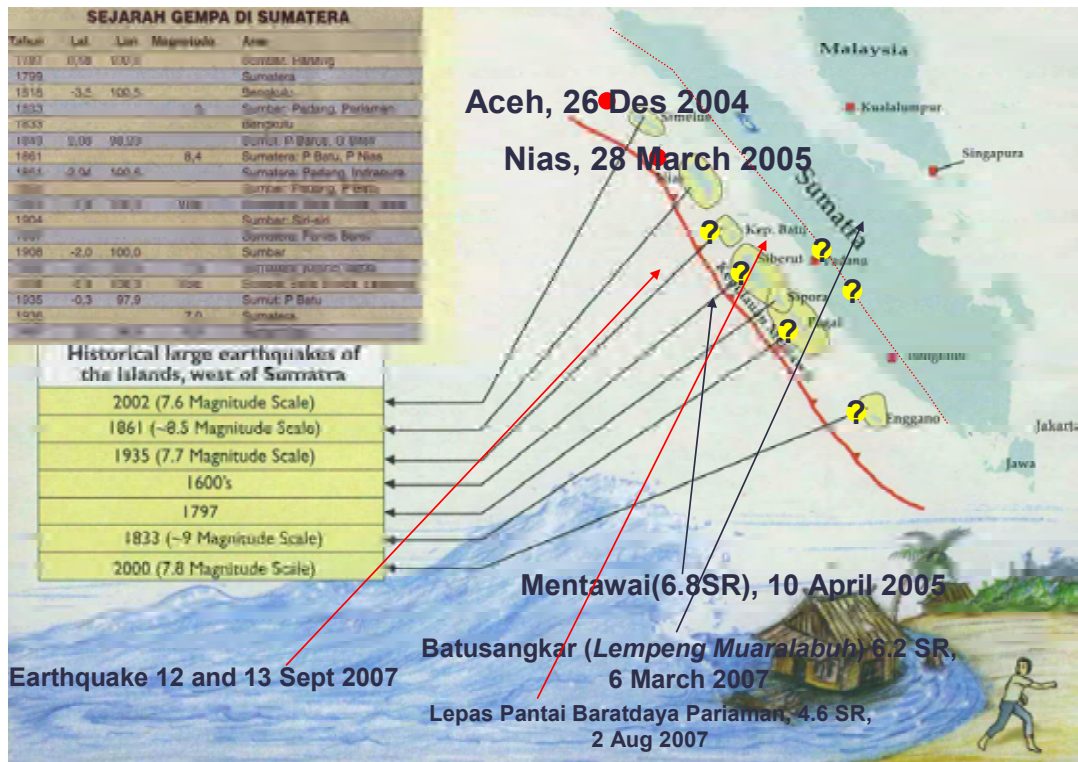


Figure 4.2.4 Building Type Distribution by Kecamatan

4.3 History of Earthquake and Tsunami Disasters

1) History of Earthquakes in Pariaman

Sejarah Gempa di Sumatra



Kota Pariaman is located in the earthquake and tsunami hazardous area. The collides of the plates in front of Mentawai is a tectonic earthquake potential area, and in front of Padang can also be found the Mentawai fault with the fracture which can cause earthquake. In the mainland, West Sumatera region is divided by Semangko Fault and many volcanoes which have potential to cause tectonic and volcanic earthquake.

Great earthquakes occurred in West Sumatera which can also perceivable in Pariaman were in the year of 1797, 1833, 1861, 1864, 1904, 1926, 1943, 1977, 1995, 2004, 2005 and 2007, and destructed the resident houses.

Therefore, the logical consequences of the large possibility of disaster occurrence and the low psychological intelligences of the residents in responding the information/issues and the ability to anticipate the disaster, therefore the systematic efforts in socializing and educating the communities should be conducted as early as possible.

2) Hystory of Tsunami Disaster in Kota Pariaman

The list of Earthquake and tsunami occurred in Sumatera Island in recent years affect the west coast including Kota Pariaman. There is no specific data about the total number of victims of tsunami disaster in Kota Pariaman, yet from some working papers that have been collected; the adjacent areas like Kota Padang, Mentawai and Aceh also suffered of tsunami, as seen in the table below:

a. Earthquake Locations Which Brings Out Tsunami

Tahun	Lokasi>Nama	Magnitude	Keterangan
1797	Siberut/Padang	8.2	ada tsunami
1833	Pagai/Bengkulu	9.0	ada tsunami
1881	Andaman	7.9	Ada tsunami
1881	Andaman	>7.5	Ada tsunami
1861	Padang	8.5	ada tsunami
1907	Simelue	7.6	Ada tsunami
1935	Pini Island	7.7	Ada tsunami
1941	Andaman	7.7	?
1984	Pulau Pini	7.2	Tdk ada tsunami
2000	Enggano/Bengkulu	7.9	Tdk ada tsunami
2002	Simelue	7.2	Tdk ada tsunami
2004	Aceh	9.2	Ada Tsunami (besar)
2005	Nias/Sumut	8.7	Ada tsunami (kecil)

Source: Hamzah Latief, 2006.

b. Report of Tsunami History in 1797 and 1833 that strike Padang (\pm 56Km from Kota Pariaman)

114.0 The strongest earthquake in the memory of the people in Padang, happened on February 10, 1797 around 10 p.m. The moon which was full shone brightly but darkened at the first quake and stayed so during the night - the first shock lasted for about one minute - the waves of the sea ran with fury up the river by which the whole place was flooded. Next, all the water ran out the river, which was suddenly dry; this repeated itself three times, the river banks were covered with fish; a sailing ship of 150 tons which was moored to a tree near the mouth of the river, broke loose when the sea entered and was driven to behind the then fort, a distance of 3/4 Eng. miles; on the way the vessel hit a stone house and two wooden ones which were demolished. Several smaller vessels, which were moored in the river, were also dislodged and moved off by the sea; some of these were later found behind the great pasar, [market in Indonesia] storage building in front of the house of the Resident at the river bank was lifted by the rushing waves and put down in the Chinese kampong - all of Ajermanies [Air Manis, a village name meaning "Sweet Water"], a seaside village at the corner opposite the Padang harbor is flooded and many houses flushed away - the next day one found several of the unfortunate inhabitants dead on the tree branches, where they had climbed to save themselves.

The inhabitants of Padang left their houses and fled to the square outside the city; they saw the ground break open at some places some 3-4 inches wide, and then in further shaking close again.

25.5 Earthquakes are often felt at Padang, but rarely of such intensity that they endanger inhabitants. The most powerful earthquake since many years occurred on November 24, 1833, just after 8 p.m., for about 2 minutes. The air was damp, quiet and humid, in moonlight. The oscillating movement of the earth, together with underground shocks and a rattling sound that clearly came from the S.E., made everybody rush out of their houses and created fear in all. One heard everywhere a hard stomping of "rijstblokken" (rice blocks?) and people yelling. Along the river fissures had opened here and there, which then closed again. The sea had repeatedly run up the sloping beach, up to 10 to 12 "voet" (feet?) high. All wooden houses creaked and shook enormously; but the stone houses fared worse, with damaged walls, some fell over, and some roofs that collapsed. In some houses, furniture had been thrown from one corner to the other. There was considerable damage but few accidents. 26.0 Only one native and two cows were lost.

Table 4.3.1 Scenario of Maximum Height of Tsunami and Its Arrival Time to Several Locations

Location	1833 Scenario 07		1797	
	Maximum height (m)	Arrival Time (minute)	Maximum height (m)	Arrival Time (minute)
Pariaman	1.40	37	3.70	33
Padang Utara	2.20	39	5.20	37
Padang	3.90	42	9.00	38
Teluk Bayur	4.40	39	6.20	37
Painan	2.99	38	4.20	38
Bengkulu (a)	2.50	69	0.80	75
Bengkulu (b)	1.50	66	0.96	72
Manna	1.00	71	1.10	75

Historical Report = 10-12 feet

Source : Hamzah Latief, 2006

The tsunami that has greatest impact to the Kota Pariaman coast was in 1797 and 1833 which located far from coastal line of Kota Pariaman. Although there were no records shows that flooding occurred in Kota Pariaman, however there were damage records in Kota Padang. In recent years, the huge tsunamis caused serious damage in coastal area of Sumatra in 2004, 2005, and 2007. These tsunami waves reached the coast of Kota Pariaman, however it did not cause any damage, and a remarkable tsunami have not been occurred after the tsunami in 1797 and 1833.

Hence, the land area of Kota Pariaman has known as the area which has the high possibility of tremendous earthquake which can occur in the future. Therefore, the earthquake and tsunami in 1797 and 1833 is utilized as target of tsunami disaster in Kota Pariaman on this plan.

Table 4.3.2 Tsunami Event offshore Sumatra Island

No.	YEAR	EPICENTER	MAX RUN-UP HEIGHT(m)	VICTIM (DIED/INJURED)	AREA
1	1797	-	>5	NA	Offshore Padang, Sumatra
2	1833	-	3-4	NA	Offshore Padang, Sumatra
3	1843	-	2	NA	SW Sumatra
4	1861	-	7	1105	Nias Island, NW Sumatra
5	1907	-	2	400	NW Sumatra
6	1935	-	-	NA	Batu Island, NW Sumatra
7	2004	3,298 Lat. N; 95,6 Long.E	34.5	>300.000	NAD, NW Sumatra
8	2005	2,065 Lat. N; 97,01 Long.E	3.5	NA	Nias Island, NW Sumatra
9	2005	2,065 Lat. N; 97,01 Long.E	3.5	NA	Offshore Bengkulu, Sumatra

Source: S.Diposaptono, NOAA Tsunami Database, Solov'iev and Go (1975) Tsunami Catalogue:

4.4 Earthquake and Tsunami Disaster Hazard

1) Earthquake

(1) Hazard Map

The meaning of the word “Hazard” is defined as the impact of disaster. Therefore, in regard to earthquake, only the distribution of the ground surface acceleration intensity must be shown in “Hazard Map”. The estimated value distribution of the ground surface acceleration intensity is shown in Figure 4.4.1. The ground surface acceleration intensity is described by using the title of PGA and MMI. Estimated MMI for Kota Pariaman is around 8 or more in the MMI display.

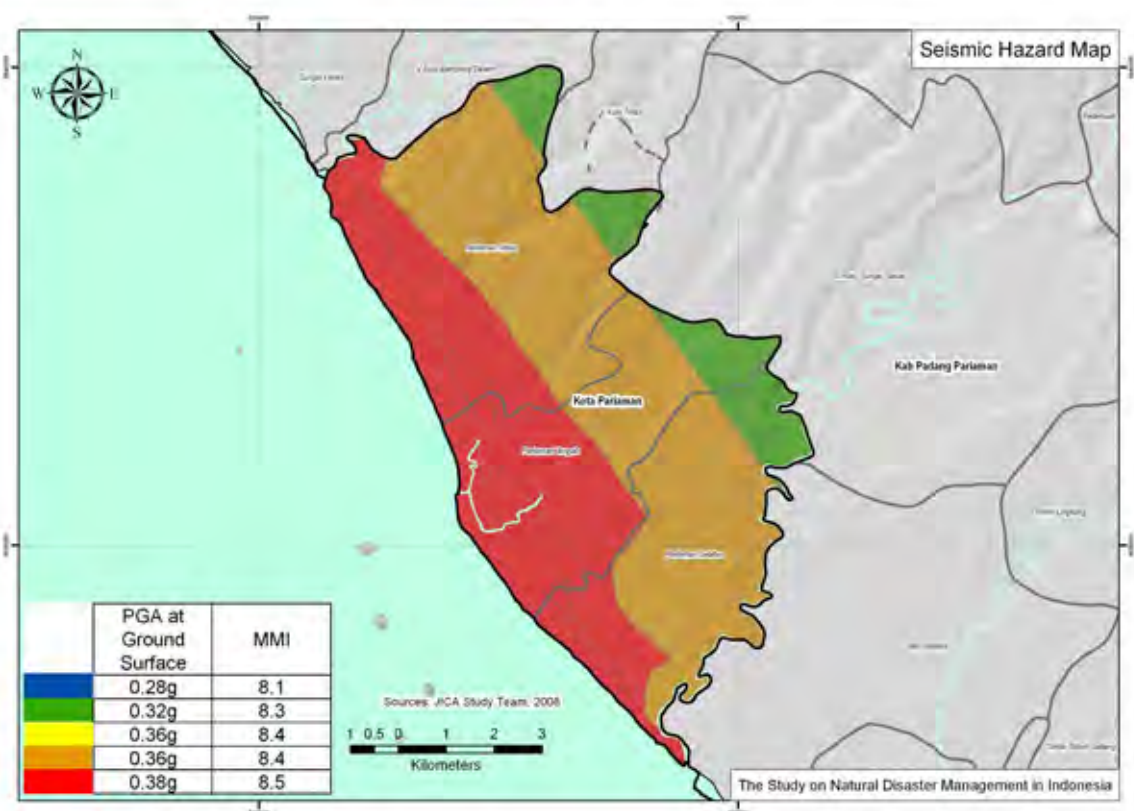


Figure 4.4.1 Earthquake Hazard Map (Distribution of Ground Surface Acceleration Intensity)

As shown in the above figure, west side of Kota is more hazardous than east area.

(2) Risk Map

Regarding earthquake, disaster risk is the possibility of destruction that can be analyzed as a synergistic result of earthquake hazard and vulnerability of facility/building. Earthquake hazard, the intensity of surface ground motion, differs according to the location. The vulnerability of the building also differs according to the building type.

Figure 4.4.2 shows the earthquake risk map which indicates ratio of expected number of damaged buildings divided by total number of existing buildings located in each grid of 500m x 500m.

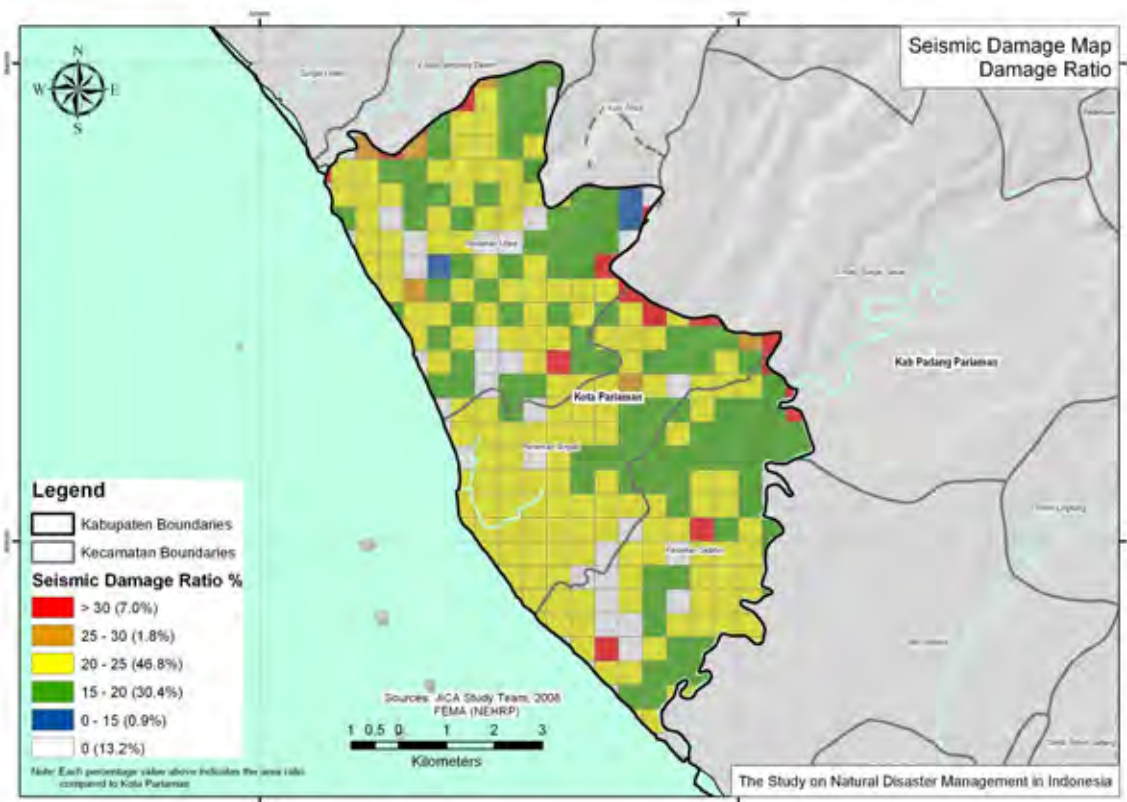


Figure 4.4.2 Earthquake Risk Map (Ratio of Damaged Buildings)

As shown in the above figure, the risk in south-western part of the city is comparatively higher than north-eastern part.

2) Tsunami

(1) Hazard Map

Tsunami damage is caused by seawater intruding into land due to tsunami. Hence, Tsunami hazard could be expressed by inundation depth and flow velocity of the flood. In this plan, we shall define Tsunami Hazard is expressed by inundation depth of flood because the macro estimation method to consider the synergy effect between the inundation depth and the flow velocity of flood has not established yet.

There are various methods to predict inundation area and depth of tsunami, for example numerical simulation method, the method based on historical inundation records, etc. In this plan, Tsunami Hazard map was developed by estimation based on ground elevation, which is simple method to determine the area and level of hazard from relation between possible tsunami height given by numerical simulation and the ground elevation. The maximum run-up height in 1797 and 1833 was 5m or less. Therefore, 5m above sea level was set as standard height of the expected tsunami run-up. The damage grades are indicated as follows.

- i) $2.0\text{m} <$ (Totally destroyed)
- ii) $1.0\text{m} < H \leq 2.0\text{m}$ (Partially destroyed)
- iii) $0.5\text{m} < H \leq 1.0\text{m}$ (Flooded above floor level)
- iv) $0.0\text{m} < H \leq 0.5\text{m}$ (Flooded below floor level)
- v) $H = 0.0\text{m}$ (No damage)

Figure 4.4.3 indicates that the tsunami hazard has concentrated on lowland area near the coast. The expected tsunami flood area has extended from the coast to inland widely in accordance with the lowland area which extend about 2-3km from the coast to the inland in Kota Pariaman. Compared with the historical tsunami records of Padang in 1833 which describes that the tsunami intruded at least 1km from the coast, the expected tsunami hazard area has extended larger than it. Thus, the expected tsunami flood area based on ground elevation is judged a little overestimation, which is dangerous side estimation. The actual flood area is predicted to be in the smaller area near the coast because the tsunami flood area depends on the total quantity of overflow seawater.

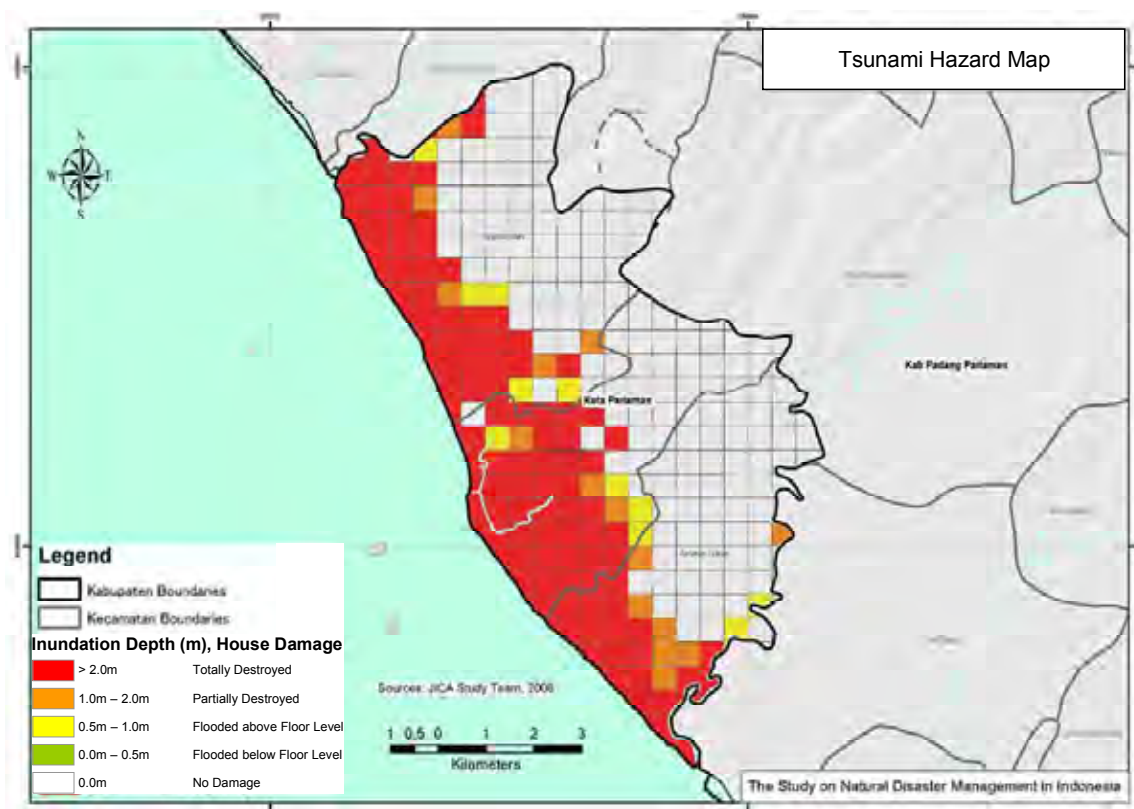


Figure 4.4.3 Tsunami Hazard Map

(2) Risk Map

The damages due to tsunami hazard are great varies. The common damages are shown as follows.

Human damage such as death / House damage such as destruction due to flow / Public facilities damage such as destruction of roads, railways, and bridges / Lifeline damage such as shortage of electricity and water service / Fishery damage such as outflow of fishery boats / Commerce and industry damage such as destruction of factories near the coast / Agriculture damage caused by seawater and sediment inflowing to farm land / Forest damage / Fire damage / Landform change of coast / Destruction of power plant / etc.

The risk caused by tsunami hazard shall be estimated by focusing on house damage and human damage which are the main damages. Therefore, the risk was described by the following expressions. The damage rate based on inundation depth is neglected because the score of inundation depth includes it. However the damage rate based on the distance from the coast is considered because it is thought that the house is not destroyed in inland where the flow velocity of flood becomes smaller. The completely-destroyed and partially-destroyed houses could be assumed to be found within 1km from the coastline. In addition, the area where the house damage could occur is the range within 3km from the coastline.

Meanwhile, when the death body due to tsunami is calculated, the death rate corresponding to the tsunami height is multiplied by the population density settle around the coast. Human damage was also estimated by same method as that of house damage in the viewpoint of measuring only the level of the human damage. As indicated in Figure 4.4.4, the values of tsunami hazard were divided into 5 classes indicating relative hazardous classification. “Red” means the highest hazard and “Orange” indicates high hazard. Moderate hazard is shown in “Yellow” while “Green” means low hazard. Further, “Blue” shows the lowest hazard.

$$[\text{Tsunami Risk}] = [\text{Tsunami Hazard}] * [\text{Damage rate}] * [\text{Population Density} + \text{Built up Area}]$$

Figure 4.4.4 indicates that the tsunami risk has spread out all parts of coastal area in 1-2km width. Especially, the damage risk of Central Pariaman on which the population and the residential area concentrate is very high. Additionally, Central Pariaman has a lot of important installations, which are government buildings such as City Hall, transportation facilities such as railways, roads and bridges, port facilities, fishery port facilities, in the range only 1km from the coastline, Thus the damage risk of infrastructure is very serious in Central Pariaman.

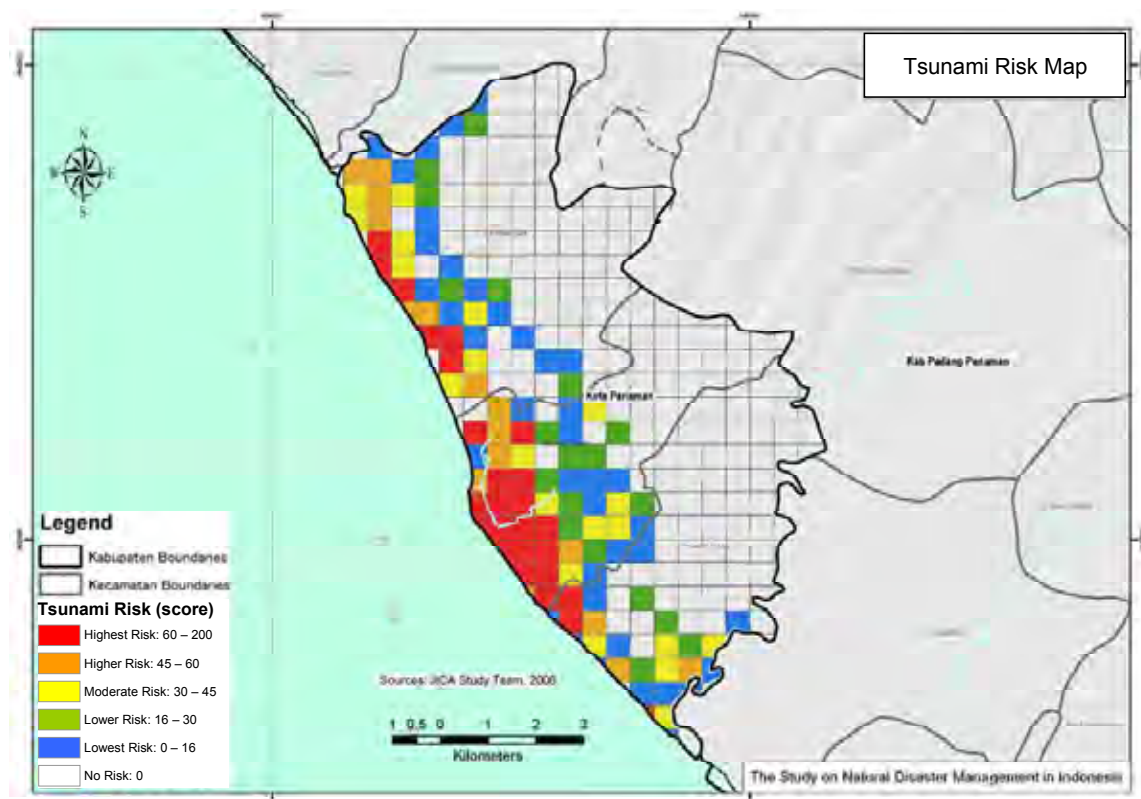


Figure 4.4.4 Tsunami Risk Map

CHAPTER 5. SOCIO-ENVIRONMENTAL ASPECTS FOR THE PLAN

In this chapter, recent trend and important points of disaster management is described briefly.

5.1 Learning from Past Disasters

Indonesia is suffering from many earthquake and tsunami disasters from the past. Recently remarkable tremendous earthquake is in December 2004 in NAD and west coast of Northern Sumatra caused devastating tsunami and killed at least 173,981 people instantly.

Residents of West Sumatera and Kota Pariaman as well as west coast areas have to be more prepared in facing and living contiguous with earthquake disaster, including the possibility of tsunami wave, because of the fact that there is a subduction zone in front of Mentawai, Mentawai Fault in front of Kota Padang, and also the Semangka Fracture and many volcanoes along Bukit Barisan. Experience shows that after the tsunami disaster in Aceh and earthquake in Nias and Mentawai, it can be seen clearly that it is difficult to calm down the panic communities, and also hard to handle the impacts of the misleading and frightening issues and information.

From these unforgettable disasters, we must learn to mitigate damages from disasters coming in the future. Not only limited to the experiences in our country, we also need to learn from disasters occurred in many countries.

Lessons learnt from these past disasters must be clearly compile and need to be used in disaster management measures mentioned in this regional disaster management plan.

5.2 Development of Computerized Information System

Due to development of information technology recently, such as mobile communication tools, PCs, and etc., information communication and data processing tools are widely use. In developed country, GPS and GIS are widely use and possible to observe real time climate data. Moreover, information system showing picture of damage has been developed. The systems is not only change the way of communication, but also provide great improvement on collection of damage information for disaster management when disaster occur.

The system is complicated, if the system is broken down by the disaster, all the system will be malfunctioned. Therefore, it is important to divide the system into multi system. Multi system is very useful in the future, if trouble occur. The system may apply also in Kota Pariaman by considering its weaknesses.

5.3 Security of Emergency Transportation Network

When disaster happened, emergency transport network is one of most important criteria in disaster management in order to implement emergency response activities. Current road network condition including bridges in Kota Pariaman is good. However, for the mitigation plan and maintain road transportation network, we need to design and prepare the Emergency Transportation Network or other alternatives that could help the smooth of Emergency Response.

5.4 Providing Lifelines during Disaster

In the normal daily life, especially in urban area, the dependence to lifeline facilities is extremely high, malfunction or stoppage of these services will greatly affect to residents life. Company and institution which provide such lifeline are obligated to continue the service even in the period of emergency response. They must prepare and try with hard effort to minimize damage when disaster occurred.

5.5 Social Expectation to Volunteers and NGOs/NPOs

From the past disasters, Volunteers and NGOs play important roles in providing first aid to disaster victims, conduct rescue activities, operate evacuation facilities, etc. Volunteers and NGOs are active and relatively flexible in many cases. Therefore, their role is to support government activities when disaster occurs. Moreover, by coordination with these Volunteers and NGOs, more effective and appropriate activates can be materialized.

5.6 Special Care for Vulnerable Groups

In Kota Pariaman, ratio of old and young persons is relatively high. The total number of them is about 9.91% of the total population. In case of disaster, especially disaster caused by rain and storm which are predictable, hence will have certain time before the disaster. The vulnerable groups will take longer time compare to the young group for recovering, therefore needs of special care for vulnerable groups and need to prepare certain guideline or design criteria to ask vulnerable group to evacuate in advance. These activities are undertaken within the community groups.

5.7 Guidelines for Society Regarding Disaster Mitigation Awareness

Not only government officials can be deal with natural disaster and disaster management must also be prepared with close collaboration among government officials, private enterprises and residents. Therefore, each party must aware about the importance of disaster management. It is rather difficult to aware that disaster management is very serious, however disaster management is very valuable when disaster occurred. Mitigation measure could maximally reduce death victim. .

CHAPTER 6. ESTABLISHMENT OF SATLAK PB

6.1 Definition of SATLAK PB

1) Duties of SATLAK PB:

SATLAK PBP Kota Pariaman has duty to coordinate the disaster management activity and refugees handling in the area guided by the policy of BNPB and governor as the leader of SATKORLAK PB. It the stage before, during and after the disaster occur., which covering activities of preventive, taming, awareness, saving, rehabilitations, and reconstructions.

2) SATLAK PB has functions:

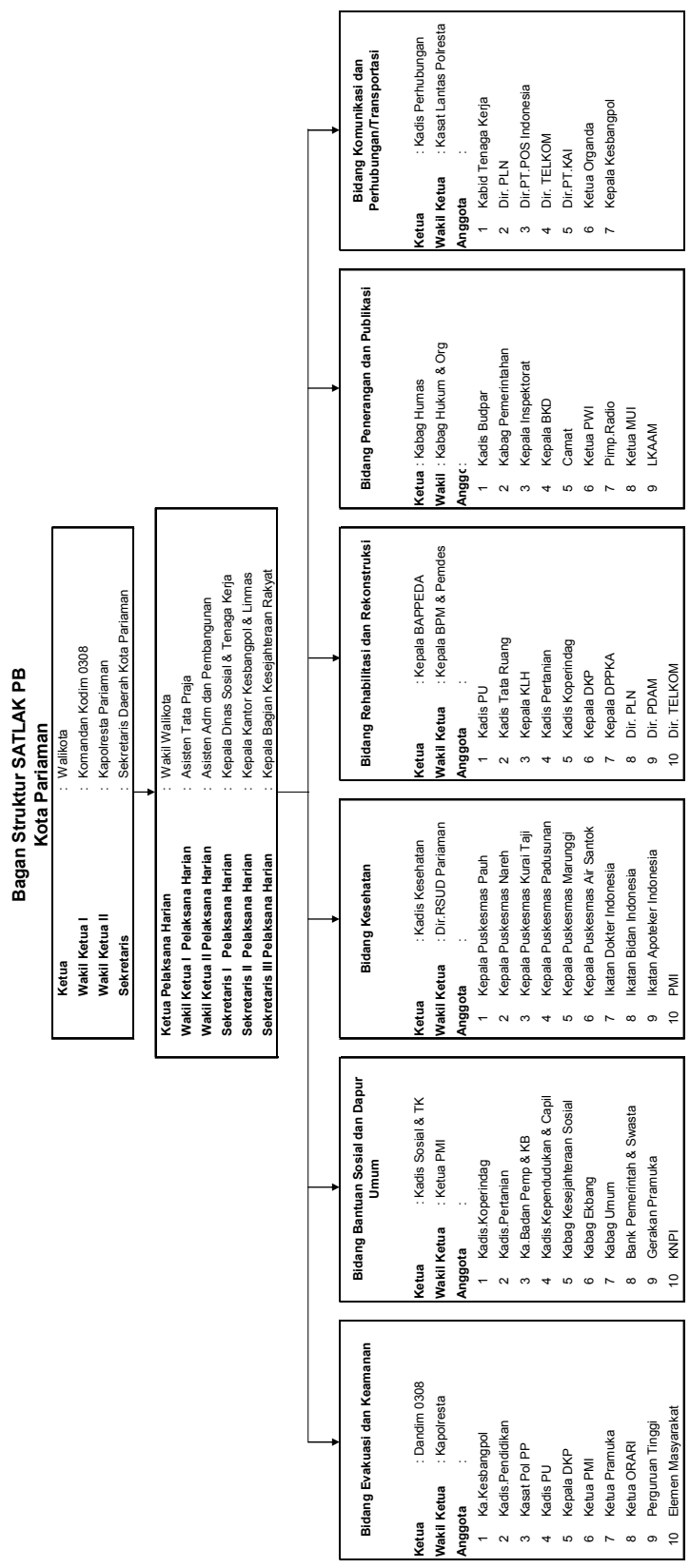
- (1) Illuminations, training, rehearsal and creation to increase the awareness of society on disaster management and evacuation in the area.**
- (2) Implementing disaster management and refugees handling directly in their area by utilizing potential elements of disaster management and refugees handling in the area.**
- (3) Cooperating on disaster management and refugees handling with nearest SATLAK PB.**
- (4) Responsible for collecting and distributing aids for disaster management and refugees handling in the area.**
- (5) Conducting other activities in accordance with governor instruction as the head of SATKORLAK PB.**

6.2 Obligations of SATLAK PB in Disaster Management Cycle

Phase	Sub Phase	Task
Pre Disaster	Prevention	<ol style="list-style-type: none"> 1. Mapping the disaster area (Hazard Mapping) 2. Making and activating the hazardous signs 3. Arranging the general spatial plan 4. Arranging the regional rule on requirements of security, building, waste management, and so on 5. Providing disaster management operational equipment 6. Making fix procedure, implementation guidance, disaster management technical guidance.
	Mitigation	<ol style="list-style-type: none"> 7. Honoring the established rule 8. Setting up the hazardous signs / disallowance signs 9. Constructing security/controlling posts 10. Constructing danger security facilities and repairing critical facilities (embankment, dam, tarsier and so on).
	Preparedness	<ol style="list-style-type: none"> 11. Conducting training and drilling on the disaster management. 12. Publication of disaster and the way to avoid and to mitigate 13. Activating controlling posts.
Emergency Response		<ol style="list-style-type: none"> 1. Sounding the hazardous alert related to type of the disaster 2. Controlling emotion, managing suffered people's panic to mitigate additional victims. 3. In the time less than 2 x 24 hours after disaster, sending emergency response team of SATLAK PB to the disaster area 4. Mobilizing the Action Unit of disaster management to give aid to disaster victims 5. Searching and rescuing the lost victims. 6. Assisting the evacuation of residents and its assets 7. Securing the disaster area especially which leaved by evacuated resident. 8. Giving aids for necessary infrastructure such as food, clothes, drugs, temporally accommodations and so on. 9. Collecting aids from government or public and distributing to the disaster victims through the Action Unit, Control unit of PBP (PUPSDALOPS PBP).
Post-Disaster		<ol style="list-style-type: none"> 1. Aware to the possibility of the next disaster or the following disaster 2. Recording the data of victims and property damaged. 3. Rehabilitation mental and physical condition of the victims so they able to do activity as usual, by enforcing to re-function the public infrastructure facilities. 4. Arranging a program and reconstructing accessibility, settlement, social and public facility in order to avoid or endure against the disaster. Hence, resident lives can running as usual and the welfare come to be better. 5. Preparing report of the disaster and implemented efforts in order to disaster management and the report of collection and distribution of disaster aid to the head of SATKORLAK PB.

6.3 Members and Organization Structure of SATLAK PB

Members and Organization Structure of SATLAK PB Kota Pariaman are shown below.



6.4 Obligations of SATLAK PB Members

No.	Division of SATLAK PB	Task
1	Head of Executive Organizer	1. Leading and coordinating the disaster management and refugees handling activity.
2	Deputy Head of Executive Organizer	1. Assisting the task of the head of daily officer in the disaster management and refugees handling activity.
3	Secretary I	1. Planning and coordinating disaster aids/logistic to the disaster victims. 2. Coordinating and facilitating medical aid/healthcare distribution to the disaster victims. 3. Coordinating and facilitating rehabilitation and reconstruction of victims and facilities.
4	Secretary II	1. Coordinating and facilitating rescuing action and evacuation task to the disaster victims. 2. Coordinating and facilitating the security of disaster area and evacuation area and localizing the disaster area. 3. Coordinating and facilitating the communication and transportation facilities to smoothing the operation of disaster management, and illumination, and information distribution to the community.
5	Secretary III	1. Doing correspondences and reporting as well as data collection. 2. Recording the acceptance, storing, distributing and responsibility of monetary and material aid. 3. Facilitating documentation of the disaster management and refugees handling activities
6	Evacuation and Security	1. Coordinating all searching and rescuing victims. 2. Coordinating / securing disaster area and refugee evacuation area and localizing the danger area to mitigate number of victims. 3. Preparing temporary evacuation area / tent on a secure and accessible area. 4. Suggesting policy formulation on the disaster management based on its department. 5. Conducting other tasks which is recommended by the head of SATLAK PB.
7	Social and Public Aid	1. Planning and arranging the data on logistic supply and supporting facilities. 2. Arranging data of the needs of materials, facility and infrastructure. 3. Preparing and distributing logistic aid and all necessary material 4. Forming and operating the public logistic on the needed area. 5. Doing other task recommended by the head of SATLAK PB
8	Health	1. Preparing the facility of MCK (restroom and so on) and medical for the disaster victims and preparing accommodation supported by standard medical equipment and transfer victims to the local clinic/hospital. 2. Coordinating medical supporting service for the disaster

No.	Division of SATLAK PB	Task
		victims. 3. Doing other task recommended by the head of SATLAK PB.
9	Rehabilitation and Reconstruction	1. Arranging the rehabilitation plan caused by the disaster 2. Preparing all supporting facilities in the temporal evacuation area and repairing the necessary facility. 3. Coordinating all the emergency action as well as rehabilitation and reconstruction actions. 4. Suggesting policy formulation on the disaster management based on its department. 5. Doing other task recommended by the head of SATLAK PB.
10	Information and Publication	1. Planning, preparing, and coordinating the distribution of information to the public concerning related matters to disaster through news paper, electronic media, and directly to the public. 2. Documenting and publication of disaster management activities 3. Suggesting policy formulation on the disaster management based on its department. 4. Conducting training and educating people around the hazardous disaster area together with the others departments. 5. Doing other task recommended by the head of SATLAK PB.
11	Transportation	1. Arranging the planning on communication / transportation facility and infrastructure 2. Coordinating the communication and transportation equipment to smooth the disaster management operation 3. Suggesting policy formulation on the disaster management based on its department.. 4. Doing other task recommended by the head of SATLAK PB.

Section 2: Pre-Disaster (Pre-Disaster Management Plan)

Damages, caused by earthquake disasters including Tsunami, often generate huge impact that spread to wide areas. Devastating earthquake could totally disintegrate daily life of citizens and force them to evacuate. Damages to educational, medical, social welfare facilities will also aggravate the situation. Therefore, preparedness measures against disasters which often occurs in Kota Pariaman should be taken.

CHAPTER 1 CAPACITY DEVELOPMENT OF DISASTER MANAGEMENT ORGANIZATION

1.1 SATLAK PB

<i>Responsible Agency:</i>	<i>SATLAK PB</i>
-----------------------------------	-------------------------

1) Roles of SATLAK PB

- Responsible for coordinating, leading, and controlling, the regional structural and non structural activities in implementing disaster management before, during, and after disaster also refugee handling.
- Approval of Regional Disaster Management Plan and actual measures mentioned in the plan.
- Collection of information regarding disasters and its damages

1.2 Improvement of RUPUSDALOPS PBP

<i>Responsible Agency:</i>	<i>MAYOR</i>
-----------------------------------	---------------------

Existing establishment system of RUPUSDALOPS PBP is not clear for all procedures of emergency response activities, and in case of large scale disaster, it could caused confusion and will affect on the smoothness of emergency response activities. Therefore, following measures are recommended to be implemented to improve the capability of RUPUSDALOPS PBP.

1) Revision of Initial Response System

(1) Primary Management System during Working Time

Information flow regarding hazard condition, appliances used to deliver information and the responsible person for the information should be clearly decided. In this context, hazard condition means when weather worsened which may cause disaster, disaster already occurred or other conditions which already decided where emergency response should be undertaken.

Moreover, to be able to decide this hazard condition promptly, SATKORLAK PB and related organizations must improve their information collection system.

(2) Primary Management System during Night and Weekend

To anticipate if disaster occurs during night and weekend, people to mobilize, communication appliances used and place to mobilize them should be decided in advance. So when disaster occurs, the management system could be undertaken smoothly.

2) Preparedness Measures of RUPUSDALOPS PBP

Respond to disaster depends on damage condition and the time after disaster, operation after disaster indicated as follows;

(1) Secure Necessary Commodities to Establish RUPUSDALOPS PBP

Head of RUPUSDALOPS PBP organize a meeting to determine basic policy of RUPUSDALOPS PBP by collecting and analyzing disaster information. In order to establish and operate RUPUSDALOPS PBP, secretariat of RUPUSDALPS PBP should prepare necessary commodities, and guarantee communication device and generators.

(2) Drill Implementation for RUPUSDALOPS PBP

Regular drill are implemented for members of RUPUSDALOPS PBP, so when disaster occurs they are able to coordinate at disaster site and at RUPUSDALOPS PBP, transmit information smoothly, check equipment readiness, and able to perform procedures to decide basic policy.

(3) Room Designation for RUPUSDALOPS PBP

Room Designation for RUPUSDALOPS PBP will help in performing emergency response appropriately and smoothly without confusion. RUPUSDALOPS PBP is established at following location;

- RUPUSDALOPS PBP is established at following location;

Priority	Location of RUPUSDALOPS PBP
1	Conference Room at Mayor Office
2	Conference Room at Mayor Residence
3	Special room that accessible by every party

- If large scale disaster occurs and these designated indoor rooms can not be used. Hence, open space of *Alun-alun* will be used to establish RUPUSDALOPS PBP. In this case, tents are prepared for emergency use.
- If scale of disaster is relatively small and disaster site is far from City Government, RUPUSDALOPS PBP should be established in nearer location.

1.3 Supports from Other Area

<i>Responsible Agency:</i>	<i>Social and Labor Agency</i>
-----------------------------------	---------------------------------------

In case of large scale disaster, or if implementation requirement of emergency response and recovery already fulfilled, hence, food support for staff and other commodities can be requested from adjacent Kabupaten/Kota, Indonesian Red Cross, Military, and etc. through SATKORLAK PB. In order to prepare for aid request, the following measures are implemented.

1) Preparation of Aid Acceptance from Other Area

- Coordination with related organizations, to be able to implement disaster mobilization activities smoothly, trainings and drills are implemented regularly by estimating disaster location.
- Prepare cooperation agreement for commodities and foods, equipments etc.
- Cooperation Agreement with other Kabupaten/Kota. In order to implement the cooperation promptly and smoothly, base camp with all supporting activities must be prepared.
- Each supporting organization must conduct their responsibilities well.

2) Designate Base Camp for Supporting Activities

Following location is designated as base camp for supporting activities;

- Main base camp for supporting activities is open space in front of Mayor's Office.
- If affected area is far from Mayor's Office, base camp will be relocated to nearer area and it will be decided by Mayor.

CHAPTER 2 ENHANCEMENT OF DISASTER MANAGEMENT CAPACITY FOR RESIDENTS AND PRIVATE COMPANY

Mind concept of “self-protection” is concerned as vital elements in disaster management. Preparation for natural disaster individually could increase awareness of citizens and company owners for disaster preparedness. Everyday effort will strengthen city and the residents against natural disasters.

2.1 Expectation to Residents

<i>Responsible Agency:</i>	<i>SATLAK PB</i>
-----------------------------------	-------------------------

1) Participation in Disaster Prevention Drill

In order to develop awareness of disaster and appropriate emergency response, disaster prevention drills at community and company levels should be conducted regularly. Knowledge and skill of disaster prevention drill are disseminated in an appropriate way such as by seminars, brochures and websites. SATLAK PB could also use these information tools to encourage citizens to participate in disaster prevention drills.

2) Participation in Small Community Group

Participating in community activities will make citizens know each other and could share information. Citizens and local entrepreneurs are strongly encouraged to participate in Community Organization for Disaster Risk Management so they could be familiar with activities that must be done when disaster occur.

3) Discussion with Family Members

Family members are not always in same place when disaster occurs. Discussing a defined meeting place, how to communicate, and what should be done by each family members when actual disaster occurs will help greatly to mitigate any confusion. Therefore, every family is strongly encouraged to often have discussion with the family members regarding preparation to face disaster.

4) Water and Food Supply

After disaster occurs, transportation system is likely to be in trouble due to obstacle of road condition and social chaos. Hence, each household is suggested to keep water and food supply at

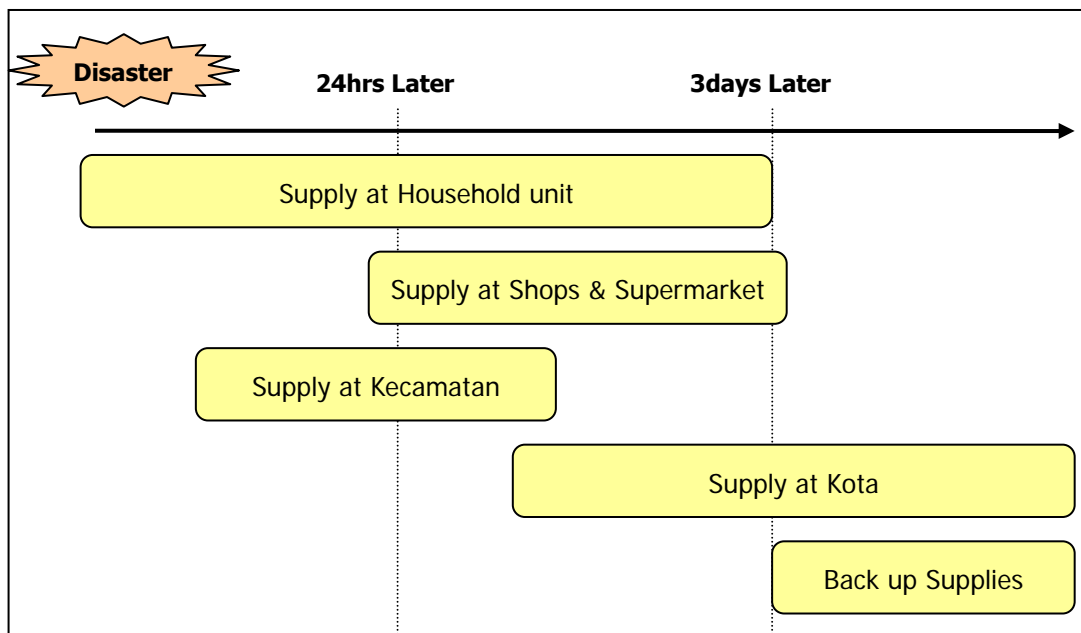
least for three days in case Kota and Kecamatan could not immediately deliver water and foods because of the above reasons. The following tangible advices for citizens should be considered.

(1) Water Supply

Necessary water for drinking is considered to be approximately three liters per person per day. Minimum water supply should be three liters multiply with number of family members. Apart from drinking water, extra amount of water for toilet and bath should also be prepared. Bath tubs and buckets used in household should be filled up with water regularly, for example everyday.

(2) Foods Supply

Food supply should be enough for every family member. In case of households with infants and/or elderly, supply of special food for them should also be prepared such as powder milk, porridge, etc.



Source: Sapporo Emergency Management Office, 1998, SAPPORO: Provision Against Emergencies

Figure 2.1.1 Necessary Supply Based on Time

5) Preparation of Commodities

Under emergency situation, some items that is required immediately should be able to bring out of the house promptly. These items including cash, lamp, portable radio, first aid kit, clothes and dry foods, these items should be prepared in carrying bag that is easy to carry.

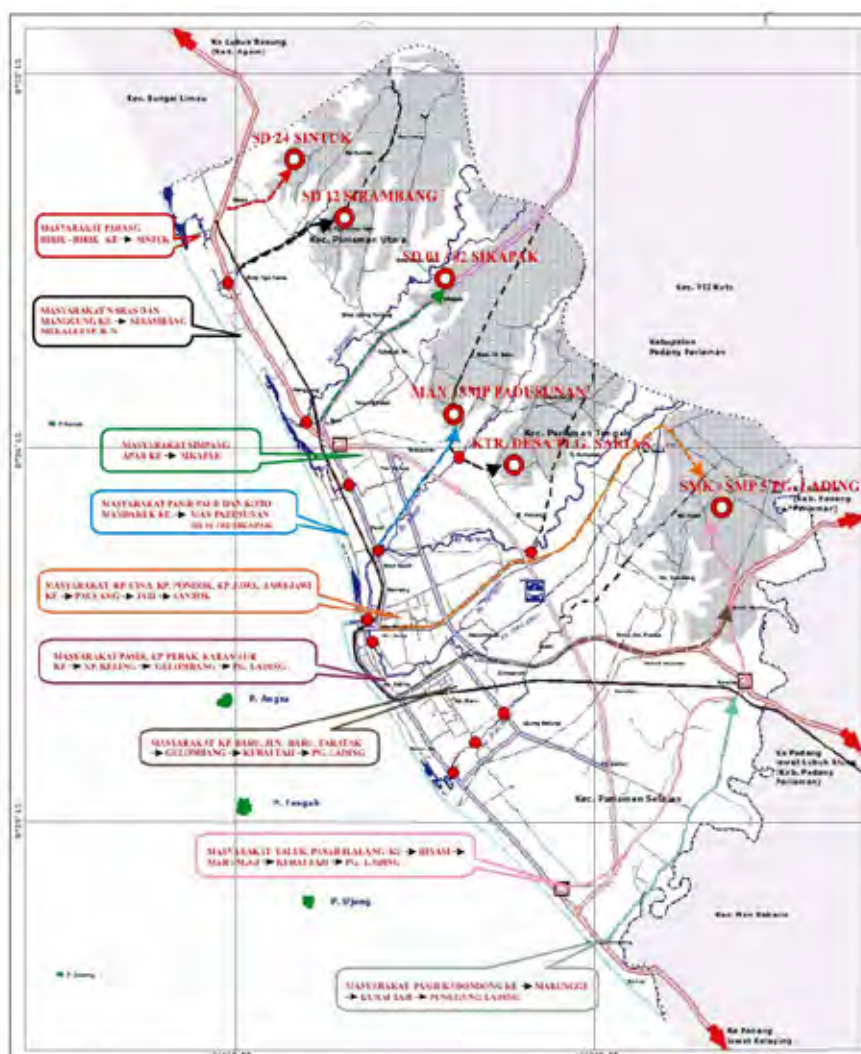
6) Safety Confirmation and Reinforcement of Houses

Residents are encouraged to check structure of houses and other goods in order to confirm the safety against disaster. In case of the absence of safety, buildings and other physical structures should be reinforced. Things that strength is encouraged to be confirmed are as follows:

- Roofs and signboards
- Columns and outside antennas
- Fences and stonewalls

7) Confirmation of Evacuation Place

Evacuation places near houses and routes to reach the places should be informed to residents.



Kota Pariaman Residents Evacuation Map

2.2 Expectation to Society

<i>Responsible Agency:</i>

<i>SATLAK PB</i>

Communities receive primary impact of disasters, meanwhile, the first and continued response on the disasters will come from community members itself. Well prepared and protected communities are important factors to reduce adverse impact of disasters. Therefore, establishing a well resourced, organized and sustainable community organization is a key strategy to effective disaster risk management.

1) **Activities of Community Organization for Disaster Risk Management**

Disaster risk management has collective responsibility to a large extent. When people bind themselves into a group, they play more active roles in realizing a better disaster risk management including disaster response in case of emergency and disaster preparedness in normal time. In addition, there are usually big gaps in understanding needs for disaster risk management between governments and communities. To share common understanding with governments, group actions of communities for identifying needs and priorities, developing proposals, and having risk communication would be promoted. Therefore, community organization for disaster risk management should conduct the following activities:

(1) **Development of Community Level Disaster Risk Management Plan**

To ensure dependable, punctual and coordinated actions in case of emergency, advance planning for disaster risk management is very important. The plan includes:

- a) Organization structures in emergency and normal time,
- b) Community's emergency response activities such as information collection & dissemination, evacuation support, search and rescue, and coordination at evacuation shelters, and
- c) Annual plan of community organization activities.

(2) **Identification of Community Risks and Vulnerability**

To make an appropriate plan, it is important to identify accurate condition of risk and vulnerability of community. Disaster hazard area map based on local condition should be developed at each community. Evacuation routes and places should be decided in advance based on the hazard map.

(3) **Knowledge Dissemination on Disaster Reduction**

To assure prompt and appropriate actions of community members in case of emergency, people should be well informed and educated by correct knowledge on disasters and disaster reduction.

Providing opportunities for learning disaster risk management to all community members is one of the important activities of community organization.

(4) Conducting Disaster Risk Management Drills

To be ready for proper actions in emergency situation, just merely having knowledge is not enough. Conducting regular drills is very important to understand the plans, confirming coordination with other related organizations, and practicing emergency actions that are very useful for further improvement and action implementation. Organizing community-oriented disaster risk management drills on regular basis is essential.

(5) Maintenance of Shared Equipments and Materials for Disaster Risk Management

Equipments and materials for community to conduct disaster risk management activities should be well prepared and maintained. The proposed equipments and materials to be prepared for the purpose include generator, two-wheeled cart, rescue tools, helmet, tool kit, (electrical) saw, hydraulic pump, shovel, and bucket, battery-powered radio, hand loud speaker, warmer, blanket, first-aid kit, drinking water, and tent.

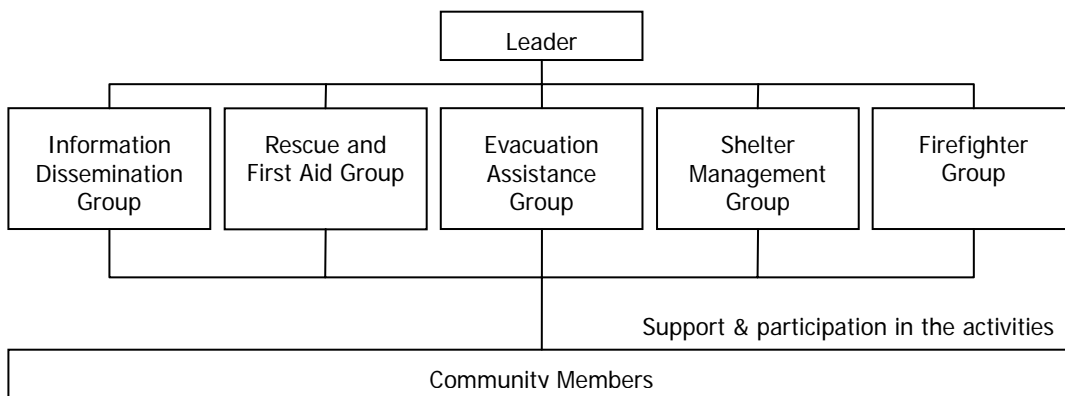
(6) Safety Inspection of Facilities and Buildings/Houses

To avoid damages caused by collapsed and falling objects/construction, regular safety check of facilities and buildings/houses should be promoted. Inspection conducted by people at their own home as well as community systematic inspection for each area should be conducted periodically.

2) Establishment of Community Organization for Disaster Risk Management

The existing community organizations or groups should be utilized for community organizations for disaster risk management rather than establishing a new organization. Especially, civilian defense unit (LINMAS) in the village could be use as core group for this purpose. The Koran reading groups will be also effectively utilized for ensuring wider participation of the community.

The proposed organization structure is shown in the figure below.



3) Enhancement of Capacities in Community Organization for Disaster Risk Management

SATLAK PB has responsibility for promoting establishment of a community organization for disaster risk management in each village and for capacity building in the organization. The following activities should be conducted for the purpose;

- a) Conducting training programs for leaders of community organization,
- b) Providing subsidy program for activities and preparation of equipments in community organization,
- c) Development of publications or materials to be utilized in community activities,
- d) Ccooperation with neighboring villages, and
- e) Supporting collaboration of community organization with relevant organizations such as volunteer groups and local private company.

2.3 Expectation to Private Company

<i>Responsible Agency:</i>	<i>Cooperation, Industry & Trading Agency</i>
-----------------------------------	--

1) Formulation of Disaster Management Plan for Private Company

Private company are expected to make their own disaster plan for preparedness and emergency responses according to characteristic of each company such as type of business, number of staff and office location

2) Development of Disaster Formation in Each Private Company

In time of disaster, private company owners are required to lead emergency responses including giving instruction and communication to their employees. Under such circumstance, cross-sectional action would be necessary to mitigate damages and confusion. Development of internal special formation in advance is recommended. In certain situation, confirmation of communication procedure to RUPUSDALOPS-PBP is strongly advised in order to report damages suffered during disaster. Emergency telephone number at Rehabilitation and Construction Sector at RUPUSDALOPS-PBP must be distributed to all private companies in advanced.

3) Disaster Education for Employees and Conducting Disaster Prevention Drill

Discussion regarding disaster mitigation measures with employees periodically is efficient in handling disaster. Through series of discussions, awareness of disaster management in employees can be developed. Disaster prevention drill is also an effective way for disaster preparation. Information of disaster management plan for private company and good drill practice should be distributed to all private company in Kota Pariaman.

4) Confirmation Safety and Maintenance of Facilities

In order to mitigate damage of buildings and facilities, safety inspection should be carry out regularly, especially by reinforcement of facilities and improvement of emergency equipments.

Notably, there are many retail shops along the roads that sell gasoline (benzene) in bottles. The bottled-benzene may cause fire as secondary disaster. Shop owners are advised to change these bottles from glass container to plastic one.

5) Supply Encouragement for Private Company

Private companies are encouraged to keep stockpile such as water and foods, and emergency kits in their facilities. The amount of food and water for stockpile is at least for three days period according to number of employees. Emergency kit includes rescue and relief facilities such as lamp, portable radio, first aid kit and blankets. Information of stockpile for private company will be delivered by brochures and website.

6) Coordination with Community Organization for Disaster Risk Management

At time of disaster, private company should take part in emergency response as member of local community. For this, each private company could participate in disaster prevention drill at community level. Through such cooperative activities, linkage between Community Organization for Disaster Risk Management and private company will be strengthened enough in order to take appropriate actions under emergency circumstance.

2.4 Volunteer Organization

<i>Responsible Agency:</i>	<i>Kesbangpol Linmas Office (National Unity & Public Protection Office)</i>
-----------------------------------	--

Based on experiences from previous disaster, volunteers who joined in various organizations and NGO has played an important role in disaster management efforts during emergency conditions. Therefore in order to strengthen cooperation with volunteer organization it is vital to exploit all efforts for rescue and relief activities when disaster occurs. For this purpose, two major activities will be carried out before and after disaster.

Before disaster occurs, National Unity & Public Protection Office of Kota Pariaman should collect data of local, regional, national also international volunteer organizations or groups, and make registration for those organizations in advance.

After disaster, RUPUSDALOPS-PBP will establish an “emergency sector” under Social Aid in order to coordinate with the volunteer organization. This sector will develop an appropriate formation and clarify each role of the volunteer organizations/groups in order to smooth activities and increase efficiency. The following activities are considered to carry out under emergency situation.

- Cooperate with volunteer groups and organizations
- Supervise activities of those voluntaries

1) Establishment of Emergency Coalition

Efficient disaster management could be conducted by establishing a coalition between government, community organization, volunteer organization and private company after disaster occurred. Coordination with military service in terms of sharing information and dispatching volunteer groups will also increase efficiency.

2) Coordination with Volunteer Groups outside Kota Pariaman

Volunteer groups outside Kota Pariaman such as international NGOs will be coordinated under SATKORLAK-PB.

2.5 Dissemination of Disaster Management Knowledge

<i>Responsible Agency:</i>	<i>Transportation, Communication and Information Agency and Public Relations Division</i>
-----------------------------------	--

Disaster management plan by government agencies is not enough to minimize damages caused by disaster, disaster risk management by community organization and residents also hold important role. Therefore, both employee of related government agencies and residents should have the right knowledge regarding disaster management and disaster itself.

For example, erosion and flood are generally caused by heavy rain or/and continuous rain. Residents are required to increase their awareness and be aware of signs of disasters. Confirm the nearest evacuation place and routes in advance could be effective to mitigate number of victims.

The following activities will be carried out in order to disseminate disaster management knowledge for all parties

1) Explanation and Education regarding Disaster Management

(1) Explanation regarding Disaster Management to Government Employee

Seminars and lectures regarding responses on disaster should be conducted for government employee in order to disseminate disaster management knowledge.

A. Methodology

- Seminar and workshop at office
- Work training
- Brochure distribution for disaster management
- Lecture/material dissemination

B. Contents

- Basic knowledge of rain and storm related disaster such as flood, erosion, landslide, etc.
- Kota Pariaman regional disaster management plan
- Past natural disasters in Kota Pariaman
- Roles of government agencies
- Prevention of disease infection at the time of disaster

(2) Explanation regarding Disaster Management for Residents

Knowledge dissemination and explanation concerning disaster management should be conducted for residents in order to increase their awareness.

A. Methodology

- Publishing article concerning disaster management in public newspaper
- Brochure distribution regarding disaster management
- Exhibition regarding disaster management
- Making video related to disaster management
- Lecture/material dissemination
- Making website regarding natural disaster management

B. Contents

- Basic knowledge of rain and storm related disaster such as flood, erosion, landslide, etc.
- Brief explanation regarding Kota Pariaman regional disaster management plan
- Preparation for disasters
- Emergency responses

(3) Education for Students and Children

Education in disaster management will be provided for the students and children with the purpose of protection against disaster. In particular cases, it is efficient if residents have self-awareness for disaster prevention since childhood.

A. Methodology

- Brochure distribution for disaster management
- Making video related to disaster management

B. Contents

- Basic knowledge of rain and storm related disaster such as flood, erosion, landslide, etc.
- Preparation for disasters
- Emergency responses

2) Disaster Prevention Drill

Disaster drill and simulation will help all parties to take prompt and appropriate actions when actual disaster occurs. The disaster simulation should be comprehensive and involve all related parties also residents in disaster hazard location. In addition actions towards handicaps and sick people should also be taken into account.

(1) Comprehensive Disaster Prevention Drill

Comprehensive disaster prevention drill and simulation will be conducted as if large-scale disaster actually occurs in Kota Pariaman. The drill includes information dissemination regarding earthquake, establishment of disaster prevention headquarters, rescue, relief, security, and recovery. Before conducting the drill, duties of each related parties should already be define in order to have smooth and efficient drill

(2) Emergency Responses Drill for Related Agencies

A. Mobilization Training

This mobilization practice of government agencies will be conducted as if disaster occurs outside working hours in order to simplify mobilization of officer and establishment of RUPUSDALOPS-PBP as soon as possible

B. Training on Establishment and Management of RUPUSDALOPS-PBP

Training on establishment and management of RUPUSDALOPS-PBP will be conducted to attain efficient and quick emergency responses.

C. Training on Information Dissemination

Training on disseminate the most basic information such as damages and casualties will be carried out according to disaster condition occurred.

D. Emergency Evacuation Drill

This evacuation drill is not only for emergency condition but also will be conducted for rescue and relief activities in order to smooth evacuation process.

(3) Drill of Private Company

A. Information and Communication

In case that private company is suffering from disaster, they shall report to Rehabilitation and Reconstruction Sector at RUPUSDALOPS-PBP. For such circumstance, all companies are should already know the report procedure at normal condition. In addition, emergency telephone number of RUPUSDALOPS-PBP should be disseminated to all private company.

B. Evacuation Drill

Every company is encouraged to conduct evacuation drill.

C. Training on First Aid and Rescue

Private companies are encouraged to practices on emergency medical care including first aid and carrying casualties on a stretcher.

(4) Individual Emergency Prevention Drill

A. Emergency Drill

The drill includes evacuation and guiding drill for old and sick people who need support to evacuate.

B. Training on First Aid and Rescue

Training of emergency care including first aid and method to carry casualties on stretcher.

CHAPTER 3 *RESPONSE ENHANCEMENT FOR VULNERABLE RESIDENTS*

3.1 Measures for Vulnerable Group

<i>Responsible Agency:</i>	<i>Social and Labor Agency</i>
-----------------------------------	---------------------------------------

Elderly, patient, and infant may need support for taking appropriate action under emergency circumstance. Therefore, measures for these physically weak people should be included in disaster management plan.

1) Measures for Invalids

(1) Data Collection of Invalids

Social and Labor Agency should collect data on amount and dissemination of invalid residents in order to have smooth evacuation at the time of. This registration system for the invalids should be conducted so invalids and their family know how to react properly when disaster occurs. Except the amount and dissemination, data that should be collected for registration are address and condition of the invalids. The registered information including their address and conditions will be updated every six months. This information should be shared with Army/Fire Fighters so evacuation plan for invalids can be prepared.

(2) Communication System for Invalids and their Families

Information delivery system when disaster occurs for invalids and their families should be made to secure their safety, for example by using home telephone or mobile phone. In case that invalids and their families have no such communication facility, leader of the Community Organization for Disaster Risk Management or neighborhoods will be requested to deliver the information when disaster occur. Also exploit speakers in Mosques is considered as alternative communication tool in emergency situation.

(3) Instruction for Families with Invalids

Disaster management brochures should be distributed for the invalids and their families. They are also expected to participate in local community activities in order to have supports from other community member at emergency situation.

(4) Instruction for Community Organization on Disaster Risk Management

Community Organizations for Disaster Risk Management which have invalids are expected to pay attention in helping those weak people in time of disaster. When the member is unable to

walk, Community Organization for Disaster Risk Management should prepare stretchers for emergency condition.

3.2 Foreigner Management

<i>Responsible Agency:</i>	<i>Demographic and Civil Statistics Agency</i>
-----------------------------------	---

At this moment, there are not any foreigners residing in Kota Pariaman. If there are foreigners here, they would be very vulnerable of becoming disaster victims. Language would be an obstacle and they cannot understand the information regarding the disaster.

1) Registration of Foreign Residents

There is no foreign resident in Kota Pariaman. However, we must be prepared with information regarding disaster management for them. A registration system should be made. Demographic and Civil Statistics Agency is responsible to encourage foreigner to register themselves and complete data concerning address, foreign and Indonesia language ability and occupation when they arrived in Pariaman. Based on these data, an appropriate brochure will be formulated in English or other appropriate language which includes disaster management information and map with evacuation places and facilities, and emergency telephone numbers.

2) Disaster Prevention Drill with Foreigner

Area where foreign residents live is encouraged to conduct disaster prevention drills which involving foreigners. Private companies which hire foreigners are also requested to conduct the drills by involving them. Through these activities, foreign residents are expected to be able to increase their awareness about disaster management and emergency responses.

3) Broadcasting for Foreigners

Urgent and important information such as weather condition will be broadcast through radio or local television in Indonesian and English or other appropriate language.

3.3 Safety of Infants and Children

<i>Responsible Agency:</i>	<i>Health Agency</i>
-----------------------------------	-----------------------------

Infant and children are very vulnerable to become victim when disaster actually occurs because they are still unable to take appropriate action when flood, erosion, or mudflow happens. For securing their safety, the following measures should be implemented.

1) Disaster Management Instruction for Families

Information of disaster management and emergency responses will be provided to families with infants and children. This information contains instruction on how to handle infants and children when disaster occurs.

2) Dissemination and Instruction for Communities and Neighborhoods

Under emergency situation, parents or family members might not be with their infants or children. For such case, infants and children need help from community or neighborhoods for taking appropriate action. Therefore dissemination and instruction of disaster management on how to handle infants and children will be delivered to communities and neighborhoods.

CHAPTER 4 DEVELOPMENT OF DISASTER INFORMATION COMMUNICATIONS NETWORK

Development and effective operation of disaster information communication network, capacity building of radio communication network, and multiplexing of information network will be conducted in order to disseminate relevant information precisely and accurately to residents as well as the agencies engaging in rescue and relief activities, so that each could give information regarding damaged condition adequately.

4.1 Design of Disaster Communication System

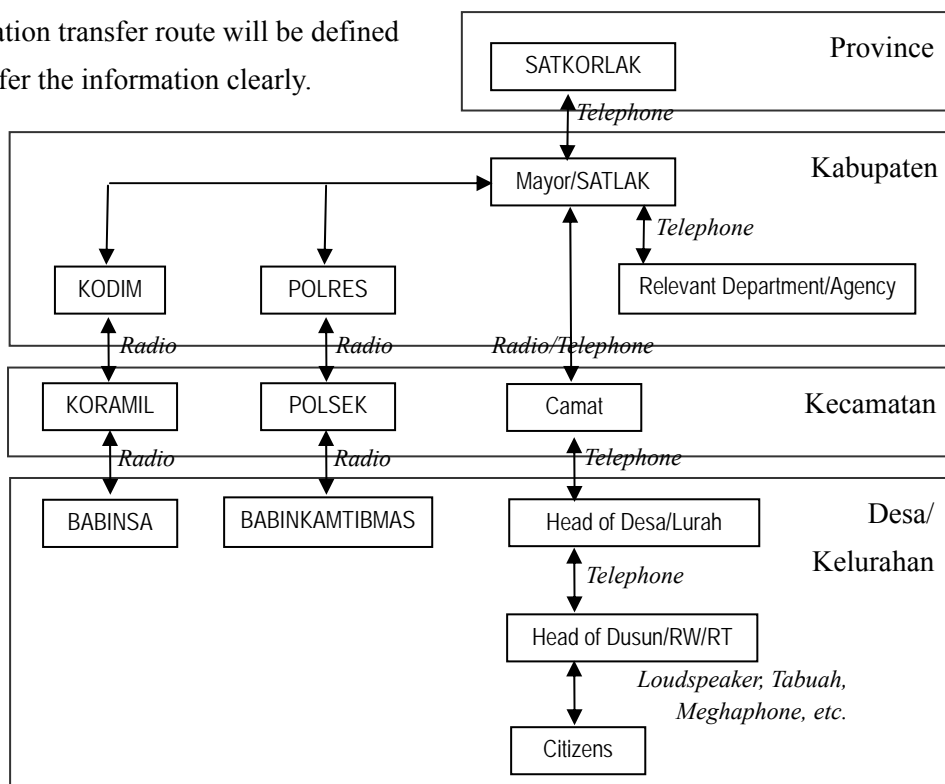
<i>Responsible Agency:</i>	<i>Transportation, Communication and Information Agency, City Government Public Relations Division</i>
-----------------------------------	---

1) Objective of Disaster Communication System

- (1) Preparing means and route of information transfer for rapid and effective emergency response.
- (2) Compiling disaster information
- (3) Disaster information will be delivered to community in order to give sense of safety.
- (4) Disaster information will be deliver to related agencies, provincial government also other Kabupaten/Kota in West Sumatera province.

2) Information Transmission Route

Information transfer route will be defined to transfer the information clearly.



3) Development and Multiplexing of Information Transfer Device

The following various means for information transfer will be developed in order to provide and disseminate information rapidly and accurately.

- (1) Telephone (cable phone and mobile phone), SMS, HT
- (2) Radio communications for disaster prevention and administration between SATLAK and Kecamatan

Radio communication system will be installed at desa/kelurahan

- (3) Other radio communication system such as military radio, police radio and amateur radio
- (4) Private radio station
- (5) Loudspeaker in mosques, Tabuah (drum), car loudspeaker
- (6) Home Page of Kota Pariaman, E-mail through internet
- (7) Messenger

4) Development of Disaster Information Network, and Information Gathering and Storage System

Other than disseminate, data and information should also collected, compiled and stored to be utilized to renew emergency response plan, to prepare and revised disaster hazard map.

(1) System Outline

System used is information sharing system using network of computer LAN and WEB system to connect every related agency and organization in Kota Pariaman. This network will be utilized as an administrative information system on normal days, and will be operated as communication network system at time of disaster. The network will also be utilized as disaster information database.

(2) Centralization and Sharing of Disaster Information

This system should be able to accommodate information from society by making link between communication network of military and police through WEB, and disaster information from each ministry using computer network. The system should also be accessible from entire Kota Pariaman.

(3) Providing Information to Community

This system can be access by public community through internet in order to enable them to have disaster information and method of handling.

This system will also be connected with computers at schools, especially schools which will be use as emergency shelter at time of disaster.

4.2 Operation of Disaster Information Communications Network

<i>Responsible Agency:</i>	<i>Transportation, Communication and Information Agency, City Government Public Relations Division</i>
-----------------------------------	---

1) Development and Implementation of Information Transfer Route

Following measures will be conducted in Communication Network for Disaster Information.

- (1) Collecting data of telephone number of agencies and the persons in charge
- (2) Making priority of information transfer device
- (3) Establishing information transfer route

2) Maintenance of Information Transfer Devices

Regular maintenance of equipments will be conducted to confirm the equipment could function well at emergency situation.

4.3 Operational Skill Improvement for Staff

<i>Responsible Agency:</i>	<i>Transportation, Communication and Information Agency, City Government Public Relations Division</i>
-----------------------------------	---

Skill improvement of staff to operate communication devices which later will be used when disaster occurs is important so they could operate the devices well when required. This skill improvement is conducted through training by using the devices.

CHAPTER 5 RESCUE/ RELIEF, MEDICAL TREATMENT MITIGATION PLAN

5.1 Capacity Development of Firefighter

<i>Responsible Agency:</i>	<i>Firefighter</i>
-----------------------------------	---------------------------

Firefighter takes primary role of rescue, relief, and medical treatment when disaster occurs, so capability of firefighter is very influential to the size of damages and casualties. Therefore firefighter capability should be improved to reduce number of casualties and damages when disaster occurs.

1) Capacity Building of Firefighter Facilities

(1) Facility Improvement

Improvement of firefighter facilities in Kota Pariaman should be improved. At this moment, firefighter only has 2 fire engines. UPTD Firefighter plan to increase number of fire engines or at least upgrade existing fire engines for preparation of emergency.

Built up area, especially urban and business district area is likely to have high density and therefore have high level of difficulties when disaster occurs. For efficient relief activities in these areas, equipments including ladder truck are very important in case emergency situation occurs in the area.

(2) Establishment of Information System

Information sharing is an important factor in emergency response activity collaboration between firefighter with RUPUSDALOPS-PBP (emergency response head quarter) and fire brigades at community level (LWLP) when disaster occurs. Therefore, information system will be established to connect these three organizations. Emergency equipments such as radio transmission also should be prepared in case telephone connection is disconnect.

(3) Education for Firefighter Officer

To improve emergency responses of firefighters, an instruction manual intend will be made and distributed to them. This would encourage each firefighter to understand methods of rescue and relief under emergency circumstance.

2) Establishment of Firefighter Network

(1) Organizing Firefighters

Firefighter needs contact with many organizations and groups in time of disaster. Under emergency circumstance, to avoid any confusion in communication, firefighter should already know how to communicate, and who is the contact person of the organizations and groups in advance.

After disaster, firefighter should make contact with Evacuation and Security sector of RUPUSDELOPS-PBP to exchange information. To facilitate the information exchange, firefighter should establish an emergency committee for operation management. Firefighters are also encouraged to exchange information with LWLPs.

On the other hand, firefighters are required to coordinate with Health Sector of RUPUSDELOPS-PBP. Firefighter should also cooperate with and inform to hospitals and Indonesian Red Cross for rescue effort of disaster casualties. Therefore, firefighters are required to build connection with hospitals and Indonesian Red Cross.

(2) Network Development between Firefighters and LWLP

In Kota Pariaman, there are two firefighter units. Collaboration between firefighter and LWLPs is an important factor in disaster management efforts during emergency situation. Therefore, firefighter should build good connection and share information with LWLPs.

3) Increasing Member of Fire Fighters and Skill Increment such as Life Guards Member

(1) Increasing Member of Firefighters

Total number of fire fighting personnel at this time is not enough to handle large scale or series disaster. Therefore, number of fire fighter member should be added.

(2) Skill Increment like Life Guards Member

Kota Pariaman does not have lifeguards. This could be weak point in disaster management efforts, especially in the implementation of medical treatment at emergency situation. Therefore, related agencies should plan to request to central government to dispatch someone capable to train the lifeguard members.

After obtain those skills, firefighters are expected to teach their knowledge and skills to LWLPs, community organization and residents so they could give first aid when emergency situation occurs.

5.2 Education for Residents and Communities

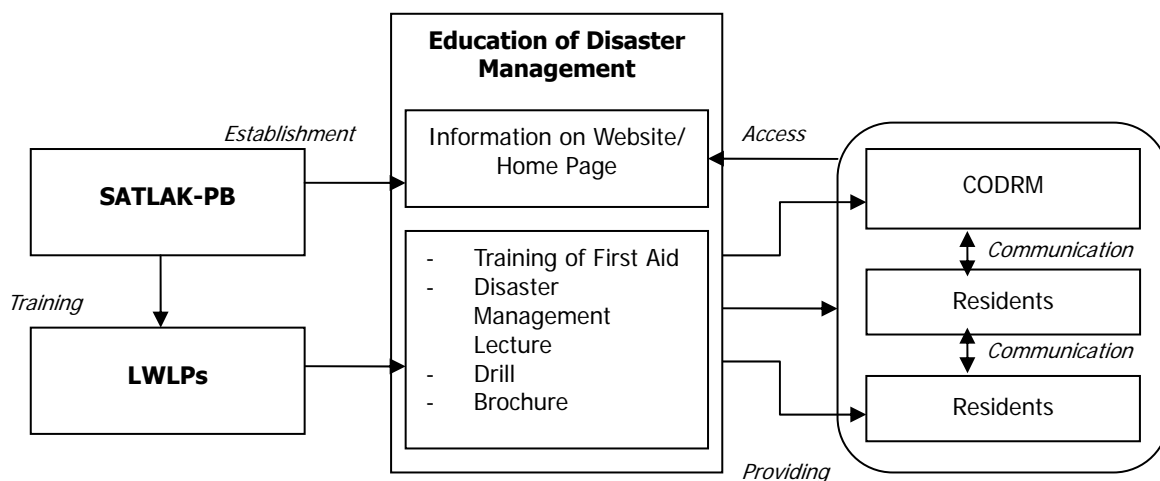
Responsible Agency:	SATLAK PB
----------------------------	------------------

1) Providing Education for Citizens

Constant awareness of disaster management for residents could help to mitigate the damage from disasters. Through experiences of participating in disaster prevention drills and lectures, their knowledge of disaster prevention might be expanded enough to prepare for disaster by themselves. For this, the following actions are considered to be taken.

- First aid training
- Lecture on disaster management
- Disaster prevention drill
- Brochure of disaster management
- Establish information of disaster management on website

For sufficient education of disaster management for residents, LWLPs and Community Organization for Disaster Risk Management take a central role in the education.



CODRM: Community Organization for Disaster Risk Management

Figure 5.2.1 Education System

2) Education for Households

First responses when disaster occurs are fundamentally important to mitigate damages. Therefore information regarding first responses which should be taken at time of disaster should be disseminated to residents. Following actions are necessary to give education to households:

(1) Public Information of Disaster Management

A. Public Information for Entire Kota

Storms and heavy rains should be informed to all community in order to support disaster management measures.

B. Public Information at Each Kecamatan

Flood and erosion should be informed to residents who live in disaster risk areas. The information dissemination should be conducted by each Kecamatan.

(2) Distribution Method of Public Information

A. Disaster Management Week

“Disaster Management Week” will be planned for 1 week every year to promote disaster management activities such as drills and lectures. Targets of this event are government agencies, residents, Community Organization and private company.

B. Explanation by Posters and Brochure

Disaster prevention will be explained to residents through audiovisual materials such as posters, brochures, stickers, leaflets, videos, films and slides.

C. Explanation by Organizing Meeting

Discussions among residents and between community organizations regarding disaster management are also effective in increasing awareness about disaster.

CHAPTER 6 SAFETY CONTROL/RESCUE MEASURES**6.1 Safety Control and Rescue Preparedness Measures by Police**

<i>Responsible Agency:</i>	<i>Police Head (POLRESTA) and Police Syndic (Pol. PP)</i>
-----------------------------------	--

1) Improvement of Equipments

Required equipments for emergency responses such as radio transmission and other equipments should be improved or upgraded by police head (Polresta) and police syndic (Pol. PP). In addition, police themselves should also prepare supplies of drinking water, food, fuel and battery. Therefore, a procurement system should be established.

2) Participation in Drills

Police head and Pol. PP will participate in all drills organized by Kota Pariaman Government.

3) Preparedness to Receive External Aid

Police head and Pol. PP might requires aid from external staff to support the disaster management efforts, therefore a committee that will be responsible for the aid will be established in order to accelerate disaster management efforts.

6.2 Safety Control and Rescue Preparedness Measures in Water

Responsible Agency: *Marine Affairs and Fishery Agency*

1) Improvement of Equipments

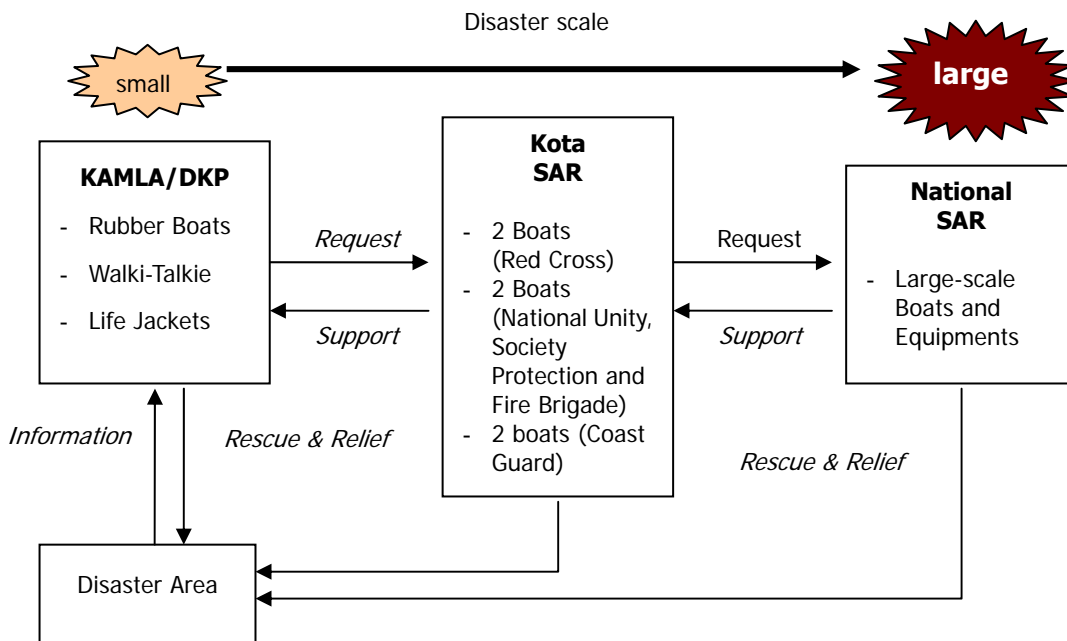
All equipments necessary for marine salvage and transportation of relief supply and manpower will be renewed. Therefore, Marine Affairs and Fishery Agency of Kota Pariaman should request for assistance of necessary equipment to SAR in provincial or national level, or establish their own activity by using APBD fund.

2) Participation in Drills

Marine Affairs and Fishery Agency will participate in drills organizing both in provincial or national level.

3) Information Gathering

Marine Affairs and Fishery Agency (DKP) of Kota Pariaman will collect weather information, meteorological data and damage condition at time of disaster, and submit the information to City level SAR. Then SAR will coordinate with related organization to take appropriate action such as emergency responses, rescue and relief.



Source: JICA Study Team

Figure 6.2.1 Framework of Rescue Measures in Sea

CHAPTER 7 DEVELOPMENT OF EMERGENCY TRANSPORTATION FACILITIES

7.1 Development of Emergency Transportation Facilities

<i>Responsible Agency:</i>	<i>Transportation Agency</i>
-----------------------------------	-------------------------------------

In the time of natural disaster, comprehensive transportation network is necessary to smooth evacuation, rescue, and transportation of materials and supplies. Kota Pariaman is completely relies on land transportation mode, that is, roads and railways. Therefore, both routes should always be maintained to anticipate emergency situation.

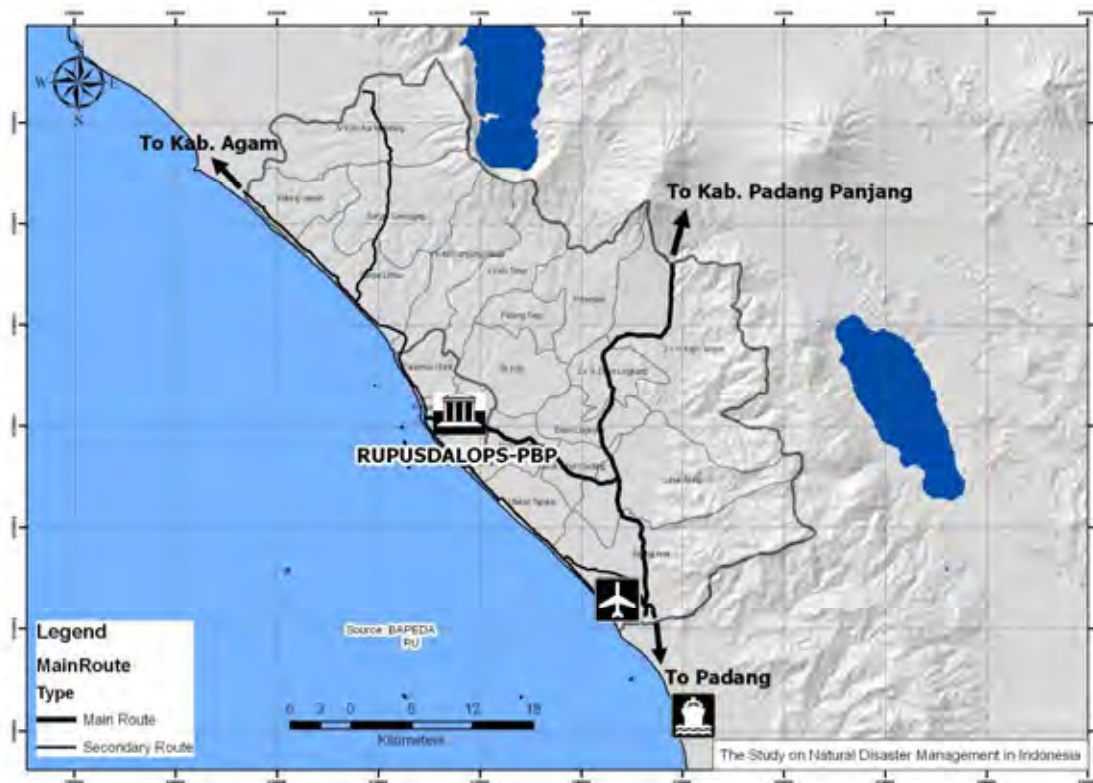
1) Designation of Emergency Transportation Route

Emergency transportation network consists of primary and secondary transportation routes. Primary route will be designate to transferring the injured and conveying materials and aid supplies from/to outside Pariaman. While secondary route will be designate as transportation inside Pariaman area.

(1) Primary Emergency Transportation Route

Primary emergency transportation routes should link between important facilities, that is, routes connect with RUPUSDALOPS-PBP and materials transportation bases such as seaports.

Figure 7.1.1 shows idea of two primary emergency transportation routes of Padang and Bukittinggi/Padang Panjang. Padang City is very important to become gateway for Kota Pariaman. In Padang there are physical facilities such as seaport and airport also connection to emergency organization such as SATKORLAK and National level SAR. Meanwhile Padang Panjang or Bukittinggi have close distance to Kota Pariaman and also function as aid gateway from eastern and northern regions.

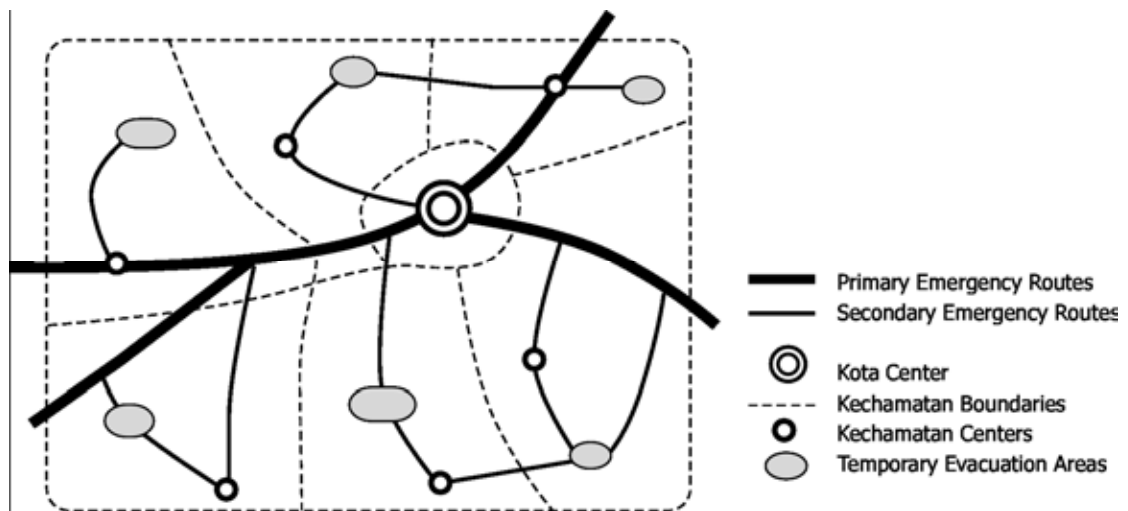


Source: JICA Study Team

Figure 7.1.1 Idea of Primary Emergency Transportation Routes

(2) Secondary Emergency Transportation Routes

Secondary emergency transportation routes play a role as feeder routes. These routes hence shall branch off from primary routes to center of Kecamatan and temporary evacuation areas. The route plan will be decided by each Kecamatan by considering smooth transferring of the injured and emergency supplies from/to evacuation places and centers of activity. The general idea of secondary route is illustrated in Figure 7.1.2



Source: JICA Study Team

Figure 7.1.2 Schematic Image of Emergency Transportation Route Network

2) Maintenance of Emergency Transportation Routes

(1) Maintenance of Emergency Transportation Routes in Kota Pariaman

Primary and secondary emergency transportation routes should be well maintained for preparation of emergency by repaving and widening. Particularly for primary routes should be restricted from parking area along the routes.

In addition, geographical condition of Kota Pariaman that have 4 rivers and irrigation channels makes transportation routes requires bridges to pass the river and irrigation channel. Therefore, strengthening of those bridges is requires in order to enable it to be use in emergency situation.

(2) Maintenance of Arterial Roads outside Kota Pariaman

Kota Pariaman does not have airport and seaport so the city is very depended on land transportation; therefore, arterial roads connecting Kota Pariaman with Padang and surrounding areas become a very vital access route at time of disaster. These roads must be well maintained, especially bridges that mostly exist on route to Kabupaten Padang Pariaman also curved and steep road to Padang Panjang and Bukittinggi. SATKORLAK is expected to help in maintaining these road facilities

(3) Maintenance of Railways

Existing railway links between Pariaman and Padang. Railway will also hold an important role at time of disaster, so it requires good maintenance.

3) Emergency Air Transportation

When land transportation disrupted because of disaster, helicopter is the only air transportation can be use in Kota Pariaman. Therefore, temporary landing location should be prepared at each Kecamatan. The following facilities might be appropriate places as tentative heliports.

- Merdeka Square
- Sport Field
- Bus Terminal of Kota Pariaman
- Agricultural land (excluding paddy fields)

CHAPTER 8 *EVACUATION AND PREPAREDNESS OF TEMPORARY HOUSING*

When large scale earthquake disaster occurs, efforts to develop and repair condition of evacuation places are highly necessary to guarantee community safety, and so they could survive in evacuation places. This chapter discuss regarding development plan for evacuation area.

8.1 Temporary Evacuation Area

<i>Responsible Agency:</i>	<i>Public Works Agency</i>
-----------------------------------	-----------------------------------

1) Role of Temporary Evacuation Area

When earthquake and tsunami disaster occurs, temporary evacuation area will be established to protect residents from disaster suffering. Evacuation area also functioned as accommodation for refugees after disaster. For those two major roles, temporary evacuation areas should already be decided in each Kecamatan.

2) Criteria of Temporary Evacuation Area

Selection of temporary evacuation area should consider the following criteria.

- Safe places from disaster
- Far from coastal area to avoid tsunami
- Accessible area
- In form of wide plain area
- No hazardous facilities in the neighborhood (e.g. chemical factories)

3) Selection of Temporary Evacuation Area

(1) Selection of Temporary Evacuation Area

Temporary evacuation areas are selected in each Kecamatan. These evacuation areas will be evaluate periodically by considering population and regional development.

(2) Establishment of Signboard

Routes to evacuation places should be installed with signboards so people could choose the nearest evacuation place. These signboards are also efficient to increase community awareness on disaster.

8.2 Evacuation Facilities

<i>Responsible Agency:</i>	<i>Public Works Agency</i>
-----------------------------------	-----------------------------------

1) Selection of Evacuation Facilities

Appropriate evacuation facilities are needed to accommodate the people who lose their house because of earthquake and/or tsunami. These facilities are basically selected from existing buildings in each Kecamatan. The selected buildings should have enough room to accommodate number of refugees. Structure of the building should be strong and located in area far from coast or at high places.

(1) Evacuation Facilities

Some facilities such as schools and mosques are selected as evacuation facilities in advance by each Kecamatan. These facilities should be able to accommodate refugees or at least could accommodate casualties, children and elderly. Therefore selected facilities should be well maintained and reinforced the structure to be disaster-resistance.

Several Kecamatan located along the coastal areas already decided their evacuation place at another Kecamatan and shall build good relations with them.

(2) Establishment of Signboard

Routes to evacuation places should be installed with signboards so people could choose the nearest evacuation place. These signboards are also efficient to increase community awareness on disaster.

2) Equipments of Evacuation Facilities

(1) Required Equipments for Communication and Supply

After disaster occurred, required equipments are different between initial period (within 72 hours) and restoration period (after 72 hours). Equipment needed for both periods are as follows

A. Initial Period: within 72 hours after disaster occurred

- Radio transmission
- Mobile phone
- Radio
- Billboard
- Electric generator and battery
- Motorcycle and bike

B. Restoration Period: 72 hours after disaster occurred

- Radio transmission
- Mobile phone

(2) Provision regarding Drinking Water and Foods

Drinking water and foods are essential in evacuation facilities. Supplies should be prepared for refugees.

A. Water Supply

To guarantee enough water supply after disaster occurred, the following facilities should be noticed.

- Water supply in schools and mosques
- Wells
- Plastic bags or containers
- Rear cars

B. Foods

Following cooking equipments should be prepared.

- Cooking stove
- Large sized pan
- Propane gas or kerosene
- Plates and other utensils

3) Establishment of Working Committee for Evacuation Facilities

Working committee for each evacuation facility should be established with for two purposes. One, the committee will maintain the facilities themselves. The other, the committee should prepared the equipments so refugees are able to stay at the evacuation facilities without any confusion.

(1) Organization of Working Committee

Organization of working committee will be advised to include the following member.

- Leader of Community Organization for Disaster Risk Management, or private company such as plantation companies
- Member of Kecamatan Office
- Owner or manager of the facilities
- Others (private company, volunteers, and so on)

(2) Role of Working Committee

The working committee will be expected to make the following preparations in order to facilitate operational of evacuation at time of disaster:

- Making lists of user of the evacuation facilities
- Formulating manual for operating evacuation facility including rescue measures for elderly, weak and handicaps
- Training for implementation of the manual
- Disseminating method of disaster management and enlightenment of awareness
- Discussing disaster prevention measures with community
- Conducting disaster prevention drill with residents and private company
- Prior discussion on how to close evacuation facility when refugees already occupy their houses or temporary housing

8.3 Formation of Evacuation Plan

<i>Responsible Agency:</i>	<i>National Unity & Public Protection Office</i>
-----------------------------------	---

1) Community based Evacuation Plan

Community based evacuation plan will be establish by each Community Organization. The plan should contain explanation regarding location of evacuation area and facilities so residents could easily understand it. In addition, evacuation routes between evacuation and residential areas should be described clearly. In case that the route includes slopes and/or bridges, hence maintenance plan of these facilities should also be included in the plan.

2) Instruction for Evacuation

Evacuation instruction shall be carried out at appropriate time to prevent increasing of number of casualties. Manual containing decision plot and instruction for evacuation implementation should be formulated in accordance with disaster characteristics at each Kecamatan.

8.4 Preparedness of Temporary Housing

<i>Responsible Agency:</i>	<i>SATLAK PB, Public Works Agency</i>
-----------------------------------	--

Temporary housing will be provided to people whose houses became uninhabitable because of disaster. The following preparation should be carried out in advance.

Construction materials and enough space for temporary housing should be confirmed and coordinated with Kota Pariaman Government and private company. Data of land that available for temporary housing should be collected and these data will be update periodically.

Temporary housing manual including criteria of tenant and operational methods will be established in order to prevent any confusion when transfer.

CHAPTER 9 DEVELOPMENT OF DISASTER MANAGEMENT FACILITIES

Supplies are vital for disaster preparedness such as materials and equipments for disaster prevention, rescue activities and restoration, foods and drinking water.

9.1 Supply of Disaster Management Equipments and Goods

<i>Responsible Agency:</i>	<i>Public Works Agency</i>
-----------------------------------	-----------------------------------

Certain necessary materials will be stored as supply for rescue and relief activities after occurrence of disaster.

1) Supply of Equipments and Goods

The following equipments will be kept as supply.

- Electric generator
- Alley light
- Shovel
- Saw
- Rope

2) Supply Location

The above supplies should be store at appropriate evacuation centers such as evacuation facilities and evacuation area. The list of location will be prepared.

9.2 Supply of Emergency Foods and Commodities

Responsible Agency:

Social and Labor Agency, People Welfare Division

Distribution of food and supply should be conducted if large scale disaster occurs and resulted in refugee losing their houses. Therefore, certain amount of foods and commodities should be prepared by Social and Labor Agency of Kota Pariaman.

1) Emergency Food Supply

Rice and canned foods are appropriate for emergency foods. Powdered milk and general medicines will also be prepared for infants, sick people and elderly. When necessary, Social and Labor Agency should cooperate and ask for aid from private company and other relevant companies to provide food.

2) Commodity Supply

Emergency commodities such as blankets, disposable diaper and sanitary goods (soap, toothpaste) should be provided. When necessary, Social and Labor Agency should cooperate and ask for aid from private company and other relevant parties to provide those commodities.

3) Supply Location

Supplies of foods and commodities should not only be stored in SATLAK but also at Kecamatan offices, SAR, Red Cross, and other related offices. Emergency facilities such as schools and mosques could also be use as storage place. Supply location must be disseminated in order to keep on guard in case transportation route get disconnect when emergency situation occurs.

9.3 Supply of Drinking Water, and etc

Responsible Agency:	Regional Drinking Water Company
----------------------------	--

Emergency response and relief activities are assumed to start three days after disaster. If water needed by one person is around three liters per day, hence every person requires at least twelve liters of water to keep as supply to survive for four days without any relief.

1) Equipments Preparation for Emergency Water Supply

At this moment, Kota Pariaman has one water tank truck which will have an important role at the time of disaster. Thus, this truck must be well maintained and checked periodically, and the number of the water tank trucks should be increased. In the meantime, plastic tanks that are already set up in high areas must also be well maintained and prepared to be used as containers for the water distributed by the tank truck.

Emergency water storage tank will be established at evacuation area, particularly in the area that relies on water services or located far from water resources such as well and river.

2) Confirmation of Existing Water Resources

Wells and rivers are very important on emergency situation. Data of locations of these water resources should be collected in advance.

3) Water Supply for Household

Every household will be emphasized to keep certain amount of water in their house as supply when disaster occurs.

CHAPTER 10 MEDICAL TREATMENT AID AND INFECTION DISEASE PREVENTION MEASURES

Supply of medical equipments and medicines will be prepared for medical treatment in time of disaster. Particularly immediate examination of corpse will prevent outbreak of infection disease.

10.1 Development of Activity Base of Medical Treatment

<i>Responsible Agency:</i>	<i>Health Agency</i>
-----------------------------------	-----------------------------

1) Secure Safety of Medical Facilities

As emergency aid station at time of disaster, clinics (PUSKESMAS) and disaster management center which located in each Kecamatan will mainly accommodate heavy injured and pregnant people. Slightly injured victims will be accommodated in temporary facilities such as schools and mosques.

Disaster management center and clinics should secure essential facilities such as electricity and communication device including telephone and radio transmission. In the meantime, PUSKESMAS and disaster management center should also preserve water supply.

2) Coordination with Medical Professionals

In time of disaster, medical professionals such as doctors and nurses must come to emergency aid station immediately. In order to dispatch these medical professionals promptly, the dispatch system of medical manpower will be established in advance by coordination with hospitals and Red Cross.

10.2 Medicine Supply and Medical Equipments

<i>Responsible Agency:</i>	<i>Health Agency</i>
-----------------------------------	-----------------------------

Some medicines and medical equipments should be stored at clinics and disaster management centers as supply in case disaster occurs. To consider the possibility of disconnected transportation as result of disaster, certain amount of materials should be dispersed evenly not only at clinics and disaster management centers but also to mosques and schools.

1) Supply of Medical Equipments

Medical equipments for first aid and health care (injection equipment, disinfectant and sanitary equipments) will also be stored as supply.

2) Supply Location

- Storage of Pharmacy
- Puskesmas/Clinics
- Disaster Management Centers
- Evacuation Facilities (schools, mosques and others)

3) Procurement of Medicines and Medical Equipments

Procurement method of extra medicines and medical equipments should be planned in coordination with Red Cross and SATKORLAC for preparation in case medicine shortage occurs.

10.3 Prevention of Infectious Disease

<i>Responsible Agency:</i>	<i>Health Agency</i>
-----------------------------------	-----------------------------

1) Prevention Activity of Infectious Disease

Tsunami that could occur after earthquake disaster is likely to cause variety of infectious disease. In order to prevent such disease, community must have the right knowledge about the infectious disease. Hence, information about major infectious disease, the sources of outbreak and prevention method will be distributed by brochure and website in advance. The brochures or announcements will be distributed through the printed media, radio, or internet. In addition, examination of drinking water and rat annihilation should be conducted periodically in order to reduce the possibility of outbreak in time of disaster.

2) Material Supply for Prevention of Infection Disease

Clinic and disaster prevention center must have antiseptic and disinfectant supply which will be use to disinfect flooded houses, toilets and wells after disaster occurred

10.4 Preparedness Measures of Corpse

<i>Responsible Agency:</i>	<i>Health Agency & Indonesian Red Cross</i>
-----------------------------------	--

1) Settlement of Mortuary

In case the disaster cause lost of human lives, enough room space for doctors to examine the corpse should be prepared. To avoid any confusion under emergency situation, candidate facilities or buildings should be decided in each Kecamatan.

2) Establishment of Backup System

In case of large fatality caused by disaster, lack of doctors who can examine the corpse might occur. For such case, Health Agency and Indonesian Red Cross will request assistance of medical personnel from other agency, NGO and related private company.

CHAPTER 11 DISASTER MANAGEMENT IN SCHOOL

11.1 Formulation of Evacuation Plan

<i>Responsible Agency:</i>	<i>Youth and Sport Education Agency</i>
-----------------------------------	--

For protection of children and students from disaster, the following measures should be conducted.

- Establishment of security system for students
- Formulation of safety programs at school including communication networks system
- Development of disaster management plan for school

In addition to the above measures, improvement of disaster awareness will be emphasized by targeting teachers, school staff and students' parents.

1) Formulation of Disaster Management Plan for School

Establishment of disaster management committee which consists of principal, vice principal, school manager and others will be emphasized in order to formulate disaster management plan for school.

2) Contents of Disaster Management Plan for School

(1) Person in Charge of Emergency Response Activity at School

Principals are advised to formulate school emergency response headquarter and to define function and responsibility for teachers and school staff.

(2) Backup of Person in Charge for Emergency Response Activity at School

If principle is absence when disaster happens, vice principal or senior teacher could take over the principal's position in disaster management.

(3) Coordination between School Elements

School principal will be advised to establish a system that coordinate teachers and school staff activity at time of disaster. This system also defines communication methods between person, for example by collecting data of telephone number of teachers and staffs.

(4) Communication System

In time of disaster, schools will immediately contact students' parents, PTAs, disaster management center in Kecamatan, and clinic to exchange information. In case disaster occurs when students are in school, instructions of emergency response such as evacuation or waiting in

school will be announced to all students over through loudspeaker or explanation from teachers in each class.

(5) Safety Confirmation for Routes to School

In the case disaster happens at time of school commuting, school routes safety should be confirmed in advance.

(6) Return Route from School

Return route from school for students in time of disaster is planned beforehand. In addition, communication procedure between school and parents should be formulated

(7) Protection System when Student is Isolated in School

School should prepare accommodation when in time of disaster, the students are stranded in school and isolated. Therefore, school must prepare communication equipment to contact student's parents, and prepare supply of drinking water, food, medicine and blanket.

(8) Measures for Safety of School Building and its Facilities

School must have lists of existing buildings and facilities which will be use for periodical security inspection. Important places should have more detailed explanation

(9) Measures of Important Commodity and Dangerous Material

In the case that evacuation from school to other places must be conducted, transportation and transfer system of documents and dangerous materials, such as chemical materials should be defined in advance.

(10) Sanitary Management

For appropriate sanitary management, principal will establish first aid group inside school. Besides supply of first aid equipments, medicine will be prepared and checked regularly.

(11) Psychic Stress on Students caused by Disaster

Disaster might cause not only physical damage but also psychic stress on children and students. In order to cope with the psychic trauma of students due to the disaster, principals will have discussion with school physicians and teachers beforehand.

11.2 Preparedness Measures of School Facilities for Emergency Situation

<i>Responsible Agency:</i>	<i>Youth and Sport Education Agency</i>
-----------------------------------	--

Because schools are often used as evacuation places, schools are required to prepare the facilities and supplies for disaster prevention management. Schools have to secure the facilities, stationeries and teachers for reopening school as soon as possible after disaster.

1) Utilization of School Facilities for Disaster Prevention

(1) Evacuation Facilities

Schools can be used as evacuation facilities. This because schools existence in every area along with its facilities.

(2) Improvement of School Facilities

To smooth school function as evacuation facilities, the following actions will be taken.

- School buildings and facilities will be reinforced against disaster occurrence.
- Electric facilities and oil fuel will be kept as supply and will be inspected periodically

(3) Capacity Building of School as Evacuation Places

Evacuation activity because of disaster will take several days. Therefore, school must conduct preparation in order to be able to handle those refugees. Several preparations must be conducted, especially providing foods and medicines as supplies.

(4) School Management as Evacuation Places

School principals are encouraged to establish school management manual as evacuation places in advance and also other disaster management actions by coordination and discussion with related organization such as disaster management center, Kecamatan office, puskesmas, community groups and PTA.

2) Improvement of School Facilities for Reopening after Disaster

(1) Preparation of School Supplies

To reopen schools immediately after disaster, extra school supplies will be kept in schools.

(2) Guarantee of Temporary Teacher

Disaster might make teachers unable to engage in teaching activity, therefore, principal should anticipate it by contacting temporary teachers or communicate with Youth and Sport Education Agency of Kota Pariaman.

11.3 Disaster Management Education

<i>Responsible Agency:</i>	<i>Development Planning Board (BAPPEDA), Youth and Sport Education Agency</i>
-----------------------------------	--

Teachers and school staffs should received education regarding disaster management in order to be able to take appropriate action under emergency circumstance. This education could be conducted in form of seminar, lectures and distribution of brochure.

Meanwhile, students should also get disaster management education. Proper knowledge about earthquake, tsunami and the causes will be very useful for students to be applied in school and household. Therefore, it is highly recommended that disaster management subject also included in student educational curriculum. Regional Development Agency (Bappeda) coordinates with Youth and Sport Education Agency to design disaster teaching materials to be given at schools.

CHAPTER 12 MEASURES FOR FACILITIES HANDLING HAZARDOUS MATERIALS

In case of earthquake disaster, there might be occurrence of fire outbreak at hazardous materials such as high pressure gas, LPG, LNG, etc., which have potential in creating secondary disasters.

Toxic and Dangerous Substances also have high risk if these materials are spread due to earthquake because the effects will remain for long period of time.

This chapter will discuss regarding appropriate plan for handling these hazardous materials, and avoid occurrence of secondary disaster.

12.1 Preparedness Measures for Hazardous Materials

Responsible Agency:	Police Head (POLRESTA)
----------------------------	-------------------------------

1) Supervision to Storage Facility of Hazardous Materials

- In conducting investigation and examination of allocation or change of facilities storage or hazardous materials, necessary criteria for securing safety of these hazardous materials should be considered and the supervision should be conducted by administrators of the storage facilities of hazardous materials to prevent secondary disasters.
- In preparing for disaster occurrence, examine the manual explaining about the appropriate measures, chemicals substance, etc.

2) Supervision to Storage Place and Handling Facility of Hazardous Materials

- Conduct investigation with permission from person in charge of storage place and facility of handling hazardous materials, and also give guidance regarding appropriate measurement for dangerous material if earthquake occurs.

3) Measures of Small Amount Hazardous Materials

- In Kota Pariaman, there are many small shops selling gasoline for motorbikes along the main roads. In case large scale earthquake disaster occurs, there are risks of occurrence of explosion when the bottles that contained gasoline are broken. Therefore, appropriate measures are very necessary to avoid secondary disaster as result of the hazardous materials.

12.2 Preparedness Measures for LPG, etc

<i>Responsible Agency:</i>	<i>Police Head (POLRESTA), National Unity & Public Protection Office</i>
-----------------------------------	---

1) Investigation of Actual Conditions

- If approval of handling high pressure gas, LPG, LNG, etc. is requested, site investigation of company documents must be carried out to confirm condition of the place when there is request from administrators of the facilities to conduct it in order to guarantee safety of these facilities.

2) Prior Supervision

- To secure installation safety of large scale gas storage tanks which contains flammable gases, hence administrators of the facilities should conduct preliminary inspection to consider earthquake disaster measures on building structures.

3) Supervision for Personal Security

- Supervise the strength of personal security system at time of disaster, supervise formulation of disaster management plan, and also conduct disaster drills.
- To prepare for disaster occurrence, check on manual explaining the right measurements, chemical substance, etc.

12.3 Preparedness Measures for Toxic and Hazardous Substances

<i>Responsible Agency:</i>	<i>Police Head (POLRESTA)</i>
-----------------------------------	--------------------------------------

1) Investigation of Actual Conditions

- If provider company of Toxic and Hazardous Substances, etc. requested Polres (Resort Police) to conduct inspection, hence conduct the investigation in order to understand condition of the place including fire prevention efforts so safety of the facility can be secure.

2) Security Inspection Independently

- Supervise on strength of personal security system in case of disaster occurrence, as well as supervise on establishment of prompt alert system to fire department office if Toxic and Hazardous Substances leak or outflow, and inform surrounding neighborhood to evacuate.
- To prepare for disaster occurrence, check on manual explaining the right measurements, chemical substance, etc.

CHAPTER 13 *PREPAREDNESS FOR TSUNAMI DISASTER*

Kota Pariaman located in the western coast of West Sumatera Province. The length of the coastal line of Kota Pariaman is about 12.7 km, which is a slope slightly sand field with height of 2 – 4m. 14 out of 71 existing villages/kelurahan are located in coastal area.

In the coastal area there are fishermen communities who commonly work as fish catchers. Some of the coastal areas are used as boat resting place. Besides that, there are some shore tourism objects which are visited by many tourists where they can find some restaurants, coffee shops and traditional food shops.

In off-shore of Kota Pariaman, there are 6 small islands. These islands are uninhabited, only some fishermen visit those places for fishing and resting their boats when the weather is bad in sea.

Tsunami caused by topographical changes of the sea floor as the effect of earthquake that create a long wave and spread to all direction. Not all earthquakes can cause Tsunami, but when Tsunami occurs it will cause serious damages and all buildings along the coastal area will be destroyed just like what happened in Nangroe Aceh Darussalam and North Sumatera in December 26th 2004 and East Java Province in 1994.

Kota Government and related agency/institution should conduct the following measures as best as possible to prevent damages because of tsunami.

13.1 Estimation of Tsunami Hazard in Kota Pariaman

<i>Responsible Agency:</i>	<i>National Unity & Public Protection Office</i>
-----------------------------------	---

Based history record, there was no tsunami ever occurred in Kota Pariaman. However, Kota Padang which located at 56 km south has experienced tsunami in year 1797 and 1883.

13.2 Tsunami Information Transmission Framework

<i>Responsible Agency:</i>	<i>Transportation, Communication and Information Agency</i>
-----------------------------------	--

1) Development of Tsunami Information Transmission System

In order to disseminate tsunami warning promptly and accurately to the community, hence tsunami warning system such as siren network using radio transmission will be installed in coastal area.

2) Establishment of Tsunami Information Transmission System

Each agency related to disaster management must confirm route and device of tsunami information transmission. Particularly, information transmission during night and/or in holiday should be clarified and familiarized.

3) Explanation on the Meaning of Tsunami Warning

In order to secure the exact transmission of tsunami warning and encourage the proper action, the meaning and contents of warning will be publicized to related parties and residents.

13.3 Preparation of Tsunami Hazard Map

<i>Responsible Agency:</i>	<i>National Unity & Public Protection Office</i>
-----------------------------------	---

In order to take effective tsunami measures, Tsunami Hazard Map should be formulated. Based on Tsunami Hazard Map, the expected dangerous area and common knowledge of Tsunami will be informed to community through Internet, leaflet and pamphlets.

Based on Tsunami Hazard Map and Tsunami Risk Map, the following matters should be executed.

1) Selection of Evacuate Difficult Area

Inundated area as result of tsunami that has difficulty to evacuate to safe place should be selected.

2) Recognizing Resident Who have Difficulty to Evacuate

People, including tourist, that has difficulty to evacuate in the area chosen above should be supervised.

3) Making / Publishing Tsunami Hazard Map

Tsunami Hazard Map reflected problems at point 1), and 2) above should be informed to community.

13.4 Formulation of Tsunami Evacuation Plan

<i>Responsible Agency:</i>	<i>National Unity & Public Protection Office</i>
-----------------------------------	---

Since tsunami in Aceh in 2004, Kesbangpol Linmas Office has socialized Tsunami Disaster Prevention to community. There are some villages that already form Disaster Awareness Committee. And based on permanent procedure for disaster management, they already formulated their evacuation plan at each Kecamatan.

Evacuation place decided based on tsunami disaster hazard map and procedure of information sharing regarding tsunami lunge should be immediately planned so when tsunami warning is announced, residents could evacuate immediately before tsunami occurs.

In addition, giving aid voluntarily is also necessary although without warning from disaster prevention related agencies. Thus, immediate evacuation to higher places should be introduced to community who reside at tsunami hazard areas. Direction board to evacuation area will be installed on coastline, evacuation places, and evacuation route, which are assumed to suffer damage caused by tsunami.

Companies located near coastline will be urged to formulate their own evacuation plan to facilitate evacuation process in groups and voluntarily.

13.5 Secure and Designate Evacuation Facilities

<i>Responsible Agency:</i>	<i>Police Head (POLRESTA) and Police Syndic (Pol. PP)</i>
-----------------------------------	--

Refugee facilities for tsunami will be designated with cooperation with public accommodation and establishments in disaster hazard area in order to ensure the security of residents who lives there.

When designating and ensuring the refugee facilities, numbers of people who has difficulty with refugee, evacuation capacity and seismic capacity of the selected facilities should be considered.

13.6 Knowledge Dissemination regarding Tsunami

Responsible Agency:	<i>Transportation, Communication and Information Agency, City Government Public Relations Division</i>
----------------------------	---

The following information regarding tsunami should be disseminated to community:

- Tsunami will come after earthquake.
- When earthquake occurs, people must immediately evacuate to higher place even without warning.

1) Knowledge Dissemination to Community

Most community often has incorrect knowledge of Tsunami because there are only few people who actually experienced it. Therefore, the correct knowledge of Tsunami will be disseminated to community through every media such as leaflets, pamphlets, or lectures.

2) Knowledge Dissemination to Tourists

In Kota Pariaman, some tourist areas are located in coastal areas where there are some food and beverage shops. Many tourists visited these places, especially on Sundays and holidays so they should be given correct information regarding Tsunami.

3) Tsunami drill

Tsunami drill including information sharing, evacuation guidance and evacuation route should be conducted by related disaster prevention agency/organization, local residents and companies regularly.

CHAPTER 14 DISASTER MANAGEMENT CAPACITY DEVELOPMENT OF URBAN STRUCTURE

When large scale earthquake occurs, building collapse is likely to occur. At the same time, roads and infrastructure along the area are probably broken, inundate or lunge by tsunami. Therefore, structure of densely populated areas should be strengthened against earthquakes.

14.1 Guidelines towards Disaster Safe Urban Structure

<i>Responsible Agency:</i>	<i>Spatial Plan Agency</i>
-----------------------------------	-----------------------------------

Structure of densely populated area needs to be strong enough against earthquake in order to avoid residents to be panic when disaster happens. Therefore development of quake-resistance construction and efforts to secure open spaces are vital steps to be done.

1) Disaster Prevention Measures for Buildings

Many building collapsed when large-scale earthquake happens due to vulnerable construction. The collapsed buildings might cause fire as secondary disaster and affect to urban function such as infrastructure. For prevention of these damages, disaster prevention measures for buildings are established.

(1) Disaster Prevention Measures for Existing Buildings

In build up and densely populated area, safety inspection and appropriate advices will be conducted such as inspection of building structure, disaster prevention equipments, fire prevention equipments and evacuation route. In particular, renovation for disaster prevention in densely populated and vulnerable areas is also encouraged. Besides, renovation of buildings in surrounding area of evacuation places and routes area are considered to be carried out.

(2) Disaster Prevention Measures for New Buildings

In case of construction for new buildings, the owner and contractors are advised to build the houses or buildings according to appropriate construction methods of earthquake resistant.

(3) Disaster Prevention Measures for Public Buildings

Public buildings such as schools, mosques, hospitals and clinics (puskesmas), which are expected to be base of emergency activities, should conducted seismic performance evaluation and/or earthquake resistant reinforcement. In addition, backup facilities for functional disorder of lifelines are considered.

(4) Disaster Prevention Measure from Falling Objects such as Windowpane

To prevent falling objects including windowpane, roof tiles, signboards and advertising displays because of earthquake, the owners will be advised to repair it to become earthquake-resistant.

(5) Disaster Prevention Measures from Collapsed Brick Wall

Brick wall is likely to be collapsed by earthquake happens. The owners of such brick wall and house with bricks are advised to maintain, reinforce and reconstruct the wall. Explanation on how to check structure and safety of building wall are emphasized.

2) Disaster Prevention for Open Space

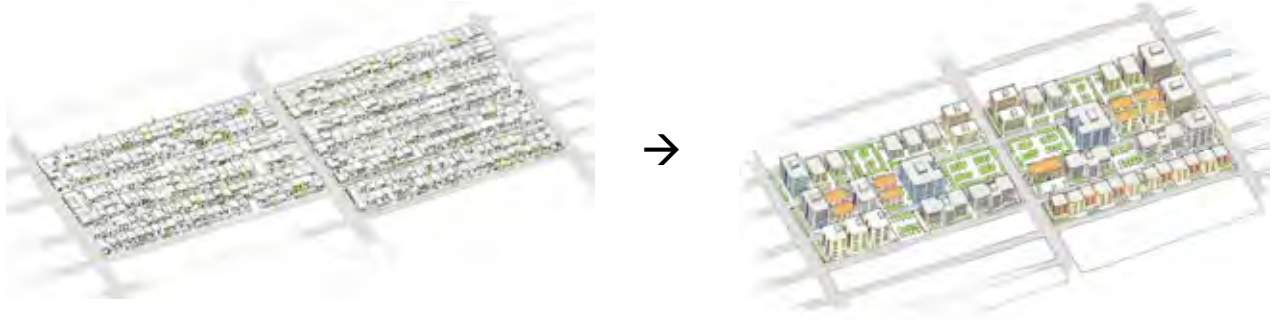
Open spaces including parks and green spaces serve as not only for recreation and relaxation but also evacuation places under emergency circumstance. In this sense, open spaces have the most important role in the disaster prevention measures. Therefore, improvement of open space is one of the necessary actions to increase resistance against disaster. Open spaces which are difficult to find in built up area should really be preserved.

3) Improvement of Build-Up Area

In order to avoid casualties and large-scale suffering from disasters, urban area should have good planning against natural disasters. In particular, build-up area is likely to be difficult for evacuation and smooth relief activities due to high-dense buildings and lack of evacuation places. Hazardous build up area will be clearly determined by using hazard map. In addition, appropriate size and number of open space should be determined and enlisted for evacuation purposes.

Redevelopment of dense area

Redevelopment of dense area is one of good but drastic measures for strengthening the city against disasters. With redevelopment, previously dense area, full with high buildings and unorganized can be redesigned and reformed to be safe area. People who lived in risky area will be relocated and placed in safe area. However this solution requires huge cost and long period of time, especially to obtain consensus from all residents. Besides, it also has high social impact, hence requires a careful study before implementation.



Initial Condition

Redeveloped

Source: JICA Study Team

Figure 14.1.1 Image of Area Redevelopment

14.2 Disaster Mitigation at Urban Area

<i>Responsible Agency:</i>	<i>Spatial Plan Agency, Public Works Agency</i>
-----------------------------------	--

Our life has come to rely upon a variety of services such as transportation, communication, infrastructure that could make daily life easier. These services comprised of integrated system e.g. a transportation service needs communication and electricity. Therefore damage of one service may cause the whole service system that is needed by society to be stopped. To avoid these errors at emergency situation, the following disaster mitigation measures are considered important.

1) To Secure Lifelines

(1) Backup System

Owners of private company and managers of institute and organization related to lifeline service are emphasized to improve their backup system, to introduce multiplex system, and to secure emergency electric power source.

(2) Cooperation between Various Service Companies and Institutes

In order to mitigate damages of lifeline caused by earthquake and secondary disasters and immediate recovery, mutual help among related companies and institution is necessary. Framework will be established among these related organizations including government agencies, institutes, and private companies.

(3) To Secure Alternative Way

Each household and private company should prepare alternative measure if damage happens to lifeline.

2) To Minimize Confusion inside Buildings

(1) Evacuation Guidance System

Large-size buildings such as department stores and office buildings are encouraged to establish an evacuation guiding system individually in order to mitigate confusion under emergency circumstance.

(2) Education for Staff regarding Evacuation Guidance Method

Managers and owners of shops and office buildings are advised to educate their staff about evacuation guidance so they could take an appropriate action when disaster occurs.

(3) Information for Building Users

Managers and owners of shops and office buildings are emphasized to notice for building users and customers about disaster prevention measures such as to put signboards of emergency exit in their buildings.

(4) Information by Manager and Building Owner

Managers and owners of buildings are encouraged to make disaster prevention plan individually.

3) To minimize Confusion on Road

(1) Information for Vehicle User

In order that car users and drivers can take an appropriate action under emergency circumstance, they should be given information/knowledge.

(2) To Reduce Street Parking

Under emergency situation, on street parking may block transportation of emergency vehicles and evacuation. Therefore, special emergency transportation route should always be clear and restricted for street parking.

14.3 Sediment Disaster Mitigation

<i>Responsible Agency:</i>

<i>Spatial Plan Agency, Public Works Agency</i>
--

Direct shock of earthquake could caused buildings to collapse or damaged. The damage could also caused by false construction or vulnerable foundation. Thus, damage inflicted by earthquake is greatly influenced by characteristics of the foundation.

Earthquake could cause form alteration on building foundation, slope slide, houses collapsed, etc. In order to prevent such damage as much as possible, related organizations/agencies should conduct the following measures.

1) Survey at-risk areas

Related organizations/agencies must conduct investigation and try to understand the actual condition of disaster hazardous places, the use of land also housing and roads, etc, that could be affected by disaster, so in the future the affect of disaster could be avoid or at least minimized. The required data will serve as a base to issue evacuation warning and such. Moreover, building administrators, occupants, owners, and construction should be given information on administrative guidance regarding improvement of disaster prevention measures improvement orders etc.

2) Disaster prevention activities

The following matters should be carried out for disaster prevention after the collapse of a steep slope, etc.

- (1) Give residents complete information of at-risk areas, and educates them about the necessity to make detailed planning and the effect.
- (2) Educate residents so they do not carry out any dangerous activities that could induce landslide, etc., and encourage them to observe steep cliff to obtain image of the present conditions.
- (3) Encourage residents particularly who live at at-risk areas to check the location of known risk spots, evacuation areas and routes.
- (4) Perform Landslide Disaster Prevention Patrol once every year in cooperation with local police department and local residents.

3) At-risk locations for Landslide

Patrols in areas that are typically at-risk for landslide disaster and issue notification to all people resides in the area also give information on disaster prevention. Moreover, residents should also inform about the nearest evacuation areas, and advised to take refugee in safe place.

14.4 Earthquake related Fire Mitigation

<i>Responsible Agency:</i>	<i>Firefighter</i>
-----------------------------------	---------------------------

Fire caused by earthquake is likely to break out at several places at the same time, while firefighter brigade could not come to all locations due to lack of facility and manpower. Therefore preliminary fire fighting by residents is vital to mitigate the occurrence of secondary disaster.

1) Enhancement of Community Organization for Disaster Risk Management in Fire Fighting

Community Organization for Disaster Risk Management is encouraged to improve their capacity of fire fighting.

2) Inspection for Fire Prevention

Facilities which easily burn such as chemical factories should conduct inspection as preparation measure of disaster management plan in order to avoid such fire if earthquake happens.

3) To Prevent Fire Spreading

(1) Enhancement Capacity of Fire Fighting

To improve capacity of fire fighting including firefighter and their facilities should be improved in order to function well. In addition, if water is unavailable caused by broken pipe as result of earthquake, improvement of water tanks for quake resistance is necessary.

(2) Fire Defense and Control Plan

To prevent fires when earthquake occurs and to promote smooth evacuation for residents, the fire defense and control plan should be prepared.

- Cooperation development between firefighter and LWLPs
- Confirm locations of water resource to extinguish fire, such as water tanks, rivers and water channels

CHAPTER 15 SAFETY MEASURES FOR PUBLIC FACILITIES, ETC

Damages of public facilities from earthquake might disturb emergency activities such as evacuation, fire fighting and medical treatment. Especially damages of lifeline could cause strong negative impacts on the civil life. To mitigate these impacts, related agencies should take appropriate actions as follows.

15.1 Road Facility Measures

<i>Responsible Agency:</i>	<i>Public Works Agency</i>
-----------------------------------	-----------------------------------

Road facilities are important not only for emergency activities such as evacuation and fire fighting but also for all activity in recovery period such as transportation of relief supplies and materials for reconstruction. For this, roads and facilities development plan should include the contents for upgrading their security.

1) Improvement of Emergency Roads

In terms of disaster prevention, road network designated as emergency road shall reflect upon land use plan and master plan in Kota Pariaman. These roads should be repaired to be strong road network against earthquake.

- Roads which connect to evacuation place and major places for relief activities
- Roads which could block fire spread caused by earthquake

2) Opening Emergency Routes

In case that road has some damages from earthquake and hampered emergency activities and transportation of supplies, hence, designated roads are given priority to be reopened. The following roads will be applied for priority.

- Roads which are designated as evacuation roads
- Roads which connects to hospitals and clinics (puskesmas)

3) To Keep Safety of Emergency Routes

- To designate earthquake-resistance roads as emergency route to prevent/mitigate damages
- To consider alternative routes
- To improve electric poles and advertisement display along emergency routes in order to avoid obstacle at roads
- To reduce on street parking in order to prevent obstacle by cars and vehicles

4) To Keep Safety of Bridges

Inspection of the bridges especially those exist on the emergency route will be carried out regularly. In case these bridges collapse or drift away, the reconstruction will be conducted with high priority.

5) To Keep Emergency Materials and Manpower

For preparing earthquake, supplies of emergency materials need to be kept with cooperation of another organizations and private sectors in advance. Besides to avoid inadequate of manpower for relief and recovery activities, a request system for asking other organization will be established.

15.2 River Measures

<i>Responsible Agency:</i>	<i>Public Works Agency</i>
-----------------------------------	-----------------------------------

To prevent secondary disasters caused by earthquake such as flood, the rivers in Kota Pariaman will be applied with appropriate safety measures.

15.3 Important Structure Measures

<i>Responsible Agency:</i>	<i>Public Works Agency</i>
-----------------------------------	-----------------------------------

Public structures which play an important role as base camp for emergency response activities and evacuation facilities in time of disaster should be prevent from total collapse to be able to maintain necessary function. Therefore, public structures that require appropriate level of earthquake resistance must be maintained or upgraded.

1) The Important Structures are as follows:

- Public Hall Building
- Government Offices
- Hospitals, Clinics (puskesmas), Social Welfare Center
- Schools
- Lifeline
- Other Important Buildings

2) Protection with Earthquake Resistance Construction

Structures listed above have important roles for emergency response activities. These facilities are required to prevent form collapse against earthquake and tsunami. Therefore, inventories of these facilities must be prepared and necessary strengthening measures should be carried out.

3) Location Investigation of Important Structures

If these important structures are located in tsunami hazard area or steep slope area with risk of landslide due to earthquake, try not to designate these important structures as base camp of emergency response activities or evacuation facilities.

CHAPTER 16 SECURE SAFETY OF BUILDINGS

16.1 Secure Safety of Private Buildings

<i>Responsible Agency:</i>	<i>Public Works Agency</i>
-----------------------------------	-----------------------------------

Human death and casualty is caused by the collapse of the buildings at time of earthquake disaster. Therefore the most important and effective issue for mitigating number of casualties is preventing the collapse of major dwelling buildings.

1) Dissemination of Disaster Management Knowledge

- Most general dwelling houses in Kota Pariaman are constructed by amateur builder who is inexperienced in structure engineering. When thinking about this respect the residents themselves should have practical knowledge and skill for construction in order to make appropriate earthquake-resistant dwelling buildings. For this purpose Kota Pariaman Government is responsible to disseminate disaster prevention knowledge i.e. building structure method and basic information of earthquake-resistant design method.

2) Inspection on Existing Dwelling Buildings

- Related Agency in Kota Pariaman will draw up an implementation outline of building inspection for existing dwelling buildings in Kota Pariaman.
- Related Agency in Kota Pariaman will carry out the building census investigation in order to have basic knowledge about the distribution of building structure type and building material type of all dwelling buildings in Kota Pariaman. Kota Pariaman Government will promote the implementation of building diagnosis on every dwelling building by the order of priority according to level of danger which becomes clear by the result of building census and hazard map

3) Reinforcement of building structure confirmation and permission system

- Kota Pariaman Government will establish the building structure confirmation and permission system. Therefore only buildings which have efficient strength may be given construction permission. Related agencies will check the building condition at necessary timing and give effective guidance to builder when improper construction is found.

- Kota Pariaman Government will cancel the Building Permission License if the builder does not make improvement. Legal compulsion should be applied when building constructor does not acknowledge the guidance and caused remarkable danger for the surrounding area.

4) Earthquake Retrofitting and Strengthening in Existing Building

- Related Agency in Kota Pariaman should add facility and strengthening existing buildings with earthquake-resistance construction when discover problems during building inspection.

5) Financial Support for Disaster Prevention Effort

- Related Agency in Kota Pariaman should make support plan for retrofitting and earthquake strengthening existing building. The Agency should inform this system widely in order to encourage self-motivating disaster prevention works.
- Related Agency in Kota Pariaman will make best effort to achieve financing system for earthquake-resistance construction for individual who has a concrete plan to build earthquake-resistance construction.

16.2 Secure Safety of Public Buildings

<i>Responsible Agency:</i>	<i>Public Works Agency</i>
-----------------------------------	-----------------------------------

Medical facilities and school buildings should be completely protected because those facilities plays important role when large disaster occurs (i.e. emergency place, relief, and shelter place). Therefore Related Agency in Kota Pariaman should take following measures in order to prepare a strong institutional-building at the time of disaster.

1) Investigation on Existing Public Buildings

- Related Agency in Kota Pariaman will promote establishing an earthquake-disaster mitigation plan for the facilities, which have important role for medical purpose and shelter base, and inspect them. If unqualified building is found, order and guidance to implement improvement will be given

2) Earthquake retrofitting and earthquake strengthening in existing institutional-building

- Related Agency in Kota Pariaman will draw up an implementation outline for inspection of government building in Kota Pariaman.
- Manager in each institutional-building will investigate disaster mitigation capacity of their building utilizing method that stipulated in implementation outline. Execution of the earthquake strengthening is scheduled when there is lack in the disaster mitigation capacity or earthquake-resistance of the building.
- Related Agency in Kota Pariaman should completely guide manager in each institutional-building to install important facilities (i.e. Fire protection system on disaster prevention, alarm equipment, refuge accommodation etc). Management system that enable mutual cooperation between each different management authority will be established if some usages are set for single facility and management authority has divided
- Related Agency in Kota Pariaman should organize activity plan of emergency aid monitoring and guide refugees who take shelter after disaster occurred.

3) Function Reinforcement of Institutional Utility

- Reaction ability towards large disaster depends on whether the emergency response activity is promptly implemented or not. Related Agency/organizations in Kota Pariaman should check the required equipment and existing capacity of each institutional-utility which will

become bases of emergency activities of medical treatment relief and shelter accommodation. If those utilities are insufficient, hence plan to reinforce the function will be established.

CHAPTER 17 SECURE SAFETY OF LIFELINE

Utilities referred as “Lifeline” such as Water, Electricity, Telecommunication, and etc. are critical system of our life. Disaster will cause a very wide effect. If these utilities are damaged because of earthquake and tsunami disasters, urban malfunction will occur, and the effect is considered to be extremely large.

Therefore, to minimize damages to these utilities, the following measures should be conducted:

17.1 Coordination Enhancement among Lifeline Provider Companies and Kota Government

<i>Responsible Agency:</i>	<i>Social & Labor Agency, Regional Drinking Water Company, National Electricity Company, TELKOM</i>
-----------------------------------	--

Lifeline provider companies and City Government should conduct good coordination to perform facility recovery with high priority such as medical, social welfare facilities, and evacuation facilities, etc. To improve coordination method, City Government and these companies should formulate a better method.

17.2 Water Supply Facility

Responsible Agency:	Public Works Agency, Regional Drinking Water Company
----------------------------	---

Water is something indispensable for daily life of residents. Therefore, water supply facilities must take measures to avoid damages from earthquake and rain and storm related disasters. To build disaster resistance water facilities, continuous efforts must be taken in the future.

For water supply, if electric supply stops for long period of time, water should be supplied by using back-up generator to pump the water. However, since the power is insufficient, capacity of water distribution will decrease. Therefore, increase of water stock in each water reservoirs is necessary. Moreover, even though parts of distribution pipes are damaged by disaster, to supply water smoothly, multiplex routes are promoted to be developed.

Furthermore, depends on weather condition, designated risk points (Information from Hazard Maps) requires patrol for inspection during bad weather. This inspection is useful to inspect whether dangerous situation occurs or not. In case of dangerous situation, hence surrounding residents should be informed so no one will enter the dangerous area. Besides, this inspection is also useful to decide the needs of evacuation for surrounding residents.

1) Existing Condition

(1) Water Purification Plant

River water should be processed first before it is usable, however still most part of the water cannot be drink directly. Therefore residents use mineral water as drinking water. At present drinking water supply at Kota Pariaman still highly depended on water source at Kabupaten Padang Pariaman area. This is because Kota Pariaman is located near coastal area and surrounded by Kabupaten Padang Pariaman.

Other data and information regarding clean water are as follows:

Water Source: Currently there are 4 water sources, they are:

- Gravitasi Lubuk Bonta Water Source with capacity of 5 liter/second and operated for 24 hours. This water source have function to serve the needs of community in South and Middle Kecamatan Pariaman.
- Bor Daerah Well which located at Kelurahan Jawi-Jawi (Pariaman Tengah) with capacity of 19 ltr/second

- River pump in Limau Purut (Kabupaten Padang Pariaman area).

Pipe Length: Pipe length of clean water distribution in Middle and South Pariaman is 67561 m, while in North Pariaman is 24724 m

Amount of Customer: 3437 units (one unit serve 5 people)

Public Hydrant: there are 9 units of hydrant with capacity of 100 people/unit at North Pariaman.

(2) Water Reservoir

Water reservoir was built to control volume of water supply and to preserve water pressure and volume in order to have a smooth distribution. Kota Pariaman Government should have build water reservoir with enough capacity for the citizens. However, at present we still use 1 reservoir that belong to Kabupaten Padang Pariaman at Limau Purut with capacity of 100 m³

(3) Pump Station

Pump Station is constructed for distributing purified water at water reservoirs to higher locations. However, there is no pump station in Kota Pariaman.

(4) Water Pipe

No data yet.

2) Mitigation Plan

In order to implement water supply smoothly in case of disaster occurs, strengthening on the main facility will be undertaken as follow-up action from disaster management efforts.

(1) Disaster Safe Facility

In order to keep clean water supply safe from disaster, hence old pipes should be replaced and the structure should be strengthened. Moreover, on emergency situation, emergency water tank should also be installed. To supply clean water normally even when disaster occurs, construction of disaster safe facility will be strived continuously.

(2) Installation of Backup Generators

Electric malfunction will cause stoppage of clean water supply, therefore, to secure continuous water supply, backup generators should be installed at major facilities of clean water. However, after installation periodical maintenance and check-up should be conducted to confirm the generators can still function well.

(3) Equipments Supply

In case of stoppage of water supply from pipe network, clean water should remain distributed by using tank trunk. Therefore, the water tanks should be provided as back up and should be maintained and checked periodically.

(4) Secure Emergency Water Resources

There are many wells in Kota Pariaman, therefore, these facilities must be maintained well for usage at emergency situations.

(5) Preparation of Disaster Management Plan

Preparation of individual disaster management plan starting from pre-disaster, emergency response, and post disaster is strongly encouraged.

17.3 Electric Facility

<i>Responsible Agency:</i>	<i>National Electricity Company</i>
-----------------------------------	--

To prevent the occurrence of secondary disaster during recovery process at electric network facilities, it is necessary to announce it to citizens in disaster affected area who become subject to recovery impact also to confirm their safety from damaged electric network, also information sharing among related organizations and companies should be implemented.

Moreover, in order to prepare for actual damages due to disaster, it is necessary to attempt to secure resources and equipments so later it will be able to implement recovery works, periodical disaster management drills on recovery and communication should also be implemented.

1) Existing Condition

- Kota Pariaman owns electric facility which is PLTA Singkarak located at Asam Pulau Kecamatan Lubung Alung. There is one (1) transformer station with two (2) transformers with capacity 1 x 10 MVA and 1 x 20 MVA at Lubunk Alung (Kabupaten Padang Pariaman) to distribute electricity. Then there are three (3) transfer stations in Pariaman, Lubuk Alung and Sicincin to lower tension from 10 MVA and 20 MVA to 20 kV. So there is only one (1) transfer station for Kota Pariaman. At present, length of distribution network for Kota is 539,578 m, with 286 units of distribution transformer and 18,027 KVA of attached capacity.
- Each electric facility is inspected from normal time, and operation and maintenance of facilities are also implemented.

2) Mitigation Plan

To mitigate damage to facilities and secure stable electric supply, following measures are promoted in the future.

(1) Electric Supply Facilities

Electric supply facilities are inspected periodically, and strive for their security. If level of transformer station cannot be constructed higher than the water stage, level of foundation should be increased. If there is risk of flooding, drainage facilities should be installed.

(2) Preparation of Disaster Management Plan

Preparation of individual disaster management plan including pre-disaster, emergency response and after disaster is strongly promoted.

17.4 Telecommunications Facility

<i>Responsible Agency:</i>	<i>TELKOM</i>
-----------------------------------	----------------------

Disaster prevention measures should be conducted to guarantee disaster-secure telecommunication facility. Safety of organizations and companies that related with emergency response activity, evacuation place and facilities, also temporary telephone facilities for emergency necessity should be confirmed. In addition, staff mobilization for recovery work must also be conducted. To guarantee smoothness of the work, staff with required specification should be determined and their safety should be guaranteed. Necessary training and drills for these staffs must also be continuously implemented.

If large scale disaster occurs, telephone line will be congested, and it will be very difficult to connect. Therefore, special connection line should be established for emergency and important numbers, so those numbers can still be connected despite the congested line.

1) Existing Condition

- There is no landline telephone company in Kota Pariaman, however there is communication service with operator in Kota Padang, which is Telkom. Telkom controls 100% of telecommunication services in Kota Pariaman.
- There is no cellular telephone company in Kota Pariaman, however almost entire area of Kota Pariaman can be served by cellular telephone network from companies located in Kota Padang such as Telkomsel, Indosat, Pro XL and Esia. The biggest cellular telephone service is Telkomsel. There are 14 towers which already operated.
- Each telecommunication facility is inspected from normal time, and operation and maintenance of facilities are also implemented.

2) Mitigation Plan

To mitigate damage to facilities and secure stable telecommunication, following measures are promoted in the future.

(1) Inundation Prevention Measure

The usage of watertight doors is one alternative to avoid from water inundation in telecommunication facilities at time of flood or tsunami.

(2) Secure Communication Means when Disaster Occurs

To prevent from disconnection of telecommunication when disaster occur, multiplex communication route should be promoted by combining usage of various types of communication devices such as mobile phones, satellite phones, walkie-talkies, etc.

(3) Preparation of Disaster Management Plan

Preparation of individual disaster management plan including pre-disaster, emergency response and after disaster is strongly promoted.

Section 3 : Emergency Response

(Disaster Emergency Response Plan)

When devastating earthquake disaster occurs, variety of damages such as buildings collapse, roads and bridges damaged, landslide, lifeline damaged, tsunami, crack soil, and fire are likely to occur.

This Disaster Emergency Response Plan is emergency response measures which should be implemented by Kota Pariaman Government and other related organizations in order to handle variety of damages promptly and effectively.

CHAPTER 1. EMERGENCY RESPONSE SYSTEM

In case of disaster occurs such as ground elevation and tsunami, in order to mitigate damages, Kota Pariaman Government will establish emergency response system with the following procedures in order to implement the activities promptly and precisely

1.1 Initial Response System (IRS)

<i>Responsible Agency:</i>	<i>Mayor Office</i>
-----------------------------------	----------------------------

In order to response disasters accurately, prompt response from Kota Pariaman Government together with other related agencies is very important for next emergency response activities. Initial Response System is defined as response that carried out until Rupusdalops (Emergency Response Headquarter) PBP is established. This System should be ready for 24 hours to receive weather information from BMG.

1.2 RUPUSDALOPS PBP (Emergency Response Headquarters) and SATLAK PBP

Responsible Agency:	Mayor
----------------------------	--------------

When disaster occurs or in high risk of occurrence, to implement disaster emergency response, Rupusdalops PBP will be established and SATLAK PB meeting will be hold.

1) Rupusdalops PBP

(1) Establishment of Rupusdalops PBP

A. Criteria for Establishment of Rupusdalops PBP

Criteria for establishment of Rupusdalops PBP
1. More than 5 MMI earthquake scale is identified and announced in Kota Pariaman region by BMG.
2. When disaster caused by devastating earthquake occurred in Kota Pariaman Region, and MMI scale can not be confirmed
3. When BMG announced occurrence of Tsunami in Kota Pariaman Region and surrounding area
4. When Mayor decided to do so

B. Substitution in case of Absence of Mayor

If Mayor is absent, the following are persons who will substitute the Mayor's position.

1. Vice Mayor
2. Assistant of Administration and Development
3. Head of Kesbangpol Linmas Office

C. Announcement of Establishment of Rupusdalops PBP

Mayor or Substitution, when Mayor is absent, will immediately report to head of SATKORLAK PB of West Sumatera Province and related agencies regarding establishment of Rupusdalops PBP. Announcement of establishment of Rupusdalops PBP to community will be done through mass media and other media.

(2) Rupusdalops PBP

Rupusdalops PBP is consists of related agencies around Kota Pariaman Government based on criteria described in “Disaster management and refugees handling established procedure (Protap PBP) of Kota Pariaman”.

From time to time, type of emergency response will change, thus organization should be re-formulated in order to handle emergency response activities.

A. Organization and Role of Rupusdalops PBP

Organization and role of Rupusdalops PBP is based on Protap PBP.

B. Obligations of Substitution of Head of Rupusdalops PBP

Head of Rupusdalops PB is Mayor, however, if Mayor is absent or cannot execute his duties, all Mayor’s roles will be substituted by the following order;

- | |
|--|
| 1. Vice Mayor |
| 2. Assistant of Administration and Development |
| 3. Head of Kesbangpol Linmas Office |

C. Capacity Building of Cooperation with Related Agencies

Rupusdalops PBP has to share disaster information and implement emergency response promptly with good coordination and involving military, police, Indonesian red cross, lifeline provider companies, etc.

D. Coordination with SATKORLAK PB of West Sumatera Province

If disaster level is small, it is not necessary to establish Rupusdalops PBP in Provincial level. However, if the disaster cannot be handled within Kota level, Mayor should request for assistance to Province.

In order to have efficient coordination with SATKORLAK PB, necessary information should be transmitted to SATKORLAK PB.

(3) Location of RUPUSDALOPS PBP

RUPUSDALOPS PBP is established at following locations;

Priority	RUPUSDALOPS PBP Location
1	Conference Room at Mayor Office
2	Conference Room at Mayor Residence
3	Accessible Special Room anywhere

- If large-scale disaster occurs and these designated indoor buildings cannot be used, Independent square or sport plaza could be used to establish RUPUSDALOPS PBP. In this case, tents are prepared for emergency use.
- If scale of disaster is relatively small and far from City Government, RUPUSDALOPS PBP could be established near disaster location.

2) SATLAK PB Meeting for Emergency Response

(1) Holding SATLAK PB Meeting regarding Emergency Response

When Rupusdalops PBP is established, SATLAK PB meeting will be held to decide basic strategy for emergency response measures.

(2) Composition and Operational of SATLAK PB Meeting regarding Emergency Response

A. Composition of SATLAK PB Meeting regarding Emergency Response

All member of SATLAK PB will attend SATLAK PB Meeting regarding Emergency Response.

B. Participation from Related Organizations

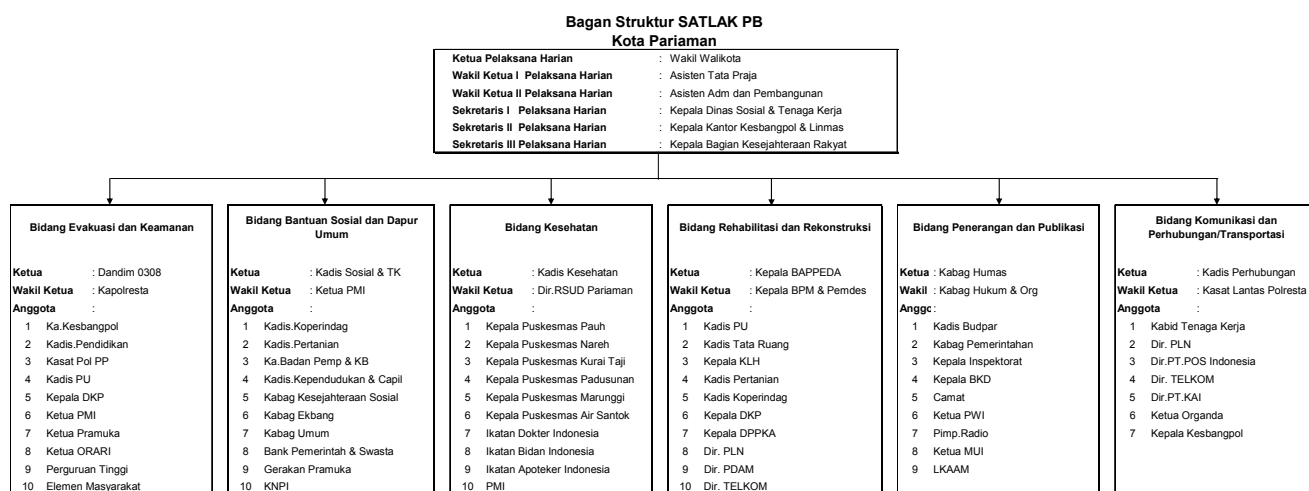
If necessary, all related organizations not included as SATLAK PB member are requested to participate in SATLAK PB Meeting, such as lifeline provider companies, police, etc.

3) Dismissal of Rupusdalops PBP

1. Mayor will dismiss Rupusdalops PBP when disaster risk is no longer exist, or rehabilitation activity is almost completed
2. Mayor will inform to Head of SATKORLAK PB on dismissal of Rupusdalops PBP, and also inform the community through mass media and other media
3. After dismissal of Rupusdalops PBP, when emergency response activity is still necessary, Mayor will order to continue the implementation based on Rupusdalops PBP.

4) Organization of Rupusdalops PBP

(1) Organization Chart of Rupusdalops PBP



(2) Role of Each Agencies in Rupusdalops PBP

City Government

Agencies	Chapter	Sub Chapter	Tasks
Mayor	1	1.2	Rupusdalops PBP (Emergency Response Headquarters) and SATLAK PBP
	1	1.3	Mobilization of Rupusdalops PBP Staff
	11	11.1	Disaster Response Activities by Citizens
	11	11.2	Disaster Response Activities by Community Groups
Mayor Office	1	1.1	Initial Response System (IRS)
Mayor, Camat and Head of Village	5	5.3	Evacuation without Receiving Warnings
SATLAK	5	5.2	Measures after Tsunami Occurs
BPM	18	18.3	Construction of Temporary Housing and Emergency Restoration of Damaged Buildings
Cleanliness and Environment Agency	15	15.5	Burial or Cremation of Dead Casualties
Environment Office	9	9.2	Removal Officer
	9	9.4	Temporary Storage Sites for Debris
	16	16.3	Human Waste Management
Health Agency	6	6.1	Rescue, First Aid, Medical Treatment Measures
	6	6.2	Medical Treatment System
	6	6.3	Procurement of Medicines and Medical Equipments
	6	6.4	Mental Health Care
	14	14.5	Set up of Temporary Toilet
	15	15.1	Searching for Missing Victim and Casualties Treatment
	15	15.2	Autopsy and Transport of Dead Casualties
	15	15.3	Identification of Dead Casualties
	15	15.4	Treatment for Dead Casualties
	16	16.1	Health Care and Hygiene Measures
16	16.4	Epidemic Preventive Measures	

Agencies	Chapter	Sub Chapter	Tasks
Information and Communication Office	2	2.3	Collection of Disaster Information
Kesbangpol Linmas Office (National Unity & Public Protection Office)	3	3.3	Disaster Management at Related Agencies
	3	3.5	Volunteers
	4	4.1	Warning, Evacuation, and Guidance Measures
	12	12.1	Evacuation Plan
	12	12.2	Announcement of Evacuation Warnings
	12	12.3	Set up of Alert Area
	12	12.4	Advice for Evacuation and Transfer
	12	12.5	Set up of Temporary Evacuation Site and Its Management and Operation
	15	15.1	Searching for Missing Victim and Casualties Treatment
	19	19.1	Information of Lifeline Recovery
	21	21.1	Information Sharing with National and Provincial Organization
Marine Affairs & Fishery Agency	8	8.2	Sea Safety Control and Security Measures
Public Relations Division	2	2.1	Communication Tools
	2	2.2	Establishing Disaster Communication Operation System
	2	2.4	Publication of Disaster Information
	7	7.3	Information Gathering System
	15	15.6	Provision of Information to Community
Public Works Agency	4	4.2	Preventive Measures for Secondary Disaster
	9	9.1	Removal Target
	14	14.2	Water Provision
	14	14.5	Set up of Temporary Toilet
	18	18.1	Investigation of Damaged Buildings
	18	18.2	Survey of Damaged Residential Land
	18	18.3	Construction of Temporary Housing and Emergency Restoration of Damaged Buildings
	19	19.1	Information of Lifeline Recovery
	19	19.2	Water Supply Facility
Social and Labor Agency	3	3.1	National and Province
	3	3.2	Peripheral Kota
	14	14.1	Food Provision
	14	14.3	Provision of Daily Needs
	14	14.4	Acceptance of Materials from Other Area
	18	18.3	Construction of Temporary Housing and Emergency Restoration of Damaged Buildings
	21	21.2	Acceptance of Foreign Assistance
Spatial Plan Agency	9	9.2	Removal Officer
	9	9.4	Temporary Storage Sites for Debris
	16	16.2	Solid Waste Management
	16	16.3	Human Waste Management
Transportation Agency	1	1.4	Staff Mobilization for Tsunami Warnings
	2	2.1	Communication Tools

Agencies	Chapter	Sub Chapter	Tasks
	5	5.1	Receiving and Transmitting Weather Forecasts and Warnings
	8	8.3	Road Transport Management
Transportation, Communication & Information Agency	2	2.2	Establishing Disaster Communication Operation System
	7	7.2	Emergency Call and Mobilization
	7	7.3	Information Gathering System
	10	10.1	Securing Transport Equipments
	10	10.2	Securing Transportation Network
	13	13.2	Transportation for Panic Prevention
Youth and Sport Education Agency	17	17.1	Management of School Facilities
	17	17.2	Measures for Students and Pupils
	17	17.3	Procurement and Provision of School Supplies, etc.
	17	17.4	Management of Education Facilities

Other organizations

Agencies	Chapter	Sub Chapter	Tasks
BMG	5	5.1	Receiving and Transmitting Weather Forecasts and Warnings
Commander of District Military 0308	3	3.4	Military, etc.
Cooperation	9	9.3	Removal Method
Firefighter Office	7	7.1	Firefighter Office
	7	7.4	Fire Fighting Activity
	7	7.5	Initial Fire Fighting Activity
Indonesian Red Cross	6	6.2	Medical Treatment System
	14	14.1	Food Provision
National Electric Company	19	19.3	Telecommunication Facility
Police and Pol. PP	8	8.2	Sea Safety Control and Security Measures
Police Head (POLRESTA)	5	5.1	Receiving and Transmitting Weather Forecasts and Warnings
	8	8.1	Safety Control Measures by Police
	13	13.1	Panic Prevention due to Lack of Information
	13	13.4	Panic Prevention at Public Facilities
	20	20.1	Hazardous Materials Storage Facility
	20	20.2	Vehicles for Transporting Hazardous Materials
Private Company	11	11.3	Disaster Response Activities by Private Enterprises
Regional Water Company	14	14.2	Water Provision
	19	19.2	Water Supply Facility
Religious Organization	6	6.4	Mental Health Care
SAR	15	15.1	Searching for Missing Victim and Casualties Treatment
Telkom	19	19.4	Hazardous Material Management
TNI	5	5.1	Receiving and Transmitting Weather Forecasts and Warnings

1.3 Mobilization of Rupusdalops PBP Staff

Responsible Agency:	Mayor
----------------------------	--------------

1) Mobilization Criteria

Mayor as a head of Rupusdalops PBP will mobilize staffs and implement relevant activities based on the criteria mentioned below.,

Category	Mobilization Criteria
1 st Mobilization	1. When 5 MMI Earthquake Scale is identified in Kota Pariaman Region and announced by BMG.
2 nd Mobilization	1. When 6 MMI Earthquake Scale is identified in Kota Pariaman Region and announced by BMG.
3 rd Mobilization	1. When 7 MMI Earthquake Scale is identified in Kota Pariaman Region and announced by BMG. 2. Tsunami Warning is announced in Kota Pariaman Region by BMG.

2) Mobilization Component

(1) 1st Mobilization

Each head of Agencies will mobilize number of staffs assigned to designated location or to their offices.

(2) 2nd Mobilization

Each head of Agencies will mobilize number of staffs assigned to designated location or to their offices. Head of Social and Labor Agency and Health Agency have to mobilize their staffs to take part in evacuation activity.

In addition, in case of disaster occurs outside working hours, agencies that hold jurisdiction over facilities that will be used for emergency response activity should mobilize their staffs.

(3) 3rd Mobilization

All staffs will be mobilized to the designated location or only at their offices, as decided in advance.

3) Staff Mobilization

Staff mobilization of each agency is mentioned below. For 1st and 2nd Mobilization, staffs in charge will be designated.

Agencies	Responsible Sector	1 st Mobilization	2 nd Mobilization	3 rd Mobilization
Health Agency	3. Health	3	1/3 of Staffs from each agency	All Staffs
Public Works Agency	4. Rehabilitation and Reconstruction	3		
Transportation, Communication and Information Agency	6. Transportation	1		
Industry, Trading and Investment Agency	2. Social Aid	1		
Agriculture Agency	4. Rehabilitation and Reconstruction	2		
Marine Affairs and Fishery Agency	2. Social Aid	2		
Regional Incoming Agency	4. Rehabilitation and Reconstruction	1		
Youth and Sport Education Agency	1. Evacuation and Security	3		
Cleanliness and Live Environment Agency	4. Rehabilitation and Reconstruction	3		
Social and Labor Agency	2. Social Aid	4		
Agriculture and Food Affairs Agency	2. Social Aid	2		
National Unity and Public Protection	1. Evacuation and Security	4		
Development Planning Board	4. Rehabilitation and Reconstruction	2		
Population, Family Planning and Civil Registration Board	2. Social Aid	2		
Public Capacity Board	4. Rehabilitation and Reconstruction	1		
Territorial Police Office	1. Evacuation and Security	3		
Information and Communication Office	5. Information and Publication	4		
Tourism Service Office	5. Information and Publication	2		
Puskesmas Kp. Baru, Padusunan	3. Health	2		
Puskesmas Kuritaji	3. Health	2		
Puskesmas Air Santok	3. Health	2		

Remark: Number of staff and head of agencies for 1st and 2nd Mobilization.

4) Order of Staffs Mobilization

(1) Commander

Staff Mobilization is ordered by head of Rupusdalops PBP (Mayor)

(2) Order Transmission System

A. During normal working hours

Transmitted by telephone line or radio in city government



B. After working hours

Transmitted by telephone line



(3) Mobilization not Depend on Order

During working hours, due to malfunction of communication systems, when order is not accessible, mobilize yourself by your own decision.

Moreover, when devastating disaster occurs or a high risk of disaster occurrence is anticipated, after working hours, do not wait for mobilization order. Mobilize yourself to designated location based on the criteria for mobilization.

5) Mobilization Participant

Target of mobilization is all staffs of Kota Pariaman Government. However, following staffs will be exempt from mobilization duties, they are:

1. Employee who is ill or handicapped and have difficulty to conduct emergency response activities
2. Because of disaster, that employee is suddenly ill or injured, therefore, impossible to participate

1.4 Staff Mobilization for Tsunami Warnings

<i>Responsible Agency:</i>	<i>Transportation Agency</i>
-----------------------------------	-------------------------------------

When BMG issues Tsunami warning, hence staff mobilization and necessary activities should be implemented as follows.

1) Mobilization Criteria

When BMB issues Tsunami warning for coastal area in Kota Pariaman.

2) Mobilization Component

Each head of assigned Agencies will mobilize number of their staffs to designated location or at their offices.

3) Staff Mobilization

Staff mobilization of each assigned agency is mentioned as follows.

Agencies	Staff Number
National Unity and Society Protection Office	4
Youth and Sport Education Agency	3
Territorial Police Office	3
Public Works Agency	3
Transportation Agency of Communication and Information	3
Public Relations Office	4

4) Order of Staffs Mobilization

When BMG issues Tsunami warning after working hours/holidays, Transportation Agency of Communication and Information will transmit the information to each head of assigned agencies.

Each head of assigned agencies will mobilize number of their staffs.

CHAPTER 2. DISASTER INFORMATION GATHERING AND DISSEMINATION PLAN

It is crucial for emergency response to gather and disseminate accurate information on climate and disaster promptly and precisely. Moreover, providing accurate disaster information to community will avoid panic and create smooth evacuation process.

This chapter will explain about plan for information gathering and dissemination.

2.1 Communication Tools

<i>Responsible Agency:</i>	<i>Transportation Agency, Public Relations Division</i>
<i>Relevant Agency</i>	<i>All Types of Media, Military, Police</i>

1) Telephone (Cable Phone and Mobile phone), SMS, Radio

- (1) Telephone such as cable phone or mobile phone, SMS and radio communications for duty administration (SATLAK-Kecamatan) is very important for gathering and disseminating disaster information and other necessary information for emergency response, etc
- (2) Installation of radio communication system in small government unit like dusun and RW/RT (Neighborhood Association/Administrative Unit of Citizen) will be process to guarantee reliable communication network.

2) Radio Communication in Emergency Condition

The following radio communication system will be utilized to guarantee smooth communication in the event of disaster in case communication between Kota and related departments/agencies is difficult to conduct due to interruption in telephone line such as cable phone or mobile phone.

1. Military radio and Police radio communication system
2. Indonesia amateur radio organization (ORARI)
3. Private radio station (AM/FM) in Pariaman

3) Information Dissemination in Emergency Situation

Private radio station AM/FM will be utilized to disseminate information widely in an emergency, such as evacuation instruction/order.

4) Other Tools for Information Dissemination

In order to multiply the communication device, installation of other communication device such as satellite telephone and email sending via internet will be considered.

5) Request of Equipments Reparation for Information Dissemination

When communication device is damaged, reparation will be requested to the provider promptly.

6) Messenger, Mosque Loudspeaker, Tabuah and Car Loudspeaker

In case that all of wired or wireless communication devices are interrupted, or if necessary, information gathering and dissemination will be done with every possible means such as messenger, mosque loudspeaker, Tabuah and car loudspeaker etc.

2.2 Establishing Disaster Communication Operation System

Responsible Agency:	<i>Transportation, Communication & Information Agency, Public Relations Division</i>
----------------------------	---

Each information communication tools is operated as follows:

1) Information Transmission Device

- (1) Movable communication can be done by mobile phone, SMS and radio transmission
- (2) Fixed communication can be done by cable phone, fixed radio transmission, radio broadcast service, mosque loudspeaker and Tabuah.

2) Type and Priority of Information Communication

(1) Type of Communication

1. Emergency communication: Communication required when emergency situation occurred or possible to occur
2. General communication: Communication conducted not during emergency situation
3. Parallel communication: Communication conducted concurrently and unilaterally to a number of agencies/persons
4. Individual communication: Communication conducted individually between two agencies/persons

(2) Priority

Communication required at time of disaster was prioritized as follows:

- | | |
|-----------------------|--|
| High priority: | Emergency and parallel communication |
| Medium high priority: | Emergency and individual communication |
| Medium low priority: | General and parallel communication |
| Low priority: | General and individual communication |

3) Operation of Communication

(1) Mobile and Parallel Communication

Information such as evacuation order, order for establishment of Rupusdalops PB and warning, which should be transmitted promptly and adequately to related agencies, are transmitted from SATLAK by parallel communication through SMS and/or radio transmission.

(2) Fixed and Parallel Communication

The following information regarding disaster management are transmitted to Kecamatan office and/or community through radio transmission, mosque loudspeaker, Tabuah and radio broadcast.

1. Climate condition affected occurrence of disaster
2. Damage by disaster and issues related with information dissemination

(3) Communication Control

Administrator will control information communication to prioritize important communication when communication is congested.

4) Communication Route and Device**(1) SATLAK-Kecamatan**

Gathering and disseminating disaster information from Kota to Kecamatan are conducted by cable phone, mobile phone and radio transmission.

(2) Kecamatan- -Village/Kelurahan

Gathering and disseminating disaster information from Kecamatan to village/kelurahan are conducted by cable phone and mobile phone.

(3) Village-Dusun, RW/RT, Community

Gathering and disseminating disaster information from village/kelurahan to neighborhood/kampong/dusun are conducted by using cable phone and mobile phone. While information dissemination such as evacuation instruction is conducted by using mosque loudspeaker and/or Tabuah etc.

(4) SATLAK-Disaster Related Agencies

- (1) Gathering and disseminating disaster information from Kota Government/SATLAK to related agencies including military and police are conducting by using cable phone and mobile phone.
- (2) Gathering and disseminating disaster information between related agencies is conducting by using cable phone, mobile phone and radio transmission.

(5) Mayor-Community

Private radio stations AM/FM are utilized for dissemination of wider information such as evacuation instruction/order in an emergency.

2.3 Collection of Disaster Information

<i>Responsible Agency:</i>	<i>Information and Communication Office</i>
-----------------------------------	--

Collection and reporting of disaster information and damage condition are set up as follows.

1) Collection of Information

(1) Damage Survey by Kota (SATLAK)

Kota/SATLAK conducts:

- Survey of damage condition,
- Collection and consolidation of information from various sources in Rupusladops PBP
- Sharing information to other related agencies.

(2) Multiplying of Information Collection Device

Pemerintah Kota (SATLAK) establishing information posko (commando center) in order to collect disaster information from community, volunteer, companies etc.

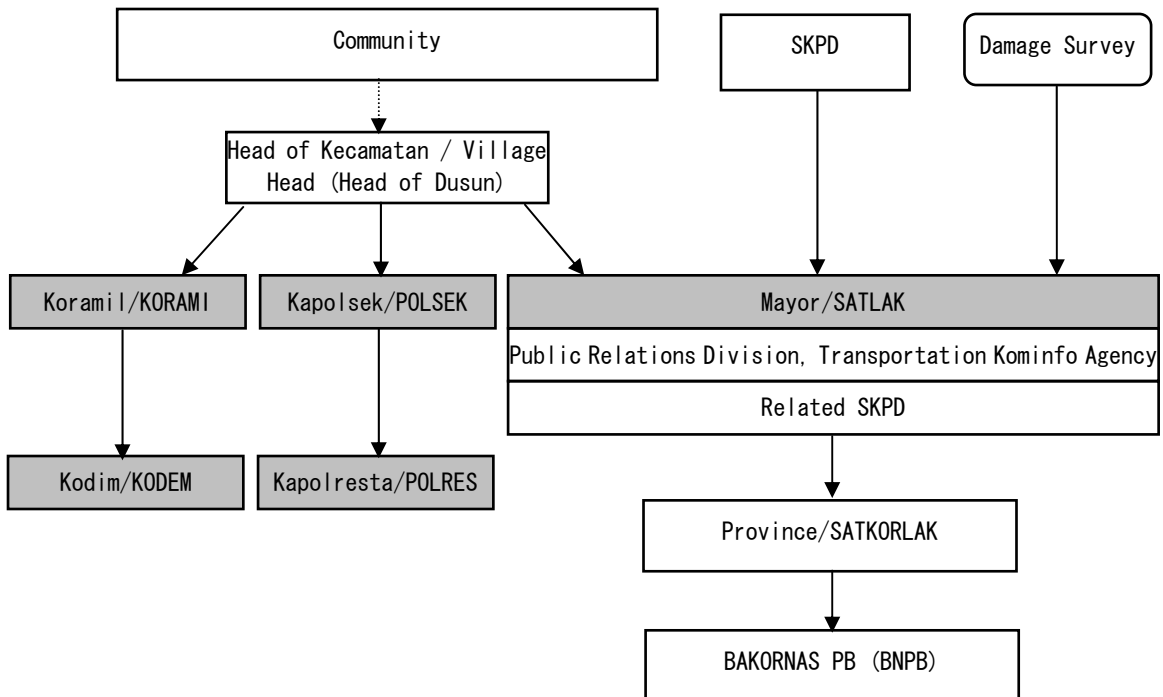
(3) Reporting Obligation for Community

Resident who discover the occurrence of disaster and ubnormal phonomenan that may lead to disaster, should promptly report it to the nearest government agencies, police or military.

2) Reporting of Disaster Information

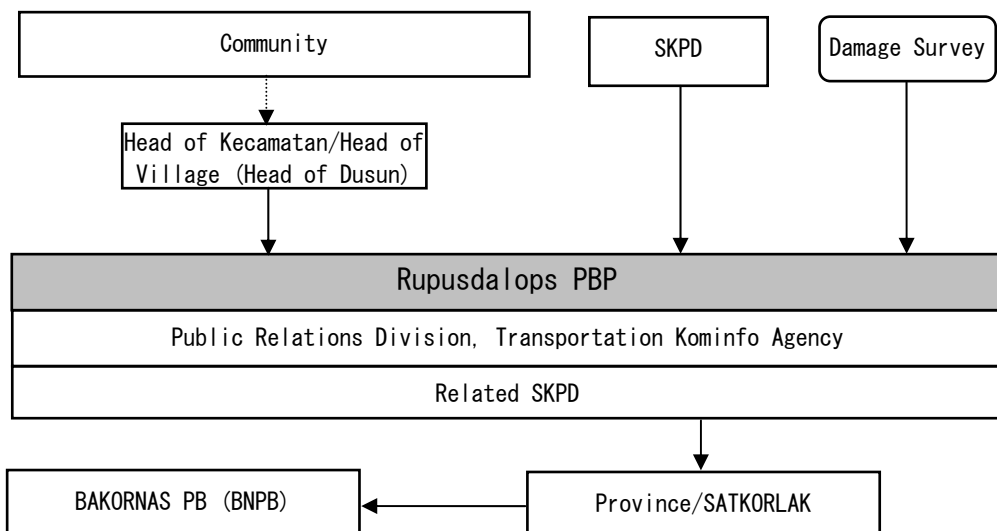
Disaster Information which have surveyed and collected after occurrence of disaster will be delivered by the following procedure.

<Before Establishment of Rupusdalops PBP>



Note: Disaster information and result of damage survey will be integrated by Public Relations Division.

<After Establishment of Rupusdalops PBP>



Note: Disaster information and result of damage survey will be integrated by Public Relations Division.

3) Items of Collected Information

(1) Right after Disaster Occurs

It is most important to identify place and scale of damage adequately in order to avoid more serious damages and secondary disaster. Therefore, the following information are collected.

1. High tide warning, and water level in coastal area in case that warning is already issued
2. Fire occurrence and fire spread condition
3. Damage condition and risk of landslide
4. Condition of victim to be rescued
5. Damage condition of buildings
6. Damage condition of road and railway
7. Necessity of evacuation and evacuation process condition
8. Damage condition of lifelines

(2) After Recovery from Confusion of Disaster

After almost all of disaster informations are collected and damage condition of Kota is identified, the following information should collected with purpose to rescue and give aid to community, and also implement initial rehabilitation.

1. Review of damage
2. Condition of disaster victim
3. Necessity for giving rescue and aid
4. Action during disaster
5. Action after disaster

4) Information Communication Devices

- (1) Information is transmitted by most secure and fast equipment among fixed and movable communication devices.
- (2) In case that fixed line is interrupted, hence communications through government radio, police and military are utilized.
- (3) In case that communication is disconnected, all measures such as dispatch of messenger to area where communication is available are utilized.

5) Reporting to Province/SATKORLAK

(1) Reporting Devices

Reporting disaster information is conducted by telephone and/or fax.

(2) Report Destination

When there is a number of casualties caused by disaster, City Government/SATLAK will report the current condition to SAR and Province/SATKORLAK. If City Government is unable to report damage condition and emergency response measures, etc to Province/SATKORLAK, City Government/SATLAK will directly report to BAKORNAS PB (BNPB).

(3) Contents and Procedure of Reporting

Contents and procedure of report to Province are as follows:

1. Disaster report produced by SATLAK PBP as a formal government report will include:
 - a. Date and hour
 - b. Profile
 - c. Disaster intensity and disaster affected area
 - d. Number of survivor, injured, died, and lost victims
 - e. Total amount of refugees and their conditions
 - f. Facilities and accessibility
 - g. Total amount of loss
 - h. Type and amount of delivered aid
 - i. Type and amount of required aid
 - j. Other important information required for decision making by Head of SATKORLAK PBP and Head of SATLAK PBP.
2. Due to difficulty in getting the disaster information comprehensively, hence SATLAK PBP will send the report in 4 phases as follows:
 - a. Phase I

Make the first report within at least 1 x 24 hours after disaster occurs, which reported by SATLAK PBP to SATKORLAK PBP and then will be sent to BAKORNAS PBP including:

 - 1) Disaster type
 - 2) Date and hour
 - 3) Disaster Location
 - 4) Disaster profile
 - 5) Worst area affected by disaster
 - 6) Disaster indicator
 - 7) Ongoing and past emergency response measures
 - b. Phases II

Make report of damage condition within at least 2 x 24 hours after disaster occurs, which reported by SATLAK PBP to SATKORLAK PBP and then will be sent to BAKORNAS PBP, it will include:

- 1) Number of casualties, injured, missing victims, damaged house, refugee, etc.
- 2) Damages on public facilities and access including houses, schools, churches, mosques, hospitals/puskesmas, clean water, roads and bridges transportation devices and resources facilities.
- 3) Damage of public properties including houses, fields/farms/economic facilities
- 4) Estimation of loss
- 5) Applied emergency response measures

c. Phase III

Make report to support phase II report including information of required support for disaster victim, including:

- 1) Type of required support
- 2) Quantity of required support
- 3) Delivered support
- 4) Type and quantity of the support still needed

d. Phase IV

Make complementary report of all reported points and result of evaluation conducted by disaster study team, including:

- 1) Rehabilitation and reconstruction object
- 2) Priority scale
- 3) Necessary budget
- 4) Table of aid delivery and distribution (cost, material, personnel, expert, etc).

2.4 Publication of Disaster Information

<i>Responsible Agency:</i>	<i>Public Relations Division</i>
-----------------------------------	---

In disaster occurred or have high risk of occurrence, proper publication activities are conducted in order to disseminate disaster information and disaster management measures to community, with aim to stabilize community's perspective and to encourage them to take necessary actions.

1) Publication Items

(1) Publication Right after Disaster occurs

1. Climate information such as heavy rain
2. Information of water level of rivers
3. Announcement to avoid panic
4. Instructions, direction and guidance of Evacuation
5. Announcement to avoid fire occurrence
6. Announcement of lifesaving support
7. Damage condition
8. Progress of emergency response
9. Information of emergency shelter during emergency condition, etc.

(2) Publication after Disaster

1. Climate information such as heavy rain
2. Damage condition
3. Statement regarding achievement of emergency response activity
4. Condition of transportation facilities
5. Road traffic condition
6. Lifeline condition
7. Condition of aid supplies
8. Type of necessary aid for victims

2) Publication Measures

Precise and accurate disaster information should be disseminated to community in order to prevent confusion at time of disaster. In Kota Pariaman, accurate disaster information and precise instruction for evacuation/standby will be provided to community by the following methods

(1) Emergency Radio Broadcast

In order to disseminate accurate disaster information to community at time of disaster, Mayor will directly inform the community through private radio station (AM/FM)

(2) Radio Communication for Administration

Information will be transferred through radio communication.

(3) Mosque Loudspeaker and Tabuah

Information will be disseminated through Mosque Loudspeaker and Tabuah.

(4) Car Loudspeaker and Leaflet

Publication will be conducted through leaflet or car loudspeaker that sent to appropriate area.

(5) City Government Mobile Phone

Information disseminated through Mobil Phone of City Government and internet etc.

3) Disaster Documentation

Damage situation can be documented through photograph, video, etc. as material for publication activities.

4) Utilization of Mass Media

(1) Multiplying Publication Measures

Information regarding disaster damage condition and individual safety will be provided actively to mass media to be disseminate to families and community who live in other area.

(2) Publication of Aid Information

Publication activities will be conducted utilizing mass media in order to publicize necessary aid information such as rescue equipment and request of volunteer aid etc.

CHAPTER 3. REQUEST FOR SUPPORTS

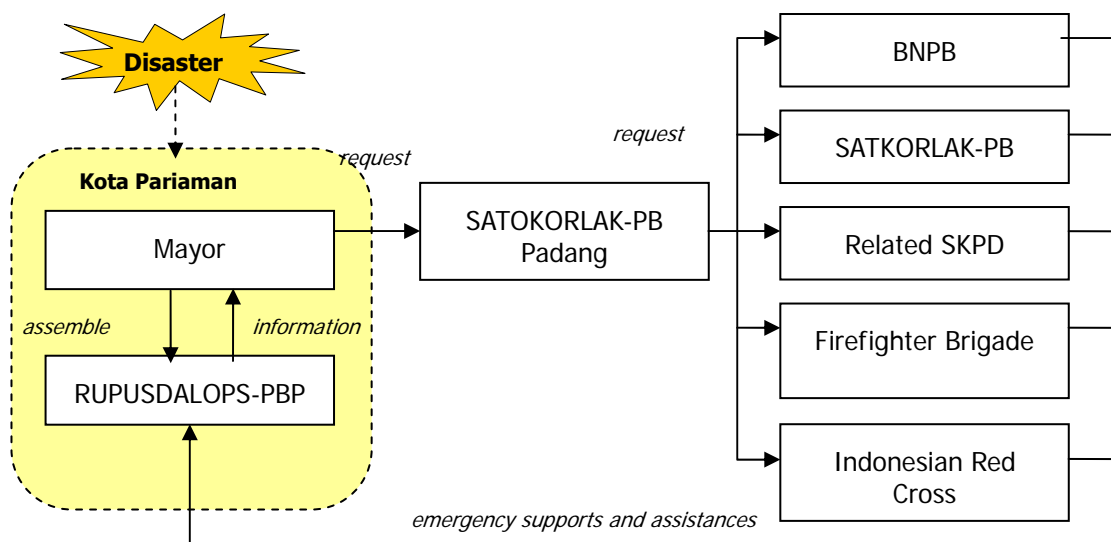
Right after disaster occurs, RUPUSDALOPS-PBP (Emergency Response Headquarter) will request supports from volunteer and related organizations in case that Kota Pariaman is unable to conduct emergency response and recovery activities without any external supports.

3.1 National and Province

Responsible Agency:	Social and Labor Agency
----------------------------	--------------------------------

In case that Mayor, as head of RUPUSDALOPS-PBP, decides to requested for emergency assistance from outside Kota due to heavy damage from disaster, SATOKORLAK-PB will be informed about the requests. After receiving requests from Kota Pariaman, SATKORLAK-PB will handle the arrangement with following organization and agencies in order to obtain necessary supports and assistances. The procedure is illustrated in Figure 3.1.1.

- National and provincial level, BNPB and SATKORLAK-PB
- Related organization such as SAR
- Firefighter and Indonesian Red Cross



Source: JICA Study Team

Figure 3.1.1 Request Procedure for Assistance from Related Organization

3.2 Peripheral Kabupaten/Kota

Responsible Agency:	Social and Labor Agency
----------------------------	--------------------------------

There are 18 Kabupaten and Kota around Kota Pariaman; regarding distance, those Kabupaten/Kota have big opportunity to help Kota Pariaman in emergency situation.

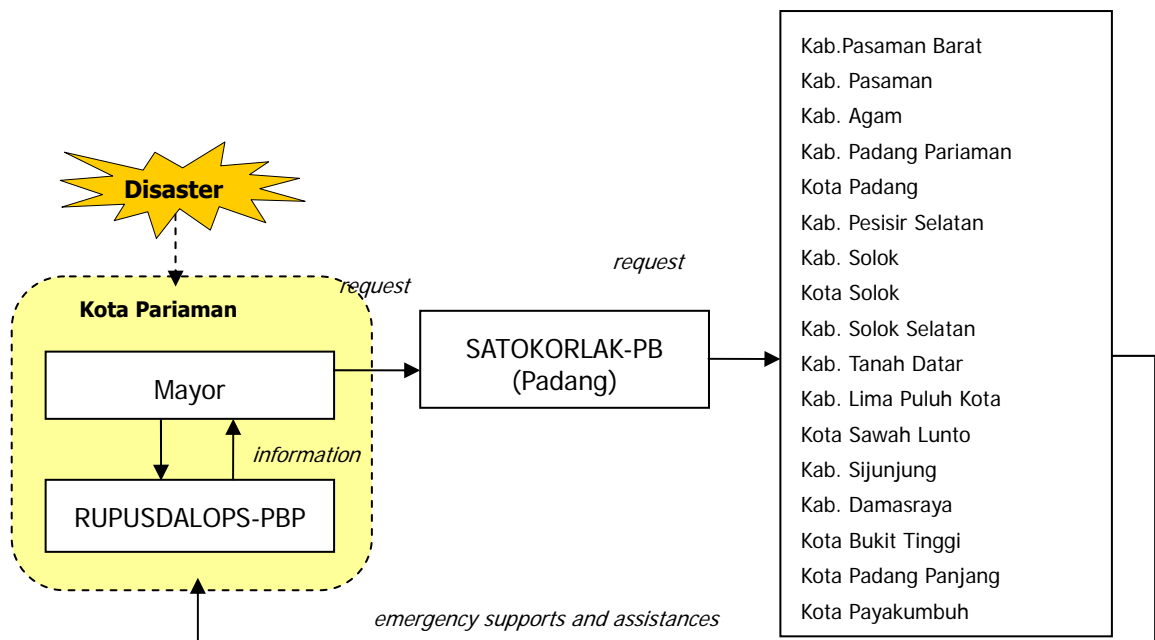
1) Support from the Peripheral Kota

Those Kabupaten/Kota are expected to be able to provide the following aid and materials.

- Foods, drinking water, raw material and equipments
- Rescue and recovery, first aid, prevention of infection disease for refugees, and necessary aid
- Vehicles for rescue and recovery
- Manpower for rescue and emergency medical treatment
- Others depends on requests

2) Procedure of Aid Request

In case that Kota Pariaman needs assistance from the peripheral Kabupaten/Kota, hence formal requests shall be delivered through SATKORLAK-PB to that Kabupaten/Kota. The procedures are illustrated in Figure 3.2.1.



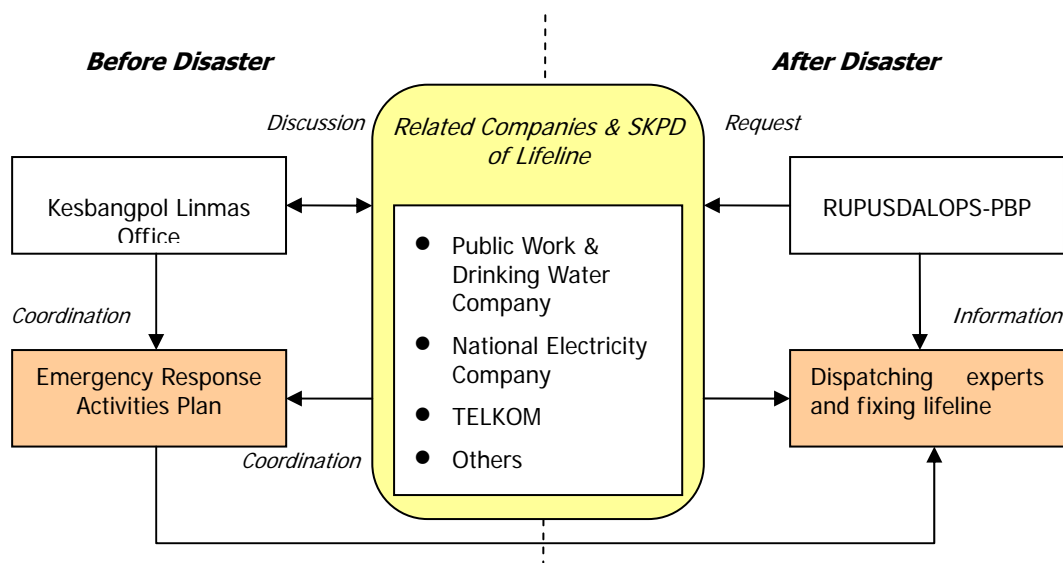
Source: JICA Study Team

Figure 3.2.1 Request Procedure for Assistance from Related Organization

3.3 Disaster Management at Related Agencies

Responsible Agency:	<i>Kesbangpol Linmas Office (National Unity and Public Protection Office)</i>
----------------------------	--

In occurrence of disaster, RUPUSDALOPS-PBP play an important role of manpower distribution for emergency response activities. In such emergency response, special techniques might be needed for repairing lifeline devices, such as water supply, gas, electricity and telecommunication. Therefore Kesbangpol Linmas Office (National Unity and Public Protection Office) discuss the matter with related organizations and companies in advance for formulating measures of emergency response, such as dispatching technicians and/or engineers to immediately begin restoration works after disaster. Right after disaster occurs, along with disaster management measures, RUPUSDALOPS-PBP requests physical aid to related agencies/organizations and companies for recovering of lifeline. The procedure is illustrated in Figure 3.3.1



Source: JICA Study Team

Figure 3.3.1 Request Procedure for Fixing Lifeline

3.4 Military, etc

<i>Responsible Agency:</i>	<i>Commander of District Military 0308</i>
-----------------------------------	---

In case RUPUSDALOPS-PBP needs aid from the military to conduct lifesaving and/ or property protection, Mayor will request for dispatching the military forces to SATKORLAK-PB. SATKORLAK-PB will convey the requests from Kota Pariaman to BAKORNAS-PB and the military.

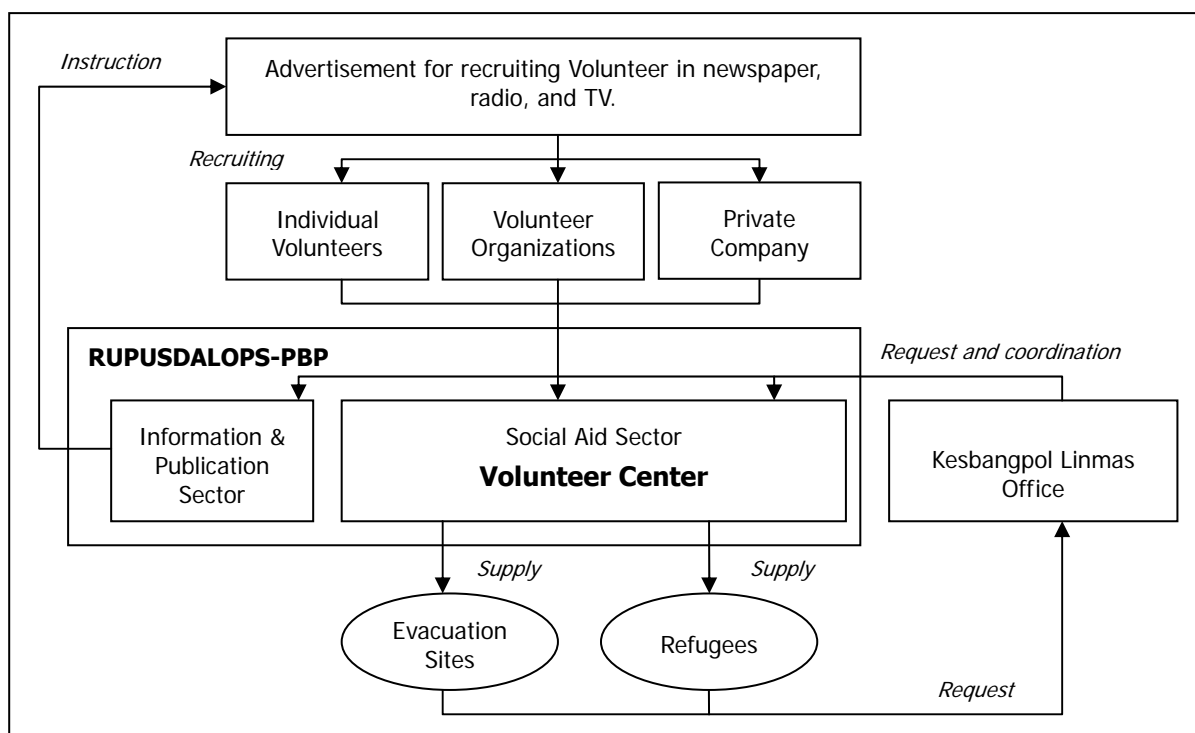
When it requires immediate action and no time to wait for formal procedure, Mayor will contact regional military office directly to request for their assistance and supports.

3.5 Volunteers

Responsible Agency:	Kesbangpol Linmas Office
----------------------------	---------------------------------

Based on disaster experience, volunteer organization including NGO has played an important role in emergency responses activity. For utilizing the workers, Kesbangpol Linmas Office will coordinate with volunteers to held sudden meeting to discuss recruiting, registration, and dispatching.

Volunteer coordination system is shown in Figure 3.5.1.



Source: JICA Study Team

Figure 3.5.1 Volunteer Coordination System

1) Request

Kesbangpol Linmas Office will identify needs from other related organizations/agencies and disaster areas, and then convey the requests to volunteer center which established under responsibility of social aid sector. The following items will be clarified in submitting the requests.

- Name of facilities or evacuation sites
- Period of activities
- Contents of activities

- Necessary expertise, knowledge and experience
- Number of volunteers

2) Recruiting

Existing volunteer organizations/groups might not be sufficient to cope with problems caused by disaster. Therefore, Kesbangpol Linmas Office will recruit volunteers in individual, groups and institution/organization through media such as radio, newspaper, and TV handled by Information & Publication Sector under RUPUSDALOPS-PBP. The following information will be informed through the media.

- Activities
- Period of activities
- Place
- Expertise, knowledge and experience
- Number of volunteers
- Contact person, address and telephone number

3) Information Posko (Commando Center)

The following items will be identified at information and registration posko of volunteer.

- Name of individual, group, and organization
- Expertise, knowledge and experience
- Number of volunteers
- Required working period
- Time needed to destination
- Contact method

4) Control of Demand and Supply

Based upon information from disaster areas and related agencies, volunteers will be dispatched appropriately according the demand.

5) Foreign Volunteer

Acceptance of foreign volunteers is entirely depends on SATKORLAK-PB and BNPB.

CHAPTER 4. SEDIMENT DISASTER MEASURES**4.1 Warning, Evacuation, and Guidance Measures**

<i>Responsible Agency:</i>	<i>Kesbangpol Linmas Office</i>
-----------------------------------	--

Guidance is given to perform evacuation drill in order to secure safety of residents who lives in vulnerable areas such as landslide risk. Moreover, community cooperation should be obtained for prompt evacuation drill for those who may have difficulty to evacuate, such as infants, elderly, and handicaps.

4.2 Preventive Measures for Secondary Disaster

<i>Responsible Agency:</i>	<i>Public Works Agency</i>
-----------------------------------	-----------------------------------

1) **Confirming Safe Conditions of Vulnerable Area to Landslide**

Any landslide risky areas caused by heavy rain should be guarded or patrolled when disaster occurs and necessary advices are given to the residents. Moreover, safety conditions of areas that are vulnerable to secondary disaster should be confirmed and disaster handling agencies should be contacted.

2) **Restrict Access to Landslide Area**

Safety of areas around landslide hazard places including monitored zone should be inspected and declared as restricted areas.

3) **Warning during Search and Rescue Activities**

When search activities for missing victims or for rehabilitation work are conducted, sufficient warnings should be given and observation remains on-going in connection with the risk of secondary disaster.

4) **Emergency measures**

In order to implement emergency measures to prevent escalation of damage caused by secondary disaster, facilities and surrounding areas should be examined and surveyed. Once they are deemed safe, emergency measures for prevention of secondary disaster will be perform.

4.3 Publication and Dissemination of Information to Community

<i>Responsible Agency:</i>	<i>Public Relations Division</i>
-----------------------------------	---

Information regarding sediment vulnerable areas, evacuation sites, evacuation routes etc. will be inform to community through television, radio, or community itself (such as through independent disaster prevention organization/institution).

CHAPTER 5. TSUNAMI DISASTER MEASURES

When there is huge movement caused by earthquake at sea bottom, it is assumed that tsunami occurs. In several cases, even if earthquake cannot be felt because of the small vibration that occurred in seas near or far from coastal area, tsunami could attack suddenly. As occurred on 12 September 2007 in West Sumatera Province, earthquake was not too big, only 7.3 SR. Although most residents could feel it, however they did not know that small tsunami has occurred and attacked coastal area in West Sumatera, especially Kota Padang. The wave height was 2,5 meters and community thought it was only a rising tide.

This chapter will elaborate emergency response measures when tsunami occurs.

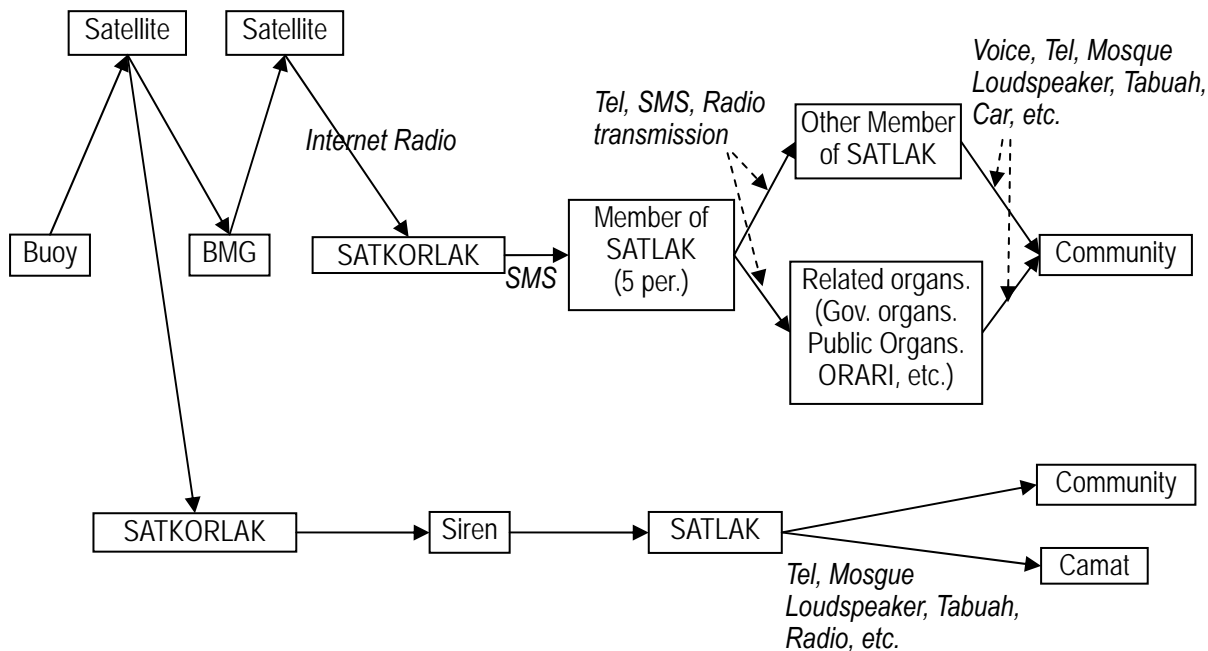
5.1 Receiving and Transmitting Weather Forecasts and Warnings

<i>Responsible Agency:</i>	<i>Transportation Agency, TNI (Indonesian National Armed Forces), Polresta, BMG</i>
-----------------------------------	--

Since Tsunami might reach coastal area in short time after earthquake occurs, emergency evacuation is still required. When there is warning of tsunami threat, the warning should be transmitted promptly and properly by the following procedure.

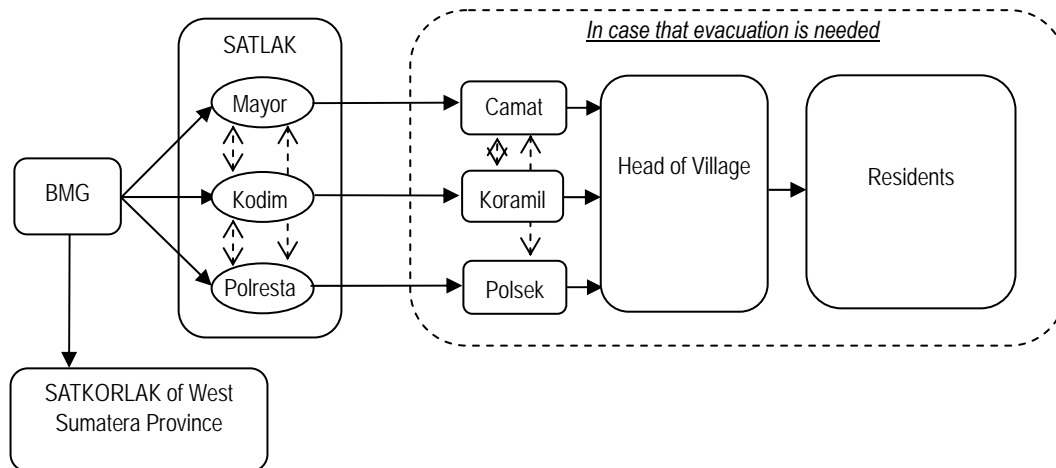
1) Weather Forecast and Warning for Tsunami

BMG issues weather forecast and warning for tsunami.



2) System for Receiving and Transmitting Weather Forecast and Warning

Early warning (information) from BMG to Kota Pariaman will be received and transmitted by the following procedure. Necessity for evacuation is decided by BMG and evacuation is ordered by Mayor.



5.2 Measures after Tsunami Occurs

<i>Responsible Agency:</i>	<i>SATLAK</i>
-----------------------------------	----------------------

1) Sea Surface Monitoring

When weather forecast and warning from BMG received by City Government or when strong earthquake is felt around coastal area and the need to evacuate arises warning should be promptly transmitted to residents and companies near coastal area through mosque loudspeaker and drum. Moreover sea surface monitoring should be conducted from safe position such as from hill.

2) Evacuation Instruction

When warning from BMG received by City Government or abnormal condition is recognized, evacuation instruction should be immediately informed to community and companies near coastal area through loudspeaker.

3) Report/Communication

When evacuation instruction is issued because of Tsunami threat, Mayor should be immediately reported the effect.

When evacuation instruction was originally issued because of Tsunami threat although there is no tsunami warnings from BMG, SATLAK should contact BMG and peripheral Kabupaten/Kota.

5.3 Evacuation without Receiving Warnings

<i>Responsible Agency:</i>	<i>Mayor, Camat and Head of Village/Lurah</i>
-----------------------------------	--

Although evacuation warning is not instructed by City Government, when there is threat of earthquake/tsunami, hence residents should immediately evacuate to higher places.

Therefore, residents near coastal area should immediately leave their houses and evacuate to higher/safer places when they feel the vibration although it is weak. It is very important to have knowledge that tsunami will come after earthquake.

CHAPTER 6. RESCUE, FIRST AID AND MEDICAL TREATMENT MEASURES

6.1 Rescue, First Aid and Medical Treatment Measures

<i>Responsible Agency:</i>	<i>Health Agency</i>
-----------------------------------	-----------------------------

1) Rescue and First Aid System

(1) Principle of Activity

Rescue and first aid activities shall be operated based on the following principles.

- Life saving is the first priority in any case.
- Fire extinguish and related life saving are high priority activities.
- Effectiveness of rescue operation shall be considered to save more life.
- Application of aid for disaster victims should be determined based on priority.

(2) Information Collection

Necessary information for rescue operation shall be collected as much as possible through related agencies/institutions such as Firefighter Brigade, police, residents, and community network. Attention should be given to hospital, large shopping center, hotel, theater and other buildings.

2) Medical Aid System

Medical Aid Team shall be organized in Health Agency to collect information for emergency medical support, conduct coordination between hospitals for acceptance of injuries and dispatch medical aid team to necessary places. Medical Aid Team shall cooperate with local doctor. The following are main tasks of medical aid team.

(1) Information Collection

Damage information of medical facilities such as hospitals, puskesmas and other facilities shall be collected through telecommunication network. Information regarding activities of medical facilities shall also be collected such as doctor activity including medical staffs, insufficient medicine, medical equipments and available beds.

(2) Open of Medical Aid Service Spot

Medical aid service spot shall be opened at neighborhood of disaster affected area using existing medical facilities under coordination by Medical Aid Team. Necessary medical team and materials will be provided by Health Agency.

(3) Procurement of Medicines and Equipments

Necessary medicines and equipments for emergency medical aid will be supplied by using available stocks of hospitals and clinics. Procured medical materials shall be distributed by Health Agency to medical aid service spot.

(4) Dissemination of Medical Aid Service Information

Medical aid service information such as care center, hospitals shall be disseminated to residents through announcement by Health Agency.

(5) Cooperation with Outside Medical Facilities from Outside Kota Pariaman

In case of over capacity of existing medical treatment in Kota Pariaman due to huge scale of disaster, outside medical function shall be utilized in cooperation with provincial Health Agency in Padang. Heavily injured patients who need an integrated care will be transferred to hospitals outside disaster damaged area by using special transportation such as military helicopter. Request of medical support team to other area will be made through coordination by Health Agency of Kota Pariaman.

(6) Open of Supply Center for Medical Aid Material

Supply center for medical aid material shall be opened to classify and manage necessary medicines and related medical materials. In cooperation with pharmacist, related medicines and materials shall be distributed to place requiring.

6.2 Medical Treatment System

<i>Responsible Agency:</i>	<i>Health Agency, Indonesian Red Cross</i>
-----------------------------------	---

1) Medical Aid Headquarter

In order to cope with large scale disaster, Medical Aid Headquarter shall be established under observation of Health Agency. Main purpose of this headquarters is to act as a center for medical aid activities and take necessary coordination for dispatching medical aid team, transportation and accepting patients.

2) Activities of Medical Aid Headquarter

Following activities shall be conducted by Medical Aid Headquarter in corporation with local doctors association.

1. Collecting medical information for disaster such as hospitals, community health centers (puskesmas), local doctor associations, dentists, nurses and pharmaceuticals through telecommunication system.
2. Collecting medical activity information conducted by medical institutions covering performance of medical staffs, insufficient medicines, equipments, and available beds.
3. Opening medical aid center near disaster affected area in corporation with the nearest hospitals.
4. Collecting and providing required medicines and equipments by staffs of Medical Aid Center by using existing supplies and equipments.
5. Disseminating information such as place and service at medical aid center, hospitals and puskesmas to community.
6. Collecting and providing information about hospital back up capacity outside disaster affected area.
7. Transporting heavily injured patients to hospitals by using car or helicopter.
8. Dispatching doctors to corpse repository to check the corpses and coordinate acceptance of medical support team from outside disaster affected area.
9. Managing medical support and establishing distribution center of medical equipments.

6.3 Procurement of Medicines and Medical Equipments

<i>Responsible Agency:</i>	<i>Health Agency</i>
-----------------------------------	-----------------------------

Support from provincial health agency will be requested in order to response the shortage-of medicines and medical equipments.

6.4 Mental Health Care

<i>Responsible Agency:</i>	<i>Health Agency, Religious Organization</i>
-----------------------------------	---

PTSD or stress post trauma is sickness caused by larga scale disaster. In order to care and ease mental condition of patients such as elderly and children, Health Agency shall take various measures in corporation with puskesmas, doctors association, and medical volunteer for long period of time.

CHAPTER 7. FIRE FIGHTING MEASURES CAUSED BY EARTHQUAKE

When large scale disaster occurs or possibly will occurred in Kota Pariaman, emergency response system by Firefighter shall be planned as follow.

7.1 Firefighter Office

<i>Responsible Agency:</i>	<i>Firefighter Office</i>
-----------------------------------	----------------------------------

- Emergency response headquarter shall be organized at Firefighter Office for taking necessary measures for disaster management. Head of Firefighter Office shall become the head of emergency response headquarter. Under this organization, local fire fighting system shall cooperate to cope with the problem
- According to level of alert such as level 1~4, certain warning system shall be established at Firefighter Office.

7.2 Emergency Call and Mobilization

<i>Responsible Agency:</i>	<i>Transportation, Communication & Information Agency</i>
-----------------------------------	--

Emergency call and mobilization system of firefighter staffs shall be established in order to take appropriate disaster management measures.

7.3 Information Gathering System

<i>Responsible Agency:</i>	<i>Public Relations Division, Transportation, Communication & Information Agency</i>
-----------------------------------	---

1) Method of Information Gathering

Information on disaster situation and fire fighting shall be collected quickly and smoothly utilizing available telecommunication network and related information sources to apply earthquake fire fighting activity.

2) Information Collection Items

Following information shall be collected to prevent fire extension, secondary disaster and life saving for people who trapped in avalanche of burnt building.

- Fire occurrence and extension
- Human casualties who needed to be rescue
- Necessity of evacuation and evacuation condition
- Damage condition of road, bridge, tunnel, port and railway
- Damage condition of water pipeline, electricity and gas network.
- Available support equipments including fire fighting trucks and boat.

3) Information Sharing Method

Communication network for fire fighting, radio system, internet and other possible system shall be utilized to send information.

7.4 Fire Fighting Activity

<i>Responsible Agency:</i>	<i>UPT Firefighter</i>
-----------------------------------	-------------------------------

Firefighter Brigade shall take appropriate activities to mitigate disaster damage and to rescue human lives and their assets. The Following activities shall be taken.

- Collecting disaster information such as weather condition, water level, high tide, damage condition, and fire fighting operation.
- Patrolling by firefighter to check condition and potential.
- Disseminating information about weather condition and evacuation to community.
- Evacuating residents directly when there is instruction for evacuation.
- Rescuing operation shall be conducted in cooperation with disaster management organizations or related agencies.
- Damage protection activities to prevent secondary damage due to landslide and high tide in cooperation with related agencies.

7.5 Initial Fire Fighting Activity

<i>Responsible Agency:</i>	<i>UPT Firefighter</i>
-----------------------------------	-------------------------------

1) Initial Fire Fighting Activity by Community

After strong earthquake, fire will immediately occurred and spread at several places. In this case, firefighter capacity is not enough to overcome the situation. Therefore, community should cooperate to conduct initial fire fighting to prevent fire extension using available equipments.

2) Initial Fire Fighting Activity by Residents

Residents shall patrol around their neighborhood to check for fire occurrence after earthquake. In case of fire occurrence, residents shall directly inform firefighter office and cooperate to conduct initial fire fighting.

3) Cooperation with Community and Company

Firefighter team that is organized by company should cooperate with surrounding community in conducting initial fire fighting activity.

CHAPTER 8. SAFETY CONTROL/TRANSPORTATION MEASURES

8.1 Safety Control Measures by Police

<i>Responsible Agency:</i>	<i>Police Head (POLRESTA)</i>
-----------------------------------	--------------------------------------

1) Basic Policy for Safety Control

When natural disaster is or going to occur, police shall establish safety control system to take emergency response measures at related area. Main purpose of safety control system is to save communities life, assets and guarantee transportation at disaster affected area. With the safety control measures, social safety will be attained.

2) Establishment of Safety Control System

Head of resort police shall organize emergency response system to manage natural disaster. According to alert level of natural disaster, safety control system should be enhanced. Command system for emergency response shall be established and disaster information sharing system among related agencies shall also be enhanced.

3) Disaster Emergency Response Measures

- Collecting and disseminating disaster information to community.
- Supporting City government to disseminate disaster warning to community.
- Supporting emergency rescue operation in cooperation with city government and related agency.
- Commanding evacuation to community in terms of time and place.
- Managing traffic control to support smooth operation of emergency activities.
- Preventing criminal activities such as robbery in disaster affected area by conducting routine patrol activity in disaster area and evacuation sites.
- Supporting volunteer activities in disaster area and evacuation sites to secure social stability.

8.2 Sea Safety Control and Security Measures

<i>Responsible Agency:</i>	<i>Marine Affairs & Fishery Agency, Police and Pol. PP</i>
-----------------------------------	---

In response to natural disaster occurrence, Marine Affairs and Fishery Agency, and Air and Water Police shall take safety and security measures in sea area in order to protect community and their assets. The following activities shall be conducted.

- Establishment of emergency response system according to disaster situation.
- Collection and sharing of disaster information among related agencies.
- Information dissemination regarding damages of ships, maritime rescue situation, etc in close cooperation with related agencies/institutions.
- Recommendation to evacuate and evacuation area and dispatch warnings to ships.
- Rescue operation in sea area to ship wrecks at time of disaster.

8.3 Road Transportation Measures

<i>Responsible Agency:</i>	<i>Transportation Agency</i>
-----------------------------------	-------------------------------------

Transportation Agency shall analyze disaster information and take necessary transportation control measures to secure emergency transportation network for emergency operation including necessary vehicle operation and evacuation of community. Following activities shall be planned.

- Transportation shall be controlled in disaster area to protect against traffic congestion and inflow traffic from outside. Alternative route and related traffic information shall be disseminated and displayed to solve congestion.
- Transportation of emergency vehicles such as ambulance or rescue operation shall be secured at first priority immediately after disaster occurrence.
- Traffic information shall be collected through police stations and related agencies in order to smooth operation of traffic control.
- Information of traffic control shall be disseminated through display board, announcement by car and utilizing radio broadcasting.
- Emergency vehicles used for giving evacuation warning, firefighter, rescue operation, restoration of damaged facilities, cleaning and controlling disease epidemic, traffic control, police patrol, and other special vehicles shall be checked and managed as traffic priority.

CHAPTER 9. DEBRIS REMOVAL MEASURES

Debris such as rocks, sand and gravels, woods, bamboo etc., generated by landslide or building collapse will be a barrier not only for road transportation network but also for smooth operation of rescue activities in disaster area. Moreover, this debris will cause secondary damage such as flooding in river channel. Therefore, debris removal is an important measure for emergency disaster management. The following measures should be planned.

9.1 Removal Target

<i>Responsible Agency:</i>	<i>Public Works Agency</i>
-----------------------------------	-----------------------------------

Debris removal shall be operated by responsible agency for the following reasons.

- Immediate removal of debris is necessary to protect human life and assets.
- To conduct emergency response operation such as evacuation, fire extinguishes and rescue.
- To protect flooding at river channel.
- To keep traffic safety and transportation route.
- Necessary for related public purposes.

9.2 Removal Officer

<i>Responsible Agency:</i>	<i>Spatial Plan Agency and Environmental Office</i>
-----------------------------------	--

Public Works Agency shall conduct debris removal in cooperation with Spatial Plan Agency and Environmental Office, community, NGO and volunteers.

9.3 Removal Method

<i>Responsible Agency:</i>	<i>Cooperation</i>
-----------------------------------	---------------------------

Public Works Agency shall prepare necessary machines and equipments for debris removal activity such as bulldozer, crane, dump truck and other. Available private owned heavy machines and vehicles shall also be used for debris removal if necessary. Debris removal in main road network, rivers and canals will be given high priority.

9.4 Temporary Storage Sites for Debris

<i>Responsible Agency:</i>	<i>Spatial Plan Agency and Environmental Office</i>
-----------------------------------	--

Temporary storage site for debris shall be prepared either at public open property or private property. Attention shall be paid that dismissal of the debris do not cause secondary disaster.

CHAPTER 10. EMERGENCY TRANSPORTATION MEASURES

Demand for emergency transportations will rise when large scale disaster occurs, such as transportation for casualties and refugees, emergency response and supply delivery staffs. In order to conduct quick and adequate transportation for disaster rescue activities, the emergency transportation measure are planned as follows.

10.1 Securing Transport Equipments

Responsible Agency:	Transportation, Communication & Information Agency
----------------------------	---

1) Vehicles of City Government

Transportation Agency should already register vehicles of City Government which are necessary for emergency transportation activity as emergency vehicles beforehand and keep them under control. Transportation Agency shall requests to allocate the vehicles for transportation agency and use them under instruction of this agency.

No.	Type	Name	Registration No.	Max. authorized payload (unit; tone, person)	Agency

2) Loan Request

In case they cannot handle disaster rescue activities by only using vehicles of City Government, Transportation Agency shall requests vehicle loan as follows.

(1) Request from SKPD in City Government

- Car, Truck and Special vehicle
Request to bus and transportation company
- Fisherman boat/ship
Request to fishermen

(2) Request to Province

- Car, Truck and Special vehicle
- Vessel

(3) Request to Railway Company

In case of railway usage is needed, hence cooperation of railway company can be asked

(4) Request for Air Transportation

In case air transportation is needed, request to utilize air transportation appliance that belong army or police can be applied.

3) Security of Emergency Traffic Vehicle

Transportation Agency issues emergency vehicle certificate to vehicle engaged in emergency transportation activity. The driver has to put the sign/statement letter on vehicle only when conducting emergency transportation activity.

4) Transportation Plan

(1) Prioritized Purpose

Purpose of using emergency transportation is depended on urgent situation. The following are procedure for emergency transportation measures.

A. Phase I (From right after disaster until the second day)

To assists disaster victims directly either to dead or injured victim, the following items are things that should be prioritized to reduce confusion because of disaster.

- Ambulance service, health officer and staffs who manage medical supplies and others
- Firefighter, flood control officer and staffs who manage prevention against disaster
- Staffs or equipment required for first aid of disaster measures, such as staffs from national and city government, electricity, gas, water service security guard
- Injured peoples who are transported to public health center (puskesmas) or hospital
- Staffs and equipments that are necessary for emergency transportation such as transportation facilities, emergency rehabilitation of transportation center and traffic regulation

B. Phase II (From third day after disaster during the first week)

To mitigate damage and manage confusion caused by disaster, the following are main items required to recover life after disaster..

- Continuation of activity on phase I
- Supplies which are necessary to support daily life such as food, water, etc.
- Disaster victims and handicapped who are transported to outside disaster area

- Staffs and equipments that are necessary for emergency rehabilitation of transportation facilities

C. Phase III (After one week since disaster)

To support daily life that became more difficult because of disaster, and things which are necessary to be reconstructed after disaster, mainly focus on the following items.

- Continuation of activity on phase II
- Staffs and equipments that are necessary for reconstruction process after disaster
- Life needs

(2) The Transfer Lines

The transfer lines are referred to “Section 2 Chapter 7, Development of Emergency Transportation Facilities”.

10.2 Securing Transportation Network

<i>Responsible Agency:</i>	<i>Transportation, Communication & Information Agency</i>
-----------------------------------	--

When disaster occurs, Public Works Agency immediately handles the chaos situations of roads, removes obstructions on road and implements emergency rehabilitation to secure the smooth transportation network. In emergency rehabilitation activity, securing smooth transportation network is very urgent.

1) Report of Traffic Barrier

Public Works Agency implements information sharing with related agencies/institutions such as province, police, and obtains or reports the damage situations of road for securing smooth emergency transportation network.

2) Barrier Removal Emergency Transportation Road

Public Works Agency cooperates with province to conduct barrier removal on emergency land transportation.

- After disaster occurs, Public Works Agency inspected damage condition of land transportation. When responsible road management from province inspect the land transportation, Public Works Agency shall cooperates with them.
- When there are barriers by soil, hence Public Works Agency will attempt to collect information regarding the problems and inform them to province government and related agencies.
- Public Works Agency will prioritize road section for removal of barriers in consideration of the importance and effectiveness of emergency transportation road.

CHAPTER 11. DISASTER RESPONSE ACTIVITIES BY COMMUNITY AND PRIVATE ENTERPRISES

Disaster damage mitigation and prevention activities is totally depend on cooperation conducted by community and private company to secure safety of individuals, family and community member. The following measures shall be taken by community and private company.

11.1 Disaster Response Activities by Citizens

<i>Responsible Agency:</i>	<i>Mayor</i>
-----------------------------------	---------------------

1) In house Activities

Community shall take the following disaster response activities:

- Rescuing family members as best as possible and prevent fire occurrence.
- Collecting information through radio or television to get update information regarding disaster situation.
- Preparing portable lamp, radio, medicines, clothes, valuables goods and food.
- Saving drinking water.
- Checking safety of own house.
- Checking safety of family members.

2) Community Activities

Community members shall take following activities to guarantee community safety.

- Community members shall conduct rescue activity and first aid for neighborhood, fire extinguishes, etc, and cooperates with related agencies in emergency measures.
- Check safety of elderly or handicapped living within the community.
- Give first aid to slight injuries.
- Evacuate to temporary evacuation site smoothly according to evacuation instruction.
- Actively join activist community of disaster management.

11.2 Disaster Response Activities by Community Groups

<i>Responsible Agency:</i>	<i>Mayor</i>
-----------------------------------	---------------------

In order to take effective emergency measures, it is important to prepare a well organized and trained community for disaster management. Expected disaster response activities by community are as follows.

- Rescue and first aid shall be conducted for confined victims within a building or house collapse by disaster. Emergency treatment shall be given to necessary victims. If medical treatment is necessary, injuries shall be transported to hospital. Safety check and rescue for elderly or handicapped living in the community is high priority activity.
- Evacuation guide and safety check of the community members at evacuation site is important. For movement of elderly or handicapped to evacuation site, special support should be made by community members.
- Disaster information collection and dissemination shall be conducted through hearing of community and site observation. Collected information shall be reported to Mayor and disseminated to community members precisely to prevent panic.
- Community members shall support and cooperate to distribute drinking water and food services from City Government or Social and Labor Agency, and Social Welfare Division.
- Management and operation of evacuation site shall be conducted by community members in cooperation with NGO or volunteers.

11.3 Disaster Response Activities by Private Company

<i>Responsible Agency:</i>	<i>Private Company</i>
-----------------------------------	-------------------------------

The following are disaster response activities by private company.

- Collecting disaster and damage information in order to minimize damage and encourage necessary activities effectively after disaster occurred. Private companies have to check safety of employees and their family and provide proper aid if necessary.
- Preparing rescue operation and first aid for employees who become disaster victims.
- Conducting evacuation guide smoothly for their employees according to emergency manuals prepared by each private companies.
- Cooperating and joining in community disaster management activities also organizations they owned.
- After completion of damage survey and emergency response, private companies shall start their own activities to restore regional economy.

CHAPTER 12. REFUGEE HANDLING

When disaster occurs and there is a risk of secondary disaster, or there are vulnerable houses as result of earthquake, landslide, etc, it is very necessary to guarantee resident's safety by evacuating to safe area.

This chapter will elaborate plan related to refugee handling such as dissemination of evacuation preparedness information, guidance or instruction to evacuate, acceptance/transfer of refugee, opening of evacuation site, etc.

12.1 Evacuation Plan

<i>Responsible Agency:</i>	<i>Kesbangpol Linmas Office</i>
-----------------------------------	--

1) Evacuation Procedure

Resident's evacuation after earthquake occurred is basically carried out by the residents themselves. However considering uncertainty of road network damage, hence evacuation route could not be determined. Therefore, selection of evacuation routes could be based on actual damage conditions.

2) Evacuation Action

(1) Evacuation Guidance/Instruction (or Self-Supporting Evacuation)

After earthquake occurred,

1. When residential houses are totally or moderately collapsed and resident's lives are in danger
2. When there is risks of fire outbreak or spreading
3. When there is risks of landslide
4. When Tsunami warning is announced and houses are in danger
5. When City Government announced evacuation guidance and instruction

Community is advised to start evacuation promptly.

Basically, evacuation activities to designated evacuation sites are self-supporting evacuation. However, for vulnerable groups, Community Organization for Disaster Risk Management together with neighbor residents shall cooperate to carry out the evacuation.

(2) Temporary Evacuation

As initial step, community will temporary evacuate to nearest evacuation sites or facilities such as schools, mosques, public buildings, and parks for risk aversion. After arrival at evacuation sites or facilities, residents attempt to report safety of themselves and their family and condition of their house to administrators of the evacuation place. After some time, if safety of the house is confirmed, residents will be advised to return to their own houses.

(3) Temporary Evacuation Facility

When houses are damaged or burned or in danger situation because of earthquake, disaster victims shall be accepted at evacuation facilities which safety has been confirmed.

(4) Temporary Housings

When construction of temporary housings is completed, disaster victims who lived at evacuation facilities will be transferred to those temporary housings by giving priority to the elderly.

12.2 Announcement of Evacuation Warnings

Responsible Agency:	Kesbangpol Linmas Office
----------------------------	---------------------------------

To protect residents from disaster and to prevent spreading of damages, hence warning to evacuate (including guidelines and instruction to evacuate) is announced through the following procedures.

Type of Warnings	Description
Evacuation Guidelines	When disaster occurs or have high risk to occur, evacuation warning is announced to community
Evacuation Instruction	Devastating disaster occurs or has high risk to occur, evacuation instruction is announced to community. This instruction is stronger than Evacuation Guidelines.

1) Warning Criteria to Evacuate

1. When Tsunami Warning is announced and there is risk of buildings collapse and inundation by Tsunami
2. When there is risk of building collapse by quake, or fire outbreak, and threatened resident's life
3. When land lide is occurred or there is risk of occurrence, and threatened resident's life
4. When head of Rupusdalops PBP find necessity to evacuate by considering existing condition

2) Person Who Give Evacuation Warning and Order

When resident life is threatened, Mayor will announce warning to residents in hazard area, or in case of emergency situation, to evacuate. However, if Mayor is absent or cannot give evacuation order, hence the substitute, according to sequence, can act on behalf of Mayor and have the same authority to give evacuation warnings.

<ol style="list-style-type: none"> 1. Vice Mayor 2. Administration and Development Assistant 3. Head of Kesbangpol Linmas Office

(1) Decision Making by Supporting Institutions/Agencies

When there is an upcoming danger of disaster, and no time to ask for Mayor's decision, or when Mayor is absent, hence related agencies/institutions could substitute authority of Mayor in giving evacuation warnings to secure lives of residents.

After announcement, related agencies/institutions who give the warnings, will immediately report to Rupusdalops PBP.

(2) Decision Making by Governor

When a very large scale disaster occurs and makes all regulations of Kota Rupusdalops PBP in cannot be implemented, Governor has authority to take over all or part of Mayor's role. Governor will announce when the expropriation will begin and end. When Governor substitutes the role of Mayor, Governor will inform to mayor about the expropriation activity. Then whenever Mayor have recovered and could execute his duty again, Governor will immediately return the roles to Mayor.

3) Contents of Evacuation Warnings

Officer will give warning or instruction for evacuation by clearly mentioning the following items to community who will evacuate.

1. Reason regarding the necessity of evacuation
2. Area that become target of evacuation guidelines/order
3. Evacuation location/site
4. Evacuation Route
5. Things that have to be notice at time of evacuation

4) Deliverence of Evacuation Warnings

Deliverence of evacuation warnings is done by radio communication, mosque loudspeaker, car loudspeaker, and tabuah. For Kota Pariaman level, requires to assigned institution or agency to announce the evacuation warning. This is necessary in order to avoid miscommunication of the order caused by irresponsible party who is trying to take advantage from mass panic.

5) Reporting, and etc**(1) Report to Related Organizations**

When Mayor or related organizations announced evacuation warnings, the situation should be reported to Governor and other agency/institution.

(2) Dissemination to Community

When evacuation warnings are announced or received notification that other related agency gave evacuation warnings, then the situation should be disseminated to community by using communication system owned by City Government. Same as when evacuation warnings are announced, hence update situation will also be informed to community.

6) Announcement of Evacuation Warnings

Mayor will announce evacuation warnings, and when there is emergency condition, he will announce it immediately, and report to Governor.

12.3 Set up of Alert Area

<i>Responsible Agency:</i>	<i>Kesbangpol Linmas Office</i>
-----------------------------------	--

When disaster occurs, or will occur immediately, in order to protect human lives from disaster, and prevent spreading of damages, alert status is determined. Alert Area is configured and strictly limited or prohibited access to the Alert Area except personals engaged for emergency response activities, or order to leave from the Alert Area.

1) **nnouncement to Set up Alert Area**

Alert status is stipulated by Mayor. However, if Mayor is absent or cannot give order for set up of Alert Area, hence the substitute, according to sequence, can act and have the same authority as Mayor to determine the Alert Area.

- | |
|---|
| <ol style="list-style-type: none"> 1. Vice Mayor 2. Administration and Development Assistant 3. Head of Kesbangpol Linmas Office |
|---|

(1) **Substitution by Supporting Organizations**

When there is upcoming danger due to disaster, and no time to ask for Mayor's decision or Mayor is absent, any related agencies/institutions could substitute the authority of Mayor to determine Alert Area to rescue resident's lives.

Those supporting agencies are:

- Transportation, Communication and Information Agency (related to BMG)
- Public Work Agency (Related to rise of river water and area condition)

After announcement, related organizations who gave evacuation warnings, will report to Rupusdalops PBP promptly.

(2) **Decision Making by Governor**

Due to devastating disaster and if regulations of Rupusdalops PBP in Kota Pariaman cannot be implemented, Governor has authority to take over all or part of Mayor's authority. Governor will announce when the expropriation will begin and end. When Governor substitutes the role of Mayor, Governor will inform to mayor about the expropriation activity. Then whenever Mayor

have recovered and could execute his duty again, Governor will immediately return the roles to Mayor.

12.4 Advice for Evacuation and Transfer

<i>Responsible Agency:</i>	<i>Kesbangpol Linmas Office</i>
-----------------------------------	--

1) Advice for Evacuation

1. Advice for Evacuation will be implemented by coordination with local Muspida (head of kecamatan, police at kecamatan level and army at kecamatan level), public figure and religion figure for disaster risk management.
2. At schools and public facilities, administrator of the facility will implement evacuation derivation.
3. Evacuation will be prioritized to vulnerable groups, then after that to public.
4. Evacuation staff will confirm security of evacuation route and indicate danger area to avoid unnecessary accidents on the way to evacuation site.
5. During evacuation, community organizations for disaster risk management, neighbors or community groups should cooperate to conduct disaster risk measures.
6. In order to avoid chaos and danger at evacuation sites, advice residents to bring personal items as minimum as possible.

2) Transfer

When refugees cannot evacuate themselves, evacuation should be done by using vehicles or other means of transportation.

3) Measures for Residents Located in Public Space or Lodging Facility

(1) Measures for Resident Located in Public Space or Lodging Facility

Administrators of public space and lodging facilities, such as hotels, department store, stadiums, etc, shall attempt to prevent refugee confusion caused by disaster, understand their facilities, and try to implement evacuation promptly and effectively. During normal time, they should inform the visitors regarding the nearest evacuation sites, and when disaster occurs, the visitor should be immediately taken to nearest evacuation sites.

4) Remote Area Evacuation at Devastating Disaster

(1) Evacuation to neighboring Kecamatan or Kabupaten/Kota

When large scale disaster occurs and designated evacuation sites is not safe to occupied, Mayor will request and report to Governor to build evacuation sites in neighboring Kabupaten. In case of Kecamatan level, Camat will request and report to Mayor.

However, if in urgent condition, or absence of Governor, or damage of communication system, and cannot request and report to Governor or Mayor, hence neighboring Mayor or Camat can be requested directly.

At certain condition, there are some kecamatan located in remote area and the only possible and safe access is through neighboring Kabupaten; therefore, camat (head of kecamatan) according to his hierarchy, can establish evacuation facility in neighboring kabupaten.

(2) Evacuation Method

Basically, transfer of refugees will be implemented by Kota, however, in case of large scale disaster and disorder of transportation function, hence at this condition aid could be directly requested to neighboring Kecamatan or Kabupaten to cooperate in helping evacuation process.

Moreover, when land transport cannot be used due to roadblock, etc, other means of transport such as sea transport and air transport should also be considered for flexibility.

12.5 Set up of Temporary Evacuation Site and Its Management and Operation

<i>Responsible Agency:</i>	<i>Kesbangpol Linmas Office</i>
-----------------------------------	--

1) Self-Supporting Evacuation before Establishment of Rupusdalops PBP

When disaster occurs and residents feel the necessity of self-evacuation due to danger threat, administrators of evacuation facilities have to accept these refugees in order to guarantee safety of residents. And when administrators of these facilities accepted those refugees, he/she shall immediately report it to Kesbangpol Linmas Office.

2) Establishment of Temporary Evacuation Sites

(1) Criteria to Establish Temporary Evacuation Sites

When evacuation guidance is announced and necessity of self-evacuation is determined, Rupusdalops PBP in corporation with administrators of facilities will discuss and check safety of designated temporary evacuation sites, then establish the facilities.

In urgent condition such as Rupusdalops PBP cannot respond, even before decision by Rupusdalops PBP, administrators of these facilities can decide establishment of temporary evacuation facilities.

(2) Period of Establishment

Period of establishment of temporary evacuation sites will be decided by considering condition of damage, emergency houses repair and construction of temporary housings. However, period can be extended by discussion with Facility Administrators and Kesbangpol Linmas Office.

3) Acceptance of Evacuation Sites

(1) Target Residents

1. Residents whose house suffered from damage and lost their residence
2. Residents whose house suffered from damage and need immediate evacuation
3. Residents who suffer from damage due to disaster and need immediate evacuation
4. Residents who temporarily live in the area and cannot return to their origin area
5. Residents who experience living difficulty due to disaster

(2) Advice for Evacuation

Employee of City Government, *Muspida*, public figure and religious figure who in charge of Disaster Risk Management will cooperate and accept refugees in evacuation sites.

The following remarks should be considered;

1. Giving confirmation for safe evacuation routes, explanation about prohibition to enter dangerous area. Especially during nighttime evacuation they should be very careful, always use lamp, etc.
2. Installing signboard of evacuation route that easy to follow either at noon or at night as well as installing dangerous sign along the evacuation route
3. Deciding and implementing priority of evacuation by discussion with facility administrators in advance.
4. Trying to evacuate family who have family member included in vulnerable group

4) Management and Operation of Temporary Evacuation Sites

Due to limitation of employee at City Government, they cannot be assigned at each evacuation sites, and responsible persons for each evacuation facilities will be its administrators. Therefore, actual management and operation of temporary evacuation sites shall be implemented by refugees themselves. For this reason, the situation shall be disseminated to residents and try to understand their roles in evacuation sites, by training leaders of community organizations for disaster risk management.

However, if the condition of community resources in evacuation site were low, management of evacuation facilities would become responsible of City Government in order to have good management.

(1) Management and Operation Body of Evacuation Sites

Management and Operation of Temporary Evacuation Sites are implemented by facility administrators. However, actual management and operation will be implemented by Community Institution for Disaster Risk Management and local community. Refugees in each evacuation sites should establish a committee for operational implementation at Evacuation Sites.

(2) Fundamental Role of Committee for Operational Implementation at Evacuation Sites

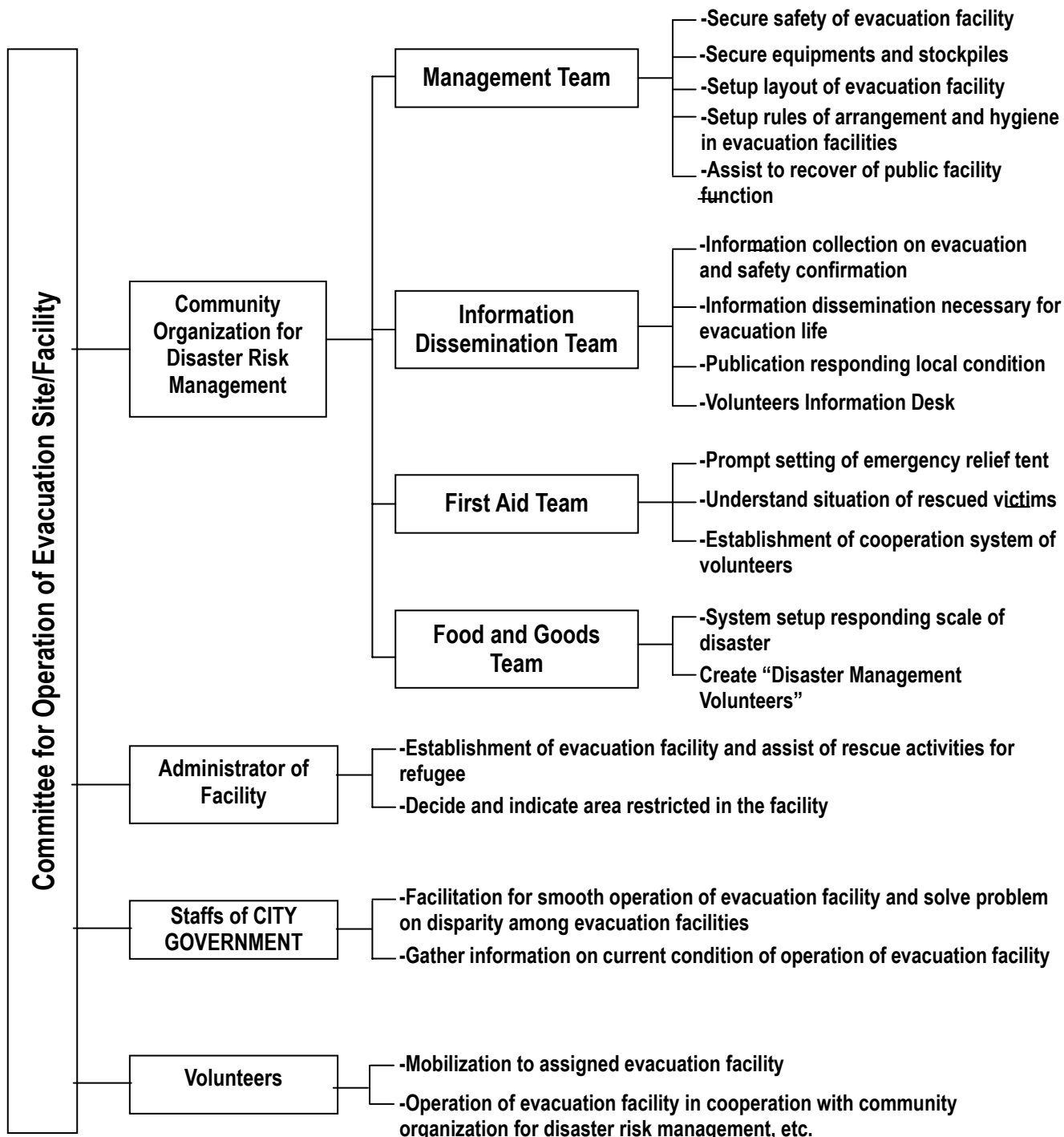
Role of Committee for Operation of Evacuation Sites are as follows;

1. Information Dissemination from Rupusdalops PBP
2. Give sense of safety to residents and prepare list of refugees
3. Discussion, decision, total coordination of aspects related to operation of evacuation sites

4. Preparing rules (such as cleanliness, treatment to garbage, sanitation, search for information from place outside evacuation facility) and comprehensive implementation of the rules so that orderliness in evacuation sites can be achieved.

(3) Composition and Role of Committee for Operation of Evacuation Sites

Management of operational organizer of evacuation site/facility is established by Community Organizations of Disaster Risk Management, administrators of evacuation sites, employee of City Government, volunteers, etc, and each roles are as follows;



(4) Role of Evacuation Sites

Evacuation Sites, establish not only for accepting refugees, but also for supporting residents when urban malfunction occurs due to disaster, and as for regional disaster management base, evacuation sites have following roles;

- Distribution and acceptance posko of water, foods, commodities, and other materials supports However, if supports received is in large amount, it must be received through SATLAK PB due to unavailability of sufficient warehouse in evacuation facility and in order to avoid congested traffic in evacuation site.
- Medical/Aid Treatment Posko
- Information Dissemination Posko

(5) Report on Conditions of Evacuation Sites

Reports on condition of evacuation sites are done at time of establishment of evacuation sites and at its operation time. Contents of report and contacted parties are as follows;

A. At Establishment of Evacuation Sites

RUPUSDALOPS PBP will immediately report to SATKORLAK PB and related SKPD. In case of emergency, administrator of evacuation facility will immediately report their management action to RUPUSDALOPS PBP, and RUPUSDALOPS PBP will report to SATKORLAK PB and related SKPD.

B. At Operation of Evacuation Sites

Administrators of evacuation facility will report to RUPUSDALOPS PBP when evacuation action have completed the first stage on number of refugees, health condition of refugees, and other necessary information. Furthermore, administrators will report to RUPUSDALOPS PBP regarding condition of evacuation sites once a day and RUPUSDALOPS PBP will summarize the collected information (mainly number of refugee) and report to SATLAK PB and related agencies.

5) Environmental Considerations of Evacuation Sites

(1) Considerations on Medical and Health Care

Understand information on refugee condition at evacuation sites, as well as necessary medical and health care, which needed to be improved. Moreover, if evacuation life continues for longer period, doctors and nurses will be dispatched for management of health care activities. Particular for PTSD treatment, if necessary, counselors shall be dispatch to evacuation sites.

(2) Health Care for Refugees

Doctors and Nurses will visit evacuation sites together to give advice on health care measure and nutrition consultation. If there is refugees who is seriously ill, hence he/she should be delivered to hospitals.

(3) Measures for Long Term Evacuation

If staying period at evacuation facility is long, try to give aid in form of televisions, air conditioners, refrigerators, cooking equipments, vacuum cleaner, etc., to help lighten the refugee's life. In addition, install water supply device or shower equipment, washing, etc at open space or parks, and try to keep the hygiene control.

(4) Privacy Protection

In connection with long staying period at evacuation facility, try to keep privacy of the refugees as best as possible to reduce stress at evacuation life.

(5) Measures to Victims outside Evacuation Facilities

If not all disaster victims can be accepted at evacuation facility, and some of the refugees live at open spaces or in tents, these refugees also need special attention and material aid as well as other facilities.

6) Consideration for Vulnerable Groups (Especially for Elderly and Handicapped)

- For preparation on evacuation guidance and order, evacuation preparedness information will be disseminated and vulnerable groups who will take longer time will start evacuation action to designated evacuation sites.
- City Government and Administrator of facilities will cooperate with Community Organization for Disaster Risk Management on safety check and evacuation measures of vulnerable groups.
- For securing life environment at evacuation facilities, and acceptance in temporary shelters, hence Social and Labor Agency will cooperate with volunteers and Welfare posko. The following are points that should be paid attention;
 1. Designated location for vulnerable groups and conducting prompt evacuation
 2. Dispatch staff from welfare posko to community who needs special care such as bedridden elderly, etc.
 3. Designation of Welfare Centers as special evacuation facilities to accept persons who need special care

4. Utilization of Welfare Centers
5. Secure life environment at evacuation sites and procurement of wheel chairs
6. Understanding health condition at evacuation sites
7. Provision of Mental Care Center like PTSD (trauma post stress)
8. Special information to vulnerable groups
9. Priority acceptance in temporary shelters

CHAPTER 13. PANIC PREVENTION MEASURES

Strong earthquake will cause various types of disasters simultaneously at various places. Community will also panic due to the disaster. In order to prevent social panic, following measures shall be planned.

13.1 Panic Prevention due to Lack of Information

Responsible Agency:	Polresta
----------------------------	-----------------

Immediately after occurrence of strong earthquake disaster, following measures shall be taken to prevent social panic within community due to heavy concentration of telecommunication, lack of information by mass media electricity black out, incorrect information and flooding of information, etc.

1) Provision of Necessary Information on Disaster Situation

Necessary information will change sequentially from immediately after occurrence of earthquake until recovery or restoration phase. In order to avoid social panic due to flooding of information, accurate information on disaster situation shall be provided. Following points are planned.

1. Immediately after occurrence of earthquake, disaster information such as disaster situation, tsunami, after shock, damage, prevention of secondary disaster, evacuation, rescue operation and response of government to disaster will be mainly and actively provided. In this phase, attention will pay on social stability and information accuracy.
2. Information on provision of water, foods and daily commodities will be disseminated to settle down social panic which happened just after disaster occurrence and damage situation.
3. Information on lifeline facilities, such as re-opening of lifeline service, transportation, commodity flow, medical service, education and administrative information for reconstruction will be provided after 3 days of disaster occurrence.

2) Method of Information Dissemination

Various types of information dissemination will be utilized such as radio system, TV, internet, SMS and helicopter to provide necessary disaster information to community. Newsletter will be published after disaster occurred.

13.2 Transportation for Panic Prevention

<i>Responsible Agency:</i>	<i>Transportation, Communication & Information Agency</i>
-----------------------------------	--

In order to prevent fire, hence staff and emergency transportation equipments shall be planned as follows.

1) Measures by City Government

1. Rupusdalops PBP shall acquire correct information on disaster situation through collection of transportation information.
2. Barriers including vehicles on the main national road networks connecting to peripheral Kabupaten shall be removed immediately by related agency and communication network shall be established to direct or alternative route of vehicles.
3. Removal of barriers and necessary landfill for emergency road network shall be given high priority.
4. Information on prohibition for general vehicles to enter emergency vehicle route as well as alternative route shall be announced through various media.

2) Measures by Related Institution

1. In order to secure smooth transportation for emergency vehicles and evacuation, Police shall control or prohibit evacuation by private car.
2. Police will control transportation at disaster affected area.
3. Responsible agency of road management will remove barriers on the road.

13.3 Panic Prevention during Evacuation

<i>Responsible Agency:</i>	<i>Mayor</i>
-----------------------------------	---------------------

In case of announcement of evacuation order or instruction for community including commuters, students and visitors to reduce human casualties at disaster occurrence following measures shall be planned.

1) Measures by City Government

1. Evacuation order/instruction shall be disseminated through existing radio communication system. Public announcement car will also be used in consideration of road condition and fire extension.
2. Management staffs of evacuation site will provide information and take proper actions.
3. After identification of safety in damaged area, persons who can go back to their own house will return to home, while persons who cannot go back to their own house will stay at evacuation site.

2) Measures by Related Institution

1. Related agencies will take appropriate evacuation measures according to their responsibilities.
2. Police shall conduct routine patrol in disaster affected area and evacuation sites in case of emergency evacuation take place.

13.4 Panic Prevention at Public Facilities

<i>Responsible Agency:</i>	<i>Polresta</i>
-----------------------------------	------------------------

Management of public facilities such as elevated buildings could accommodate many people. Therefore, they have to conduct disaster management efforts to guarantee safety of the facility users.

1. Disseminate warning and damage information as well as disaster situation to public facilities users.
2. Utilize own facility for evacuation and guide users to regional evacuation site if necessary.
3. In case of evacuation, priority shall be put for handicapped, elderly, infant, patients and pregnant women. Special care shall be provided if necessary.
4. In case of difficulty of self-evacuation and rescue/help, supporting staff, equipments, barriers removal and transportation control etc, shall be requested to related agency.

CHAPTER 14. RESCUE/AID MEASURES

In occurrence of big disaster, many disaster-affected people will lose their cooking equipments including food supply itself and no availability of lifeline functions due to collapse of houses. Moreover, disaster affected people may not get their daily food in shops or markets because of unusual condition of big disaster. Therefore, it will be necessary to supply water, food and daily commodities to disaster affected people to maintain social stability.

It is necessary to conduct cleaning of huge volume of waste and debris generated by big disaster and also necessary measures shall be taken to prevent epidemics in damaged area. Medical aid for injured people and rescue and search operation for missing people are also important activities. Based on the above points, following items are planned.

14.1 Food Provision

<i>Responsible Agency:</i>	<i>Social and Labor Agency, Indonesian Red Cross</i>
-----------------------------------	---

Emergency food services will be provided to disaster affected people and rescue operation staffs by using emergency food supply and local procurement.

1) Conditions of Emergency Food Service

Conditions of emergency food service are, 1) to support refugee, 2) to supply food for emergency rescue operation staffs.

2) Target of Emergency Food Service

Emergency food service will be provided to 1) refugee who lives in temporary evacuation facility, 2) people who cannot cook by themselves due to damage of houses and 3) emergency rescue operation staffs through public kitchen system.

3) Period of Food Service

Emergency food service will be given started from the day disaster occurred until unlimited time.

4) Procurement of Food Materials

Necessary foods such as rice, noodles, instant foods, milk and sugar, etc. will be procured at local market.

5) Food Material Supply

Emergency food should be stored at disaster management center such as Kota office, Kecamatan office or other related institutions such as Indonesian Red Cross.

6) Transportation

Emergency transportation vehicles will be prepared by Transportation Agency to distribute food to necessary sites.

7) Place of Emergency Food Service

Food service will be distributed at evacuation facilities. Foods for those who cannot access evacuation site such as elderly or handicapped shall be distributed by volunteer or community.

14.2 Water Provision

<i>Responsible Agency:</i>	<i>Regional Water Company, Public Works Agency</i>
-----------------------------------	---

Emergency drinking water supply will be conducted to disaster affected people.

1) Minimum Supply

Drinking water allotment given to disaster victims are minimum 3 liters/day.

2) Period of Supply

Drinking water supply will be given started from the day disaster occurred until unlimited time.

3) Place of Water Supply

Drinking water will be supplied at designated sites such as temporary evacuation site and disaster management center.

4) Water Supply Method

Emergency drinking water will be supplied by water tank truck at designated sites and its distribution time according to water distribution schedule. Water allotment for those who cannot access water supply site such as elderly or handicapped will be delivered to them by volunteer or community.

14.3 Provision of Daily Needs

<i>Responsible Agency:</i>	<i>Social and Labor Agency</i>
-----------------------------------	---------------------------------------

Daily necessary commodities such as clothes, blanket, kitchen wears, soaps, etc. will be supplied for those who have lost their own daily necessary materials due to damage of residential house because of disaster.

1) Implementation Agency

Social and Labor Agency will be the responsible agency of daily commodity supply to disaster victims.

2) Period of Daily Needs Supply

Daily commodity supply will be given started from the day disaster occurred until unlimited time

3) Procurement of Daily Needs

Daily needs will be procured from emergency supplies and purchase at local market under the management of Social and Labor Agency. All procured commodities will be stocked at disaster management center in Kota and distributed to evacuation facilities.

4) Management of Daily Needs

Officer from Social and Labor Agency have responsibility to manage all procured commodity.

5) Transportation of Daily Need Material

Transportation Agency shall prepare necessary logistics to transport daily commodities from storage place to necessary evacuation sites. Items and volume of commodities shall be recorded before transport to distribution sites. All distribution data shall be listed and reported to head of Rupusdalops through Social and Labor Agency.

6) Distribution of Daily Needs

Daily needs shall be distributed to each refugee at temporary evacuation site under management of evacuation site manager. The commodities will be also distributed to those who requested necessary commodity supply to Social and Labor Agency due to poor living condition by disaster damage.

14.4 Acceptance of Materials from Other Area

<i>Responsible Agency:</i>	<i>Social and Labor Agency</i>
-----------------------------------	---------------------------------------

In order to supply necessary daily needs to refugee, Social and Labor Agency will accept aid materials from other area that does not affected by disaster.

1) Acceptance of Aid Materials

Necessary list of aid materials for refugee shall be prepared based on request from related agencies. Contents of material list, address to send and term of collection will be determined and disseminated to public through mass media.

2) Acceptance Place of Aid Materials

Designated storage place by Social and Labor Agency will be the first place for acceptance of aid materials from outside of disaster affected area. All aid materials will be transported by air or land transportation system.

3) Distribution of Aid Materials and Its Management

All accepted aid materials would be classified and listed according to accepted date, volume, distribution day, items, place, volume, etc. under management of responsible officer at storage site.

14.5 Set up of Temporary Toilet

<i>Responsible Agency:</i>	<i>Public Works Agency</i>
-----------------------------------	-----------------------------------

Temporary toilet shall be set up at evacuation site based on number of refugee and term of evacuation. It shall be set at public spaces such as park for those who can not utilize own toilet due to house damage. Sanitary condition of temporary toilet shall be taken care by responsible agency and community.

CHAPTER 15. SEARCHING FOR MISSING VICTIM AND CASUALTIES TREATMENT

15.1 Searching for Missing Victim and Casualties Treatment

<i>Responsible Agency:</i>	<i>SAR, Health Agency, Kesbangpol Linmas Office</i>
-----------------------------------	--

1) Searching for Missing Victim and Casualties

Search for missing victim in disaster area shall be conducted by Search and Rescue officer from Padang and Pariaman. Under management of SAR, navy will join in the searching activity. Community will also join for search work for missing victim under head of village responsibility.

If missing person is found still in alive, then he will be transported to designated hospital by possible transportation system such as vehicles, or even a helicopter to give necessary medical treatment. Personal data such as address, name, age, male or female and contact place will be recorded as for reference.

If missing person is found dead, then he will be transported to the nearest medical care center. After identification check and cleaning the dead body by medical doctor, he will be transported to designated hospital. Finally, family or relatives will check and recognize all identifications at hospital. Then dead body will be transferred to family for funeral.

2) Preparation of Mortuary

Preparation of mortuary will be necessary in case of big disaster. Large space such as mosques or gymnasiums shall be designated in close sites to disaster affected area. Selection of candidate buildings shall be made before hand as a part of disaster management plan. In mortuary, medical check, cleaning of corpse, identification by family and transfer service will be conducted.

3) Information Dissemination to Community

Missing victims, who have not been found, could be searched through photograph body characteristics, personal belongings and clothes. This information will be disseminated to community through local community network or Tracing and Mailing Service (TMS) by Indonesian Red Cross.

15.2 Autopsy and Transport of Dead Casualties

<i>Responsible Agency:</i>	<i>Health Agency</i>
-----------------------------------	-----------------------------

Autopsy of dead casualties shall be conducted by police at first. Corpse will be transported to temporary medical treatment site or nearest hospital by responsible agency in corporation with community members or volunteers.

15.3 Identification of Dead Casualties

<i>Responsible Agency:</i>	<i>Health Agency</i>
-----------------------------------	-----------------------------

Corpse repository to accommodate dead casualties shall be opened close to disaster affected area. Personal identification such as gender, size, worn clothes, age and specific characteristics of the body will be checked in detail and recorded by medical doctors.

15.4 Treatment for Dead Casualties

<i>Responsible Agency:</i>	<i>Health Agency</i>
-----------------------------------	-----------------------------

Medical doctors and related experts shall conduct necessary treatment for corpse such as detailed check of injured necessary operation, cleaning, etc. After treatment, based on personal identification data, corpse will be transferred to family.

15.5 Burial or Cremation of Dead Casualties

<i>Responsible Agency:</i>	<i>Cleanliness and Environment Agency</i>
-----------------------------------	--

In case of the total number of dead casualty is limited, funeral and bury of dead shall be conducted by family. However, in case of huge number of dead casualties by large scale disaster, it is impossible to conduct bury individually. Mayor of Kota Pariaman shall order the mass burial.

15.6 Provision of Information to Citizens

<i>Responsible Agency:</i>	<i>Public Relations Division</i>
-----------------------------------	---

Photographs and recorded characteristics of dead casualties who are not yet identified by any family or relatives will be disseminated to community through community network or Tracing and Mailing Service (TMS) by Indonesian Red Cross.

CHAPTER 16. CLEANING, HYGIENE, AND EPIDEMIC PREVENTION MEASURES

16.1 Health Care and Hygiene Measures

<i>Responsible Agency:</i>	<i>Health Agency</i>
-----------------------------------	-----------------------------

1) Hygiene Measures in Disaster Affected Area

Hygiene measures shall be taken in disaster affected area to maintain sanitary condition and prevent epidemic infection. Public toilet space and shower space shall be prepared in evacuation site.

2) PTSD

Mental care shall be given to those who have heavy stress or mental damage such as PTSD by natural disaster. Medical doctors and volunteers in cooperation with Health Agency shall work together to support children, elderly and community for recovery from mental damage.

16.2 Solid Waste Treatment Management

<i>Responsible Agency:</i>	<i>Spatial Plan Agency</i>
-----------------------------------	-----------------------------------

In occurrence of big disaster, large volume of solid waste will be generated by building collapse. It is necessary to remove solid waste from damaged site and clean the area for reconstruction. Waste disposal site shall be prepared. Collected solid waste shall be divided according to its type of material before dumping. Woods, bamboo and related waste should be incinerated at disposal site or reutilized for reconstruction of local house. Other solid waste should be disposed as landfill.

16.3 Human Waste Management

<i>Responsible Agency:</i>	<i>Spatial Plan Agency, Environment Office</i>
-----------------------------------	---

Human waste management will be necessary at evacuation sites. Temporary toilet shall be prepared for refugee. Waste shall be treated properly as sanitary landfill.

16.4 Epidemic Prevention Measures

<i>Responsible Agency:</i>	<i>Health Agency</i>
-----------------------------------	-----------------------------

In occurrence of large scale disaster, epidemic prevention measures should be taken in disaster affected area, especially for evacuation site. It is very important to manage and control health and sanitary condition for refugee at evacuation site and damaged area. Health check is necessary for refugee. If patient is found at evacuation site, necessary treatment procedures shall be taken immediately such as transporting to hospital and give medical care. Following procedure shall be taken to control and prevent epidemics in disaster affected area.

- Conducting fast check of patient or carrier and take necessary preventive measures in disaster affected area and evacuation site.
- Conducting disinfection in disaster affected area and evacuation site to prevent epidemics.
- Conducting vaccination.
- Dissemination of necessary information and instruction for epidemic prevention in cooperation with community activity.
- Preparing necessary chemical materials and equipments for disinfection of the area by related agency.
- Hospital shall be designated beforehand to accept patients of epidemics.

CHAPTER 17. SCHOOL DISASTER MANAGEMENT MEASURES

In occurrence of large scale disaster, safety measures for school students, school facilities and provision of temporary school education shall be planned as follows.

17.1 Management of School Facilities

<i>Responsible Agency:</i>	<i>Youth and Sport Education Agency</i>
-----------------------------------	--

After large scale disaster occurrence, each school principals have to assure safety of students, teachers and staffs. Moreover, each school principals have to check damage of school facilities and report its existing condition of school facilities to Pariaman Mayor through Youth and Sport Education Agency. Based on report submitted to city government, Youth and Sport Education Agency should compile a list of damaged school in disaster affected area and prepare an emergency education plan.

17.2 Measures for Students

<i>Responsible Agency:</i>	<i>Youth and Sport Education Agency</i>
-----------------------------------	--

1) Evacuation for Students

Each school principals have to take proper evacuation measures for students when large disaster occurred during school time according to school disaster management plan. After checking school and surrounding area comprehensively, pupils and students should return to their parents under direction of class teachers.

If it is difficult to return students to their parents due to damage situation, they should be evacuated to preliminarily designated evacuation site. Students will be sent home after the situation is felt safe. It is necessary for teachers to contact student's parents directly to secure safety of students especially those who have handicap or need special care.

2) Check safety of Students

Each school principals have to check safety of students if disaster occurred during holiday or nighttime in cooperation with available teachers by telephone.

3) Temporary School

In case of school facilities have heavily damaged, Youth and Sport Education Agency shall prepare temporary school at damaged area using available building space. Youth and Sport Education Agency will provide temporary teachers and school staffs for damaged area.

Each school principals shall prepare temporary education schedule and programs. After completion of total restoration of school facilities, school principals should inform schedule to return to each schools and initial schedule.

4) Exemption of School Payment

School payment will be exempted for students who are suffered from disaster. School principals have to check damage situation and take necessary exemption procedure.

17.3 Procurement and Provision of School Supplies, etc.

<i>Responsible Agency:</i>	<i>Youth and Sport Education Agency</i>
-----------------------------------	--

Each school principals have to check damage condition of teaching materials such as textbook, notebook, pencils, etc. after occurrence of disaster and report its existing condition to Youth and Sport Education Agency through city government. Based on the report submitted by kota government, Youth and Sport Education Agency will collect and prepare necessary teaching materials. These materials will be provided to pupils and students in disaster area through UPTD Education.

17.4 Management of Education Facilities

<i>Responsible Agency:</i>	<i>Youth and Sport Education Agency</i>
-----------------------------------	--

Management of education facilities such as library, museum and gymnasium have to take necessary safety measures in accordance with disaster management manuals.

CHAPTER 18. RESIDECE AND BUILDING MANAGEMENT

Residential buildings will be damaged by strong earthquake, and there will be many people lose their houses. In order to support these refugees, construction of temporary houses and reparation of damaged houses shall be planned as follow.

18.1 Investigation of Damaged Buildings

<i>Responsible Agency:</i>	<i>Public Works Agency</i>
-----------------------------------	-----------------------------------

1) Preparation

Damage information will be collected to understand volume of damage. Preparation of surveyors and survey tools including detailed map, assessment category and announcement of damage house investigation will be disseminated by Public Works Agency.

2) Survey Method

As a primary survey and evaluation, two surveyors will conduct visual observation from outside of the house. Survey result will be classified into three categories and displayed at the entrance of surveyed house. Based on the survey, detailed survey for certain buildings will be reported by construction experts.

3) Preparation of Damaged Houses List

Survey results will be compiled into damaged houses lists by Public Works Agency and utilized for necessary verification in future.

18.2 Survey of Damaged Residential Land

<i>Responsible Agency:</i>	<i>Public Works Agency</i>
-----------------------------------	-----------------------------------

Damaged residential land will be surveyed to protect from secondary damage and secure safety of residents in disaster area.

1) Preparation

Damage information of residential land will be collected to understand volume of damage. Preparation of surveyors and survey tools, and announcement of investigation will be disseminated by Public Works Agency.

2) Survey Method

As a primary survey and evaluation, one team of three surveyors will conduct visual observation on damaged land. Based on request of residents, technical advice for restoration or rehabilitation of the damaged land will be recommended to protect from secondary damage..

3) Announcement of Survey and Evaluation

Result of survey and evaluation result will be announced and displayed at disaster area to protect or reduce the secondary damage.

18.3 Construction of Temporary Housing and Emergency Restoration of Damaged Buildings

<i>Responsible Agency:</i>	<i>Public Works Agency, BPM, Social and Labor Agency</i>
-----------------------------------	---

Temporary housing will be constructed for those who lost their house and unable to reconstructed by their own fund due to disaster damage. Emergency restoration of damaged houses will also be conducted to secure social stability.

1) Implementation Organization

SATLAK (Public Works Agency) and Community Empowerment Board (BPM) and Social and Labor Agency are the responsible agencies for construction of temporary housings and restoration and rehabilitation of damaged houses in disaster affected area.

2) Construction of Temporary Housing

Temporary housing will be provided to those withn several criteria such as, (1) total collapse or burning of residential house (2) not having residential house, (3) elderly or handicapped who do not have residential house.

Public Works Agency, BPM and Social and Labor Agency shall work together to provide temporary housings for refugee.

3) Location of Temporary Housing

Location of temporary housing shall be selected at safety area, close to existing commercial facility, school, and hospital. Number of temporary housing will be decided by Mayor of Kota Pariaman.

4) Emergency Restoration and Rehabilitation of Damaged Houses

Public Works Agency, Community Empowerment Board (BPM) and Social and Labor Agency will conduct and support emergency restoration and rehabilitation of damaged houses in disaster affected area. Light damaged houses will be the target for restoration and rehabilitation. Emergency restoration and rehabilitation shall be completed within one month after occurrence of disaster.

CHAPTER 19. EMERGENCY MEASURES FOR LIFELINE

If daily utilities such as water, sewerage, electricity, telecommunications, etc. were damaged by disaster, prompt and precise emergency response shall be planned as follows;

19.1 Recovery Information of Lifeline

<i>Responsible Agency:</i>	<i>Public Works Agency, Kesbangpol Linmas Office</i>
-----------------------------------	---

As emergency response on daily utilities such as water, sewerage, electricity, telecommunications, each utility suppliers should try to establish rehabilitation team and immediately conduct rehabilitation process to damages.

Moreover, since these utilities are related, it requires collected information sharing on damage condition and rehabilitation team allocation for comprehensive and effective rehabilitation by coordination among government, related organizations, and utility suppliers.

Furthermore, utility suppliers should also try to prevent more severe damages through publication and dissemination of information regarding damage condition, recovery, and confirm the safety and release user's anxiety.

19.2 Water Supply Facility

<i>Responsible Agency:</i>	<i>Public Works Agency and Regional Drinking Water Company</i>
-----------------------------------	---

1) Damage Investigation

At the same time with occurrence of disaster, damage investigation should be implemented with the following order. After identifying existing damage condition, appropriate water supply plan and emergency recovery plan should be formulated.

1. Facility of water gate, raw water transmission, water purification, and transmission pipe
2. Water resource, pumping place and water distribution pipe
3. Service pipe and water distribution facility

2) Emergency Recovery

Emergency Recovery activities are implemented and led by head of Kesbangpol Linmas Office with related suppliers.

(1) Facility of Water Gate, Raw Water Transmission and Water Purification

Due to rain and storm related disasters, risk of damages to water supply facilities is considered low, however, if the facilities are damaged, hence water supply should be done as best as possible with full efforts and recovery work should be implemented immediately.

(2) Facility for Water Distribution

After damage investigation considering condition of each purification plants and capacity of water reservoirs, pipes with no damage will remain to support smooth water supply by changing distribution route. Then based on priority from upper stream of main pipes, recovery works are implemented. If level of water leakage does not cause secondary disaster, then it considers as low priority and will be repaired after fixing priority points.

(3) Service Pipe

When damaged points of service pipes cause trouble on water flow and cause secondary disaster, etc, hence priority emergency recovery work should be implemented.

19.3 Electric Supply Facility

<i>Responsible Agency:</i>	<i>National Electric Company</i>
-----------------------------------	---

If electric supply facility is damaged due to occurrence of disaster, hence try to avoid from worst damages and immediately conduct emergency recovery activity and try to guarantee continuous electric supply in disaster area.

1) Damage Investigation

At time of disaster, damage investigation should be implemented. After receiving information on damage condition, then emergency recovery plan should be formulated.

2) Emergency Recovery

(1) Basic Policy

A. Establishment of Emergency Response Post

Apart from Rupusdalops PBP, to implement prompt emergency recovery activities, Emergency Response Posko (Commando Center) is established.

B. Principal in Smooth Provision of Electric Supply and Risk Preventive Measures

Considering demand of electric supply, in principal supplier should continue supplying even in the occurrence of disaster and implement emergency response activities smoothly. If there is requests from police and firefighter, etc., risk prevention measures such as stopping supply of electricity will be implemented.

C. Coordination among Related Organization

Based on request to Rupusdalops PBP, staffs are dispatched to have direct communication and coordination with related organizations.

(2) Emergency Response

- In temporary works due to disaster damage, considering there are permanent restoration work and according to its urgency, temporary works are implemented promptly and appropriately.
- Restoration of electric supply facilities is implemented by considering disaster condition, damage condition, and difficulty level.
- Supply electricity to the facilities related with emergency response activities will be given high priority.

- If damage scale is large, conduct coordination between staffs of National Electric Company from peripheral kabupaten/kota and related companies to formulate emergency recovery support team and implement emergency recovery works.

3) Measures taken by City Government

(1) Cooperation and Support

In case of serious damage to electric supply facilities, and there is support request from National Electric Company, City Government will coordinate and give support as best as possible.

(2) Publication to Community

City Government will publish condition of electric supply facilities to the community, and if the following events are found, community should report to nearest National Electric Company.

1. Electric cable is cut and dangling to road surface
2. Trees, TV antennas, etc are collapsed.
3. Sparks, sounds, smokes are detected from electric supply facilities
4. Electric poles are collapsed.

19.4 Telecommunication Facility

Responsible Agency:	TELKOM
----------------------------	---------------

Secure information transmission system due to occurrence of disaster, collect and disseminate the information.

In order to implement emergency response activities smoothly and effectively, coordinate closely with related organizations.

1) Damage Investigation

At the occurrence of disaster, damage investigation is implemented. After grasping existing damage condition, emergency recovery plan is formulated.

2) Emergency Recovery

(1) Basic Policy

A. Establishment of Emergency Response Post

Apart from Rupusdalops PBP, to implement prompt emergency recovery activities, Emergency Response Posko (Commando Center) is established.

B. Principal in Smooth Provision of Telecommunications Service and Risk Preventive Measures

Telecommunications for emergency response activities are indispensable for prompt and effective implementation. However, due to overflow of incoming calls to check safety of relatives and friend from outside disaster area, telecommunication is congested and important call cannot be reached. To avoid such congestion, TELKOM must control incoming calls in case of disaster.

C. Coordination among Related Organization

Based on request to Rupusdalops PBP, staffs are dispatched to have close communication and coordination with related organizations.

(2) Emergency Response

- In temporary works due to disaster damage, considering there are permanent restoration work and according to its urgency, temporary works are implemented promptly and appropriately.

- Restoration of telecommunication service facilities is implemented by considering disaster condition, damage condition, and difficulty level.
- Telecommunication service to facilities related with emergency response activities will be given high priority.
- If damage scale is large, conduct coordination between staffs from neighboring TELKOM office and related companies to formulate emergency recovery support team and implement emergency recovery works.

3) Measures taken by City Government

(1) Cooperation and Support

In case of serious damage to telecommunication facilities and TELKOM requested for aid, hence conduct cooperation and give assistance as best as possible.

(2) Publication to Community

City Government will publish the recovery condition to community

CHAPTER 20. MEASUREMENT OF HAZARDOUS MATERIAL

20.1 Hazardous Materials Storage Facility

Responsible Agency:	Polresta
----------------------------	-----------------

1) Information of Hazardous Materials Storage Facility

Hazardous materials storage facility is storage facility for petroleum, explosive material, high-pressure gas, LPG, toxic and dangerous materials.

2) Preparation of Preventive Activity for Secondary Disaster

To prevent occurrence of secondary disaster by earthquake at hazardous materials storage facility, hence City Government and companies should prepare necessary efforts.

(1) Measures by City Government

Rupusdalops PBP gather information regarding safety guarantee of hazardous materials storage facility, and carry out necessary measures to prevent occurrence of secondary disaster.

(2) Measures by Provider Companies of Hazardous Materials

Administrator, security division, and company manager will carry out security measures in the facility and report the measurement conditions to Rupusdalops PBP.

20.2 Vehicles for Transporting Hazardous Materials

<i>Responsible Agency:</i>	<i>Polresta</i>
-----------------------------------	------------------------

1) Preparation of Preventive Activity for Secondary Disaster

To prevent occurrence of secondary disaster by earthquake at vehicles transporting hazardous materials, City Government and Transportation Company, Provider Company of hazardous materials and management of the place should prepare necessary efforts.

(1) Measures by City Government

Rupusdalops PBP gather information regarding safety guarantee of hazardous materials storage facility, and carry out necessary measures to prevent occurrence of secondary disaster.

(2) Measures by Provider Company of Hazardous Materials

Transportation Company, Provider Company of hazardous material and management of the place will stop their service if there is risk of explosion and carries out emergency inspection, fire prevention, prevent leakage of hazardous materials, and immediately report them to Polresta (City Resort Police) Pariaman and TNI.

CHAPTER 21. ACCEPTANCE PLAN OF FOREIGN ASSISTANCE

International assistance will be required when large-scale disaster occurs. Emergency rescue operations including SAR activity, medical services, construction and management of evacuation facilities will be the first necessary items for disaster management. International aid teams will immediately join after occurrence of disaster. In order to accept foreign assistance, basic plan such as information sharing with national and provincial agencies and necessary procedures should be prepared.

21.1 Information Sharing with National and Provincial Organization

<i>Responsible Agency:</i>	<i>Kesbangpol Linmas Office</i>
-----------------------------------	--

Assistance from various countries will be concentrated after occurrence of disaster.. Most important subject is coordination. In order to accept foreign assistance smoothly and effectively, methodology and procedures for information sharing between Central Government and provincial/local government shall be established beforehand.

Responsible institution or party on disaster area shall collect damage information and transfer them to related agencies both national and provincial/local government. In this damage information, necessary items for assistance shall be mentioned such as medical equipments, equipments for rescue operations, human resources, etc.

21.2 Acceptance of Foreign Assistance

<i>Responsible Agency:</i>	<i>Social and Labor Agency</i>
-----------------------------------	---------------------------------------

Based on past experiences of foreign assistance for disaster management in Indonesia, important lessons shall be reviewed and checked. When big disaster occurs, many countries will offer help and send assistance teams to disaster affected area. Local government shall accept teams and manage their activities. Coordination between countries assistance areas and activities are most important responsibility of local government. Basic manuals and standard procedures for acceptance of foreign assistance for disaster management should be prepared.

Section 4: Post-Disaster (Rehabilitation and Reconstruction Plan)

Earthquake and Tsunami disasters cause extensive damages. Demolition of houses, landslide, tsunami, liquefaction, etc. caused by Earthquake is extremely disturbing the resident's daily life and activities. Rehabilitation and Reconstruction Planning are management plans to be implemented by City Government and related organizations for recovering from damages as soon as possible, so the resident would be able to live normally everyday without any trouble.

CHAPTER 1. REHABILITATION PLAN

For Rehabilitation Management, prompt recovery on daily life and facilities of disaster victims, industries, etc. are expected. City Government plans, to return resident's lives back to normal by establishing service post, temporary housing management, emergency funding, etc. and so on.

1.1 Recovery Measures to Normal Life

<i>Responsible Agency:</i>	<i>Social and Labor Agency and Social Welfare Section</i>
-----------------------------------	--

1) Issuing Disaster Victim Certificate

People suffered from damage will receive aid from government, if disaster victims want to receive such aid; they are required to receive a Disaster Victim Certificate. Kota Pariaman will formulate system to issue such certificate in the future.

2) Giving Aid for Daily Life and Residence

(1) Permanent Housing Management

Supporting long-term house rental by developing public housing for disaster victims, and as an alternative is by giving assistance for renting vacant private houses.

(2) Temporary Housing Guarantee

In rehabilitation process, by utilizing provision of temporary houses, give aid for daily life and guarantee safety for residence for certain period.

3) Establishing Disaster Inspection Post

Service post for disaster victims are established to cover many fields such as safety guarantee, clothing, and shelter, health, mental care, education, occupation, finance, etc, and perceptive consultation to minimize their problems.

1. Based on scale of disaster, if necessary Disaster Service Post will be established
2. To implement service promptly and appropriately to disaster victims, requires close coordination with related organizations
3. On service contents, damage condition, etc, establish service concept with close coordination with related organizations

4) Aid for Mental Care and PTSD

In cooperation with Province, establish service post for victims having mental problem or PTSD suffered form disaster, and based on necessity, counselor, doctor, and nurse will be dispatched to evacuation facilities for consultation for these disaster victims.

5) Aid for Disaster Vulnerable Group

(1) Information Dissemination to Vulnerable Group

Started from occurrence of disaster to reconstruction phase, to be able to support special care for vulnerable groups such as elderly and handicapped, etc., enforce coordination system of information gathering and transmission with organizer of social welfare facilities, and relevant organizations.

6) Management of Disaster Debris

To guarantee implementation framework of debris management from disaster, will be conducted planned collection/transfer, recycle and appropriate treatment/disposal.

7) Management of Emergency Fund

People suffered from damage will receive support from government, if Kota Pariaman has such supporting system; they are required to indicate the system here as well as National and Provincial System.

(1) Distribution of Calamity Fund

The method of the fund distribution must be elaborated. If this has not been done, it is required that the pertinent officials give explanation about the method.

(2) Loan and Tax Exemption

To support disaster victims, Kota Pariaman is preparing a system for low interest loan and tax exemption.

1.2 Rehabilitation of Public Facilities

<i>Responsible Agency:</i>	<i>Public Works Agency</i>
-----------------------------------	-----------------------------------

Rehabilitation is conducted on damaged public facilities, so they could function again by considering the damage condition thoroughly, to prevent damage in future disaster, necessary actions such as reconstruction or improvement of facilities are implemented. In the implementation, depend on the level of damage, facilities with high priority and urgency are selected then rehabilitation works are implemented.

The following Disaster Rehabilitation Works are implemented.

- 1) Public Work Facility Damage Rehabilitation Works
 - (1) River Damage Rehabilitation Works
 - (2) Road Damage Rehabilitation Works
 - (3) Park Damage Rehabilitation Works
 - (4) Port Damage Rehabilitation Works
- 2) Agriculture, Forestry, Fishery Facility Damage Rehabilitation Works
- 3) Water Supply Facility Damage Rehabilitation Works
- 4) Sewage Facility Damage Rehabilitation Works
- 5) Housing Damage Facility Damage Rehabilitation Works
- 6) Social Welfare Facility Damage Rehabilitation Works
- 7) Public Medical Facility and Hospital Damage Rehabilitation Works
- 8) Educational Facility Damage Rehabilitation Works
- 9) Other Public Facility Damage Rehabilitation Works

1.3 Declaration of National Disaster

<i>Responsible Agency:</i>	<i>Mayor</i>
-----------------------------------	---------------------

This section will be added after enacting Governmental Regulation regarding “Level of Disaster”.

CHAPTER 2. RECONSTRUCTION PLAN

In order to create disaster-resilient city, the following basic concepts are formulated.

2.1 Gathering of Relevant Information for Preparation of Reconstruction

<i>Responsible Agency:</i>	<i>Development Planning Board</i>
-----------------------------------	--

1) Initial Consideration of Direct Character and Concept Criteria of Rehabilitation and Reconstruction at Urban Area

- For urban area, based on damage condition, existing infrastructure condition, long-term development plan, urban planning orientation, relevant official suggestion, etc., depend on precise rehabilitation at disaster area, or to prepare aforethought urban reconstruction plan for constructing disaster-resilient city requires appropriate time schedule. Furthermore, it is necessary to consider direct character and concept criteria of rehabilitation and reconstruction at urban area in advance.

2) Consolidation and Storage of Various Data

- For smooth reconstruction, various data, such as landscape, building, ownership, facility, underground facility, etc., are consolidated and stored, and backup system is also developed.

2.2 Basic Concept Formulation of Urban Reconstruction

<i>Responsible Agency:</i>	<i>Development Planning Board</i>
-----------------------------------	--

1) Basic Concept of Urban Reconstruction

- Reconstruction policy at disaster area when region is annihilated by large scale disaster, and extensive damages on socio-economic activities, having consistency in urban structure and industry infrastructure, attempt to solve issues on mid to long term such as constructing more disaster-resilient city. To support aforethought reconstruction, by asking for understanding from residents, reconstruction plan will be formulated. Furthermore, observing progress condition on emergency response and rehabilitation activities, Development Planning Board together with related agencies and organizations will start the preparation of reconstruction activities.
- City development towards urban reconstruction is necessary not only for present residents, but also for other residents in the future; therefore, residents are required to understand the importance of construction of disaster-resilient city with sustainability. Furthermore, establishment of reconstruction committee for disaster damaged region including residents of the area, and formulate reconstruction planning. This process will be cooperated as best as possible between City Government and local residents.

2) Urban Reconstruction Measures

(1) Basic Policy Formulation of Urban Reconstruction

In cooperation with Province, considering damage condition of each region, existing condition of basic infrastructure, long-term development plan, urban planning orientation, etc., depend on the latest condition of reconstruction planning or formulate consideration of region reconstruction, and announce the basic policy officially.

(2) Basic Planning Formulation of Regional Urban Reconstruction and Content Description

By gathering opinion from residents, Development Planning Board together with related agencies and organizations will formulate Basic Plan of regional Urban Reconstruction showing specific reconstruction management, such as reconstruction target, land use policy, development policy of urban facilities, basic policy of urban reconstruction, etc.

(3) Formulation of Temporary Urban Development Plan

Until completion of full-scale reconstruction, by implementing emergency repair of houses and construction of temporary shops, construction of temporary housings, etc., attempt to mitigate evacuation to other region and try to keep local community in the area, Development Planning Board together with related agencies and organizations will formulate Temporary Urban Development Plan.

KOTA PARIAMAN REGIONAL DISASTER MANAGEMENT PLAN

PART 2 RAIN AND STORM DISASTER MEASURES



March 2009



SATLAK PB KOTA PARIAMAN

In cooperation with



JICA STUDY TEAM

Oriental Consultants Co., Ltd.
Asian Disaster Reduction Center

Table of Content
KOTA PARIAMAN DISASTER MANAGEMENT PLAN
- Rain and Storm Disaster Measures -

Section 1: General (Basic Concept of the Plan)

Number	Title	Page
Chapter 1	ELEMENTS COVERED IN THE PLAN	1-1
1.1	Objective of the Plan	1-1
1.2	Interrelations among National Disaster Management Plan, and Regional Disaster Management Plan	1-1
1.3	Revision of the Plan	1-1
CHAPTER 2	STRUCTURE OF THE PLAN	1-2
2.1	Structure of the Plan	1-2
CHAPTER 3	ROLE OF KOTA, SOCIETY AND OTHER DISASTER RELATED ORGANIZATIONS	1-4
3.1	Obligations of Kota Pariaman Government related to Disaster Management	1-4
3.2	Duties of Disaster Management related Organizations	1-4
CHAPTER 4	DISASTER CHARACTERISTICS OF KOTA PARIAMAN	1-5
4.1	Natural Conditions	1-5
4.2	Social Conditions	1-12
4.3	History of Flood and Sediment Disasters	1-20
4.4	Flood and Sediment Disaster Hazard	1-21
CHAPTER 5	DISASTER SOCIO-ENVIRONMENTAL ASPECTS FOR THE PLAN	1-26
5.1	Data related to Disaster from Rain and Strom	1-26
5.2	Development of Computerized Information System	1-26
5.3	Safety of Emergency Transportation Network	1-27
5.4	Providing Lifeline During Disaster	1-27
5.5	Social Expectation to Volunteers, NGOs/NPOs	1-27
5.6	Understanding the needs of Special Care for Vulnerable Group	1-27
5.7	Guidelines for Society Regarding Disaster Mitigation Awareness	1-27
CHAPTER 6	ESTABLISHMENT OF SATLAK PB KOTA PARIAMAN	1-28
6.1	Definition of SATLAK PB	1-28
6.2	Duties of SATLAK PB in Disaster Management Cycle	1-28
6.3	Members and Organization Structure of SATLAK PB	1-28
6.4	Member Obligation in SATLAK PB	1-28

Section 2: Pre-Disaster

(Pre-Disaster Management Plan)

Number	Title	Responsible Agency	Page
CHAPTER 1	CAPACITY DEVELOPMENT OF DISASTER MANAGEMENT ORGANIZATION		2-1
1.1	SATLAK PB	SATLAK PB	2-1
1.2	Improvement of RUPUSDALOPS PBP	Mayor	2-1
1.3	Supports from Other Area	Social and Labor Agency	2-1
CHAPTER 2	ENHANCEMENT OF DISASTER MANAGEMENT CAPACITY FOR CITIZENS AND PRIVATE COMPANY		2-2
2.1	Expectation to Citizens	SATLAK PB	2-2
2.2	Expectation to Society	SATLAK PB	2-2
2.3	Expectation to Private Company	Cooperation, Industry & Trading Agency	2-2
2.4	Volunteer Organization	Kesbangpol Linmas Office (National Unity & Public Protection Office)	2-2
2.5	Dissemination of Disaster Management Knowledge	Transportation, Communication and Information Agency and Public Relations Division	2-2
CHAPTER 3	RESPONSE ENHANCEMENT FOR VULNERABLE CITIZENS		2-3
3.1	Measures for Vulnerable Group	Social and Labor Agency	2-3
3.2	Foreigner Management	Demographic and Civil Statistics Agency	2-3
3.3	Safety of Infants and Children	Health Agency	2-3
CHAPTER 4	DEVELOPMENT OF DISASTER INFORMATION COMMUNICATIONS NETWORK		2-4
4.1	Design of Disaster Communication System	Transportation, Communication and Information Agency, City Government Public Relations Division	2-4
4.2	Operational of Disaster Information Communications Network	Transportation, Communication and Information Agency, City Government Public Relations Division	2-4

4.3	Operational Skill Improvement for Employees	Transportation, Communication and Information Agency, City Government Public Relations Division	2-4
CHAPTER 5	RESCUE/ RELIEF, MEDICAL TREATMENT MITIGATION PLAN		2-5
5.1	Capacity Building of Fire Fighting	Firefighter	2-5
5.2	Education for Citizens and Communities	SATLAK PB	2-5
CHAPTER 6	SAFETY CONTROL/ RESCUE MEASURES		2-6
6.1	Safety Control and Rescue Preparedness Measures by Police	Police Head (POLRESTA) and Police Syndic (Pol. PP)	2-6
6.2	Safety Control and Rescue Preparedness Measures in Waters	Marine Affairs and Fishery Agency	2-6
CHAPTER 7	DEVELOPMENT OF EMERGENCY TRANSPORTATION FACILITIES		2-7
7.1	Development of Emergency Transportation Facilities	Transportation Agency	2-7
CHAPTER 8	EVACUATION AND PREPAREDNESS OF TEMPORARY HOUSING		2-8
8.1	Temporary Evacuation Area	Public Works Agency	2-8
8.2	Evacuation Facilities	Public Works Agency	2-9
8.3	Formation of Evacuation Plan	National Unity & Public Protection Office	2-12
8.4	Measures of Temporary Housing	SATLAK PB, Public Works Agency	2-12
CHAPTER 9	DEVELOPMENT OF DISASTER MANAGEMENT FACILITIES		2-13
9.1	Supply of Disaster Management Equipments and Goods	Public Works Agency	2-13
9.2	Supply of Emergency Foods and Commodities	Social and Labor Agency, People Welfare Division	2-13
9.3	Supply of Drinking Water, and etc	Region Drinking Water Company	2-13
CHAPTER 10	MEDICAL TREATMENT AID AND INFECTION DISEASE PREVENTION MEASURES		2-14
10.1	Development of Activity Base of Medical Treatment	Health Agency	2-14
10.2	Supply of Medicine and Medical Equipments and Goods	Health Agency	2-14
10.3	Prevention of Disease Prevention	Health Agency	2-15
10.4	Preparedness Measures of Corpse	Health Agency & Indonesian Red Cross	2-16
CHAPTER 11	DISASTER MANAGEMENT IN SCHOOL		2-17
11.1	Formulation of Evacuation/ Derivation/ Protection Plan	Youth and Sport Education Agency	2-17

11.2	Preparedness Measures of School Facilities for Emergency Situation	Youth and Sport Education Agency	2-17
11.3	Disaster Management Education	Development Planning Board (BAPPEDA), Youth and Sport Education Agency	2-18
CHAPTER 12	PROMOTING PLAN FOR DEVELOPING DISASTER SAFE PARIAMAN		2-19
12.1	Promoting Disaster Safe Land Use Planning	Development Planning Board	2-19
12.2	Development of Disaster Mitigation Facilities	Spatial Planning Agency	2-21
CHAPTER 13	EROSION CONTROL AND SABO MEASURES		2-23
13.1	Erosion Control Measures	Public Works Agency	2-23
13.2	Sabo Measures	Public Works Agency	2-24
CHAPTER 14	FLOOD MITIGATION PLAN		2-25
14.1	Measures for Rivers	Public Works Agency	2-25
14.2	Drainage Measures	Public Works Agency	2-27
14.3	Maintenance and Repair of Flood Disaster Mitigation Facilities	Public Works Agency	2-28
CHAPTER 15	SEDIMENT DISASTER MITIGATION MEASURES		2-29
15.1	Disaster Mitigation Measures for Failure of Steep Slope	Company of Forestry	2-29
15.2	Disaster Mitigation Measures for Reclaimed Land	Public Works Agency	2-31
15.3	Comprehend location of High Risk Area of Sediment Disaster	Agency of Forestry and Plantation	2-31
CHAPTER 16	SECURE SAFETY OF BUILDINGS		2-32
16.1	Secure Safety of Private Buildings	Public Works Agency	2-32
16.2	Secure Safety of Public Buildings	Public Works Agency	2-34
CHAPTER 17	SECURE SAFETY OF LIFELINE		2-35
17.1	Coordination Enhancement among Lifeline Provider Companies and Pemerintah Kota	Social & Labor Agency, Regional Drinking Water Company, National Electricity Company, TELKOM	2-35
17.2	Water Supply Facility	Public Works Agency, Regional Drinking Water Company	2-35
17.3	Electric Facility	National Electricity Company	2-35
17.4	Telecommunications Facility	TELKOM	2-35

Section 3: Emergency Response

(Disaster Emergency Response Plan)

Number	Title	Responsible Agency	Page
CHAPTER 1	EMERGENCY RESPONSE SYSTEM		3-1
1.1.	Initial Response System (IRS)	Mayor Office	3-1
1.2.	Warning Deployment System	Mayor Office	3-3
1.3.	Rupusdalops PBP (Emergency Response Headquarters) and SATLAK PBP	Mayor	3-4
1.4.	Rupusdalops PBP Staff Mobilization	Mayor	3-9
CHAPTER 2	DISASTER INFORMATION GATHERING AND DISSEMINATION PLAN		3-12
2.1	Communication Tools	Transportation Agency, Public Relations Division	3-12
2.2	Establishing of Operation System of Disaster Communication System	Transportation, Communication & Information Agency, Public Relations Division	3-12
2.3	Receiving and Transmitting Weather Forecasts and Warnings	Transportation Agency, BMG Public Works Agency	3-13
2.4	Collection of Disaster Information	Information and Communication Office	3-15
2.5	Publication of Disaster Information	Public Relations Division	3-15
CHAPTER 3	REQUEST FOR SUPPORTS		3-16
3.1.	National and Province	Social and Labor Agency	3-16
3.2.	Peripheral Kabupatens/Kota	Social and Labor Agency	3-16
3.3.	Disaster Management Related Organizations	Kesbangpol Linmas Office (National Unity & Public Protection Office)	3-16
3.4.	Military, etc	Commander of District Military 0308	3-16
3.5.	Volunteers	Kesbangpol Linmas Office	3-16
CHAPTER 4	SEDIMENT DISASTER MANAGEMENT		3-17
4.1.	Warning, Evacuation, and Guidance Measures	Kesbangpol Linmas Office	3-17
4.2.	Preventive Measures for Secondary Disaster	Public Works Agency	3-17
4.3.	Publication and Dissemination of Information to Community	Public Relations Division	3-17
CHAPTER 5	FIRE FIGHTING MEASURES		3-18
5.1.	Fire Fighting Organization	Fire Fighting Office	3-18
5.2.	Emergency Call and Mobilization	Transportation, Communication & Information Agency	3-18

5.3.	Fire Fighting Activity	Fire Fighting Office	3-19
CHAPTER 6	SAFETY CONTROL / TRANSPORTATION MEASURES		3-20
6.1.	Security Control Measures by Police	Indonesian Police	3-20
6.2.	Sea Safety Control and Security Measures	Marine Affairs & Fishery Agency, Police and Pol. PP	3-21
6.3.	Road Transport Management	Transportation, Communication & Information Agency	3-22
CHAPTER 7	DEBRIS REMOVAL MEASURES		3-23
7.1.	Target of Removal	Public Works Agency	3-23
7.2.	Team of Removal	Cooperation	3-23
7.3.	Method of Removal	Cooperation	3-24
7.4.	Temporary Storage Sites for Debris	Spatial Plan Agency and Environmental Office	3-24
CHAPTER 8	EMERGENCY TRANSPORTATION MEASURES		3-25
8.1.	Securing Transport Equipments	Transportation, Communication & Information Agency	3-25
8.2.	Securing Transportation Network	Transportation, Communication & Information Agency	3-28
CHAPTER 9	DISASTER RESPONSE ACTIVITIES BY COMMUNITY AND PRIVATE ENTERPRISES		3-29
9.1.	Disaster Response Activities by Citizens	Mayor	3-29
9.2.	Disaster Response Activities by Community Groups	Mayor	3-29
9.3.	Disaster Response Activities by Private Enterprises	Private Enterprises	3-29
CHAPTER 10	EVACUATION MEASURES		3-30
10.1.	Announcement of Evacuation Warnings	Kesbangpol Linmas Office	3-30
10.2.	Set up of Alert Area	Kesbangpol Linmas Office	3-33
10.3.	Advice for Evacuation and Transfer	Kesbangpol Linmas Office	3-33
10.4.	Set up of Temporary Evacuation Facility and Its Management and Operation	Kesbangpol Linmas Office	3-33
CHAPTER 11	RESCUE/AID MEASURES		3-34
11.1.	Food Provision	Social and Labor Agency, Indonesian Red Cross	3-34
11.2.	Water Provision	Regional Drinking Water Company, Public Works Agency	3-34
11.3.	Daily Commodity Provision	Social and Labor Agency, Transportation Agency	3-34
11.4.	Acceptance of Goods from outside Disaster Affected Area	Social and Labor Agency	3-34
11.5.	Rescue, First Aid, Medical Treatment Measures	Health Agency	3-35

11.6.	Procurement of Medicines and Medical Equipments	Health Agency	3-37
11.7.	Health Care and Hygiene Measures	Health Agency	3-37
11.8.	Solid Waste Management	Spatial Plan Agency	3-38
11.9.	Human Waste Management	Spatial Plan Agency, Environment Office	3-38
11.10.	Epidemic Prevention Measures	Health Agency	3-39
11.11.	Searching for Missing Victim and Casualties Treatment	SAR, Health Agency, Kesbangpol Linmas Office	3-40
CHAPTER 12	SCHOOL DISASTER MANAGEMENT MEASURES		3-41
12.1.	Management of School Facilities	Youth and Sport Education Agency	3-41
12.2.	Measures for Students and Pupils	Youth and Sport Education Agency	3-41
12.3.	Procurement and Provision of School Supplies, etc	Youth and Sport Education Agency	3-41
12.4.	Management of Education Facilities	Youth and Sport Education Agency	3-41
CHAPTER 13	RESIDENCE AND BUILDING MANAGEMENT		3-42
13.1.	Investigation of Damaged Buildings	Public Works Agency	3-42
13.2.	Survey of Damaged Residential Land	Public Works Agency	3-43
13.3.	Construction of Temporary Housing and Emergency Restoration of Damaged Buildings	Public Works Agency, Community Empowerment Board, Social and Labor Agency	3-44
CHAPTER 14	EMERGENCY MEASURES FOR LIFELINE		3-45
14.1	Recovery Information of Lifeline	Public Works Agency, Kesbangpol Linmas Office	3-45
14.2	Water Supply Facility	Public Works Agency, Regional Water Company	3-45
14.3	Electric Supply Facility	National Electric Company	3-45
14.4	Telecommunication Facility	TELKOM	3-45
CHAPTER 15	ACCEPTANCE PLAN OF FOREIGN ASSISTANCE		3-46
15.1	Information Sharing with National and Provincial Organization	Kesbangpol Linmas Office	3-46
15.2	Acceptance of Foreign Assistance	Social and Labor Agency	3-46

<p>Section 4 : Post-Disaster</p> <p>(Rehabilitation and Reconstruction Plan)</p>
--

Number	Title	Responsible Agency	Page
CHAPTER 1	REHABILITATION PLAN		4-1
1.1.	Recovery Measures to Normal Life	Social and Labor Agency and Social Welfare Section	4-1
1.2.	Rehabilitation of Public Facilities	Public Works Agency	4-1
1.3.	Declaration of National Disaster	Mayor	4-1
CHAPTER 2	RECONSTRUCTION PLAN		4-2
2.1	Gathering Relevant Information for Preparation of Reconstruction	Development Planning Board	4-2
2.2	Basic Concept Formulation of Urban Reconstruction	Development Planning Board	4-2

Section 1:GENERAL

(Basic Concept of the Plan)

CHAPTER 1. ELEMENTS COVERED IN THE PLAN

1.1 Objective of the Plan

SATLAK PB Kota Pariaman collaborated with JICA Study Team to prepare this Kota Pariaman Regional Disaster Management Plan based on Law No.24 2007 regarding Disaster Management enacted on 29th of April, 2007. This plan clearly mentions whole picture of disaster management in chronological order, consists of Measures in Disaster Mitigation, Preparedness, Emergency Response, Rehabilitation and Reconstruction. This plan aims to implement emergency response activity based on pre-prepared comprehensive plan, and reduce damages and save residents lives and their assets, as well as maintain social order and public welfare from disaster.

1.2 Interrelations among National Disaster Management Plan, and Regional Disaster Management Plan

This plan is interrelate with National Disaster Management Plan prepared by BNPB (Badan Nasional Penanggulangan Bencana-National Disaster Management Agency), and Provincial Regional Disaster Management Plan which at the moment also in process of formulation.

1.3 Revision of the Plan

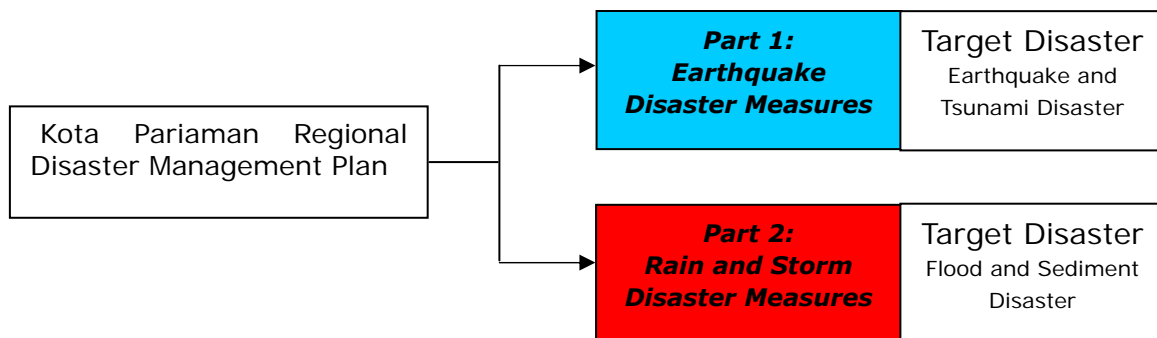
This plan will be revised periodically and/or when required to keep efficiency of disaster management. In every revision, SATKORLAK PB should carefully investigate the contents of draft version of revised regional disaster management plan to keep the interrelations with disaster management plan in other area and in higher level.

CHAPTER 2. STRUCTURE OF THE PLAN

2.1 Structure of the Plan

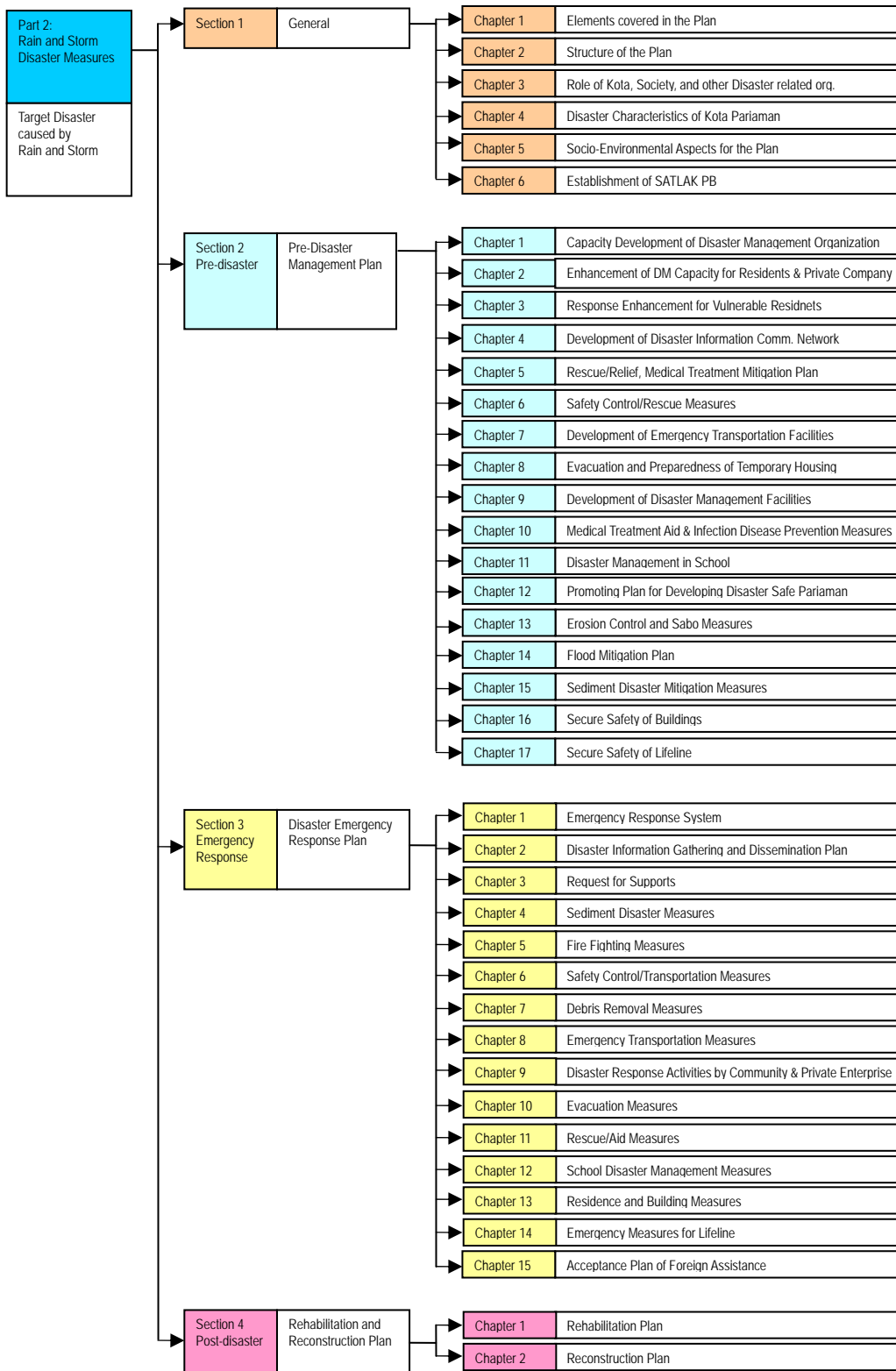
1) Composition of the Plan

This plan formulated as a basic plan to dealt with possible disasters in Kota Pariaman, and it composed of “Part 1: Earthquake Disaster Measures”, and “Part 2: Rain and Storm Disaster Measures”. This part of the plan contains “Part 2: Rain and Storm Disaster Measures”.



2) Contents of the Plan (Part 2: Rain and Storm Disaster Measures)

Contents of “Rain and Storm Disaster Measures” are as follows;



CHAPTER 3. ROLE OF KOTA, SOCIETY AND OTHER DISASTER RELATED ORGANIZATIONS

Kota Pariaman government and disaster management related organizations have mandate to prevent occurrence of disaster, or mitigate damage, and for securing resident's life, and their assets.

3.1 Obligations of Kota Pariaman Government related to Disaster Management

The disaster management and refugee handling at local region through following actions/implementations:

1. Mayor as Unit Administrator Chief of the disaster management and refugee handling (SATLAK PB) responsible for coordinating, leading, and controlling, the regional structural and non structural activities in implementing disaster management and refugee handling in Kota area before, during, and after disaster and evacuation.
2. Camat as Operational Unit Chief of the disaster management and refugee handling (Unit Ops PBP) is responsible in coordinating the sub-regional structural and non structural activity in implementation before, during, and after disaster and evacuation in Kecamatan areas.
3. Chief of Village/Lurah as Hanship/Linmas Unit Chief responsible to coordinate and control the communities activity in implementation of disaster management and refugee handling before, during, and after disaster and evacuation in village kelurahan areas.

3.2 Duties of Disaster Management related Organizations

Disaster management related organizations have obligation to support and help activity to mitigate damage by prompt action and with close coordination with Kota Pariaman when disaster occurs.

CHAPTER 4. DISASTER CHARACTERISTICS OF KOTA PARIAMAN

4.1 Natural Conditions

Kota Pariaman is one of the 19 Kabupaten/Kota in West Sumatera Province. Kota Pariaman is officially formed as Autonomic City by the issuance of Law No. 12 R Year 2002. Kota Pariaman is geographically located in 0°33'00" - 0°40'43" South Latitude and 100°10'33" - 100°10'55" East Longitude. Kota Pariaman is laid on strategic lane of West side of Sumatera which connects the North Sumatera Province and the capital of West Sumatera Province, Kota Padang with distance about 35 km from the Minangkabau International Airport – West Sumatera.

As the enlargement region of Kabupaten Padang Pariaman, therefore most of the boundaries surrounded by Kabupaten Padang Pariaman, such as follow:

- North : Kecamatan Sungai Limau, V Koto Kp. Dalam, and V Koto Timur
- East : Kecamatan VII Koto Sungai Sarik
- South : Kecamatan Nan Sabaris and Ulakan Tapakis
- West : Indonesian Ocean

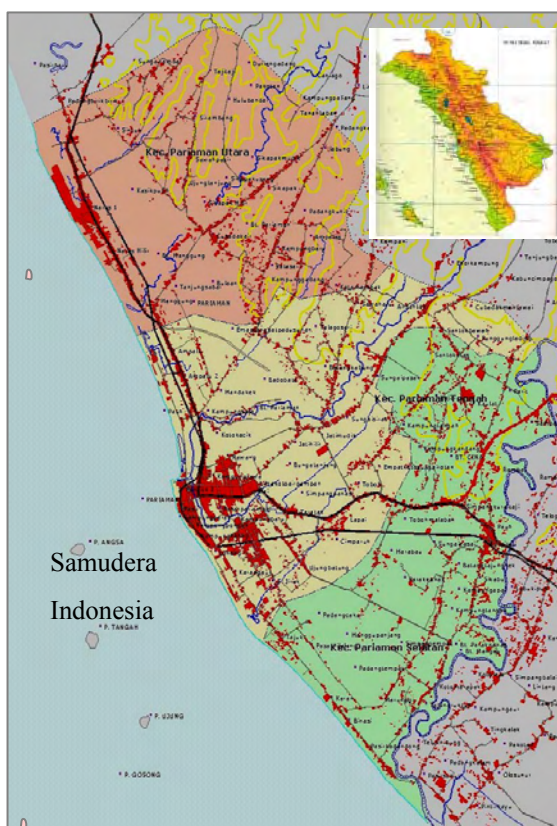


Figure 4.1.1 Administrative Boundaries of Kota Pariaman

Kota Pariaman is an old city located in the west coast of Sumatera Island, which has been known since year 1500. As an area located in the coastal, Pariaman has flat lowland. Similar to other regions in the coastal line, the topographical condition, geomorphology and the shape of the area all together create a pattern of river flow. Kota pariaman is passed by four rivers, those are Batang Manggung passing through Kecamatan North Pariaman, Batang Pariaman and its tributary Batang Jirak passing through Kecamatan Central Pariaman and Batang Mangau passing through Kecamatan South Pariaman.

The Topographical condition of Kota Pariaman can be grouped into types of morphology level with the elevation between 2 – 35 meters above the sea level with the land area of 73.54 km² and the water area of 282.69 km² with six small islands: Bando Island, Gosong Island, Ujung Island, Tengah Island, Angso Island and Kasiak Island. The length of the coast is approximately 12.7 km. The spread of the coral and group of small islands make this region rich of maritime resources. There are at least more than 70 species of fish in the sea water of Kota Pariaman. This is a potential maritime that undeveloped yet.

Kota Pariaman region only has few amounts of hills. Here, the agriculture plants are thrived, such as rice, palawija, coconut, melinjo and other horticulture plants. The area by the slope can be detailed as follow:

Topographical Condition	North Pariaman	Central Pariaman	South Pariaman	Total (ha)
Flat (0-2%)	2479	2313	1994	6786
Wavy (3-15%)	0	64	120	184
Steep (16-40%)	366	0	0	366
Very Steep (>40%)	0	0	0	0
Total (ha)	2845	2377	2114	7336

1) Landform of Kota Pariaman

West Sumatra Province is a mountainous region with level of 3,000 meters above sea level that formed by Paleozoic tary rock and Igneous rock that lays along the active volcanoes to the east. The Great Sumatran Fault segregates the province in the center—the topography fault clearly visible—in the North-northwest (NNW) to the South-southeast (SSE) direction. The stretch of land between the central mountain range and the shore is made of volcanic uplands and pyroclastic flow uplands with a narrow coastal plain distributed along the seacoast.

Kota Pariaman is located in about 20 km distance from Maninjau caldera lake, Tandikat volcano with 2,347m elevation and its twin Singgalang volcano with 2,877m, which provided large amount of volcanic products to Kota Pariaman. Most of volcanic uplands spreading over wide area of Kota Pariaman consist of massive amount of pyroclastic flow deposit by huge eruption that formed the Maninjau caldera lake 52,000 years ago. The elevation of volcanic uplands is several tens meter in western end of Kota Pariaman, and about 50 m in eastern side. The deposited material is unconsolidated and includes fine-grained material used for brick production.

The lowlands in Kota Pariaman are coastal plain along coastline and valley bottom plain on the rivers in volcanic uplands.

The coastal plain is distributed in long and thin range along seashore. Sand bars, beach ridges and sand dunes in parallel with coastline are formed by well-sorted sand layer, whose thickness exceeds 5m. Marsh argillaceous deposit is distributed in inter-levee lowland. The city center of Kota Pariaman is located on the old sand bars and beach ridges belt with 5 m elevation above sea level. The river mouths are blocked by sand bars and cause poor drainage in many rivers.

The geomorphologic map legend and results are given in Table 4.1.1 and Figure 4.1.2.

Table 4.1.1 Geomorphological Map Legend of Kota Pariaman

Landform Group	Landform type	State of landform
Lowland	Sand bar, Beach ridge and Sand dune	High land along the coast
	Coastal plain	The plain along the coast
	Meander belt	Flood plain with clear meander trace
	Alluvial fan	Flat lowland from mountain area to the coast consist of fluvial deposits
	Valley plain	Flat lowland in the valley
	Flood plain	Flat lowland by sequential floods
	Back marsh	Marsh behind the river channel
Terrace	River terrace	Fluvial terrace
Volcano	Low relief hill	Low relief hills formed by Maninjau Caldera eruption. Because of the fine materials, many small valleys are developed.
	Pyroclastic flow upland	Pyroclastic flow upland formed by Maninjau Caldera eruption. Flat surface remains more than low relief hills .

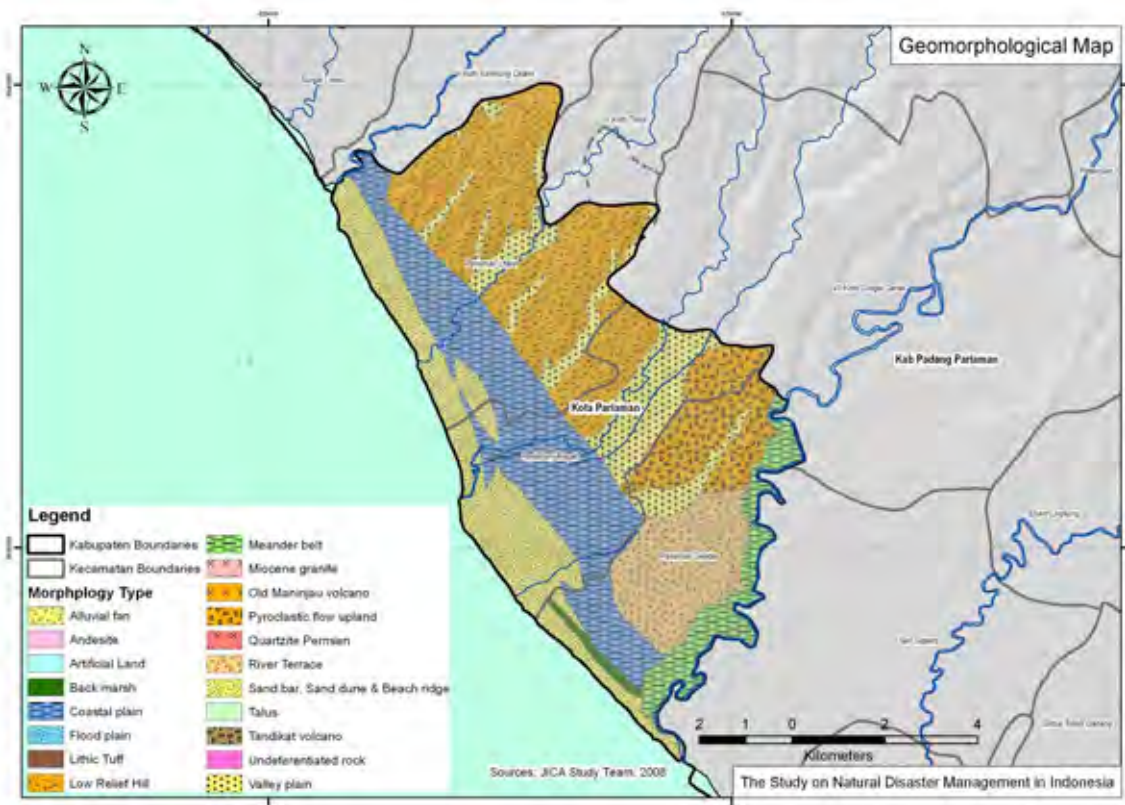


Figure 4.1.2 Geomorphological Map of Kota Pariaman

2) Geology

The stratigraphy of this region is a unit from the recent period to Permian Paleozoic.

Table 4.1.2 shows the geology of Kota Pariaman.

Table 4.1.2 Geology of Kota Pariaman

Geologic Age	Geology	Rock Type and Stratigraphy
Quaternary	Alluvial Deposits	Eolian deposit
		Fluvial deposit
		Marine deposit
		Debris flow deposit
	Volcanic Products	Volcanic ash
		Edifice collapse deposit of Tandikat volcano
		Volcanic Products of Tandikat volcano
		Pyroclastic rock and pyroclastic flow deposit from the Old Maninjau volcano

- Alluvial Deposits

There is a large amount of alluvial deposits that can be divided into fluvial deposits and marine deposits. The river basin consists of fluvial deposits spread in the upland and hills. The main t is sand and gravel, while the main feature near the estuary is sandy and clayey ts. The layers are an alternation of beds of clay and gravel. The main t of the fluvial deposit of Kota Pariaman is pumiceous sand.

Marine deposits are found in a long narrow strip along the seashore, mainly at the city center of Kota Pariaman. The sand bars, beach ridges and sand dunes along the coast form a sand bed made of uniform grain size that exceeds 5 meters in depth. The inter-levee lowland features marshy, argilliferous t.

- Quaternary Volcanic Products

There is a huge amount of pyroclastic products from the Old Maninjau volcano which consists mostly of a large number of pyroclastic deposits from the huge eruption 52,000 years ago that formed the Maninjau caldera. North-eastern part of Kota Pariaman is covered by pumiceous sand. Pyroclastic flow deposits that appear in plateau cliffs are at least 30 meters thick.

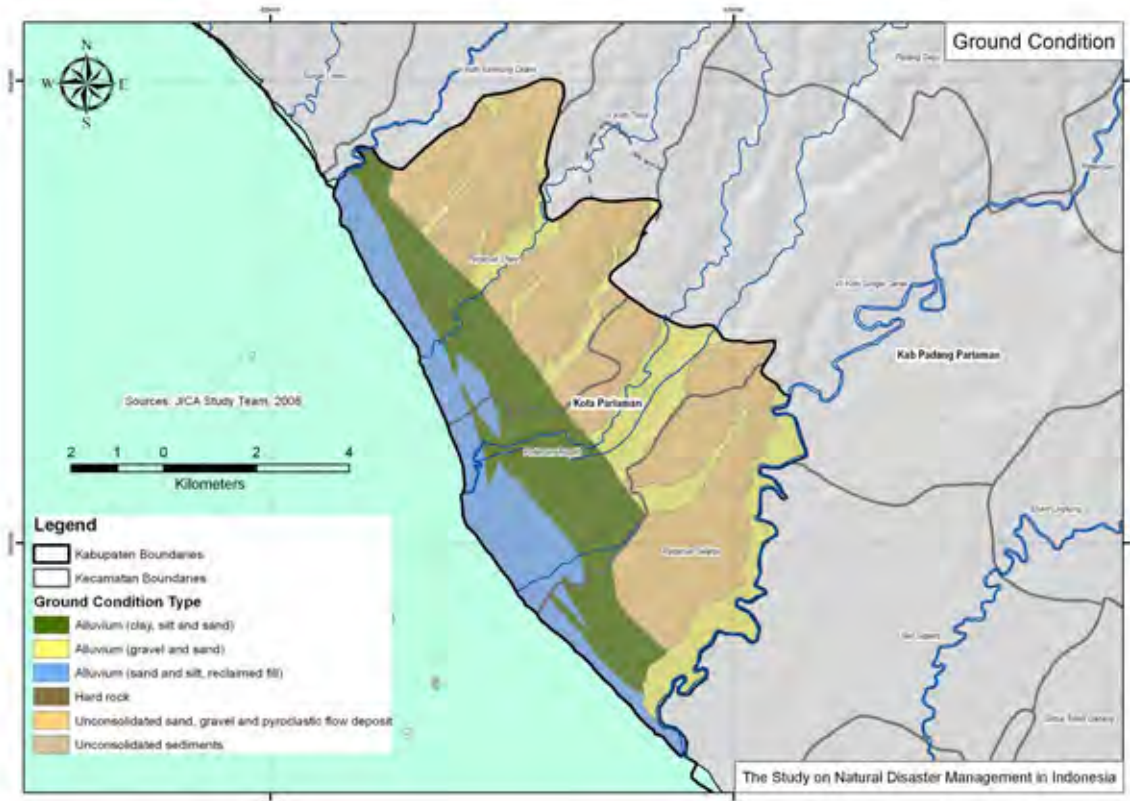


Figure 4.1.3 Ground Condition Map

3) Climate

Rainfall characteristics of Kota Pariaman are as follows. The rainfall data used was collected and organized by PSDA (Dinas Pengelolaan Sumber Daya Air (Water Resource Management Agency)) from the following organizations:

- BMG : Badan Meteorologi dan Geofisika (Meteorological and Geo-physical Agency)
- PLN : Perusahaan Listrik Negara (National Electricity Company)
- DPU : Dinas Pekerjaan Umum (Public Works Department)
- Kimpraswil : Pemukiman Prasarana Wilayah (Region Settlements and Infrastructures)
- Dep Pertanian Irigasi (Agriculture and Irrigation department)

Table 4.1.3 Rain Gauge Stations and Annual Rainfall

No.	Name of Station	Southern Latitude (LS)	Eastern Longitude (BT)	River Basin	Kabupaten	Administrator	MEAN	Observation Period
1	Manggopoh, Lb. Barung	00° 17' 02" LS	100° 03' 10" BT	Setang Antokan	Agam	DFU Kab.	2922.4	25
2	Kasang	00° 46' 30" LS	100° 19' 00" BT	Setang Anai	Padang Pariaman	Kimpraswil	4574.9	27
3	Santok	00° 35' 35" LS	100° 09' 48" BT	Setang Pariaman	Padang Pariaman	Dep Pertanian	3875.9	29
4	Paraman Talang	00° 29' 10" LS	100° 15' 45" BT	Setang Mangau	Padang Pariaman	Kimpraswil	5052.4	23
5	Lubuk Napar	00° 33' 20" LS	100° 20' 25" BT	Setang Anai	Padang Pariaman	PSDA/Kimpraswil	4488.4	29
6	Batu Surok	00° 53' 50" LS	100° 27' 15" BT	Setang Kuranji	Padang Pariaman	PSDA/Kimpraswil	3876.3	29
7	Ladang Padi, Lb. Kilangan	00° 56' 35" LS	100° 31' 08" BT	Setang Arau	Padang	PSDA/Kimpraswil	4113.1	31
8	Simpang Alai, Pauh	00° 56' 04" LS	100° 26' 20" BT	Setang Kuranji	Padang	PSDA/Kimpraswil	4024.2	31
9	Gunung Sarik	00° 53' 02" LS	100° 24' 24" BT	Setang Air Dingin	Padang	PSDA/Kimpraswil	4110.6	31
10	Komplek PU, Padang Baru	00° 55' 50" LS	100° 21' 50" BT	Setang Arau	Padang	PSDA/Kimpraswil	3459.5	20
11	BMG Tabing	00° 53' LS	100° 22' BT	Stg. Kuranji	Padang	BMG	4198.9	32
12	BMG Padang Panjang	00° 27' 24.6" LS	100° 23' 49.2" BT	Stg. Anai	Padang Panjang	BMG	3516.4	31
13	Sidinjin	00° 32' 44" LS	100° 17' 54" BT	Stg. Anai	Padang Pariaman	BMG	4178.0	20
14	Gunung Nago, Pauh	00° 54' 00" LS	100° 27' 10" BT	Setang Kuranji	Kodya Padang	Kimpraswil	4087.9	19
15	Kandang IV, Jk11 Enam Lingsung	00° 28' 40" LS	100° 22' 33" BT	Setang Anai	Padang Pariaman	Dep Pertanian	5167.6	23
16	Maninjau, Tanjung Raya	00° 25' 57" LS	100° 04' 57" BT	Setang Antokan	Agam	PLN	3542.8	22

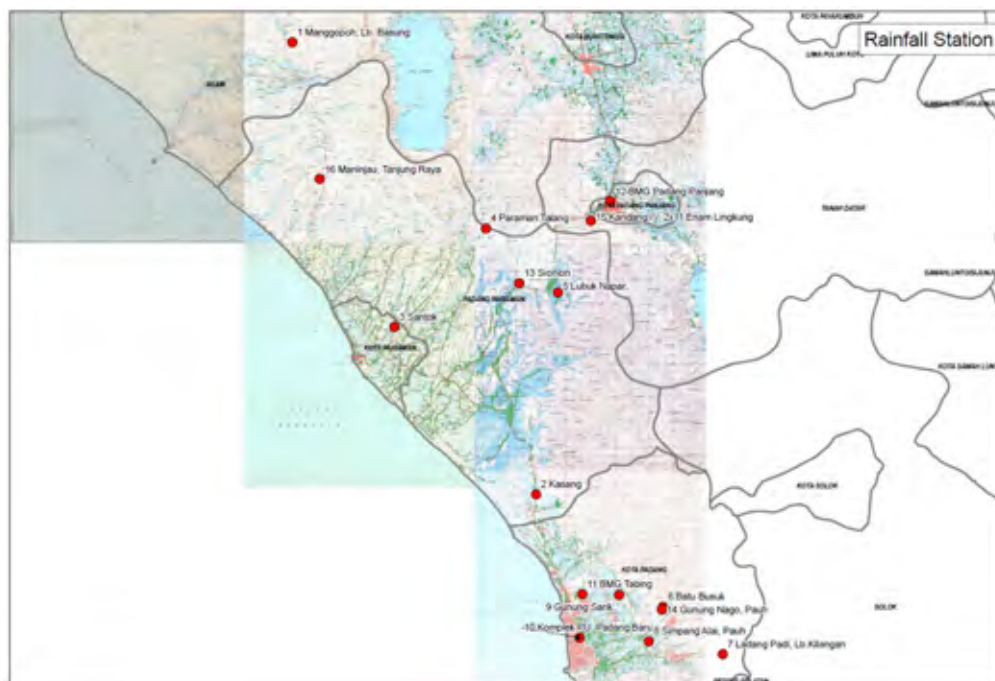


Figure 4.1.4 Rain Gauge Station Map

Annual average rainfall distribution map of Kota Pariaman was created using the annual average rainfall data from all stations. The result is shown in Figure 4.1.5.

The result shows that the distribution of annual average rainfall is between 3,000 mm/year - 5,000 mm/year. Kota Pariaman receives comparatively small precipitation.

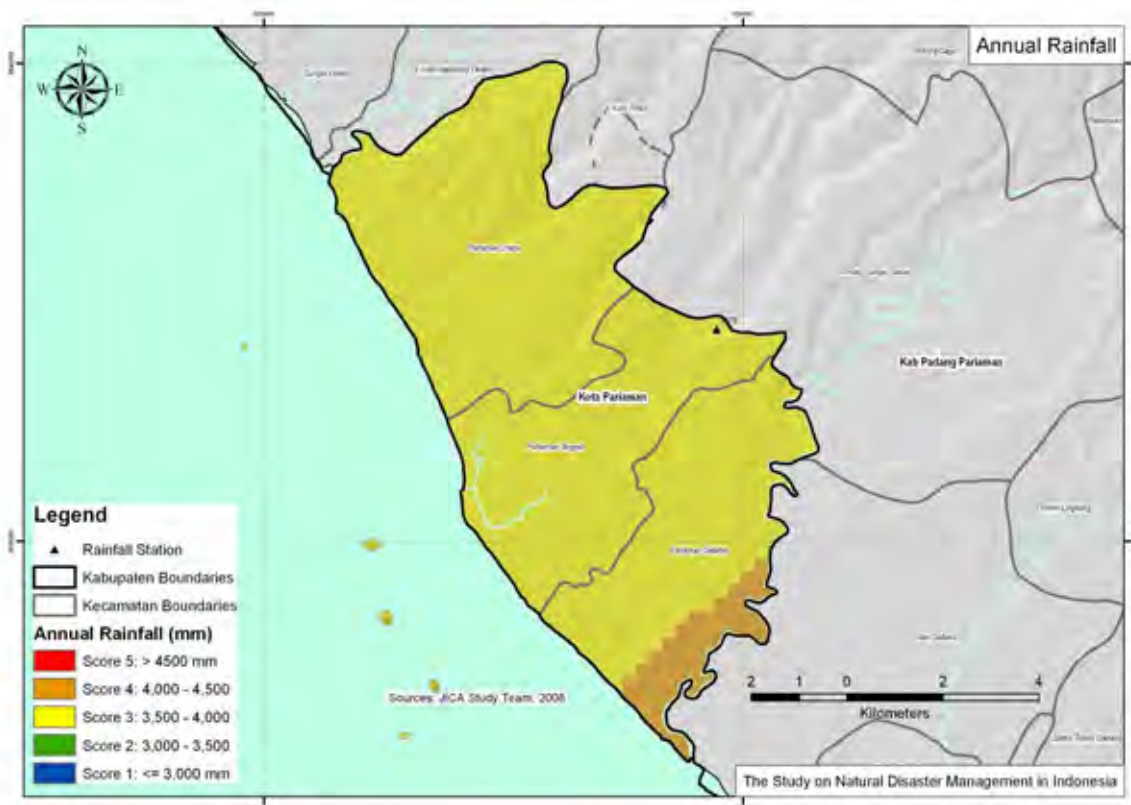


Figure 4.1.5 Annual Mean Rainfall Distribution Map of Kota Pariaman

4.2 Social Conditions

1) Population

Refers to the Population Data from Board of Population, Civil Registration and Family Planning of Kota Pariaman per August 2005, the total number of population of Kota Pariaman recorded as much as 78,758 people, consists of 37,452 males and 41,306 females, with average population density of 1,074 people/km². The most population is in Kecamatan Center Pariaman, which is 33,691 people.

The details about the total number of the village, household and population density can be seen in the table below:

Table 4.2.1 Population and Household dissemination by Village/ Kelurahan in the Year of 2005

NO	NAME OF KECAMATAN	TOTAL		TOTAL POPULATION				POPULATION DENSITY
		VILLAGE	KELURAHAN	M	F	TOTAL	HOUSEHOLD	
1	PARIAMAN UTARA	21	0	11,733	13,230	24,963	4,663	877
2	PARIMAN TENGAH	13	16	16,117	17,574	33,691	6,347	1,417
3	PARIAMAN SELATAN	21	0	9,602	10,502	20,104	3,724	951
JUMLAH		55	16	37,452	41,306	78,758	14,734	1,074

The residents of Kota Pariaman are Minangkabaunese (race of Minangkabau) and use the Minang language. They are well-known as the tough and unique who integrate the values of tradition and religion (Islam) in their daily life and also practice the kinship of matrilineal (follow the mother's line). The Life Philosophy is: Tradition Based on Habits, and Habits based on Kitabullah (the Holy Book of Al Qur'an).

The total population based on age shows that the young age residents under 15 years old is grouped as high, which is 27,073 people or about 35.07% from the total amount of Kota Pariaman population. This kind of composition draws the age dependence especially the young age is still rather high. It means that the economics burden load of the productive age residents (15-64 years old) is grouped as heavy/ tough.

Generally, the comparison of the total number of males and females is close to one, 0.92 which means the number of females are more than the males. It seems so clear in the group of age of 15-19 years old and above. We can see the table of the total number of population based on age below:

Table 4.2.2 Total Number of Population Based on Age

Golongan Umur / Age Group		Laki-Laki / Male	Perempuan / Female	Jumlah / Total
(1)		(2)	(3)	(4)
0 -	4	4 597	4 204	8 801
5 -	9	4 593	4 197	8 790
10 -	14	4 913	4 567	9 480
15 -	19	4 337	4 907	9 244
20 -	24	2 613	3 060	5 673
25 -	29	2 205	2 710	4 915
30 -	34	2 342	2 556	4 898
35 -	39	2 405	2 480	4 885
40 -	44	2 215	2 255	4 470
45 -	49	1 689	1 874	3 563
50 -	54	1 236	1 405	2 641
55 -	59	1 015	1 210	2 225
60 -	64	976	1 342	2 318
65 -	69	759	1 133	1 892
70 -	74	713	1 113	1 826
75 +		530	1 050	1 580
Jumlah /				
2006		37 138	40 063	77 201
2005		37 446	39 560	77 006
2004		36 390	39 016	75 406
2003		35 449	38 007	73 456
2002		34 475	37 924	72 399

A Table below is the details of total number of population based on Village/Kecamatan.

**KECAMATAN NORTH PARIAMAN
July 2005**

NO	NAME OF DESA/ KELURAHAN	TOTAL NUMBER OF POPULATION		TOTAL
		MALE	FEMALE	
1	AMPALU	987	1,088	2,075
2	APAR	414	442	856
3	MANGGUNG	793	876	1,669
4	TANJUNG SABAR	287	276	563
5	KAMPUNG GADANG	702	700	1,402
6	KP.BARU PADUSUNAN	575	558	1,133
7	TALAGO SARIAK	437	522	959
8	SIKAPAK TIMUR	423	591	1,014
9	SIKAPAK BARAT	703	913	1,616
10	CUBADAK AIR	584	721	1,305
11	CBD AIR SELATAN	342	399	741
12	CBD AIR UTARA	650	762	1,412
13	TUNGKAL SELATAN	457	562	1,019
14	TUNGKAL UTARA	495	452	947
15	SUNGAI RAMBAI	432	518	950
16	PAKASAI	251	322	573
17	PDG.BIRIK-BIRIK	525	518	1,043
18	BALAI NARAS	830	829	1,659
19	NARAS I	1,006	1,312	2,318

20	NARAS HILIR	510	527	1,037
21	SINTUK	330	342	672
	TOTAL	11,733	13,230	24,963

**KECAMATAN SOUTH PARIAMAN
JULY 2005**

NO	NAME OF DESA/ KELURAHAN	TOTAL NUMBER OF POPULATION		TOTAL
		MALE	FEMALE	
1	BALAI KURAITAJI	472	665	1,137
2	SIMPANG	272	345	617
3	PUNGG.LADING	744	819	1,563
4	PS.SUNUR	144	145	289
5	TOBOH PALABAH	492	550	1,042
6	PAUH KURAITAJI	339	417	756
7	KP. KANDANG	688	560	1,248
8	KP. TANGAH	308	251	559
9	KAJAI	336	320	656
10	KALUAT	233	362	595
11	PDG.CAKUR	183	166	349
12	MARABAU	369	379	748
13	SIKABU	120	125	245
14	PL.ANEH	372	453	825
15	SEI.KASAI	233	190	423
16	BTG.TAJONGKEK	343	371	714
17	TALUK	1,179	1,140	2,319
18	KP.APAR	358	320	678
19	RAMBAI	358	464	822
20	BUNGO TANJUNG	875	1,136	2,011
21	MARUNGGI	1,184	1,324	2,508
	TOTAL	9,602	10,502	20,104

**TOTAL NUMBER OF POPULATION OF KECAMATAN CENTER PARIAMAN
JULY 2005**

NO	NAME OF DESA/KELURAHAN	POPULATION		TOTAL
		MALE	FEMALE	
1	JAWI-JAWI II	680	688	1,368
2	ALAI GELOMBANG	507	635	1,142
3	JALAN KERETA API	282	336	618
4	KP. PONDOK	767	750	1,517
5	RAWANG	557	478	1,035
6	AIR SANTOK	532	563	1,095
7	TARATAK	436	425	861
8	JAWI-JAWI II	507	441	948

9	PAUH BARAT	848	775	1,623
10	PONDOK II	595	577	1,172
11	CUBADAK MENTAWAI	255	299	554
12	KAPUNG JAWA II	475	465	940
13	JALAN BARU	447	836	1,283
14	SUNGAI SIRAH	165	189	354
15	PASIR	526	600	1,126
16	KAMPUNG PERAK	478	493	971
17	LOHONG	649	655	1,304
18	KARAN AUR	750	1,030	1,780
19	JATI HILIR	317	307	624
20	JATI MUDIK	297	259	556
21	CIMPARUH	1,065	1,115	2,180
22	PAUH TIMUR	700	704	1,404
23	KAMPUNG BARU	1,603	1,741	3,344
24	BATO	320	378	698
25	SUNGAI PASAK	407	490	897
26	UJUNG BATUNG	360	580	940
27	KAMPUNG JAWA I	450	517	967
28	BATANG KABUNG	510	544	1,054
29	KOTO MARAPAK	632	704	1,336
TOTAL		16,117	17,574	33,691

The map below shows the administrative boundaries based on Kecamatan and Desa in Kota Pariaman.

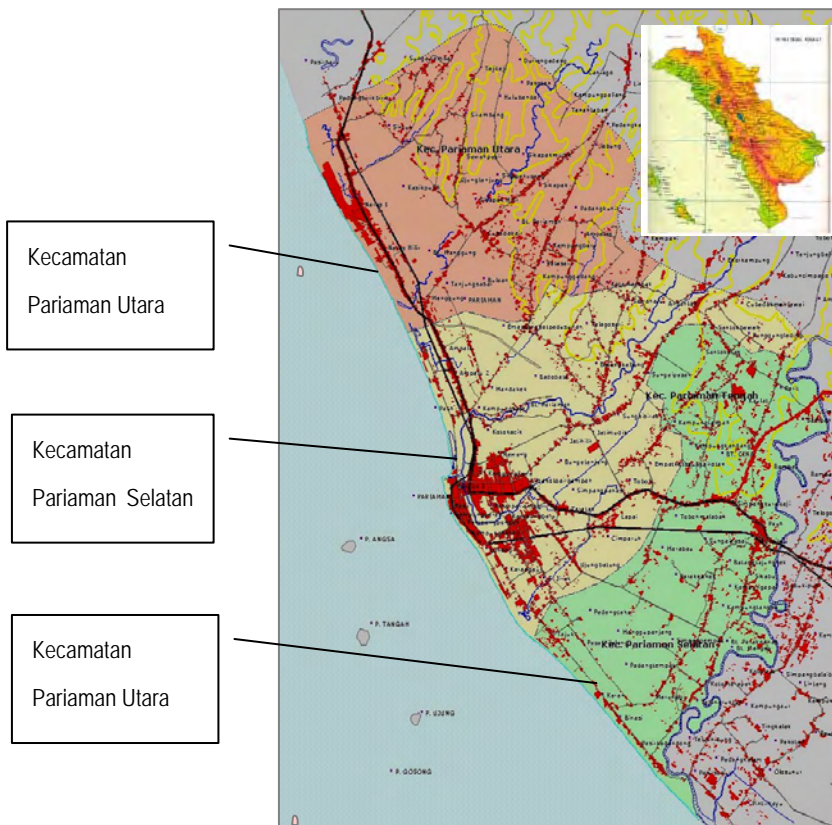


Figure 4.2.1 Administrative Boundaries

Figure 4.2.2 shows the gross population of Kota Pariaman. To come up with a more realistic population density map, Figure 4.2.3 shows the net population density. To create this map, population data was linked to both administrative boundaries and built up area maps from BPN (National Board of Land Affairs), 2000. The map clearly shows that the population is distributed mainly along the main and collector roads connecting the west to the east part of Kota Pariaman. Some of the significant settlement pockets can be found in the coastal areas.

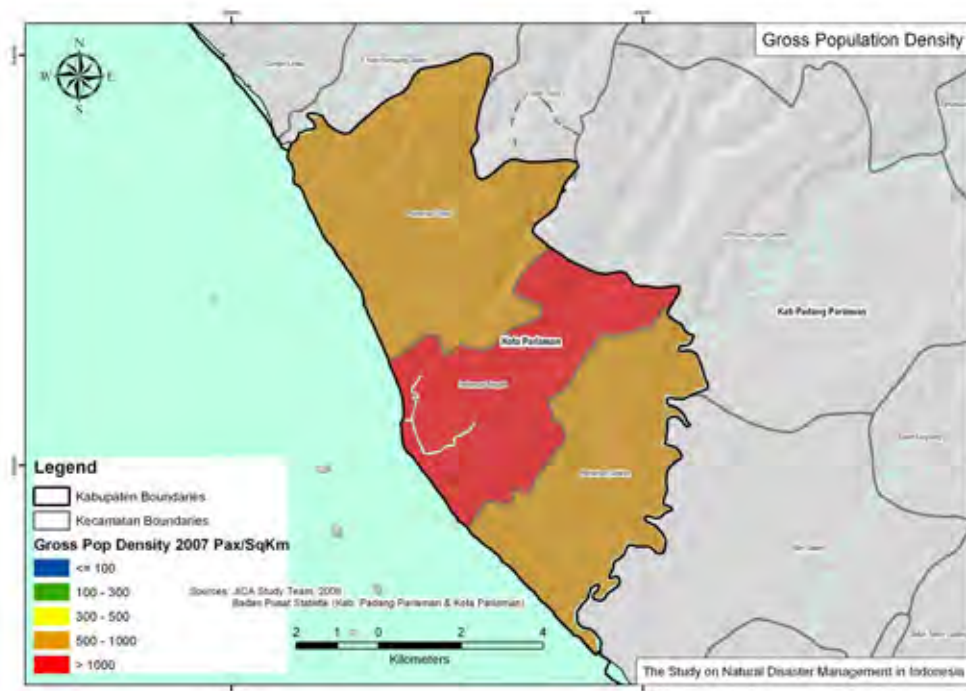


Figure 4.2.2 Gross Population Density of Kota Pariaman

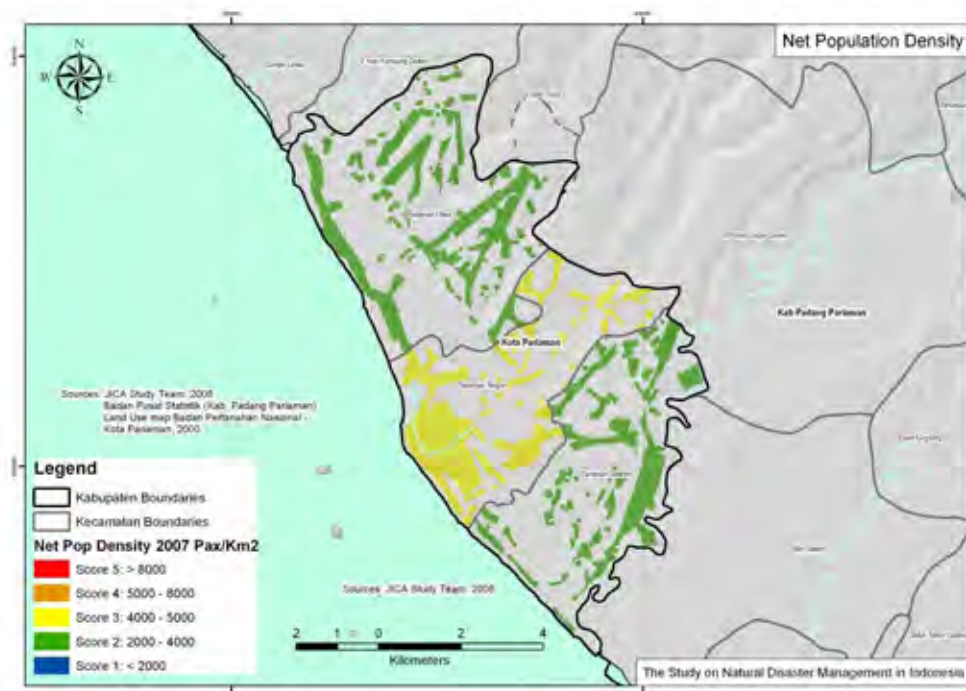


Figure 4.2.3 Net Population Density of Kota Pariaman

2) Building Structure

Information on building structure is another significant consideration in disaster management. For Kota Pariaman, the main source of the building inventory data is the Bidang Data dan Pengembangan BAPPEDA Kota Pariaman (Data and Development Division of BAPPEDA Kota Pariaman). They conducted a building survey in May 2008. Table 4.2.3 summarizes the building data collected by Kecamatan.

Table 4.2.2 Total Number and Type of Buildings by Kecamatan

Kecamatan	Total Number	Masonry	Concrete Masonry	Wood	RC	Other
Pariaman Utara	4,838	955	2,679	387	220	598
Pariaman Tengah	6,468	1,276	3,582	517	293	799
Pariaman Selatan	4,062	802	2,250	325	184	502
	15,368	3,033	8,511	1,229	697	1,899

Source: BAPPEDA KOTA PARIAMAN, 2008

Figure 4.2.4 is a thematic map showing building distribution by type for Kota Pariaman.

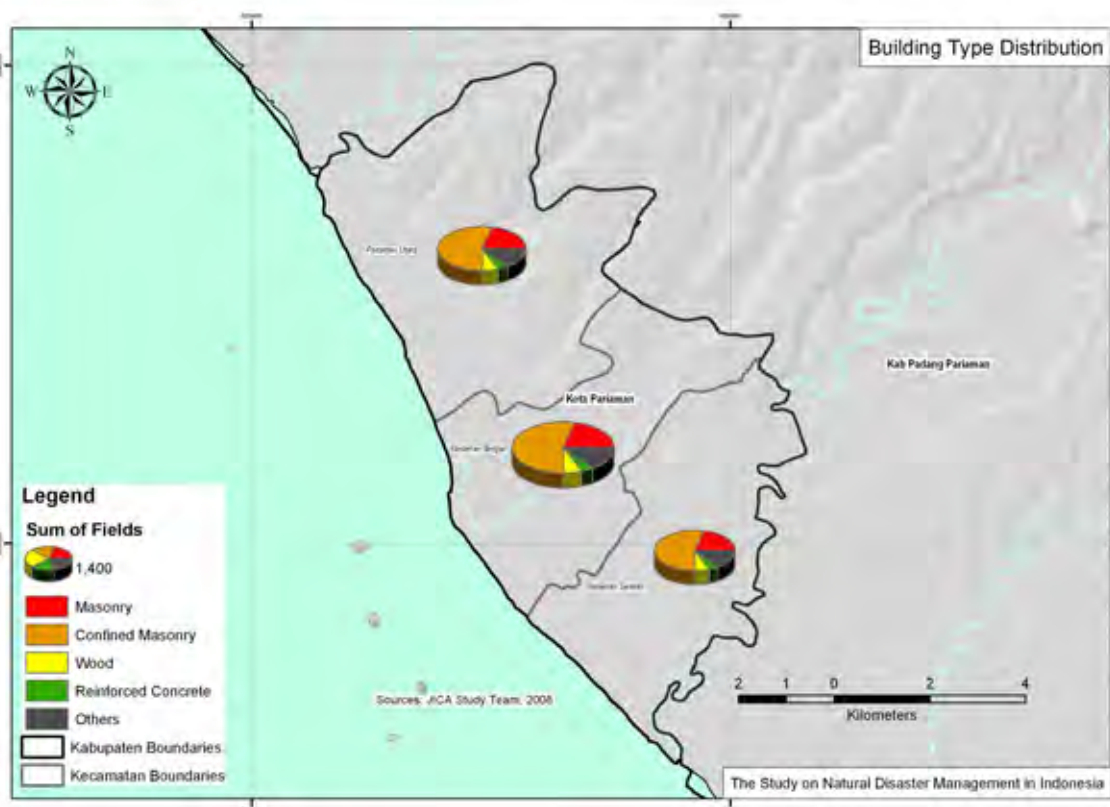


Figure 4.2.4 Building Type Distribution by Kecamatan

4.3 History of Flood and Sediment Disasters

The water-related disasters in Kota Pariaman are shown in the table below which indicates the recent flood and sediment disasters in Kota Pariaman. Other than those mentioned in the table, a number of flood and sediment disasters had struck Kota Pariaman frequently.

Table 4.3.1 Recent History of Major Flood and Sediment Disasters in Kota Pariaman

Date (DD/MM/YY)	Type	Profile of Damages due to Disaster
22/01/07	Flood	Flood Disaster in Desa Marunggi Kec. South Pariaman, Building and Houses were flooded, rice field were expose to damaged risk
22/01/07	Sediment	Sediment Disaster in Desa Sintuk Kec. North Pariaman, with 3 heavily damaged houses, and 3 people were injured
25/08/05	Flood	Flood Disaster In Desa Marunggi, Desa Kampung Apar, Desa Pasir Sunur and area along Mangau river, 94 houses damaged

Source: Board of National Unity and Society Protection Office, Kota Pariaman 2008

4.4 Flood and Sediment Disaster Hazard

1) Flood

(1) Hazard Map

Meaning of the word “hazard” is defined as result of disaster. Figure 4.4.1 shows the hazard map for flood disaster in Kota Pariaman. As indicated in the figure, the values of flood hazard were divided into five (5) classes indicating relative hazardous classification:

- Red indicates the highest hazard
- Orange indicates higher hazard
- Yellow indicates moderate hazard
- Green indicates lower hazard, and
- Blue indicates the lowest hazard.

Along the coastal line, the river mouths tend to be blocked by sand bars, beach ridges and sand dunes which may cause flooding from main rivers, poor drainage, forming marsh and thus higher potential of flooding.

The highest level of flood hazard (in “Red” area) in Kota Pariaman is concentrated in alluvial low-lying area along coastal line facing on the Indian Ocean. Certain levels of flood hazards can be seen in some flat area along Batang Mangau Batang Manggung, Batang Piaman and Batang Jirak.

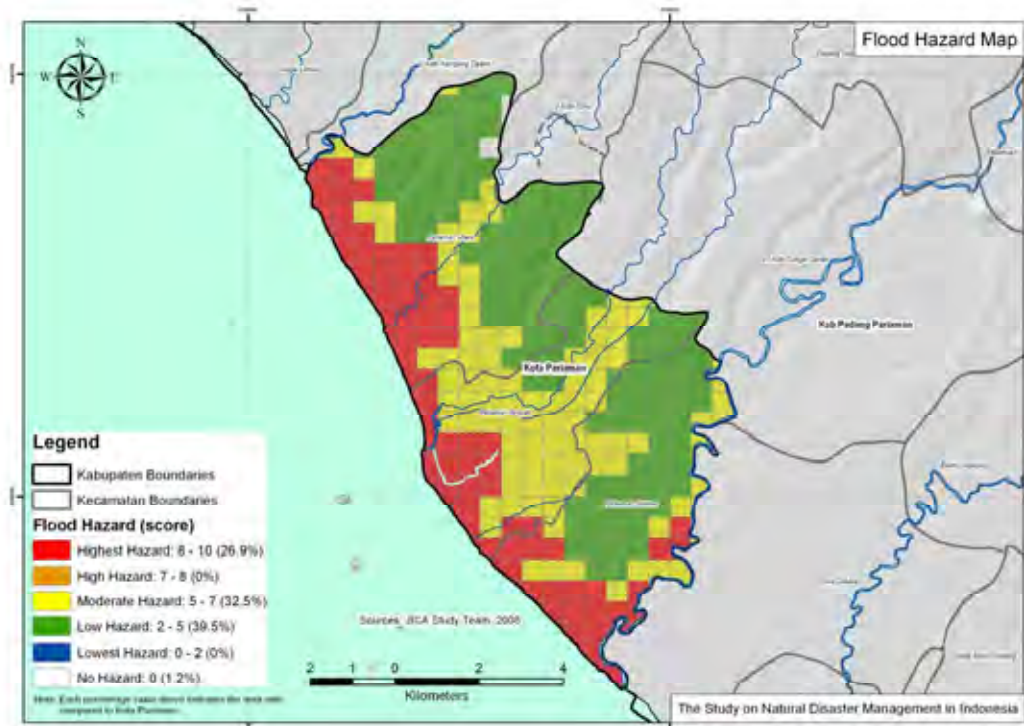


Figure 4.4.1 Flood Hazard Map

(2) Risk Map

Basically, higher risk area may be regarded as the area where population and property are concentrated, being exposed to higher level of flood hazard. The risk map for flood disaster in Kota Pariaman is shown in Figure 4.4.2. As shown in the figure, the values of flood risk were divided into five (5) classes indicating risk classification level:

- Red indicates the highest risk
- Orange indicates higher risk
- Yellow indicates moderate risk
- Green indicates lower risk, and
- Blue indicates the lowest risk.

“Red” indicates the highest risk and “Orange” indicates higher risk. Moderate risk is shown in “Yellow” while “Green” means lower risk. Then, “Blue” shows the lowest risk. Overall tendency direction of Kota Pariaman shows that relatively highest level was observed in the southern part of Kota compared to the northern part. Further, the most area adjacent with river mouths along coastal line of Batang Mangau, Batang Pariaman, and Batang Jirak are indicated in “Red” or

“Orange”, which means the highest or higher risk. Certain levels of flood risk can be seen along Batang Mangau, Batang Manggung, Batang Pariaman and Batang Jirak.

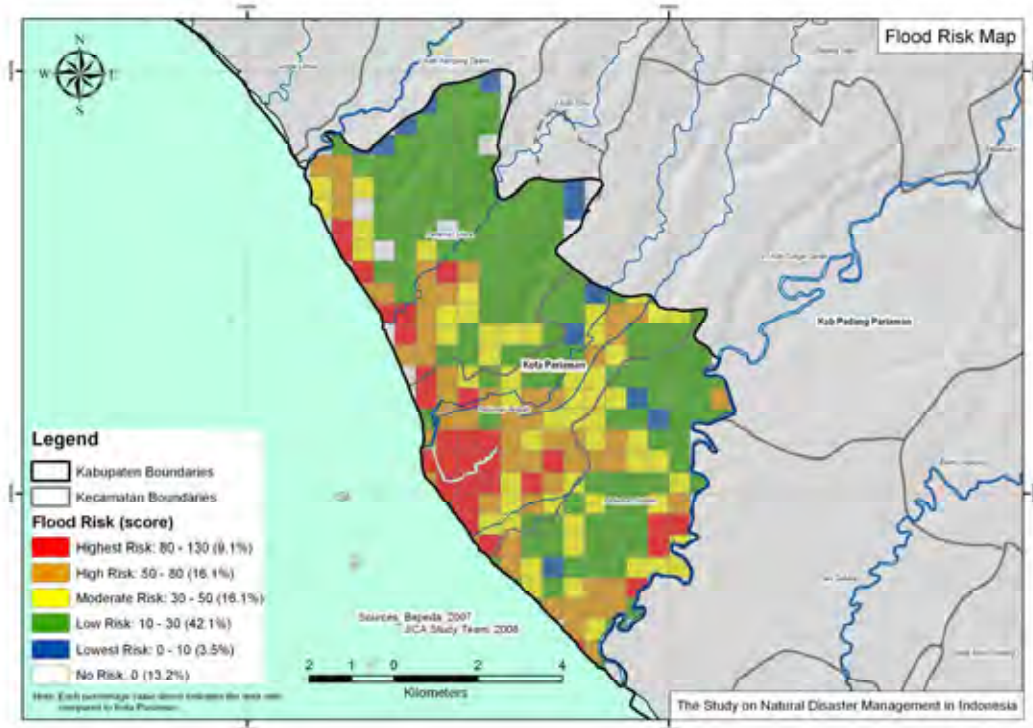


Figure 4.4.2 Flood Risk Map

2) Sediment Disaster

(1) Hazard Map

Pyroclastic flow deposits cover most of the area, especially the lowland hills on the north side of the city. There are clear hazards of sediment disaster where this steep slope topography is located. Nevertheless, most of flat terrain presents little danger, such as the sand dunes and coastal plains that run adjacent to the sea or the low valley plains along the river. The combination of *highest* and *high* hazards make up about 63% of the entire area of Kota Pariaman.

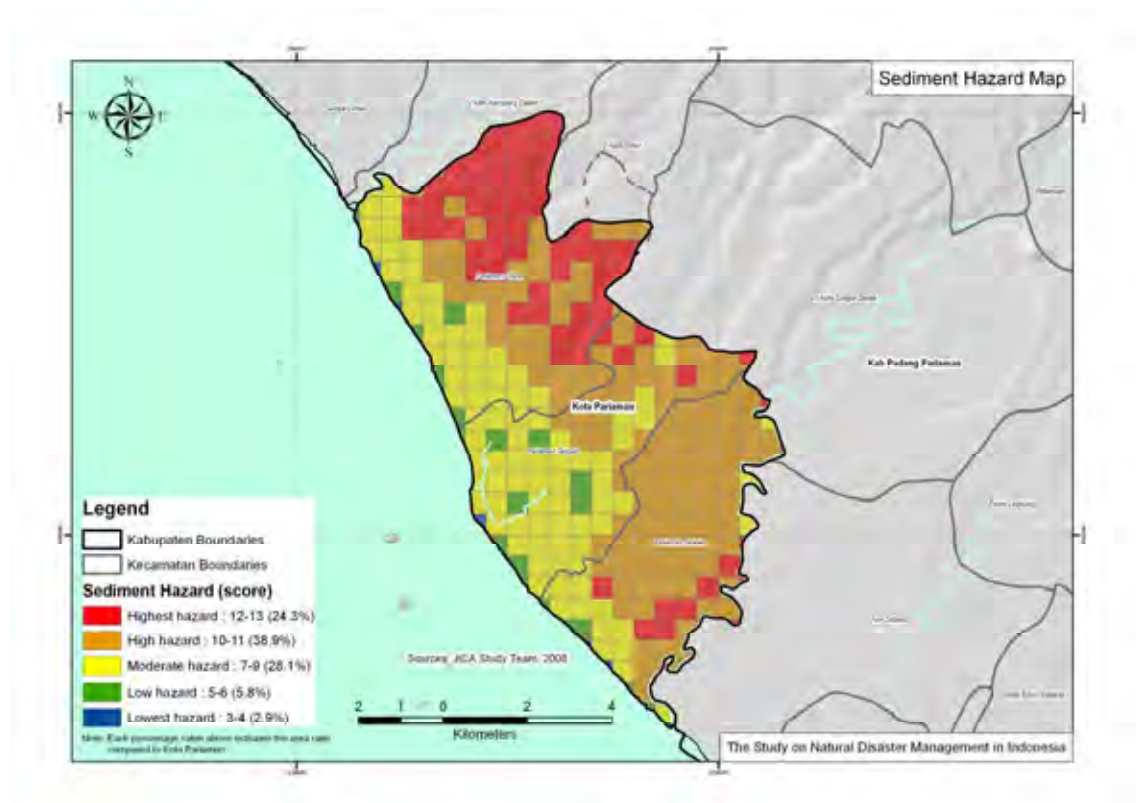


Figure 4.4.3 Hazard Map of Sediment Disaster

(2) Risk Map

The sediment disaster risk map of Kota Pariaman shows a number of natural hazards along the east side (of each Kec. respectively) which pose a high risk to the overall area. Moreover, the relatively large Mangau river channel is eroding where the bank has not been protected, houses along the river have high risk. However, fundamentally, there are hard steep inclines outside of this highest risk area, and the probability of a disaster is extremely low. However, there are steep inclines even on small slopes, next to which there may be conservation facilities that could be in danger during intense rainfall. Furthermore, about 16% of the area of Kota Pariaman is at the *highest risk*.

Considering the geographical and topographic features of Kota Pariaman, the risk of sediment disaster is lower compared to that posed by flood or tsunami disaster.

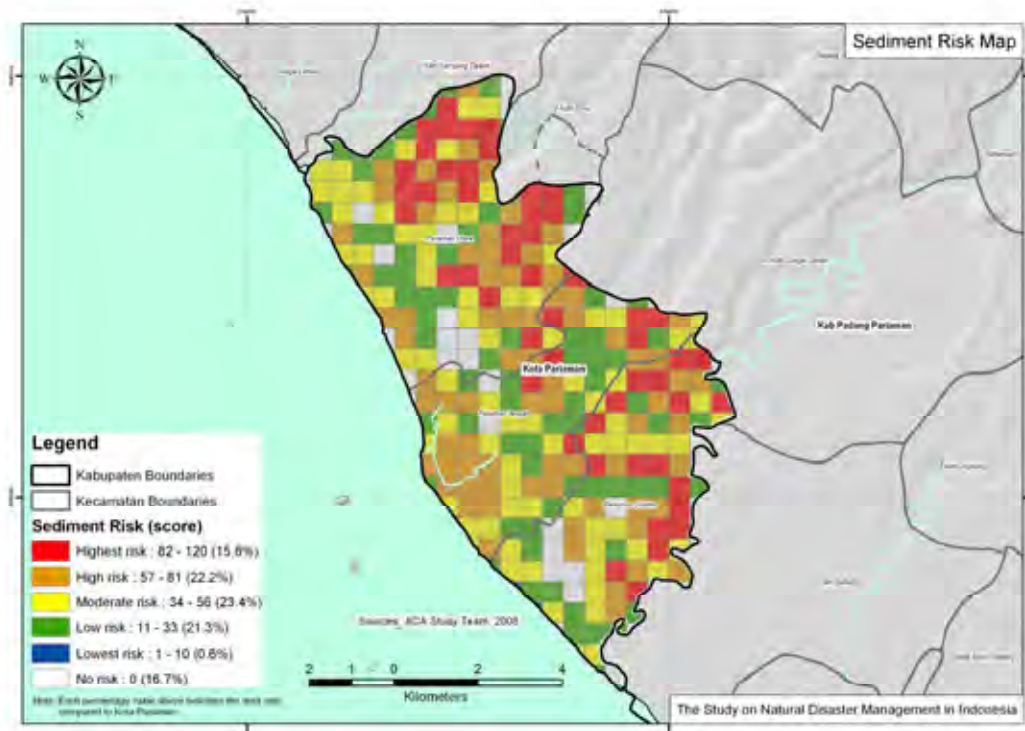


Figure 4.4.4 Risk Map of Sediment Disaster

CHAPTER 5. DISASTER SOCIO-ENVIRONMENTAL ASPECTS FOR THE PLAN

In this chapter, recent trend and important points of disaster management is described briefly.

5.1 Data related to Disaster from Rain and Storm

These last several years Indonesia has experienced different kinds of natural disasters, among them are disasters caused by rain and storm. This is one of the influences from the geographic and topographic condition. Indonesia own steep hilly mountain and valleys area that are much greater than the lowland area. There is a dense tropical forest in the area. Recently deforestation are often conducted which cause flood and sediment disaster.

Flash flood and sediment disaster are the main disasters in the region, causes potential of human losses. So far in Kota Pariaman there is no record of large-scale disaster that caused losses of many lives ever occurs. However, learning from experiences of other area such as one occurs in Jakarta, anticipation effort is necessary to conduct in order to lessen possible damages from disaster in the future. We also must learn not only limited to experience in our country, but also from disaster incident in several countries. Rain and storm disaster is in fact could be predict by conducting observation on rainfall data and by increasing alertness in society, number of casualties can be reduced significantly.

Lessons we learned from experience should be assembled clearly and realized in disaster management measures stated in disaster management plan of this area.

5.2 Development of Computerized Information System

Due to development of information technology recently, such as mobile communication tools, PCs, and etc., information communication and data processing tools are widely pervaded. In developed country, GPS and GIS are widely pervaded and make it possible to observe real time climate data, Moreover, visual damage information system was also established. These systems will not only change means of communication, but also give great improvement on damage information gathering for disaster management when disaster occurs.

However, due to complication of the system, once the system broke down by disaster, all the system will be malfunctioned, therefore, dividing the system into multi system is highly important. This distribution is useful when malfunction occur in the future. This kind of system may also be applied also in Kota Pariaman, however, weak points of the system must be considered in advance.

5.3 Safety of Emergency Transportation Network

At the time of disaster occurrence, safety of road network is one of most important criteria in disaster management to implement various emergency response activities. The conditions of the road network and bridges in Kota Pariaman are good at this moment. However, for mitigation plan and safety of road transportation network, we need to stake out and prepare the Emergency Transportation Network or other alternatives that could help the smooth of Emergency Response.

5.4 Providing Lifeline During Disaster

In normal daily life, especially in urban area, dependence on main lifeline is extremely high, and malfunction or ceasing of these services will greatly impinge on residents' life. Lifeline provider companies have mandate to continue their service even in emergency periods. Those companies must stringently prepare and organize in minimize damages when disaster occurs.

5.5 Social Expectation to Volunteers, NGOs/NPOs

From past disasters, Volunteers and NGOs played important roles on first aid to disaster victims, and rescue activities, operation of evacuation facilities, etc, and their importance was recognized strongly. Volunteers and NGOs are locally active, and they are relatively flexible in many cases, therefore, their role is to support activities implemented by government when disaster occurs. Moreover, by coordination with these Volunteers and NGOs/NPOs, the more effective and appropriate activates can be expected.

5.6 Understanding the needs of Special Care for Vulnerable Groups

In Kota Pariaman, ratio of elderly persons and young children is relatively high. The total number of them is about 9.91% of the total population. In case of occurrence of disaster, especially for rain and storm related disaster which could be predicted in advance, there will be certain time before disaster occurs, these vulnerable groups will need longer time to heal compare to young people. Therefore, requires special care for these vulnerable groups. Besides, it requires certain criteria of preparation, guideline or design to help this vulnerable group to evacuate in advance. These activities are undertaken within the community surrounding itself.

5.7 Guidelines for Society Regarding Disaster Mitigation Awareness

Not only government officials can be dealt with natural disaster. Disaster management must also be prepared together with close collaboration with government officials, private enterprises and residents. Therefore, each player must aware of the importance of disaster management, and it is extremely important to increase their knowledge and awareness regarding disaster management. It is rather difficult to realize the seriousness of disaster management, however, disaster management is precious when disaster occurs. Mitigation measures could maximally reduce casualty.

CHAPTER 6. ESTABLISHMENT OF SATLAK PB

6.1 Definition of SATLAK PB

6.2 Duties of SATLAK PB in Disaster Management Cycle

6.3 Members and Organization Structure of SATLAK PB

6.4 Member Obligation in SATLAK PB

For 6.1 to 6.4, refer to Section 1 General Chapter 6, 6.1 to 6.4 in “Part 1: Earthquake Disaster Measures”

Section 2:Pre-Disaster (Pre-Disaster Management Plan)

Damages, caused by rain and storm/strong wind related disasters, sometimes exert great effects with spreading in wide areas. Due to heavy rains causing flooding and landslides affects and sometimes collapse daily life of citizens and force them for evacuation life. Damages to educational, medical, social welfare facilities will also increase the level of damages. Therefore, to prepare for disasters, necessary measures are implemented in advance.

CHAPTER 1 CAPACITY DEVELOPMENT OF DISASTER MANAGEMNET ORGANIZATION

1.1 SATLAK PB

<i>Responsible Agency:</i>	<i>SATLAK PB</i>
-----------------------------------	-------------------------

1.2 Improvement of RUPUSDALOPS PBP

<i>Responsible Agency:</i>	<i>MAYOR</i>
-----------------------------------	---------------------

1.3 Supports from Other Area

<i>Responsible Agency:</i>	<i>Social and Labor Agency</i>
-----------------------------------	---------------------------------------

For 1.1 to 1.3, refer to Section 2 Pre-Disaster Chapter 1, 1.1 to 1.3 in “Part 1: Earthquake Disaster Measures”

CHAPTER 2 ENHANCEMENT OF DISASTER MANAGEMENT CAPACITY FOR CITIZENS AND PRIVATE COMPANY

Mind concept of “self-protection” is concerned as vital elements in disaster management. Preparation for natural disaster individually could increase awareness of citizens and company owners for disaster preparedness. Everyday effort will strengthen city and the residents against natural disasters.

2.1 Expectation to Citizens

<i>Responsible Agency:</i>	<i>SATLAK PB</i>
-----------------------------------	-------------------------

2.2 Expectation to Society

<i>Responsible Agency:</i>	<i>SATLAK PB</i>
-----------------------------------	-------------------------

2.3 Expectation to Private Company

<i>Responsible Agency:</i>	<i>Cooperation, Industry & Trading Agency</i>
-----------------------------------	--

2.4 Volunteer Organization

<i>Responsible Agency:</i>	<i>Kesbangpol Linmas Office (National Unity & Public Protection Office)</i>
-----------------------------------	--

2.5 Dissemination of Disaster Management Knowledge

<i>Responsible Agency:</i>	<i>Transportation, Communication and Information Agency and Public Relations Division</i>
-----------------------------------	--

For 2.1 to 2.5, refer to Section 2 Pre-Disaster Chapter 2, 2.1 to 2.5 in “Part 1: Earthquake Disaster Measures”

CHAPTER 3 RESPONSE ENHANCEMENT FOR VULNERABLE CITIZENS

3.1 Measures for Vulnerable Group

<i>Responsible Agency:</i>	<i>Social and Labor Agency</i>
-----------------------------------	---------------------------------------

3.2 Foreigner Management

<i>Responsible Agency:</i>	<i>Demographic and Civil Statistics Agency</i>
-----------------------------------	---

3.3 Safety of Infants and Children

<i>Responsible Agency:</i>	<i>Health Agency</i>
-----------------------------------	-----------------------------

For 3.1 to 3.3, refer to Section 2 Pre-Disaster Chapter 3, 3.1 to 3.3 in “Part 1: Earthquake Disaster Measures”

CHAPTER 4 DEVELOPMENT OF DISASTER INFORMATION COMMUNICATIONS NETWORK

Development and effective operation of disaster information communication network, capacity building of radio communication network, and multiplexing of information network will be advanced in order to disseminate relevant information precisely and accurately to residents as well as the agencies engaging in rescue and relief activities so that each could give information regarding damaged condition adequately.

4.1 Design of Disaster Communication System

<i>Responsible Agency:</i>	<i>Transportation, Communication and Information Agency, City Government Public Relations Division</i>
-----------------------------------	---

4.2 Operational of Disaster Information Communications Network

<i>Responsible Agency:</i>	<i>Transportation, Communication and Information Agency, City Government Public Relations Division</i>
-----------------------------------	---

4.3 Operational Skill Improvement for Employees

<i>Responsible Agency:</i>	<i>Transportation, Communication and Information Agency, City Government Public Relations Division</i>
-----------------------------------	---

For 4.1 to 4.3, refer to Section 2 Pre-Disaster Chapter 4, 4.1 to 4.3 in “Part 1: Earthquake Disaster Measures”

**CHAPTER 5 RESCUE/ RELIEF, MEDICAL TREATMENT
MITIGATION PLAN**

5.1 Capacity Building of Fire Fighting

<i>Responsible Agency:</i>	<i>Firefighter</i>
-----------------------------------	---------------------------

5.2 Education for Citizens and Communities

<i>Responsible Agency:</i>	<i>SATLAK PB</i>
-----------------------------------	-------------------------

For 5.1 and 5.2, refer to Section 2 Pre-Disaster Chapter 5, 5.1 and 5.2 in “Part 1: Earthquake Disaster Measures”

CHAPTER 6 SAFETY CONTROL/ RESCUE MEASURES

6.1 Safety Control and Rescue Preparedness Measures by Police

<i>Responsible Agency:</i>	<i>Police Head (POLRESTA) and Police Syndic (Pol. PP)</i>
-----------------------------------	--

6.2 Safety Control and Rescue Preparedness Measures in Waters

<i>Responsible Agency:</i>	<i>Marine Affairs and Fishery Agency</i>
-----------------------------------	---

For 6.1 and 6.2, refer to Section 2 Pre-Disaster Chapter 6, 6.1 and 6.2 in “Part 1: Earthquake Disaster Measures”

CHAPTER 7 DEVELOPMENT OF EMERGENCY TRANSPORTATION FACILITIES

7.1 Development of Emergency Transportation Facilities

<i>Responsible Agency:</i>	<i>Transportation Agency</i>
-----------------------------------	-------------------------------------

For 7.1, refer to Section 2 Pre-Disaster Chapter 7, 7.1 in “Part 1: Earthquake Disaster Measures”

CHAPTER 8 *EVACUATION AND PREPAREDNESS OF TEMPORARY HOUSING*

When large-scale flood or sediment disaster occurs, the effort to develop and repair the evacuation site condition is very much needed to secure the safety of the residents and to help them survive in the evacuation places. This chapter discusses about the planning of the evacuation area development.

8.1 Temporary Evacuation Area

<i>Responsible Agency:</i>	<i>Public Works Agency</i>
-----------------------------------	-----------------------------------

1) Role of Temporary Evacuation Area

When disaster such as heavy rain, storm and erosion occurs, temporary evacuation area will be established for citizens protection from disaster suffering. Evacuation area also functioned as accommodation for refugees after disaster. For those two major roles, temporary evacuation areas should already be decided in each Kecamatan.

2) Criteria of Temporary Evacuation Area

Selection of temporary evacuation area should consider the following criteria.

- Safety places according to hazard map
- Accessible area
- In form of wide plain area
- No hazardous facilities in the neighborhood (e.g. chemical factories)

3) Selection of Temporary Evacuation Area

(1) Selection of Temporary Evacuation Area

Temporary evacuation areas are selected in each Kecamatan. These evacuation areas will be reviewed periodically in line with dynamics of population and building areas.

(2) Establishment of Signboard

Establishment of signboard for temporary evacuation areas will be conducted in order to lead the citizen to suitable area. Signboard is also efficient to develop the citizen's awareness for disaster management.

8.2 Evacuation Facilities

<i>Responsible Agency:</i>	<i>Public Works Agency</i>
-----------------------------------	-----------------------------------

1) Selection of Evacuation Facilities

Appropriate evacuation facilities are needed to accommodate the people who lose their house because of flood, storm and landslide. Evacuation facilities are basically selected from existing buildings in each Kecamatan. These buildings selected as evacuation facilities should have enough room to accommodate certain number of citizens. Structure of the building should be strong enough against disaster and located in safe area according to hazard map.

(1) Evacuation Facilities

Some facilities such as schools and mosques are selected as evacuation facilities in advance by each Kecamatan. Required number and space of evacuation facilities are depended upon the population. At least, a certain number of the injured, children and elderly need to stay in evacuation facilities. These selected facilities will be maintained and reinforced for the disaster.

(2) Establishment of Signboard

Establishment of signboard for evacuation facilities should be conducted in order to lead the citizen to the right facilities without any confusion. Signboard is also efficient to develop citizen awareness of disaster management.

2) Equipments of Evacuation Facilities

(1) Required Equipments for Communication and Supply

After disaster occurred, required equipments are different between initial period (within 72 hours) and restoration period (after 72 hours). Equipment needed for both periods to be set at the each evacuation facilities are as follows.

A. Initial Period: within 72 hours after disaster occurred

- Radio transmission
- Mobile phone
- Radio
- Billboard
- Electric generator and battery
- Motorcycle and bike

B. Restoration Period: 72 hours after disaster occurred

- Radio transmission

- Mobile phone

(2) Provision regarding Drinking Water and Foods

Commodities, drinking water and foods are essential in evacuation facilities. Supply will be prepared in order to have sufficient amount of commodities, drinking water and food to be provided to refugees.

A. Water Supply

To guarantee enough water supply after disaster occurred, the following facilities should be inspected and maintained in advance.

- Water supply in schools and mosques
- Wells
- Plastic canteens or containers
- Rear cars

B. Foods

Following cooking equipments for foods of supply should be prepared.

- Cooking stove
- Large sized pan
- Propane gas
- Plates and utensils

3) Establishment of Working Committee for Evacuation Facilities

Working committee for each evacuation facility should be established with for two purposes. One, the committee will maintain the facilities themselves. The other, the committee should prepared the equipments so refugees are able to stay at the evacuation facilities without any confusion.

(1) Organization of the Working Committee

Organization of working committee will be advised to include the following member

- Leader of Community Organization for Disaster Risk Management, or private company such as plantation companies
- Member of Kecamatan Office
- Owner or manager of the facilities
- Others (private company, volunteers, and so on)

(2) Role of Working Committee

The working committee will be expected to make the following preparation at each evacuation facility in order to smooth operational of the facility under emergency situation.

- Making a list of user of the evacuation facilities

- Formulation of manual for operating evacuation facility including rescue measures for the elderly, weak and handicaps
- Training for implementation of the manual
- Disseminate method of disaster management and enlightenment of awareness
- Discussion disaster prevention measures with citizens
- Conducting disaster prevention drill with citizens and private company
- Prior discussion on how to close evacuation facility when refugees already occupy their houses or temporary housing

8.3 Formation of Evacuation Plan

<i>Responsible Agency:</i>	<i>National Unity & Public Protection Office</i>
-----------------------------------	---

8.4 Measures of Temporary Housing

<i>Responsible Agency:</i>	<i>SATLAK PB, Public Works Agency</i>
-----------------------------------	--

For 8.3 and 8.4, refer to Section 2 Pre-Disaster Chapter 8, 8.3 and 8.4 in “Part 1: Earthquake Disaster Measures”

CHAPTER 9 DEVELOPMENT OF DISASTER MANAGEMENT FACILITIES

Supplies are vital for disaster preparedness such as materials and equipments for damage prevention, rescue activities and restoration, foods and drinking water.

9.1 Supply of Disaster Management Equipments and Goods

<i>Responsible Agency:</i>	<i>Public Works Agency</i>
-----------------------------------	-----------------------------------

9.2 Supply of Emergency Foods and Commodities

<i>Responsible Agency:</i>	<i>Social and Labor Agency, People Welfare Division</i>
-----------------------------------	--

9.3 Supply of Drinking Water, and etc

<i>Responsible Agency:</i>	<i>Region Drinking Water Company</i>
-----------------------------------	---

For 9.1 to 9.3, refer to Section 2 Pre-Disaster Chapter 9, 9.1 to 9.3 in “Part 1: Earthquake Disaster Measures”

CHAPTER 10 MEDICAL TREATMENT AID AND INFECTION DISEASE PREVENTION MEASURES

Supply of medical equipments and medicines will be prepared for medical treatment in the time of disaster. Notably immediately examination of dead bodies will prevent outbreak of infection disease.

10.1 Development of Activity Base of Medical Treatment

<i>Responsible Agency:</i>	<i>Health Agency</i>
-----------------------------------	-----------------------------

10.2 Supply of Medicine and Medical Equipments and Goods

<i>Responsible Agency:</i>	<i>Health Agency</i>
-----------------------------------	-----------------------------

For 10.1 and 10.2, refer to Section 2 Pre-Disaster Chapter 10, 10.1 and 10.2 in “Part 1: Earthquake Disaster Measures”

10.3 Infection Disease Prevention

<i>Responsible Agency:</i>	<i>Health Agency</i>
-----------------------------------	-----------------------------

1) Infection Disease Prevention Activity

Rain and storm related disasters are likely to cause a variety of infection disease. In order to prevent such disease, citizen must have the right knowledge about infection disease. Hence, information about major infection disease, the sources of outbreak and prevention method will be distributed by brochure and website in advance. The brochures or announcements will be distributed through the printed media, radio, or internet. In addition, examination of drinking water and rat destruction should be conduct periodically in order to reduce the possibility of outbreak in time of disaster.

2) Supply of Materials for Infection Disease Prevention

Antiseptic and disinfectant will be kept as supply at each clinic and disaster prevention center in order to disinfect flooded houses and toilets, also well after disaster occurred.

10.4 Preparedness Measures of Corpse

<i>Responsible Agency:</i>	<i>Health Agency & Indonesian Red Cross</i>
-----------------------------------	--

1) Settlement of Mortuary

In case that disaster involves human lives, mortuary would be established in appropriate facilities. Enough room space for doctors to examine dead bodies is required. For avoiding any confusion under emergency situation, candidate facilities or buildings should be decided in each Kecamatan.

2) Establishment of Backup System

In case of large fatality caused by disaster, lack of doctors who can examine dead bodies might occur. For such case, Health Agency and Indonesian Red Cross will request assistance from other agency, NGO and related private company. For this, the backup system in coordination with these organizations will be established for disaster preparation.

CHAPTER 11 DISASTER MANAGEMENT IN SCHOOL

11.1 Formulation of Evacuation/ Derivation/ Protection Plan

<i>Responsible Agency:</i>	<i>Youth and Sport Education Agency</i>
-----------------------------------	--

11.2 Preparedness Measures of School Facilities for Emergency Situation

<i>Responsible Agency:</i>	<i>Youth and Sport Education Agency</i>
-----------------------------------	--

For 11.1 and 11.2, refer to Section 2 Pre-Disaster Chapter 11, 11.1 and 11.2 in “Part 1: Earthquake Disaster Measures”

11.3 Disaster Management Education

<i>Responsible Agency:</i>	<i>Development Planning Board (BAPPEDA), Youth and Sport Education Agency</i>
-----------------------------------	--

Teachers and school staffs should received education regarding disaster management in order to be able to take appropriate action under emergency circumstance. This education could be conducted in form of seminar or lectures. Information of disaster prevention measures for school should be distributed through brochure or/ and website.

Meanwhile, students should also get disaster management education. Proper knowledge about flood and erosion will be very useful for students to be applied in school and household. Therefore, it is highly recommended that disaster management subject also included in student educational curriculum. Regional Development Agency (Bappeda) coordinates with Youth and Sport Education Agency to design disaster teaching materials to be given at schools.

CHAPTER 12 PROMOTING PLAN FOR DEVELOPING DISASTER SAFE PARIAMAN

12.1 Promoting Disaster Safe Land Use Planning

<i>Responsible Agency:</i>	<i>Development Planning Board</i>
-----------------------------------	--

Efficient land use could contribute to strengthen the city against natural disasters such as flood and erosion. Land use plan is necessary to take account of evacuation routes and evacuation spaces for disaster mitigation.

1) Improvement and Multiplexing of Evacuation Routes

When disaster occurs, secured evacuation and transportation routes are needed for smooth evacuation and emergency activities. Main roads such as state roads and provincial roads designated as evacuation and emergency routes will be included in the land use plan. These roads should link among evacuation places and emergency facilities. Additionally, based on the multiplexing evacuation route system, alternative roads should be selected as evacuation route and will be shown in the land use plan.

The following actions for implementation of evacuation routes are improved;

- To select evacuation routes and alternative routes in the land use plan
- To assign high priority to improve these roads such as road widening and repaving

2) To Secure Open Spaces for Promoting of Disaster Measures

In build-up and residential area, open spaces such as parking spaces and green spaces play an important role as evacuation places when natural disaster occurred. Therefore existing open spaces outside hazardous zone selected by hazard analyses should be improved and maintained for the purpose of developing appropriate evacuation area. The current vacant lands and public spaces also could utilize as open space.

Each Kecamatan will select their open space as evacuation places based on the population and density. These evacuation places are reflected in the land use plan in Kota Pariaman.

3) To Mitigate Buildings in Vulnerable Zone

Based on hazard map, vulnerable areas are clearly designated, and some residences and buildings are recognized as hazardous. In order to mitigate such vulnerabilities, priority of development and redevelopment is given to these vulnerable areas in land use plan. The following measures are considered to carry out.

- To strengthen existing buildings in vulnerable area against natural disasters
- To distribute open spaces appropriately in high dense area

On the other hand, the land use plan shows constraints in these vulnerable areas.

- To avoid construction of new buildings in vulnerable area
- To postpone development of vacant land in high dense area

Area development and redevelopment in vulnerable area are also concerned.

12.2 Development of Disaster Mitigation Facilities

<i>Responsible Agency:</i>	<i>Spatial Planning Agency</i>
-----------------------------------	---------------------------------------

Development of disaster mitigation facilities including basic infrastructure, parking space, roads, railways, and bridges is vital process in order to strengthen city against natural disasters.

1) Facility Improvement at Evacuation Routes

For smooth and safe evacuation and emergency responses when disaster occurred, facilities at evacuation routes are necessary to be improved and well maintained. In Kota Pariaman, bridges on roads and tunnels on the railway to/ from Surabaya are important transportation facilities. In case these facilities are recognized as hazardous, upgrading and maintenance would be delivered by concerned agencies.

In addition, alternative transportation is necessary to consider in case of large-scale disaster. Kota Pariaman might be isolate when large-scale flood and erosion happen due to complete reliance on land transportation inside and outside the Kota, if lifeline belongs to only road and rail transportation. For this, it will be necessary to consider air and sea transportations as alternative ways. Facilities improvement for this alternative ways such as airport, heliport and seaport will be considered. Especially, improvement of Noto Hadinegoro Airport located in Kecamatan Ajung will be conducted.

2) Improvement of Slope Area

Kota Pariaman has many slope areas due to the geographic characteristics. There are Argopuro Mountain in the north, Raung Mountain in the northeast, and South-Eastern Hills and Mountains in Southeast. For taking advantage of such landform, many farm villages are existed in slope area for agriculture, agro-forest industries, and limestone excavation. In terms of disaster prevention management, many people can be said to live in the vulnerable area. Therefore these areas need disaster management measures against the natural disaster in particular erosion and land slide. Two measures could contribute to mitigate damage from disasters.

First, to secure roads is the most important measures for people who live in the slope area for evacuation and relief activities. Not only major roads such as state roads and provincial roads but also community roads are emphasized to be improved and maintain. To formulate road networks based on community roads is also promoted.

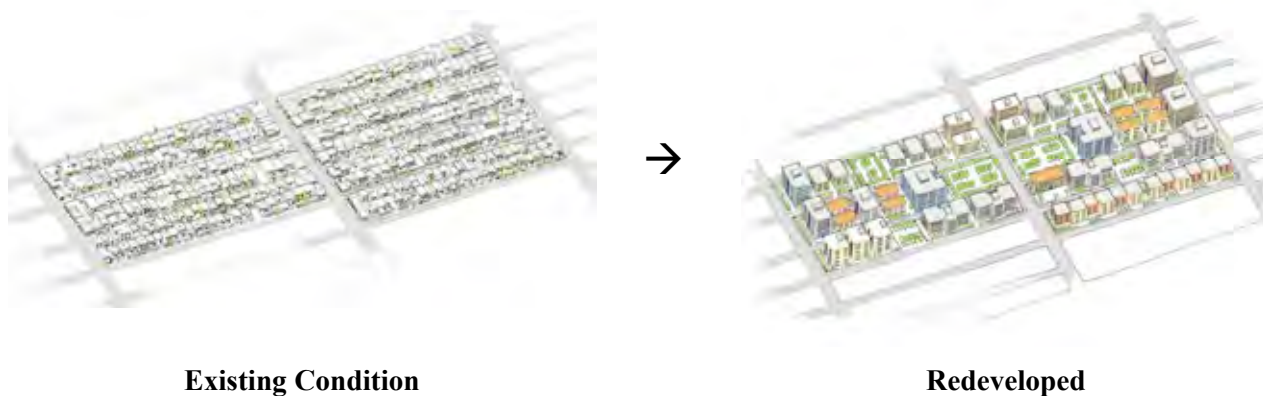
Second, to encourage awareness of people who live in the slope areas about disaster management and basic knowledge of natural disaster should be carried out through conducting drills and distribution of brochure and posters.

3) Improvement of Build-Up Area

In order to avoid large-scale suffering from disasters, the city should have strong structure against natural disasters. In particular, build-up area is likely to be difficult for evacuation and smooth relief activities due to high-dense buildings and lack of evacuation places. Hazardous build up area will be clearly determined by using the hazard map. In such area, appropriate size and number of open space and evacuation roads will be planned.

Area Development and Redevelopment

Area development and redevelopment is one of drastic measures for strengthening the city against natural disasters. This measure is efficient for vulnerable area with high-dense buildings or residences. By means of area development and redevelopment, it could allow to maximum utilization of land use, notably, expanding open space for evacuation and emergency responses and widening evacuation roads. Additionally the buildings and residences in hazardous area are promoted to remove into safe places. However this solution needs not only time and costs in order to obtain consensus from the residence but also social impact. Hence, implementation of this measure intends to be examined carefully.



Source: JICA Study Team

Figure 12.2.1 Image of Area Redevelopment

CHAPTER 13 EROSION CONTROL AND SABO MEASURES

13.1 Erosion Control Measures

<i>Responsible Agency:</i>	<i>Public Works Agency</i>
-----------------------------------	-----------------------------------

The coastal plains of the Kota Pariaman urban district are at very little risk to landslide disaster. Also, the inland area is made up of pyroclastic flow upland and, in parts, valley plains, and the terrain is nearly free of slopes so that slope failure is a comparatively rare occurrence. Nonetheless, occasional small-scale collapses have occurred along some roads and behind residential homes so that these at-risk slopes should be prioritized on a yearly basis for countermeasures to be constructed.

1) Afforestation plan

In Kota Pariaman, the vegetation is also relatively favorable, although gully erosion is advancing along the rivers. Forest planning efforts that will guard against disaster are to be carried out, such as continuing to protect vegetation and planning any cutting so as to allow the vegetation to develop as much as possible.

2) Prevention of collapse and sediment outflow

Exposed hillsides are extremely vulnerable to heavy and extended rainfall which increases the potential for slope failure or debris flow. As such, an important aspect of disaster prevention is to maintain or increase the water-retention capacity of forests. In planning forest improvements, flood control afforestation will be used as an effort to prevent collapse or earth flow, valley sediment movement and erosion of the underlying rock.

13.2 Sabo Measures

<i>Responsible Agency:</i>	<i>Public Works Agency</i>
-----------------------------------	-----------------------------------

In Kota Pariaman, there are some at-risk areas that form sudden slopes in places, and measures should be taken to prevent home damage and roadside disasters.

CHAPTER 14 FLOOD MITIGATION PLAN

14.1 Measures for Rivers

Responsible Agency:	Public Works Agency
----------------------------	----------------------------

1) Major Rivers in Kota Pariaman

There are five (5) major rivers in Kota Pariaman which are Mangau river, Jirak river, Piaman river, Manggung river and Naras river. Mangau river and Naras river flow on the boundary of Kota Pariaman and Kabupaten Padang Pariaman. The profiles of the rivers are shown in Table 14.1.1.

Table 14.1.1 Major Rivers Flowing through Kota Pariaman

River	Catchments Area	Length
Mangau river	268.49km ²	37.1km
Jirak river	22.42km ²	3.1km
Piaman river	71.56km ²	28.5km
Manggung river	39.31km ²	11.5km
Naras river	155.54km ²	39.2km

Source: Kota Pariaman, Kabupaten Padang Pariaman and PSDA (Pengelolaan Sumber Daya Air) of West Sumatra Province

2) Countermeasure in Flood Area

The appropriate countermeasures should be implemented in flood potential area in order to reduce the damage from flood disaster. As a basis for planning an appropriate flood management plan, it is necessary to clarify/draw flood susceptible area first of all. Subsequently, the countermeasure plan in flood susceptible area can be formulated such as procedure for flood warning, locations of evacuation shelters, preparedness action for prompt and smooth evacuation, etc.

(1) Creation of Flood Susceptible Area Map

Probable flood map or flood susceptible map is indispensable for planning appropriate countermeasures against flood disaster. There are two main types of methodology for creation of flood map: 1) Creation of flood map based on the past flood disaster areas, 2) Creation of probable flood map based on the hydro-dynamic simulation model. The methodology for creation of flood map should be decided based on personnel, budget, available technological level, etc.

(2) Development and Improvement of System for Early Warning and Evacuation

A concrete methodology should be formulated for development and improvement of system for early warning and evacuation. It is also indispensable to raise public awareness. In order to develop the awareness and behavior in the time of natural disaster, participation in disaster prevention drills regularly is highly promoted.

Not only non-structural countermeasure mentioned above but also structural countermeasure (e.g. river improvement works, construction of dike, etc.) will be implemented appropriately in terms of integrated flood management.

14.2 Drainage Measures

<i>Responsible Agency:</i>	<i>Public Works Agency</i>
-----------------------------------	-----------------------------------

Drainage channel shall be planned to allow the safe passage of rainwater in order to minimize flood damage as well as improvement of life environment and conservation of water quality in Kota Pariaman. The effort should be made for strengthening main drainage network and facilities to minimize flood damage. The specific measures are shown below.

(1) Prevention of Inundation

The storm-water drainage facilities shall be developed in a planned and consistent way for prevention of inundation during heavy rainfall.

(2) Maintenance of Existing Facilities

The maintenance of existing facilities (e.g. Reparation, Dredging, Cleaning, etc.) should be performed sufficiently at regular intervals for maximization of the capacity in case of flood event.

(3) Development of Drainage Facilities

The development of drainage facilities will be performed especially for the expected flood area to minimize damage from flood disaster.

(4) Inspection of Facilities for Necessary Protection

In case of flood disaster expected, inspection for important facilities should be performed and the appropriate protection works before flood event shall be done if necessary.

(5) Store of Equipment and Materials

The necessary equipment and materials should be stored at facilities in order to perform emergency rehabilitation in case of flood disaster. Further, the equipment and materials should be inspected at regular intervals so that one can confirm whether they functions sufficiently or not.

14.3 Maintenance and Repair of Flood Disaster Mitigation Facilities

<i>Responsible Agency:</i>	<i>Public Works Agency</i>
-----------------------------------	-----------------------------------

There are a number of facilities which can be utilized for minimizing flood disaster (e.g. Dike, Water-gate, Revetment Works, etc.) in Kota Pariaman. It is indispensable to grasp the conditions of obsolescence and breakage of the facilities at regular intervals in order to perform appropriate maintenance and reparation of the facilities. The followings are the specific items for the proper maintenance and reparation.

(1) Inspection of Facilities

The inspection for the existing facilities should be performed at regular intervals so that the security and reliability against flood disaster will be assured. Further, in case of inappropriate occupational structure in river zone, the owner of the structure shall be warned for implementation of necessary measures.

(2) Rehabilitation and reinforcement of dike structure

Rehabilitation reinforcement of dike structure should be performed such as 1) Raising the height of dike, 2) Qualitative improvement of dike structure, 3) Rehabilitation & reinforcement of Sluiceway structure, etc.

(3) Rehabilitation and reinforcement of agricultural facilities

- Rehabilitation and reinforcement of agricultural facilities shall be performed in organized manner such as rehabilitation works for deteriorated channel, revetment, etc.
- Agricultural drainage channel facilities should be strengthened in organized manner especially for the area where inundation or flood is expected in case of excessive discharge along the channel.
- Vulnerable structure in riverine agricultural zone should be reinforced in organized manner.

CHAPTER 15 *SEDIMENT DISASTER MITIGATION MEASURES*

15.1 Disaster Mitigation Measures for Failure of Steep Slope

<i>Responsible Agency:</i>	<i>Forestry Office</i>
-----------------------------------	-------------------------------

There are locations in Kota Pariaman that feature sudden slopes and failure-prone topography, at the foot of which people are living in homes. As such, the following preventive measures are recommended in order to minimize this danger.

1) The survey of areas at-risk for sediment collapse

At-risk areas are investigated in advance in order to prevent disaster before it happens and keep damage to a minimum when disasters occur. Moreover, the actual condition and use of at-risk areas, homes and roads that could be affected, and so forth are taken into consideration as the underlying data to create an evacuation advisory.

2) Disaster prevention activities

(1) Issue warnings for at-risk areas

A warning is issued to alert the concerned residents to any specific area known to present a danger. Moreover, while forbidding any dangerous conduct that could induce sediment collapse, concerned residents are encouraged to observe the dangerous area themselves and grasp an understanding of the present condition.

(2) Comprehension of actual condition of at-risk areas

A close watch is kept over the areas deemed to be at-risk, and strive to comprehend the actual conditions over a larger area or new at-risk areas in addition to this.

(3) Advocate residents to check at-risk areas

Efforts are made to urge residents to check the location of areas at-risk for sediment disaster, along with evacuation areas, and evacuation routes.

(4) Measures in established residential areas

Support the construction of disaster prevention for the purpose of preventing established residential areas from suffering sediment disasters. Moreover, safety patrols are performed with citizens, particularly during seasons with much rain.

3) Regulate construction in sediment disaster areas

When new construction is expected within range of a sediment disaster area, it is desirable to select location which avoids the danger of sediment disaster. When unavoidable, it is advisable to construct the appropriate preventive structures, such as retaining walls, according to the soil properties or scale of the structure.

15.2 Disaster Mitigation Measures for Reclaimed Land

<i>Responsible Agency:</i>	<i>Public Works Agency</i>
-----------------------------------	-----------------------------------

When development projects take place in an area where there is a danger of sediment disaster present, the related city office is consulted as matters proceed. If sediment disaster prevention is deemed necessary, recommendations and improvements are given concerning the suspension of construction in order to prevent disaster that would accompany construction.

15.3 Comprehend location of High Risk Area of Sediment Disaster

<i>Responsible Agency:</i>	<i>Forestry Office</i>
-----------------------------------	-------------------------------

Investigations are carried out based on past disaster history etc. of the places where earth-and-sand disaster tends to occur, and the places where new sediment disasters are expected to occur, and a ledger of those at-risk places is created.

CHAPTER 16 SECURE SAFETY OF BUILDINGS

16.1 Secure Safety of Private Buildings

<i>Responsible Agency:</i>	<i>Public Works Agency</i>
-----------------------------------	-----------------------------------

To prevent accidents caused by collapse of building and falling objects from rain and storm related disasters, implementation of preventive measures are necessary by maintaining building safety to minimize damages. Following measures are effective;

1) Dissemination of Disaster Management Knowledge

- Most general dwelling houses in Kota Pariaman are constructed by amateur builder who do not experience a special education of structure engineering. When thinking about this respect the citizens themselves should have practical knowledge, and the skill for construction, in order to make these dwelling buildings strong against disasters. For this purpose responsible Agencies in Pemerintah Kota will disseminate the disaster management knowledge to citizens.

2) Inspection on Existing Dwelling Buildings

- Responsible Agency in Kota Pariaman will draw up an implementation outline for building diagnosis for existing dwelling buildings in Kota Pariaman.
- Responsible Agency in Kota Pariaman will carry out the building census investigation in order to have basic knowledge about the distribution of building structure type and building material type of all dwelling buildings in Kota Pariaman. Responsible Agency in Kota Pariaman will promotes the implementation of building diagnosis on every dwelling building by the order of priority according to level of danger which becomes clear by the result of building census and hazard map.

3) Reinforcement of Building Structure Confirmation and Permission System

- Responsible Agency in Kota Pariaman will establish the building structure confirmation and permission system. Therefore only buildings which have efficient strength may be given construction permission. Related agencies will check the building condition at necessary timing and give effective guidance to builder when improper construction is found.

- Responsible Agency in Kota Pariaman will cancel the building permission if the builder does not make improvement. Legal compulsion should be applied when building constructor does not acknowledge the guidance and caused remarkable danger for the surrounding area.

4) Retrofitting and Strengthening in Existing Building

- Responsible Agency in Kota Pariaman will promotes activity for retrofitting and strengthening in existing building when problem against disaster is found by building diagnosis.

5) Financial Support for Strengthening of Existing Buildings

- Responsible Agency in Kota Pariaman will make support plan for retrofitting and strengthening existing building. Responsible Agency in Kota Pariaman will inform this support system widely in order to encourage self-motivation on strengthening of existing buildings.

16.2 Secure Safety of Public Buildings

<i>Responsible Agency:</i>	<i>Public Works Agency</i>
-----------------------------------	-----------------------------------

Medical facilities and school buildings should be completely protected because those facilities plays important role when large disaster occurs (i.e. emergency place, relief, and shelter place). Therefore Responsible Agency in Kota Pariaman should take following measures in order to prepare a strong institutional-building at the time of disaster.

1) Implementation of building diagnosis for existing public buildings

- Responsible Agency in Kota Pariaman will promote establishing an earthquake-disaster mitigation plan for the facilities, which have important role for medical purpose and shelter base, and inspect them. If unqualified building is found, order and guidance to implement improvement will be given.

2) Earthquake retrofitting and earthquake strengthening in existing institutional-building

- Responsible Agency in Kota Pariaman will draw up an implementation outline for building inspection on existing institutional-buildings in Kota Pariaman.
- Manager in each institutional-building will investigate the disaster mitigation capacity of their building utilizing method that that stipulated in implementation outline.
- Responsible Agency in Kota Pariaman should completely guide manager in each institutional-building to install important facilities (i.e. Fire protection system on disaster prevention, alarm equipment, refuge accommodation etc). Management system that enable mutual cooperation between each different management authority will be established if some usages are set for single facility and management authority has divided
- Responsible Agency in Kota Pariaman should organize activity plan of emergency aid monitoring and guide refugees who take shelter after disaster occurred.

3) Function Reinforcement of Institutional Utility

- Reaction ability towards large disaster depends on whether the emergency response activity is promptly implemented or not. Responsible Agency in Kota Pariaman should check the required equipment and existing capacity of each institutional-utility which will become bases of emergency activities of medical treatment relief and shelter accommodation. If those utilities are insufficient, hence plan to reinforce the function will be established.

CHAPTER 17 SECURE SAFETY OF LIFELINE

Utilities referred as “Lifeline” such as Water, Electricity, Telecommunication, and etc. are critical system of our life. Therefore, if these utilities are damaged because of flood and sediment disasters, urban malfunction will occur, and the effect is considered to be extremely large.

Consequently, to minimize damages to these utilities, following measures will be implemented.

17.1 Coordination Enhancement among Lifeline Provider Companies and Pemerintah Kota

<i>Responsible Agency:</i>	<i>Social & Labor Agency, Regional Drinking Water Company, National Electricity Company, TELKOM</i>
-----------------------------------	--

17.2 Water Supply Facility

<i>Responsible Agency:</i>	<i>Public Works Agency, Regional Drinking Water Company</i>
-----------------------------------	--

17.3 Electric Facility

<i>Responsible Agency:</i>	<i>National Electricity Company</i>
-----------------------------------	--

17.4 Telecommunications Facility

<i>Responsible Agency:</i>	<i>TELKOM</i>
-----------------------------------	----------------------

For 17.1 to 17.4, refer to Section 2 Pre-Disaster Chapter 17, 17.1 to 17.4 in “Part 1: Earthquake Disaster Measures”

Section 3: Emergency Response

(Disaster Emergency Response Plan)

Damages as well as responses to Heavy Rain and Storm related disaster could be in various ways. Rain could cause flood, flash flood, and landslide, while storm could cause fire and falling objects. To mitigate the damage, requires disaster preparedness plan, system and resources development, and emergency response measures.

This Disaster Emergency Response Plan is emergency response measures which should be implemented promptly and efficiently by Kota Pariaman Government and other disaster management related agencies in case of occurrence of a large variety of damages.

CHAPTER 1. EMERGENCY RESPONSE SYSTEM

In case of heavy rains occurs, Government of Kota Pariaman will establish response system by following procedures in order to implement emergency response activities promptly and precisely to mitigate damages.

1.1 Initial Response System (IRS)

<i>Responsible Agency:</i>	<i>Mayor Office</i>
-----------------------------------	----------------------------

In order to response disasters precisely, prompt response by Government of Kota Pariaman together with related organizations is important for next emergency response activities. Initial Response System is defined as response that carried out until Emergency Response Headquarter (Rupusdalops PB) is established. This Initial Response System should be ready for 24 hours to receive weather information from BMG.

Initial Response System is proposed based on criteria mentioned in 1.3 Rupusdalops PBP (Emergency Response Headquarters) and SATLAK PBP.

1) IRS during Working Hours

When continuous heavy rain occurs, if there is a risk of disaster occurrence, Mayor Office will coordinate with SATLAK PB to collect and analyze necessary information and share collected information and analyzed results with related SKPD (Regional Working Unit) within City

Government, SATKORLAK PB, Police, and other related organizations. The result will be reported to Mayor and ask for decision on further response activities.

2) IRS during Night and Weekends

When there is a risk of disaster occurrence, Mayor Office of Pariaman will coordinate with SATLAK PB representatives to gather in Pemerintah Kota and collect and analyze necessary information and share the collected information and analyzed results with related SKPD within City Government, SATKORLAK PB, Police, and other related organizations. The result will be reported to Mayor and ask for decision on further response activities.

1.2 Warning Deployment System

Responsible Agency:	Mayor Office
----------------------------	---------------------

When warning level is not reached the criteria for establishing Rupusdalops PB, however, there is still a risk of occurrence of disasters due to heavy rain, Vice Mayor will discuss on deployment system, and if necessary, Mayor will order warning deployment.

1) Deployment Criteria of Disaster Warning

1. **Alert III** is announced, when forecasted that certain amount of rainfall will continue

2) Deployment of Staffs

Deployment Staffs for each SKPD are as follows;

SKPD	Deployed Staffs
National Unity Agency	3
Social and Labor Agency	2
Social Welfare Section	2
Health Agency	2
Public Works Agency	2
Public Section	2

3) Implementation Order for Staff Mobilization

1. *When Warning Deployment System is decided, Mayor office of Pariaman will announce to SATLAK PB*
2. *Each head of SKPD command Warning Deployment System order to staffs assigned in advance*

1.3 Rupusdalops PBP (Emergency Response Headquarters) and SATLAK PBP

Responsible Agency:	Mayor
----------------------------	--------------

When disaster occurs or in high risk of occurrence, to implement disaster emergency response, Rupusdalops PBP will be established and SATLAK PB meeting will be hold.

1) Rupusdalops PBP

(1) Establishment of Rupusdalops PBP

A. Criteria for Establishment of Rupusdalops PBP

Criteria for establishment of Rupusdalops PBP
1. Heavy rain, flood, windstorm warning is announced in Kota Pariaman Region and there is possibility of occurrence of large scale disaster by BMG
2. When large scale disaster occurs
3. When Mayor decided to do so

B. Substitution in case of absence of Mayor

If Mayor is absent, the following are person who will substitute the position of Mayor.

1. Vice Mayor
2. Assistant of Administration and Development
3. Head of National Unity Agency

C. Announcement of establishment of Rupusdalops PBP

Mayor or his Substitution, when Mayor is absent, will report promptly to head of SATKORLAK PB of West Sumatra Province and related organizations regarding establishment of Rupusdalops PBP. Announcement of establishment of Rupusdalops PBP to community will be done through mass media and other means.

(2) Organization of Rupusdalops PBP

Organization of Rupusdalops PBP is composed of related agencies in Pemerintah Kota based on duties described in “Disaster management and refugees handling established procedure (Protap PBP) of Kota Pariaman”.

From time to time, type of emergency response will change, thus organization must be re-formulated in order to handle emergency response activities.

A. Organization and Role of Rupusdalops PBP

Organization and role of Rupusdalops PBP is based on Protap PBP.

B. Duties of Substitution of head of Rupusdalops PBP

Head of Rupusdalops PB is Mayor, however, if Mayor is absent or cannot execute his duties, all Mayor's role will be substituted by the following person, respectively;

- | |
|---|
| <ol style="list-style-type: none">1. Vice Mayor2. Assistant of Administration and Development3. Head of National Unity Agency |
|---|

C. Enhancement of relationship with related organizations

Rupusdalops PBP has to share disaster information and implement emergency response promptly with well coordination and participation from military, police, Indonesian Red Cross, lifeline providers, etc.

D. Coordination with SATKORLAK PB of West Sumatera Province

If the disaster level is low, it is not necessary to establish Rupusdalops PBP in Provincial level. However, if the disaster cannot be handled within Kota, Mayor will request for support.

In order to have efficient coordination with SATKORLAK PB, necessary information is transmitted to SATKORLAK PB.

2) SATLAK PB Meeting for Emergency Response

(1) Holding of SATLAK PB Meeting for Emergency Response

When Rupusdalops PBP is established, SATLAK PB meeting will be held to decide basic strategy for emergency response measures.

(2) Composition and Operation of SATLAK PB Meeting for Emergency Response

A. Composition of SATLAK PB Meeting for Emergency Response

All member of SATLAK PB will attend SATLAK PB Meeting for Emergency Response.

B. Participation Request from related organizations

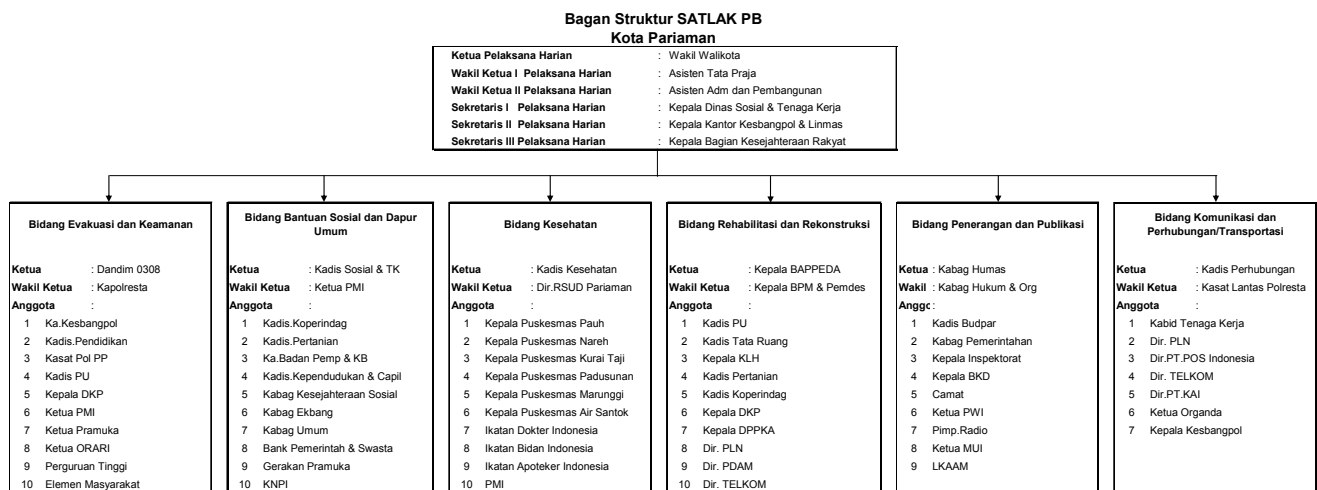
If necessary, all related organizations non-member of SATLAK PB are requested to participate in SATLAK PB Meeting for Emergency Response, such as lifeline companies, police, etc.

3) Dismissal of Rupusdalops PBP

1. Mayor will dismiss Rupusdalops PBP when there is no more risk of disaster, or emergency rehabilitation is almost completed after occurrence of disaster
2. Mayor will inform head of SATKORLAK PB on dismissal of Rupusdalops PBP, and also inform the community through mass media and other means
3. After dismissal of Rupusdalops PBP, if still necessary, Mayor will order to continue implementation of disaster response measures based on Rupusdalops PBP.

4) Organization of Rupusdalops PBP

(1) Organization Chart of Rupusdalops PBP



(2) Role of Each Agencies of Rupusdalops PBP

City Government

Agencies	Chapter	Sub Chapter	Tasks
Mayor	1	1.3	Rupusdalops PBP (Emergency Response Headquarters) and SATLAK PBP
	1	1.4	Rupusdalops PBP Staff Mobilization
	9	9.1	Disaster Response Activities by Citizens
	9	9.2	Disaster Response Activities by Community Groups
Mayor Office	1	1.1	Initial Response System (IRS)
	1	1.2	Warning Deployment System
Community Empowerment Board	13	13.3	Construction of Temporary Housing and Emergency Restoration of Damaged Buildings
Environment Office	7	7.4	Temporary Storage Sites for Debris
	11	11.9	Human Waste Management
Health Agency	11	11.5	Rescue, First Aid, Medical Treatment Measures
	11	11.6	Procurement of Medicines and Medical Equipments
	11	11.7	Health Care and Hygiene Measures

Agencies	Chapter	Sub Chapter	Tasks
	11	11.10	Epidemic Prevention Measures
	11	11.11	Searching for Missing Victim and Casualties Treatment
Information and Communication Office	2	2.4	Collection of Disaster Information
Kesbangpol Linmas Office (National Unity & Public Protection Office)	3	3.3	Disaster Management Related Organizations
	3	3.5	Volunteers
	4	4.1	Warning, Evacuation, and Guidance Measures
	10	10.1	Announcement of Evacuation Warnings
	10	10.2	Set up of Alert Area
	10	10.3	Advice for Evacuation and Transfer
	10	10.4	Set up of Temporary Evacuation Facility and Its Management and Operation
	11	11.11	Searching for Missing Victim and Casualties Treatment
	14	14.1	Recovery Information of Lifeline
	15	15.1	Information Sharing with National and Provincial Organization
Marine Affairs & Fishery Agency	6	6.2	Sea Safety Control and Security Measures
Public Relations Division	2	2.1	Communication Tools
	2	2.2	Establishing of Operation System of Disaster Communication System
	2	2.5	Publication of Disaster Information
	4	4.3	Publication and Dissemination of Information to Community
Pubic Works Agency	2	2.3	Receiving and Transmitting Weather Forecasts and Warnings
	4	4.2	Preventive Measures for Secondary Disaster
	7	7.1	Target of Removal
	11	11.2	Water Provision
	13	13.1	Investigation of Damaged Buildings
	13	13.2	Survey of Damaged Residential Land
	13	13.3	Construction of Temporary Housing and Emergency Restoration of Damaged Buildings
	14	14.1	Recovery Information of Lifeline
	14	14.2	Water Supply Facility
Social and Labor Agency	3	3.1	National and Province
	3	3.2	Peripheral Kabupatens/Kota
	11	11.1	Food Provision
	11	11.3	Daily Commodity Provision
	11	11.4	Acceptance of Goods form outside Disaster Affected Area
	13	13.3	Construction of Temporary Housing and Emergency Restoration of Damaged Buildings
	15	15.2	Acceptance of Foreign Assistance
	15	15.2	Acceptance of Foreign Assistance
Spatial Plan Agency	7	7.4	Temporary Storage Sites for Debris
	11	11.8	Solid Waste Management
	11	11.9	Human Waste Management
	14	14.4	Telecommunication Facility

Agencies	Chapter	Sub Chapter	Tasks
Transportation Agency	2	2.1	Communication Tools
	2	2.3	Receiving and Transmitting Weather Forecasts and Warnings
	11	11.3	Daily Commodity Provision
Transportation, Communication & Information Agency	2	2.2	Establishing of Operation System of Disaster Communication System
	5	5.2	Emergency Call and Mobilization
	6	6.3	Road Transport Management
	8	8.1	Securing Transport Equipments
	8	8.2	Securing Transportation Network
Youth and Sport Education Agency	12	12.1	Management of School Facilities
	12	12.2	Measures for Students and Pupils
	12	12.3	Procurement and Provision of School Supplies, etc
	12	12.4	Management of Education Facilities

Other Organization

Agencies	Chapter	Sub Chapter	Tasks
BMG	2	2.3	Receiving and Transmitting Weather Forecasts and Warnings
Commander of District Military 0308	3	3.4	Military, etc
Cooperation	7	7.2	Team of Removal
	7	7.3	Method of Removal
Fire Fighting Office	5	5.1	Fire Fighting Organization
	5	5.3	Fire Fighting Activity
Indonesian Police	6	6.1	Security Measures by Police
Indonesian Red Cross	11	11.1	Food Provision
National Electric Company	14	14.3	Electric Supply Facility
Police and Pol. PP	6	6.2	Sea Safety Control and Security Measures
Private Enterprises	9	9.3	Disaster Response Activities by Private Enterprises
Regional Drinking Water Company	11	11.2	Water Provision
	14	14.2	Water Supply Facility
SAR	11	11.11	Searching for Missing Victim and Casualties Treatment

1.4 Rupusdalops PBP Staff Mobilization

Responsible Agency:	Mayor
----------------------------	--------------

1) Mobilization Criteria

Mayor as a head of Rupusdalops PBP will mobilize staffs and implement relevant activities, based on the criteria mentioned below.

Category	Mobilization Criteria
1 st Mobilization	<ol style="list-style-type: none"> 1. When heavy rain, flood, windstorm or landslide warning is announced in Kota Pariaman Region, and actual damage are able to observed, and certain level of damages is anticipated 2. When heavy rain, flood, or windstorm warning is announced in Kota Pariaman Region, and BMG forecasted there will be certain level of rain fall occurred
2 nd Mobilization	When heavy rain, flood, windstorm or landslide warning is announced in Kota Pariaman Region, where rain fall and damage occurred at certain level of danger condition
3 rd Mobilization	When heavy rain, flood, windstorm or landslide warning is announced in Kota Pariaman Region, and devastating damage is occurred, or anticipated

2) Component of Mobilization

(1) 1st Mobilization

Each head of Agencies will mobilize number of staffs assigned to designated location or to their offices.

(2) 2nd Mobilization

Each head of Agencies will mobilize number of staffs assigned to designated location or to their offices. Head of Social and Labor Agency and Health Agency have to mobilize number of staffs to take a role in evacuation faculties.

Moreover, in case of occurrence of disaster after working hours, each agency which hold jurisdiction on facility utilized for emergency response activities, should mobilize staffs.

(3) 3rd Mobilization

All staffs will be mobilized to designated location or to their offices, as assigned in advance.

3) Staff Mobilization

Staff mobilization of each agency is mentioned as below. Moreover, for 1st, and 2nd Mobilization, staffs in charge are designated in advance.

Agencies	Responsible Sector	1 st Mobilization	2 nd Mobilization	3 rd Mobilization
Health Agency	3. Health	3	1/3 of Staffs in each agency	All Staffs
Public Works Agency	4. Rehabilitation. and Reconstruction	3		
Transportation, Communication and Information Agency	6. Transportation	1		
Industry, Trading and Investment Agency	2. Social Aid	1		
Agriculture Agency	4. Rehabilitation and Reconstruction	2		
Marine Affairs and Fishery Agency	2. Social Aid	2		
Regional Incoming Agency	4. Rehabilitation and Reconstruction	1		
Youth and Sport Education Agency	1. Evacuation and Security	3		
Cleanliness and Live Environment Agency	4. Rehabilitation and Reconstruction	3		
Social and Labor Agency	2. Social Aid	4		
Agriculture and Food Affairs Agency	2. Social Aid	2		
National Unity and Public Protection	1. Evacuation and Security	4		
Development Planning Board	4. Rehabilitation and Reconstruction	2		
Population, Family Planning and Civil Registration Board	2. Social Aid	2		
Public Capacity Board	4. Rehabilitation and Reconstruction	1		
Territorial Police Office	1. Evacuation and Security	3		
Information and Communication Office	5. Information and Publication	4		
Tourism Service Office	5. Information and Publication	2		
Puskesmas Kp. Baru, Padusunan	3. Health	2		
Puskesmas Kuraitaji	3. Health	2		
Puskesmas Air Santok	3. Health	2		

Note: For 1st and 2nd Mobilization, number of staff includes head of agencies.

4) Order of Staffs Mobilization

(1) Commander

Staff Mobilization is ordered by head of Rupusdalops PBP (Mayor)

(2) Order Transmission System

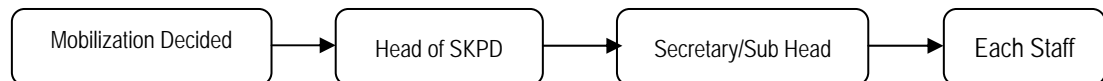
A. During working hours

Transmitted by telephone line or public radio system in Pemerintah Kota



B. After working hours

Transmitted by telephone line



(3) Mobilization not Depend on Order

During working hours, due to malfunction of communication systems, when order is not accessible, mobilize yourself by your own decision.

Moreover, when devastating disaster occurs or a high risk of disaster occurrence is anticipated after working hours, do not wait for mobilization order. Mobilize yourself to designated location based on the criteria for mobilization.

5) Participant Mobilization

Mobilization target are all staffs of Pemerintah Kota. However, the following staffs will be exempt.

1. Person with ill or handicapped and have difficulty to conduct emergency response activities
2. Due to occurrence of disaster, staff is in sudden ill or injured, therefore, not possible to mobilize

CHAPTER 2. DISASTER INFORMATION GATHERING AND DISSEMINATION PLAN

It is crucial for emergency response to gather and disseminate the accurate information on climate and disaster promptly and precisely. Moreover, providing accurate disaster information to the community will avert panic and create smooth evacuation.

This chapter will explain about plan for information gathering and dissemination in the event of disaster.

2.1 Communication Tools

<i>Responsible Agency:</i>	<i>Transportation Agency, Public Relations Division</i>
<i>Relevant Agency</i>	<i>All Type of Media, Army, Police</i>

2.2 Establishment of Operation System of Disaster Communication System

<i>Responsible Agency:</i>	<i>Transportation, Communication & Information Agency, Public Relations Division</i>
-----------------------------------	---

For 2.1 and 2.2, refer to Section 3 Emergency Response Chapter 2, 2.1 and 2.2 in “Part 1: Earthquake Measures”

2.3 Receiving and Transmitting Weather Forecasts and Warnings

Responsible Agency:	Transportation Agency, BMG Pubic Works Agency
----------------------------	--

In that the event of disaster caused by climate phenomenon like rainfall, high temperature, low humidity and strong wind, BMG will issue warning refers to its conditions.

Irrigation agency issues warning according to the condition of rainfall and water level.

These information will be received and transferred by the following procedure.

1) Climate Forecast and Warning etc.

(1) Definision of Forecast and Warning

BMG issues the following forecast and warning.

Type	Definition
Forecast	Prediction of phenomenon based on the results of observation
Warning	Forecast to call the attention to disaster occurrence in case that disaster is expected to occur
Information	Explanation of actual state and transition of abnormal phenomenon like heavy rain.

(2) Type of Waning and Criteria

Type of waning and criteria of BMG are as follows:

Type	Criteria
Warning of heavy rain and flood	In case that damage will be expected by heavy rain. Criteria is under study.
Warning of high temperature	In case that damage will be expected by high temperature. Criteria is under study.
Warning of low humidity (fire)	In case that fire will be expected by low humidity. Criteria is under study.
Warning of tsunami, high wave and high tide	In case that damage will be expected by tsunami, high wave, high tide and sea level rise. Criteria is under study.

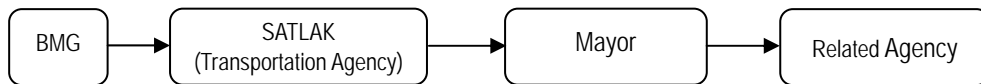
Type of waning and criteria of Irrigation Agency are as follows:

Type	Criteria
Heavy rain warning	In case that damage will be expected by heavy rain. Criteria is under study.
Flood warning	In case that damage will be expected by raising of water level. In particular, in case that the water level rise to a dangerous level.

2) System for Receiving and Transmitting Forecast and Warning

- (1) Forecast and warning from BMG to Kota will be received and transmitted by the following procedure.

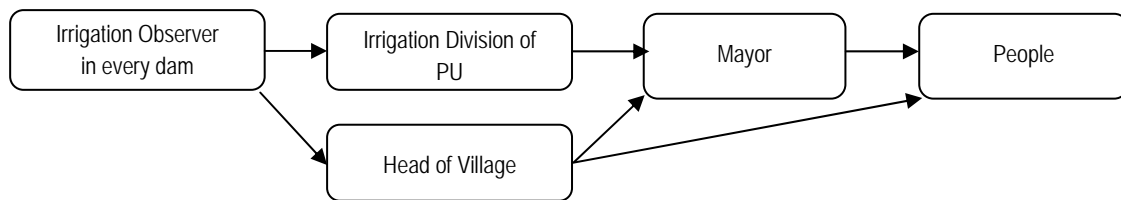
<Telephone>



<SMS by Automatic Weather Station (AWS)>



- (2) Warning based on observation result in observation station of Irrigation agency will be transmitted using telephone by the following procedure.



2.4 Collection of Disaster Information

<i>Responsible Agency:</i>	<i>Information and Communication Office</i>
-----------------------------------	--

2.5 Publication of Disaster Information

<i>Responsible Agency:</i>	<i>Public Relations Division</i>
-----------------------------------	---

For 2.4 and 2.5, refer to Section 3 Emergency Response Chapter 2, 2.3 and 2.4 in “Part 1: Earthquake Measures”

CHAPTER 3. REQUEST FOR SUPPORTS

After a disaster occurs, RUPUSDALOPS-PBP (Emergency Response Headquarter) will request volunteer and related organizations supports in case that Kota Pariaman is unable to conduct emergency response and recovery activities without any external helps.

3.1 National and Province

<i>Responsible Agency:</i>	<i>Social and Labor Agency</i>
-----------------------------------	---------------------------------------

3.2 Peripheral Kabupaten/Kota

<i>Responsible Agency:</i>	<i>Social and Labor Agency</i>
-----------------------------------	---------------------------------------

3.3 Disaster Management Related Organizations

<i>Responsible Agency:</i>	<i>Kesbangpol Linmas Office (National Unity & Public Protection Office)</i>
-----------------------------------	--

3.4 Military, etc.

<i>Responsible Agency:</i>	<i>Commander of District Military 0308</i>
-----------------------------------	---

3.5 Volunteers

<i>Responsible Agency:</i>	<i>Kesbangpol Linmas Office</i>
-----------------------------------	--

For 3.1 to 3.5, refer to Section 3 Emergency Response Chapter 3, 3.1 to 3.5 in “Part 1: Earthquake Measures”

CHAPTER 4. SEDIMENT DISASTER MANAGEMENT**4.1 Warning, Evacuation, and Guidance Measures**

<i>Responsible Agency:</i>	<i>Kesbangpol Linmas Office</i>
-----------------------------------	--

4.2 Preventive Measures for Secondary Disaster

<i>Responsible Agency:</i>	<i>Public Works Agency</i>
-----------------------------------	-----------------------------------

4.3 Publication and Dissemination of Information to Community

<i>Responsible Agency:</i>	<i>Public Relations Division</i>
-----------------------------------	---

For 4.1 to 4.3, refer to Section 3 Emergency Response Chapter 4, 4.1 to 4.3 in “Part 1: Earthquake Measures”

CHAPTER 5. FIRE FIGHTING MEASURES

In large-scale or high risk disaster occurs in Kota Pariaman governmental area, emergency response system by Fire Fighting Office shall be planned as follow.

5.1 Fire Fighting Organization

<i>Responsible Agency:</i>	<i>Fire Fighting Office</i>
-----------------------------------	------------------------------------

- Emergency response headquarter shall be organized in Fire Fighting Office to take necessary measures for disaster management. Head of Fire Fighting Office shall be the head of emergency response headquarter. Under this organization, local fire fighting system shall be cooperated to cope with disaster.
- According to the level of alert such as level 1 - 4, special warning system shall be established in Fire Fighting Office.

5.2 Emergency Call Up and Mobilization

<i>Responsible Agency:</i>	<i>Transportation, Communication & Information Agency</i>
-----------------------------------	--

Emergency call up and mobilization system of fire fighting staffs shall be established to take necessary response to disaster.

5.3 Fire Fighting Activity

<i>Responsible Agency:</i>	<i>Fire Fighting Office</i>
-----------------------------------	------------------------------------

Fire Fighting Office shall take necessary activities to mitigate disaster damage by disaster and protect human lives and assets. Following activities shall be taken.

- Collecting disaster information such as weather condition, water level, high tide, damage situation, and fire fighting operation.
- Patrolling by fire fighting staffs to check damage situation and disaster potential.
- Dissemination of weather condition and evacuation information to community.
- Giving guidance on evacuation activity to community in case of evacuation is ordered.
- Conducting rescue operation in cooperation with community disaster management organizations or related SKPD.
- Protecting activities towards damages shall be taken to prevent secondary damage due to land slide, flooding, high tide and strong wind through cooperation with other SKPD.

CHAPTER 6. SAFETY CONTROL/TRANSPORTATION MEASURES

6.1 Safety Control Measures by Police

<i>Responsible Agency:</i>	<i>Indonesian Police</i>
-----------------------------------	---------------------------------

1) Basic Policy for Safety Control

In occurrence of natural disaster or high risk of disaster occurrence, Police office shall establish safety control system to take emergency response measures for related area. Main purpose of safety control system is to save resident life, assets and maintenance of transportation in disaster affected area. Based on safety control measures, social safety will be attained.

2) Establishment of Safety Control System

Head of police shall organize emergency response system to cope with natural disaster. According to alert level of natural disaster, safety control system will be enhanced. Command system for emergency response shall be established and disaster information sharing system among related SKPD shall be enhanced.

3) Disaster Emergency Response Measures

- Collection and dissemination of disaster information to community.
- Supporting city government to disseminate disaster warning to citizens.
- Supporting emergency rescue operation in cooperation with Government of Pariaman City and related SKPD.
- Commanding evacuation to community in terms of necessary time and place.
- Traffic control and management to support smooth operation of emergency activities.
- Control of criminal activities such as robbery in disaster affected area by regular patrol in disaster affected area and evacuation sites.
- Supporting volunteer activities in disaster affected area and evacuation sites to secure social stability.

6.2 Sea Safety Control and Security Measures

<i>Responsible Agency:</i>	<i>Marine Affairs & Fishery Agency, Police and Pol. PP</i>
-----------------------------------	---

In response to natural disaster occurrence, responsible agency shall take safety control and security measures in the sea in order to protect human lives and assets. Following activities shall be conducted.

- Establishment of emergency response system according to disaster situation.
- Disaster information collection and sharing among related agencies.
- Information dissemination on damage of ships, situation of maritime rescue and so on in close cooperation with related agencies.
- Recommendation of evacuation and evacuation area in the sea and dispatch warning to ships.
- Operation of maritime rescue on ship wrecks at disaster occurrence.

6.3 Road Transport Management

<i>Responsible Agency:</i>	<i>Transportation, Communication & Information Agency</i>
-----------------------------------	--

Transportation Agency of Information and Communication shall analyze disaster information and take necessary transportation control measures to secure emergency transportation network for emergency operation including necessary vehicle operation and evacuation of community. Following activities shall be planned.

- Transportation shall be controlled in disaster affected area to protect against traffic congestion and inflow traffic from outside. Alternative route and related traffic information shall be disseminated and displayed to solve congestion.
- Transportation of emergency vehicles such as ambulance or rescue operation shall be secured at first priority immediately after disaster occurrence.
- Traffic information shall be collected through police stations and related agencies to smooth operation of traffic control.
- Information of traffic control shall be disseminated by display board, announcement by car and utilizing radio broadcasting.
- Emergency vehicles used for giving evacuation warning, fire fighting, rescue operation, restoration of damaged facilities, cleaning and epidemic control, traffic control, police patrol, and related specific vehicles shall be checked and managed as priority traffic.

CHAPTER 7. DEBRIS REMOVAL MEASURES

Debris such as rocks, sand and gravels, woods, bamboo etc, generated by landslide or building collapse will be a barrier not only for road transportation network but also for smooth operation of rescue activities in disaster affected area. Moreover, this debris will cause secondary damage such as flooding in river channel. Therefore, debris removal is important measures for emergency disaster management. Following measures are planned.

7.1 Target of Removal

<i>Responsible Agency:</i>	<i>Public Works Agency</i>
-----------------------------------	-----------------------------------

Debris removal shall be operated by responsible agency for the following reason.

- Immediate removal of debris is necessary to protect human life and assets.
- To conduct emergency operation such as evacuation, fire extinguishes and rescue.
- To protect flooding in river channel.
- To keep traffic safety and transportation route.
- Necessary for related public purposes.

7.2 Team of Removal

<i>Responsible Agency:</i>	<i>Cooperation</i>
-----------------------------------	---------------------------

Public Works Agency shall conduct debris removal in cooperation with community, NGO and voluntary members.

7.3 Method of Removal

<i>Responsible Agency:</i>	<i>Cooperation</i>
-----------------------------------	---------------------------

Public Works Agency shall prepare necessary machines and equipments for debris removal such as bulldozer, crane, dump truck and related tools. Available private-owned heavy machines and vehicles shall be temporary used for debris removal if necessary. Debris removal in main road network, rivers and canals will be given high priority.

7.4 Temporary Storage Sites for Debris

<i>Responsible Agency:</i>	<i>Spatial Plan Agency and Environmental Office</i>
-----------------------------------	--

Temporary storage site for debris shall be prepared either at public open space or at private land. Attention shall be paid not to cause secondary disaster due to dumping of debris.

CHAPTER 8. EMERGENCY TRANSPORTATION MEASURES

Demand for emergency transportations will rise when big disaster occurs such as transportation of victims and refugees, emergency response staffs and supplies. In order to conduct quick and adequate transportation for disaster activities, emergency transportation measures are planned as follows.

8.1 Securing Transport Equipments

Responsible Agency:	Transportation, Communication & Information Agency
----------------------------	---

1) Vehicles of Pemerintah Kota

Transportation Agency registers vehicles of Pemerintah Kota which are necessary for emergency transportation activity as an emergency vehicle beforehand, and keep these under control. Transportation Agency requests to allocate the vehicle and use by order from the Agency.

No.	Type	Name	Registration No.	Max. authorized payload (unit; tone, person)	Agency

2) Procurement Request

In case they cannot cope with disaster activities only by using vehicles of Pemerintah Kota, Transportation Agency requests vehicles as follows.

(1) Request to other Agencies in Pemerintah Kota

- Car, Truck and Special vehicle
Request to a bus company and a transportation company
- Fishing boat
Request to a fisherman

(2) Request to the Province

- Car, Truck and Special vehicle
- Vessel

(3) Request to a Railway Company

In case of railway is suitable, request the railway company for cooperation

(4) Request for Air Transportation

In case of air transportation is needed, request to utilize airplanes of the army and the police.

3) Security of the Emergency Traffic Vehicle

Transportation Agency issues an emergency vehicle certificate to vehicle engaged in emergency transportation activity. Driver has to put the vehicle certificate only for emergency transportation activity.

4) Transportation Plan

(1) Prioritized Purpose

Purpose of using emergency transportation is depended on urgent situation. The following are procedure for emergency transportation measures.

A. 1st stage (From right after until second day of disaster)

To supports directly either dead or injured victim by occurrence of disaster, following items are necessary to be prioritized to reduce confusion after disaster.

- An ambulance service, medical service and staffs who manage medical supplies and other supplies
- Firefighting, flood control activity staffs and staffs who manage prevention of a disaster
- Staffs or the supplies which are necessary for first aid disaster measures such as staffs from national and local government, information and communication, electricity, gas, water service institution security guard
- Injured peoples who are transported to public health center and hospital
- Staffs and equipments that are necessary for emergency transportation such as transportation facilities, emergency rehabilitation of transportation center and traffic regulation

B. 2nd stage (From the third day to first week after disaster)

To mitigate damage and manage confusion caused by occurrence of disaster, following items are necessary to recover quality of life for emergency.

- The 1st stage continuation activity
- Supplies which are necessary to support daily life such as food, water, etc.
- Disaster victims and handicapped who are transported to outside of disaster area

- Staffs and equipments that are necessary for emergency rehabilitation of transportation facilities

C. 3rd stage (After one week from the disaster)

To supports daily life that became more difficult by disaster, and things which are necessary to be reconstructed after disaster, mainly focus on following items.

- The 2nd stage continuation activity
- Staffs and equipments that are necessary for reconstruction process after disaster
- Life needs

(2) The Transfer Lines

The transfer lines are refereed “2-11 Development of Emergency Transportation Facilities”.

8.2 Securing Transportation Network

<i>Responsible Agency:</i>	<i>Transportation, Communication & Information Agency</i>
-----------------------------------	--

In occurrence of disaster, Public Works Agency handles immediately the damage situations of the roads and removes barriers on the road and implements emergency rehabilitation to secure the transportation network. In emergency rehabilitation, securing transportation network is urgently implemented.

1) Report of the Traffic Barrier

Public Works Agency implements information sharing with related organization such as the province, police, and gains or reports the damage situations of the road for securing emergency transportation network.

2) Remove Barriers on the Emergency Transportation Road

Public Works Agency in cooperation with the province removes barriers on emergency transportation road.

- After disaster occurs, Public Works Agency checks damage situation of emergency transportation roads. When responsible road management from the province checks the emergency transportation roads, Public Works Agency cooperates with them.
- When there are barriers by outflow of soil at emergency road section. Public Works Agency attempt to collect information of the road section and implement information sharing with the province and related organization.
- Public Works Agency will prioritize road section for removal of barriers in consideration of the importance and effectiveness of the emergency transportation road.

CHAPTER 9. DISASTER RESPONSE ACTIVITIES BY COMMUNITY AND PRIVATE ENTERPRISES

It is totally depend on mutual disaster damage mitigation and prevention activities by community and private enterprises to secure safety of individuals, family and community member. The following measures shall be taken by community and private enterprises.

9.1 Disaster Response Activities by Citizens

<i>Responsible Agency:</i>	<i>Mayor</i>
-----------------------------------	---------------------

9.2 Disaster Response Activities by Community Groups

<i>Responsible Agency:</i>	<i>Mayor</i>
-----------------------------------	---------------------

9.3 Disaster Response Activities by Private Enterprises

<i>Responsible Agency:</i>	<i>Private Enterprises</i>
-----------------------------------	-----------------------------------

For 9.1 to 9.3, refer to Section 3 Emergency Response Chapter 11, 11.1 to 11.3 in “Part 1: Earthquake Measures”

CHAPTER 10. EVACUATION MEASURES

When disaster occurs and there is a risk of secondary disaster, or there are vulnerable houses to landslide, etc, it is necessary to secure resident safety by evacuating to safe area temporarily.

This chapter will elaborate plan for evacuation measures, such as dissemination of evacuation preparedness information, evacuation guidance, or order, advice for evacuation /transfer, opening of evacuation site.

10.1 Announcement of Evacuation Warnings

Responsible Agency:	Kesbangpol Linmas Office
----------------------------	---------------------------------

In occurrence of disaster, it is necessary to protect human lives from disaster and prevent spreading of damages, by following procedures of evacuation (represent evacuation preparedness information, evacuation guidance, and order).

Type of Warnings	Description
Alert II Evacuation Preparedness Information	This warning is for elderly or handicapped. These people need longer time for evacuation, so that information on risks of disaster occurrence will be announced several days before to prepare for evacuation
Alert I Evacuation Guidance	When disaster occurs or high risk of occurrence of disaster, evacuation warning is announced to community
Evacuation Order	Devastating disaster occurs or there is high risk of occurrence of devastating disaster, evacuation order is announced to community. This order is stronger than Evacuation Guidance

1) Decision Criteria of Evacuation Warnings

1. When land slide occurred, or there is risk of occurrence, and anticipation to danger that could cause casualties
2. When flood occurred, or there is risk of occurrence, and anticipation to danger that could cause casualties
3. By condition of other types of disaster related to rain and storm which considered dangerous by head of Rupusdalops PBP

2) Announcement of Evacuation Preparedness Information, and Person who give Evacuation Warning and Order

When there is danger on resident life, Mayor will announce warning to resident in the area, or in case of emergency, will order evacuation. However, if Mayor is absent or cannot order for evacuation, by following order, substitute can act on behalf of Mayor and have the same authority to give evacuation warnings.

1. Vice Mayor
2. Assistant of Administration and Development
3. Head of National Unity Agency

(1) Substitution by Supporting Organizations

When there was upcoming danger due to disaster, and no time to ask for decision by Mayor, or Mayor is absent, any related organization could substitute the authority of Mayor for giving evacuation warnings to secure lives of residents.

Those supporting agencies are:

- Transportation Agency (related to BMG)
- Irrigation Agency (related to the increase of water level in river)
- Public Work Agency (related to area condition)

After announcement, related organizations who gave evacuation warnings, will report to Rupusdalops PBP promptly.

(2) Substitution by Governor

Due to devastating disaster, if most of roles of Rupusdalops PBP in Kota cannot be implemented, Governor has power to take over all or part of authorities of Mayor. Governor will announce beginning and end of the take over. When Governor substitutes the role of Mayor, Governor will report to Mayor about the take over. Then, whenever Mayor has recovered and could execute duty, Governor will return the roles to Mayor immediately.

3) Contents of Evacuation Warnings

Person who announced evacuation warnings will warn or order evacuation by clearly mentioning the following items to community.

1. Reason of necessity of evacuation

2. Target area of evacuation guidance or order
3. Location of Evacuation Area
4. Evacuation Route
5. Caution Points for Evacuation

4) Deliverance of Evacuation Warnings

Deliverance of evacuation warnings is done by radio communication, mosques loudspeaker, van loudspeaker, and traditional emergency bell.

5) Reporting, and etc

(1) Report to Related Organizations

When Mayor or related organizations announce evacuation warnings, the situation should be reported to Governor and other related organizations.

(2) Dissemination to Citizens

When evacuation warnings are announced, or, receive notification that other relevant organizations gave evacuation warnings, by using communication system of Pemerintah Kota, the situation will be disseminated to citizens. Also, when evacuation warnings are released the situation will be disseminated to citizens.

6) Announcement of Evacuation Warnings

Mayor will announce evacuation warnings, when there is emergency condition. He will announce immediately and report to Governor.

10.2 Set up of Alert Area

<i>Responsible Agency:</i>	<i>Kesbangpol Linmas Office</i>
-----------------------------------	--

10.3 Advice for Evacuation and Transfer

<i>Responsible Agency:</i>	<i>Kesbangpol Linmas Office</i>
-----------------------------------	--

10.4 Set up of Temporary Evacuation Facility and Its Management and Operation

<i>Responsible Agency:</i>	<i>Kesbangpol Linmas Office</i>
-----------------------------------	--

For 10.2 to 10.4, refer to Section 3 Emergency Response Chapter 12, 4.3 to 4.5 in “Part 1: Earthquake Measures”

CHAPTER 11. RESCUE/AID MEASURES

In occurrence of big disaster, many disaster affected people will lose their cooking equipments including food supply itself and no availability of lifeline functions due to collapse of houses. Moreover, disaster affected people may not get their daily food in shops or markets because of unusual condition of big disaster. Therefore, it will be necessary to supply water, food and daily commodities to disaster affected people to maintain social stability.

It is necessary to conduct fast cleaning of huge volume of waste and debris generated by big disaster and also necessary measures shall be taken to prevent epidemics in damaged area. Medical aid for injured people and rescue and search operation for missing people are also important activities. Based on above points, following items are planned.

11.1 Food Provision

<i>Responsible Agency:</i>	<i>Social and Labor Agency, Indonesian Red Cross</i>
-----------------------------------	---

11.2 Water Provision

<i>Responsible Agency:</i>	<i>Regional Drinking Water Company, Public Works Agency</i>
-----------------------------------	--

11.3 Daily Commodity Provision

<i>Responsible Agency:</i>	<i>Social and Labor Agency, Transportation Agency</i>
-----------------------------------	--

11.4 Acceptance of Goods form outside Disaster Affected Area

<i>Responsible Agency:</i>	<i>Social and Labor Agency,</i>
-----------------------------------	--

For 11.1 to 11.4, refer to Section 3 Emergency Response Chapter 14, 14.1 to 14.4 in “Part 1: Earthquake Measures”

11.5 Rescue, First Aid, Medical Treatment Measures

<i>Responsible Agency:</i>	<i>Health Agency</i>
-----------------------------------	-----------------------------

1) 1. Rescue, First Aid System

(1) Principle of Activity

Rescue and first aid activities shall be operated based on following principles.

- Life saving is the first priority in any case.
- Fire extinguish and related life saving is high priority activity.
- Effectiveness of rescue operation shall be considered to save more life.
- Application of triage for victims to be determined by treatment priority.

(2) Information Collection

Necessary information for rescue operation shall be collected as much as possible through related agencies such as fire fighting, police, community, and community information network. Attention shall be paid to hospital, large shopping center, hotel, theater and related buildings.

2) Medical Aid System

Medical Aid Team shall be organized in Health Agency to collect information for emergency medical support, take coordination between hospitals for acceptance of injuries and dispatch medical aid team to necessary place. Medical Aid Team will work in cooperation with local doctor's association. Main task of this group shall be as follows.

(1) Information Collection

Damage information for medical facilities shall be collected by telecommunication network such as hospitals, clinics and related facilities. Activity information of medical facilities shall be collected such as doctor's activity including their staffs, insufficient medicine and medical equipments and available beds.

(2) Open of Medical Aid Service Spot

Medical aid service spot shall be opened at neighborhood of disaster affected area using existing medical facilities under coordination by Medical Aid Team. Necessary medical team and materials will be provided by Health Agency.

(3) Procurement of Medicines and Equipments

Necessary medicines and equipments for emergency medical aid will be supplied by using available stocks of hospitals and clinics. Procured medical materials shall be distributed by Health Agency to medical aid service spot.

(4) Dissemination of Medical Aid Service Information

Medical aid service information such as care center, hospitals shall be disseminated to community through announcement by Health Agency.

(5) Cooperation with Medical Facilities outside Kota Pariaman

In case of over capacity of existing medical treatment in Kota Pariaman is estimated due to huge scale of disaster, outside medical function shall be utilized in cooperation with provincial Health Agency in Padang. Heavily injured patients who need an integrated care will be transferred to outside hospitals from disaster damaged area by special transportation such as military helicopter. Request of medical support team to outside medical functions will be also made through coordination by Health Agency of Kota Pariaman.

(6) Open of Supply Center for Medical Aid Material

Supply center for medical aid material shall be opened to classify and manage necessary medicines and related medical materials. In cooperation with pharmacist, necessary medicines and related materials shall be distributed to request sites.

11.6 Procurement of Medicines and Medical Equipments

<i>Responsible Agency:</i>	<i>Health Agency</i>
-----------------------------------	-----------------------------

In order to response shortage of medicines and medical equipments, provincial health agency will be requested for procurement of these materials.

11.7 Health Care and Hygiene Measures

<i>Responsible Agency:</i>	<i>Health Agency</i>
-----------------------------------	-----------------------------

1) Hygiene Measures in Disaster Affected Area

Hygiene measures shall be taken in disaster affected area to maintain sanitary condition and prevent epidemic infection. Public toilet space and shower space shall be prepared in evacuation site.

2) PTSD

Mental care shall be given to those who have heavy stress or mental damage such as PTSD by natural disaster. Medical doctors and volunteers in cooperation with Health Agency shall work together to support children, elderly and community for recovery from mental damage.

11.8 Solid Waste Management

<i>Responsible Agency:</i>	<i>Spatial Plan Agency</i>
-----------------------------------	-----------------------------------

In occurrence of big disaster, large volume of solid waste will be generated by building collapse. It is necessary to remove solid waste from damaged site and clean the area for reconstruction. Waste disposal site shall be prepared. Collected solid waste shall be divided according to its type of material before dumping. Woods, bamboo and related waste should be incinerated at disposal site or reutilized for reconstruction of local house. Other solid waste should be disposed as landfill.

11.9 Human Waste Management

<i>Responsible Agency:</i>	<i>Spatial Plan Agency, Environment Office</i>
-----------------------------------	---

Human waste management will be necessary at evacuation sites. Temporary toilet shall be prepared for refugee. Waste shall be treated properly as sanitary landfill.

11.10 Epidemic Prevention Measures

<i>Responsible Agency:</i>	<i>Health Agency</i>
-----------------------------------	-----------------------------

In occurrence of big disaster, epidemic prevention measures should be taken in disaster affected area, especially for evacuation site. It is very important to manage and control health and sanitary condition for refugee at evacuation site and damaged area. Health check is necessary for refugee. If patient is found at evacuation site, necessary treatment procedures shall be taken immediately such as transporting to hospital and give medical care. Following procedure shall be taken to control and prevent epidemics in disaster affected area.

- Conducting fast check of patient or carrier and take necessary preventive measures at disaster affected area and evacuation site.
- Conducting disinfection in disaster affected area and evacuation site to prevent epidemics if necessary.
- Conducting vaccination.
- Dissemination of necessary information and instruction for epidemic prevention in cooperation with community activity.
- Preparing necessary chemical materials and equipments for disinfection of the area by related agency.
- Hospital shall be designated beforehand to accept patients of epidemics.

11.11 Searching for Missing Victim and Casualties Treatment

Responsible Agency:

SAR, Health Agency, Kesbangpol Linmas Office

1) Searching for Missing Victim and Casualties

Search for missing victim in disaster area shall be conducted by Search and Rescue Agency from Padang and Pariaman. Under management of Search and Rescue Agency, navy and marines will join in searching activity. Community will also join for search work for missing victim under head of village responsible.

If missing person is found still in alive, then he will be transported to designated hospital by possible transportation system such as vehicles, or even a helicopter to give necessary medical treatment. Personal data such as address, name, age, male or female and contact place will be recorded as for reference.

If missing person is found dead, then he will be transported to the nearest medical care center (POST). After identification check and cleaning the dead body by medical doctor, he will be transported to designated hospital. Finally, family or relatives will check and recognize all identifications at hospital. Then, dead body will be transferred to family for funeral.

2) Preparation of Charnel House

Preparation of charnel house will be necessary in case of big disaster. Large space such as mosques or gymnasiums shall be designated in close sites to disaster affected area. Selection of candidate buildings shall be made beforehand as a part of disaster management plan. In charnel house, medical check, cleaning dead body, identification by family and transfer service will be conducted.

3) Information Dissemination to Citizen

Missing who are not identified by any family, photograph will be taken to record characteristics of body, personal belongings and clothes. This information will be disseminated to citizen through local community network or Tracing and Mailing Service (TMS) by Indonesian Red Cross.

CHAPTER 12. SCHOOL DISASTER MANAGEMENT MEASURES

In occurrence of big disaster, safety measures for pupils and students, school facilities and provision of temporary school shall be planned as follows.

12.1 Management of School Facilities

<i>Responsible Agency:</i>	<i>Youth and Sport Education Agency</i>
-----------------------------------	--

12.2 Measures for Students and Pupils

<i>Responsible Agency:</i>	<i>Youth and Sport Education Agency</i>
-----------------------------------	--

12.3 Procurement and Provision of School Supplies, etc.

<i>Responsible Agency:</i>	<i>Youth and Sport Education Agency</i>
-----------------------------------	--

12.4 Management of Education Facilities

<i>Responsible Agency:</i>	<i>Youth and Sport Education Agency</i>
-----------------------------------	--

For 12.1 to 12.4, refer to Section 3 Emergency Response Chapter 17, 17.1 to 17.4 in “Part 1: Earthquake Measures”

CHAPTER 13. RESIDENCE AND BUILDING MANAGEMENT

Residential buildings will be damaged by big disaster and there will be many people lose their houses. In order to support these refugees, construction of temporary houses and reparation of damaged houses shall be planned as follow.

13.1 Investigation of Damaged Buildings

<i>Responsible Agency:</i>	<i>Public Works Agency</i>
-----------------------------------	-----------------------------------

1) Preparation

Damage information will be collected to understand volume of damage. Preparation of surveyors and survey tools, and announcement of damaged houses investigation will be disseminated by Public Works Agency.

2) Survey Method

As a primary survey and evaluation, two surveyors will conduct visual observation from outside of the house. Based on the survey, detailed survey for certain buildings will be reported by construction experts.

3) Preparation of Damaged Houses List

Survey results will be compiled into damaged houses list by Public Works Agency and utilized for necessary verification in future.

13.2 Survey of Damaged Residential Land

<i>Responsible Agency:</i>	<i>Public Works Agency</i>
-----------------------------------	-----------------------------------

Damaged residential land will be surveyed to protect from secondary damage and secure safety of residents in disaster area.

1) Preparation

Damage information of resident land will be collected to understand volume of damage. Preparation of surveyors and survey tools, and announcement of investigation will be disseminated by Public Works Agency.

2) Survey Method

As a primary survey and evaluation, a team of three surveyors will conduct visual observation on damaged land. Based on request of residents, technical advice for restoration or rehabilitation of the damaged land will be recommended to protect the secondary damage.

3) Announcement of Survey and Evaluation

Result of survey and evaluation will be announced and displayed at disaster area to protect or reduce the secondary damage.

13.3 Construction of Temporary Housing and Emergency Restoration of Damaged Buildings

<i>Responsible Agency:</i>	<i>Public Works Agency, Community Empowerment Board, Social and Labor Agency</i>
-----------------------------------	---

Temporary housing will be constructed for those who lost their house and unable to reconstruct by their own fund due to disaster damage. Emergency restoration of damaged houses will also be conducted to secure social stability.

1) Implementation Organization

SATLAK (Public Works Agency) and Community Empowerment Board are the responsible agency for construction of temporary housings and restoration and rehabilitation of damaged houses in disaster affected area.

2) Construction of Temporary Housing

Temporary housing will be provided to those with several criteria such as, (1) total collapse or burning of residential house (2) not having residential house, (3) elderly or handicapped who do not have residential house.

Public Works Agency and Social and Labor Agency shall work together to provide temporary housings to refugee.

3) Location of Temporary Housing

Location of temporary housing shall be selected at safety area, close to existing commercial facility, school, and hospital. Number of temporary housing will be decided by Mayor of Kota Pariaman.

4) Emergency Restoration and Rehabilitation of Damaged Houses

Public Works Agency and Community Empowerment Board will conduct and support emergency restoration and rehabilitation of damaged houses in disaster affected area. Light damaged houses will be the target for restoration and rehabilitation. Emergency restoration and rehabilitation shall be completed within one month after occurrence of disaster.

CHAPTER 14. EMERGENCY MEASURES FOR LIFELINE

If daily utilities such as water, sewerage, electricity, telecommunications, etc. were damaged by disaster, prompt and precise emergency response shall be planned as follows;

14.1 Recovery Information of Lifeline

<i>Responsible Agency:</i>	<i>Public Works Agency, Kesbangpol Linmas Office</i>
-----------------------------------	---

14.2 Water Supply Facility

<i>Responsible Agency:</i>	<i>Public Works Agency, Regional Water Company</i>
-----------------------------------	---

14.3 Electric Supply Facility

<i>Responsible Agency:</i>	<i>National Electric Company</i>
-----------------------------------	---

14.4 Telecommunication Facility

<i>Responsible Agency:</i>	<i>TELKOM</i>
-----------------------------------	----------------------

For 14.1 to 14.4, refer to Section 3 Emergency Response Chapter 19, 19.1 to 19.4 in “Part 1: Earthquake Measures”

CHAPTER 15. ACCEPTANCE PLAN OF FOREIGN ASSISTANCE

International assistance will be expected for large-scale natural disaster. Emergency rescue operations including search and rescue, medical service, construction and management of evacuation facilities will be the first necessary items for disaster management. International aid teams will join immediately after occurrence of disaster. In order to accept international assistance for emergency operation, basic acceptance plan including information sharing with national and provincial organization and necessary procedures should be prepared.

15.1 Information Sharing with National and Provincial Organization

<i>Responsible Agency:</i>	<i>Kesbangpol Linmas Office</i>
-----------------------------------	--

15.2 Acceptance of Foreign Assistance

<i>Responsible Agency:</i>	<i>Social and Labor Agency</i>
-----------------------------------	---------------------------------------

For 15.1 and 15.2, refer to Section 3 Emergency Response Chapter 21, 21.1 and 21.2 in “Part 1: Earthquake Measures”

Section 4: Post-Disaster (Rehabilitation and Reconstruction Plan)

Rain and storm or strong wind related disasters sometimes cause extensive damages. Demolition of houses, landslide, flood and water puddle, etc. is extremely disturbing for the resident's daily life and activities. Rehabilitation and Reconstruction Planning are management plans to be implemented by City Government with SKPD or related organizations for recovering from damages as soon as possible, so the residents would be able to live normally everyday without any trouble.

CHAPTER 1. REHABILITATION PLAN

For Rehabilitation Management, prompt recovery on daily life and facilities of disaster victims, industries, etc. are expected. City Government plans, to return citizen's lives back to normal by establishing service post, temporary housing management, emergency funding, etc. and so on.

1.1 Recovery Measures to Normal Life

<i>Responsible Agency:</i>	<i>Social and Labor Agency and Social Welfare Section</i>
-----------------------------------	--

1.2 Rehabilitation of Public Facilities

<i>Responsible Agency:</i>	<i>Public Works Agency</i>
-----------------------------------	-----------------------------------

1.3 Declaration of National Disaster

<i>Responsible Agency:</i>	<i>Mayor</i>
-----------------------------------	---------------------

For 1.1 to 1.3, refer to Section 4 Post Disaster Chapter 1, 1.1 to 1.3 in "Part 1: Earthquake Measures"

CHAPTER 2. RECONSTRUCTION PLAN

In order to create a disaster-resilient city, the following basic concepts of reconstruction are formulated.

2.1 Gathering Relevant Information for Preparation of Reconstruction

<i>Responsible Agency:</i>	<i>Development Planning Board</i>
-----------------------------------	--

2.2 Basic Concept Formulation of Urban Reconstruction

<i>Responsible Agency:</i>	<i>Development Planning Board</i>
-----------------------------------	--

For 2.1 and 2.2, refer to Section 4 Post Disaster Chapter 2, 2.1 and 2.2 in “Part 1: Earthquake Measures”