

## Mini Research on Earthquake Alert at Jumbara PMI

Usiono <sup>1</sup>, Devita Aulia Putri <sup>2</sup>, Nurul Hasanah <sup>3</sup>, Tiara Paramita BR. Purba <sup>4</sup>

Universitas Islam negeri Sumatra Utara

### Article Info

#### Article history:

Received November 22, 2023

Revised December 6, 2023

Accepted January 9, 2024

#### Kata Kunci:

Earthquake Factors

PMI Jumbara Committee

Urgency of Disaster Awareness

### ABSTRACT

Earthquakes are a natural phenomenon that often occurs in Indonesia due to the interaction of tectonic plates. Indonesia's geography, which meets four of the world's tectonic plates, makes it prone to earthquakes. Preparedness in dealing with disasters is important, especially in schools as education and awareness centers. Children, as rapid learners, can be agents of change in shaping hazard awareness and disaster preparedness. This study aims to understand the opinions of the PMI Jumbara committee about disaster preparedness, describe the definition of disaster preparedness, and analyze factors related to earthquakes. Through a qualitative approach and interviews with five members of PMI's Jumbara committee, the results highlight actions to be taken during and after the earthquake, explain the factors that cause earthquakes, and strengthen the urgency of preparedness in facing disasters in Indonesia. In conclusion, preparedness and understanding of the right action during an earthquake are important in reducing the adverse effects of natural disasters.

*This is an open access article under the [CC BY-SA](https://creativecommons.org/licenses/by-sa/4.0/) license.*



### Corresponding Author:

Usiono

Universitas Islam negeri Sumatra Utara

Email: [usiono@uinsu.ac.id](mailto:usiono@uinsu.ac.id)

## INTRODUCTION

Earthquakes are natural disasters that occur relatively frequently in Indonesia, especially due to the interaction of tectonic plates. Indonesia is an archipelagic country located at the confluence of 4 (four) world tectonic plates, namely the Eurasian plate; the Australian plate; the Pacific plate; and the Philippine plate. The Australian plate and the Pacific plate are types of oceanic plates that are flexible, while the Eurasian plate is a type of continental plate that is rigid and rigid. The meeting of tectonic plates causes active jamming and faulting on the ocean floor and land. The activity of impact zones and faults has the potential to trigger earthquakes.

Preparedness is important and must be built in every group in society. Experience shows that the devastation caused by disasters can be drastically reduced if everyone is better prepared for disasters. Schools are educational centers that not only provide knowledge but also provisions for survival. Children are the fastest learners and are not only able to integrate new knowledge into everyday life but also become a source of knowledge for families and communities in terms of healthy and safe behaviors obtained at school. Therefore, disaster prevention is one of the focuses in schools by empowering children.

### Problem Statement

Based on the background above, it can be concluded that the formulation of the problem is "the opinion of the Jumbara committee about disaster preparedness and how the committee overcomes it."

### Author's Purpose

Based on the formulation of the problem above, it can be concluded that the author's goal is to find out the opinions of the Jumbara committee about disaster preparedness

### Theoretical Studies

#### A. Definition of Disaster Preparedness

Preparedness is an effort made to anticipate the possibility of a disaster. According to Sutton and Tierney (Dodon, 2013) Preparedness is an active protective measure implemented before and during a disaster, with short-term solutions and long-term solutions. Based on Law Number 24 of 2007, preparedness is a series of activities carried out to respond to disasters through fast, precise, and efficient procedures according to (Suharini et al., 2019) Disaster management is an emergency response activity in the situation before the disaster to respond quickly to the situation when a disaster occurs and immediately after a disaster Preparedness certainly has a legal basis. The legal basis for preparedness for the people of Indonesia is regulated in Law number 24 of 2007 Article 24, where in disaster management the condition of an area there is potential for disaster including preparedness, early warning, and disaster mitigation. Preparedness referred to in Law No. 24 of 2007 is an effort to be swift and responsive in dealing with disasters. Given the high potential for disasters in the territory of Indonesia, preparedness must and must be owned

Community. Preparedness in this Act includes:

- 1) Preparation and trial of disaster emergency management plans.
- 2) Organization, installation, and testing of early warning systems.
- 3) Supply and preparation of supply goods to meet basic needs.
- 4) Organizing, counseling, training, and rehearsals for emergency response mechanisms.
- 5) Preparation of evacuation locations or temporary evacuations.
- 6) Preparation of accurate data, information, and emergency response procedures
- 7) Preparation and completion of materials, goods, and equipment

Fulfillment and restoration of facilities and infrastructure. Preparedness Objectives Preparedness certainly has a purpose. Greg in (Dodon, 2013) explains that preparedness has a goal to minimize dangerous side effects with effective, timely, adequate, and efficient preventive measures to

#### B. Understanding Earthquakes

On its hatch, an earthquake is a vibration or a string of vibrations from the skin of the earth is not eternal and then spreads in all directions (Howel, 1969). Earthquakes are also large shocks that occur at once due to the accumulation of elastic energy or strains for a long time in continuity due to the process of moving continental and oceanic plates. The earth's skin vibrates continuously even though it is relatively very small. The tremor is not said to be an earthquake because the nature of the vibration is continuous, while earthquakes have a very clear beginning and end time of occurrence. The science that specifically studies earthquakes is called Seismology

Experts consider that four causes cause earthquakes, namely

- 1) Collapse of holes – holes in the interior of the earth
- 2) Tabrakan/ impact
- 3) Volcanic eruption
- 4) Tectonic activities

### Ruins Hole - Earth's Interior Hole

Collapse of interior holes such as caves or rock/mineral mines In the Earth, it can cause vibrations above its surface, but these vibrations do not too large and occurs only locally or occurs locally. Collisions of celestial bodies often called meteors can also cause vibrations, it's just that the vibrations are not recorded by earthquake vibration recording devices and are also very rare. Volcanic Eruption or Explosion Volcanic activity can cause earthquakes called volcanic earthquakes. These earthquakes occur either before, during, or after a volcanic eruption. The cause of this earthquake is the contact between magma and the volcano wall and gas pressure in a very strong eruption, or the sudden transfer of magma from the magma chamber. The strength of volcanic earthquakes is very weak and only occurs in areas around volcanoes that are currently active. Of all earthquakes that have a very large effect, they come from tectonic activities, which account for 90% of all earthquake activity. This earthquake is related to the activities of tectonic forces that have continued in the process of mountain formation, the occurrence of faults, and the pull or pressure of the movement of the rock plates that make up the earth's crust. The processes and paths of tectonic earthquake centers around the world can be explained by the theory of plate tectonics. The most active parts along the path of the earthquake pusa are located along the island arc and the continental edge or continental margin. The process of tectonic earthquakes is closely related to the presence of subduction zones,

## RESEARCH METHODOLOGY

### A. Types and Approaches of Research

Qualitative research is defined as an approach or tracing to explore and understand a central phenomenon. To find out the central symptom, the study interviewed study participants or participants by asking general and somewhat broad questions. The information submitted by the participants is then collected. The information conveyed is usually in the form of words or text. Data in the form of words, words, or text is then analyzed. The results of the analysis can be in the form of depictions or descriptions or can also be in the form of theme themes. From the data the researcher interprets to capture the deepest meaning, the final result of qualitative research is expressed in written form.

This study uses qualitative research with a description method approach. The descriptive method is by describing or describing the data that has been collected. This method aims to provide or describe a situation or phenomenon that occurs to answer the problem. This method is usually used to examine a group of people or objects, a condition, or a symptom regarding a particular population or area.

### B. Location and Time of study

The research location is Tuntungan, North Sumatra province. The study was conducted on Friday, October 13, 2023, at 10:00 a.m. until it was completed. The subject of this mini research research is the PMI jumbara committee as many as 5 people.

### C. Research sources

Research data The research sources and research data were obtained from 5 jumbara committees. Namely Rina Agustina (40 years old), Tina (32 years old), Aisyah (24 years old), Agus (35 years old) Lia Anggarini (26 years old)

### D. Data collection instrument techniques

#### 1. Interview

An interview usually called an Interview is direct contact or face-to-face between researchers and objects, to get the right information. The interview is the collection of data by asking questions directly from the interviewer (data collector) to the respondent, and the respondent's answers are recorded or recorded with a tape recorder. This interview is used by researchers to find out the situation about something, for example, to find data about the committee at Jumbara PMI

## 2. Observation

Observation is a method or way of analyzing something and making systematic records of behavior by seeing or observing. Observation is the process of direct observation of the object under study. At the time of observation, the researcher acts as an active observer such as recording, recording, and observing the behavior of the object observed.

## 3. Documentation Studies

Documentation studies are data collection techniques that are not directly shown to research subjects. Documents can be divided into primary documents, if this document is written by people who directly experienced an event, and skunder documents, if the event is reported by someone else and is subsequently written by someone else. In this study, researchers collect the necessary data related to the problem. This method helps researchers to obtain information and data about research sites and so on, namely in Tuntungan village.

## RESULTS AND DISCUSSION

Based on the results of interviews conducted, it was concluded that the PMI Jumara Committee on earthquake disaster preparedness is: the first question is the action you must take when a major earthquake occurs When an earthquake occurs when we are inside the building that they say first we must protect the head, and move to a safe place such as under a strong table, Do not rush outside the building or make excessive efforts, turn off the stove or other fire-using appliances. Third, If you are in a place with many people, do not rush to the fourth exit, Do not stand near chandeliers or other hanging items fifth, If you are using an elevator, stop at the nearest floor When an earthquake occurs while outside the first building, that is, Stay away from the building if the wall collapses, the notice board or glass from the window breaks falls from the top of the second, Evacuate or be in a building that looks solidly built third, Beware of concrete wall blocks or vending machines that collapse the fourth, Try to keep a distance from mountains or slopes where there is a risk of falling rocks or landslides the fifth, If you are driving a vehicle, do not immediately reduce speed. First, turn on the hazard lights, then reduce the speed. The car key must remain in the car when leaving the car. The second question is the things to watch out for after a major earthquake, they say: 1. Buildings with low earthquake resistance can collapse. If you are worried take shelter in an evacuation center, 2. Landslides can occur on cliffs and slopes. If worried take shelter at the evacuation center, if you cannot go to the center of such facilities take shelter on the second floor or above or move to a room away from cliffs and slopes 3. Soil liquefaction can occur in reclaimed land and riverside areas, causing loose and cracked soil. The third question is what action to take when a major earthquake occurs, they say 1. For about a week, beware of earthquakes that are as strong as the first quake. 2. Be prepared for shocks stronger than the first earthquake for days 3. Beware of falling rocks and landslides.4 Be on the lookout for possible collapse of buildings after moans recorded at an intensity of 6 months or more on a Japanese scale. The fourth question is: How earthquakes can occur is a contributing factor to earthquakes, they say Most earthquakes are caused by the release of energy produced by pressure caused by moving plates. The longer the pressure gets bigger and finally reaches a state where the pressure can no longer be held by the edges of the plate. the fifth question is: What if there is an earthquake in an open place but there are many trees, what should you do, they say that: All we have to do is avoid places with lots of trees and give a long distance to be prone to the tree falling. The sixth question is why Indonesia is one of the countries that often experience earthquakes, namely Indonesia is geographically located in the Pacific Ring of Fire or 'Ring of Fire'. The confluence of three world tectonic plates, the Indo-Australian Plate, the Eurasian Plate, and the Pacific Plate. Therefore, Indonesia is a country prone to disasters such as earthquakes, volcanic eruptions to tsunamis.

## CONCLUSION

Preparedness is an effort made to anticipate the possibility of a disaster. According to Sutton and Tierney (Dodon, 2013) Preparedness is an active protective measure implemented before and during a disaster, with short-term solutions and long-term solutions. In essence, earthquakes are vibrations or series of vibrations from the earth's skin that are not eternal/temporary and then spread in all directions (Howel, 1969). Earthquakes are also large shocks that occur at once due to the accumulation of elastic energy or strains for a long time in continuity due to the process of moving continental and oceanic plates. When an earthquake occurs when we are inside a building they say first we must protect our heads, and move to a safe place such as under a strong table, do not rush outside the building or make excessive efforts, turn off the stove or other fire-using appliances. Third, If you are in a place with many people, do not rush to the fourth exit, Do not stand near a chandelier or other hanging items the fifth, If you are using an elevator.

## REFERENCES

- [1] Pribadi, Khrisna S, dkk. 2008. Buku Pegangan Guru Pendidikan Siaga Bencana. Bandung: Pusat Mitigasi Bencana ITB
- [2] Dodon. 2013. "Indikator dan Perilaku Kesiapsiagaan Masyarakat di Permukiman Padat Penduduk Dalam Antisipasi Berbagai Fase Bencana Banjir" dalam Jurnal Perencanaan Wilayah dan Kota, Vol. 24 No.2, Agustus 2013, Bandung: Institut Teknologi Bandung.
- [3] Mulyo, agung 2004. Pengantar ilmu kebumihan untuk pengetahuan geologi untuk pemula. Cv Pustaka setia, Bandung
- [4] Conny R. Semiawan. 2008. Penelitian kualitatif. Jakarta: Grasindo.
- [5] Maryam B Gainau. 2016. Pengantar metode penelitian. Yogyakarta PT Kanius
- [6] Irawan Soehartono, 1995. Metode Penelitian sosial. PT Remaja Rosdakarya
- [7] Uswatun hasanah, 2020. Pengantar Microteaching. Yogyakarta Depublish.
- [8] Sukandar Rumidi. 2012. Metode penelitian. Yogyakarta: Gajah mada prees.