



[Research Article]



Disaster Mitigation with Local Wisdom in the Community of West Sumatra

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Article Info:	Abstract
Received: 25 February 2024 Accepted: 11 May 2024 Published: 3 June 2024 Keywords: local wisdom; disaster mitigation; Minangkabau.	West Sumatra Province is an area that has often been hit by disasters since ancient times, such as floods, earthquakes and tsunamis. This is related to geographical conditions where tectonic plates often move. Natural disasters have changed the way people live to adapt to face this phenomenon. This research aims to describe the form of local wisdom of the Minang community in mitigating disasters that often hit the area. The method used is a literature study developed descriptively with secondary data from relevant research on the topic. The results found that the local wisdom of the Minang community as a form of mitigation is in the form of proverbs with a philosophy of harmony with nature, the shape of the house and philosophical principles in the order of life so that they are able to live in harmony with nature conservation.
Informasi Artikel:	Abstrak
Diterima: 25 Februari 2024 Disetujui: 11 May 2024 Dipublikasi: 3 Juni 2024 Kata kunci: kearifan lokal; mitigasi bencana; Minangkabau.	Provinsi Sumatera Barat merupakan daerah yang sering dilanda bencana sejak dulu kala seperti banjir, gempa bumi, dan tsunami. Hal ini berhubungan dengan kondisi geografisnya yang sering terjadi pergerakan lempeng tektonik. Bencana alam telah merubah tatanan hidup masyarakatnya untuk beradaptasi dalam menghadapi fenomena tersebut. Penelitian ini bertujuan untuk mendeskripsikan bentuk kearifan lokal masyarakat Minang dalam upaya mitigasi bencana yang sering melanda wilayah ini. Metode yang digunakan adalah studi literatur yang dikembangkan secara deskriptif dengan data data sekunder dari penelitian relevan terhadap topik tersebut. Hasilnya didapati bahwa kearifan lokal masyarakat Minang sebagai bentuk mitigasi berupa pepatah pepatah dengan filosofi keselarasan dengan alam, bentuk rumah serta prinsip falsafah dalam tatanan kehidupan agar mampu hidup selaras dengan kelestarian alam.

INTRODUCTION

West Sumatra is one of the provinces in Indonesia with an area of 42,012.89 km² with a population in 2020 of 5,534,472 people and a growth rate of 1.29% (BPS Sumatra Barat, 2020). This province has 391 island groups with the largest number being in the Mentawai Islands (Dirjen PDSPKP KKP, 2018). This province is also an area that has the potential for natural disasters such as floods, tsunamis and earthquakes. West Sumatra is an area that is very threatened by the movement of the Mentawai Megathrust plate. The National Disaster Management Agency also stated that this province had a high Disaster Risk Index (Indeks Risiko Bencana/IRB), namely 150.24 in 2020 (BNPB, 2020).

Earthquakes are a natural disaster that often occurs in West Sumatra in the 2016 period, where 195 incidents were recorded, whereas in 2018 data there were 75 incidents in the study conducted (Ma'muri, 2016, Satria et al., 2018). The impact of plate shifts and tectonics is closely related to the potential for tsunamis. The area frequently hit by tsunamis in West Sumatra is the Mentawai Islands, which are home to the Mentawai tribe. It was recorded that in 2010 a tsunami originating from an earthquake with a magnitude of 7.2 SR caused casualties and property on the islands of Pagai and Sipora (Mustafa, 2010).

West Sumatra is an area that has indigenous residents, namely the Minangkabau ethnic group, who adhere to kinship from the mother's lineage and uphold their identity as followers of the Islamic religion. This kinship relationship through the mother's line is known as matrilineal descent. Apart from a child taking on his mother's tribe, this also means passing on inheritance along the mother's line. The inheritance referred to is in the form of inherited assets that have been passed down through the maternal line or the results of the efforts of the

mother and father while they were married. The Minangkabau ethnic group is also known as a community that has loyal ideals or principles regarding the culture and kinship of each other (Malik, 2016). In this regard, disasters in the West Sumatra region have become a culture-forming factor where the lives of ancestors and predecessors have also experienced coexistence with inherited disaster phenomena, thus forming a culture in an effort to survive and adapt to frequent natural disasters. This local wisdom provides knowledge to adapt to ethnic relationships and the types of disasters that occur in this area. The aim of this research is to identify local wisdom in mitigation efforts for natural disasters that impact social life in West Sumatra.

METHOD

This research was conducted in West Sumatra Province, Indonesia. West Sumatra has a fairly high level of earthquake risk. This risk can be caused by various geological factors, one of which is the existence of fault segments in various regions in Indonesia. In West Sumatra, there are seven segments of the Sumatran fault which can increase the potential for an earthquake followed by a tsunami. The seven fault segments include the Siulak, Tulisi, Sumani, Sianok, Sumpur, Barumon and Angkola segments. These faults are cracks in the earth's crust where two parts of the earth's crust move relative to each other. When the pressure accumulated in a fault releases suddenly, enormous energy is released in the form of an earthquake followed by a tsunami. This province consists of 12 districts and 7 cities. The Mentawai Islands are also referred to as Nagari where many ethnic Minangkabau live. Through the ethnicity of this region, the community has unique preparedness in facing disasters. (Figure 1).



Figure 1. Map of West Sumatra Province Administrative

The method used in this research is literature study combined with descriptive discussion. The collection of relevant scientific papers is carried out based on topics that are relevant to this research. The data used is in the form of secondary data because the data is data created by other researchers and related agencies (Melfianora, 2019) which is related to local wisdom regarding mitigation efforts for disasters that occurred in West Sumatra.

RESULT AND DISCUSSION

Local Wisdom as Disaster Mitigation

Traditional values that are reflected in wise behavior in a community are virtues that can be emulated as a means of resilience in facing disasters or even in order to recover from adversity after a disaster. The most basic mitigation for disasters is in the social system, such as parents used to teach that environmental sustainability is very important because it can be a protector in the future due to damage to nature. The synergy between human life and the environment creates harmony between humans and nature. In anthropology, the terms local wisdom, local genius or local knowledge are also known as a form of social practice, how local wisdom is embedded in a community. There are many things in disaster prevention efforts that were built from the cultural

revolution, even disaster mitigation is a measure of how much civilization a nation or community has in responding to disasters and the speed of recovery. Many disaster mitigation efforts in the Minang community are based on story telling, proverbs, folk tales, poetry or myths and legends. This naturally spreads through interactions in social life in West Sumatra.

Minang Community Principles for Disaster Mitigation

The Minang people who live in the West Sumatra area have long understood the potential disasters. However, the Minang people believe that the earth and natural systems have signs that can be seen as clues on how to survive a disaster. In Malay culture, especially Minang people, speaking is a habit that cannot be separated from an identity. In relation to disasters, this is stated in the proverb "*Panakiak pisau sirauik, Kagalah batang lintabuang, Salodang ambiak ka nyitu, Nan satitiak jadikan lauik, Sakapa jadikan gununang, Alam takambang jadi guru*" which can be interpreted as norms and ethics that regulate life as it makes humans act naturally to live as one with each other. There is no competition to be superior because everyone has their own roles, advantages and disadvantages. Humans can catch the signs naturally and quickly. The meaning of this proverb is an effort

to harmonize people's lives with nature in order to reduce the occurrence of disasters, especially due to human behavior itself.

A Minang proverb also hints at choosing the right location to live to prevent the impact of a large tsunami disaster which reads "*Mancaliak tuah ka nan manang, Sakali aia gadang, Sakali tapian barubah*" which can be interpreted as how the water wins and observe, if big water hits a bank in that area, the order of life will certainly change too. The meaning of this proverb is also related to the tsunami disaster or erosion of the coastline of West Sumatra which can change people's lives because of its broad impact on life, and learn from the behavior of the flash flood so that humans can survive (Rozi, 2017). This is also reinforced and emphasized in studies of coastline changes (Haryani et al., 2019). This indicates that humans can read disaster phenomena that have been experienced and pass them on in the form of cultural heritage products as a form of disaster mitigation effort for life after their generation (Agusintadewi, 2019).

Forms of Mitigation with the Local Wisdom

The tsunami disaster is a scourge for the people of the Mentawai Islands due to the geographic condition of the islands which still contain active faults and their location as a small archipelago in the Indian Ocean. The Mentawai people have implemented mitigation in their

way of living by making houses on stilts to live in. The house has dippers as an evacuation route when a flood occurs from the sea (Figure 2). This is an adaptation of Mentawai coastal communities to natural phenomena that have the potential to become disasters (Zuriyani, 2014). Mentawai people also have the belief in "*Arat Sabulungan*" as a form of human behavior in treating nature because of their belief in all things having authority, including forests. Therefore, this ethnic group believes that preserving nature is the same as a form of respect for the ruler known as "*Ulau Manua*" (Yolanda & Wilis, 2018).

The very famous original house of the Minang people is the "Rumah Gadang" (Figure 3a). Architecturally, the house can describe the social system of the community. If you look more closely at the "Rumah Gadang" design, it is a form of resilience in facing disasters such as floods, earthquakes and tsunamis. The shape of this house is like a vessel supported by long vertical poles resembling a ship but has a slope with a height of about 3 meters from the ground, thus forming a strong, high and flexible foundation (Figure 3b). "Rumah Gadang" is proven to be earthquake resistant because it originates from geographical conditions which created the philosophy of the maker, such as the strength of a ship that sails amidst the shaking waves but remains sturdy (Habibi & Santosa, 2018).



Figure 2. Mentawai Coastal Traditional House (Martison, 2017)



Figure 3. a) Shape of Rumah Gadang; and b) Supporting Pillars for Rumah Gadang (Habibi & Santosa, 2018)

CONCLUSION

In principle, the Minangkabau people are a community that has a very strong culture which makes this community educated from the cultural heritage produced by their predecessors in West Sumatra. This community culture upholds religious values and norms, life ethics, honesty and close brotherhood. The vision of humans as a society that carries out their lives in harmony with nature naturally arises from reading the phenomena indicated by nature. From there, this community adapts to its environment. From a social aspect, the Minangkabau people have built a kinship system which can become capital for community development, especially in the context of disasters. Kinship and loyalty to leaders is actually an opportunity in disaster management even up to the recovery stage so that it does not produce major detrimental impacts. This local wisdom gave birth to culture such as tell a story, building design and choosing residential locations as mitigation efforts and reducing the impact of natural disasters, both preventable and non-preventable. It is also hoped that this local wisdom can be introduced more widely considering its usefulness, especially in the context of disasters.

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