

Mentawai Tribe's Natural Disaster Mitigation Model Through Local Wisdom

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Abstract: This study aims to identify and analyze mitigation and adaptation to natural disasters carried out by the Mentawai tribe. This study uses a qualitative research type with an ethnographic approach. Determination of informants in this study used the snowball sampling method, a sampling technique that starts with a small number then develops along with the data collection process. Data collection techniques: direct observation in the field, interviews, documentation, and literature studies. Data analysis was carried out through the stages of data collection, data reduction, data presentation, and drawing conclusions. Results of this study indicate that there are two models of natural disaster mitigation based on local wisdom, namely the stilt house (Uma) which is located in coastal communities and arat sabulungan which is located in hilly communities. Local wisdom of Uma which is located in coastal areas is used and trusted for mitigating earthquakes, tsunamis and floods. Local wisdom of arat sabulungan for mitigating landslides in the Mentawai hills. This study also shows structural adaptation strategies, socio-cultural adaptation and economic adaptation of the community in dealing with natural disasters in the Mentawai Islands region. Conclusion is that with local wisdom, communities are able to maintain the existence of their lives.

Keywords: Adaptation; Local wisdom; Mitigation; Natural disasters.

Introduction

Indonesia is in a tropical rainforest with a geographical location that is rich in natural potential but is also prone to disasters (Hasbi et al., 2023). Indonesian territory has a very high risk of various forms of natural disasters that threaten and disrupt people's lives and livelihoods (Paschalia et al., 2022). Indonesia is a country that is located on three tectonic plate meeting paths that are actively moving so that in Indonesia earthquakes often occur (Kosim et al., 2023). Indonesia is known as a disaster supermarket country. This statement is supported by the first fact that Indonesia is an archipelago located at the intersection of three large plates, namely Eurasia, Indo-Australia and the Pacific, the second fact that Indonesia has 130 active volcanoes

type A, B and C, the third fact that there are 5000 large and small rivers in Indonesia, 30% of which cover the entire Padang area. In the past year, the total number of disasters in Indonesia has reached 5400. Looking at the condition of the Indonesian territory which is almost completely surrounded by the sea so that it is very potentially prone to earthquake and tsunami disasters (Mahendra et al., 2023). Natural disasters are a series of events that threaten and disrupt people's lives, both caused by natural and non-natural factors that result in casualties, environmental damage, property losses and psychological impacts (Fauza et al., 2023).

One of the regions in Indonesia that has a high disaster intensity is the Mentawai Islands.. Coastal cities globally are grappling with the dual threats of rising sea levels due to climate change and the potential for

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tsunamis and other maritime disasters (Irwansyah et al., 2024). In coastal areas, another problem faced is the threat of various hydrometeorological disasters, such as tropical cyclones, coastal erosion, and rising sea levels (Zulfadrim et al., 2018). As a disaster-prone area, disaster mitigation is necessary to reduce losses caused by disasters (Suryani & I., 2020). The Mentawai tribe is the oldest tribe in Indonesia that has inhabited the Mentawai Islands since 500 BC, the Mentawai tribe has an animist belief called *arat sabulungan*, which considers all objects to have spirits and souls. The religion practiced by the Mentawai tribe is *arat sabulungan*, which is a variation of the belief about various supernatural powers possessed by ancestral spirits or *ketsat* (Munandar et al., 2022). The Mentawai tribe has three types of traditional houses, namely *uma*, *lalep* and *ribs* which are shaped like wooden or bamboo stilt houses. The Mentawai tribe has a tattoo tradition which is the oldest tattoo in the world which shows the identity and spiritual protection of its owner. The Mentawai tribe consumes sago as a staple food and also animal meat obtained from hunting, such as wild boar, chicken, deer and monkeys..

The success of the Mentawai tribe in maintaining the existence of its life amidst the threat of natural disasters is due to the availability of local wisdom, life experience and norms in interacting with each other. Local wisdom is one of the tools in the disaster management system, the existence of local wisdom allows the Mentawai people to recognize and read natural signs related to future natural disasters such as earthquakes and tsunamis (Putra et al., 2023). Indigenous knowledge incorporates holistic perspectives, intergenerational wisdom, and the integration of spiritual, ecological, and cultural dimensions (Birsyada & Utami, 2024). Local wisdom is related to intelligence, cleverness and policy in decision making in all aspects of community life (Prasetyo, 2019). The disaster communication of local communities in Indonesia is heavily related to their local cultures, including their religious beliefs and myths (Fakhriati et al., 2023).

The Mentawai Islands have the potential for complex natural disasters, including frequent earthquakes, tsunamis, landslides, floods and abrasion. Natural disasters shock societal structures, especially in communities in developing countries characterized with constrained resources and unreliable institutions (Mackay et al., 2024). Over the past several decades, various major natural disaster events have occurred including hurricanes/tropical cyclones with high winds and heavy flooding, tornadoes, earthquakes, fires, tsunamis, and many more (Mustafa et al., 2024). Most of the Mentawai Islands area, 90%, is located in the waters. The topography of the Mentawai Islands is very diverse,

including plains, rivers and hills with an average height of all sub-district capitals above sea level (DPL) of 2 meters, this condition makes the Mentawai Islands area vulnerable to disasters..

In the last decade, the intensity and quality of disaster threats in the Mentawai Islands have increased. Experiences like this have given birth to forms of local wisdom in efforts to mitigate and adapt to natural disasters, this is marked by the discovery of cultural traditions that are still carried out and believed in to maintain the balance of life with a changing and unpredictable environment. The results of the researcher's initial investigation and observation show that there are still many local wisdoms that are used and believed in for efforts to mitigate and adapt to natural disasters. Mitigation is an effort to reduce the impact of disasters on the health and safety of people's lives (Asman et al., 2020). To prevent or minimize the adverse effects of floods, we need to do mitigations (Balian et al., 2019). On of the great disaster in indonesia erathquakes. Tectonic earthquakes can cause disasters either directly or indirectly, this is very dependent on the magnitude of the magnitude generated when an earthquake occurs (Souisa et al., 2023). Furthermore, earthquake is only one example of a natural disaster that often strikes Indonesian. Other examples also include tsunami, landslide, draught, flood, storm, and volcanic eruption (Gunada et al., 2019).

To minimize the risk of disasters, disaster mitigation in society is very necessary (Barlian et al., 2021). Mitigation is a series of efforts made to minimize the risk of disaster (Marni et al., 2020). Disaster mitigation is a step that must be taken by the community, especially in the field of education (Mahendra et al., 2023). Mitigation is an action to prevent and reduce a disaster (Rengkuan et al., 2022). Some findings of local wisdom as cultural mitigation are still carried out ritual ceremonies to avoid natural disasters by the entire community. While structural mitigation such as the community still uses a philosophical approach to build houses called *uma*, the building is designed in such a way as to be disaster-resistant, the discovery of *sanggar*, *lalep* and *ribs* in every village as a place to gather and also a place to take shelter when a natural disaster occurs. This is one of the mitigations to avoid and reduce the risk of natural disasters. In addition to cultural and structural mitigation, the community in the Mentawai Islands also adapts to the dangers of natural disasters, the form of mitigation is like structural adaptation, socio-cultural adaptation and economic adaptation..

This research is important to do because it combines the approaches of anthropology, sociology, and disaster science in one study, with a focus on the unique culture of the Mentawai people. This research provides local-

based adaptation solutions that are specific to the island ecosystem, which is different from the mainland. This research also acts as a step in preserving the traditional knowledge of the Mentawai people which may be threatened with extinction in the era of modernization.

Method

This type of research is qualitative with an ethnographic approach. Ethnographic research is an in-depth study that focuses on natural behavior in individuals in the context of a culture or social group as a whole (Bogdan & Biklen, 1997). This study aims to understand how the relationship between culture and behavior, including how beliefs, values, concepts and attitudes influence the actions of a group of people. Data collection techniques in this study are direct observation in the field, interviews, documentation and literature studies.

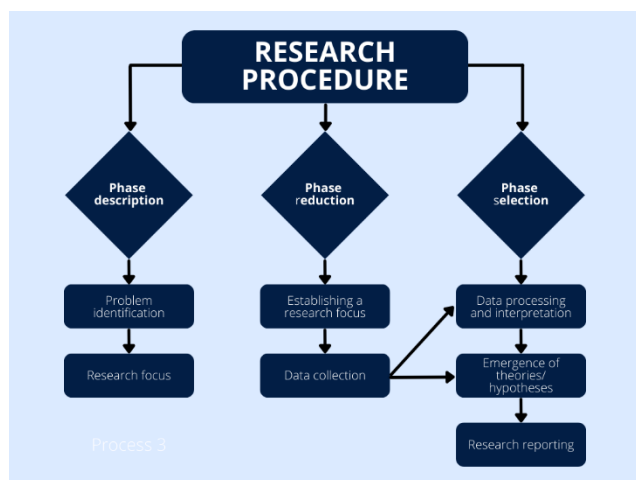


Figure 1. Research procedures

The data in this study consists of two types of data, namely secondary data and primary data. Primary data is information obtained directly from research informant sources, while secondary data is obtained through library studies and previous literature. Data analysis is carried out through four stages according to Miles and Huberman, namely data collection, data reduction, data presentation and drawing conclusions. Then to test the validity of the data, the triangulation method of sources, techniques and time is used. The data validity test aims to strengthen the validity of data in qualitative research (Barlian, 2016).

Result and Discussion

General findings of the study

This research was conducted on several islands in the Mentawai Islands, including the islands of South

Pagai, North Pagai, Sipora and Siberut. This research was conducted in July and August 2024.

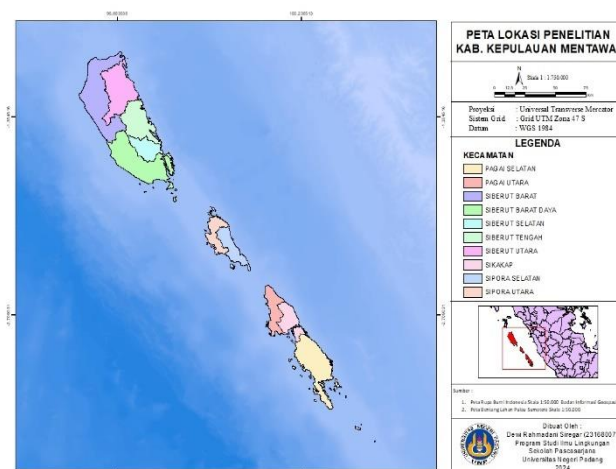


Figure 2. Research map in the mentawai islands

The Mentawai Islands are a group of islands located off the west coast of Sumatra, Indonesia in the Indian Ocean. The Mentawai Islands are administratively part of the West Sumatra Province and consist of four main islands, namely Siberut Island, Sipora Island, North Pagai Island and South Pagai Island and small islands between them. Geographically, the Mentawai Islands are bordered by the Siberut Strait to the north, the Indian Ocean to the south, the Mentawai Strait to the east, and the Indian Ocean to the west. The topography is diverse, namely some coastal land/flat land or areas that start from the coastline and rise to a slope zone of 0-3%, then low land or areas that have wavy topography with a slope of 3-8%, then middle land, or areas with low land towards the hills with a slope zone of 8-25% and finally up land or hilly areas with an altitude of between 50-275 meters above sea level with a slope of 25%.

With the geographical and topographic conditions in the Mentawai Islands, it is very possible that the intensity of natural disasters is very high. According to RPD (regional development plan) data, the Mentawai Islands are also included in the potential disaster-prone areas in the form of earthquakes (tectonic), large tsunami waves, coastal abrasion and landslides because of their location near the subduction zone, where the Indo-Australian tectonic plate meets the Eurasian plate. Of the 43 villages, 33 of them are coastal villages, which in the current condition the coastal area is a disaster-prone area for the danger of tsunamis. As happened on October 25, 2010, the Mentawai Islands experienced an earthquake measuring 7.2 SR. The following is an explanation of the tendency of disasters in the Mentawai Islands in the form of a table below:

Table 1. Tendency of disaster events

| Types of disasters | Tendency to occur |
|------------------------|-------------------|
| Extreme waves/abrasion | Increase |
| Earthquake | Increase |
| Tsunami | Increase |
| Flood | Increase |
| Landslide | Settle down |

This trend analysis is the basis for determining priority disasters that will affect the preparedness for disaster mitigation and adaptation that is chosen. Likewise, if seen from the level of disaster danger that will occur, the level of disaster danger is obtained based on the area affected by the hazard (low, medium, and high) which has the largest area of impacted hazard. The hazard index scale used is divided into three categories, namely low (0.0-0.33), medium (>0.33-0.66) and high (>0.66-1.00). The following table is shown below:

Table 2. Disaster hazard level

| Types of disasters | Danger level |
|------------------------|--------------|
| Extreme waves/abrasion | High |
| Earthquake | Currently |
| Tsunami | High |
| Flood | High |
| Landslide | High |

In terms of several types of natural disasters, they are distinguished based on their specifications. Conceptually, extreme waves and abrasion are two natural phenomena that are closely related to the movement of sea water, but have different mechanisms. Extreme waves are caused by rising sea water accompanied by large waves due to the pull of the moon's gravity. Abrasion is the process of coastal erosion caused by the force of ocean waves that continuously hit the land (Nur & Herman, 2024). Earthquakes are generally defined as deep movements in the earth's crust that produce vibrations on the earth's surface. Tsunamis are a series of ocean waves that spread at high speed on the surface. The linguistic definition of flooding is an increase in the water level that inundates the land. Floods can be explained as high water flows on the surface of the land and cannot be accommodated by drainage systems or rivers. Finally, the definition of landslides is a geological event in which there is a movement of soil, rock or other material on the slopes of hills or mountains due to gravity.

Overall, the details of the disaster-prone areas in the Mentawai Islands Regency consist of: Landslide-prone areas in the hilly areas of Siberut Island, North Pagai Island and South Pagai Island. Tidal wave-prone areas are spread across the coastal areas of the entire region. Earthquake and tsunami-prone areas are spread across the coastal areas of the entire region. Flood-prone areas are spread around the flow and estuary of the Talopulai

River and Makalo River in South Pagai District, Silabu River and Saumanganya River in North Pagai District, Taikako River and Matobe River in Sikakap District, Saureinu River in South Sipora District, Pogari River, Berimanua River and Betumonga River in North Sipora District, Sagulubbek River and Taileleu River in Southwest Siberut District, Saibi River in Central Siberut District, Siberut River in South Siberut District, Sikabalan River, Monganpoula River, Sotboyak River, Bojakan River, Sirilanggai River in North Siberut District, Simalegi River, Simatalu River, Berisigep River, and Policoman River in West Siberut District. Areas prone to abrasion are located at Muara Sikabalan Beach (North Siberut District), Muara Siberut Beach (South Siberut District), Mapaddegat Beach and Tuapejat Beach (North Sipora District), Sioban Beach, Beriulou Beach, Bosua Village Beach, Rokot Matobe Airport Beach (South Sipora District), and at Sikakap Beach (BAPPEDA, 2022).

Based on the description of disaster conditions in the Mentawai Islands Regency area that has been described above, it can be seen that this area has a fairly high level of vulnerability to natural disasters. In an effort to sustain life and livelihoods for the community in order to maintain its existence, reducing the risk of natural disasters needs attention. Efforts to anticipate the impact of disaster events are carried out in the form of disaster mitigation and adaptation. Mitigation itself is the process of seeking various preventive measures to minimize the negative impacts of disasters that will occur. Disaster mitigation efforts are part of increasing community capacity in dealing with disaster risks (Barlian et al., 2021).

Special Research Findings

Local Wisdom of Stilt Houses (Uma)

Reviewing and integrating local wisdom values is one of the efforts towards sustainability (Sakti et al., 2024). This indigenous knowledge cannot be regarded as a universal benchmark for disaster mitigation, nor are they intended as standardized references due to the diversity of Indonesian culture, as previously mentioned (Nopriyasman et al., 2024). Success in dealing with disasters is implementing the conservation values model in as an engaging guide and dissemination of local knowledge about disasters (Noviana et al., 2023). Social capital, often perceived as an accumulation resulting from individual interactions, emphasizes individuals' agency in building and utilizing connections within social structures (Gede Agung et al., 2024). Disaster is a natural phenomenon that can cause human fatalities and damage to the environment. Disasters can be caused by nature or by human activities (Palloan et al., 2023). Local wisdom is one form of mitigation and adaptation that exists in society. Many researchers say

that local wisdom is the earliest effort to mitigate disasters. Local wisdom in disaster mitigation can be manifested in concrete forms such as texts, building architecture, cultural artifacts, and in abstract forms such as advice conveyed orally and passed down from generation to generation (Munandar et al., 2022).

Mitigation according to Law No. 24 of 2007, is a series of steps to reduce disaster risk, both through physical development and increasing awareness and capacity in dealing with disaster threats. In line with this explanation (Putra et al., 2021) states that mitigation is a series of efforts to reduce disaster risk, both through physical development and increasing awareness and capacity to deal with disaster threats. Mitigation is also an effort or action to reduce disaster risk. By looking at the facts and conditions that have been presented, the Mentawai Islands have a high potential for natural disasters, so with such conditions the Mentawai community's mitigation and adaptation practices were born, so that until now they can still maintain their existence even though they live in an area prone to natural disasters, this proves that the availability of local wisdom in the Mentawai community is very successful in the practice of mitigation and adaptation to natural disasters.

One of the local wisdoms of the Mentawai people is the stilt house or what is called Uma by the Mentawai people. Uma means a house for living and sheltering. In general, the traditional house building of the Mentawai people, namely uma, is rectangular. This house has a stilt design built with wood and natural materials from the forest, such as rattan and sago leaves. Uma, the traditional house of the Mentawai people, is not only a symbol of culture and spirituality, but also plays an important role in facing various challenges, including natural disasters. The Mentawai Islands, located west of Sumatra Island, are an area prone to disasters such as earthquakes, tsunamis, and tropical storms. The history of Uma in Mentawai in the context of facing disasters is a story of adaptation, local wisdom, and the struggle of the community to maintain their identity amidst natural threats. Traditional houses are generally built without the support of building theory or principles, adapting to the climate and environment, built jointly (mutual cooperation) and adapting to the capabilities of the community (economy and technology), and utilizing natural materials.local (Yusmerianti et al., 2023). The functions of the stilt house in the Mentawai community are as follows Table 3.

Table 3. Function of stilt house

| Function of stilt house | Philosophy/utility |
|--------------------------------|---|
| Earthquake resistant | The structure of the stilt house is made earthquake-resistant because the pillars function as the center of strength of the building, made of strong and durable materials. |
| Residence | The main function of a stilt house is as a residence, with the stilt design intended to prevent wild animals from entering the house. |
| Place for storing farm produce | The majority of the Mentawai island people work as farmers and fishermen. The lower part of the stilt house is usually used as a place to store the produce from the fields to make it safer. |
| Place of business | The modified stilt house has a lower part that is used as a place of business, so that the house is transformed into a two-story building. |

The procedure for building (uma) a stilt house has various activities. The process of building a stilt house in the Mentawai community involves several stages that are closely related to customary values, spirituality and mutual cooperation, the procedure for building a stilt house in the Mentawai community includes choosing a location, performing a ritual before construction, mutual cooperation in carrying out its construction, using natural materials from the forest, erecting the main pillars, building floors and walls, installing the roof and finally performing a completion ritual. Parts of the stilt house (uma), the stilt house uma is built using natural materials from the forest, such as wood, bamboo, rattan and sago leaves. The Mentawai community greatly respects nature as a source of life and each element of the stilt house is chosen and used wisely without damaging the environment, the parts are the first pillar (sao) which functions as the main support for the building, then the floor, walls (sipat), roof (lalep), main door (simaleppet), main room, special room (sikerei), under the house, living room, stairs (getta) and finally the front terrace. The history of Uma in Mentawai in the face of disaster is a story of adaptation and local wisdom from its architectural structure to its spiritual function, Uma reflects the ability of the Mentawai people to live in harmony with their challenging environment. Despite the threats of modernization and natural disasters, Uma remains a symbol of resilience and cultural identity that needs to be preserved. Through revitalization and integration of modern technology, Uma is not only a legacy of the past, but also a future solution in dealing with disasters in the Mentawai Islands.



Figure 3. Mentawai tribe's stilt house

Analysis of the structure of stilt houses resistant to earthquakes, tsunamis and floods can be described through the construction of the building. Stilt houses are basically a multifunctional cultural heritage to maintain the existence of local communities inherited from ancestors and ancestors who lived in the past. To be clearer, researchers made an illustration of a picture related to the structure of a stilt house (uma) in disaster resilience, both related to natural disasters such as earthquakes, tsunamis and floods. Earthquakes are caused by the release of accumulated pressure between moving tectonic plates, which eventually reaches a point where the pressure can no longer be held (Bahri & Mungkin, 2019). The illustration is described as follows below:

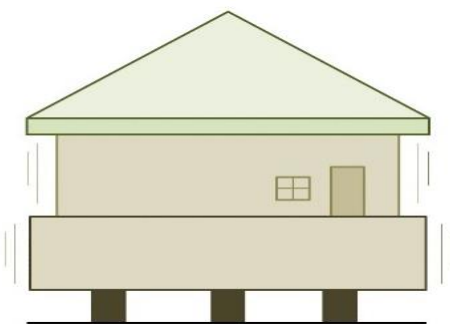


Figure 4. Earthquake resistant stilt house illustration

The construction of stilt houses in Mentawai has a planted foundation, the foundation made for this house is by digging the ground 3 meters deep to be used as a foundation, then for the pegs of this house there are 3 reinforcements, namely by tying, hammering and combining the pegs. Thus it is possible for this stilt house to be stronger against potential earthquakes. Related to the type of natural disaster, namely tsunami, because the Mentawai Islands are a coastal area, they are vulnerable to the threat of tsunamis. Stilt houses are also considered as one of the tsunami disaster mitigation efforts because when sea water rises to land, the waves do not directly hit the house building, but pass through the bottom of

the house. Thus, stilt houses are not easily collapsed and their structure remains intact when a tsunami occurs. On the other hand, in concrete houses, water waves directly hit the building, which can cause damage or even cause the concrete house to collapse. The illustration of a stilt house facing a tsunami is as follows.

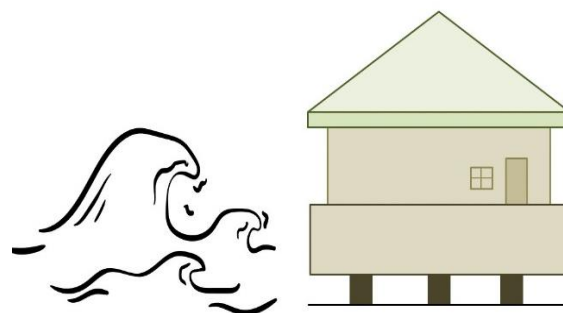


Figure 5. Illustration of a stilt house facing a tsunami

The next disaster that often occurs in the Mentawai Islands is flooding. Flooding in the Mentawai Islands, especially on Siberut Island, is a common problem. Floods are one of the most damaging natural disasters and phenomena that occur in both rural and urban areas (Purwanto & Paiman, 2023). One of the main causes is damage to the river basin ecosystem (DAS) triggered by deforestation. As a result, many rivers in Siberut are unable to accommodate large water discharges, causing overflows that result in flooding in surrounding villages. Floods in North Siberut, for example, are one of the most frequent. In addition to damage to the forest ecosystem, changes in land use and land exploitation activities further exacerbate the risk of disasters. The stilt houses they build are about 2-3 meters high, so that when the river overflows and floods occur, water does not enter the house. The design of this stilt house also makes it easier for them, because they do not need to evacuate their belongings to higher places. The construction of stilt houses is a form of mitigation and adaptation to flood disasters. The illustration of a stilt house as a flood disaster mitigation is shown in Figure 6.

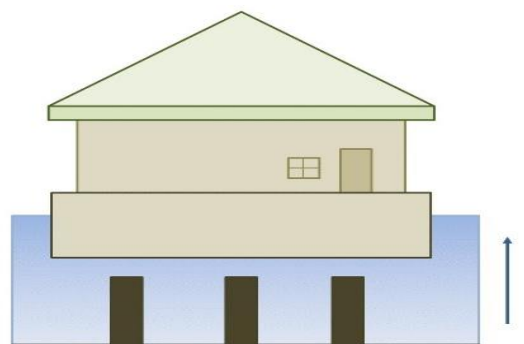


Figure 6. Illustration of a stilt house as a flood disaster mitigation

Local Wisdom of Arat Sabulungan

Local wisdom in disaster mitigation can be manifested in concrete forms such as texts, building architecture, cultural artifacts, and in abstract forms such as advice conveyed orally and passed down from generation to generation (Resha & Ernawati, 2019). In principle, Arat Sabulungan is a knowledge, value, rule and norm used by the community in understanding and interpreting the surrounding environment which consists of patterns of interaction between humans, animals, plants, soil, water, air and also objects made by humans. Arat sabulungan is a custom that lives in society which includes belief in supernatural things such as spirits and spirits that inhabit all of nature, both plants, animals, soil and objects made by humans (Islami et al., 2023). Analysis of arat sabulungan as landslide disaster mitigation is seen in how the Mentawai community carries it out. Arat Sabulungan has great potential as a landslide disaster mitigation system, especially because the values of local wisdom contained in this belief are closely related to environmental sustainability and wise use of natural resources. The following is an analysis of how arat sabulungan plays a role in landslide disaster mitigation: Respect for nature and control of deforestation, second for rituals as a form of reminder of local wisdom, third for wise use of land use, finally for protection of sacred land areas.

Arat Sabulungan as a belief system and local wisdom provides important guidance in preserving nature and contributing to landslide disaster mitigation (Naryanto et al., 2019). Landslide disasters, or often called land movements, are increasingly occurring in Indonesia from year to year. This incident generally occurs in mountainous areas, especially during the rainy season. By encouraging sustainable forest and land management, respect for nature, and wise land use, Arat Sabulungan can effectively reduce the risk of natural disasters such as landslides. This shows that local wisdom has an important role in community-based disaster mitigation strategies.

Local wisdom shows the social and cultural systems of people in Indonesia that are closely related to their surroundings. In addition to its applicability in disaster mitigation systems, local wisdom represents a valuable asset that requires preservation. It exemplifies the social and cultural frameworks of Indonesia, intricately intertwined with the environment, contributing to unique characteristics (Juita et al., 2020).

Natural Disaster Adaptation Strategy

Mitigation always goes hand in hand with adaptation. Adaptation can be explained as an effort to adjust for survival in the face of disasters. adding that the higher the level of adaptation, the greater the ability to survive and influence the survival of other creatures

(Putra et al., 2021). Adaptation is one way to ensure human survival. Community adaptation strategies to disasters are a form of adjustment made to avoid the impact of environmental threats (Barlian et al., 2021). Adaptation is a system of interaction that continues between humans and humans, and between humans and their ecosystem (Gilman et al., 2008). People in the Mentawai Islands are generally aware that their living environment is vulnerable to disasters, such as earthquakes and tsunamis. floods and landslides. However, they no longer view these disasters as a serious threat to survival, but rather as something common that can happen at any time. With this mindset, people have developed ways to adapt to their environmental conditions. This adaptation process is formed from repeated actions and adjustments to the environment. These repeated actions can produce the expected results or vice versa, not as expected. Tsunami-prone areas in the Mentawai Islands are found in every sub-district. Various adaptations have been made by the Mentawai Islands community to adjust to an environment prone to natural disasters, the following are adaptations made by the community:

Structural adaptation

Structural adaptation is intended to increase community resilience and capacity in dealing with natural disasters. According to the results of the research conducted, the Mentawai community carried out structural adaptation to reduce the impact of natural disasters. One way they did this was by planting mangroves along the coast individually by each family, then raising the height of the house building, building evacuation routes and implementing disaster socialization and education.

Socio-cultural adaptation

Social adaptation during natural disasters includes various actions and strategies carried out by communities to face and overcome the impacts of natural disasters. Social adaptation in this context refers to interactions between community members to restore, maintain, and achieve desired conditions in their environment. Adaptations made to social facilities include physical repairs with the aim that the facilities can be reused according to their function. Social facilities that are damaged by natural disasters, such as mosques and churches used for indigenous community activities, are the focus of repairs. Communities collaborate in mutual cooperation to repair the damage so that these facilities can function normally again. This mutual cooperation system is not only limited to repairing public facilities, but also includes repairing houses that are severely affected by disasters. Natural disasters often cause significant damage to several houses, so

community participation is very important in the repair process.

Economic adaptation

Economic adaptation is the process of adjustment carried out to overcome various obstacles from the environment that impact the economy of the community. This includes the ways in which communities continue their economic activities despite challenges from the surrounding environmental conditions. This adaptation allows communities to innovate and find solutions to maintain their survival and improve their economic well-being.

Conclusion

The people of Mentawai Islands Regency have local structural wisdom, namely the Stilt House, also known as Uma, which is used as a form of earthquake disaster mitigation, tsunami and flood. The stilt house is used as a form of earthquake disaster mitigation because the parts of the stilt house are reinforced with pegs so that each part of the Stilt House supports each other to maintain its construction against earthquake shocks that occur, in addition, the pillars on the Stilt House are the center of the building's strength because they come from strong natural materials; Local wisdom of the Stilt House for tsunami disaster mitigation because the pillars on the Stilt House are able to let sea water pass when a tsunami occurs; Local wisdom of the Stilt House for flood disaster mitigation because the Stilt House building has a height of 2-3 meters so that the house will not be submerged in floods. Philosophy of Disaster Resilience: The high structure of the stilt house is designed to deal with natural disasters such as earthquakes and floods. This philosophy reflects the community's ability to survive and adapt in difficult situations. The Mentawai people also adhere to the *arat sabulungan* belief system, where all objects/living things have spirits and creators, therefore the Mentawai people do not act excessively and use natural resources. Finally, the Mentawai people have structural adaptations in the form of mangrove planting, socio-cultural adaptations with rituals and mutual cooperation and economic adaptations with the transition of main livelihoods and additional livelihoods.

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Author Contributions

D. R. S: preparation of original draft, results, discussion, methodology, conclusions; E. B, I.D, and N. S; analysis, review, proofreading and editing..

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Conflicts of Interest

No conflict interest.

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