

## Mapping of Individual Preparedness for Earthquakes in Padang City

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### ABSTRACT

Padang City is one of the earthquake-prone areas in Indonesia due to its location on the western coast of Sumatra, which is directly adjacent to the open sea, namely the Indian Ocean, and lies within an active tectonic collision zone between two major plates, the Eurasian Plate and the Indo-Australian Plate. Therefore, an assessment of individual preparedness levels toward earthquakes in Padang City was conducted to evaluate the readiness of the community in facing earthquake disasters. Preparedness refers to a series of actions undertaken to anticipate natural disasters through appropriate and effective measures. It plays a crucial role in minimizing the impacts that may occur following an earthquake event. The assessment of individual earthquake preparedness was carried out across the 11 Sub-Districts of Padang City. The implementation of community preparedness was evaluated using three main indicators: (1) knowledge of earthquakes, (2) the structural condition of residential buildings, and (3) material preparedness, which includes the availability of food stockpiles, mineral water, medicines, flashlights, and radios. Based on the assessment results, the level of earthquake knowledge was categorized as moderate across all 11 Sub-Districts. Regarding the condition of residential buildings, 59% of the structures were found to comply with earthquake-resistant standards. Only 5% of respondents reported having building insurance. Furthermore, 61% of respondents had access to the nearest evacuation site; however, 31% of respondents were unaware of the distance between their residence and the nearest evacuation location. In terms of preparedness levels, Padang Timur Sub-District and Bungus Teluk Kabung Sub-District were classified as having low preparedness levels, while the remaining nine Sub-Districts were categorized as having moderate preparedness levels.

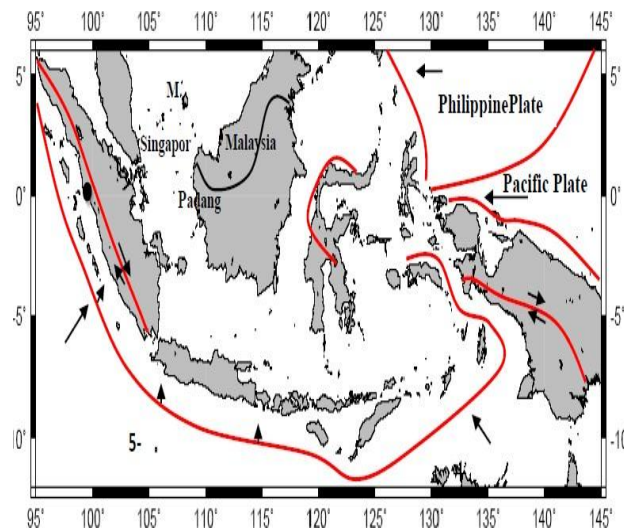


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## INTRODUCTION

Padang City is the capital of West Sumatra Province, with a current population of 950,871 inhabitants distributed across 11 Sub-Districts. Geographically, Padang City is located along the western coastal region of Sumatra Island, featuring a coastline of approximately 84 km. The city lies on the western coast of Sumatra, directly adjacent to the open sea, namely the Indian Ocean, and is situated within an active tectonic collision zone between two major plates, the Eurasian Plate and the Indo-Australian Plate, which makes Padang one of the earthquake-prone cities. The locations of earthquake epicentres in the waters off Padang City are situated along a seismic belt that follows the subduction zone extending approximately 6,500 km to the west of Sumatra Island. The convergence between the Indo-Australian Plate and the Eurasian Plate forms the Benioff Zone, which is continuously active and moves in a west-east direction, representing a region with relatively high seismicity. There are three main active earthquake zones in Sumatra, namely the subduction zone, the Mentawai Fault zone, and the Sumatra Fault zone [1].



**Figure 1. Tectonic Setting and Plate Boundaries; Arrows indicate the direction of plate movement**

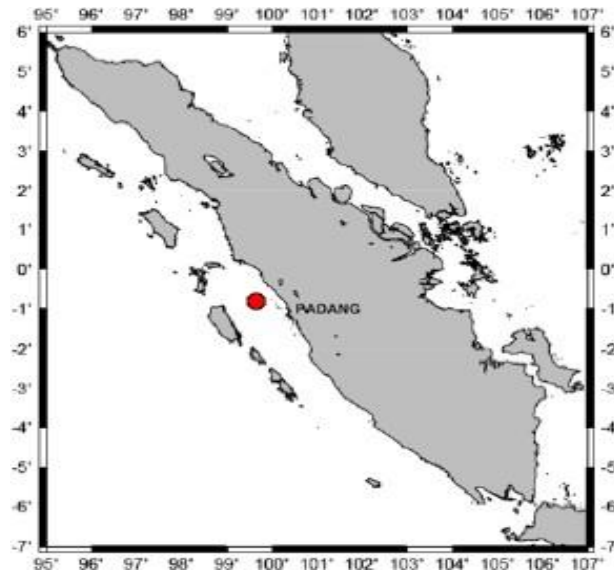
Sources: Putra, R.R (2012)

The three tectonic plates move actively toward a relatively stable reference plate on which the Indonesian archipelago is situated. The continuous movement of these plates contributes to an increasing intensity of seismic activity each year. The Indo-Australian Plate moves at an approximate rate of 50 to 70 mm per year across the West Sumatra region [2]. Earthquake occurrences in Padang City are primarily associated with tectonic earthquakes, with a smaller contribution from volcanic earthquakes. The active tectonic zone formed by the subduction process to the west of Sumatra Island is indicated by the presence of active volcanoes distributed along the active fault system on the western side of the island, which exhibits right-lateral strike-slip movement. This fault system is commonly referred to as the Semangko Fault or the Great Sumatra Fault. Meanwhile, volcanic earthquakes in Padang City are influenced by its proximity to three active volcanoes, namely Mount Talang, Mount Marapi, and Mount Tandikek.

According to the Elastic Rebound Theory proposed by the American seismologist Reid (Bullen, 1965; Bolt, 1985), earthquakes are natural phenomena caused by the release of elastic strain energy accumulated within rocks due to deformation occurring in the lithosphere. Rock deformation results from stress and strain acting within the Earth's layers. Continuous stress leads the strength of rocks to reach its maximum limit, eventually causing sudden displacement and fault rupture [3].

An earthquake is defined as ground vibration or shaking resulting from interactions between tectonic plates, active faults, volcanic activity, or rock collapse. The vibrations originating from rock layers within the Earth generate energy that propagates in all directions in the form of seismic waves. Seismic waves can be classified based on their propagation velocity and direction of motion, including pressure waves (P-waves), which can travel through both solid and liquid media, and shear waves (S-waves), which propagate by moving through rock materials. Seismic waves are disturbances that travel through the Earth due to structural deformation, compressional forces, or tensile forces arising from the elastic properties of the Earth's crust. These waves carry energy and propagate throughout the Earth, and they can be recorded by seismographs. When seismic waves reach the Earth's surface, they can cause significant damage to buildings and infrastructure, leading to casualties and material losses [4].

Several significant earthquakes have occurred in Padang City. On March 6, 2007, an earthquake with a magnitude of 6.4 struck the city, resulting in four fatalities and 55 individuals requiring medical treatment. Later in the same year, on September 12, 2007, a major earthquake centered in Bengkulu with a magnitude of 7.9 triggered a tsunami wave approximately one meter high in the Mentawai and Pagai Islands (BMKG earthquake catalog). Furthermore, on September 30, 2009, a tectonic earthquake with a magnitude of 7.6 struck Padang City. This earthquake caused extensive damage, collapsing residential buildings, hotels, government offices, and business centers. In addition to structural damage, the disaster resulted in 383 fatalities, 1,202 injuries, 37,587 severely damaged houses, and 78,891 lightly damaged houses (DIBI).



**Figure 2. Epicenter of the Padang earthquake on September 30, 2009**

Sources: Putra, R.R (2012)

Therefore, individual preparedness among the community is essential to reduce casualties resulting from earthquake disasters, which cannot be predicted with certainty. Preparedness itself is defined as a series of activities carried out to anticipate disasters through appropriate and effective measures (Law of the Republic of Indonesia No. 24 of 2007) [5]. Preparedness also plays a significant role in reducing loss of life, property damage, and psychological impacts. Earthquake preparedness aims to promote early recognition and mitigation of disaster risks. One of the main factors contributing to the high number of casualties during earthquake events is the lack of public knowledge about earthquakes, as well as insufficient mental readiness and inadequate structural conditions of residential buildings to withstand sudden seismic events [6].

Community readiness in facing earthquake disasters involves knowledge of earthquake hazards, attention to the structural condition of residential buildings, and preparedness measures that include the provision of emergency supplies such as food stockpiles, mineral water, medicines, and essential equipment required during emergency conditions [7]. The condition of residential buildings is particularly critical, especially for communities living in earthquake-prone areas. The construction of earthquake-resistant buildings must consider the maximum ground acceleration in the region, and structures should be designed to withstand such seismic forces. In addition, preparedness for evacuation during earthquake events and public awareness regarding the location of evacuation sites within their residential areas are also essential components of disaster readiness.

In determining the level of preparedness, five parameters are commonly used to assess individual preparedness levels within the community. These include: (1) knowledge of disasters and associated risks, which influences attitudes and awareness in anticipating disasters, particularly among populations living in earthquake-prone areas; (2) emergency response planning related to evacuation, rescue, and relief efforts to minimize disaster casualties; (3) disaster warning systems, including warning signs and the dissemination of information regarding potential disaster occurrences, which are closely related to the need for training and simulation exercises on appropriate actions when warnings are issued; (4) resource mobilization, which includes the availability of infrastructure and essential resources that support preparedness during emergency situations; and (5) policies and guidelines, which serve as frameworks for implementing preparedness activities such as early warning systems, resource mobilization, and the provision of critical facilities during disaster conditions [8].

This study aims to determine the level of community preparedness in Padang City in facing earthquake disasters and to produce a spatial representation of individual preparedness levels across the 11 Sub-Districts of Padang City. The assessment is based on three key preparedness indicators: knowledge of earthquakes, the condition of residential buildings, and preparedness measures, including food stockpiles, mineral water, medicines, and equipment used for emergency situations [9]. The results of this study are expected to be beneficial for civil engineering students by enhancing their

understanding of community preparedness levels in Padang City, which is a region highly vulnerable to earthquake disasters.

## RESEARCH METHODS

The research method employed in this study is a descriptive approach with a quantitative method. The data collection technique used in this research is a questionnaire (survey instrument). A questionnaire is a list of questions distributed to respondents with the purpose of obtaining responses in accordance with the research objectives. The questionnaire for this study was developed using Google Forms, and the questions were categorized into three main indicators: knowledge of earthquakes, the condition of residential buildings, and preparedness for earthquakes, which includes the availability of food stockpiles, mineral water, medicines, and essential equipment required during emergency situations [10]. These indicators were used to determine the level of individual preparedness for earthquakes in Padang City. The questionnaire and survey instrument were validated prior to distribution and then disseminated through social media platforms, including WhatsApp, Facebook, and Instagram. The level of community preparedness is defined as the combined measure of three preparedness parameters, namely knowledge of disasters, the condition of residential buildings, and preparedness measures [11]. The preparedness level is calculated using an index value based on the following formula:

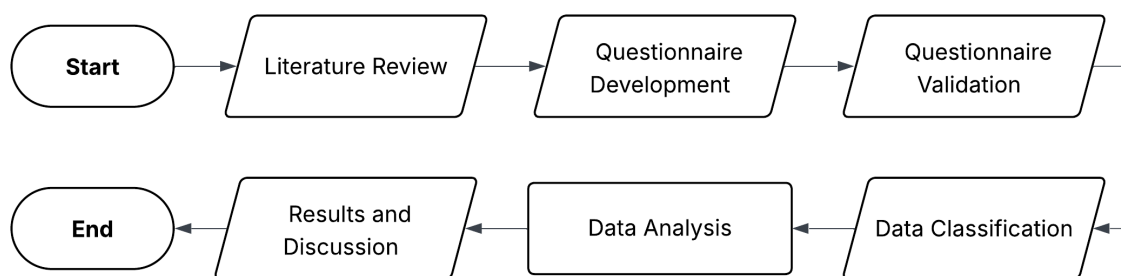
$$Index = \frac{Total\ Actual\ Parameter\ Score}{Maximum\ Parameter\ Score} \times 100$$

The Formula presented above is adapted from the following:

**Table 1. Preparedness Level**

No	Index Value	Category
1	80 – 100	High Preparedness
2	60 – 79	Moderate Preparedness
3	<60	Low Preparedness

This study was conducted in Padang City, which consists of 11 Sub-Districts: Padang Barat, Padang Selatan, Padang Utara, Padang Timur, Bungus Teluk Kabung, Koto Tangah, Kuranji, Lubuk Begalung, Lubuk Kilangan, Nanggalo, and Pauh. The final project research was carried out from April 4 to April 11, 2020. This assessment is not without limitations, considering the constraints encountered during the data collection process, which took place amid the COVID-19 pandemic. As a result, the survey was conducted exclusively through online methods.



**Figure 3. Research Flow Diagram**

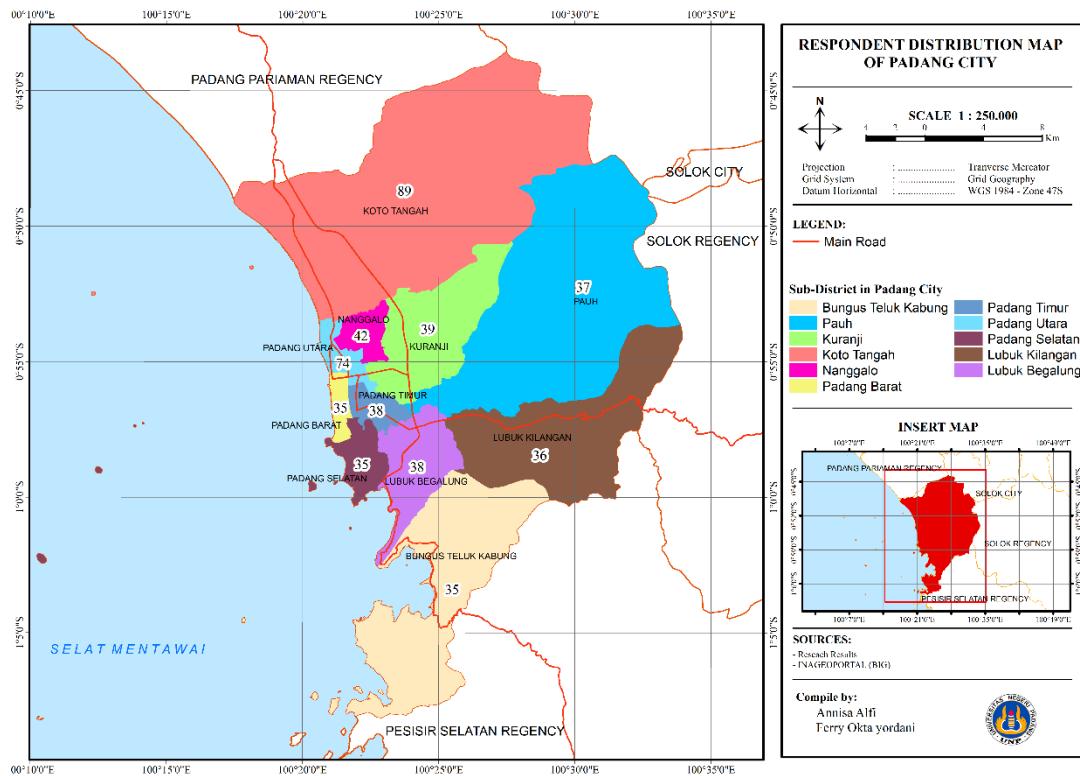
## RESULTS AND DISCUSSION

After the distribution of the questionnaire, a total of 498 respondents were obtained from the eleven Sub-Districts in Padang City.

**Table 2. Number of Respondents Sub-District**

Sub-District	Quantity	Unit
Padang Selatan Sub-District	35	People
Kuranji Sub-District	39	People
Lubuk Begalung Sub-District	39	People

Sub-District	Quantity	Unit
Lubuk Kilangan Sub-District	36	People
Nanggalo Sub-District	42	People
Koto Tangah Sub-District	89	People
Padang Utara Sub-District	74	People
Pauh Sub-District	37	People
Padang Timur Sub-District	38	People
Padang Barat Sub-District	35	People
Bungus Teluk Kabung Sub-District	35	People



**Figure 4. Respondents Distribution Map in Padang City**

The figure above illustrates the number of respondents in each Sub-District. The results show that the highest number of respondents was recorded in Koto Tangah Sub-District with 89 respondents, while the lowest number, 35 respondents, was found in Padang Selatan, Padang Barat, and Bungus Teluk Kabung Sub-Districts.

**Table 3. Gender Distribution of Respondents**

Sub-District	Male	Female
Padang Selatan Sub-District	21	14
Kuranji Sub-District	21	18
Lubuk Begalung Sub-District	16	22
Lubuk Kilangan Sub-District	11	25
Nanggalo Sub-District	21	21
Koto Tangah Sub-District	26	63
Padang Utara Sub-District	20	54
Pauh Sub-District	20	17
Padang Timur Sub-District	11	27
Padang Barat Sub-District	15	20
Bungus Teluk Kabung Sub-District	15	20

**Table 4. Age Distribution of Respondents**

Sub-District	< 17 Years	> 17 Years
Padang Selatan Sub-District	0	35
Kuranji Sub-District	1	38
Lubuk Begalung Sub-District	0	38
Lubuk Kilangan Sub-District	0	36
Nanggalo Sub-District	1	41
Koto Tengah Sub-District	0	89
Padang Utara Sub-District	1	73
Pauh Sub-District	1	36
Padang Timur Sub-District	3	35
Padang Barat Sub-District	0	35
Bungus Teluk Kabung Sub-District	2	33

The majority of respondents were aged over 17 years, totaling 489 respondents, while only 9 respondents were under 17 years of age.

**Table 5. Respondents Occupation**

Occupation/Education	Quantity	Percentage
Student/university student	295	59%
Civil servants	57	11%
Entrepreneurs	29	6%
Farmers	6	1%
Traders	15	3%
Livestock breeders	1	0%
Fishermen	1	0%
Private employees	49	10%
Stated-owned/regional-owned enterprise employees	4	1%
Unemployed	41	8%

The table above presents the occupational distribution of the respondents in Padang City. Students/university students accounted for the largest proportion, with 295 respondents (59%). In contrast, livestock breeders and fishermen represented the smallest proportion, with only one respondent each.

**Table 6. Respondents Income Level**

Occupation/Education	Quantity	Percentage
Rp. 0 – Rp. 500.000	249	50%
Rp. 500.000 – Rp. 1.500.000,-	74	15%
Rp. 1.500.000 – Rp. 2.500.000,-	54	11%
Rp. 2.500.000 – Rp. 3.500.000,-	42	8%
> Rp. 3.500.000,-	79	16%

The table above also describes the respondents' income levels. The largest proportion of respondents (50%) had an income of less than IDR 500,000, while the smallest proportion fell within the income range of IDR 2,500,000 to IDR 3,500,000.

**Table 7. Sources of Earthquake Information**

Sub-District	Newspaper	Radio	Internet	Television
Padang Selatan Sub-District	0	0	30	5
Kuranji Sub-District	0	0	37	2
Lubuk Begalung Sub-District	1	1	20	16

Sub-District	Newspaper	Radio	Internet	Television
Lubuk Kilangan Sub-District	0	0	27	9
Nanggalo Sub-District	0	0	38	4
Koto Tangah Sub-District	0	0	85	4
Padang Utara Sub-District	0	0	68	6
Pauh Sub-District	0	0	31	6
Padang Timur Sub-District	0	0	36	2
Padang Barat Sub-District	0	1	26	8
Bungus Teluk Kabung Sub-District	0	0	20	15

Based on the survey results from 498 respondents across the 11 Sub-Districts of Padang City, the most commonly used source of information regarding earthquake disasters was the internet.

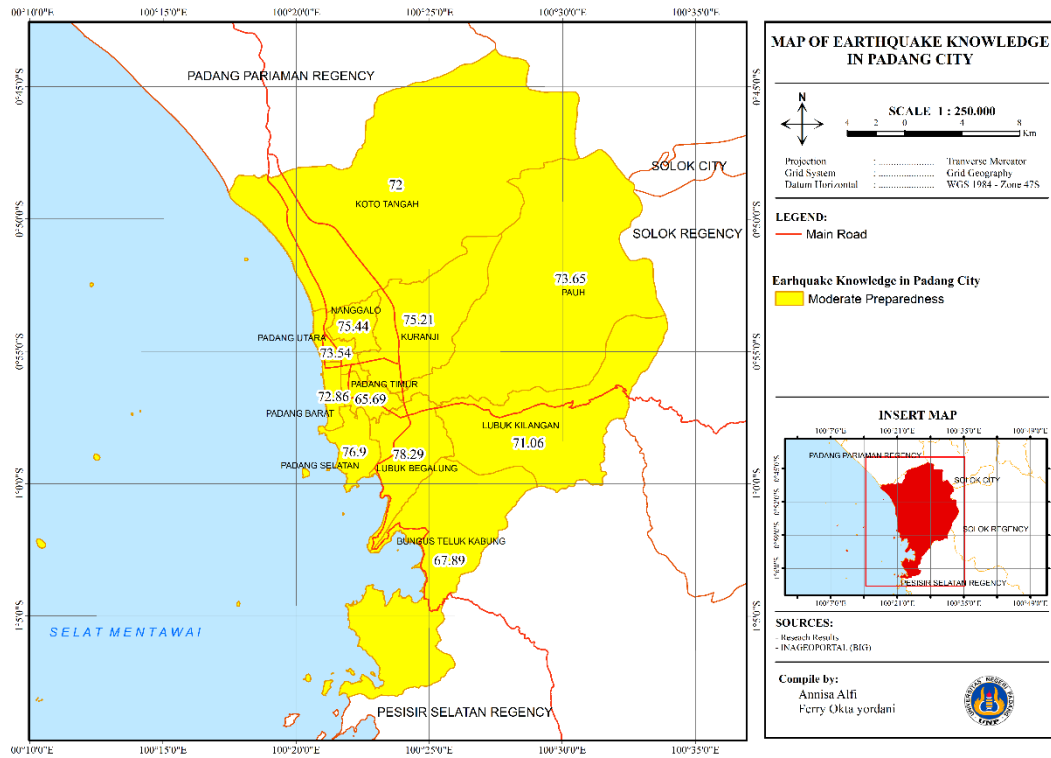
**Table 8. Knowledge of Earthquakes and Their Impacts**

Sub-District	Yes, Highly Knowledgeable	Yes, Somewhat Knowledgeable	Not Knowledgeable
Padang Selatan Sub-District	23	12	0
Kuranji Sub-District	27	12	0
Lubuk Begalung Sub-District	31	7	0
Lubuk Kilangan Sub-District	24	11	1
Nanggalo Sub-District	22	19	1
Koto Tangah Sub-District	47	41	1
Padang Utara Sub-District	24	48	2
Pauh Sub-District	20	16	1
Padang Timur Sub-District	13	23	1
Padang Barat Sub-District	19	13	3
Bungus Teluk Kabung Sub-District	11	21	3

The level of public knowledge in Padang City regarding earthquakes and their impacts can be considered relatively good. A total of 54% of respondents reported having a high level of understanding, while only 3% of respondents, on average, indicated that they did not know what earthquakes are or the impacts they may cause.

**Table 9. Mean Level of Individual Earthquake Knowledge**

Mean Level of Earthquake Knowledge		Category
Sub-District	Value	
Padang Selatan Sub-District	76.90	Moderate Preparedness
Kuranji Sub-District	75.21	Moderate Preparedness
Lubuk Begalung Sub-District	78.29	Moderate Preparedness
Lubuk Kilangan Sub-District	71.06	Moderate Preparedness
Nanggalo Sub-District	75.44	Moderate Preparedness
Koto Tangah Sub-District	72.00	Moderate Preparedness
Padang Utara Sub-District	73.54	Moderate Preparedness
Pauh Sub-District	73.65	Moderate Preparedness
Padang Timur Sub-District	65.69	Moderate Preparedness
Padang Barat Sub-District	72.86	Moderate Preparedness
Bungus Teluk Kabung Sub-District	67.89	Moderate Preparedness



**Figure 5. Map of Earthquake Knowledge in Padang City**

The spatial mapping of the average knowledge level of the community in Padang City regarding earthquakes and their impacts was conducted based on the classification presented in Table 2. The results of the data analysis indicate that the average level of earthquake knowledge across the 11 Sub-Districts falls within the moderate category.

**Table 10. Compliance of Residential Buildings with Earthquake-Resistant Standards (SNI)**

Sub-District	Yes	No
Padang Selatan Sub-District	25	10
Kuranji Sub-District	22	17
Lubuk Begalung Sub-District	27	11
Lubuk Kilangan Sub-District	26	10
Nanggalo Sub-District	21	21
Koto Tengah Sub-District	47	42
Padang Utara Sub-District	27	47
Pauh Sub-District	26	11
Padang Timur Sub-District	19	19
Padang Barat Sub-District	25	10
Bungus Teluk Kabung Sub-District	16	19

From the table above, it was found that 281 respondents (59%) lived in buildings that comply with earthquake-resistant standards, while 217 respondents (41%) resided in buildings that do not meet such standards.

**Table 11. Number of Floor of Residential Buildings**

Sub-District	Floor 1	Floor 2	Floor 3	Floor >3
Padang Selatan Sub-District	25	9	1	0
Kuranji Sub-District	33	6	0	0
Lubuk Begalung Sub-District	23	13	2	0
Lubuk Kilangan Sub-District	26	9	1	0
Nanggalo Sub-District	31	10	1	0

Sub-District	Floor 1	Floor 2	Floor 3	Floor >3
Koto Tengah Sub-District	52	35	2	0
Padang Utara Sub-District	51	19	3	1
Pauh Sub-District	27	10	0	0
Padang Timur Sub-District	31	5	2	0
Padang Barat Sub-District	15	17	1	2
Bungus Teluk Kabung Sub-District	32	3	0	0

The figure above presents the distribution of the number of floors in respondents' residential buildings. One-story buildings accounted for 346 units (71%), two-story buildings for 136 units (26%), three-story buildings for 13 units (3%), and buildings with more than three floors for 3 units (1%).

**Table 12. Type of Residential Building**

Sub-District	Permanent (Concrete)	Semi-Permanent	Wooden
Padang Selatan Sub-District	18	15	2
Kuranji Sub-District	25	13	1
Lubuk Begalung Sub-District	22	8	8
Lubuk Kilangan Sub-District	24	11	1
Nanggalo Sub-District	39	3	0
Koto Tengah Sub-District	81	8	0
Padang Utara Sub-District	54	18	2
Pauh Sub-District	20	17	0
Padang Timur Sub-District	32	5	1
Padang Barat Sub-District	20	15	0
Bungus Teluk Kabung Sub-District	31	4	0

The table above shows the types of residential buildings occupied by respondents. The majority of respondents lived in permanent (concrete) structures, totaling 366 houses, followed by semi-permanent buildings with 117 houses, and wooden houses with 15 units.

**Table 13. Type of Insurance Owned by Respondents**

Sub-District	Life Insurance	Building Insurance	Vehicle Insurance	None
Padang Selatan Sub-District	19	2	1	13
Kuranji Sub-District	9	2	5	23
Lubuk Begalung Sub-District	16	6	0	16
Lubuk Kilangan Sub-District	15	1	5	15
Nanggalo Sub-District	15	3	2	22
Koto Tengah Sub-District	21	5	5	58
Padang Utara Sub-District	13	2	4	55
Pauh Sub-District	14	1	1	21
Padang Timur Sub-District	10	1	5	22
Padang Barat Sub-District	11	1	3	20
Bungus Teluk Kabung Sub-District	5	0	2	28

Based on the table above, it was found that 148 respondents had life insurance, 24 respondents had building insurance, and 33 respondents had vehicle insurance, while 293 respondents did not have any form of insurance.

**Table 14. Availability of Nearest Evacuation Site**

Sub-District	Available	Not Available	Do Not Know
Padang Selatan Sub-District	26	3	6
Kuranji Sub-District	27	2	10
Lubuk Begalung Sub-District	24	4	10
Lubuk Kilangan Sub-District	27	2	7
Nanggalo Sub-District	20	8	14
Koto Tangah Sub-District	42	16	31
Padang Utara Sub-District	49	10	15
Pauh Sub-District	24	6	7
Padang Timur Sub-District	25	5	8
Padang Barat Sub-District	22	5	8
Bungus Teluk Kabung Sub-District	11	11	13

The figure above illustrates the availability of evacuation sites near respondents' residences. The results indicate that 297 respondents (61%) had access to nearby evacuation sites, 72 respondents (14%) did not have access to evacuation sites, and 129 respondents (25%) were unaware of whether such facilities were available near their residences.

**Table 15. Distance of the Nearest Evacuation Site**

Sub-District	< 1 Km	1 -2 Km	>2 Km	Do Not Know
Padang Selatan Sub-District	7	19	3	6
Kuranji Sub-District	16	5	6	12
Lubuk Begalung Sub-District	12	10	8	8
Lubuk Kilangan Sub-District	6	13	6	11
Nanggalo Sub-District	9	11	5	17
Koto Tangah Sub-District	19	11	15	44
Padang Utara Sub-District	22	16	6	30
Pauh Sub-District	11	9	7	10
Padang Timur Sub-District	7	7	11	13
Padang Barat Sub-District	4	12	14	5
Bungus Teluk Kabung Sub-District	10	8	5	12

The table above presents the distance between respondents' residences and the nearest evacuation sites. The results show that 123 respondents lived within less than 1 km, 121 respondents within 1–2 km, and 86 respondents at distances greater than 2 km, while 168 respondents did not know the distance to the nearest evacuation site.

**Table 16. Food Stockpile Preparedness**

Sub-District	Always	Sometime	Rarely	Never
Padang Selatan Sub-District	9	8	14	4
Kuranji Sub-District	6	13	10	10
Lubuk Begalung Sub-District	9	14	9	6

Sub-District	Always	Sometime	Rarely	Never
Lubuk Kilangan Sub-District	7	18	7	4
Nanggalo Sub-District	6	18	10	8
Koto Tengah Sub-District	9	32	15	33
Padang Utara Sub-District	6	22	20	26
Pauh Sub-District	7	17	3	10
Padang Timur Sub-District	3	16	8	11
Padang Barat Sub-District	7	11	13	4
Bungus Teluk Kabung Sub-District	6	9	3	17

The table above also shows the availability of food stockpiles among respondents in the event of a sudden earthquake. The results indicate that 75 respondents always prepared food stockpiles, 178 respondents sometimes did, 112 respondents rarely did, and 133 respondents never prepared such supplies.

**Table 17. Availability of Mineral Water Supplies**

Sub-District	Always	Sometime	Rarely	Never
Padang Selatan Sub-District	8	9	16	2
Kuranji Sub-District	12	11	6	10
Lubuk Begalung Sub-District	10	3	19	6
Lubuk Kilangan Sub-District	7	17	9	3
Nanggalo Sub-District	8	10	8	16
Koto Tengah Sub-District	14	30	14	31
Padang Utara Sub-District	9	22	18	25
Pauh Sub-District	7	14	6	10
Padang Timur Sub-District	3	12	14	9
Padang Barat Sub-District	8	12	9	6
Bungus Teluk Kabung Sub-District	5	8	5	17

The table above presents the preparedness of respondents in terms of mineral water stockpiles for earthquake emergencies.

**Table 18. Availability of Medical Supplies**

Sub-District	Always	Sometime	Rarely	Never
Padang Selatan Sub-District	20	4	6	5
Kuranji Sub-District	12	13	8	6
Lubuk Begalung Sub-District	14	13	6	5
Lubuk Kilangan Sub-District	13	15	5	3
Nanggalo Sub-District	10	6	15	11
Koto Tengah Sub-District	23	21	20	25
Padang Utara Sub-District	13	16	19	26
Pauh Sub-District	7	14	7	9
Padang Timur Sub-District	11	9	7	11

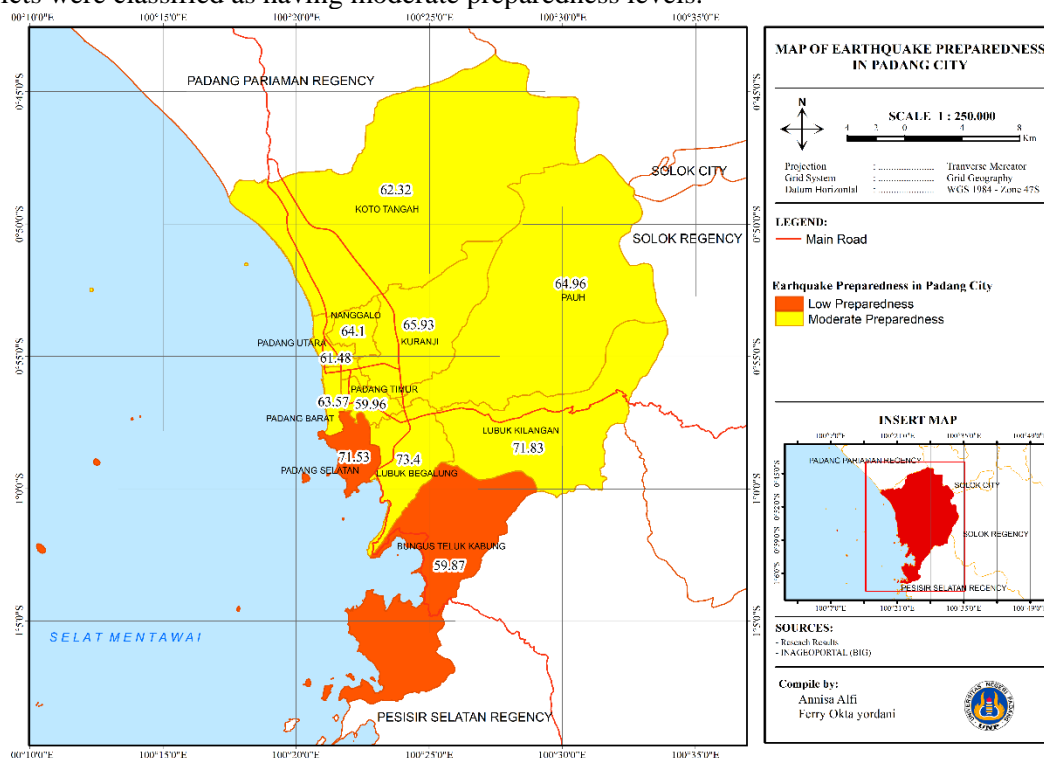
Sub-District	Always	Sometime	Rarely	Never
Padang Barat Sub-District	4	12	13	6
Bungus Teluk Kabung Sub-District	11	5	5	14

The results indicate that 29% of respondents always prepared medical supplies, 28% sometimes prepared them, 23% rarely prepared them, and 21% never prepared any zapnac of medicines.

**Table 19. Mean Preparedness Level**

Mean Preparedness Level		Category
Sub-District	Value	
Padang Selatan Sub-District	71.53	Moderate Preparedness
Kuranji Sub-District	65.93	Moderate Preparedness
Lubuk Begalung Sub-District	73.40	Moderate Preparedness
Lubuk Kilangan Sub-District	71.83	Moderate Preparedness
Nanggalo Sub-District	64.10	Moderate Preparedness
Koto Tangah Sub-District	62.32	Moderate Preparedness
Padang Utara Sub-District	61.48	Moderate Preparedness
Pauh Sub-District	64.96	Moderate Preparedness
Padang Timur Sub-District	59.96	Low Preparedness
Padang Barat Sub-District	63.57	Moderate Preparedness
Bungus Teluk Kabung Sub-District	59.87	Low Preparedness

Finally, based on Figure 6, the average preparedness level was determined according to the classification in Table 2. The results indicate that among the 11 Sub-Districts, Padang Timur and Bungus Teluk Kabung were categorized as having low preparedness levels, while the remaining Sub-Districts were classified as having moderate preparedness levels.



**Figure 6. Map of Earthquake Preparedness in Padang City**

## CONCLUSION

Based on the research conducted across the 11 Sub-Districts in Padang City, the following conclusions can be drawn:

1. The level of public knowledge regarding earthquake disasters in Padang City is categorized as moderate. In addition, the primary source of information used by the community to obtain earthquake-related information is the internet.
2. The condition of residential buildings in Padang City generally complies with earthquake-resistant building standards, with 59% of buildings meeting such criteria. On average, 71% of residents live in single-story buildings, and 71% of the buildings are classified as permanent structures. Only 5% of respondents reported having building insurance, while 57% do not have any insurance. Furthermore, 61% of respondents have access to nearby evacuation sites, whereas 14% do not have access to evacuation facilities. Additionally, 31% of respondents are unaware of the distance between their residence and the nearest evacuation site.
3. The overall level of community preparedness in Padang City, based on the 11 Sub-Districts, falls within the moderate category, with the exception of Padang Timur and Bungus Teluk Kabung Sub-Districts, which are categorized as having low preparedness levels.

## REFERENCES

- [1] Rusmit, Identifikasi Mekanisme Sumber Gempa Bumi di Selatan Pulau Jawa, Jakarta: Universitas Indonesia, 2006.
- [2] R. R. Putra, "Seismic Hazard Analysis for Indonesia," *Journal of Natural Disaster Science*, vol. 33, no. 2, pp. 60-22, 2012.
- [3] T. P. S. G. Nasional, Peta Sumber dan Bahaya Gempa Indonesia, Bandung: Pusat Penelitian Pengembangan Perumahan dan Pemukiman, 2017.
- [4] T. H. Bayong, Ilmu Kebumihan dan Antariksa, Bandung: Rosdakarya, 2006.
- [5] BPK RI, UU No. 24 Tahun 2007, Jakarta: BPK RI, 2007.
- [6] D. Djafri, Hubungan Tingkat Kesadaran dan Karakteristik Keluarga dengan Kesiapsiagaan dalam Menghadapi Gempa dan Tsunami Di Kota Padang, Padang: Unand, 2013.
- [7] A. M. Nur, Gempa Bumi, Tsunami dan Mitigasinya, Jakarta: LIPI, 2010.
- [8] BNPB, Buku Saku Tanggap, tangkas, Tangguh Menghadapi Bencana, Jakarta: PDIH BNPB, 2017.
- [9] A. W. Nartyas, Kesiapsiagaan Masyarakat Dalam Menghadapi Bencana Gempa Bumi di Kecamatan Wedi Kabupaten Klaten, Surakarta: UMS, 2013.
- [10] D. Hidayati, Panduan Mengukur Tingkat Kesiapsiagaan Masyarakat dan Komunitas Sekolah, Jakarta: LIPI, 2011.
- [11] G. Wu and dkk, "Mapping Individual Earthquake Preparedness in China," *Journal Natural Hazard and Earth System*, pp. 1315-1325, 2018.