PILOT SURVEY OF KNOWLEDGE, ATTITUDE AND PRACTICE (KAP)

DISASTER PREPAREDNESS IN PADANG CITY 2013

BNPB

BADAN PUSAT STATISTIK

UNFPA

NATIONAL AGENCY FOR DISASTER MANAGEMENT (BNPB)
STATISTICS INDONESIA (BPS)
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Source : BNPB

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FOREWORD

Praise be to God, the Almighty, for with His mercy and grace we have been able to finish the report on Pilot Survey of Knowledge, Attitudes and Practice (KAP) to identify people's awareness, emotional attitudes, and behaviour models towards preparedness for disasters, particularly in the region of Padang city, West Sumatra. This report is one of the media to disseminate the results of activities, published by the Centre for Data, Information and Public Relations, BNPB; in collaboration with Directorate of Population and Employment Statistics, BPS; and facilitated by UNFPA.

The pilot survey was conducted in ten villages that fall into the category of high-hazard earthquake and tsunami disasters. The result is expected to be an initial step to improve the preparedness and capacity of the community in facing emergencies, which ultimately can reduce the risk of probable disasters.

Hopefully this report can be a reference for the government and other institutions to evaluate the preparedness and risk-reduction activities as well as to draw up action plans to prepare for and respond to the identified risks and hazards, in order to create a community that is responsive, agile and resilient in dealing with them. All comments and constructive criticisms are welcome, especially those that will improve our next reports.

Jakarta, October 2013

Dr. Sutopo Purwo Nugroho

Head, Centre for Data,
Information and Public Relations,
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INTRODUCTORY REMARKS

Alhamdulillah, we praise and thank God Almighty who has made us able to complete and publish this report on Pilot Survey of Knowledge, Attitudes and Practice (KAP) – Disaster Preparedness in Padang City. This publication is the result of collaborative initiative between BNPB and Statistics Indonesia (BPS) to identify the knowledge, attitudes and practice of people living in areas with a high level of earthquake hazard in the city of Padang. This result is also a documentation of KAP pilot survey that will enrich the master plan of tsunami in Indonesia.

The strategy towards a powerful nation in terms of disaster threats is "*Keep the people from disasters, keep disasters from the community, live in harmony with the risks of disaster, explore and develop local wisdom of the community*". This must of course be accompanied by science and technology. It is the starting point for realizing disaster risks reduction and towards a responsive, agile and resilient community.

This activity is a form of never-ending learning process of the government, community and the business world concerning the earthquake of 8.5 magnitude that occurred on 11 April 2012 in Simelue Aceh, where there are issues that are overlooked from the illustration of community preparedness at the time. This report is expected to capture the lack of knowledge, mindset and behaviour of the people towards disaster. Natural disasters should empower the nation to continue to implement disaster risk reduction and preparednes as an effort to strengthen the resilience against unexpected disasters.

Hopefully the collaboration between BNPB and BPS can provide benefit to all parties and its lessons learned can be utilized to strengthen the existing disaster risk reduction activities. Such programs should be developed by humanitarian workers in order to minimize the loss of life and property, and help the people who live in earthquake and tsunami prone areas.

Thanks to the whole team of authors both from BNPB and BPS, as well as a special appreciation to UNFPA that supports these activities from the beginning to the end. We hope that the partnership and this activity can continue to develop in the future as a fulfillment of our call for humanitarian mission.

Jakarta, October 2013
Dr. Syamsul Maarif, M.Si.

Head, National Board for Disaster Management (BNPB)

PREFACE

Access to data is critically important during all phases of a humanitarian situation. Accurate data is the cornerstone of effective emergency preparedness, conflict prevention, emergency relief, and the rehabilitation and reconstruction process. New and emerging technologies enhance the value of data in preparation for emergencies through development of contingency plans, vulnerability analyses, and reliable baseline indicators. During acute phases, data is important for implementing and targeting effective responses. In chronic disasters, data should set the design and delivery for short-term humanitarian programmes, as well as their monitoring and evaluation. Reliable data must be used as well in programming for rehabilitation and reconstruction during the post-crisis phase.

Data cultivated through UNFPA's Population Development programme proved extremely valuable during UNFPA's support of humanitarian efforts in 2005, following the conflict and disaster in Aceh. UNFPA conducted a gender-based analysis that evaluated social, economic, and cultural changes in the day-to-day lives of IDPs living in camps and shelters. In a similar vein, UNFPA conducted a post-disaster, post-conflict population census in Aceh and Nias in 2005. This post-tsunami census was a unique and unprecedented exercise in terms of its timing, use of techniques and methodologies, the local political situation, and the conflict environment during which census activities were conducted. Results of this census have been proven to be the only comprehensive population information data available on these areas from this time.

UNFPA is committed to continue its technical support in the area of population data for disaster management. Some products of the collaboration between BNPB, BPS and UNFPA include: the availability of baseline data and information as the result of data merging from 2010 Population Census and 2011 Village Potential Survey, and analysis document on vulnerability and exposure of Padang City to earthquake and tsunami, a pilot KAP survey, and incorporation of population component into national disaster management plan are.

I hope that with the availability and the incorporation of population data for disaster management, BNPB will be able to prepare and respond better for future disasters in Indonesia.

Jakarta, October 2013
Jose Ferraris

UNFPA Representative

Damage hotel after earthquake in Padang.
Source : BNPB

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Landslide in Padang Pariaman.
Source : BNPB

CHAPTER 1

INTRODUCTION

Background

Earthquake that triggered tsunami befell a number of areas in Aceh in 2004. The death toll from the disaster was not less than 220,000 people. Besides Indonesia, the tsunami also hit other countries such as Sri Lanka, India and Thailand. These three countries were hardest-hit by the disaster with the largest number of casualties. The disaster has opened the eyes of the Indonesian government on the importance of disaster management.

The issuance of Law No. 24 of 2007 on Disaster Management is an unequivocal response from the government for a comprehensive disaster management. The establishment of the National Agency for Disaster Management (BNPB) and the Regional BNPB denotes the seriousness of the government to protect citizens from unprecedented disasters. Lessons learned and development of science that involves all elements of the ministries and agencies according to their respective tasks and functions are an integral part in the disaster management process that is constantly dynamically evolving.

After the earthquake and tsunami of 2004, earthquakes have occurred several times in that area, including the 8.9 magnitude earthquake centered near the Simelue Island on 11 April 2012. The incident reminded all parties of the importance of the overall concept of disaster risk reduction and preparedness. Learning from the incident and following up the President's directives to the Head of BNPB, Indonesia is currently improving the planning documents on the tsunami hazard preparedness, i.e., Tsunami Disaster Risk Reduction Master Plan. The document is composed as an effort to develop community capacity and preparedness in facing the earthquake and tsunami in order to provide protection for people in areas prone to earthquake and tsunami disaster.

In the preparation of the Master Plan for the Tsunami Disaster Risk Reduction, an assessment analysis was conducted based on the level of hazard, vulnerability and capacity of the respective areas. One of the important elements of vulnerability discussed in the document is about the people exposed to the risk of earthquake and tsunami disaster. The population profile, including their preparedness to deal with disasters, is an aspect that needs to be examined in order to prepare the Master Plan properly.

BNPB in collaboration with BPS and with technical assistance from UNFPA conducted a KAP survey aimed to determine the knowledge, attitude, and practices of the people residing in coastal areas. The survey tried to capture the idea of community preparedness for disasters, especially earthquake and tsunami disasters.

The Preparation of the implementation of pilot KAP survey was started on May 2013 by team consist of data and information center BNPB and the directorate of demography and labor statistic for the development of census questionnaires and guidelines to capturing knowledge, attitudes and practice in order to describe the community preparedness in city of Padang. Coordination to BPBD and BPS of West Sumatra Province is needed especially for the use of Sudistrict Statistic Coordinator (KSK) and the selected census block also with the field coordinator during the survey.

The city of Padang, West Sumatra, is selected as the site of the pilot survey, because it is located

in the coastal area and it has experienced several catastrophic earthquakes. The coastal area is chosen because it has a high level of earthquake and tsunami hazards. It is expected that KAP survey can eventually be conducted in all coastal areas which are categorized as having a high vulnerability of earthquake and tsunami disasters.

Aim and Objectives

The KAP pilot survey in the city of Padang is intended to assess people's knowledge, attitudes and capacities of communities residing at the coastal areas of Padang city for coping with the earthquake and tsunami disasters. The KAP survey results can be used to :

- Provide basic information on the knowledge, attitudes and skills of the people in the coastal areas;
- be utilized in drafting the pre-disaster baseline data in 2014;
- Develop appropriate measures to prevent or reduce the occurrence of catastrophic impacts and to provide protection for people in the areas prone to earthquake and tsunami disasters;
- Arrange an area taking into account the potential for disaster, and in general have an understanding of the source of the disaster.

If at all possible, the entire population living in the area prone to earthquake and tsunami disasters should be surveyed. However, due to time and budget constraints the survey could not be conducted for the entire population. The pilot survey covered approximately 250 households in the areas exposed to the disaster in Padang city.

The specific objectives of this survey were to:

- develop a questionnaire and KAP survey guide;
- conduct pilot KAP survey in the city of Padang;
- conduct trials KAP survey with tablet computers;
- perform analysis and processing of data resulting from the pilot survey;
- develop the pilot survey report.

Governor of West Sumatera Province visiting earthquake location in Padang Pariaman. Source : BNPB

IDPs has to live in emergency tent
Source : BNPB

CHAPTER 2

VULNERABILTY AND POPULATION EXPOSURE TO EARTHQUAKE AND TSUNAMI HAZARD IN CITY OF PADANG

Geographical Conditions

Padang is the capital city of West Sumatra province, located on the western coast of Sumatra Island or between latitudes 0° 44′ 00″ - 1° 08′ 35″ south and longitudes 100° 05′ 05″ - 100° 34′ 09″ east. According to Government Regulation No. 17 of 1980, the city of Padang has an area of 694.96 square Km, equivalent to 1.65 percent of West Sumatra province. Padang city consists of 11 districts with Koto Tangah as the largest district occupying an area of 232.25 square Km, as shows in Table 2.1

The city includes large areas of dense tropical forest; 51.01 percent of the total area of Padang is government-protected forest, while 7.35 percent of the total area or an area of 51.08 square Km. is an effective urban area.

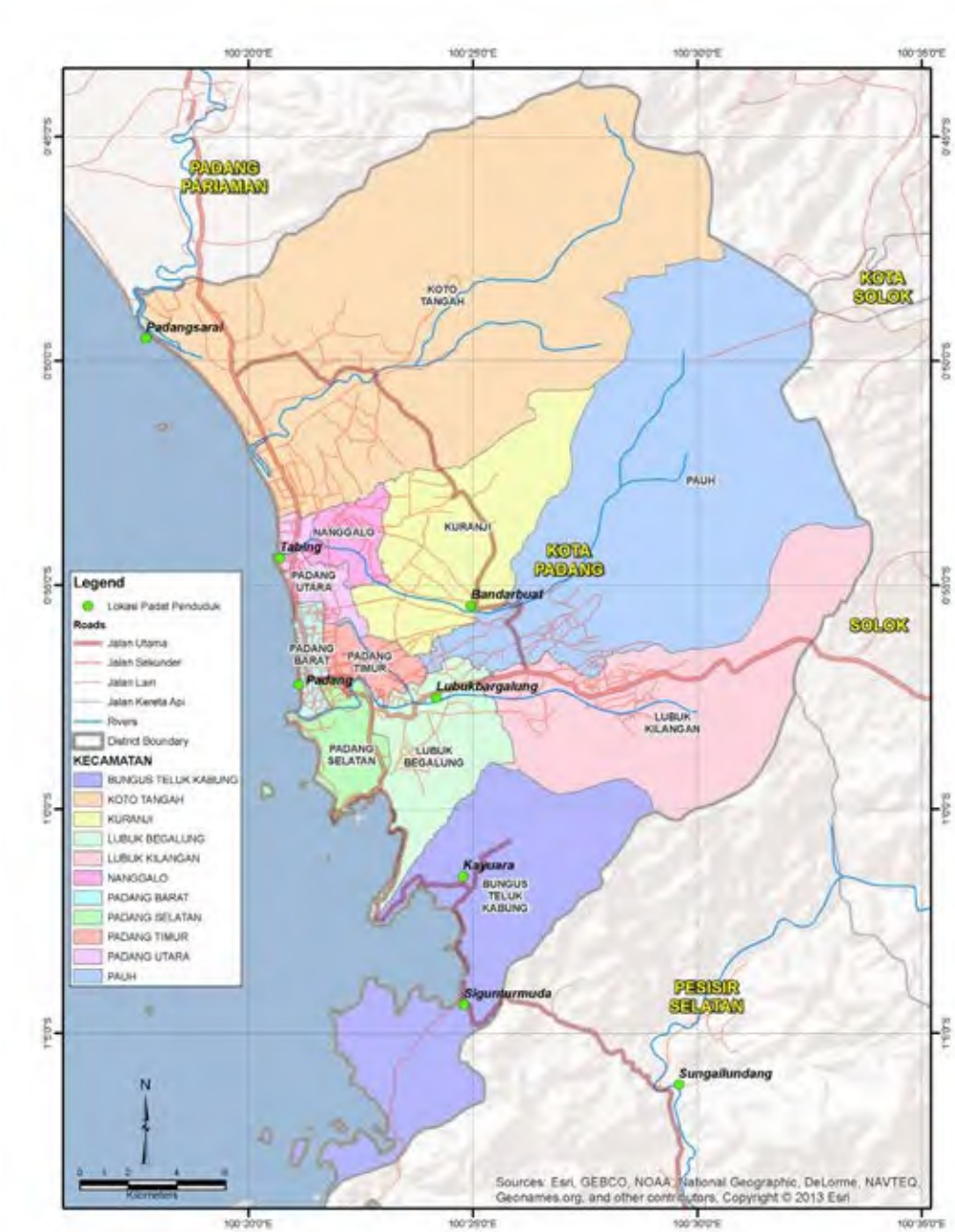
In addition to the mainland island of Sumatra, Padang City has 19 islands the largest of which is the Bintangur Island (56.78 hectares), then Sikuai Island in Bungus Teluk Kabung district (48.12 hectares) and Toran Island in the Southern Padang district (33.67 hectares).

Land area height of Padang city varies, which is between 0 to 1,853 meters above sea level and the highest area is the Lubuk Kilangan district. Padang city is traversed by many rivers, among others there are 5 large rivers and 16 small streams with Batang Kandis as the longest river (20 Km. length). The average rainfall rate is 302.35 mm per month with an average of 17 rainy days per month in 2009. The temperature in the city of Padang is quite high, which is between 21.6°-31.7° C, with humidity ranging between 78-85%. Table 1 shows the geographical conditions of the city of Padang.

Table 2.1
Geographical conditions of Padang city area

No.	Geographical Elements	Remarks
1.	Location: - Latitudes - Longitudes	00° 44′ 00″ - 01° 08′ 35″South 100° 05′ 05″ - 100° 34′ 09″ East
2.	Total Area	694.96 Square Km
3.	Coastal Length	68.126 Km, excluding small islands (based on Govt. Regulation No. 17 of 1980)
4.	Number of Rivers	5 large, 16 small rivers
5.	Temperature	22O C – 31.7O C
6.	Rainfall	384.88 mm / mo.
7.	Circumference	165.35 Km
8.	Effective Areas (including the rivers)	205.007 Square Km
9.	Hill Areas (including the rivers)	486.209 Square Km
10.	Number of Islands	19 islands

Source: Padang City in Figures, 2011



Source : Digital Topography Map, BIG, 2007

Figure 2.1 Administrative Maps City of Padang

Population and Employment

Based on data from the population census of 2010, the population of Padang city is 833,562 and the number of households is 194,293. Among the 11 districts in the city of Padang, Kuranji district has the highest number of population, i.e., 126,729, while Bungus Teluk Kabung district has 22,896 people, which is the least. Details of the number of residents in each district in the city of Padang can be seen in Table 2 below.

Based on Table 2.2 it can be seen that the East Padang district has the highest population density of 125 people/ha. This is due to the fact that the district has a relatively small area of 622.69 ha, which is not large enough to accommodate its population of 77,868 people.

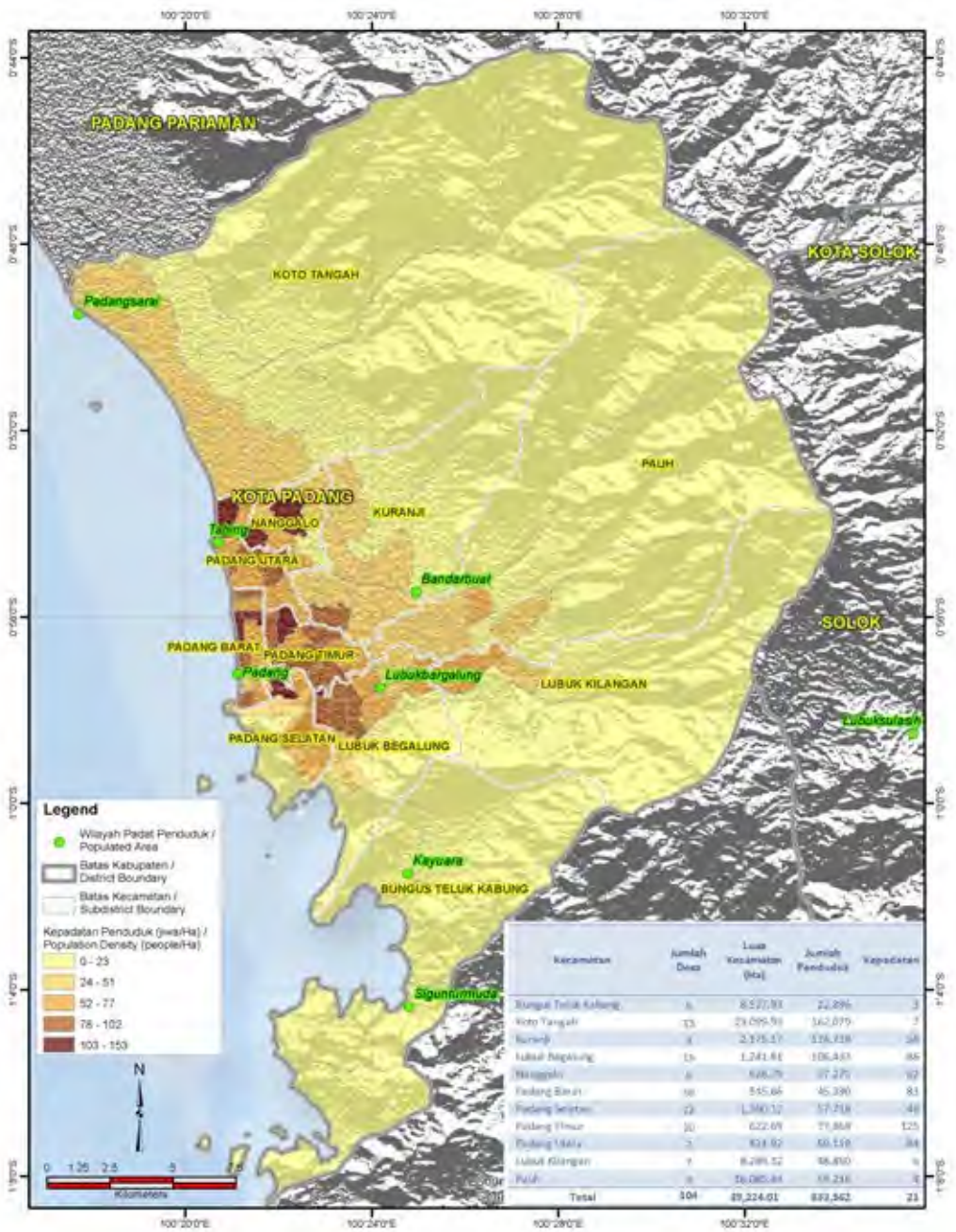
Bungus Teluk Kabung is the district which has the lowest population density of 3 per ha, while other districts that have high population density are Lubuk Begalung, Padang Utara, Padang Barat, Nanggalo, and Kuranji. Most of these districts are in the beach or directly adjacent to the sea. For that reason, as shown in Figure 2.2, the concentration of population in the city of Padang is in the coastal region.

Table 2.2

Total Area, Total Population, Population Density, and Number of Households in Padang City

Sub-district	Total Area	Total Population			Population Density	Number of Households
	(Ha)	Male	Female	Total		
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Bungus Teluk Kabung	8.527,93	11.762	11.134	22.896	3	4.847
Koto Tangah	23.099,93	81.590	80.489	162.079	7	36.164
Kuranji	2.175,17	62.912	63.817	126.729	58	28.520
Lubuk Begalung	1.241,81	53.715	52.717	106.432	86	24.736
Nanggalo	928,79	27.774	29.501	57.275	62	13.300
Padang Barat	545,66	22.862	22.518	45.380	83	11.012
Padang Selatan	1.260,12	28.910	28.808	57.718	46	13.182
Padang Timur	622,69	38.650	39.218	77.868	125	18.723
Padang Utara	821,92	32.732	36.387	69.119	84	18.368
Lubuk Kilangan	8.289,32	24.563	24.287	48.850	6	11.034
Pauh	16.085,44	29.845	29.371	59.216	4	14.407
Total	39.224,01	415.315	418.247	833.562	21	194.293

Source: City of Padang in Figures, 2011, BPS Padang City



Source : Population Census 2010 data processing, BPS

Figure 2.2 Density in City of Padang

Based on 2010 census data as shown in Table 3, the number of population in the city of Padang aged 15 years and over and are still working amounted to 279,543 or 33.53 percent of the total population of Padang. Out of these workers, 77,996 people or 27.90 percent are working as traders, hotel and restaurant employees. Other sectors with a substantial number of workers include education, industry and services. It shows that the main livelihood of most of the population in Padang is not in agriculture or fisheries but rather in the field of trade and services. As shown in Figure 3, although the districts of Lubuk Begalung, Padang Selatan, Padang Utara, and Padang Barat are on the coast, the people in these districts are mostly working in the field of trade, services or industry.

Disaster Conditions in Padang City

Padang city is an area that has a high level of natural disaster. Data from BNPB Disaster Prone Index of 2013 show that Padang city is in the category of high hazard; nationally it is ranked 10, while at the provincial level it is ranked first.

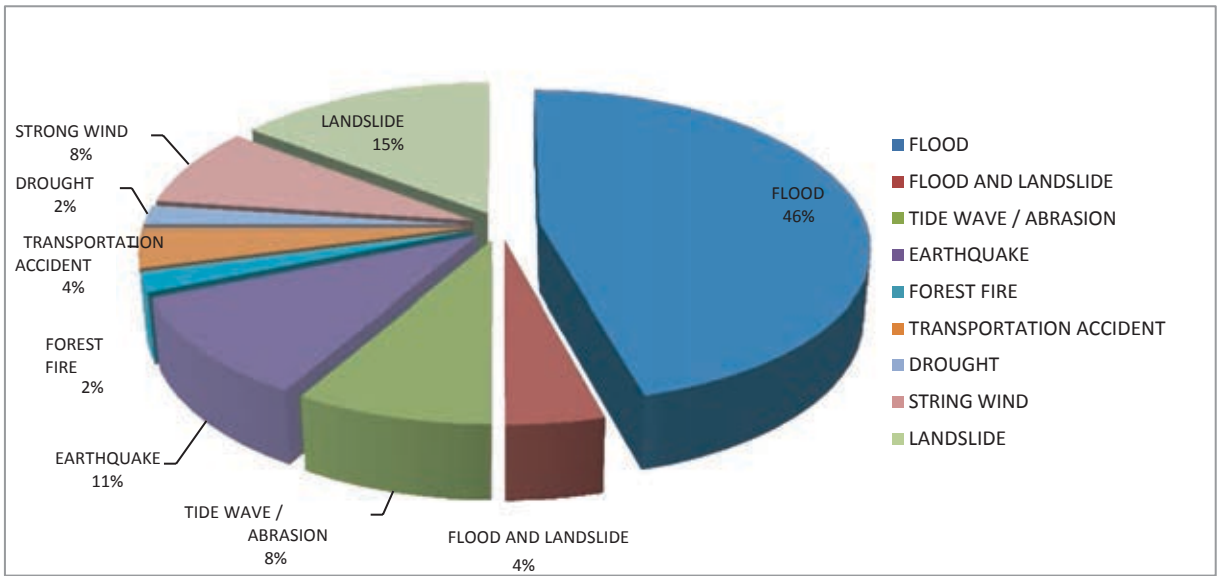
Based on data from DIBI (Indonesian Disaster Data and Information) of BNPB during the period of 2000 to 2012 there has occurred 66 times of disasters that caused loss of life and property. The catastrophes include 9 types of disasters namely floods, floods and landslides, landslides, earthquakes, tornados, land and forest fires, droughts, tidal waves/abrasion, and transportation accidents. Of these nine types of disasters, flood is the most frequent occurrence, which is 32 times or 48 percent in the period 2000-2012 (Figure 2.3).

Table 2.3

Number of Population by Livelihood Sector in Padang City

Sub-district	Population 15 yrs and over and working	Livelihood Sectors					
		Agriculture	Industry	Trade, Hotel and Restaurant	Services	Education	Health
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Bungus Teluk Kabung	8.067	3.037	802	2.054	881	950	61
Koto Tangah	54.549	5.531	8.216	13.970	7.094	12.399	1.397
Kuranji	41.133	3.442	7.405	9.734	4.692	9.815	1.263
Lubuk Begalung	35.809	1.808	6.462	10.004	5.649	8.693	806
Nanggalo	16.315	1.029	4.791	3.632	2.458	2.678	363
Padang Barat	19.067	576	3.034	5.195	2.304	5.124	746
Padang Selatan	17.658	459	1.306	7.489	1.868	5.219	390
Padang Timur	20.906	975	2.463	6.677	2.958	6.378	394
Padang Utara	27.934	419	3.619	9.336	3.275	7.685	1.236
Lubuk Kilangan	20.236	641	2.721	6.105	2.369	5.625	787
Pauh	17.869	1.975	4.162	3.800	2.282	3.429	442
Total	279.543	19.892	44.981	77.996	35.830	67.995	7.885

Source: Population Census, 2010, BPS



Source : http ://dibi.bnpb.go.id

Figure 2.3 Percentage of Disasters in Padang City, 2000 – 2012

In terms of impact, the disaster that causes the most catastrophic loss of life and property in the city of Padang is the earthquake. Table 4 shows that the number of people that died as the result of the earthquake in the year 2000-2012 amounted to 774, while 79,016 units of houses were severely damaged. Thus, although the frequency of earthquake occurrence is quite small, which is only 3 times during the period 2000 to 2012, yet the impact was so incredible that it needs special attention from the local government, especially in terms of disaster preparedness and mitigation.

As has been mentioned above, the earthquake is the most catastrophic disaster causing the casualties and losses. From 2000 to 2012 the death toll is highest during the earthquake on September 30, 2009 with a magnitude of 7.6 at the Richter scale. Figure 4 shows the death toll from the disaster in 2000 until 2012. It appears that besides the earthquake in 2009, other disasters causing considerable loss of life were floods and landslides that occurred in 2005 when 54 people died and 6 injured.

Tabel 2.4

Number of Events, Fatalities, and House Damage Caused by Disasters in Padang City 2000 - 2012

Types of Disasters	Number of Events	Fatalities			House Damage		
		Dead	Missing	Injured	Severe	Moderate	Minor
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Floods	22	7	2	2	135	172	374
Floods and Landslides	2	25	-	18	9	-	-
Tidal Waves/Abrasion	4	1	-	3	440	-	616
Earthquakes	5	387	2	1.238	39.508	-	83.616
Land and Forest Fires	1	-	-	-	-	-	-
Transportation Accidents	2	6	3	4	-	-	-
Droughts	1	-	-	-	-	-	-
Tornados	4	-	-	3	3	-	-
Landslides	7	25	2	5	11	1	3
Total	48	451	9	1.273	40.106	173	84.609

Source : http ://dibi.bnpb.go.id

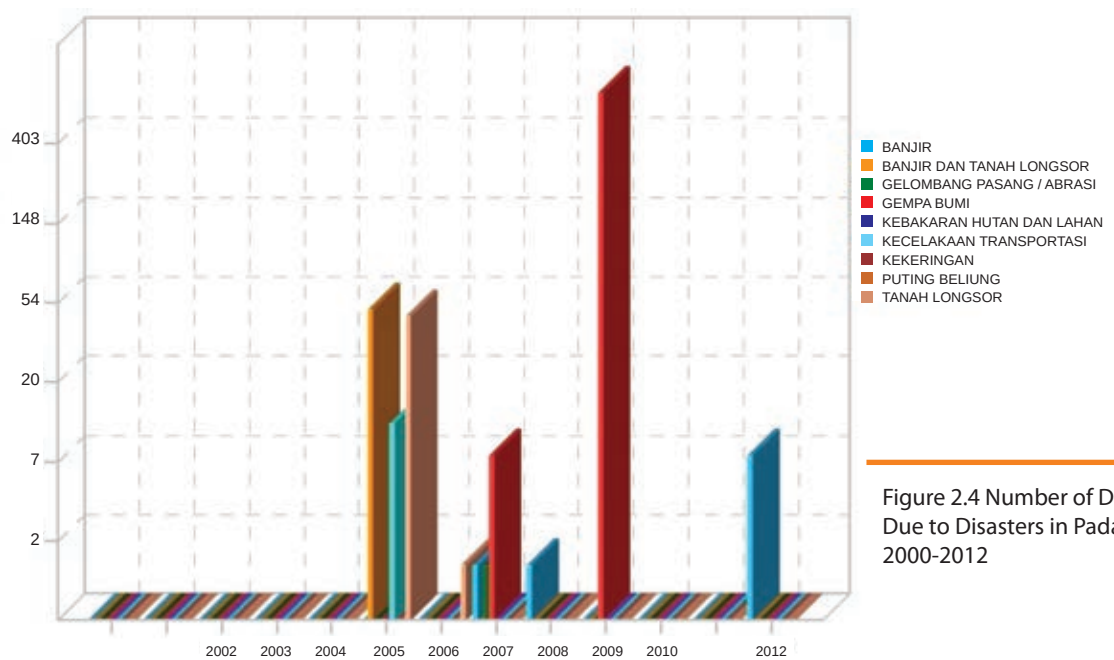
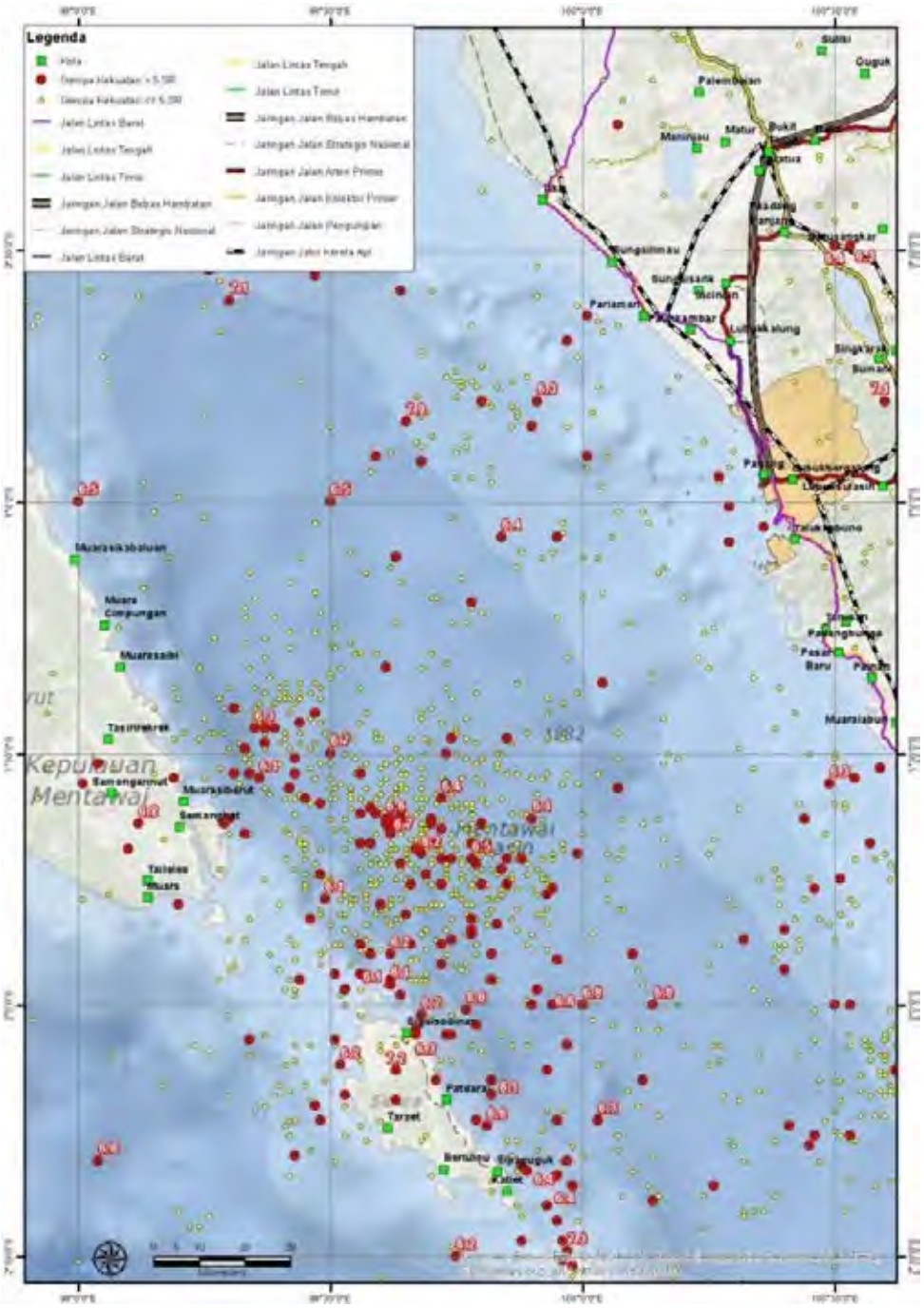


Figure 2.4 Number of Deaths Due to Disasters in Padang, 2000-2012

Source : http://dibi.bnpb.go.id



Source : Epicenter coordinate, BMKG

Figure 2.5 Distribution of earthquake epicenter, 1900 - 2012

Earthquake and Tsunami Hazards in Padang

According to Law No. 24 of 2007, a disaster is an event or series of events that threaten and disrupt the lives and livelihoods of the society, caused by natural factors and/or non-natural factors and human factors that result in human casualties, environmental damage, property loss, and psychological impact. Natural disaster is a disaster caused by event or series of events caused by nature which include earthquakes, tsunamis, volcanic eruption, floods, droughts, hurricanes, and landslides. Non-natural disaster is a disaster caused by event or series of events that include non-natural causes, among others, failed technology, failed modernization, epidemics, and outbreaks of disease.

Padang city is an area that has a high level of risk from natural disasters. As noted earlier, one of the types of disasters that have the most impact is catastrophic earthquake. Disaster history suggests that the city of Padang is often hit by earthquakes of light-scale (< 5 Richter scale), earthquakes of moderate- to strong-scale (> 5 Richter scale) which often cause loss of life and property. Distribution of earthquake disaster center points (the epicenters) during the period 1900 to 2012 is shown in Figure 2.5.

On September 30, 2009, a large earthquake (magnitude 7.6 on the Richter scale) struck the city of Padang, and caused more than 300 fatalities. The second quake measuring 6.6, which is referred to as Jambi quake, struck Jambi province in central Sumatra at 09.00 a.m. on October 1, 2009. The epicenter was reported at a depth of 15 Km, about 46 Km southeast of the Sungai Penuh. This earthquake was related to the Great Sumatran Fault occurring in sparsely populated areas so that the attention given to the earthquake was less compared to the Padang earthquake that was much more destructive.

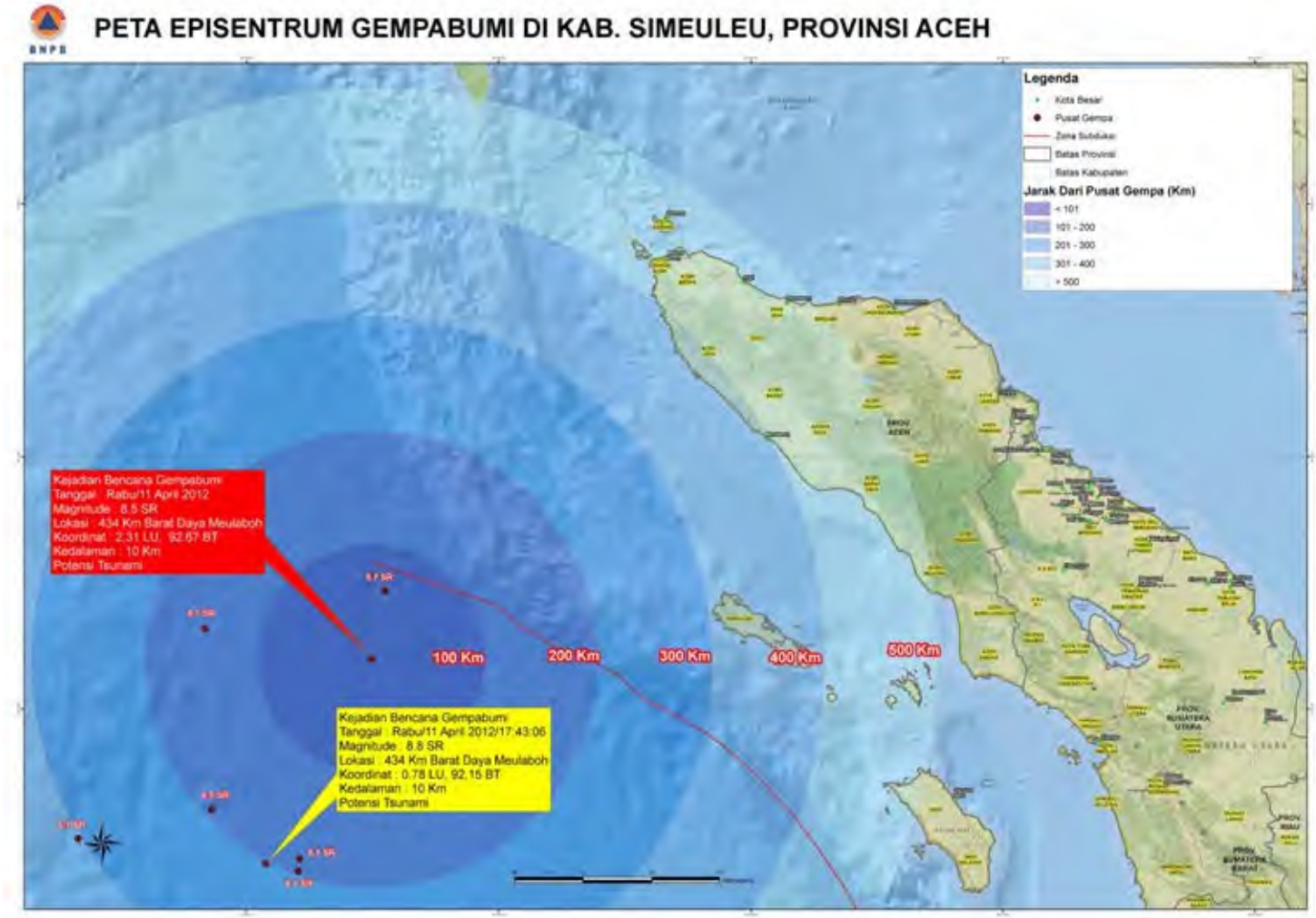
Damage resulting from the earthquake in West Sumatra on September 30, 2009 shows what the experts say about the poor quality of construction in earthquake prone areas. In the provincial capital of Padang, schools, shops, hotels and government offices collapsed and buried hundreds of people. Overall official death toll is more than 1,100 people. One of the areas most affected was Padang Pariaman district, located north of Padang city. Figure 7 shows the location of the epicenter of the earthquake on September 30, 2009 with a magnitude 7.9 on the Richter scale.

According to government data, about 200,000 homes and 2,000 other buildings damaged, with a half-ruined condition. The devastating effects of the earthquake of September 30, 2009 earthquake have been widely documented. Understanding of the hazard, exposure and vulnerability to disasters will be useful for the community in identifying the main risk factor, to help develop appropriate strategies for risk reduction..

Acoording to Indonesian Disaster Data Information (DIBI), the impact of the 8.5 magnitude earthquake was recorded on April 11, 2012 at Simelue, Aceh. 10 people dead, injured 9 people, 5 houses were slightly damaged, 1 office and 1 minor damage damaged bridge. But that should be remembered of the incident is not yet structured evacuation process, where there are many people who evacuated with a private vehicle that raises the “high traffic” in several points and is very dangerous when a tsunami occurs. Another point to be noted is the lack of an early warning system coordinated by relevant

Source : Http://geospasial.bnpb.go.id

Figure 2.6 Earthquake Epicenter on 30 September 2009



Source : BNPB

Figure 2.7 Shakemap and earthquake epicenter, 11 April 2012, Simeleu, Aceh

Figure 2.8 Restu Ibu hospital was severely damaged by earthquake in Padang.
Source : BNPB

agencies. It shows that there are still people who do not understand the behavior of the evacuation process independently and need real solutions from the government to change the behavior and knowledge of the addition of community preparedness during the potential earthquake and tsunami.

At the end of 2012, BNPB conducted disaster risk assessments throughout Indonesia, including mapping of all hazardous regions, and particularly the mapping of earthquake and tsunami vulnerable zones. In conducting disaster risk assessments, BNPB follow the standard procedures used in other countries, namely the risk of natural disasters is directly proportional to the hazard (probability of occurrence, intensity, etc.), and vulnerability (socio-demographic, cultural, economic, physical, psychological and environmental elements), and inversely proportional to the capacity of people and institutions to withstand hazards (building codes, habitable zones, regulations, institutional capacity, warning systems, education, training, and preparedness levels).

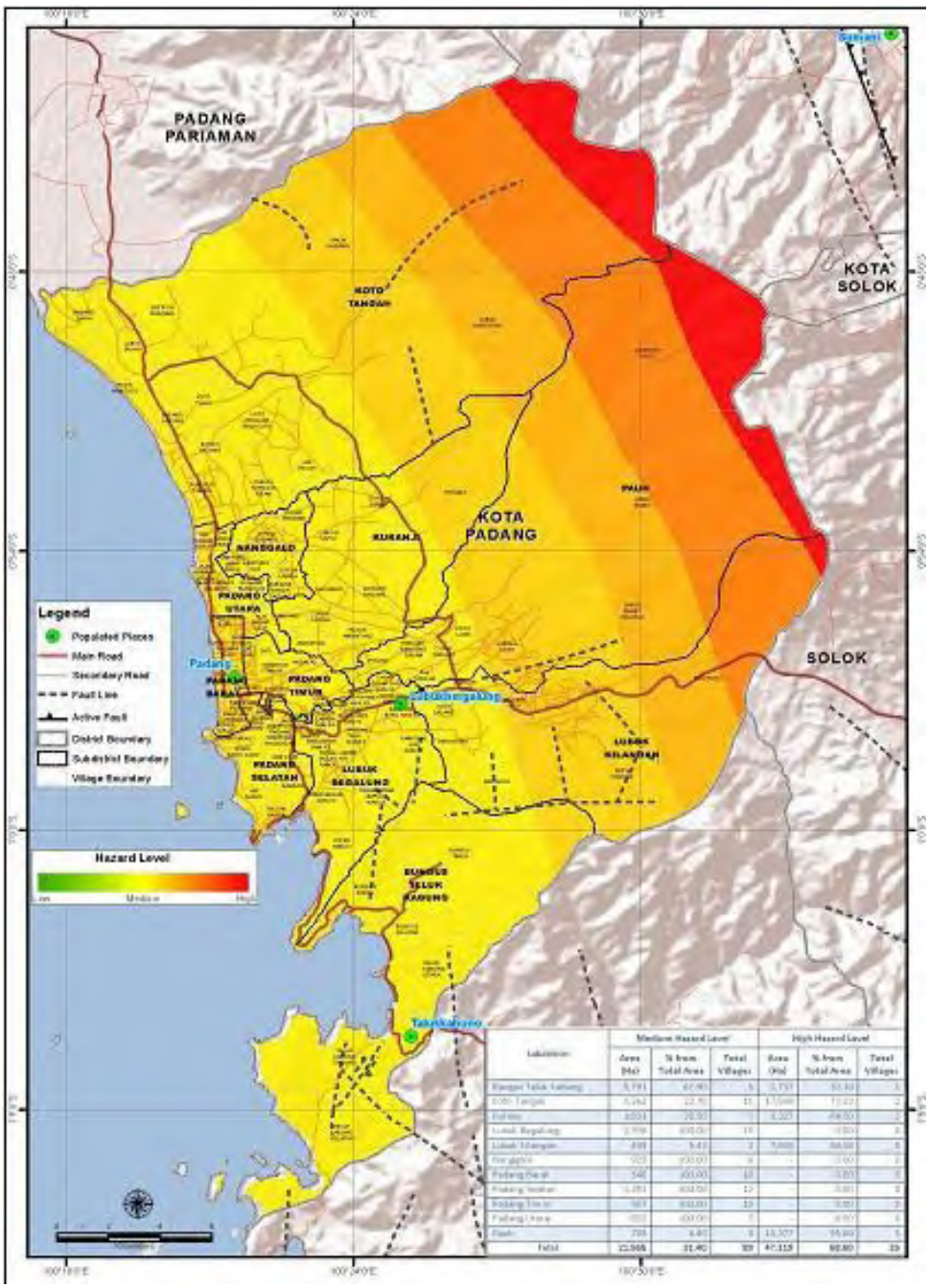
Figure 2.9 shows a map of earthquake hazard in Padang city consisting of two classes, namely medium and high hazard classes. High hazard class is indicated by the orange to red colours. In this region landslides or other ground motion caused by earthquakes may also occur. Areas with medium hazard class are depicted in yellow and located along the shoreline of Padang.

High hazard class areas have high scores of peak ground acceleration (PGA) i.e., 0.8-1.5, and the presence of active faults that is generally called the Sumatran Fault or Semangko Fault. This fault is 1,900 Km length, is very active and has a component of strike-slip or transcurrent fault. These shear zones run the entire length of the island along the western coast which, of course, will still probably have disastrous seismic consequences, due to its proximity to major population centres.

The Sumatran fault is highly segmented. Pictures 2.10 shows the distribution of the Sumatran fault consisting of 20 main segments defined geometrically, ranging in length from about 60 to 200 km. The length of this segment is affected by the seismic sources dimension and has split into shorter fragments that historically have caused quakes with magnitudes of 6.5 - 7.7 Mw.

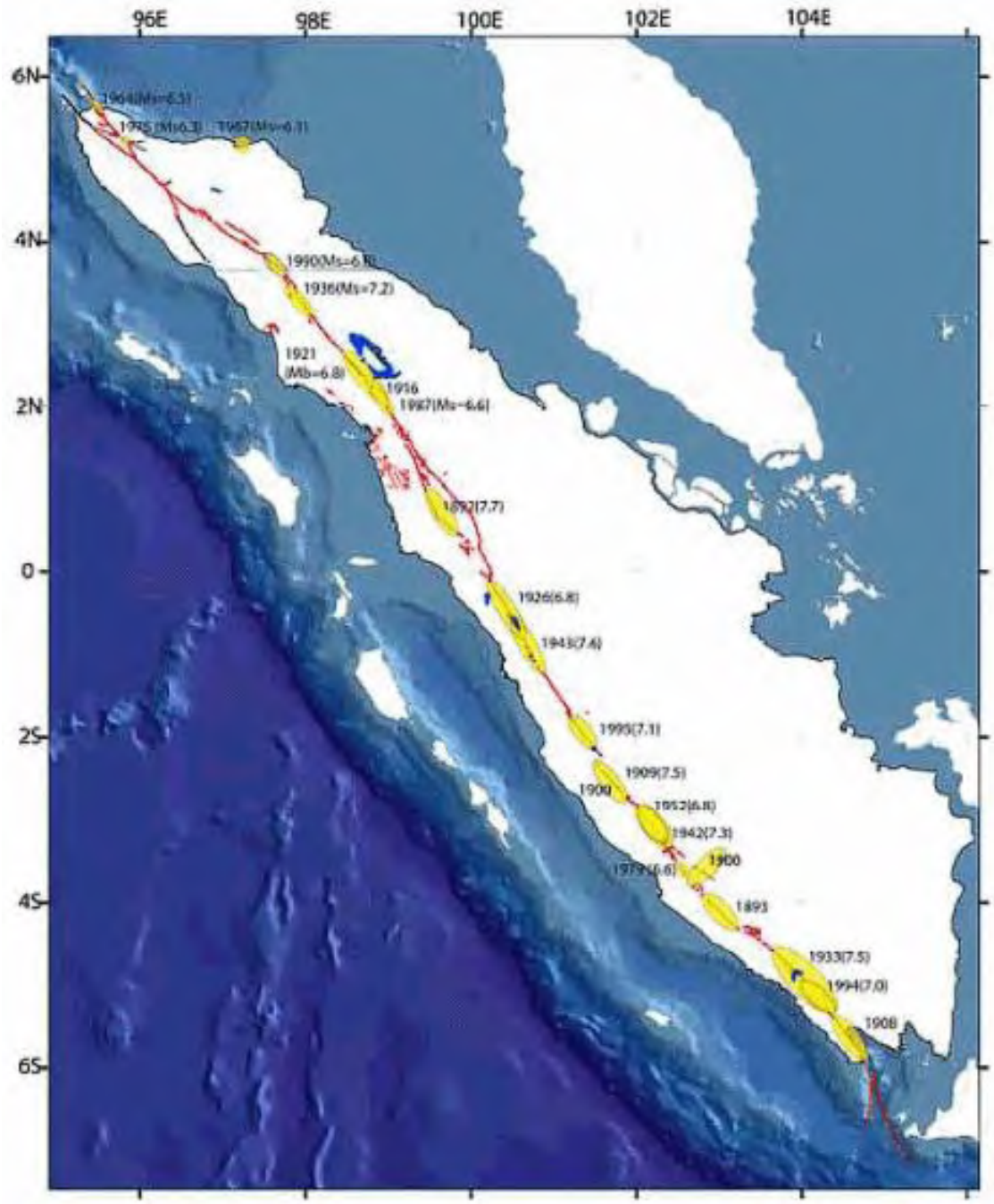
The shifts speed recorded along the fault toward the northwest is about 5 mm/year around the Sunda Strait, and up to 27 mm/year in the vicinity of Lake Toba. The values of the magnitude of this shift provide a quantitative data base to calculate the average period of the onset of these earthquakes that can be taken into account to estimate the recurrence of large earthquakes in each segment. The moving segments of the Sumatran Fault or Fault Semangko have caused large earthquakes in previous years. It should be noted that the segments do not move sequentially by location (shown in yellow in the figure). In addition, the time interval of the earthquakes is not the same, hence they occur at random. The coastal area of Padang city has a moderate level of earthquake hazard, because this area has no active fault and has PGA lower degree of 0.7-0.8.

Based on the earthquake hazard map (Figure 2.9) it can be seen that the entire area of Padang city is exposed by earthquake hazards. Out of 104 urban villages, 89 villages are in moderate hazard areas, while 15 villages are in high hazard areas. Table 5 shows the number and total area of urban villages that are included in the category of high and moderate hazard.



Source : Disaster Risk Assesment Result, 2012, BNPB

Figure 2.8 Earthquake Hazard in City of Padang



Source: Ministry of Reasearch and Technology

Figure 2.9 Earthquake in Sumatra Fault, 1900 - 2012

Table 2.5

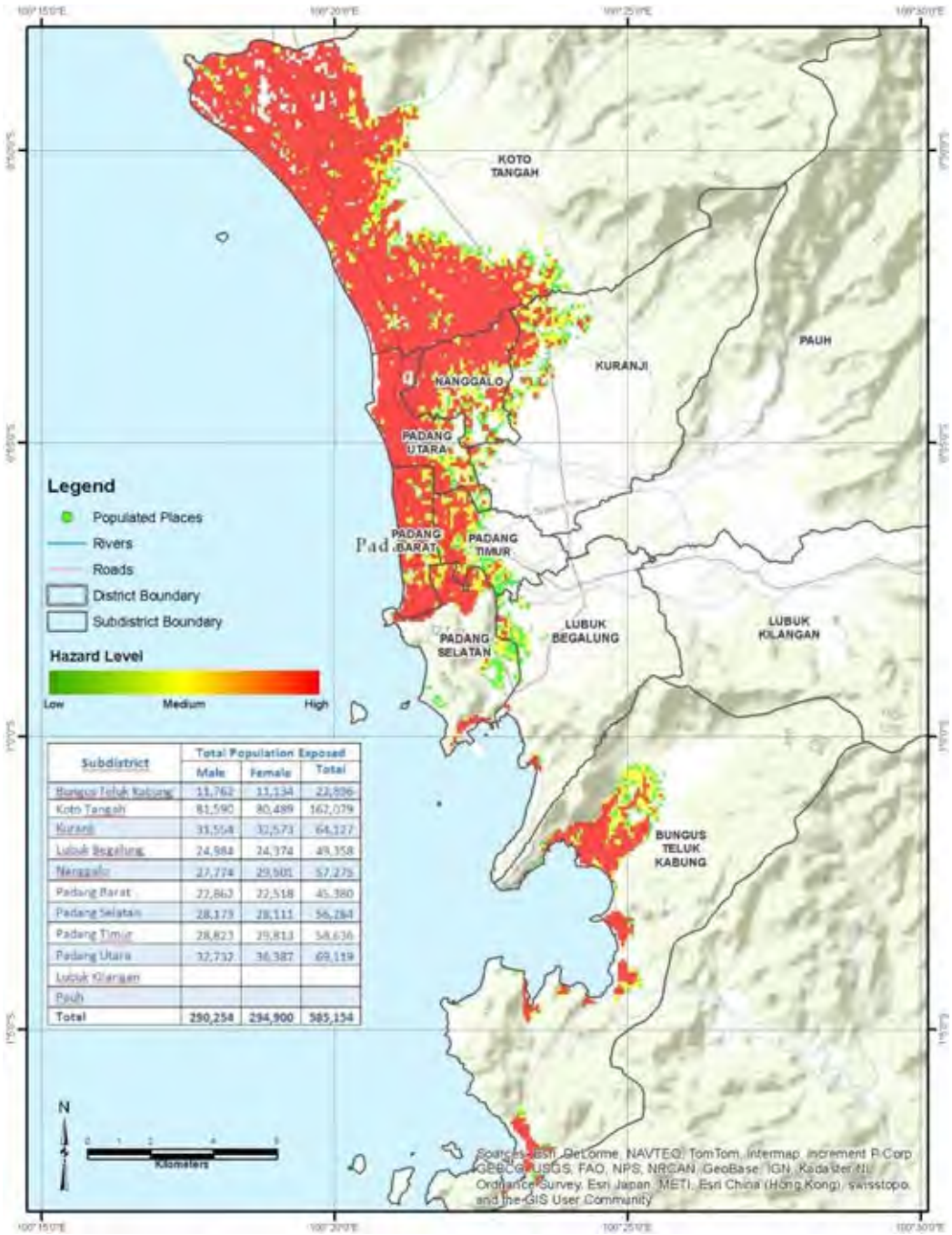
Total Area and Number of Villages Exposed to the Earthquake Hazard

Sub-district	Total Area	Moderate Hazard Class			High Hazard Class		
		Area (Ha)	% of Total Area	No.of Villages	Area (Ha)	% of Total Area	No.of Villages
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Bungus Teluk Kabung	8.528	5.791	67,90	5	2.737	32,10	1
Koto Tangah	23.100	5.262	22,78	11	17.838	77,22	2
Kuranji	5.158	1.831	35,50	7	3.327	64,50	2
Lubuk Begalung	2.976	2.976	100,00	15	-	0,00	0
Lubuk Kilangan	8.289	449	5,42	2	7.840	94,58	5
Nanggalo	929	929	100,00	6	-	0,00	0
Padang Barat	546	546	100,00	10	-	0,00	0
Padang Selatan	1.393	1.393	100,00	12	-	0,00	0
Padang Timur	857	857	100,00	10	-	0,00	0
Padang Utara	822	822	100,00	7	-	0,00	0
Pauh	16.085	709	4,40	4	15.377	95,60	5
Total	68.684	21.565	31,40	89	47.119	68,60	15

Source: Disaster Risk Assessment Results, BNPB, 2012

Table 2.5 shows that 31.40 per cent of Padang city are in the category of moderate hazard and 68.60 percent are in high hazard. Lubuk Begalung sub-district has the most number of villages, i.e., 15 villages, included in the moderate hazard class. Other sub-districts that also have a considerable number of villages included in the moderate hazard class are Padang Selatan, Padang Barat, Padang Timur, and Koto Tangah. Most of these regions are located in the coastal area which is the center of business in Padang city. As for high hazard class, the sub-districts of Lubuk Kilangan and Pauh have 5 villages each. Although the percentage of high hazard class areas is large enough, which is 47.119 hectares or 68.60 percent of total area of Padang, and most of them are in the hills adjacent to the Sumatra fault, these areas are not densely populated nor become the activity centers of Padang city. Therefore, when the earthquake occurs, the moderate hazard areas will have a more severe impact than the high hazard areas. This fact will be shown in the subsequent discussion on the population vulnerability to earthquake.

Besides earthquake, another disaster that might happen in Padang and potentially have a great impact is the tsunami. Padang city is one of the areas included in Megathrust Mentawai Zone. This area is part of the Sumatra subduction zone where the Indo-Australian tectonic plate collides with Eurasian plate. It has a very high level of seismicity and is the source of several major earthquakes with the magnitude of greater than



Subdistrict	Total Population Exposed		
	Male	Female	Total
Bungus Teluk Kabung	11,762	11,134	22,896
Koto Tangah	81,590	80,489	162,079
Kuranji	33,554	32,573	66,127
Lubuk Begalung	24,984	24,374	49,358
Nanggalo	27,774	29,501	57,275
Padang Barat	22,863	22,518	45,380
Padang Selatan	28,173	28,111	56,284
Padang Timur	28,823	29,813	58,636
Padang Utara	32,732	36,387	69,119
Lubuk Kilangan			
Pauh			
Total	**290,254**	**294,900**	**585,154**

Disaster Risk Assessment Results, BNPB, 2012

Figure 2.10 Tsunami Hazard in City of Padang

8 SR, even up to 9.3 SR, with a return period of hundreds of years.

In the last two centuries, there were four major earthquakes that occurred in the Sumatra subduction zone, namely in 1833 with a magnitude of 8.8 to 9.2 SR; in 1861 with a magnitude of 8.3 to 8.5 SR; in 2004 with a magnitude of 9.0 to 9.3 SR, and in 2005 with a magnitude of 8.7 SR. Several recent studies indicate that the Mentawai segment of the Sumatra Megathrust is likely to undergo rupture in some decades to come, because the energy that accumulates at this location has been too large. Rupture at this subduction zone may trigger enormous earthquake that potentially inflict severe damage on most of the cities in Sumatra and trigger a tsunami. This tsunami will threaten some districts or cities, especially on the west coast such as cities of Sibolga, Padang, Pariaman, and districts of Agam, Pesisir Selatan, and city of Bengkulu.

Based on tsunami hazard maps issued by BNPB, there are 3 classes of tsunami risks in Padang city, namely the high, moderate and low risks (see Figure 10). Of the total area of Padang city, 19.41% or 7.613 ha is situated in high risk zone. Although the figure is less than 20% of the total area of Padang, yet if we look at the map it is obvious that the high risk zones cover most of the coastal areas of Padang city, particularly those that have become centers of community activities such as the sub-districts of Padang Selatan, Padang Utara, Koto Tangah and Nanggalo. So we can imagine the tremendous impact when the tsunami strikes. Areas not included in the tsunami hazard in general are those with hilly topography such as the sub-districts of Lubuk Begalung, Padang Selatan, and part of the sub-district of Bungus Teluk Kabung. Table 6 shows the extent of the perilous areas and the number of villages that fall into the risky zone based on the level of high, moderate, and low.

Table 2.6

Total Area and Number of Villages by Tsunami Hazard Class

a. High Risk Class

Sub-district	Total Area (Ha)	Number of Villages	Hazard Area (Ha)	% Hazard Area from Total Sub-district Area
(1)	(2)	(3)	(4)	(5)
Bungus Teluk Kabung	8.528	5	699	8,20
Koto Tangah	23.100	12	4.161	18,01
Kuranji	2.175	2	253	11,63
Lubuk Begalung	1.242	1	21	1,69
Nanggalo	929	6	794	85,49
Padang Barat	546	10	522	95,66
Padang Selatan	1.260	8	253	20,08
Padang Timur	623	3	218	35,01
Padang Utara	822	7	692	84,19
Total	39.224	54	7.613	19,41

b. Medium Risk Class

Sub-district	Total Area (Ha)	Number of Villages	Hazard Area (Ha)	% Hazard Area from Total Sub-district Area
(1)	(2)	(3)	(4)	(5)
Bungus Teluk Kabung	8.528	1	185	2,17
Koto Tangah	23.100	1	79	0,34
Kuranji	2.175	2	154	7,08
Lubuk Begalung	1.242	3	72	5,80
Padang Selatan	1.260	1	49	3,89
Padang Timur	623	2	139	22,32
Total	36.928	10	678	1,86

c. Low Risk Class

Sub-district	Total Area (Ha)	Number of Villages	Hazard Area (Ha)	% Hazard Area from Total Sub-district Area
(1)	(2)	(3)	(4)	(5)
Kuranji	2.175	2	36	1,66
Lubuk Begalung	1.242	3	24	1,93
Padang Selatan	1.260	2	65	5,16
Padang Timur	623	3	64	10,28
Total	5.300	10	189	3,56

Source: Disaster Risk Assessment Results, BNPB, 2012

Table 6 shows that the high-risk class area in Padang city is larger than either the medium or the low risk class areas. This is due to the fact that the topography of Padang is a sloping terrain with altitude ranging between 1 to 10 m above sea level. The closest distance to the hills varies from 5-10 km from the coastline.

From the above description we see that the urban population centers and activities are located in coastal areas with flat topography which is prone to earthquake and tsunami disaster causing massive catastrophe to the residents in that area.

Population Vulnerability and Exposure

The United Nations International Strategy for Disaster Reduction (UNISDR) defines vulnerability as the conditions determined by physical, social, economic and environmental factors or processes, which increase the susceptibility of a community to the impact of hazards. Exposure to natural hazards is a lack of resilience to combat the effects of a disaster should one emerge. Assessing exposures includes among others the total population and economic assets in the

exposed area. It is possible that an element is exposed but not susceptible; to be vulnerable to an extreme hazard occurrence the element should be exposed to the hazard in the disaster zone.

Vulnerabilities associated with exposure to elements such as humans, livelihoods, and assets that will suffer or be affected when exposed to a hazardous event or series of events.

To better understand the vulnerabilities and exposures that exist in the city of Padang, the following discussion will further explain some relevant indicators of vulnerability and exposure to earthquake and tsunami hazards as the result of merging the data obtained from the 2010 Population Census and the 2011 Village Potential.

Population Vulnerability and Exposures to Earthquake Hazards

As indicated in the previous discussion, the entire population living in the city of Padang is exposed and vulnerable to earthquake hazard. There are two severity classes of earthquake hazard namely high and moderate classes. Based on BNPB's results of disaster risk assessment in 2012, 145,086 inhabitants or 17.41 per cent of the total population are at high risk class, while 688,476 inhabitants or 82.59 percent are at moderate risk class.

Table 2.7

Number and Percentage of People Affected by High Class Earthquake Hazards

Sub-district	Total Population			# Population Exposed to Earthquake Hazards			% Population Exposed		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Bungus Teluk Kabung	11.762	11.134	22.896	2.728	2.594	5.322	23,19	23,30	23,24
Koto Tangah	81.590	80.489	162.079	10.906	10.840	21.746	13,37	13,47	13,42
Kuranji	62.912	63.817	126.729	22.721	22.486	45.207	36,12	35,24	35,67
Lubuk Begalung	53.715	52.717	106.432	-	-	-	0,00	0,00	0,00
Lubuk Kilangan	24.563	24.287	48.850	19.849	19.626	39.475	80,81	80,81	80,81
Nanggalo	27.774	29.501	57.275	-	-	-	0,00	0,00	0,00
Padang Barat	22.862	22.518	45.380	-	-	-	0,00	0,00	0,00
Padang Selatan	28.910	28.808	57.718	-	-	-	0,00	0,00	0,00
Padang Timur	38.650	39.218	77.868	-	-	-	0,00	0,00	0,00
Padang Utara	32.732	36.387	69.119	-	-	-	0,00	0,00	0,00
Pauh	29.845	29.371	59.216	16.923	16.413	33.336	56,70	55,88	56,30
Total	415.315	418.247	833.562	73.127	71.959	145.086	17,61	17,20	17,41

Source: 2010 Population Census Data Processing, BPS

Table 2.8

Number and Percentage of People Affected by Moderate Class Earthquake Hazards

Sub-district	Total Population			# Population Exposed to Earthquake Hazards			% Population Exposed		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Bungus Teluk Kabung	11.762	11.134	22.896	9.034	8.540	17.574	76,81	76,70	76,76
Koto Tangah	81.590	80.489	162.079	70.684	69.649	140.333	86,63	86,53	86,58
Kuranji	62.912	63.817	126.729	40.191	41.331	81.522	63,88	64,76	64,33
Lubuk Begalung	53.715	52.717	106.432	53.715	52.717	106.432	100,00	100,00	100,00
Lubuk Kilangan	24.563	24.287	48.850	4.714	4.661	9.375	19,19	19,19	19,19
Nanggalo	27.774	29.501	57.275	27.774	29.501	57.275	100,00	100,00	100,00
Padang Barat	22.862	22.518	45.380	22.862	22.518	45.380	100,00	100,00	100,00
Padang Selatan	28.910	28.808	57.718	28.910	28.808	57.718	100,00	100,00	100,00
Padang Timur	38.650	39.218	77.868	38.650	39.218	77.868	100,00	100,00	100,00
Padang Utara	32.732	36.387	69.119	32.732	36.387	69.119	100,00	100,00	100,00
Pauh	29.845	29.371	59.216	12.922	12.958	25.880	43,30	44,12	43,70
Total	415.315	418.247	833.562	342.188	346.288	688.476	82,39	82,80	82,59

Source: 2010 Population Census Data Processing, BPS

Tables 7 and 8 show the number and percentage of population by sex who are exposed to earthquake hazard based on their severity classes.

Table 7 also indicates that out of 5 districts that fall into the high risk class there are two sub-districts that have an exposed population of more than 50 per cent, namely Lubuk Kilangan sub-district (80.81 percent or 39,475 people) and Pauh sub-district (56.30 percent or 33,336 people). Table 8 shows that all of the sub-districts in Padang city are exposed to the moderate class earthquake hazard. There are six sub-districts in which the entire population (100%) is exposed to this hazard class, namely Lubuk Begalung, Nanggalo, Padang Barat, Padang Selatan, Padang Timur, and Padang Utara. The total number of people in those sub-districts is 413,792 or 49.64 percent of the total population of Padang city.

Figure 2.11 illustrates the population distribution in terms of the exposure to earthquake hazards. The areas with large number of population, or more than 14,000, are exposed to moderate class earthquake hazard and are located along the coast of Padang. These regions are indicated by the dark brown colour on the map. In spite of their moderate risk class, the huge number of people exposed in these areas needs more attention from the local government because if a disaster occurs, these areas would likely be the most severely affected.

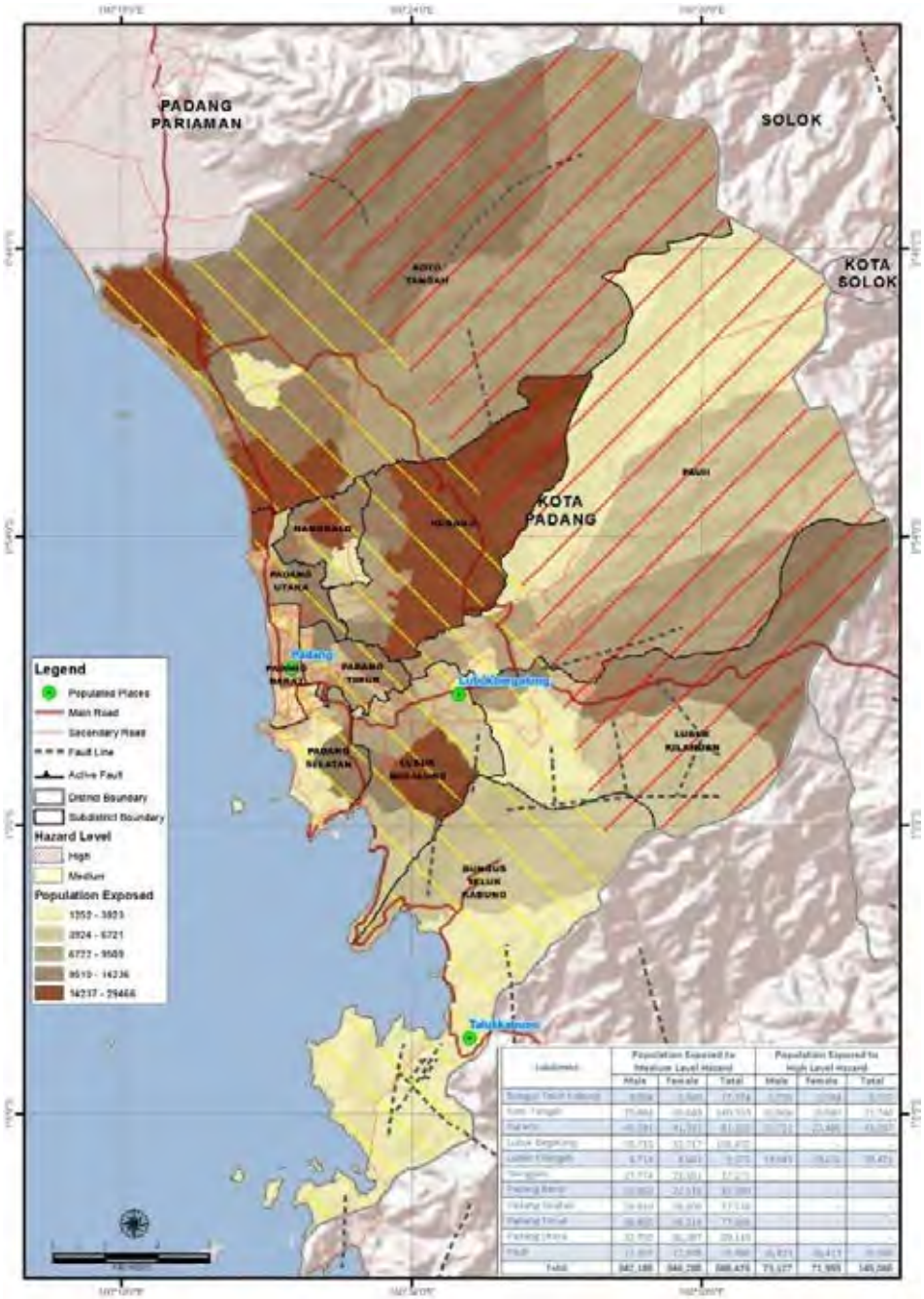
Most of the areas that are categorized as high

class hazard have population exposed ranging from 1,200 to 5,000 people. Only a few areas that have more than 9,500 inhabitants are exposed to the earthquake hazard.

Even though the number of people exposed in the high risk class is less than that in the moderate risk class, the high risk areas need special attention from the local government as other types of disasters, such as landslides, may also occur, besides their hilly topography that may hamper access to aid delivery.

Next we will look at the vulnerability in terms of age groups. By age group we can sort the groups vulnerable to disasters, namely the age group 0-4 years or the toddlers and the age group 60 years and older or the elderly. Both age groups are included in the vulnerable groups because in case of a disaster they definitely need help from others, either to save or evacuate them. Toddlers and children have to be assisted by their parents, and also elderly people who are ordinarily much less quickly in response to rescue, and need help from others to give directions or other assistance during an evacuation. Table 9 dan10 show the number of exposed population by age group of 0-4 years (toddlers) based on hazard severity class.

Buildings destroyed by earthquake in Padang city
Source : BNPB



Source: Disaster Risk Assessment Results, BNPB, 2012

Figure 2.11 Earthquake hazard in Padang city

Table 2.9

Population by Age Group 0-4 Years Exposed to High Class Earthquake Hazards

Sub-district	Total Population			# Population Exposed to Earthquake Hazards			% Population Exposed		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Bungus Teluk Kabung	1.288	1.229	2.517	300	301	601	23,29	24,49	23,88
Koto Tangah	7.955	7.385	15.340	1.246	1.143	2.389	15,66	15,48	15,57
Kuranji	6.149	5.672	11.821	2.296	2.127	4.423	37,34	37,50	37,42
Lubuk Begalung	5.300	5.133	10.433	-	-	-	-	-	-
Lubuk Kilangan	2.640	2.480	5.120	2.159	1.984	4.143	81,78	80,00	80,92
Nanggalo	2.488	2.311	4.799	-	-	-	-	-	-
Padang Barat	1.745	1.642	3.387	-	-	-	-	-	-
Padang Selatan	2.835	2.639	5.474	-	-	-	-	-	-
Padang Timur	3.169	3.142	6.311	-	-	-	-	-	-
Padang Utara	2.363	2.261	4.624	-	-	-	-	-	-
Pauh	2.759	2.570	5.329	1.560	1.446	3.006	56,54	56,26	56,41
Total	38.691	36.464	75.155	7.561	7.001	14.562	19,54	19,20	19,38

Source: 2010 Population Census Data Processing, BPS

Table 2.10

Population by Age Group 0-4 Years Exposed to Moderate Class Earthquake Hazards

Sub-district	Total Population			# Population Exposed to Earthquake Hazards			% Population Exposed		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Bungus Teluk Kabung	1.288	1.229	2.517	932	876	1.808	72,36	71,28	71,83
Koto Tangah	7.955	7.385	15.340	6.527	6.066	12.593	82,05	82,14	82,09
Kuranji	6.149	5.672	11.821	3.831	3.524	7.355	62,30	62,13	62,22
Lubuk Begalung	5.300	5.133	10.433	5.220	5.055	10.275	98,49	98,48	98,49
Lubuk Kilangan	2.640	2.480	5.120	473	488	961	17,92	19,68	18,77
Nanggalo	2.488	2.311	4.799	2.480	2.304	4.784	99,68	99,70	99,69
Padang Barat	1.745	1.642	3.387	1.529	1.445	2.974	87,62	88,00	87,81
Padang Selatan	2.835	2.639	5.474	2.710	2.529	5.239	95,59	95,83	95,71
Padang Timur	3.169	3.142	6.311	3.127	3.102	6.229	98,67	98,73	98,70
Padang Utara	2.363	2.261	4.624	2.180	2.085	4.265	92,26	92,22	92,24
Pauh	2.759	2.570	5.329	1.198	1.123	2.321	43,42	43,70	43,55

Sub-district	Total Population			# Population Exposed to Earthquake Hazards			% Population Exposed		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Total	38.691	36.464	75.155	30.206	28.597	58.803	78,07	78,43	78,24

Source: 2010 Population Census Data Processing, BPS

Table 9 shows that 14,562 toddlers or 19.38 percent of total population aged 0-4 years are exposed to earthquake hazards of high class. This percentage is somewhat high in sub-districts of Lubuk Kilangan and Pauh, namely 82.96 and 49.22 percent, respectively. As for the moderate class hazard, the percentage of the exposed children is much higher, i.e. 58,803 or 78.24 percent of the total number of children. This is illustrated in Table 10. There are 5 sub-districts in the moderate hazards areas that have exposed infants more than 90 percent, i.e., the sub-districts of Lubuk Begalung, Nanggalo, Padang Selatan, Padang Timur, and Padang Utara. These data show that the percentage of exposed infants is larger in the moderate hazard areas which are densely populated and are located in the coastal city of Padang city.

Tables 11 and 12 show the number of people aged 60 years and above or elderly who are exposed to earthquake hazards. Based on the disaster risk assessment maps the number of elderly who are exposed to high class hazards is 7,158 people or 14.93 percent of the total population of elderly, while those who are exposed to moderate class hazards come to 39,360 people or 82.12 percent. The sub-districts that have a high percentage (more than 90%) of elderly exposed to the moderate class hazards are Lubuk Begalung, Nanggalo, Padang Selatan, and Padang Timur. In other words, most of the elderly in Padang city is exposed to moderate class earthquake hazards.

Table 2.11

Population by Age Group 60 Years and Over, Exposed to High Class Earthquake Hazards

Sub-district	Total Population			# Population Exposed to Earthquake Hazards			% Population Exposed		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Bungus Teluk Kabung	586	718	1.304	148	210	358	25,26	29,25	27,45
Koto Tangah	3.932	4.784	8.716	554	698	1.252	14,09	14,59	14,36
Kuranji	2.911	3.808	6.719	971	1.212	2.183	33,36	31,83	32,49
Lubuk Begalung	2.394	3.068	5.462	-	-	-	-	-	-
Lubuk Kilangan	1.019	1.328	2.347	868	1.079	1.947	85,18	81,25	82,96
Nanggalo	1.760	2.177	3.937	-	-	-	-	-	-
Padang Barat	1.614	2.176	3.790	-	-	-	-	-	-

Sub-district	Total Population			# Population Exposed to Earthquake Hazards			% Population Exposed		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Padang Selatan	1.547	2.027	3.574	-	-	-	-	-	-
Padang Timur	2.126	2.907	5.033	-	-	-	-	-	-
Padang Utara	1.852	2.317	4.169	-	-	-	-	-	-
Pauh	1.270	1.611	2.881	627	791	1.418	49,37	49,10	49,22
Total	21.011	26.921	47.932	3.168	3.990	7.158	15,08	14,82	14,93

Source: 2010 Population Census Data Processing, BPS

Table 2.12

Population by Age Group 60 Years and Over, Exposed to Moderate Class Earthquake Hazards

Sub-district	Total Population			# Population Exposed to Earthquake Hazards			% Population Exposed		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Bungus Teluk Kabung	586	718	1.304	411	478	889	70,14	66,57	68,17
Koto Tangah	3.932	4.784	8.716	3.273	3.960	7.233	83,24	82,78	82,99
Kuranji	2.911	3.808	6.719	1.931	2.583	4.513	66,33	67,83	67,17
Lubuk Begalung	2.394	3.068	5.462	2.362	3.022	5.384	98,66	98,50	98,57
Lubuk Kilangan	1.019	1.328	2.347	150	248	398	14,72	18,67	16,96
Nanggalo	1.760	2.177	3.937	1.757	2.173	3.930	99,83	99,82	99,82
Padang Barat	1.614	2.176	3.790	1.445	1.942	3.387	89,53	89,25	89,37
Padang Selatan	1.547	2.027	3.574	1.488	1.952	3.440	96,19	96,30	96,25
Padang Timur	2.126	2.907	5.033	2.097	2.867	4.964	98,64	98,62	98,63
Padang Utara	1.852	2.317	4.169	1.669	2.090	3.759	90,12	90,20	90,17
Pauh	1.270	1.611	2.881	643	820	1.463	50,63	50,90	50,78
Total	21.011	26.921	47.932	17.225	22.134	39.360	81,98	82,22	82,12

Source: 2010 Population Census Data Processing, BPS

Both age groups are vulnerable to the impact of earthquake disaster hazards. Given a large number of these age groups, the government needs to pay special attention to the groups, for instance by providing counseling, training or simulation of response preparedness in disasters through schools, as well as counseling to households with elderly members in order to provide special attention such as giving priorities and help during the evacuation or rescue.

Other indicators of vulnerability derived from results of data integration of the 2010 Population Census and Village Potential 2011 are the number of households headed by women, and households consisting of one person aged 60 years and over. These indicators are presented in Table 13 and Table 14.

Table 2.13
Number of Households Headed by Women

Sub-district	Number of Households Headed by Women	Exposed to Hazards		Percentage	
		Moderate Class	High Class	Moderate Class	High Class
(1)	(2)	(3)	(4)	(5)	(6)
Bungus Teluk Kabung	545	393	152	72,11	27,89
Koto Tangah	4.860	4.257	603	87,59	12,41
Kuranji	4.341	3.127	1.214	72,03	27,97
Lubuk Begalung	3.480	3.480		100,00	-
Lubuk Kilangan	1.296	207	1.089	15,97	84,03
Nanggalo	2.856	2.856	-	100,00	-
Padang Barat	2.383	2.383	-	100,00	-
Padang Selatan	2.064	2.064	-	100,00	-
Padang Timur	3.570	3.570	-	100,00	-
Padang Utara	5.697	5.697	-	100,00	-
Pauh	2.875	1.439	1.436	50,05	49,95
Total	33.967	29.473	4.494	86,77	13,23

Source: 2010 Population Census Data Processing, BPS

Table 13 shows that out of 33,967 households headed by women as many as 29,473 households are exposed to moderate class hazards of earthquake, and 4,494 households are exposed to high class hazards, or 86.77 percent and 13.23 percent respectively. The entire (100%) households headed by women in six sub-districts are exposed to moderate class hazards.

These sub-districts are Lubuk Begalung, Nanggalo, Padang Barat, Padang Selatan, Padang Timur, and Padang Utara. While for high class hazards only sub-district of Lubuk Kilangan that shows a relatively high figure, i.e., 84.03 percent.

Households headed by women are included as vulnerable groups because women generally have a longer response compared to men in the process of self-rescue from danger. Furthermore, women in the household are usually preoccupied with domestic matters such as cooking, child care, and other household chores, so that their attention to self-rescue is also reduced. Figure 13 depicts the distribution of the number of

households headed by women.

Another kind of vulnerability in the city of Padang is the households consisting of one person aged 60 years and over. These households are more vulnerable because the elderly usually need help from others to save them and give directions to evacuate. Staying alone will be much more vulnerable, because when a disaster occurs there will be no one around but he himself to provide assistance or relief.

Table 14 shows the number of this kind of household that are exposed to medium and high class hazards. Similar to other vulnerable groups, most of these households are in urban areas where inhabitants are exposed to moderate class hazards with the percentage of 79.62 percent, or 1,864 households. Out of 11 sub-districts in Padang city, there are six sub-districts in which 100 per cent of households in this category are exposed to the moderate class hazards. The sub-districts are Lubuk Begalung, Nanggalo, Padang Barat, Padang Selatan, Padang Timur, and Padang Utara. These sub-districts are located in coastal areas or adjacent to the sea.

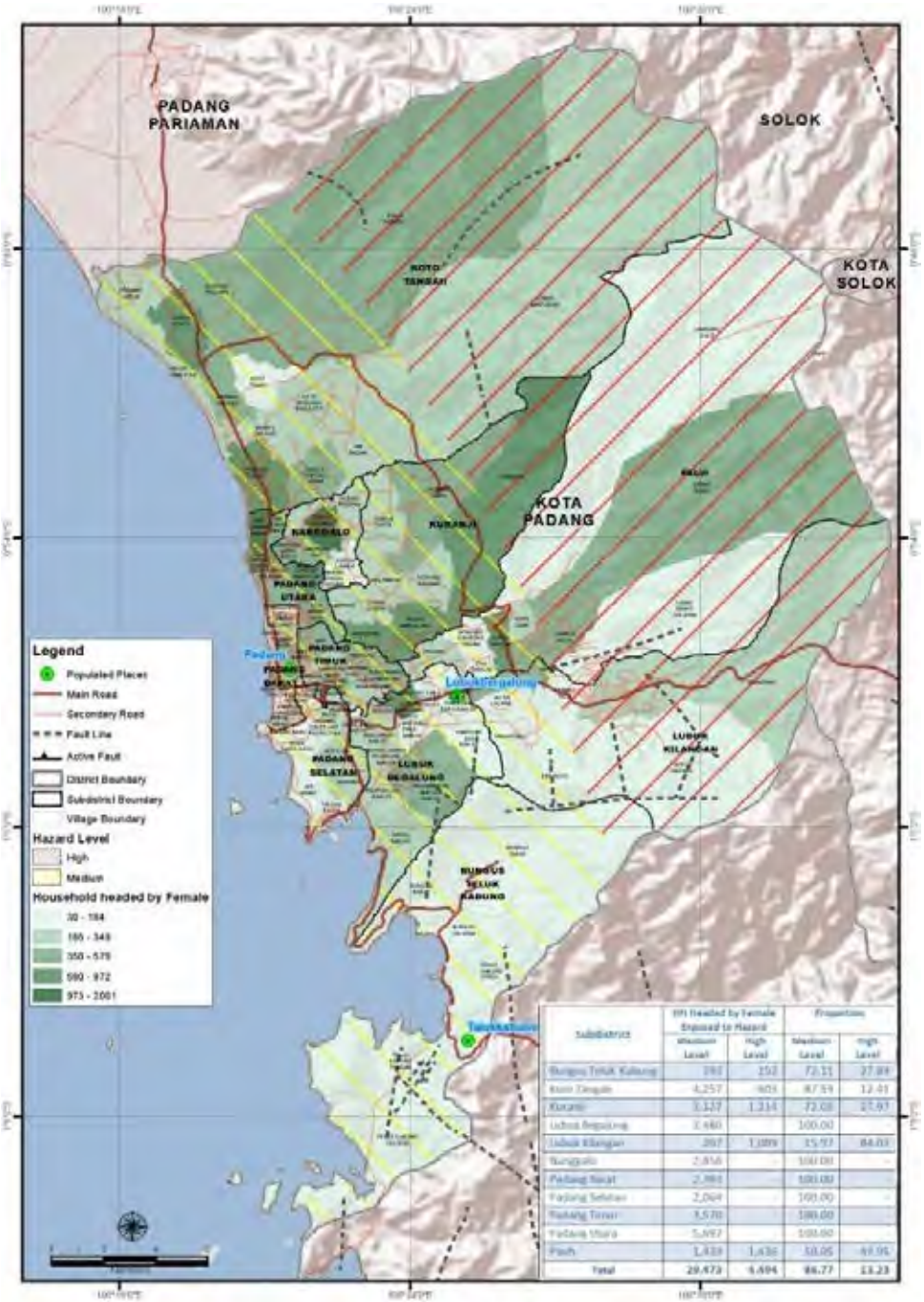
Table 2.14

Number of Households Consisting of One Person Aged 60 Years and Over

Sub-district	Households Consisting of One Person Aged 60 Years+	Exposed to Hazards		Percentage	
		Moderate Class	High Class	Moderate Class	High Class
(1)	(2)	(3)	(4)	(5)	(6)
Bungus Teluk Kabung	72	51	21	70,83	29,17
Koto Tangah	464	374	90	80,60	19,40
Kuranji	358	192	166	53,63	46,37
Lubuk Begalung	229	229	-	100,00	-
Lubuk Kilangan	124	26	98	20,97	79,03
Nanggalo	147	147	-	100,00	-
Padang Barat	206	206	-	100,00	-
Padang Selatan	195	195	-	100,00	-
Padang Timur	193	193	-	100,00	-
Padang Utara	181	181	-	100,00	-
Pauh	172	70	102	40,70	59,30
Total	2,341	1,864	477	79,62	20,38

Source: 2010 Population Census Data Processing, BPS

Data on high class hazards show that there are two sub-districts with more than 50 percent of households are exposed to disasters, i.e., the sub-district of Lubuk Kilangan (79.03 percent or 98 households) and Pauh (59.30 percent or 102 households). Although the number of these households is relatively not too large when compared to the total number of households



Source: Disaster Risk Assessment Results, BNPB, 2012

Gambar 2.12 Households headed by women exposed to tsunami hazard

in Padang city, which is only about 1.2 percent, yet given their high level of vulnerability the government needs to give special attention to this group. The evidence suggests that a large number population of the children age group as well as the elderly have become the victims when a disaster occurs.

In addition to the vulnerable groups mentioned above, other vulnerable group worth noting is that of the disabled. This group should also get more attention because it is a group of potential victims in the event of disaster. Individuals in this group need the help of others to evacuate or rescue from hazards. Tables 15 and 16 show the number of disabled persons exposed to the high and moderate class earthquake hazards, respectively.

Table 2.15

Number of Vulnerable Groups Exposed to High Class Earthquake Hazards

Sub-district	Total Population	Vulnerable Groups Exposed to High Class Earthquake Hazards						Percentage
		Aged < 5 Years	Aged > 60 Years	Disabled	Households Headed by Women	Households Consisting of 1 Person Aged 60+	Total	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Bungus Teluk Kabung	22.896	601	358	40	152	21	1.172	5,12
Koto Tangah	162.079	2.389	1252	141	603	90	4.475	2,76
Kuranji	126.729	4.423	2183	305	1.214	166	8.291	6,54
Lubuk Begalung	106.432	-	0	-			0	-
Lubuk Kilangan	48.850	4.143	1947	175	1.089	98	7.452	15,25
Nanggalo	57.275	-	0	-			0	-
Padang Barat	45.380	-	0	-			0	-
Padang Selatan	57.718	-	0	-			0	-
Padang Timur	77.868	-	0	-			0	-
Padang Utara	69.119	-	0	-			0	-
Pauh	59.216	3.006	1418	163	1.436	102	6.125	10,34
Total	833.562	14.562	7.158	824	4.494	477	27.515	3,30

Source: 2010 Population Census Data Processing, BPS

Table 2.16

Number of Vulnerable Groups Exposed to Moderate Class Earthquake Hazards

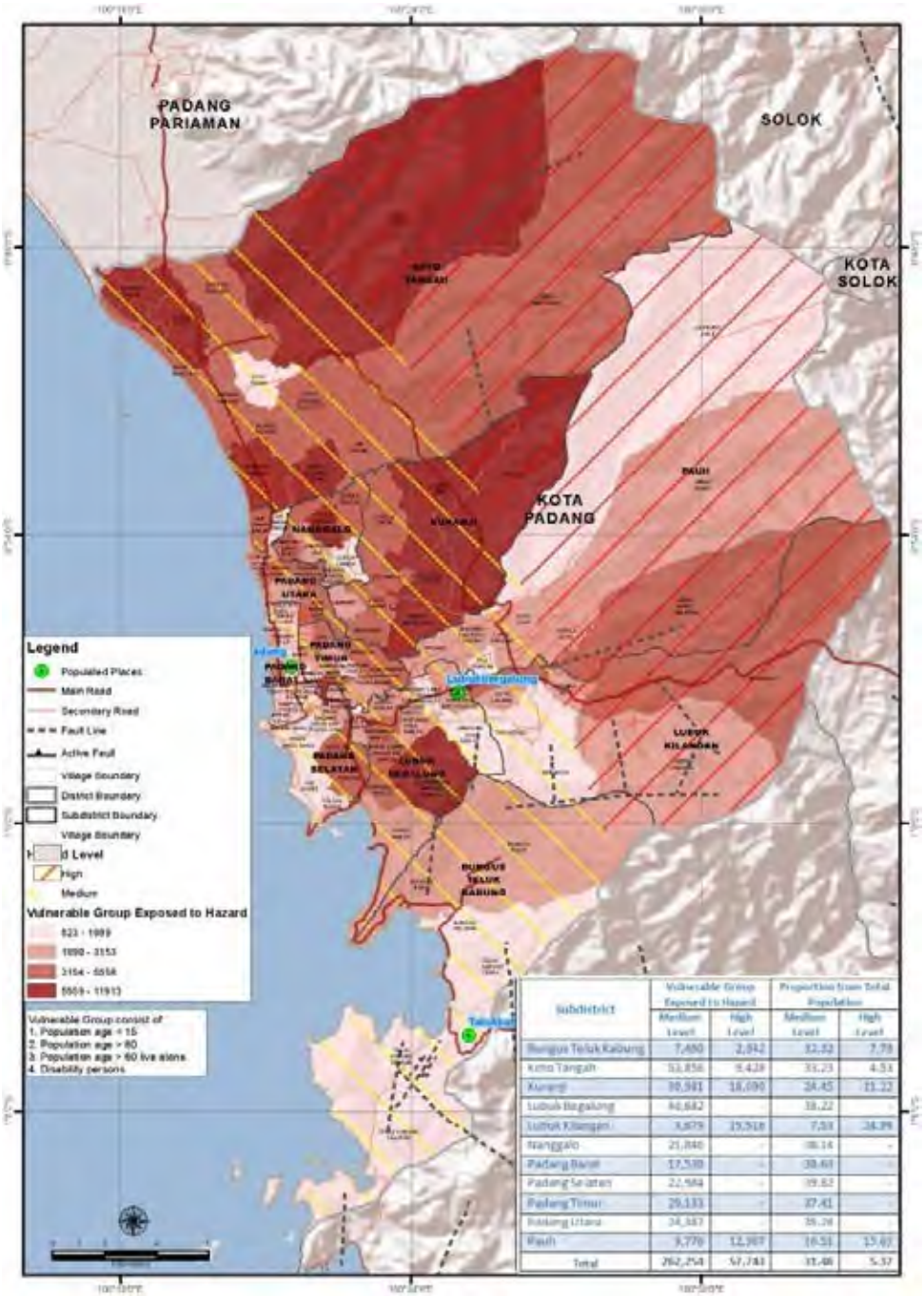
Sub-district	Total Population	Vulnerable Groups Exposed to Moderate Class Earthquake Hazards						Percentage
		Aged < 5 Years	Aged > 60 Years	Disabled	Households Headed by Women	Households Consisting of 1 Person Aged 60+	Total	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Bungus Teluk Kabung	22.896	1.808	889	197	393	51	3.338	14,58
Koto Tangah	162.079	12.593	7.233	722	4.257	374	25.179	15,54
Kuranji	126.729	7.355	4.513	532	3.127	192	15.719	12,40
Lubuk Begalung	106.432	10.275	5.384	647	3.480	229	20.015	18,81
Lubuk Kilangan	48.850	961	398	37	207	26	1.629	3,33
Nanggalo	57.275	4.784	3.930	397	2.856	147	12.114	21,15
Padang Barat	45.380	2.974	3.387	542	2.383	206	9.492	20,92
Padang Selatan	57.718	5.239	3.440	502	2.064	195	11.440	19,82
Padang Timur	77.868	6.229	4.964	570	3.570	193	15.526	19,94
Padang Utara	69.119	4.265	3.759	343	5.697	181	14.245	20,61
Pauh	59.216	2.321	1.463	94	1.439	70	5.387	9,10
Total	833.562	58.803	39.360	4.583	29.473	1.864	134.083	16,09

Source: 2010 Population Census Data Processing, BPS

Tables 15 and 16 show that the percentage of inhabitants included in the vulnerable groups that are exposed to high class and moderate class earthquake hazards is 3.30 percent and 16.09 percent, or a total of 27,515 and 134,083 inhabitants, respectively. The vulnerable children under five years of age with the total number of 73,365 represent the largest proportion, which is 8.80 percent of the total population of Padang city.

Furthermore, Tables 15 and 16 and Figure 14 indicate that another vulnerable group exposed to the hazards is a group of elderly residents aged 60 years and older totaling to 46,518 people or 5.58 percent of the total population of Padang city.

These groups need special attention from the local government, especially in terms of disaster preparedness so that appropriate programme of disaster preparedness can be developed in accordance with the priorities of each vulnerable groups such as the safe school programme, disaster awareness education starting from an early age, the involvement of children and elderly in preparedness simulations, and other programmes that are effective in building awareness of the importance of disaster preparedness and risk reduction.



Source : Population Census 2010 data processing, BPS

Figure 2.13 Vulnerability group exposed to earthquake hazard

Population Vulnerability and Exposures to Tsunami Hazard

In addition to earthquake, people living in Padang city are also exposed to another threat of tsunami disaster which, if it occurs, will cause a tremendous impact. As mentioned in the previous discussion, experts predict the occurrence of a tsunami that is triggered by a massive earthquake with a magnitude of 8-9.3 at the Richter scale in the Megathrust Mentawai Zone. The foregoing review also examines the vulnerability and exposure of the population to the hazards of earthquakes. The following discussion will put more emphasis on the vulnerability and exposure of the population in Padang city based on the tsunami hazard zonation using flooding model characterized by maximum water depth.

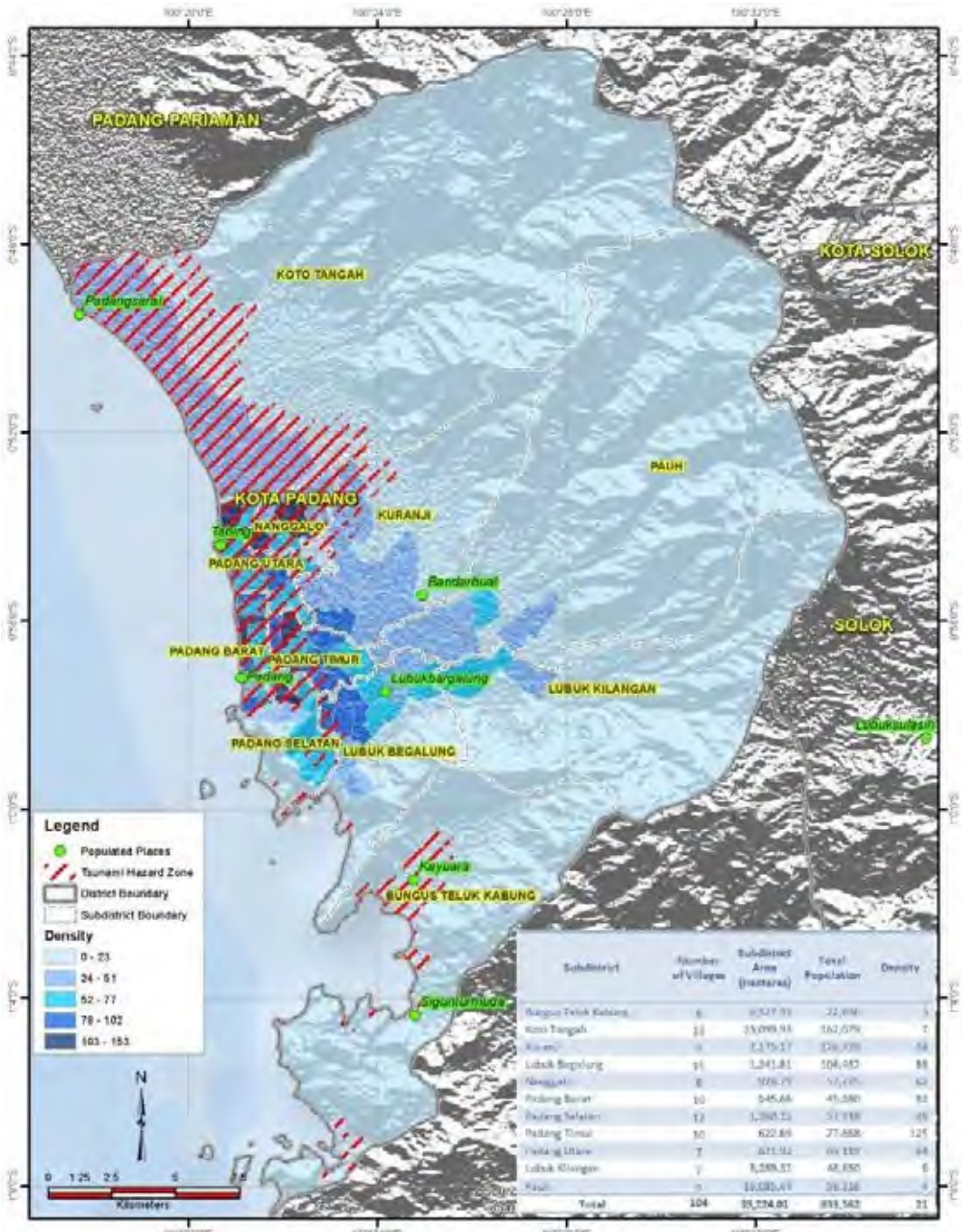
As explained in the previous discussion, the business activity in Padang city is concentrated in the coastal areas. Consequently the concentration of the people's dwelling places is also in this region. Figure 15, which depicts the population density of Padang city overlaid with the tsunami hazard zone, shows that most of the densely populated area in Padang is in the tsunami hazard zone. This clearly demonstrates the vulnerability of existing residents if a catastrophic tsunami occurs in this region. Table 17 shows the population density of the sub-districts in Padang city. The sub- districts that have high population density are Padang Timur, Lubuk Begalung, Padang Barat, and North Utara.

Table 2.17

Number of Villages, Total Area, Total Population, and Population Density

Sub-district	Number of Villages	Total Area (Ha)	Total Population	Population Density (# People/Ha)
(1)	(2)	(3)	(4)	(5)
Bungus Teluk Kabung	6	8.527,93	22.896	3
Koto Tangah	13	23.099,93	162.079	7
Kuranji	9	2.175,17	126.729	58
Lubuk Begalung	15	1.241,81	106.432	86
Nanggalo	6	928,79	57.275	62
Padang Barat	10	545,66	45.380	83
Padang Selatan	12	1.260,12	57.718	46
Padang Timur	10	622,69	77.868	125
Padang Utara	7	821,92	69.119	84
Lubuk Kilangan	7	8.289,32	48.850	6
Pauh	9	16.085,44	59.216	4
Total	104	39.224,01	833.562	21

Source: 2010 Population Census Data Processing, BPS



Source : Population Census 2010 data processing, BPS

Figure 2.14 Population density and tsunami hazard

Based on the tsunami hazard maps issued by BNPB in 2012, the total number of people exposed to tsunami hazard is 361.613 or 43.38 percent of total population of Padang city. This amount can be further broken down based on hazard class as shown in Tables 18, 19, and 20. The number of people exposed to high class tsunami hazard is 323,685 or 38.83 percent of the total population of Padang city.

Table 18 shows that there are four sub-districts with more than 50% of their population are exposed to high class tsunami hazard. These sub-districts are Padang Barat, Nanggalo, Padang Utara and Koto Tangah. The percentages of people exposed to medium and low class tsunami hazards are 3.02 and 1.53, respectively. These are presented in Tables 19 and 20.

Table 2.18

Population Exposure to High Class Tsunami Hazard

Sub-district	Total Population (Population Census 2010)			# Population Exposed			Percentage		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Bungus Teluk Kabung	11.762	11.134	22.896	1.758	1.698	3.456	14,95	15,25	15,10
Koto Tangah	81.590	80.489	162.079	59.764	58.771	118.535	73,25	73,02	73,13
Kuranji	62.912	63.817	126.729	3.770	3.666	7.436	5,99	5,74	5,87
Lubuk Begalung	53.715	52.717	106.432	103	100	203	0,19	0,19	0,19
Nanggalo	27.774	29.501	57.275	24.755	26.407	51.161	89,13	89,51	89,33
Padang Barat	22.862	22.518	45.380	21.864	21.534	43.398	95,64	95,63	95,63
Padang Selatan	28.910	28.808	57.718	10.199	10.278	20.477	35,28	35,68	35,48
Padang Timur	38.650	39.218	77.868	9.989	10.814	20.803	25,84	27,57	26,72
Padang Utara	32.732	36.387	69.119	27.671	30.545	58.215	84,54	83,94	84,22
Lubuk Kilangan	24.563	24.287	48.850	-	-	-	-	-	-
Pauh	29.845	29.371	59.216	-	-	-	-	-	-
Total	415.315	418.247	833.562	159.872	163.812	323.685	38,49	39,17	38,83

Source: 2010 Population Census Data Processing, BPS

Table 2.19
Population Exposure to Moderate Class Tsunami Hazard

Sub-district	Total Population			# Population Exposed			Percentage		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Bungus Teluk Kabung	11.762	11.134	22.896	184	175	360	1,57	1,57	1,57
Koto Tangah	81.590	80.489	162.079	33	33	66	0,04	0,04	0,04
Kuranji	62.912	63.817	126.729	1.699	1.654	3.353	2,70	2,59	2,65
Lubuk Begalung	53.715	52.717	106.432	3.388	3.350	6.739	6,31	6,36	6,33
Nanggalo	27.774	29.501	57.275	-	-	-	-	-	-
Padang Barat	22.862	22.518	45.380	-	-	-	-	-	-
Padang Selatan	28.910	28.808	57.718	1.402	1.405	2.807	4,85	4,88	4,86
Padang Timur	38.650	39.218	77.868	5.827	6.044	11.871	15,08	15,41	15,25
Padang Utara	32.732	36.387	69.119	-	-	-	-	-	-
Lubuk Kilangan	24.563	24.287	48.850	-	-	-	-	-	-
Pauh	29.845	29.371	59.216	-	-	-	-	-	-
Total	415.315	418.247	833.562	12.533	12.662	25.195	3,02	3,03	3,02

Source: 2010 Population Census Data Processing, BPS

Table 2.20
Population Exposure to Low Class Tsunami Hazard

Sub-district	Total Population			# Population Exposed			Percentage		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Bungus Teluk Kabung	11.762	11.134	22.896	-	-	-	-	-	-
Koto Tangah	81.590	80.489	162.079	-	-	-	-	-	-
Kuranji	62.912	63.817	126.729	922	988	1.910	1,47	1,55	1,51
Lubuk Begalung	53.715	52.717	106.432	803	772	1.575	1,49	1,47	1,48
Nanggalo	27.774	29.501	57.275	-	-	-	-	-	-
Padang Barat	22.862	22.518	45.380	-	-	-	-	-	-
Padang Selatan	28.910	28.808	57.718	1.591	1.592	3.182	5,50	5,53	5,51
Padang Timur	38.650	39.218	77.868	3.020	3.046	6.066	7,81	7,77	7,79
Padang Utara	32.732	36.387	69.119	-	-	-	-	-	-
Lubuk Kilangan	24.563	24.287	48.850	-	-	-	-	-	-
Pauh	29.845	29.371	59.216	-	-	-	-	-	-
Total	415.315	418.247	833.562	6.335	6.399	12.733	1,53	1,53	1,53

Source: 2010 Population Census Data Processing, BPS

Figure 16 shows that most of the exposed areas with high population are in coastal areas, where the topography is flat and has become the center of population. There are two districts of Padang city where the population is not exposed to tsunami hazard, namely and the sub-district of Lubuk Kilangan and Pauh. This is because both areas have the topography of hills and the height of which exceed the maximum inundation as determined for Padang city, which is 12 meters.

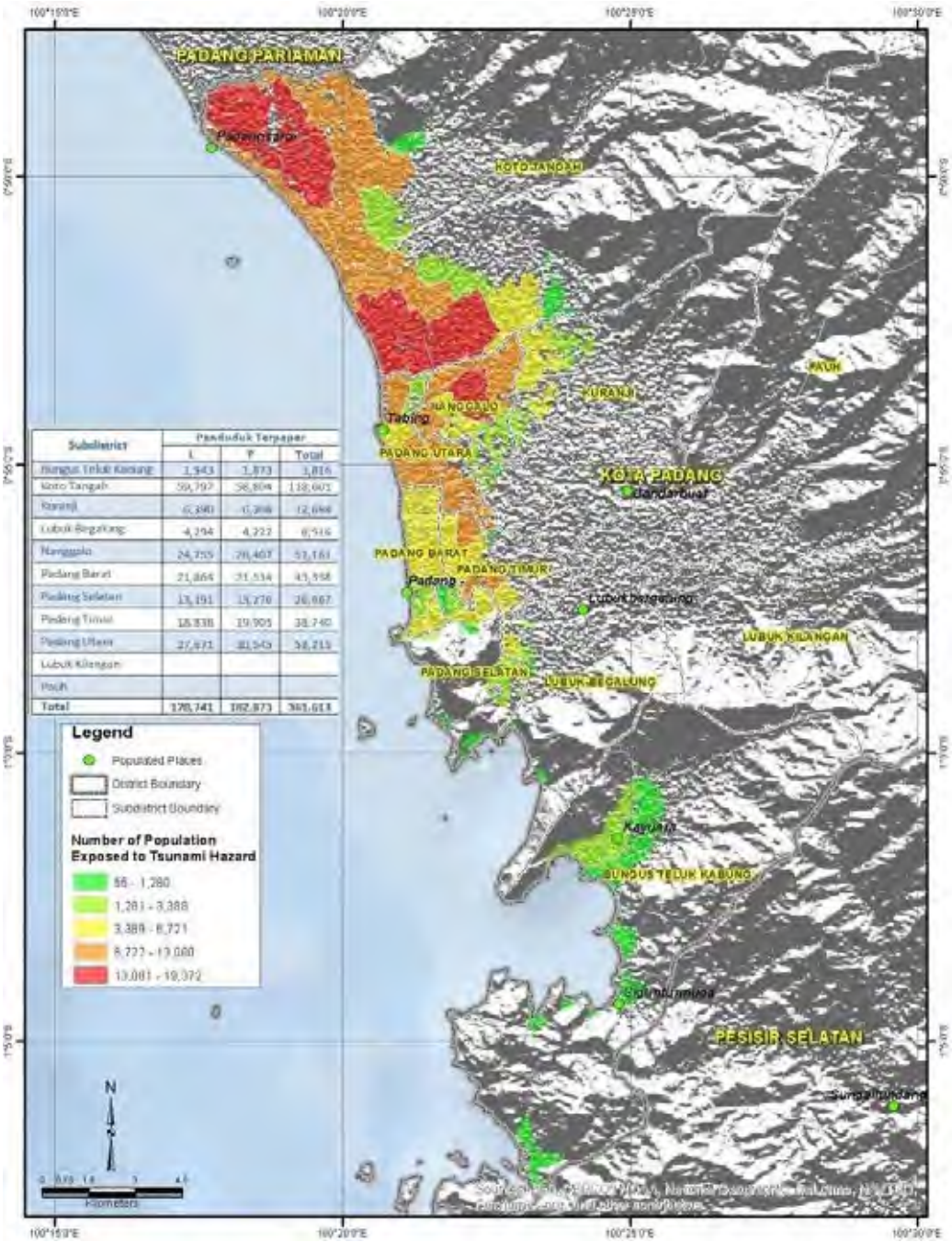
Tables 21 and 22 give details of the exposed population by vulnerable age groups consisting of children under 5 years of age (toddlers) and people aged 60 years and older (elderly). From the two tables we can see that the children belong to the age group of less than five years old (toddlers) who are exposed to high class tsunami hazard amounted to 26.691 or 35.51 percent. As for the elderly group the number of people exposed is 20,550 or 42.87 percent. Given the high percentage of exposure, those two age groups should receive more attention because they are included into the vulnerable groups that need help in the self-rescue process or when evacuation is made. Many of the members of this age group become victims when a disaster occurs. Looking in more detail, data of the elderly group show that the number of women is larger than that of men. This fact can be taken as one of the considerations in developing preparedness or risk reduction so that programmes can be set up more effectively and targeted.

Table 2.21

Population of Age Group 0-4 Years Exposed to High Class Tsunami Hazard

Sub-district	Total Population			# Population Exposed			Percentage		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Bungus Teluk Kabung	1.288	1.229	2.517	193	183	377	14,98	14,89	14,98
Koto Tangah	7.955	7.385	15.340	5.594	5.198	10.792	70,32	70,39	70,35
Kuranji	6.149	5.672	11.821	398	372	770	6,47	6,56	6,51
Lubuk Begalung	5.300	5.133	10.433	12	11	23	0,23	0,21	0,22
Nanggalo	2.640	2.480	5.120	2.189	2.044	4.233	82,92	82,42	82,68
Padang Barat	2.488	2.311	4.799	1.674	1.577	3.251	67,28	68,24	67,74
Padang Selatan	1.745	1.642	3.387	918	905	1.824	52,61	55,12	53,85
Padang Timur	2.835	2.639	5.474	742	753	1.496	26,17	28,53	27,33
Padang Utara	3.169	3.142	6.311	2.004	1.921	3.925	63,24	61,14	62,19
Lubuk Kilangan	2.363	2.261	4.624	-	-	-	-	-	-
Pauh	2.759	2.570	5.329	-	-	-	-	-	-
Total	38.691	36.464	75.155	13.724	12.966	26.691	35,47	35,56	35,51

Source: 2010 Population Census Data Processing, BPS



Subdistrict	Penduduk Terpapar		
	L	P	Total
Nanggalo	24,705	28,407	53,161
Padang Barat	21,864	21,534	43,398
Padang Selatan	13,191	13,270	26,667
Padang Timur	18,838	19,905	38,740
Padang Utara	27,971	30,543	58,213
Lubuk Kilangan			
Pauh			
Total	170,741	192,873	363,614

Source: 2010 Population Census Data Processing, BPS

Figure 2.15 Population exposed to tsunami hazard

Table 2.22
Population of Age Group 60 Years and Older Exposed to High Class Tsunami Hazard

Sub-district	Total Population			# Population Exposed			Percentage		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Bungus Teluk Kabung	586	718	1.304	82	97	179	13,99	13,51	13,73
Koto Tangah	3.932	4.784	8.716	2.861	3.436	6.297	72,76	71,82	72,25
Kuranji	2.911	3.808	6.719	178	222	399	6,11	5,83	5,94
Lubuk Begalung	2.394	3.068	5.462	4	6	10	0,17	0,20	0,18
Nanggalo	1.760	2.177	3.937	1.606	1.973	3.580	91,25	90,63	90,93
Padang Barat	1.614	2.176	3.790	1.540	2.076	3.616	95,42	95,40	95,41
Padang Selatan	1.547	2.027	3.574	634	838	1.472	40,98	41,34	41,19
Padang Timur	2.126	2.907	5.033	603	829	1.433	28,36	28,52	28,47
Padang Utara	1.852	2.317	4.169	1.579	1.986	3.564	85,26	85,71	85,49
Lubuk Kilangan	1.019	1.328	2.347	-	-	-	-	-	-
Pauh	1.270	1.611	2.881	-	-	-	-	-	-
Total	21.011	26.921	47.932	9.088	11.463	20.550	43,25	42,58	42,87

Source: 2010 Population Census Data Processing, BPS

Table 2.23
Households Headed by Women Exposed to High Class Tsunami Hazard

Sub-district	Total Households Headed by Women	Households Headed by Women Exposed to Tsunami Hazard	Percentage
(1)	(2)	(3)	(4)
Bungus Teluk Kabung	545	76	13,94
Koto Tangah	4.860	3.591	73,89
Kuranji	4.341	188	4,33
Lubuk Begalung	3.480	7	0,20
Nanggalo	2.856	2.613	91,49
Padang Barat	2.383	2.283	95,80
Padang Selatan	2.064	875	42,39
Padang Timur	3.570	1.328	37,20
Padang Utara	5.697	4.743	83,25
Lubuk Kilangan	1.296	-	-
Pauh	2.875	-	-
Total	33.967	15.703	46,23

Source: 2010 Population Census Data Processing, BPS

Other vulnerable groups that also need the attention of the government are the handicapped, households consisting of one person aged 60 years and over, and households headed by women. Tables 21 and 22 show the number of people exposed to high class tsunami hazard for each of the above vulnerable groups.

Table 23 shows the number of households headed by women that are exposed to high class tsunami hazard amounted to 15,703 or 46.23 per cent. There are three sub-districts that have a percentage above 80 percent namely the sub-district of Padang Barat, Nanggalo, and Padang Utara. Spatial distribution of the above values is shown in Figure 17.

The number of households consisting of one person aged 60 years and over in Padang city is quite a lot, namely 2,341. This group is one of the most vulnerable to disasters because it will need assistance during the rescue or evacuation process.

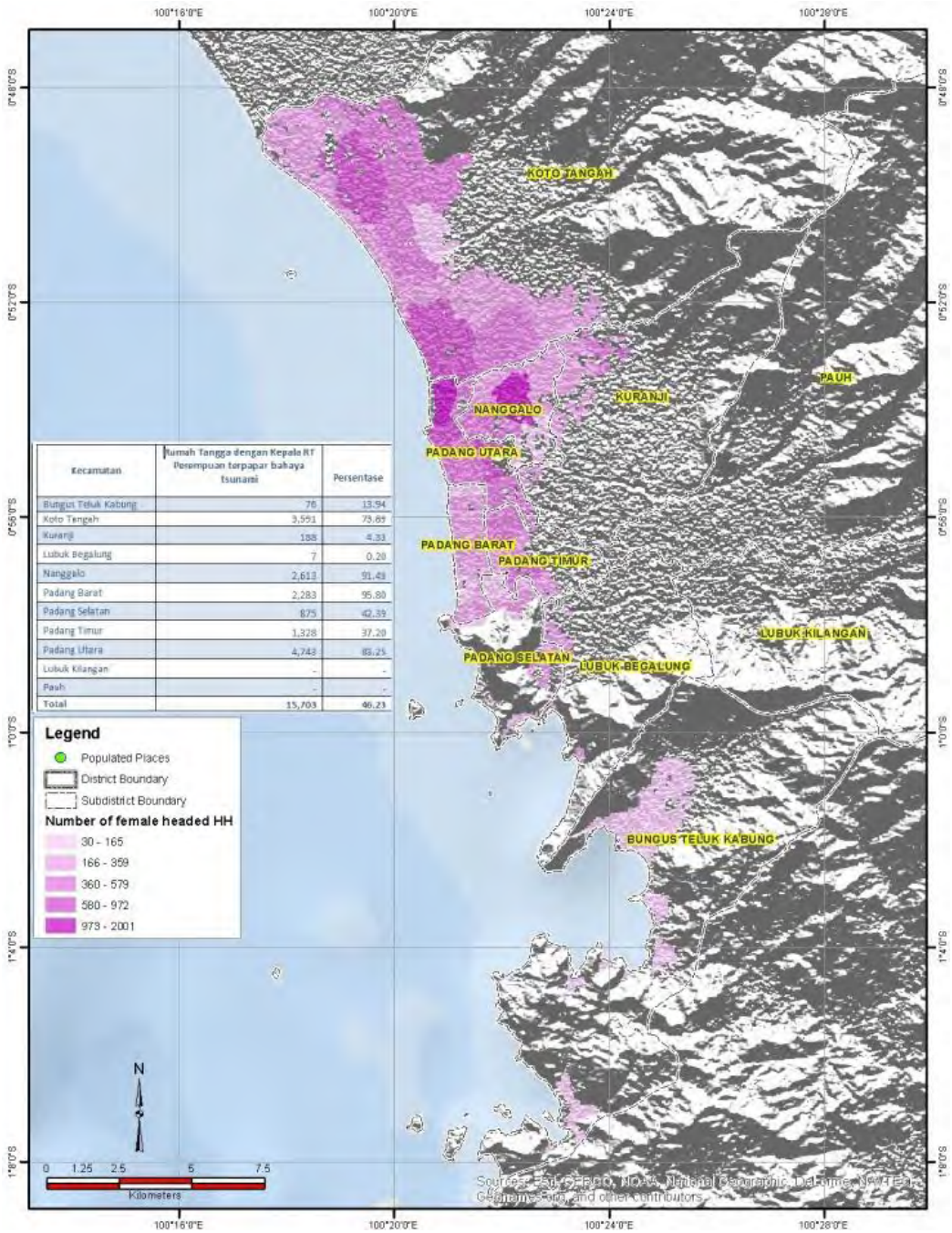
As shown in Table 24, 41.14 percent of the above number or 963 people are exposed to high class tsunami hazard. Yet again, the sub-districts that have a substantial percentage of exposure are Nanggalo, Padang Barat, and Padang Utara.

Table 24

Households Consisting of One Person Aged 60 Years and Older Exposed to High Class Tsunami Hazard

Sub-district	Total Households Headed by Women	Households Headed by Women Exposed to Tsunami Hazard	Percentage
(1)	(2)	(3)	(4)
Bungus Teluk Kabung	72	8	11,11
Koto Tangah	464	310	66,81
Kuranji	358	23	6,42
Lubuk Begalung	229	1	0,44
Nanggalo	147	135	91,84
Padang Barat	206	197	95,63
Padang Selatan	195	87	44,62
Padang Timur	193	48	24,87
Padang Utara	181	154	85,08
Lubuk Kilangan	124	-	
Pauh	172	-	
Total	2.341	963	41,14

Source: 2010 Population Census Data Processing, BPS



Kecamatan	Rumah Tangga dengan Kepala RT Perempuan terpapar bahaya tsunami	Persentase
Bungus Teluk Kabung	76	13.94
Koto Tangah	3,551	73.69
Kuranji	188	4.33
Lubuk Begalung	7	0.20
Nanggalo	2,613	91.49
Padang Barat	2,283	95.80
Padang Selatan	875	42.39
Padang Timur	1,328	37.20
Padang Utara	4,743	85.25
Lubuk Kilangan	-	-
Pauh	-	-
Total	15,703	46.23

Source: 2010 Population Census Data Processing, BPS

Figure 2.16 Households Headed by Women

Table 25
Disabled People Exposed to High Class Tsunami Hazard

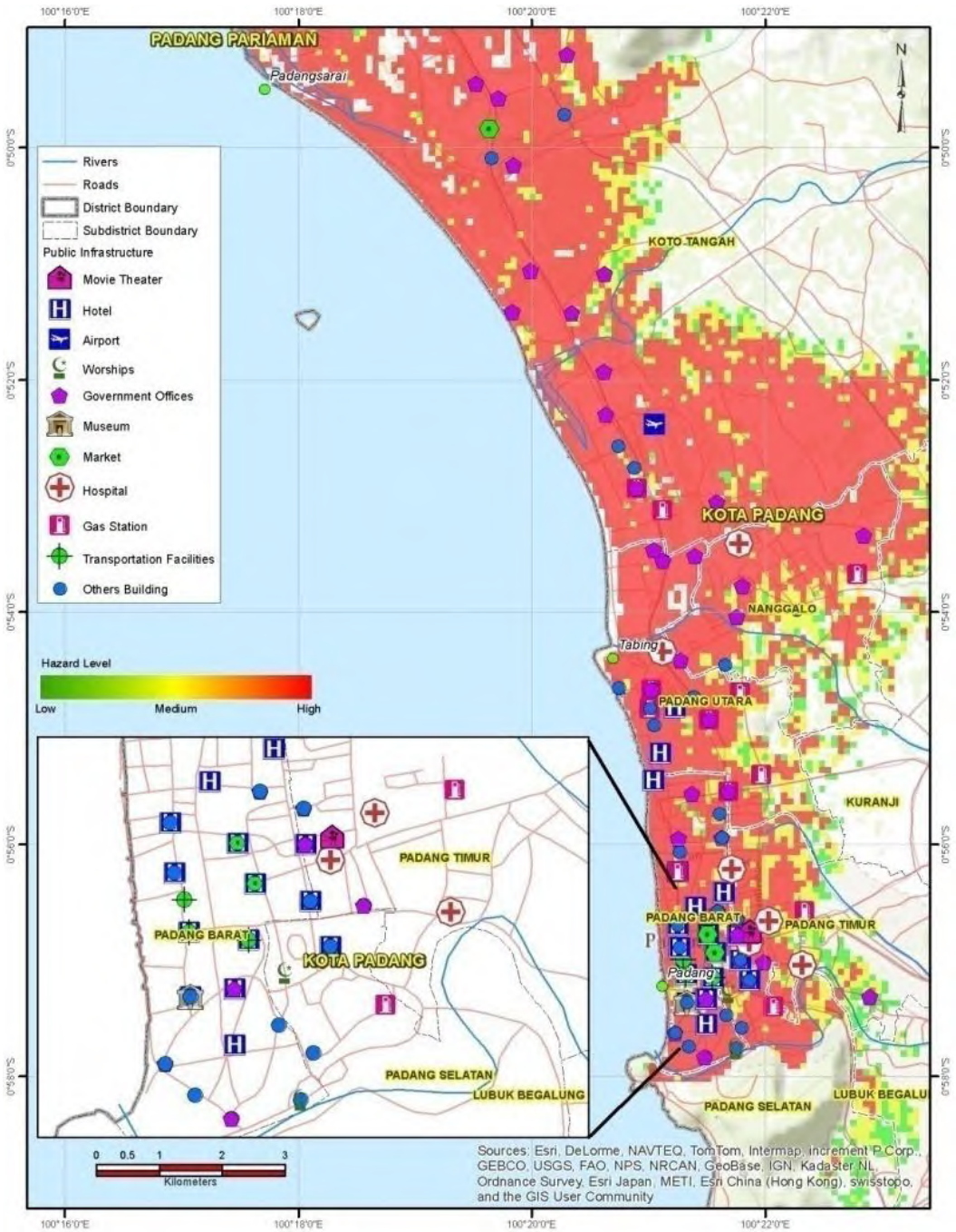
Sub-district	Total #Disabled People	Total #Disabled People Exposed to Tsunami Hazard	Percentage
(1)	(2)	(3)	(4)
Bungus Teluk Kabung	237	35	14,77
Koto Tangah	863	612	70,92
Kuranji	837	74	8,84
Lubuk Begalung	647	59	9,12
Nanggalo	397	356	89,67
Padang Barat	542	518	95,57
Padang Selatan	502	264	52,59
Padang Timur	570	305	53,51
Padang Utara	343	293	85,42
Lubuk Kilangan	212	-	-
Pauh	257	-	-
Total	5.407	2.516	46,53

Source: 2010 Population Census Data Processing, BPS

Another vulnerable group that needs special attention associated with vulnerability to disasters is the group of disabled people. Based on data from the population census of 2010 there are 5,407 persons with disabilities in Padang city and out of that number 46.53 percent or 2,516 persons are exposed to tsunami hazard. The majority of people with disabilities who are exposed to tsunami hazard live in the densely populated areas, namely in the sub-district of Padang Barat, Padang Utara, and Nanggalo. Refer to Table 25 for details of the number of people with disabilities in each of the sub-districts.

In addition to the components of social vulnerability that have been addressed in the previous discussion, there is also physical vulnerability component that is also very important. In the occurrence of disaster, this component can potentially cause huge material losses. Figure 18 shows how the public facilities in the tsunami hazard zone of Padang city may induce physical vulnerability.

If we look at the map, it appears that most of the public facilities such as hospitals, government offices, markets, religious facilities, and other public facilities are located in the area of high tsunami hazard zone (in red color). This condition should be a concern of the local government in its preparedness efforts to identify the critical public facilities that may be impacted when the disaster occurs and to determine the locations of safe public facilities that can be used as a temporary evacuation or shelter in case of disaster. These steps will enable the local government to



Source: Disaster Risk Assessment Results, BNPB, 2012

Figure 2.17 Public facility exposed to tsunami hazard

recognize and identify the various components of vulnerability to develop the preparedness planning and risk reduction in the face of disasters.

West Sumatra parliament office was severely damaged by earthquake in Padang City.
Source : BNPB

Kantor Dinas Pendidikan Padang rusak berat akibat gempabumi.

Sumber : BNPB

CHAPTER 3

METHODOLOGY

SAMPLING

Coverage Areas

Survey of Knowledge, Attitudes and Practice on Disaster Preparedness is conducted in 2013 in city of Padang, West Sumatra Province. This region is chosen by BNPB based on the consideration that there are potential hazards of earthquakes and tsunami on the West Coast of Sumatera, particularly in Padang. Besides charting disaster-prone areas in the city of Padang, BNPB has determined 25 villages of five sub-districts that are located in areas prone to earthquake and tsunami disaster as the research areas. Out of those 25 villages that have high and moderate risks of disaster, 10 villages from three sub-districts are selected as research samples, and then in each village one census block is chosen as the enumeration area. In each census block 25 households are taken as the respondents of the KAP Pilot Survey.

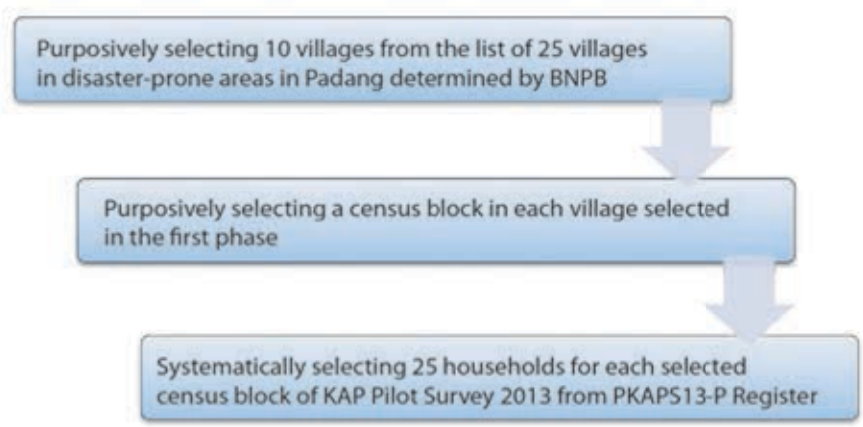
Sampling Frame

The sampling frames used in this 2013 KAP Pilot Survey can be distinguished according to the selection stages of the sampling units, i.e., the sampling frame for selection of villages, the sampling frame for the selection of census blocks, and the sampling frame for the selection of households.

The sampling frame used for the selection of census block is the census block of Population Census 2010 (SP2010) in the selected villages, equipped with information on the number of households resulting from the SP2010 listings. The sampling frame for the selection of households is the list of common households as the result of the household updating in KAP Survey 2013 (Register PKAPS13-P) within the selected census blocks. List of common households does not include orphanages, police/military barracks, prisons, boarding schools, in each census block samples resulting from the SP2010 complete enumeration that has been updated.

Number of Samples

The amount of sample households for the entire selected census block (BS) is set at 250



Source : BNPB

Figure 3.1. Phases of Sample Selection

households. Thus in each selected census block there are 25 common households that will be selected for interview. Each selected household is visited by interviewers. If there is a household that until the third attempt still cannot be interviewed at the time of enumeration due to various reasons, this sample can be purposively replaced by the nearest household, namely one that is the above or below the selected household in the Register PKAPS13-P). The sample replacement is performed by the supervisor.

Sampling Plans

Samples are selected using purposive method. This method is used on the KAP pilot survey 2013 with consideration of the operational convenience in the field. Furthermore it also considers the availability of ten villages out of 25 disaster-prone urban areas.

The selection of villages and census blocks (BS) is performed by BNPB in collaboration with Central BPS, while the selection of households is done at the same time as the training of the enumeration staff by the national instructors, after the sample list has been updated.

Purposive selection of households is conducted in such a way that the sample size is even or relatively has the same distance as the sample frame. The selected ten villages are presented in Table 3.1.

Table 3.1
List of Selected Villages for KAP Survey 2013

No.	Sub-district	Village
(1)	(2)	(3)
1.	Padang Barat	Belakang Tangsi
2.		Olo
3.		Purus
4.	Padang Utara	Ulak Karang Utara
5.		Air Tawar Timur
6.		Air Tawar Barat
7.		Lolong Belanti
8.	Nanggalo	Gurun Laweh
9.		Surau Gadang
10.		Kurau Pagang

Source: Population Census 2010 Data Processing, BPS

Survey Instrument

Types of documents used in the field implementation of the KAP Pilot Survey 2013 are as follows:

Manuals

Interviewer's manual contains the instructions on the procedures for filling the register; guidelines for duties and obligations of interviewers, supervisors and field coordinators, with the hope that they will perform their duties well as expected. The manual is also equipped to prepare

Source : BNPB

Figure 3.2 Location Map of Villages Selected for KAP Survey 2013

for a variety of situations in the field, as well as to address issues that may be encountered in the field.

Checklist

a. Checklist of Household Updates (PKAPS13-P) is used to update all the buildings and households in the selected census block (BS). One set of checklist is used to record one BS. This checklist is prepared by the updating staff who is the Coordinator of Statistics (KSK) of the sub-district where the selected BS is located.
b. Checklist of Household Samples (PKAPS13-DSRT) is used to record the identity of the households selected as samples.
c. Checklist of Households (PKAPS13-S) is used to record information on the selected households. One set of checklist is used for one household enumeration.

Field Organization

Household Updates Personnel

One of the activities in the implementation of the 2013 KAP Survey is updating the households in the selected census blocks. The purpose of this activity is to ensure that the coverage of houses in the selected census blocks is the same as the last state when updating is conducted. Staff in charge of this activity is the Sub-District Coordinator of Statistics (KSK) of the sub-district in which the selected census block is located.

Field Coordinator (Korlap)

A Field Coordinator is appointed to help coordinate the field implementation of the survey. The main tasks of coordinator include:

1. To participate in the related training held at central BPS.
2. To assist Head of regional BPS in coordinating all the activities up to the field implementation phase (enumeration, checking, controlling, etc.) and providing corrections where necessary.
3. To be responsible for households sampling.
4. To monitor the field implementation.
5. To make reports on issues or problems met in the field and propose the solutions.

Interviewer

Tasks of 2013 KAP Survey Interviewer include:

1. To participate in training at the designated Training Centres.
2. To interview households using PKAPS13-S Register.
3. To submit the enumeration results to supervisor and make a re-visit if there are errors, deficiency, or doubts over the results.

Supervisor

The supervisor's tasks are:

1. To participate in training according to the schedule.
2. To coordinate with local authorities and apparatus.
3. To distribute tasks to the interviewers.
4. To guide the interviewers to obtain good quality data.
5. To monitor the execution of tasks assigned to the interviewers and examine the documents that include completeness of lists, procedures for filling the list, completeness and correctness as well as consistency of filling.
6. To solve the problems that are encountered in the field.

Guide

The task of the guide is to assist the team in carrying out the enumeration in the working area. Guides are employed by regional BPS.

Disaster Preparedness Index (DPI) Calculation

Preparedness is a series of activities carried out in an effort to eliminate and/or reduce the threat of disaster. The calculation of DPI is done to see the level of community preparedness in anticipation of disaster.

The calculation of the parameters is made by asking the respondent households using a weighting method. Questions are grouped as parameters of Disaster Knowledge (PB), Disaster Preparedness Policy (KKB), Emergency Response Plan (RTD), Disaster Early Warning (PDB) and Resource Mobilization (MS) with the score of 1 for "yes" and 2 for "no". Then each question that has been grouped by parameter is multiplied by the weight score.

Table 3.2

Response to Each Question on Household

Parameter	Number of Response
(1)	(2)
Knowledge on Disaster (PB)	19
Disaster Preparedness Policy (KKB)	9
Emergency Response Plan (RTD)	5
Disaster Early Warning (PDB)	8
Resource Mobilization (MS)	3
Total	44

Table 3.3

Preparedness Index (IKB) Parameter

Parameter	Weight
(1)	(2)
Knowledge on Disaster (PB)	35
Disaster Preparedness Policy (KKB)	10
Emergency Response Plan (RTD)	15
Disaster Early Warning (PDB)	25
Resource Mobilization (MS)	15
Total	100

IKB=35(PB)+10(KKB)+15(RTD)+25(PDB)+15(MS)

with the following scores:

- PB : the proportion of "yes" to the questions of Disaster Knowledge parameter.
- KKB : the proportion of "yes" to the questions of Disaster Preparedness Policy parameter.

- RTD : the proportion of "yes" to the questions of Emergency Response Plan parameter.
- PDB : the proportion of "yes" to the questions of Disaster Early Warning parameter.
- MS : the proportion of "yes" to the questions of Resources Mobilization parameter.

The total number of households' answers to each parameter is multiplied by the weighting scores. The preparedness index scores then are classified as follows:

Table 3.4
Preparedness Index Classification

Value	Classification
(1)	(2)
<60	Low
60-80	Moderate
>80	High

Data Processing

The processing of data in this survey is quite different from other surveys. KAP2013 survey is the first survey that uses tablet devices with Android processor (Computer Assisted Personal Interviewing/CAPI) for its data processing. The field interviewers are equipped with tablet computers. These devices are used to obtain the coordinates of enumeration location using the GPS signals. The results of the interview are loaded into the entry programme in the tablet and directly sent to the server. This process has many advantages, such as the shorter processing time.

The following are data processing stages in the 2013 KAP Survey:

1. Field Enumeration.

   The interviewers are equipped with tablet computers using GPS signals to capture the location coordinates of households being interviewed. The enumeration keeps on using the questionnaire, hence providing physical evidence of the interview.

2. Editing by the Supervisor.

   The completed questionnaires resulting from the interviews are edited by the supervisors to make them "clean" and ready for entry.

3. Batching

   The questionnaires that have been edited by supervisors are checked for their accuracy and then grouped based on the established list of samples.

4. Entry to the Android

   After being batched, data on the questionnaire are entered into the processing system using tablet computers.

5. Transfer of Data

   The data that have been entered are sent directly to the central server.

6. Delivery of Documents

   Documents are sent to the central level as proof of enumeration results.

7. Re-checking

   The process of re-checking is useful to maintain consistency of answers and checking

the accuracy and validity of the input data.

8. Initial Tabulation

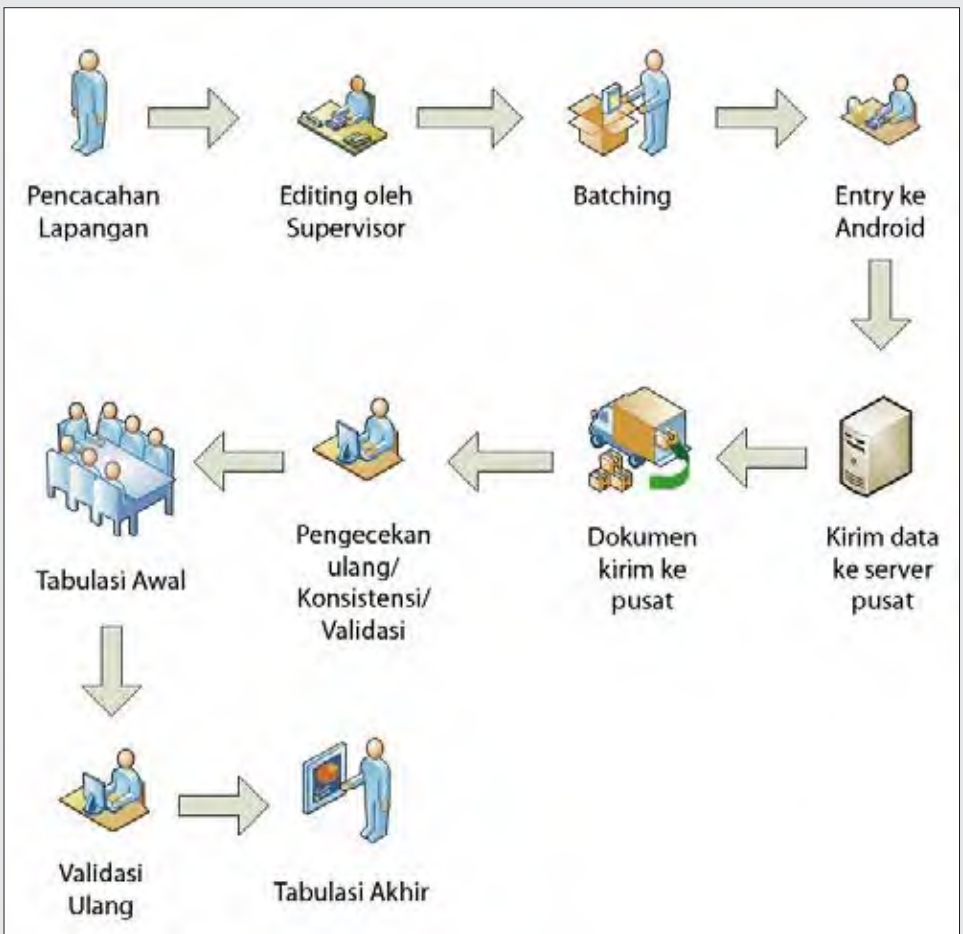
   Initial tabulation is carried out following the re-checking of data.

9. Tables Validation

   The tables of the initial tabulation are rechecked for consistency, so if there is any discrepancy a validation rule can be carried out.

10. Final Tabulation

    After going through the repeated checking process, the final tabulation is constructed. These final tables are expected to be clean and consistent.



Source : BNPB

Figure 3.3 Diagram of 2013 KAP Survey Data Processing

Ambacang hotel, Padang

Source : BNPB

Entry data into android

Source : BNPB

CHAPTER 4

FIELD IMPLEMENTATION

Field implementation of the KAP Pilot Survey in Padang city, West Sumatera, was conducted in June 2013 in 10 selected villages with a total sample of 250 households. The stages of survey began with training of staff to the field implementation.

Training of Staff

Training of staff for this survey was preceded by a workshop for the principal instructors (Intama) held on 16-18 May 2013 in Jakarta. In this workshop the Intama comprehensively discussed the draft questionnaire and guidebook including equating the interpretation of every term used in those documents. This is done so that the material to be presented to the prospective instructors (Innas) is in line with the goals to be achieved.

After the workshop for Intama, BPS and BNPB officials paid a visit to Padang on 19-21 May 2013. The activities of this predecessor team include:

1. Observation to the training location and try out for the enumeration.
2. Visit to the relevant agencies to obtain permits on KAP Pilot Survey activities, including plans and strategies.
3. Discussion on technical and non-technical aspects of local support to the activities of the pilot survey both at the provincial and district/ city levels.

The next activity is the training of prospective Innas which was held on 31 May-1 June 2013 in Bogor, West Java. Six candidates were trained at this workshop and three Innas (two from BPS and one from BNPB) were selected to teach field workers.

The field workers training was held in Padang on 17-18 June 2013. Their training was officially opened by the Head, Centre of Data, Information and Public Relations, BNPB, Dr. Sutopo Purwo Nugroho. The opening was also attended by the Director of Population and Employment Statistics, Drs. Razali Ritonga, MA; Head of BPS, West Sumatra Province, Yomin Tofri, MA; and the Echelon 3 and 4 of the BPS and BNPB. This training was under the guidance of three Innas, namely Nuraini, S.ST (BPS), Yogo Aryo Jatmiko, S.ST (BPS) and Suprapto, S.Si (BNPB). The number of trainees was 12 consisting of three teams each of which was composed of three enumerators and one supervisor.

Workshop activities

Source : BNPB

Table 4.1

List of KAP Pilot Survey Field Staff

Name	Position	Sex	Team #
(1)	(2)	(3)	(4)
1. Huseifa,SE	Supervisor	F	I
2. Cardinal	Enumerator	M	I
3. Maira Dwi Putri,SP	Enumerator	F	I
4. Chintia Angraini, S.Si	Supervisor	F	I
5. Ir. Defni Erita	Enumerator	F	II
6. Alfid Junaidi,SE	Enumerator	M	II
7. Gesti Sapardi,A.Md	Enumerator	M	II
8. A d a r a	Enumerator	M	II
9. Bambang Suryangono, S.ST	Supervisor	M	III
10. Harlinda Yanti	Enumerator	F	III
11. Yusuf, SH	Enumerator	M	III
12. Yossi Windriani,SE	Enumerator	F	III

Ice breaking activities

Source : BNPB

As the side-lines of the crowded training agenda, and to keep the trainees from feeling bored, tired and sleepy, they were given ice breaking activities. These activities were guided by Hermawan Agustina who was also the Field Coordinator of Pilot Survey.

The training agenda of the second day was try-out enumeration in the village of Purus, sub-district of Padang Barat. The location was adjacent to the training site. This activity was attended by the Director of Population and Employment Statistics, BPS (Drs. Razali Ritonga, MA); Head of Sub-Directorate of Demographic Statistics, BPS (Dr. Indra Murty Surbakti,of MA); Head of BPS Padang City (Rizal, S.ST); and Division Head of Data, Centre of Data, Information and Public Relations, BNPB (Dr. Ir. Agus Wibowo, M.Sc); Subdivision Head of Statistics, BNPB (Ario Akbar Lomban, SE); and officials from BPBD of Padang. This activity was also attended by Armando Levinson and Narwawi Pramurdhiarta from UNFPA. During the try-out, interviews were carried out to selected household samples. Purposive sample replacement was made for those households that the team failed to meet. This was done because data resulting from the try out enumeration will serve as sample data of selected households, so that during the field enumeration each team would only need to enumerate three census blocks (BS) in three villages.

Briefing activities

Source : BNPB

Try out activities

Source : BNPB

Field Implementation

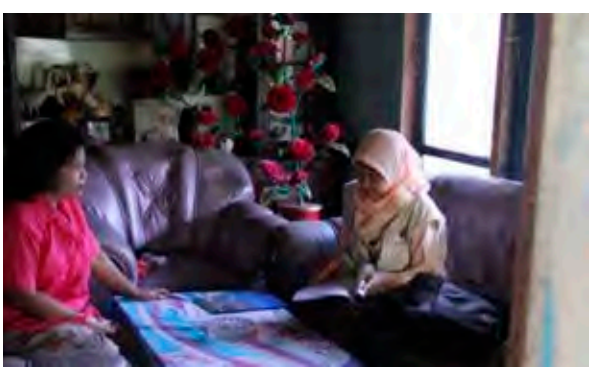
Implementation of field enumeration took place on 19 to 28 June 2013. The enumeration process was done in two ways simultaneously, i.e., manual enumeration using a questionnaire and trial enumeration using android tablet. Each team was accompanied by a supervisor and served in three different census blocks (BS). At the time of enumeration, supervisors were present in the field with the enumerators, hence any problems encountered in the field could be addressed immediately. For the smooth implementation of the enumeration, the questionnaires that had been completed by the workers were directly submitted to the supervisors who subsequently performed the editing and coding. The trial direct enumeration on several selected households using android tablet was conducted by the supervisor. The overall procedures and interviews were performed by the field workers in accordance with the instructions set forth in the manual of the KAP survey.

To facilitate the field implementation, a field coordinator was assigned to assist the head of the provincial or local BPS in coordinating all the issues during field implementation (counting, checking, supervising, and so on). The coordinator also monitored each team by turns and moved from one BS to another in each selected village sample.

Supervisory teams from BPS, provincial/local BPS, BNPB and BPBDs directly observed and checked the progress of field implementation over the period of enumeration. Thus the field enumeration results would provide high-quality data compliant with the objectives of the KAP pilot survey.







Figures: Field enumeration activities

Source : BNPB

Figures: Field enumeration activities

Source : BNPB

Damage house, Padang

Source : BNPB

CHAPTER V

RESULTS AND DISCUSSION

Profile of Households and Social Status

Number of Respondent Household Members

The survey was conducted on a sample of 250 households in 10 villages, in three sub-districts. From 250 household samples, 1,031 household members (ART) were available consisting of 511 men and 520 women. Most of the household members were in the age group 18-59 years (630 people) while the least were in 5-6 years age group (31 children).

Marital Status

Based on marital status, 44.33 percent of the household members were unmarried, 46.15 percent married, 2.15 percent divorced, and 7.37 percent widow/widower. The survey results showed that all members of the household in age groups 10-12 and 13-17 were unmarried, and 37.96 percent of household members aged 60 years and over were widows/widowers.

Figure 5.1 presents the percentage of household members by sex. The figure also shows that the percentage of household members that is unmarried is higher for men (50.11) than women (38.39). On the other hand, as to the status of being married, divorced and widow/widower, the percentage of household members is higher for women than men. The percentages of these statuses among woman household members are 46.21 percent, 3.22 percent, and 12.18 percent, respectively, while for men the percentages are 46.09, 1.12, and 2.68, respectively.

Table 5.1

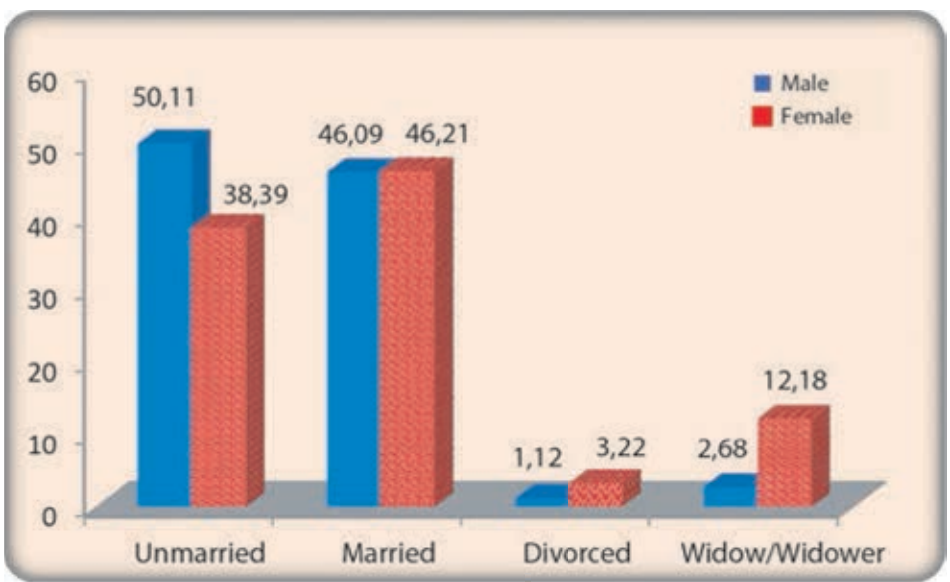
Number of Respondent Household Members by Age Group and Sex

Age Group	Male	Female	Total
(1)	(2)	(3)	(4)
0-4	32	43	75
5-6	8	23	31
7-12	56	39	95
13-17	49	43	92
18-59	319	311	630
60+	47	61	108
Total	511	520	1.031

Table 5.2

Percentage of Respondent Household Members Aged Ten Years and Over by Age Group and Marital Status

Age Group	Marital Status				
	Unmarried	Married	Divorced	Widow/ Widower	Total
	(%)	(%)	(%)	(%)	(%)
(1)	(2)	(3)	(4)	(5)	(6)
10-12	100,00	-	-	-	100,00
13-17	100,00	-	-	-	100,00
18-59	39,11	54,21	2,86	3,82	100,00
60+	-	61,11	0,93	37,96	100,00
Total	44,33	46,15	2,15	7,37	100,00



Source : Results of KAP Survey 2013

Figure 5.1 Percentage of Respondent Household Members Aged 10 Years and Over by Marital Status and Sex

Relationship to the Head of Household

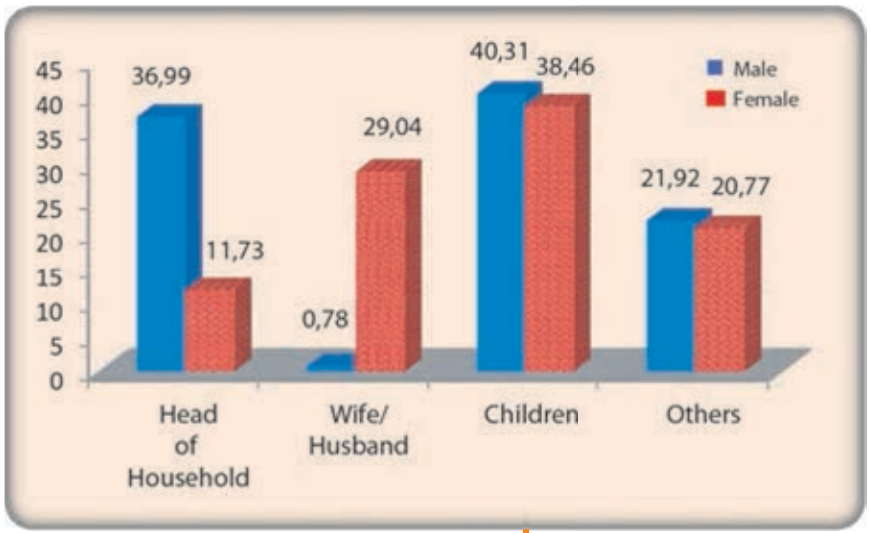
Based on the relationship to the head of the household, 24.25 per cent of the respondent household members were head of households, 15.03 percent as wife/husband, 39.38 percent as children (sons/daughters), and 21.34 percent as other kinship. Table 5.3 shows that all members of the household respondents in the age group 0-17 years had the relationship as children. Household members with the status as head of household were mostly applied to those aged 60 years and over, so were those with the status of wife/husband.

Figure 5.2 shows that male household members had a percentage larger than female as heads of households, children and other relations. Percentage of male household members who had the status of head of household was 36.99, while for female the percentage was 11.73. For the status as children, 40.31 percent of household members were male and 38.46 percent female, while for other statuses (in laws, grandchildren, relatives, etc.) 21.92 percent were male and 20.77 percent were female household members. On the contrary, for the status as spouse, female household members' percentage was far greater, namely 29.04, whereas only 0.78 percent was male.

Table 5.3
Percentage of Respondents Household Members by Age Group and Relationship to Head of Household

Age Group	Relationship to Head of Household	Wife/ Husband	Children	Others*)	Total
(1)	(2)	(3)	(4)	(5)	(6)
0-4	-	-	66,67	33,33	100,00
5-6	-	-	61,29	38,71	100,00
7-12	-	-	74,74	25,26	100,00
13-17	-	-	80,43	19,57	100,00
18-59	29,21	20,32	30,16	20,32	100,00
60+	61,11	25,00	1,85	12,04	100,00
Total	24,25	15,03	39,38	21,34	100,00

*) In-law/Grandchild/Parents/In-laws/Other Relative/Maid/Others



Source : Results of KAP Survey 2013

Figure 5.2 Percentage of Respondent Household Members by Age Group and Relationship to Head of Household

Education

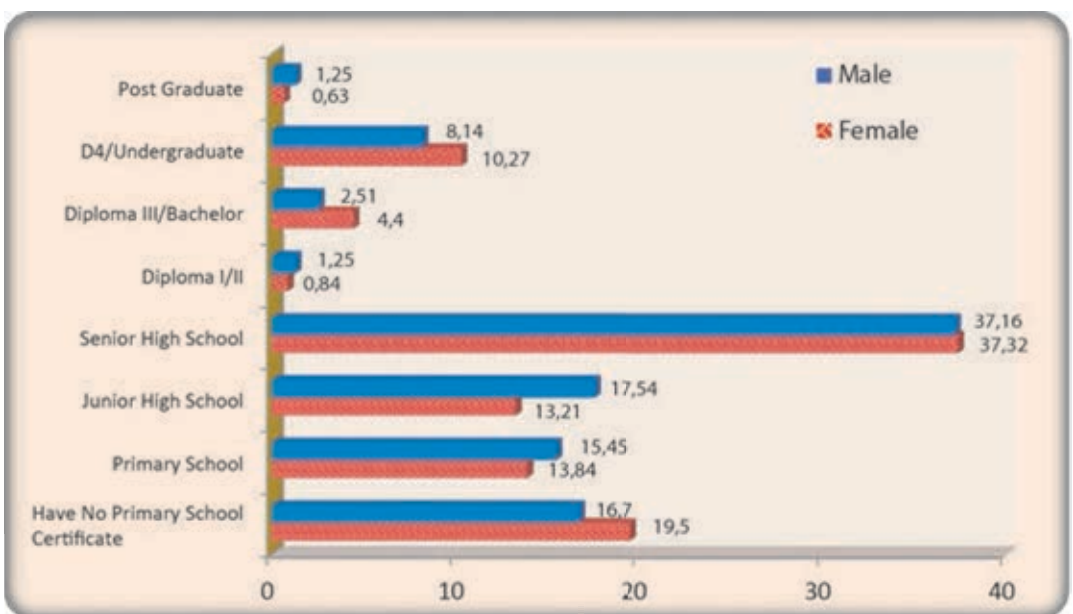
As shown in Table 5.4, most (37.24 percent) of the respondent household members in the sample area aged five years and over had completed senior high school as their highest educational attainment. While 18.10 percent of the respondent household members had no primary school certificate, 14.64 percent completed the primary school, 15.38 percent were graduated from junior high, 9.21 percent had the undergraduate educational attainment, 3.45 percent had bachelor's degree, 1.05 percent attained Diploma I/II, and 0.94 percent had completed postgraduate studies.

When comparing based on gender, it appears that the percentage of female household members at primary school level and lower was larger than the male, which was 33.34 and 32.15 percent, respectively. However, for secondary education (junior and senior high), the opposite occurs where the percentage of male (54.70) was higher than female (50.53). Interesting facts found in this survey was concerning attainment in higher education (Diploma and University) where the percentage of female members of the household (16.14) was larger than men (13.15). Details of the household members' educational attainment are also presented in Figure 5.3.

Table 5.4

Percentage of Respondent Household Members Aged 5 Years and Over by Age Group and Highest Educational Attainment

Age Group	Highest Educational Attainment								Total
	Have no primary school certificate	Primary School	Junior High School	Senior High School	Diploma I/II	Diploma III/BA	D4 / Under graduate	Post graduate	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
5-6	100,00	-	-	-	-	-	-	-	100,00
7-12	89,47	10,53	-	-	-	-	-	-	100,00
13-17	1,09	33,70	56,52	8,70	-	-	-	-	100,00
18-59	5,08	11,43	12,06	51,11	1,11	4,60	13,17	1,43	100,00
60+	22,22	25,00	17,59	24,07	2,78	3,70	4,63	-	100,00
Total	18,10	14,64	15,38	37,24	1,05	3,45	9,21	0,94	100,00



Source : Results of KAP Survey 2013

Figure 5.3 Percentage of Respondent Household Members Aged 5 Years and Over by Sex and Highest Educational Attainment

Type of Disaster-Related Training/Seminars/ Simulation/Meetings

Table 5.5 presents the percentage of household members aged 5 years and over that participated in training/seminars/simulation/meetings related to disasters. From the whole sample area, 17.04 percent of the household members had joined in the activities, 79.92 percent had never attended, while the rest (3.03 percent) did not know anything about these training activities.

In more details, out of those who had participated in the activities, 13.49 percent had joined in the disaster simulation, 1.88 percent in disaster socialization; 1.15 percent in evacuation training; 0.31 percent in scouting, and 0.21 percent attended some other types of training. The findings from the pilot survey also revealed that none of the members of the respondent households had been present at any activities related to water treatment and management of soup kitchen (dapur umum).

Table 5.5

Percentage of Respondent Household Members Aged Five Years and Over

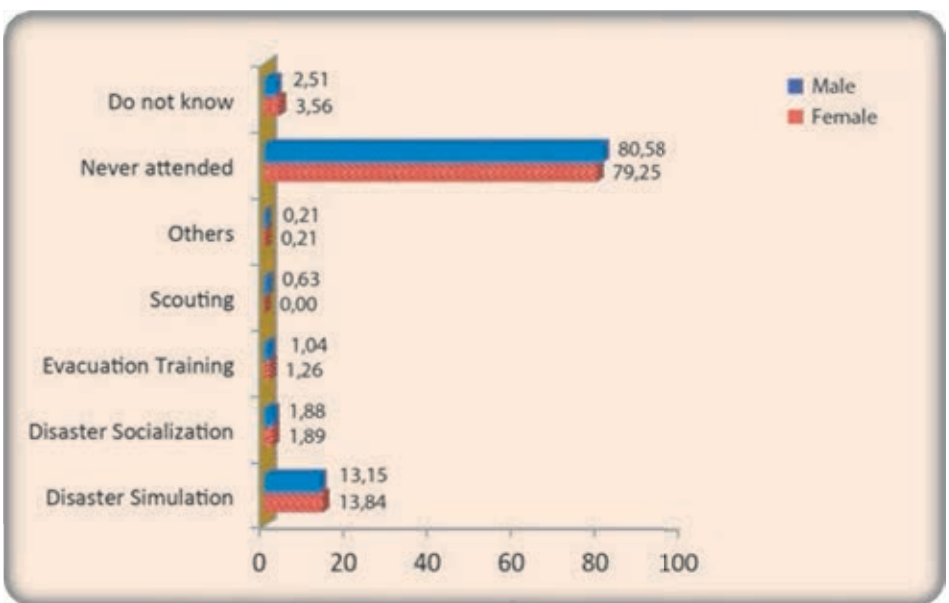
by Relationship to Head of Household and Type of Training/Seminar/Simulation/Meeting Related to Disasters

Relationship to Head of Household	Type of Training/Seminar/Simulation/Meeting Related to Disasters								Do Not Know	Total
	Disaster Simulation	Disaster Socialization	Evacuation Training	Scouting	Water Treatment	Soup Kitchen	Other	Never Attended		
	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1. Head of Household	10,80	2,00	0,40	0,40	-	-	-	83,60	2,80	100,00
2. Spouse	8,39	1,29	0,65	-	-	-	-	86,45	3,23	100,00
3. Child	16,85	1,40	1,69	0,28	-	-	0,56	75,28	3,93	100,00
4. In-law	9,38	-	-	-	-	-	-	87,50	3,13	100,00
5. Grandchild	34,55	7,27	-	-	-	-	-	56,36	1,82	100,00
6. Parents/In-laws	-	-	12,50	-	-	-	-	87,50	-	100,00
7. Relative	9,09	1,30	1,30	1,30	-	-	-	85,71	1,30	100,00
8. Maid	-	-	-	-	-	-	-	100,00	-	100,00
9. Others	-	7,14	-	-	-	-	-	92,86	-	100,00
Total	13,49	1,88	1,15	0,31	0,00	0,00	0,21	79,92	3,03	100,00

Viewed based on gender, there was no significant difference between male and female members of the household concerning their participation in disaster-related training/seminars/simulation/ meetings. It can be said that their participation are very evenly matched. Figure 5.4 shows that male members of the household who joined in the disaster simulation training were 13.15 percent, while the female members were slightly larger, i.e., 13.84 per cent. Likewise, in the socialization

of disaster and evacuation drills the participation of female household members was slightly larger than males. However, from a sample of respondents surveyed, training in scouting was attended by men only. For other types of training/ seminars/simulation/meetings, the percentage of attendance was the same for male and female members of household, which was 0.21 percent.

Results of the survey revealed a fact of common concern that the majority of the household members both male and female have never attended disaster-related training/seminars/ simulation/meetings, even a number of the respondents answered they did not know. The proportion of male household members who replied they never attended the activities was 80.58 percent, and of the females the proportion was 79.25. The proportion of male and female household members who answered they did not know about the activities was 2.51 and 3.56 percent, respectively.



Source : Results of KAP Survey 2013

Figure 5.4 Percentage of Respondent Household Members Aged 5 Years and Over by Sex and Type of Training/Seminar/ Simulation/Meetings Related Disaster Attended

Table 5.6
Percentage of Respondent Household Members Aged Ten Years and Over
by Age Group and Type of Activity during the Past Week

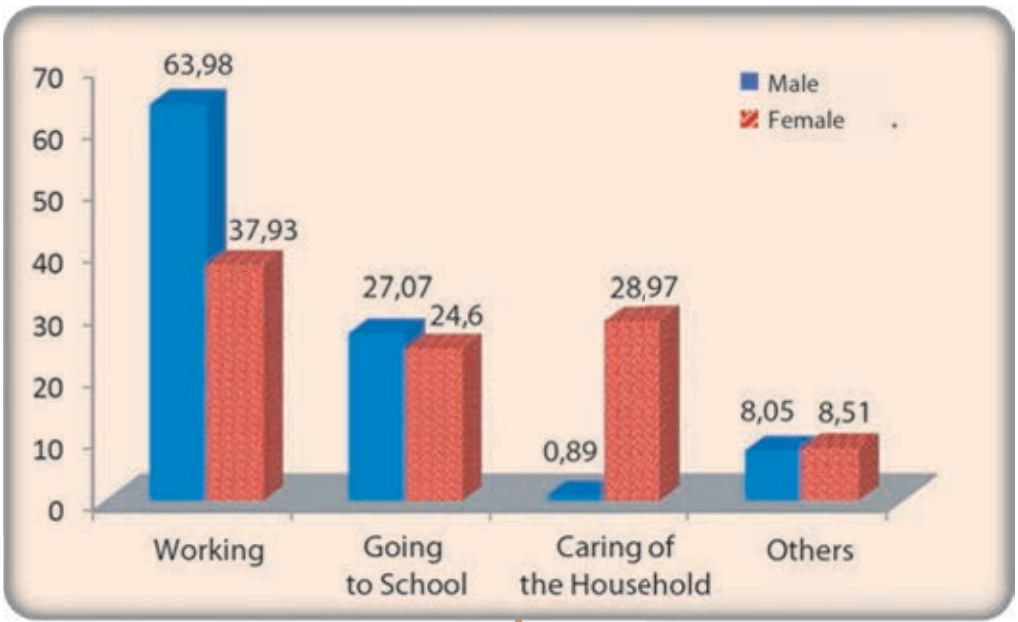
Age Group	Type of Activity during the Past Week				Total
	Working	Going to School	Caring of the Household	Others	
(1)	(2)	(3)	(4)	(5)	(6)
10-12	-	100,00	-	-	100,00
13-17	2,17	90,22	-	7,61	100,00
18-59	65,02	14,47	14,79	5,72	100,00
60+	37,04	0,93	34,26	27,78	100,00
Total	51,13	25,85	14,74	8,28	100,00

Type of Activity

The employment characteristics describe the number of household members aged 10 years and over based on the activities carried out during the previous week. Such activities are working, going to school, taking care of the household and other activities including sports, courses, picnics and social activities (e.g., organizational and community services).

Table 5.6 shows the number of household members who worked was 51.13 percent, went to school 25.85 percent, took care of the household 14.74 percent, and did other activities 8.28 percent. Most of the members of the household respondents in the age group 18-59 years and 60+ years had worked during the past week, while members in the age group of 10-12 years and 13-17 years had spent more time on schooling activities. In addition to occupational activities, those in the age group 60+ years also had the largest proportion of taking care of household and other activities compared with other age groups.

From gender point of view, Figure 5.5 reveals that male members of the household had a greater percentage than that of female both in terms of working and going to school. The proportion of household members who worked was 63.98 percent for male and 37.93 percent for female. In school activities, the percentage of male members was also slightly larger than female, namely 27.07 percent and 24.60 percent, respectively. On the contrary, taking care of household and other activities were done by female members of household more than by male. Proportion of female household members who took care of household was 28.97 percent, while of males the figure is as small as 0.89 percent. Furthermore, for other activities, the role of female members was slightly larger than males, which is 8.51 percent and 8.05 percent, respectively.



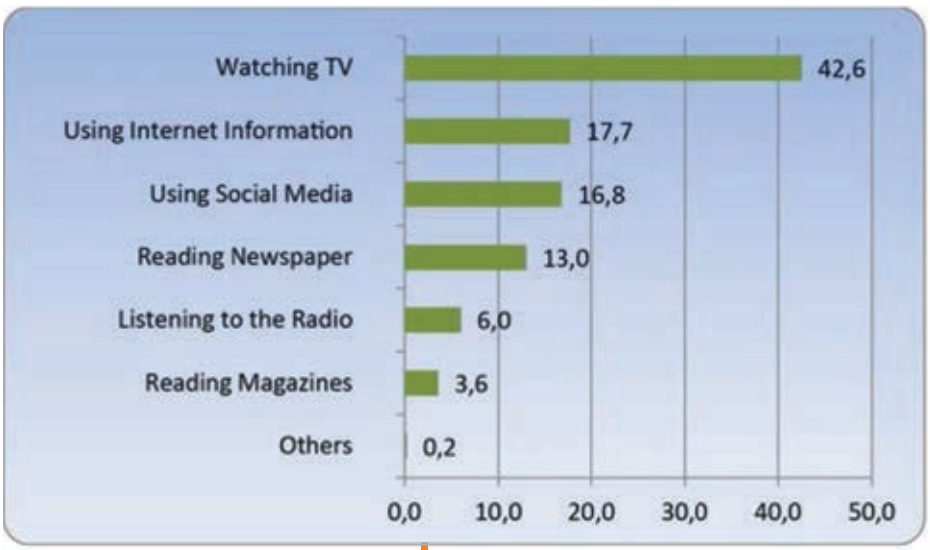
Source : Results of KAP Survey 2013

Figure 5.5 Percentage of Respondent Household Members Aged Ten Years and Over by Sex and Type of Activity During the Past Week

Source of Information

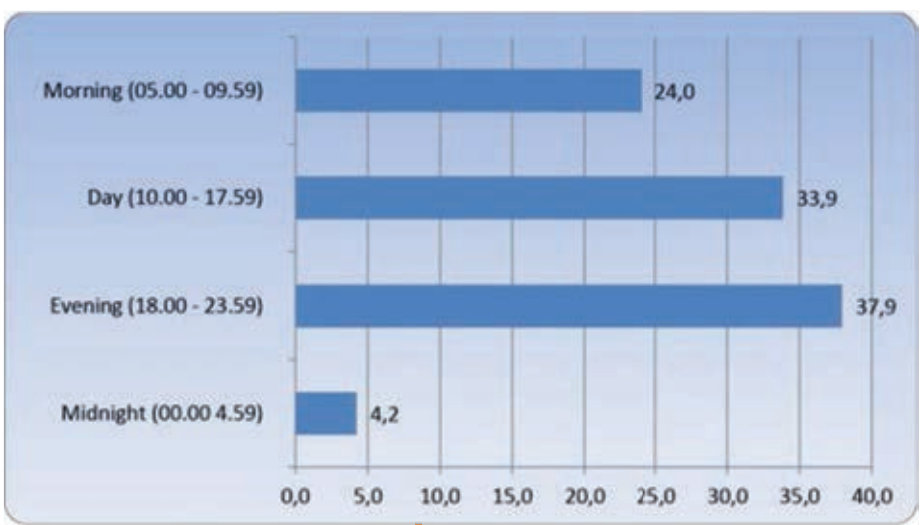
Dissemination of information on the disaster can be done by looking at the habits of the people in obtaining information resources. Through media that are familiar to the community, it is expected that dissemination of disaster information can be carried out efficiently. Figure 5.6 shows the results of KAP pilot survey on information sources accessed by members of the household.

Figure 5.6 shows that, in terms of the activity to access the information sources, and with reference to Figure 5.7, almost half of the respondents used television. The percentage of respondents who watched television was 42.6. In addition to television, the internet was also quite widely used (by 17.7 percent of the respondents), social media (16.8 percent), and newspapers (13.0 percent). Meanwhile, other media such as the radio and magazines were relatively not much used; i.e., 6.0 percent and 3.6 percent, respectively.



Source : Results of KAP Survey 2013

Figure 5.6 Percentage of Respondent Household Members by Type of Activity Accessing Information Sources

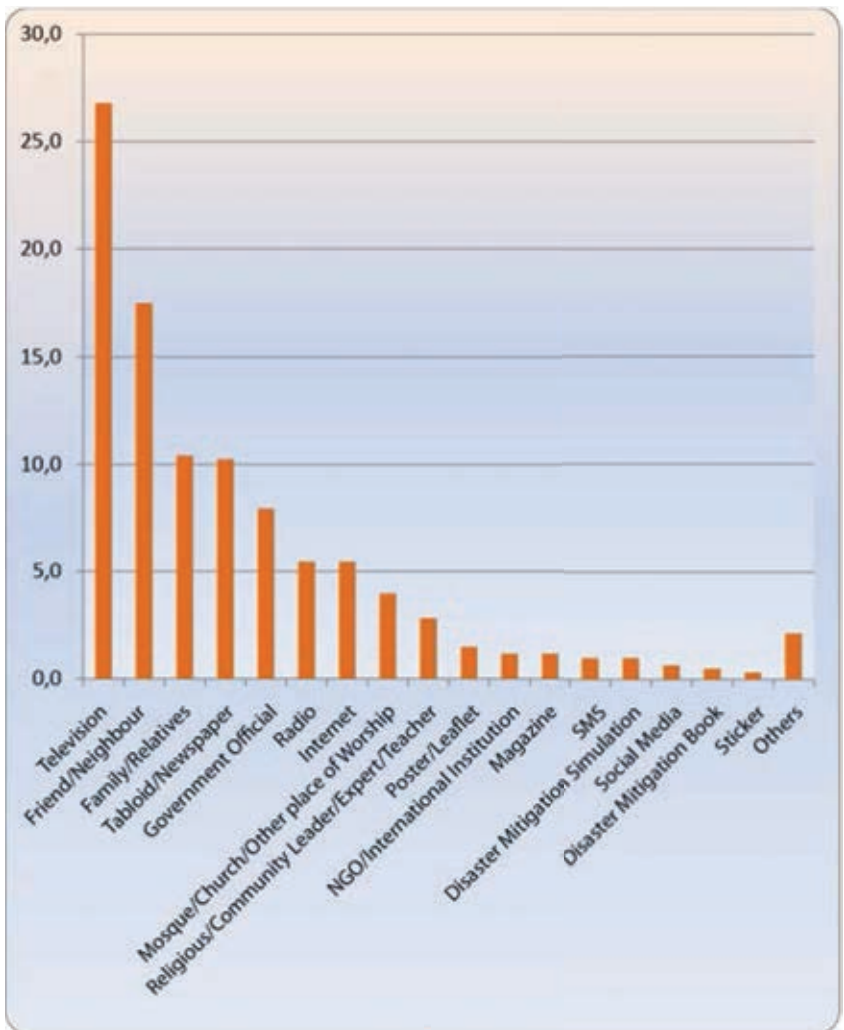


Source : Results of KAP Survey 2013

Figure 5.6 Percentage of Respondent Household Members by Usual Time Doing Activities to Access Information Sources

From the time dimension, Figure 5.7 shows that generally people tried to find information during the day and night (71.8 percent), in the morning (24.0 percent), and at around midnight (4.2 percent).

From Figure 5.6 and Figure 5.7 it is apparent that television was the most potent medium to convey information regarding disaster preparedness. In terms of time, disaster information could be effectively delivered from 10:00 a.m. until midnight. It is advisable, therefore, to release the information on disaster via TV as the most effective media, and to schedule the programme during the most appropriate time, i.e. between 10:00 in the morning and midnight.



Source : Results of KAP Survey 2013

Figure 5.8 Percentage of Information Resources Used by Households in Receiving Information on How to Save Oneself in a Disaster

Figure 5.8 shows that television was also the most widely used by members of households in getting information on rescue during natural disasters. In addition, friends, neighbours, family and relatives were also sources of information on how to escape from the disaster. Based on this survey result, it can be concluded that the dissemination of information on rescue from disaster can be done amicably, by disseminating the knowledge about rescue from disaster to people in close proximity such as family, relatives, neighbours, and friends.

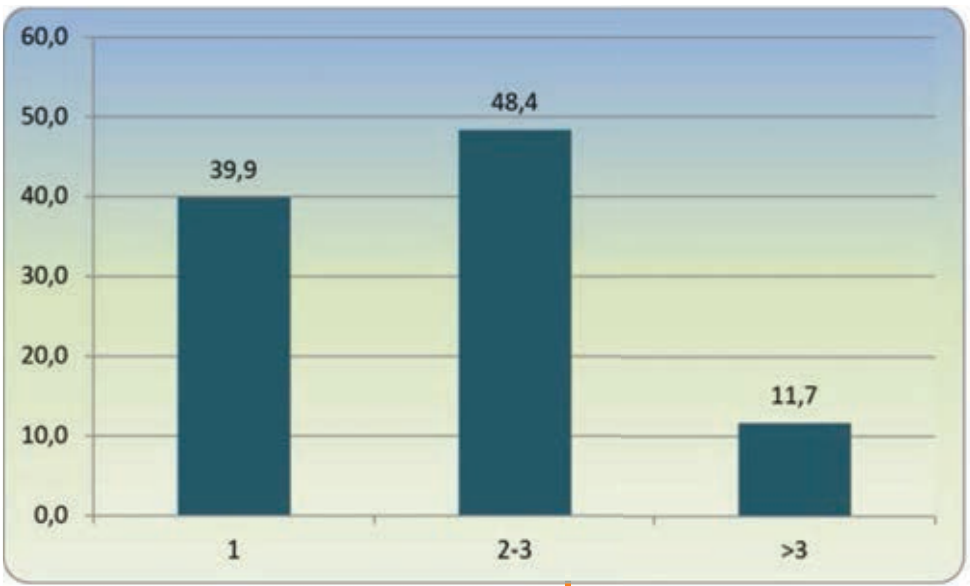
Knowledge and Attitudes to Natural Disasters

One of the indicators of community resilience against disasters is their understanding of disaster information. The better people understand about a disaster, the less risk arising from the event of disaster in the future. In addition, the understanding of disaster can be derived from the experience of the people themselves. Disasters that have occurred in the past should be valuable lessons learned for the community to be aware of the signs and to determine the steps to take as anticipation. This knowledge is passed down from generation to generation and has become a local wisdom.

Table 5.7

Percentage of Households that have Experienced Disasters by Type of Events

Type of Event	Experience of Disasters	
	Have Experienced (%)	Have Never Experienced (%)
(1)	(2)	(3)
Earthquake	99,2	0,8
Volcanic Eruption	28,4	71,6
Tidal Wave	14,0	86,0
Tornado	10,4	89,6
Earthquake and Tsunami	8,0	92,0
Landslide	6,0	94,0
Flood	3,2	96,8
Land and Forest Fires	2,0	98,0
Drought	1,2	98,8



Source : Results of KAP Survey 2013

Figure 5.9 Percentage of Households by the Frequency of Earthquakes Experienced

Table 5.7 shows the type of natural disaster that had been experienced by most of the respondents was the earthquake. Almost all respondents (99.2 percent) stated that they had experienced an earthquake.

In addition to the earthquake, most of the respondents were also had the experience of volcanic eruptions, tidal waves, and tornados. Among those who had experienced the earthquake, 39.9 percent had experienced on one occasion, 48.4 percent had experienced about two or three times, while the rest reported experiencing more than three times of earthquake disaster.

As comparative data, based on studies and historical disaster data, the sample area is one of the areas in Indonesia that is frequently hit by the earthquake. The survey results justify the fact that people in the sample area have more frequent devastating earthquakes.

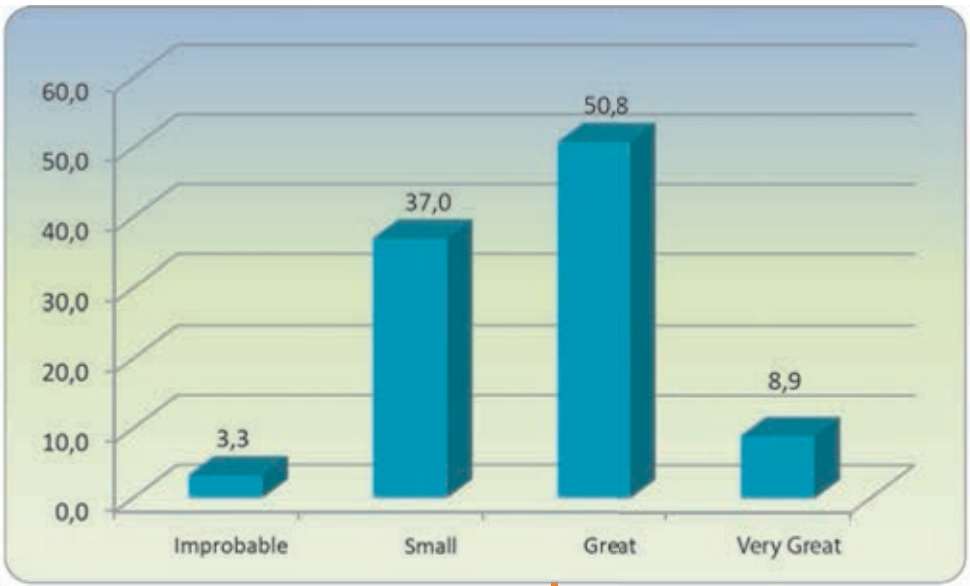
Table 5.8

Percentage of Households by Knowledge of Disaster Symptoms and Type of Disaster

Type of Event	Knowledge of Disaster Symptoms	
	Know (%)	Don't Know (%)
(1)	(2)	(3)
Earthquake	25,2	74,8
Earthquake and Tsunami	53,2	46,8
Volcanic Eruption	26,4	73,6
Flood	54,4	45,6
Landslide	30,0	70,0
Drought	37,6	62,4
Tidal Wave	22,0	78,0
Tornado	10,8	89,2
Land and Forest Fires	11,2	88,8

Although nearly all respondents said that they had experienced an earthquake, however, as shown in Table 5.8 only about a quarter of them knew the signs of imminent earthquakes. It is quite reasonable as an earthquake is a natural catastrophe that occurs unexpectedly despite the fact that the stricken area has great potential for experiencing an earthquake.

Unlike the case with earthquake, about half of the respondents already knew the signs of impending the earthquake and tsunami. It should be noted though that there was still almost the other half who did not know the signs of the disaster in spite of the fact that their dwelling area (Padang) is an area highly prone to earthquake and tsunami disasters. In addition, many respondents did not know the signs of disaster that should have been predictable from the outset with such occurrence as volcanic eruptions, floods, landslides, droughts, tidal waves, and land and forest fires. It has therefore become a huge task to enhance the community preparedness in the future.



Source : Results of KAP Survey 2013

Figure 5.10 Percentage of Households by Opinion on the Probability of Earthquake will hit their area

Figure 5.10 shows that 50.8 percent of respondents responded that their residential area was likely to experience a catastrophic earthquake and tsunami. This was in accordance with the characteristics of the sample area that was located in the city of Padang, a city with the high category of earthquake and tsunami disaster-prone region. From these results, it was reflected that the public's knowledge of the disaster was already quite large. This level of knowledge should be equipped with proficiency on appropriate disaster management ready to be applied in the occurrence of earthquake and tsunami.

Knowledge and Assessment of Disaster Mitigation

Disaster management consists of four stages, i.e., emergency response, recovery, prevention and mitigation, and preparedness. Mitigation is one of the steps to reduce the disaster risks. This step should be taken if the imminent danger is already identified while the relocation of people cannot be done. In disaster mitigation the people are familiarized with disaster early warning or alarm such as the sound of siren to alert them to the possible influx of tsunami. Disaster warnings can be transmitted through several media in the community as well as by government officials, religious leaders, military or the police.

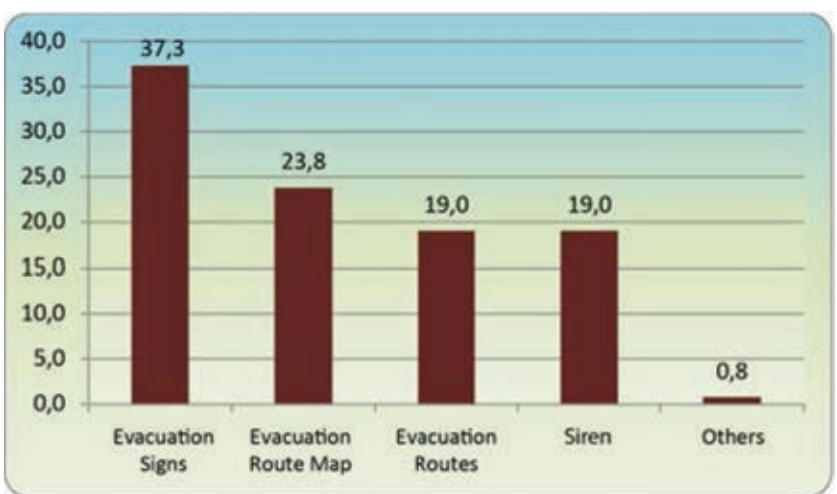
To support the community preparedness and as part of the efforts to rescue people from disaster, government and related parties have also put up several alerting facilities and equipment such as evacuation signs, evacuation route maps, evacuation routes, sirens and other equipment. This facility is commonly used and put into practice to familiarize the people with evacuation

activities, and furthermore to ensure that the equipment and facilities will function properly at any time a disaster occurs.

Table 5.9
Percentage of Households' Knowledge of Disaster Warning Sources

Disaster Warning Source	Know (%)	Don't Know (%)
(1)	(2)	(3)
Television	66,4	33,6
Central/Local Government	61,2	38,8
Radio	49,6	50,4
Newspaper, Magazine, etc.	44,4	55,6
Places of Worship	39,6	60,4
Internet	33,2	66,8
Religious/Community Key Person	31,2	68,8
Armed Forces/Police/Security Personnel	22,8	77,2

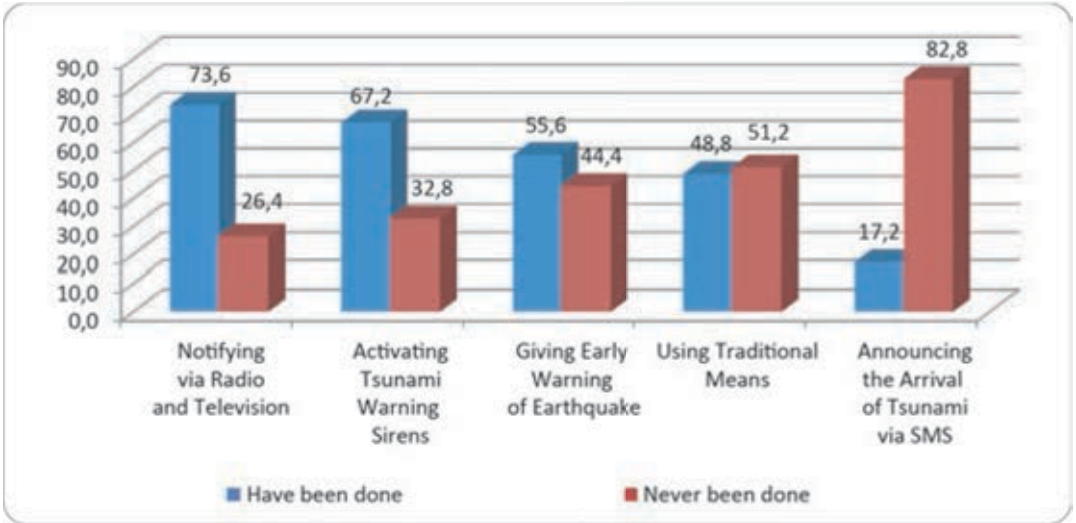
Table 5.9 shows that more than half (66 percent) of respondents already knew the source of disaster warnings from television as well as both the central and local governments. Local government should participate in disseminating information pertaining to the indications of a disaster, such as earthquake or tsunami. This will generate a positive impact on the community residing in disaster-prone areas, so they are always alert to disasters.



Source : Results of KAP Survey 2013

Figure 5.11 Percentage of Households by Availability of Equipment/Facilities in the Respondents Neighbourhood

A total of 45.2 percent of respondents stated that equipment and facilities for disaster mitigation and preparedness had already been available in their area. The largest number of these facilities was in the form of evacuation signs (37.3 percent), followed by the evacuation route maps (23.8 percent), evacuation route (19.0 percent), sirens (19.0 percent), and other equipment (0.8 percent).



Source : Results of KAP Survey 2013

Figure 5.12 Percentage of Households by Public Knowledge about Governments Efforts to Provide Information on the Possibility of Disasters

Figure 5.12 reveals that in the opinion of more than half (73.6 percent) of respondents the efforts that had been made by the government to inform the public about the possibility of the occurrence of natural disasters were in the form of notification via radio and television, activating tsunami warning sirens, and early warning of earthquakes. These data indicate that people had already been familiarized with the notification made by the government in terms of the possibility of disaster.

Government's endeavours to create a society that is resilient in the face of disaster can be done by making people aware of the risks that exist around them, capable to prevent disasters, willing to cope with the disaster that hit, and recuperate to normal life if affected by disaster. This attitude formation can be done by training and simulation directly to people living in disaster-prone areas. Mentawai megathrust earthquake that was feared would occur in West Sumatra region with magnitude of 8.9 SR necessitated training or simulation for the community. Training and simulation that had been attended by most of the respondents were pertaining to the earthquake disaster and the earthquake plus tsunami. This was also reflected in the number of people who already knew how to save themselves from the earthquake disaster and the earthquake plus tsunami.

Table 5.10

Percentage of Households by Type of Training and/or Simulation Attended

Type of Training and/or Simulation Attended	Yes (%)	No (%)
(1)	(2)	(3)
Earthquake	96,1	3,9
Earthquake and Tsunami	80,5	19,5
Flood	14,3	85,7
Volcanic Eruption	2,6	97,4
Drought	2,6	97,4
Tidal Wave	2,6	97,4
Landslide	1,3	98,7
Tornado	1,3	98,7
Land and Forest Fires	1,3	98,7

Table 5.10 shows that trainings on earthquake and on earthquake plus tsunami were the activities attended by the largest number of respondents (91.6 percent). Accordingly, Table 5.11 shows that almost all respondents knew how to save themselves from those two disasters.

Table 5.11

Percentage of Households by Knowledge on How to Rescue from Disaster

Type of Disaster	Know (%)	Don't Know (%)
(1)	(2)	(3)
Earthquake	91,6	8,4
Earthquake and Tsunami	81,6	18,4
Volcanic Eruption	42,4	57,6
Flood	70,8	29,2
Landslide	34,0	66,0
Drought	30,4	69,6
Tidal Wave	39,2	60,8
Tornado	28,0	72,0
Land and Forest Fires	27,6	72,4

Table 5.12

Percentage of Households by Assets that can be Utilized if Disaster Strikes

Type of Asset	Can be Utilized if Disaster Strikes (%)	
	Yes	No
(1)	(2)	(3)
Savings	48,4	51,6
Lands/Houses Safe from Disaster	26,4	73,6
Life Insurance/Properties/Objects	17,6	82,4
Others	13,2	86,8

The impact of a community disaster, among others, was loss of property and the most severe was the occurrence of casualties. Damages were often caused by the disaster and eventually people would normally require assets that were owned and could still be used. With this asset it was expected that people could live a normal life again after the disaster. Some assets that were likely owned by the people included savings, lands or other houses safe from disaster, and life insurance, property, objects or other possessions.

In connection with the resilience of the community to disasters and their ability to return to normal life after the disaster, the results of this survey indicated that community resilience to disasters was still quite low. It was discernible from the fact that hardly any respondents who owned reserve assets that could be utilized in the event of a disaster.

Household Preparedness Index

Preparedness is all efforts and activities carried out prior to the occurrence of natural disaster to reduce the risks and impacts that will befall, and rapidly and effectively respond to the hazard events or conditions. The household disaster preparedness index will measure the level of disaster preparedness of the respondent households. The index is derived from the five different parameters, i.e., Disaster Knowledge (PB), Disaster Preparedness Policy (KKB), Emergency Response Plan (RTD), Disaster Early Warning (PDB), and Resources Mobilization (MS).

PB parameters (listed in Table 5.13) in the KAP pilot survey were set forth in 19 questions in the questionnaire (Appendix 19).

Table 5.13 illustrates the disaster knowledge parameters in which two villages were in the medium category: the villages of Belakang Tangsi and Lolong Belanti; four villages were categorized as high: Air Tawar Barat, Ulak Karang Utara, Air Tawar Timur, and Surau Gadang; while four other villages were categorized as low, namely Olo, Purus, Kurao Pagang, and Gurun Laweh.

Table 5.13

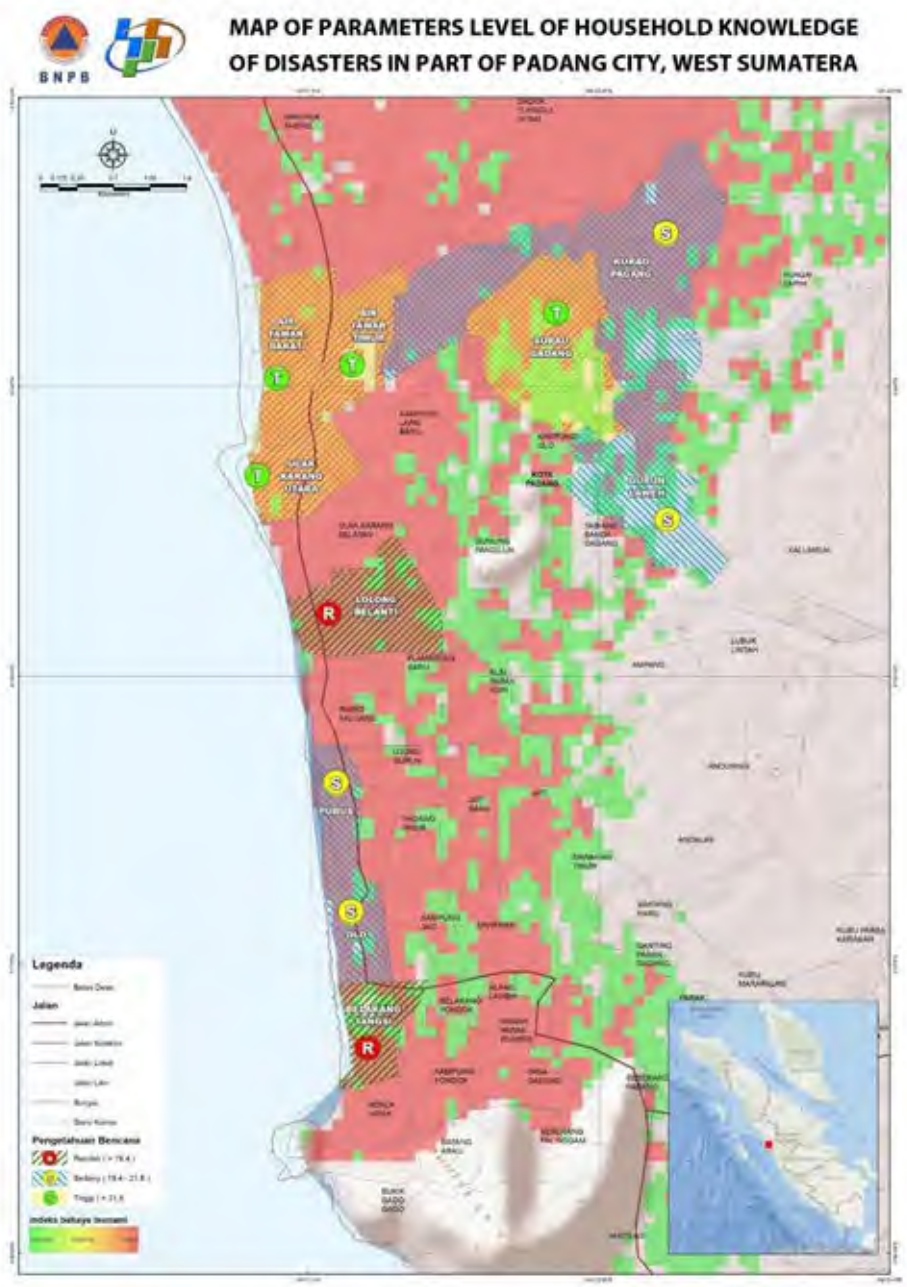
Component Parameters of Disaster Knowledge in the Questionnaire

Disaster Knowledge Component	Question Number in the Questionnaire
(1)	(2)
Disaster knowledge in general	501, 502, 503
Knowledge of saving oneself from disaster	403, 405, 519
Experience in joining training/seminar/simulation/ meeting on disaster preparedness	524, 525, 527E
Experience of natural disaster	504, 505,509,510
Knowledge of residence which is a disaster-prone area	506
Family knowledge about natural disasters	507A, 507B
Local wisdom	508
Knowledge on disaster mitigation	601

Table 5.14

Parameters Value of Disaster Knowledge per Village

Village	Knowledge on Disaster (PB)
(1)	(2)
Belakang Tangsi	19,2
Olo	21,2
Purus	21,8
Ulak Karang Utara	22,8
Air Tawar Timur	23,4
Air Tawar Barat	22,7
Lolong Belanti	19,4
Gurun Laweh	20,6
Surau Gadang	8,7
Kurao Pagang	8,4



Source : BNPB

Figure 5.13 Parameters Distribution of Disaster Knowledge per Village

Table 5:15 presents the components to measure the parameters of KKB in the calculation of the household preparedness index.

Figure 5.14 shows that out of the ten villages surveyed on Disaster Preparedness Policy, three were categorized as low, i.e., the village of Ulak Karang Utara, Olo, and Belakang Tangsi. The villages of Purus, Air Tawar Barat, and Kurao Pagang were in the category of medium.The other 4 villages namely village of Lolong Belanti, Air Tawar Timur, Surau Gadang, and Gurun Laweh were in high category.

Table 5.15

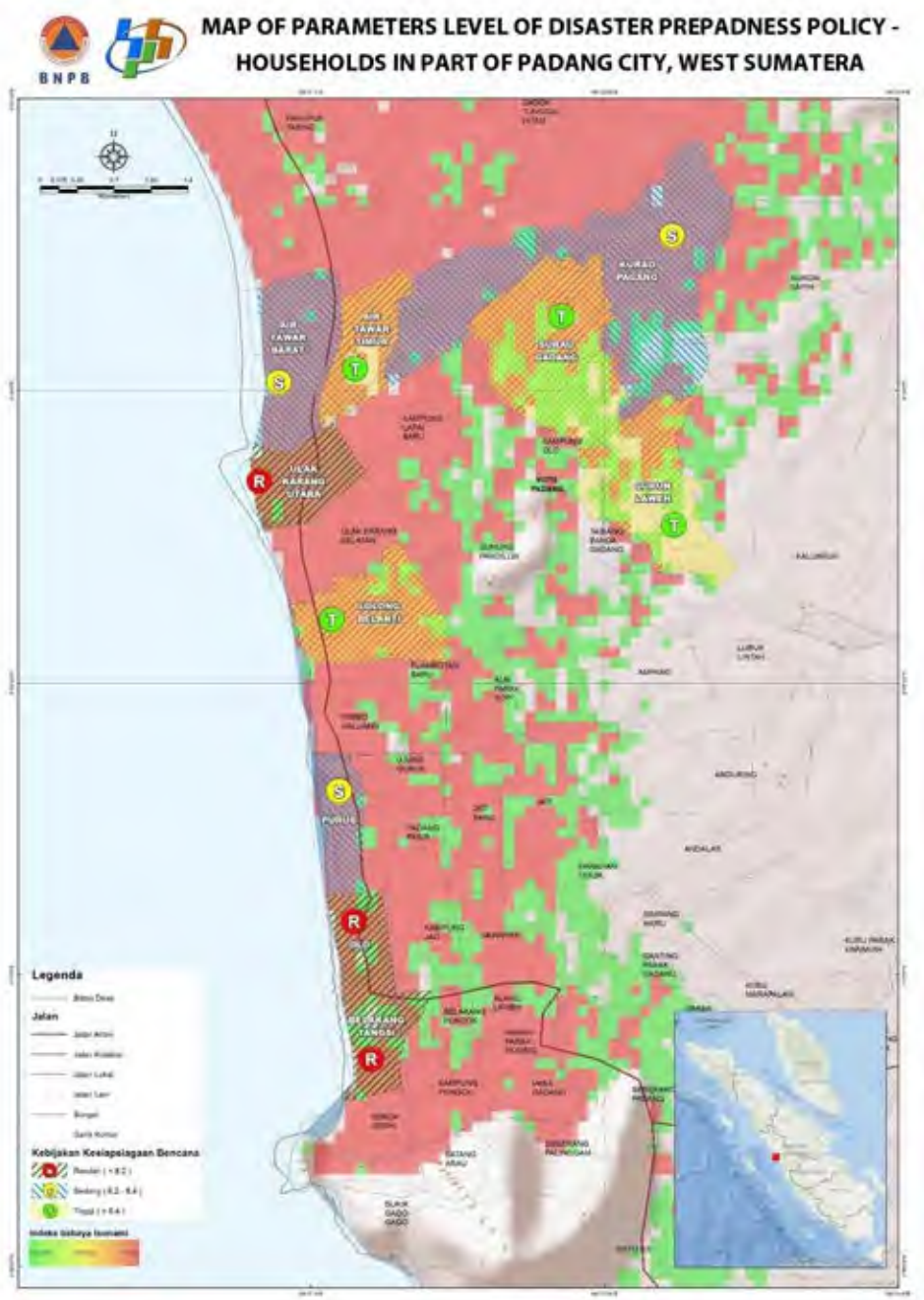
Component Parameters of Disaster Preparedness Policy in the Questionnaire

Disaster Preparedness Policy Component (KKB)	Question Number in the Questionnaire
(1)	(2)
Efforts made by local government in improving disaster preparedness	523, 511
Parties responsible for disaster preparedness	530, 604
Efforts made by local governments in disaster risk reduction	602
The role of media in disaster preparedness	603
Management approach to disaster	605, 606, 607

Table 5.16

Parameters Value of Disaster Preparedness Policy per Village

Village	Disaster Preparedness Policy (KKB)
(1)	(2)
Belakang Tangsi	8,0
Olo	8,2
Purus	8,4
Ulak Karang Utara	8,2
Air Tawar Timur	8,9
Air Tawar Barat	8,3
Lolong Belanti	9,0
Gurun Laweh	9,0
Surau Gadang	2,8
Kurao Pagang	1,7



Source : BNPB

Figure 5.14 Parameters Distribution of Disaster Prepadness Policy per Village

Components to measure the parameters of the Emergency Response Plan are presented in Table 5:17. Table 5.18 and Figure 5.15 show that the three villages have parameter values of Emergency Response Plan which were low. For the villages of Air Tawar Timur and Purus the values of this parameter were categorized as high, while for the villages of Olo, Lolong Belanti, Ulak Karang Utara and Guruh Laweh the category were moderate.

Table 5.17

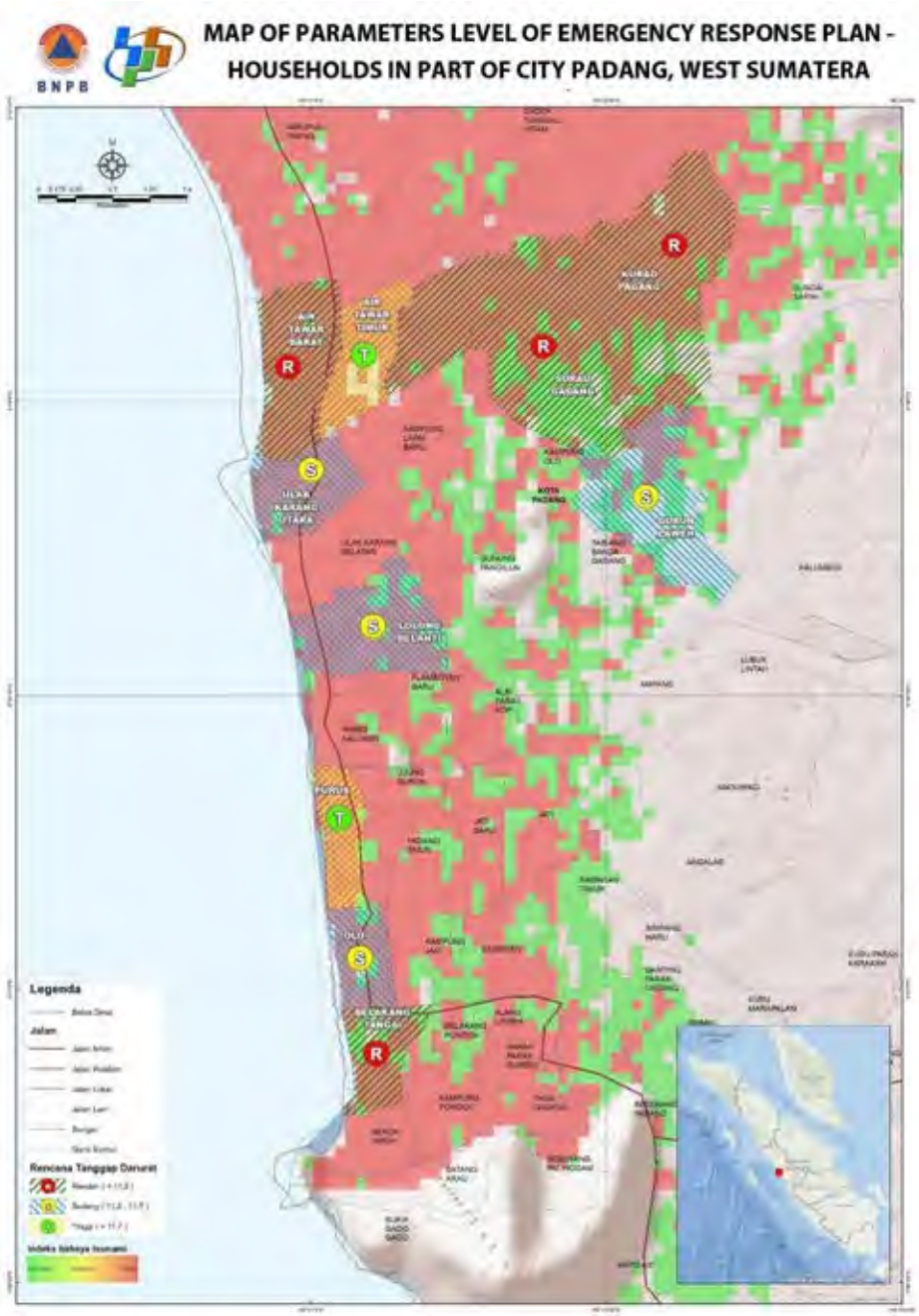
Component Parameters of Emergency Response Plan in the Questionnaire

Components of Emergency Response Plan (RTD)	Question Number in the Questionnaire
(1)	(2)
Preparation of securing valuables Availability of evacuation route Preparation of disaster survival plan	520, 529
Availability of evacuation route	521, 515
Preparation of disaster survival plan	513

Table 5.18

Parameters Value of Emergency Response Plan per Village

Village	Emergency Response Plan (RTD)
(1)	(2)
Belakang Tangsi	11,1
Olo	11,7
Purus	12,2
Ulak Karang Utara	11,6
Air Tawar Timur	12,3
Air Tawar Barat	11,1
Lolong Belanti	11,7
Gurun Laweh	11,5
Surau Gadang	11,3
Kurao Pagang	11,0



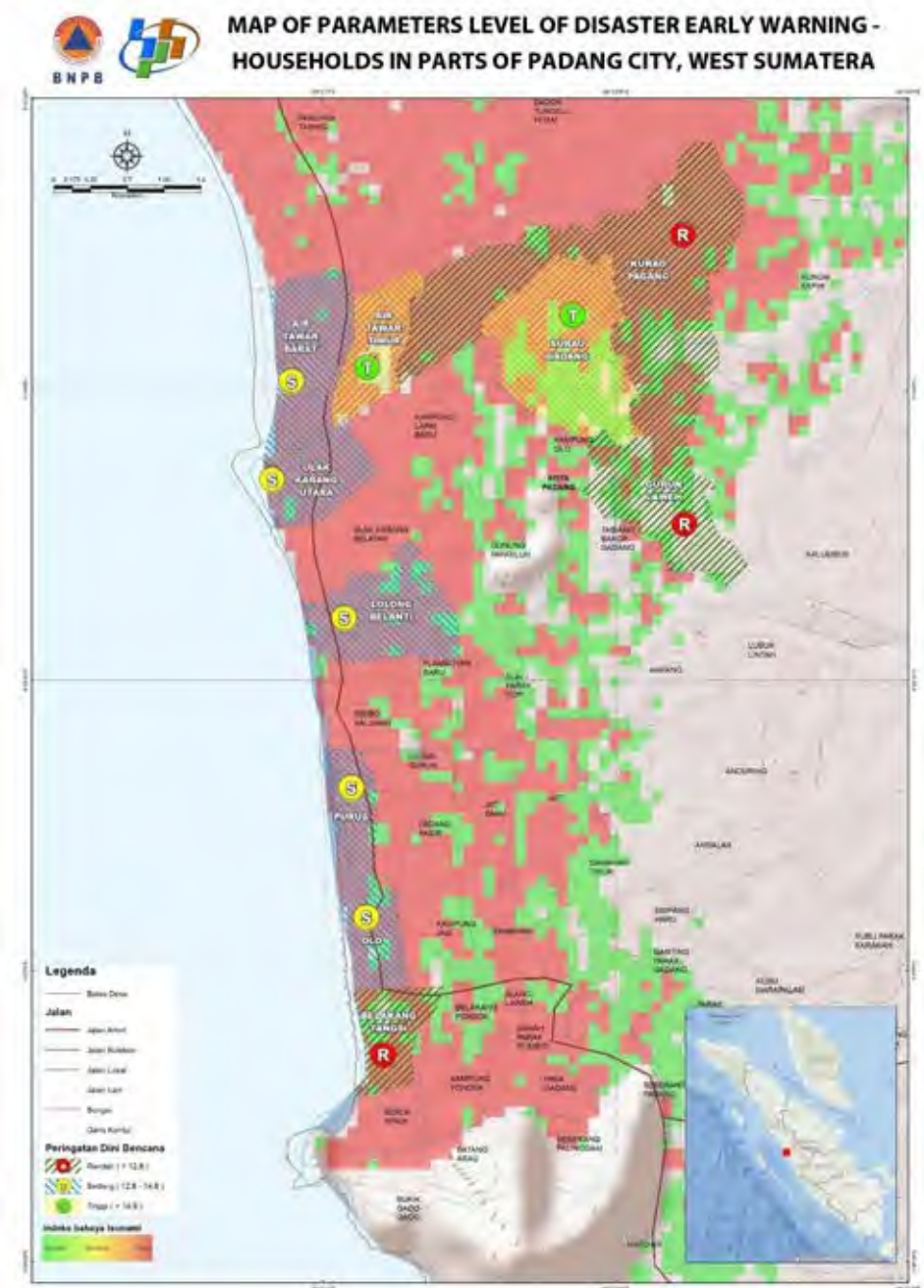
Source : BNPB

Figure 5.15 Parameters Distribution of Emergency Response Plan per Village

Table 5.19
Component Parameters of Disaster Early Warning in the Questionnaire

Disaster Early Warning Component (PDB)	Number of Question in the Questionnaire
Source of information and media	401, 406
Knowledge of terms in disaster management	402
Government efforts in disaster early warning	512, 518
Availability of early warning facilities	514, 516, 517

Shelter at the Governor's Office, Padang
Source : BNPB



Source : BNPB

Figure 5.16 Parameters Distribution of Disaster Early Warning per Village

Figure 5.16 and Table 5.20 show that the village of Belakang Tangsi, Gurun Laweh, and Kurao Gadang had a low category of Disaster Early Warning (PDB) parameter values. The PDB parameter values of the villages of Air Tawar Barat, Ulak Karang Utara, Lolong Belanti, Purus, and Olo were categorized as moderate, while the rest two villages were categorized as high.

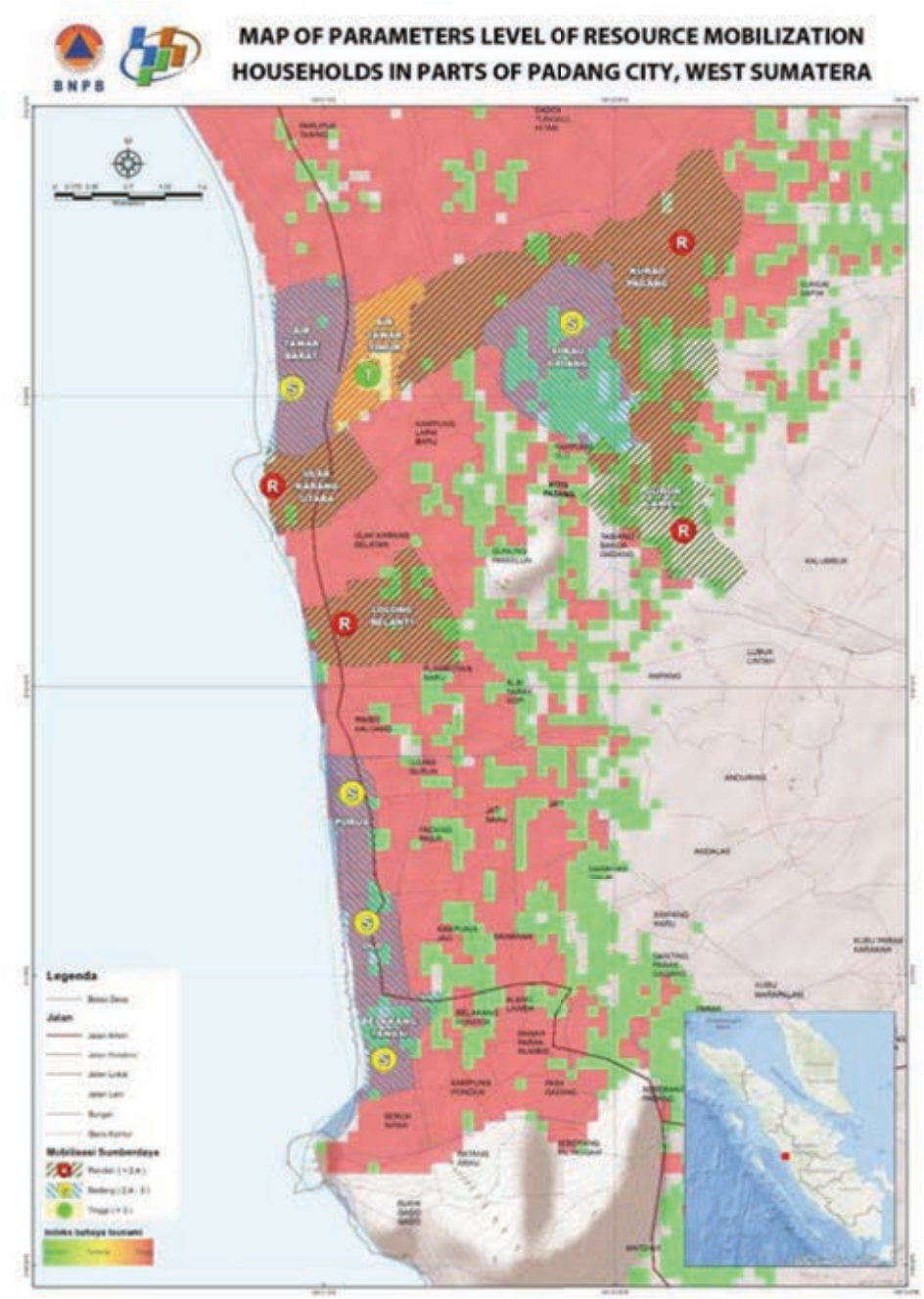
Table 5.20
Parameters Value of Disaster Early Warning per Village

Village	Disaster Early Warning (PDB)
(1)	(2)
Belakang Tangsi	12,8
Olo	14,8
Purus	14,5
Ulak Karang Utara	14,6
Air Tawar Timur	18,2
Air Tawar Barat	14,1
Lolong Belanti	14,0
Gurun Laweh	11,8
Surau Gadang	16,1
Kurao Pagang	11,3

Table 5.21 presents the components to calculate the Resource Mobilization (MS) parameters in measuring the index of household disaster preparedness.

Table 5.21
Component Parameters of Resource Mobilization in the Questionnaire

Resource Mobilization (MS) Component	Question Number in the Questionnaire
(1)	(2)
Assets owned in case of disaster	522
Experience of participating in training/seminar/simulation/ meeting on disaster	526
Constraints to participate in training/ seminar/simulation/meeting on disaster	528



Source : BNPB

Figure 5.17 Parameters Distribution of Resource Monilization per Village

Based on Resource Mobilization (MS) parameters, the village of Air Tawar Timur was categorized as having a high value. Four other villages were categorized as moderate, namely Belakang Tangsi, Olo, Purus, Air Tawar Barat, and Surau Gadang. Five villages in the high category are the Lolong Belanti, Ulak Karang Utara, Kurao Pagang, and Gurun Laweh.

Table 5.22
Parameters Value of Resource Mobilization per Village

Village	Resource Mobilization (MS)
(1)	(2)
Belakang Tangsi	2,9
Olo	2,6
Purus	2,9
Ulak Karang Utara	2,3
Air Tawar Timur	3,6
Air Tawar Barat	3,0
Lolong Belanti	2,3
Gurun Laweh	2,4
Surau Gadang	11,3
Kurao Pagang	11,0

Based on the five parameters that have been mentioned earlier, the household disaster preparedness index (IKB) is measured using the following weighting formula:

IKB = 35 (PB) +10 (CLA) +15 (RTD) +25 (GDP) +15 (MS).

The disaster preparedness indices obtained were then grouped as shown in Table 3.4. Results of measurement and the grouping of preparedness index classification are presented in the following Table 5:23.

Table 5.23

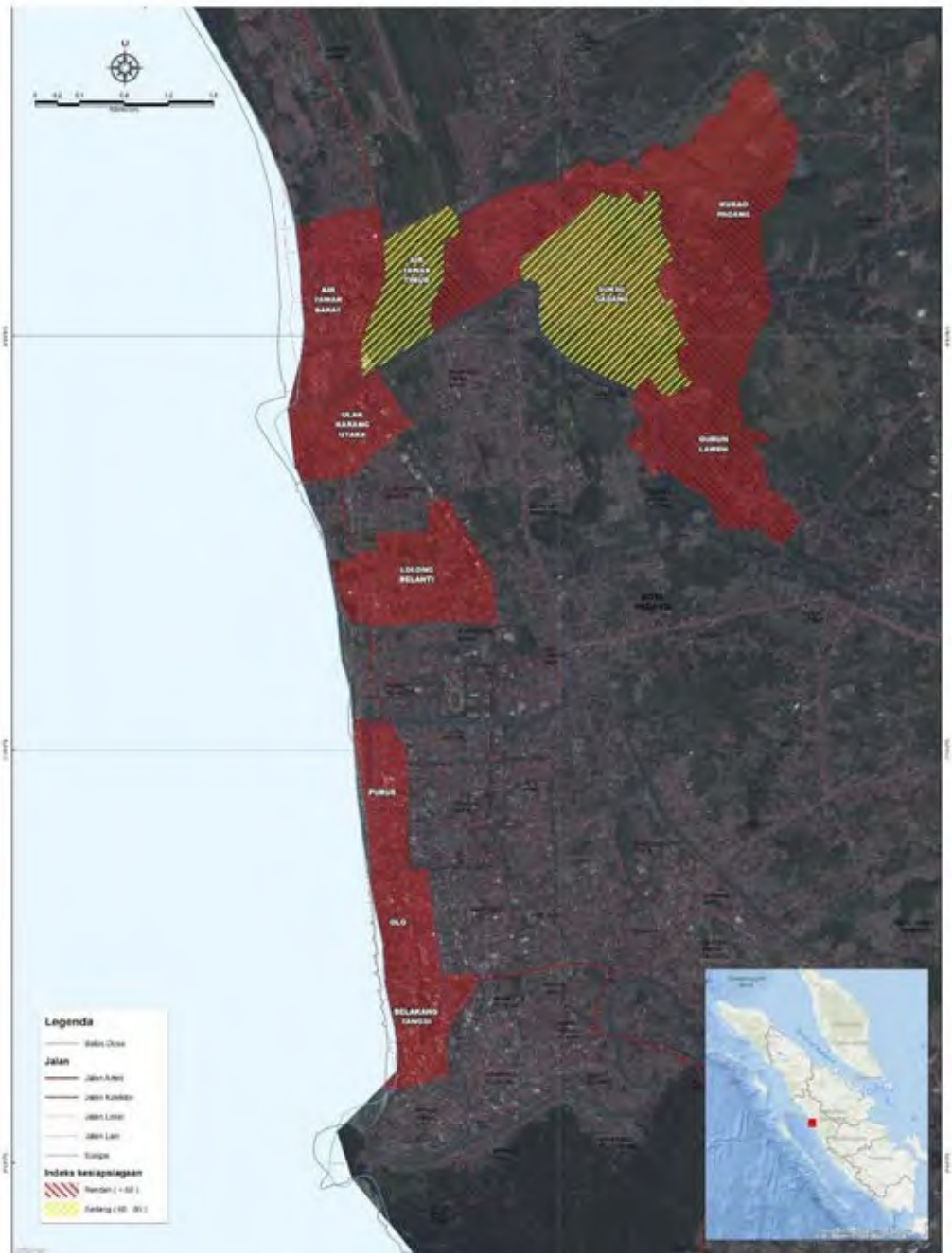
Parameter Scores of Preparedness and Preparedness Index Per Village

Village	Preparedness Index	Conclusion
(1)	(2)	(3)
Belakang Tangsi	53,4	Low
Olo	57,8	Low
Purus	59,1	Low
Ulak Karang Utara	58,5	Low
Air Tawar Timur	65,7	Moderate
Air Tawar Barat	58,6	Low
Lolong Belanti	55,8	Low
Gurun Laweh	54,8	Low
Surau Gadang	60,7	Moderate
Kurao Pagang	52,4	Low

Results from the KAP pilot survey conducted showed that among the five parameters of disaster preparedness the parameters on Disaster Knowledge (PB), Disaster Early Warning (PDB), and Emergency Response Plan (RTD) were regarded as good, while the other two parameters, namely the Disaster Preparedness Policy (KKB) and Resource Mobilization (MS) were still somewhat inadequate.

Houses destroyed by the earthquake in Agam

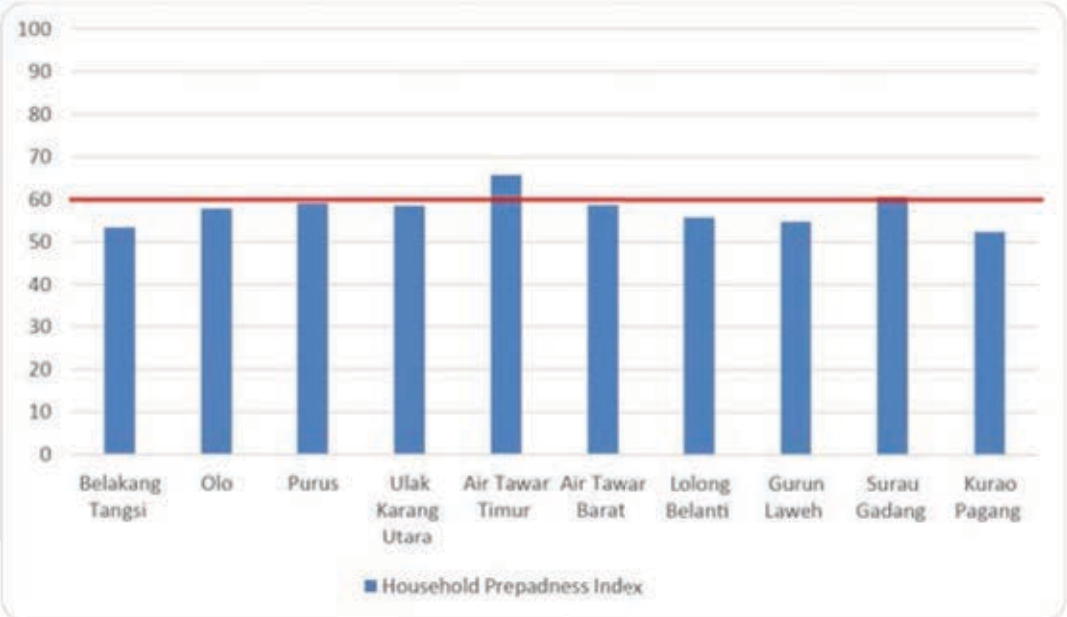
Source : BNPB



Source : BNPB

Figure 5.18 Distribution of Indices of Households Prepadness per Village

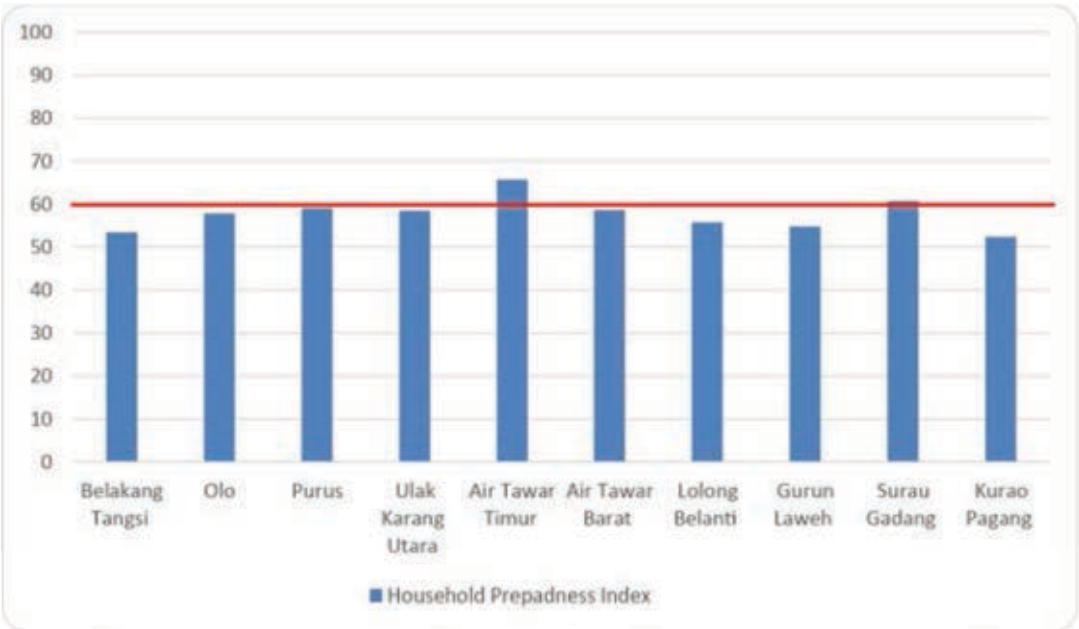
Overall, from Figure 5.18 it is evident that out of ten villages of the survey area, only two villages had a household preparedness to disaster categorized as "moderate", while the rest were categorized as "low". The two villages with moderate preparedness category were Air Tawar Timur and Surau Gadang.



Source : Results of KAP Survey 2013

FIgure 5.19 Chart of Household Prepadness Indices per Village

Figure 5.19 shows that the index values of household preparedness to disaster of all villages in the survey areas were categorized as moderate. Even the two villages with the moderate values of household disaster preparedness indices had only a slight difference from the category boundary. In view of the above results, therefore, it is a common task for all pertinent parties to improve the values of the household preparedness.



Source : Results of KAP Survey 2013

FIgure 5.20 Chart of Household Prepadness Index Parameters per Village

Figure 5.20 shows that in eight villages of Belakang Tangsi, Olo, Purus, Ulak Karang Utara, Air Tawar Timur, Air Tawar Barat, Lolong Belanti, and Gurun Laweh the values of PB parameter were much higher than the other four parameters. In the village of Surau Pagang, the highest parameter value was of PDB, while in Kurao Gadang, the parameter values of RTD, PDB, and MDS were almost equal, and the lowest was that of the KKB parameter.

Houses destroyed by the earthquake in Agam

Source : BNPB

Heavy equipment to evacuate earthquake victims in Padang.

Source : BNPB

CHAPTER 6

CONCLUSION AND RECOMMENDATION

Conclusion

This survey covers 250 households with purposive samples taken in certain areas in the city of Padang, therefore the results can only represent the sample and cannot describe the condition of the general population of Padang city.

Disaster information dissemination can be done by looking at the habits of the public in gaining access to the information resources. Media that is widely used is the television, i.e., 42.6 percent. Almost every household has a television as a medium of information and entertainment. In terms of time, disaster information can be delivered effectively at 10:00 am until 11:59 pm.

The results of pilot KAP survey conducted on 250 households selected from 10 villages selected shows that almost all (99.2 percent) of the households has experienced the earthquake disaster. Experience in frequent earthquakes becomes slessons learnt for the people to be more vigilant. Knowledge and awareness of the community should be improved through participation in training or simulations of earthquakes. The respondents already have a considerable knowledge of the earthquake disaster which is demonstrated in their level of awareness that the area of residence is an earthquake-prone region..

However, the high knowledge of the respondents in the earthquake disaster is not accompanied by the availability of equipment or facility preparedness. In addition, the availability of assets owned by the respondents that can be used in case of disaster is still inadequate. Almost half of the respondents who are aware of the occurrence of natural disasters through notification via radio and television activate tsunami warning sirens and early warning of earthquakes. These data indicate that people have started to recognize the notification made by the government in terms of the possibility of disaster occurrence. Most of the respondents have attended training and stimulation of a catastrophic earthquake and tsunami disasters that they already know how to save themselves during a disaster.

Overall, out of ten villages in the survey area only two villages, namely the villages of Air Tawar Timur and Gurun Laweh, that are categorized as having a moderate preparedness against disasters, while the rest have a category of low preparedness..

Suggestions

The following are some ideas from the technical side which are intended to improve the next surveys.

1. The design of survey particularly the questionnaire and the definition concepts should be improved to make them more operational and easily understood by respondents, thus reducing a bias to respondents' answers.
2. Duration for training of field staff should be increased to allow sufficient time for the staff to familiarize and absorb the relevant concepts and definitions in order to improve the quality of data obtained.
3. Successful implementation of the Pilot KAP Survey is inseparable from a relatively small area and the built-in supervision process conducted particularly during field enumeration activities, so that it can oversee the quality of data resulted. For surveys in a

larger area involving greater number of staff, more integrated and systematic surveillance system should be applied.

4. Guides play a vital role in the success of a survey, therefore the next surveys should appoint guides from among the local residents.
5. Methods of direct data collection with the android app should be refined especially in terms of the validation rule, procedure of use, anticipation of the battery exhaust, GPS, as well as the appearance or features, background colour and font colour should be more flexible in the field.
6. Data communications to the server and internet connection should be put in order to avoid problems during field enumeration.
7. More intense coordination should be established between the local BPS and BPBD to support the smooth implementation in the field.
8. Given the importance of this survey in managing natural disasters, its results should be followed up in a larger scale, especially for areas prone to earthquakes and tsunamis.
9. For larger surveys, sampling methods should be improved so that the data collected can represent the population.
10. To increase the enthusiasm of the respondents in answering the field staff's questions, a souvenir to the respondent should be considered.
11. For the next survey, dissemination prior to the implementation should be carried out in order to enhance the success of the survey.
12. To complete the disaster baseline data, there should be a survey to collect data on disaster preparedness with local stakeholders as the respondents.

Recommendations

In an effort to improve disaster preparedness of communities, local government's role should be enhanced by providing equipment and facilities and activate them.

The community should be made aware to prepare resources that can be used at any time in case of disaster.

Pilot KAP survey should become a lesson learnt and reference for real KAP survey. Moreover, by taking the experience from the pilot KAP survey in Padang city it is expected to conduct KAP surveys in a larger scale, both provincial and national scales.

Heavy equipment to evacuate earthquake victims in Padang.

Source : BNPB

ANNEXES

Annex 1.

Number of Respondent Household Members by Age Group and Sex

Age Group	Male	Female	Total
(1)	(2)	(3)	(4)
0-4	32	43	75
5-6	8	23	31
7-12	56	39	95
13-17	49	43	92
18-59	319	311	630
60+	47	61	108
Total	511	520	1031

Annex 2.

Percentage of Respondent Household Members Aged Ten Years and Over by Age Group and Marital Status

Male+Female

Age Group	Unmarried	Married	Divorced	Widow / Widower	Total
(1)	(2)	(3)	(4)	(5)	(6)
10-12	100.00	-	-	-	100.00
13-17	100.00	-	-	-	100.00
18-59	39.11	54.21	2.86	3.82	100.00
60+	-	61.11	0.93	37.96	100.00
Total	44.33	46.15	2.15	7.37	100.00

Male

Age Group	Unmarried	Married	Divorced	Widow / Widower	Total
(1)	(2)	(3)	(4)	(5)	(6)
10-12	100.00	-	-	-	100.00
13-17	100.00	-	-	-	100.00
18-59	44.83	52.66	1.57	0.94	100.00
60+	-	80.85	-	19.15	100.00
Total	50.11	46.09	1.12	2.68	100.00

Female

Age Group	Unmarried	Married	Divorced	Widow / Widower	Total
(1)	(2)	(3)	(4)	(5)	(6)
10-12	100.00	-	-	-	100.00
13-17	100.00	-	-	-	100.00
18-59	33.23	55.81	4.19	6.77	100.00
60+	-	45.90	1.64	52.46	100.00
Total	38.39	46.21	3.22	12.18	100.00

Annex 3.
Percentage of Respondents Household Members by Age Group
and Relationship to Head of Household

(Male+Female)

Age Group	Relationship to Head of Household	Wife/Husband	Children	Others*)	Total
(1)	(2)	(3)	(4)	(5)	(6)
0-4	-	-	66.67	33.33	100.00
5-6	-	-	61.29	38.71	100.00
7-12	-	-	74.74	25.26	100.00
13-17	-	-	80.43	19.57	100.00
18-59	29.21	20.32	30.16	20.32	100.00
60+	61.11	25.00	1.85	12.04	100.00
Total	24.25	15.03	39.38	21.34	100.00

Male

Age Group	Relationship to Head of Household	Wife/Husband	Children	Others*)	Total
(1)	(2)	(3)	(4)	(5)	(6)
0-4	-	-	62.50	37.50	100.00
5-6	-	-	62.50	37.50	100.00
7-12	-	-	76.79	23.21	100.00
13-17	-	-	81.63	18.37	100.00
18-59	45.45	0.94	30.41	23.20	100.00
60+	93.62	2.13	2.13	2.13	100.00
Total	36.99	0.78	40.31	21.92	100.00

Female

Age Group	Relationship to Head of Household	Wife/Husband	Children	Others*)	Total
(1)	(2)	(3)	(4)	(5)	(6)
0-4	-	-	69.77	30.23	100.00
5-6	-	-	60.87	39.13	100.00
7-12	-	-	71.79	28.21	100.00
13-17	-	-	79.07	20.93	100.00
18-59	12.54	40.19	29.90	17.36	100.00
60+	36.07	42.62	1.64	19.67	100.00
Total	11.73	29.04	38.46	20.77	100.00

Annex 4.

Percentage of Respondent Household Members Aged 5 Years and Over by Age Group and Highest Educational Attainment

Male+Female

Age Group	Have no primary school certificate	Primary School	Primary School	Senior High School	Diploma I/II	Diploma III/BA	D4/ Under-graduate	Post-graduate	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
5-6	100,00	-	-	-	-	-	-	-	100,00
7-12	89,47	10,53	-	-	-	-	-	-	100,00
13-17	1,09	33,70	56,52	8,70	-	-	-	-	100,00
18-59	5,08	11,43	12,06	51,11	1,11	4,60	13,17	1,43	100,00
60+	22,22	25,00	17,59	24,07	2,78	3,70	4,63	-	100,00
Total	18,10	14,64	15,38	37,24	1,05	3,45	9,21	0,94	100,00

Male

Age Group	Have no primary school certificate	Primary School	Primary School	Senior High School	Diploma I/II	Diploma III/BA	D4/ Under-graduate	Post-graduate	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
5-6	100.00	-	-	-	-	-	-	-	100.00
7-12	87.50	12.50	-	-	-	-	-	-	100.00

Age Group	Have no primary school certificate	Primary School	Primary School	Senior High School	Diploma I/II	Diploma III/BA	D4/ Under-graduate	Post-graduate	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
13-17	-	36.73	59.18	4.08	-	-	-	-	100.00
18-59	4.70	12.54	14.73	50.78	1.25	3.13	10.97	1.88	100.00
60+	17.02	19.15	17.02	29.79	4.26	4.26	8.51	-	100.00
Total	16.70	15.45	17.54	37.16	1.25	2.51	8.14	1.25	100.00

Female

Age Group	Have no primary school certificate	Primary School	Primary School	Senior High School	Diploma I/II	Diploma III/BA	D4/ Under-graduate	Post-graduate	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
5-6	100.00	-	-	-	-	-	-	-	100.00
7-12	92.31	7.69	-	-	-	-	-	-	100.00
13-17	2.33	30.23	53.49	13.95	-	-	-	-	100.00
18-59	5.47	10.29	9.32	51.45	0.96	6.11	15.43	0.96	100.00
60+	26.23	29.51	18.03	19.67	1.64	3.28	1.64	-	100.00
Total	19.50	13.84	13.21	37.32	0.84	4.40	10.27	0.63	100.00

Annex 5.

Percentage of Respondent Household Members Aged Five Years and Over by Relationship to Head of Household and Type of Training/Seminar/Simulation/Meeting Related to Disasters

Male+Female

Head of Household	Type of Training/Seminar/Simulation/Meeting Related to Disasters							Never Attended	Do Not Know	Total
	Disaster Simulation	Disaster Socialization	Evacuation Training	Scouting	Water Treatment	Soup Kitchen	Other			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1. Head of Household	10,80	2,00	0,40	0,40	-	-	-	83,60	2,80	100,00
2. Spouse	8,39	1,29	0,65	-	-	-	-	86,45	3,23	100,00
3. Child	16,85	1,40	1,69	0,28	-	-	0,56	75,28	3,93	100,00
4. In-law	9,38	-	-	-	-	-	-	87,50	3,13	100,00
5. Grandchild	34,55	7,27	-	-	-	-	-	56,36	1,82	100,00
6. Parents/In-laws	-	-	12,50	-	-	-	-	87,50	-	100,00

Head of Household	Type of Training/Seminar/Simulation/Meeting Related to Disasters							Never Attended	Do Not Know	Total
	Disaster Simulation	Disaster Socialization	Evacuation Training	Scouting	Water Treatment	Soup Kitchen	Other			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
7. Relative	9,09	1,30	1,30	1,30	-	-	-	85,71	1,30	100,00
8. Maid	-	-	-	-	-	-	-	100,00	-	100,00
9. Others	-	7,14	-	-	-	-	-	92,86	-	100,00
TOtal	13,49	1,88	1,15	0,31	0,00	0,00	0,21	79,92	3,03	100,00

Male

Head of Household	Type of Training/Seminar/Simulation/Meeting Related to Disasters							Never Attended	Do Not Know	Total
	Disaster Simulation	Disaster Socialization	Evacuation Training	Scouting	Water Treatment	Soup Kitchen	Other			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1. Head of Household	10.58	2.65	0.53	0.53	-	-	-	83.60	2.12	100.00
2. Spouse	-	-	-	-	-	-	-	100.00	-	100.00
3. Child	14.52	1.08	1.08	0.54	-	-	0.54	77.96	4.30	100.00
4. In-law	12.00	-	-	-	-	-	-	88.00	-	100.00
5. Grandchild	40.00	4.00	-	-	-	-	-	56.00	-	100.00
6. Parents/In-laws	-	-	50.00	-	-	-	-	50.00	-	100.00
7. Relative	7.50	-	2.50	2.50	-	-	-	87.50	-	100.00
8. Others	-	12.50	-	-	-	-	-	87.50	-	100.00
Total	13.15	1.88	1.04	0.63	0.00	0.00	0.21	80.58	2.51	100.00

Female

Head of Household	Type of Training/Seminar/Simulation/Meeting Related to Disasters							Never Attended	Do Not Know	Total
	Disaster Simulation	Disaster Socialization	Evacuation Training	Scouting	Water Treatment	Soup Kitchen	Other			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1. Head of Household	11.48	-	-	-	-	-	-	83.61	4.92	100.00
2. Spouse	8.61	1.32	0.66	-	-	-	-	86.09	3.31	100.00
3. Child	19.41	1.76	2.35	-	-	-	0.59	72.35	3.53	100.00
4. In-law	-	-	-	-	-	-	-	85.71	14.29	100.00
5. Grandchild	30.00	10.00	-	-	-	-	-	56.67	3.33	100.00
6. Parents/In-laws	-	-	7.14	-	-	-	-	92.86	-	100.00
7. Relative	10.81	2.70	-	-	-	-	-	83.78	2.70	100.00
8. Maid	-	-	-	-	-	-	-	100.00	-	100.00

Head of Household	Type of Training/Seminar/Simulation/Meeting Related to Disasters							Never Attended	Do Not Know	Total
	Disaster Simulation	Disaster Socialization	Evacuation Training	Scouting	Water Treatment	Soup Kitchen	Other			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
9. Others	-	-	-	-	-	-	-	100.00	-	100.00
TOtal	13.84	1.89	1.26	0.00	0.00	0.00	0.21	79.25	3.56	100.00

Annex 6.
Percentage of Respondent Household Members Aged Ten Years and Over by Age Group and Type of Activity during the Past Week

Male+Female

Age Group	Type of Activity during the Past Week				Total
	Working	Going to School	Caring of the Household	Others	
(1)	(2)	(3)	(4)	(5)	(6)
10-12	-	100,00	-	-	100,00
13-17	2,17	90,22	-	7,61	100,00
18-59	65,02	14,47	14,79	5,72	100,00
60+	37,04	0,93	34,26	27,78	100,00
Total	51,13	25,85	14,74	8,28	100,00

Male

Age Group	Working	Going to School	Caring of the Household	Others	Total
(1)	(2)	(3)	(4)	(5)	(6)
10-12	-	100.00	-	-	100.00
13-17	4.08	93.88	-	2.04	100.00
18-59	79.62	13.17	0.63	6.58	100.00
60+	63.83	2.13	4.26	29.79	100.00
Total	63.98	27.07	0.89	8.05	100.00

Female

Age Group	Working	Going to School	Caring of the Household	Others	Total
(1)	(2)	(3)	(4)	(5)	(6)
10-12	-	100.00	-	-	100.00

Age Group	Working	Going to School	Caring of the Household	Others	Total
(1)	(2)	(3)	(4)	(5)	(6)
13-17	-	86.05	-	13.95	100.00
18-59	50.00	15.81	29.35	4.84	100.00
60+	16.39	-	57.38	26.23	100.00
Total	37.93	24.60	28.97	8.51	100.00

Annex 7.

Percentage of Respondent Household Members

by Usual Time Doing Activities to Access Information Sources

Activity	Morning (05.00 - 09.59)	Day (10.00 -17.59)	Evening (18.00 -23.59)	Midnight (00.00 - 4.59)	Total
(1)	(2)	(3)	(4)	(5)	(6)
a. Watching Television	24.68	28.73	40.33	6.26	42.55
b. Listening to The Radio	25.97	32.47	40.26	1.30	6.03
c. Reading Magazine	19.57	45.65	34.78	-	3.61
d. Reading The News Paper	39.16	39.16	19.88	1.81	13.01
e. Using Internet Information	16.81	37.61	42.04	3.54	17.71
f. Using Social Media	18.14	36.74	41.40	3.72	16.85
x. Others	33.33	33.33	33.33	-	0.24
Total	23.98	33.86	37.93	4.23	100.00

Annex 8

Percentage of Information Resources Used by Households in Receiving Information on

How to Save Oneself in a Disaster

Sumber Informasi	6 Bulan Terakhir	6 Bulan - 1 Tahun Terakhir	Lebih Dari 1 Tahun	Jumlah
(1)	(2)	(3)	(4)	(5)
a. Family/ Other Relatives	31.75	17.46	50.79	100
b. Friend/ Neighbors	32.08	16.04	51.89	100
c. Government Officials	31.25	8.33	60.42	100
d. NGOs and International Agencies	42.86	14.29	42.86	100
e. Religious Leader / Knowledgeable People	58.82	11.76	29.41	100

Sumber Informasi	6 Bulan Terakhir	6 Bulan - 1 Tahun Terakhir	Lebih Dari 1 Tahun	Jumlah
(1)	(2)	(3)	(4)	(5)
f. TV	37.65	16.05	46.30	100
g. Radio	42.42	15.15	42.42	100
h. Magazine	42.86	28.57	28.57	100
i. Newspaper	46.77	17.74	35.48	100
j. Internet	54.55	12.12	33.33	100
k. Social Media	75.00	25.00	-	100
l. SMS	66.67	16.67	16.67	100
m. Books of disaster mitigation	33.33	-	66.67	100
n. Mosque/ Church/ Worships	29.17	-	70.83	100
o. Poster/Leaflet	-	33.33	66.67	100
p. Sticker	100.00	-	-	100
q. Simulation of Disaster Mitigation	50.00	16.67	33.33	100
x. Others	30.77	15.38	53.85	100
Total	38.18	15.04	46.78	100

Annex 9.
Percentage of Respondents Household Perceptions on the Potential Natural Disasters by Event and Type

Type of Disaster	Potential Natural Disasters			Total
	Yes	No	Dont Know	
(1)	(2)	(3)	(4)	(5)
a. Earthquake	98.8	0.8	0.4	100
b. Earthquake and Tsunami	98.4	0.8	0.8	100
c. Volcanic Eruption	96.8	2	1.2	100
d. Flood	97.2	2.4	0.4	100
e. Landslide	94.4	4	1.6	100
f. Drought	83.6	13.2	3.2	100
g. Tidal Wave	85.6	11.2	3.2	100
h. Strong Wind	89.2	7.2	3.6	100
i. Land and Forest Fires	75.2	19.6	5.2	100

Annex 10.

Percentage of Households by Knowledge of Disaster Symptoms and Type of Disaster

Type of Disaster	Knowledge of Disaster Symptoms			Total
	Yes	No	Dont Know	
(1)	(2)	(3)	(4)	(5)
a. Earthquake	25.2	73.6	1.2	100
b. Earthquake and Tsunami	53.2	44	2.8	100
c. Volcanic Eruption	26.4	69.2	4.4	100
d. Flood	54.4	45.2	0.4	100
e. Landslide	30	65.6	4.4	100
f. Drought	37.6	58.4	4	100
g. Tidal Wave	22	74	4	100
h. Strong Wind	10.8	84.4	4.8	100
i. Land and Forest Fires	11.2	82.8	6	100

Annex 11.

Percentage of Respondents Who Have Experiencing Natural Disasters
by Disaster Type and Number of Natural Disaster

Type of Disaster	Number of Natural Disaster			No	Total
	1	2-3	>3		
(1)	(2)	(3)	(4)	(5)	(6)
a. Earthquake	39.6	48	11.6	0.8	100
b. Earthquake and Tsunami	0.8	0.4	-	98.8	100
c. Volcanic Eruption	4.8	1.2	-	94	100
d. Flood	14.8	8.4	5.2	71.6	100
e. Landslide	1.6	0.4	-	98	100
f. Drought	6.4	4	-	89.6	100
g. Tidal Wave	4.4	2.4	1.2	92	100
h. Strong Wind	7.2	4	2.8	86	100
i. Land and Forest Fires	2	1.2	-	96.8	100

Annex 12.

Percentage of Respondents Who Know Natural Disasters by Type and Possible Affected

Type of Disaster	Not likely	Likely			Total
		Small	Strong	Very Strong	
(1)	(2)	(3)	(4)	(5)	(6)
a. Earthquake	3.24	37.25	50.61	8.91	100
b. Earthquake and Tsunami	3.25	36.99	50.81	8.94	100
c. Volcanic Eruption	3.31	37.19	50.41	9.09	100
d. Flood	3.29	37.45	50.21	9.05	100
e. Landslide	2.97	37.29	50.42	9.32	100
f. Drought	2.87	41.63	45.93	9.57	100
g. Tidal Wave	2.80	40.65	48.60	7.94	100
h. Strong Wind	2.69	39.46	47.98	9.87	100
i. Land and Forest Fires	2.66	41.49	46.28	9.57	100

Annex 13.

Percentage of Respondents Who Have Viewed Equipment / Facilities Preparedness / Disaster Mitigation Available

Who Have Viewed Equipment / Facilities Preparedness / Disaster Mitigation Available	Percentage
(1)	(2)
Yes	45.2
No	54.8
Total	100

Annex 14.

Percentage Equipment / Facilities Preparedness and / or Mitigation Available

Type of Equipment / Facilities	Persentase
(1)	(2)
Signs showing the way to safety areas	37.30
Map showing evacuation roads	23.81
Physical evacuation road	19.05
Serine	19.05
Others	0.79
Total	100

Annex 15.

Percentage of Respondents Who Have Household Viewing Facility Preparedness / Disaster Mitigation Existing Facilities by Type and Availability of Facilities

Type of Equipment / Facilities	Yes	No	Total
(1)	(2)	(3)	(4)
a. Map showing evacuation roads	100	-	100
b. Physical evacuation road	100	-	100
c. Serine	100	-	100
d. Signs showing the way to safety	100	-	100
x. Others	100	-	100
Total	100	0	100

Annex 16.

Percentage of Households' Knowledge of Disaster Warning Sources

Disaster Warning Source	Yes	No	Total
(1)	(2)	(3)	(4)
a. Central/Local Government	61.2	38.8	100
b. Armed Forces/Police/Security Personnel	22.8	77.2	100
c. Radio	49.6	50.4	100
d. TV	66.4	33.6	100
e. Newspaper, Magazine, etc	44.4	55.6	100
f. Internet	33.2	66.8	100
g. Places of Worship	39.6	60.4	100
h. Religious/Community Key Person	31.2	68.8	100

Annex 17.

Percentage of Households by Knowledge on How to Rescue from Disaster

Type of Disaster	Know (%)	Don't Know (%)
(1)	(2)	(3)
a. Earthquake	91.6	8.4
b. Earthquake and Tsunami	81.6	18.4
c. Volcanic Eruption	42.4	57.6
d. Flood	70.8	29.2
e. Landslide	34.0	66.0
f. Drought	30.4	69.6
g. Tidal Wave	39.2	60.8

Type of Disaster	Know (%)	Don't Know (%)
(1)	(2)	(3)
h. Strong Wind	28.0	72.0
i. Land and Forest Fires	27.6	72.4

Annex 18.

Percentage of Households by Assets that can be utilized if Disaster Strikes

Type of Asset	Can be Utilized if Disaster Strikes (%)	
	Yes	No
(1)	(2)	(3)
Savings	48.4	51.6
Lands/Houses Safe from Disaster	26.4	73.6
Life Insurance/Properties/Objects	17.6	82.4
Others	13.2	86.8

Annex 19.

Percentage of Households by Type of Training and/or Simulation Attended

Type of Training and/or Simulation Attended	Yes	No
(1)	(2)	(3)
a. Earthquake	96.1	3.9
b. Earthquake and Tsunami	80.5	19.5
c. Volcanic Eruption	14.3	85.7
d. Flood	2.6	97.4
e. Landslide	2.6	97.4
f. Drought	2.6	97.4
g. Tidal Wave	1.3	98.7
h. Strong Wind	1.3	98.7
i. Land and Forest Fires	1.3	98.7

School activities after 2 week earthquake in Padang

Source : BNPB

QUOTIONER

PILOT KAP (KNOWLEDGE, ATTITUDE, AND PRACTICE) SURVEY 2013
LIST OF HOUSEHOLDS QUESTIONER

CONFIDENCE **PKAPS13-S**

BLOCK I. AREA/LOCATION

Province : .....
Kabupaten/Kota*): .....
Kecamatan : .....
Desa/Kelurahan*): .....
Region **) : Urban -1 Rural -2
No. Cencus Block: ..... B
No. Sample Code: .....
No. HH : .....
No. Sampling : .....

Name of Respondent : .....
No. Member HH : (*Copied from Block III Column 1*)

Local Environment Unit

1. RT :.....
2. RW :.....
3. Jorong :.....
4. Lorong :.....
5. Lingkungan :.....
6. Banjar :.....
7. Dusun :.....
8. Others :.....

BLOK II. ENUMERATOR

Visit 1	Visit 2	Visit 3 (End)
DD/MM/HH: / 06 / :	Tgl/Bln/Jam: / 06 / :	Tgl/Bln/Jam: / 06 / :
Interviewer :.....	Interviewer :.....	Interviewer :.....
Visit Result ***) :.....	Visit Result ***) :.....	Visit Result ***) :.....
Next Visit DD/MM : / 06 HH : :	Next Visit Next Visit HH : / 06 :	

***) Code of Visit Result

1. Completed
2. Not at home/not available
3. Postponed
4. Refused
5. Partially completed
6. Respondent not able to answer
7. Others, Please specify.....

SIGNATURE

INTERVIEWER	SUPERVISOR	ENTRY DATA OFFICER
Name :	Name :	Name : .....
..... / 06 2013	..... / 06 2013	..... / 06 2013

*) Streak the one is not appropriate
**) Circle One

INTRODUCTION

Good morning / afternoon / evening. My name is [.....] of BPS (Central Bureau of Statistics) Padang.

At this time we are conducting research that aims to measure the readiness of the community to the earthquake and tsunami disaster in several villages in Padang, West Sumatra. Later this survey was also carried out in some parts of Indonesia are categorized as a disaster-prone areas. Therefore, your opinion in this study is very important.

We are very appreciative and grateful if you can take the time to answer the questions that we asked. All the information that you provide will be used to avoid future disaster casualties

Are there any question that do you want to ask?

DEFINITION AND CONCEPT

Disaster is an event or series of events that threaten and disrupt the lives and livelihoods caused by both natural factors and / or non-natural factors and human factors that lead to the emergence of human casualties, environmental damage, loss of property, and psychological impact.

Natural Disaster is an event or series of events that threaten and disrupt the lives and livelihoods caused by natural factors leading to the emergence of human casualties, environmental damage, loss of property, and the psychological impact.

Disaster Mitigation is series of efforts for reduce the disaster risk, either through physical development nor the awareness and enhancement the ability face the threat of disaster.

Disaster Preparedness is a series of activities undertaken to anticipate disasters through appropriate measures and efficient.

Disaster Management is an effort to manage and reduce disaster risk, disaster preparedness in the (pro-active) and disaster response as well as supporting and rebuilding society after a disaster has occurred.

BLOCK III. LIST OF HOUSEHOLD MEMBERS WHO LIVE IN THIS HOUSEHOLD

No. (301)	Name of HH Member (302)	Relationship to the Head of HH (303)	Gender 1. Male 2. Female (304)	Old (Years) (305)	Marital Status (306)	Religion (307)	Member of HH > 5 Years: Highest Level of Certificate Education (308)	Member of HH > 5 Years: Have [Name] participated in training, seminar, simulation, or meeting Related with disaster? 1. Yes 2. No 8. Don't Know (309)	Member of HH > 5 Years: If Col (9) = 1 Type of training, seminar, simulation, or meeting (310)	Member of HH > 10 Years: What was primary activity during the past week? (311)	Member of HH > 10 Years: If Col (11) = 2,3 or 4 Did (..) work in the last 12 months 1. Yes 2. No (312)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
1		☐	☐	☐☐	☐	☐	☐	☐	☐	☐	☐
2		☐	☐	☐☐	☐	☐	☐	☐	☐	☐	☐
3		☐	☐	☐☐	☐	☐	☐	☐	☐	☐	☐
4		☐	☐	☐☐	☐	☐	☐	☐	☐	☐	☐
5		☐	☐	☐☐	☐	☐	☐	☐	☐	☐	☐
6		☐	☐	☐☐	☐	☐	☐	☐	☐	☐	☐
7		☐	☐	☐☐	☐	☐	☐	☐	☐	☐	☐
8		☐	☐	☐☐	☐	☐	☐	☐	☐	☐	☐
9		☐	☐	☐☐	☐	☐	☐	☐	☐	☐	☐
10		☐	☐	☐☐	☐	☐	☐	☐	☐	☐	☐

Code Col (3): Relationship to the Head of HH

1. Head of HH
2. Wife/Husband
3. Child
4. Son/Daughter in-law
5. Grandchild
6. Parents
7Other relative
8. Servant
9. Others

Code Col (6): Marital Status:

1. Not Married
2. Married
3. Divorced
4. Widower

Code Col (7): Religion:

1. Islam
2. Protestan
3. Katholik
4. Hindu
5. Budha
6. Khonghucu
7. Lainnya

Code Col (8): Education Level:

0. No School certificate
1. Elementary Level
2. Junior High
3. Senior High
4. Diploma (D1/D2)
5. Diploma D3
6. Diploma D4/S1
7. University S2/S3

Code Col (10): Type of Training/Seminar/Simulation

1. Disaster simulation
2. Socialization
3. Evacuation Training
4. Scout (rope, tent setup, etc.)
5. Water treatment
6. Public Kitchen
7. Others

Code Col (11): Primary Activity:

1. Work
2. Attending School
3. Housekeeping
4. Others

BLOCK IV. INFORMATION RESOURCES

401	When you usually do list of this activity (Please circle and give check in appropriate column)	Morning (05.00-09.59)	Afternoon (10.00-17.59)	Night (18.00-23.59)	Late Night (00.00-04.59)
	Watch TV ..... A Listen to Radio..... B Reading Magazine..... C Reading News Paper..... D Browsing Internet ..... E Using Social Media (Facebook, Twitter, etc.)..... F Others, Please specify_____ X	☐ ☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐ ☐
402	Have You ever heard about disaster mitigation, disaster management, and disaster preparedness	Yes..... 1 No 2			
403	Have You ever received information about how to save yourself and your family from the natural disaster	Yes..... 1 No ***(Continue to 406)*** 2			
404	When was the last time that your received the information?	Last 6 months..... 1 6 month – Last 1 Year ..... 2 More Than 1 Year..... 3			
405	From whom did you receive information about how to make your family and home safer from natural disasters? **MULTIPLE ANSWERS (MA)** Any else?	**Individual/Agencies:** Family/ Other Relatives ..... A Friend/ Neighbors..... B Government Officials. ..... C NGOs and International Agencies ..... D Religious Leader / Knowledgeable People..... E **Media:** TV..... F Radio..... G Magazine..... H Newspaper..... I Internet..... J Social Media (Facebook, Twitter, etc.)..... K SMS..... L Books of disaster mitigation ..... M Mosque/ Church/ Worships..... N Poster/ leaflet..... O Sticker ..... P Simulation of Disaster Mitigation ..... Q Others, Please Specify_____ X			
406	Please check the two best methods that you trust to provide you about how to make you and your family safer from natural disasters?	Radio..... A TV..... B Newspaper..... C Internet..... D Seminar..... E Announcement..... F Friends/ Relatives..... G Others, Please Specify _____ X			

BLOK V. KNOWLEDGE AND ATTITUDE TO NATURAL DISASTER

501	Do You Know what is natural disaster?	Yes…….. 1 No…….. 2

Type of Natural Disaster	From the list of natural disaster type, which one can make disaster (502) *Yes…….1* *No……. 2* *Don't Know..8*	Do You know the sign of this Natural Disaster (503) *Yes……..1* *No…….2* *Dont Know..8*	Have you ever been exposed by this natural disaster? (504) *Yes……..1* *No…….2* *Dont Know..8*	If Q504 = 1 How many times have you experienced with this natural disaster (505)
A. Earthquake	☐	☐	☐	☐☐
B. Earthquake and Tsunami	☐	☐	☐	☐☐
C. Volcano Eruption	☐	☐	☐	☐☐
D. Flood	☐	☐	☐	☐☐
E. Landslide	☐	☐	☐	☐☐
F. Drought	☐	☐	☐	☐☐
G. Tide Wave	☐	☐	☐	☐☐
H. Strong Wind	☐	☐	☐	☐☐
I. Land and Forest Fire	☐	☐	☐	☐☐

506	How likely is it that a natural disaster could strike your community	Not likely…….. 1 Small likelihood…….. 2 Strong likelihood…….. 3 Very strong likelihood…….. 4
507	A. When you were growing up, have your parents or relatives ever discussed with you about natural disasters	Yes…….. 1 No…….. 2
	B. have your parents or relatives ever discussed with you about what measures you had to take to preserve your/family live?	Yes…….. 1 No…….. 2
508	Do you know the local knowledge or local wisdom that relevant to the natural disaster	Yes…….. 1 Spesify : _____ No…….. 2
509	Do you know any natural disasters that have occurred in the region in the past?	Yes…….. 1 No…….. 2
510	Have you/family ever been exposed or suffered a natural disaster in your lifetime?	Yes…….. 1 No…….. 2

511	Has the government in your area prepared a risk reduction plan to mitigate the impact of an natural disaster	Yes……..…….. 1 No.....…….. 2 Dont Know..…….. 8
512	What does the government do to inform the population about a possible earthquake or tsunami?	*Yes……1* *No.....2*
	A. Activate a siren to warn about a possible tsunami	☐
	B. Notify by radio and television about an incoming tsunami	☐
	C. Announce the incoming tsunami via text message (SMS) on your cell phone	☐
	D. Traditional System (Kentongan, announcement via worship places, etc)	☐
	E. Earhquake Information from BMKG (meteorology,climatology, and geophysic)	☐
513	Have you ever discuss about how to save yourself/family life if disaster occured?	Yes……..…….. 1 No.....…….. 2
514	Have you ever seen any emergency preparedness and/or disaster mitigation toolkits in your are	Yes ……..…….. 1 No.....***(to 516)..***…….. 2
515	Do you know the presence of facilities to help yourself/family to reach a safe area if natural disasters occur? Any else?	Map showing evacuation roads ……..... A Physical evacuation road..……..... B Serine……..... C Signs showing the way to safety areas.....…… D Others,Please specify_____ X Yes……..…….. 1
516	Do you know the presence of any early warning toolls/kits in your area?	No.....…….. 2
517	Since January 1st 2008, Have You ever received any disaster early warning information in your area	Yes……..…….. 1 No.....…….. 2
518	Who/What is the source of the disaster warning in your area?	*Yes……1* *No.....2*
	A. National / Local Government	☐
	B. Police / Security Officer	☐
	C. Radio	☐
	D. TV	☐
	E. Print Media (News Paper, Magazine, etc)	☐
	F. Internet	☐
	G. Places of worship	☐
	H. Religious leaders/ community leaders	☐

519	Do You know how to save yourself/family if disaster occured	*Yes ……..1* *No.....……..2* *Dont Know ..8*
	A. Earthquake	
	B. Earthquake and Tsunami	
	C. Volcano Eruption	
	D. Floods	
	E. Landslide	
	F. Drought	
	G. Wave Tide	
	H. Strong Wind	
	I. Land and Forest Fire	
520	Do families have to save important documents held in a safe place?	Yes…….. 1 No.....…….. 2
521	Does the family have had to evacuate to a safe path in case of disaster?	Yes…….. 1 No.....…….. 2
522	Does your family have these following assets/investment that can be utilized when a disaster occurs?	*Yes.....…1* *No.....2*
	A. Savings	
	B. Life insurance / property / objects	
	C. Land / house in a safe from disaster	
	X. Others, Please specify	
523	Do you think disaster awareness efforts done in your village have already been sufficient?	Yes…….. 1 No……..……. 2 Dont Know……..... 8
524	Since 1 January 2008, Are there any family members who have ever attended the training, seminars, and meetings related to disaster preparedness?	Yes…….. 1 No ***(Continue to 528).*** 2
525	Training, seminar, simulation, and meeting that have you ever attended related with type of disaster below :	Yes…….. 1 No……..……. 2 Dont Know……..... 8
	A. Earthquake	
	B. Earthquake and Tsunami	
	C. Volcano Eruption	
	D. Floods	
	E. Landslide	
	F. Drought	
	G. Wave Tide	
	H. Strong Wind	
	I. Land and Forest Fire	

526	Kind of trainings have your family members ever been followed?	*Yes ……..1* *No……..2* *Dont Know 8*
	A. Simulation of disaster	☐
	B. Socialization of disaster	☐
	C. Evacuation training	☐
	D. Scouting (ropes, set up tents, make a stretcher, etc.)	☐
	E. Water treatment	☐
	F. Food Processing	☐

	Time of the training *month/year* (527A)	Organizer of the training *Government (BNPB, BPBD, dll)…… ...A* community…….. *B* NGOs and International Agencies ……..*C* *Others (Specify)…….X* *Dont Know…….. Z* (527B)	How do you rate the benefits from the training/ disaster simulation activity conducted Not Very beneficial ……..... *1* Not beneficial..... *2* A little beneficial.. *3* *Beneficial…….. 4* Very beneficial..... *5* (527C)	Who is participated in the training/disaster simulation conducted **(Multiple Answer)** *Head HH…….. A* Spouse ....…….. *B* *Children…….. C* *Others, Please Specify..... X* (527D)	Did you share the disaster safety information with your family members that you learned in disaster simulation activity? *Yes…… 1* *No…..... 2* (527E)
1.	☐☐ / ☐☐☐☐	A B C X_____ Z	1 2 3 4 5	A B C X	1 2
2.	☐☐ / ☐☐☐☐	A B C X_____ Z	1 2 3 4 5	A B C X	1 2
3.	☐☐ / ☐☐☐☐	A B C X_____ Z	1 2 3 4 5	A B C X	1 2
4.	☐☐ / ☐☐☐☐	A B C X_____ Z	1 2 3 4 5	A B C X	1 2
5.	☐☐ / ☐☐☐☐	A B C X_____ Z	1 2 3 4 5	A B C X	1 2
6.	☐☐ / ☐☐☐☐	A B C X_____ Z	1 2 3 4 5	A B C X	1 2
7.	☐☐ / ☐☐☐☐	A B C X_____ Z	1 2 3 4 5	A B C X	1 2
8.	☐☐ / ☐☐☐☐	A B C X_____ Z	1 2 3 4 5	A B C X	1 2
9.	☐☐ / ☐☐☐☐	A B C X_____ Z	1 2 3 4 5	A B C X	1 2
10.	☐☐ / ☐☐☐☐	A B C X_____ Z	1 2 3 4 5	A B C X_____	1 2 ***Continue to 529***

528	What is the nature of barriers that prevents you from participating in disaster preparedness activities such as simulation activity, survival training, etc?	Lack of financial resources…… A No information.....…….. B Time pressure .....…….. C Does not seem important.....…..... D Other, please specify_____ X

FOR QUESTION 529

INTERVIEWER READ:

In the following list, please select those activities that you **HAVE DONE** in your household, **PLAN TO DO** in the near future, **HAVE NOT DONE**, or are **UNABEL TO DO**

Answer : Check Mark (Do Not Read):

UNABEL TO DO: *1;* **HAVE NOT DONE**: *2;* **PLAN TO DO**: *3;* **HAVE DONE**: *4*

529. ACTIVITY	*1*	*2*	*3*	*4*
A. Built a sturdy house	☐	☐	☐	☐
B. Talked with members in your household about what to do in case of natural disaster or emergency	☐	☐	☐	☐
C. Have a Disaster Supply Kit prepared	☐	☐	☐	☐
D. Stored food	☐	☐	☐	☐
E. Stored Water	☐	☐	☐	☐
F. Have flashlight(s)	☐	☐	☐	☐
G. Have extra batteries	☐	☐	☐	☐
H. Have battery-powered radio(s)	☐	☐	☐	☐
I. Have Medical Supplies (First Aid Kit)	☐	☐	☐	☐
J. Have Fire Extinguisher(s)	☐	☐	☐	☐
K. Securing furniture (cabinets, bookcases, shelves to the wall, etc.)				
L. Attended meeting or received information on natural disasters or emergency preparedness	☐	☐	☐	☐
M. Received First Aid or CPR training	☐	☐	☐	☐
N. Have a family evacuation plan that can be used in case of an emergency?	☐	☐	☐	☐
O. Made a plan for evacuation	☐	☐	☐	☐
P. Developed a reconnection plan (where to go, who to call)	☐	☐	☐	☐
Q. Discussed utility shutoffs	☐	☐	☐	☐
X. Other, please specify_____	☐	☐	☐	☐

530	Within your community, who do you think should be **the MOST responsible** for preparing households against a disaster?	Central Government ..... 1 NGOs and international agencies ..... 2 Local community ..... 3 Yourself and Member of HH..... 4 Others, please specify_____ 6

BLOK VI. PERCEPTION AND KNOWLEDGE ON DISASTER MITIGATION

For Question 601-604 (Interviewer Read):

I would like you to express your opinion by giving marks on 5. "1 to 5" means you rate your knowledge about disaster mitigation as :

Score "1"= "very bad", Score "2"= "bad", Score "3"= "average",
Score "4"= "good", Score "5"= "very good".

Answer: Please circle your answer, remember that you can pick any mark from 1 to 5.

		Very Bad ⟷ Very Good				
601	I would like to know how you would rate your own **knowledge about disaster mitigation**					
	A. Your own knowledge about disaster mitigation in general?	1	2	3	4	5
	B. Your knowledge about how to save yourself and your family when a disaster occurs?	1	2	3	4	5

Interviewer Read:

There have been various efforts carried out to spread information about disaster awareness in Indonesia. Among other things, the efforts include what you have said. The mentioned efforts are included in a program called **disaster mitigation.** We would like to know your opinion on those

602	How do you rate the performance of the government in disaster risk reduction efforts :	1	2	3	4	5
603	How do you rate the performance of the media (television, radio, newspapers, internet, and so on) regarding issues in disaster preparedness efforts:	1	2	3	4	5
604	How do you rate the performance of the media stakeholder (NGOs, international agencies) regarding involvement of related parties in disaster preparedness efforts:	1	2	3	4	5

605	Which one is the best approach for disaster management **Please Read the answer**	**Pro-active** (before disaster: prevention, mitigation, and preparedness)……......1 **Re-active** (after disaster : emergency response and rehabilitation and reconstruction)……..... 2 Dont Know..……..……8
606	you think disaster mitigation and disaster preparedness is an **urgent** issue for your village?	Yes..……..1 No.....……2 Dont Know..……8
607	To assist in communicating information to the people in your community about how to better prepare for a natural disaster, which of the following phrases do you think is the easiest to understand? **Please Read the answer**	Disaster Management.....……...1 Emergency Preparedness..……2 Disaster Risk Reduction.....……3 Disaster Preparedness..……4

BLOK VII. ECONOMIC AND SOCIAL STATUS		
701	Physical location of the housing unit?	**Flat Area**: < 1 Km from the beach.....1 1-3 Km from the beach ..... 2 > 3 Km from the beach .....3 **Hill Area**: Sloping..... 4 Steep..... 5
702	Type of housing unit?	Permanent..... 1 Semi Permanent.....2 Non Permanent..... 3
703	How long have you been living at this address?	Less than one year.....1 1-5 years..... 2 More than 5 years 3
704	Which of the following items does your family own and still properly functioning? **MULTIPLE ANSWERS (MA)**	TV..... A VCD/DVD..... B Radio/ Tape..... C Land Phone..... D Walkie Talkie (HT)..... E Radio Citizen Band (CB)..... F Cars..... G Motorcycle..... H Celluler Phone..... I Computer/Laptop..... J
705	What is the main occupation of the main income earner in your family? **Please write completely** _____ _____ _____ **(Circle by interviewer)**	Agriculture,farming rice and pulses (corn, casava. Etc.)..... 01 Horticulture (vegetables, fruits, ornamental plants, medicinal plants,.... 02 Plantation (sugar cane, tea, tobacco, rubber, coconut oil, cocoa, etc.).... 03 Fisheries (catching, aquaculture, marine, etc)..... 04 Livestock (nurseries, large livestock)..... 05 Forestries and other farming (hunting, sago, rattan, etc)..... 06 Mining and quarrying (sand, gold, coal, etc.)..... 07 Manufacturing (webbing, shoes, clothes, etc)..... 08 Electricity and Gas (PLN, Non PLN, PN Gas, etc.)..... 09 Construction / building (buildings, bridges, roads, houses, etc.)..... 10 Trade (shops, peddlers, street vendors, supermarkets, etc)..... 11 Hotels and restaurants (guesthouse, inn, restaurant, etc.)..... 12 Transportation and warehousing (transport, motorcycle, rickshaw,

BLOK VIII. NOTES

Phone Number :

A. Land Phone : Longitude :

B. Cellular Phone : Latitude :

X. No Land Phone and Cellular Phone

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