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Optimization of Mitigation Communication in Addressing Earthquake Threats in Majene Regency: Local Wisdom Based Approach

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Abstract: Majene Regency West Sulawesi has a very high level of earthquake vulnerability due to its position in an active subduction zone.This research identifies, analyzes and optimizes local wisdom-based earthquake mitigation communication using a qualitative ethnographic approach through in-depth interviews and participatory observation in five sub-districts.The results show that the Majene Regency Government faces limitations in formal mitigation communication due to budget and infrastructure constraints. However, the Mandar community developed a comprehensive mitigation communication system based on local wisdom: the terminology “linor” and “lino” for earthquakes, “lembo tallu” and “lembo pitu” for tsunamis, observation of natural signs as non-verbal communication, “banua kayyang” architecture as short communication, and the “tolak bala” ritual as spiritual communication. The communities implement this system in preparedness by using inherited knowledge for evacuation routes and verifying natural signs through BMKG information via smartphone.The Convergent Communication Model that integrates traditional communication with modern technology can be a solution to optimize mitigation communication to increase community preparedness.

Keywords: Earthquake, Local wisdom, Mandar community, Mitigation communication

Abstrak: Kabupaten Majene Sulawesi Barat memiliki tingkat kerentanan gempa sangat tinggi akibat posisinya di zona subduksi aktif. Penelitian ini mengidentifikasi, menganalisis, dan mengoptimalkan komunikasi mitigasi gempa berbasis kearifan lokal menggunakan pendekatan kualitatif etnografi melalui wawancara mendalam dan observasi partisipatif di lima kecamatan. Hasil menunjukkan Pemerintah Kabupaten Majene menghadapi keterbatasan komunikasi mitigasi formal akibat kendala anggaran dan infrastruktur. Namun, masyarakat Mandar mengembangkan sistem komunikasi mitigasi komprehensif berbasis kearifan lokal: terminologi “*linor*” dan “*lino*” untuk gempa, “*lembo tallu*” dan “*lembo pitu*” untuk tsunami, observasi tanda alam sebagai komunikasi non-verbal, arsitektur “*banua kayyang*” sebagai komunikasi struktural, dan ritual “*tolak bala*” sebagai komunikasi spiritual. Masyarakat menerapkan sistem ini dalam kesiapsiagaan dengan menggunakan pengetahuan turun-temurun untuk rute evakuasi dan memverifikasi tanda alam melalui informasi BMKG via smartphone. Model Komunikasi Konvergen yang mengintegrasikan komunikasi tradisional dengan teknologi modern dapat menjadi solusi optimalisasi komunikasi mitigasi untuk meningkatkan kesiapsiagaan masyarakat.

Kata kunci: Gempa bumi, Kearifan lokal, Masyarakat Mandar, Komunikasi mitigasi

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Introduction

Indonesia, as a country located at the convergence zone of three major tectonic plates, namely the Eurasian, Indo-Australian, and Pacific Plates, has a very high level of vulnerability to earthquakes. This geological position places Indonesia among the most seismically active countries in the world, with an average of 7,000 earthquake events recorded annually (BMKG, 2022). Such complex tectonic activity forms subduction zones and active fault systems distributed throughout the archipelago, generating earthquake hazards that range from minor tremors to megathrust events capable of triggering destructive tsunamis. Majene Regency in West Sulawesi Province is one of the regions with a particularly high level of seismic vulnerability, primarily due to its location within the active subduction zone of the Makassar Strait Thrust, which has a history of recurring seismic activity at decadal intervals.

Historical records show that Majene Regency has been repeatedly hit by major earthquakes that have had a significant impact on the lives of the community. The 7.0 Mw earthquake on February 23, 1969, centered off the coast of Majene, triggered a tsunami with a maximum *run-up* height of 4 meters in Peletoang and 1.5 meters in Parosanga and Palipi, killing at least 64 people with a potential 600 additional victims and injuring 97 people. More than five decades later, on January 15, 2021, the same region was again hit by a 6.2 Mw earthquake centered 7 km northeast of Majene at a depth of 10 km. The 2021 tragedy claimed 81 lives, damaged more than 7,800 homes, and forced approximately 37,000 people to evacuate (BNPB, 2021). This recurring pattern of seismic activity with an interval of 52 years indicates a seismic cycle that requires continuous and systematic mitigation preparations.

In the global context, disaster mitigation communication has been recognized as a fundamental component of the 2015-2030 Sendai Framework for Disaster Risk Reduction. Disaster mitigation communication not only serves to disseminate technical information about hazards, but also functions as a complex process involving cognitive, affective, and behavioral dimensions in shaping risk perception and encouraging adaptive action (Wachinger, G., et al., 2013). Furthermore, the same study also shows that the effectiveness of mitigation communication heavily depends on its ability to resonate with the socio-cultural context of the target community, including belief systems, traditional values, and historical experiences with disasters. This is also supported by research conducted by (Rahmani, M., et al., 2022), which states that culture is an important context for those affected by disasters to develop adaptive strategies and process external assistance and support. This is even more important for children and adolescents who are in the process of forming their cultural/ethnic identity.

When applied to traditional communities, mitigation communication that ignores cultural dimensions often faces significant implementation barriers due to the irrelevance of the message to local understanding. The mitigation communication paradigm in Indonesia itself is still dominated by a technocratic and *top-down* approach that often ignores the enormous potential of communication based on local wisdom. Ironically, the Indonesian people actually have a very rich cultural heritage in the form of traditional knowledge systems that have proven effective in anticipating and managing disaster risks throughout the history of the archipelago's civilization.

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Local wisdom, as defined in Law No. 32 of 2009 concerning Environmental Protection and Management, refers to noble values that apply in community life to protect and manage the environment in a sustainable manner (Undang-Undang Republik Indonesia Nomor 32 Tahun 2009 Tentang Perlindungan Dan Pengelolaan Lingkungan Hidup, 2009). In the context of disaster mitigation, local wisdom encompasses three main dimensions: local knowledge, which is formed through long-term observation and interaction with the environment; *local wisdom*, which is accumulated through generations of experience; and *local genius* (local intelligence) which represents the adaptive capacity of communities in facing environmental challenges (Sartini, 2008). This traditional knowledge system has unique characteristics because it is holistic, contextual, and has been tested through a process *of trial and error* that has lasted for generations.

Previous studies have also shown the successful implementation of local wisdom-based mitigation communication in various regions of Indonesia. The traditional early warning system "Smong" in Simeulue has proven effective in saving thousands of lives during the 2004 tsunami through the transmission of knowledge through traditional songs containing mitigation messages (Syafwina, 2014). West Sumatra has Rumah Gadang architecture with a nail-free construction system that has shown remarkable resistance to earthquakes due to the principle of structural flexibility that allows buildings to sway without collapsing (Fajrin, J., et al., 2016). Furthermore, the Nias community has also developed a traditional construction system called *"Omo Hada"* which uses nail-free wood joints and stone foundations that allow buildings to withstand major earthquakes (Daly, P., et al., 2019).

Local wisdom has proven to play a strategic role in building effective mitigation communication. Pakniany, Y., et al (2022) reported on the effectiveness of the traditional communication system in Nuwewang Village, Southwest Maluku, where the community uses the cry "*Opruru Ampuapenu o*" as an earthquake warning and applies construction practices using local earthquake-resistant materials. Furthermore, research by (Putri, N. A., et al., 2024) also identified the successful integration of local wisdom with modern mitigation systems in the indigenous community of Kasepuhan Ciptagelar, which showed a significant increase in community preparedness. Meanwhile, a study conducted by (Puspitasari, A. E., et al., 2018) in Tieng Village, Wonosobo Regency, shows that communication based on local narratives has a higher level of acceptance and understanding compared to formal communication.

In the context of disaster communication, recent research conducted by (Pratama, A. D., et al., 2024) shows the importance of integrating traditional and modern media to improve the effectiveness of information dissemination. The study shows that traditional and modern media can complement each other in providing disaster information to the public. Traditional media such as kentongan (wooden percussion instruments), bedug (drums) and oral communication systems have advantages in terms of accessibility and cultural familiarity, while modern media offer advantages in terms of speed and geographical reach. A recent study on disaster mitigation communication in Palu, Central Sulawesi, also revealed significant weaknesses in the disaster communication system, including the failure of the early warning system and a

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lack of public education (Sari, D. P., & Wijaya, 2024), indicating the need for a more adaptive and contextual communication approach.

The international perspective on integrating traditional knowledge into disaster mitigation is also gaining legitimacy in the global academic sphere. Within the framework of *Disaster Risk Reduction* (DRR), traditional knowledge is viewed as empirical accumulation born from long-term interactions between indigenous communities and their environment, and developed through adaptive practices and trial and error processes across generations (UNDRR, 2021). In Indonesia, the indigenous response to natural hazards, especially earthquakes, is to adapt house construction to the hazards of the surrounding environment, which has been tested and proven over centuries (Shaw, R., Mallick, F., & Islam, 2021). Meanwhile, (Zulfadrim, 2019) research on the integration of *indigenous* knowledge in the Mentawai Islands shows that *indigenous* knowledge is obtained through long observation and interaction with disasters, with some knowledge being local, homogeneous, and shared among community members.

Specifically for the Majene Regency area, previous research has identified the great potential of local wisdom in the context of disaster mitigation. Islam, M. F., & Fattah, (2019) in their historical study of the 1969 earthquake and tsunami highlight the importance of collective memory as a mitigation asset that needs to be preserved and revitalized. However, this research focuses more on historical aspects and the inventory of local wisdom, and does not specifically examine the optimization of mitigation communication that integrates local wisdom with contemporary communication strategies.

The identified research gap indicates the need for an in-depth study of mitigation communication models that can optimize the potential of local wisdom in the context of modern communication challenges. The challenges of mitigation communication in Majene Regency encompass several complex dimensions. First, demographic and geographic heterogeneity requires an adaptive communication approach. The five subdistricts targeted in the study (East Banggae, Pamboang, Sendana, Malunda, and Ulumanda) have diverse characteristics, ranging from densely populated urban areas to mountainous regions with geographic isolation that can hamper emergency response. Second, the limited institutional capacity of local governments to design and implement sustainable mitigation communication programs, as reflected in the lack of visual communication infrastructure and the absence of digital platforms accessible to the community. Third, low disaster risk literacy among the community due to communication approaches that are not resonant with the local context.

The urgency of this research is further strengthened considering the projected increase in seismic activity in the West Sulawesi region based on historical seismic cycle analysis, which shows recurring patterns at intervals of 50-60 years. The major earthquakes of 1969 and 2021 indicate the potential for similar events in the coming decades, necessitating more effective, sustainable mitigation communication strategies capable of transforming community awareness from reactive to proactive. Furthermore, the dynamics of socio-cultural changes in Majene society, particularly among the younger generation who are increasingly exposed to digital technology, require communication approaches that can bridge tradition and modernity.

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The context of this research is also driven by the global commitment in The Sendai Framework for Disaster Risk Reduction 2015-2030, which emphasizes the importance of utilizing traditional knowledge and local wisdom in disaster risk reduction efforts. The third target of The Sendai Framework explicitly mentions the need to "strengthen disaster risk governance, including national and local disaster risk management institutions, through the adoption and implementation of national and local disaster risk reduction strategies and plans, across different timescales with targets, indicators and time frames, aimed at preventing the creation of risk, the reduction of existing risk and the strengthening of economic, social, health and environmental resilience" (UNDRR, 2015). The implementation of this target requires an inclusive and participatory communication approach that recognizes and utilizes the cultural assets of the community. In line with this spirit, the Prabowo-Gibran administration, through its vision of "Together, Indonesia Advances Towards a Golden Indonesia in 2045," has established a national commitment to realize Indonesia as a "resilient, independent, and inclusive" nation through the 2025-2045 National Long-Term Development Plan (RPJPN), which is inseparable from the utilization of local wisdom as social capital in facing various challenges and disaster risks in the future.

This study aims to identify, analyze, and formulate an optimal model for disaster mitigation communication based on local wisdom in Majene Regency as an effort to improve community preparedness in facing the threat of earthquakes. Specifically, this study aims to: (1) identify and analyze the forms of disaster mitigation communication that have developed in the community of Majene Regency, including traditional communication systems, structural communication through architecture, and ritual-spiritual communication; (2) analyze the role and contribution of local wisdom in building community preparedness for earthquake threats, including local terminology systems, non-verbal communication practices, and intergenerational knowledge transfer mechanisms; (3) formulate the most effective local wisdom-based disaster mitigation communication model to be implemented in Majene Regency by integrating the strengths of traditional communication and modern technology through the Convergent Communication Model approach.

In practical terms, the results of this study can serve as a strategic reference for local governments in formulating mitigation communication policies that are more responsive to the characteristics and needs of local communities. The resulting communication model is expected to serve as an operational guide in designing more effective and sustainable mitigation programs. In addition, this research is also expected to contribute to efforts to preserve and revitalize local wisdom as a cultural asset that has strategic value in the context of national disaster resilience, as well as an effort to document and transmit traditional knowledge to future generations in an era of increasingly massive digitalization.

Methods

This research uses a qualitative method with an ethnographic approach that focuses on in-depth exploration of social and cultural practices as well as human interactions in the Majene community through participatory observation and in-depth interviews (Pink, S., et al., 2020).

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The ethnographic approach was chosen because it is capable of exploring individuals in their natural environment to understand the meaning of their experiences, perspectives, and daily routines, which ultimately provides an in-depth perspective on specific contexts, communities, or cultural systems (Hammersley, M., & Atkinson, 2019). The rationale for choosing the ethnographic approach lies in its capacity to explore the local knowledge system implemented in the lives of the Majene community while identifying the characteristics of communication used by traditional elders, religious leaders, and community members in distributing information, particularly information related to disaster mitigation.

The data components in this study include primary and secondary data collected comprehensively to provide a holistic picture of mitigation communication based on local wisdom. Primary data was obtained through direct interviews and observations conducted with various stakeholders involved in disaster mitigation efforts in Majene Regency, including local residents, traditional leaders, religious leaders, and local government officials. The secondary data consists of a collection of academic literature, government documentation, policy archives, traditional narratives, local literary works, and other documentation related to disaster mitigation and communication based on local wisdom, which can provide historical background and theoretical foundations to support the research analysis process.

Furthermore, informants in this study were determined using *non-probability sampling* techniques through a *snowball sampling* approach, where the selection of informants began with several core informants who had a comprehensive understanding of disaster mitigation and local knowledge in Majene Regency. These informants then provided recommendations for other informants who had similar characteristics or knowledge relevant to the research topic. *Snowball sampling* is a strategy for collecting research subjects through the identification of initial subjects used to provide the identities of other actors, where these actors can open up opportunities to expand contact networks and investigations (Lewis-Beck, et al., 2024).
Data analysis was implemented using thematic analysis techniques, which is a qualitative data analysis method for identifying, organizing, and interpreting patterns or themes in data that provides a useful and accessible framework for qualitative (Nowell, L. S., et al., 2017). The analysis process began with data transcription and coding, where all interview and observation results and documentation were categorized based on main themes, followed by categorization and pattern identification to classify findings and identify mitigation communication patterns based on local wisdom. Data triangulation was conducted by comparing findings to enhance validity and provide deeper understanding, followed by interpretation and development of a communication model that generates recommendations for an optimal local wisdom-based mitigation communication model for the Majene community in facing earthquake threats (Braun, V., & Clarke, 2006).

Results and Discussion

History of Earthquakes and Tsunamis in Majene

Due to its strategic location in an active subduction zone, Majene Regency, West Sulawesi, particularly five subdistricts, namely East Banggae Subdistrict, Pamboang

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Subdistrict, Sendana Subdistrict, Malunda Subdistrict, and Ulumanda Subdistrict, are highly vulnerable to earthquakes and tsunamis. The Mandar people, who are the indigenous tribe of Majene Regency, have extensive experience in dealing with natural disasters. At 07:36 local time on February 23, 1969, a 7.0 Mw earthquake occurred off the coast of Majene and caused a large tsunami that hit the coastline of the Makassar Strait. The tsunami destroyed the coastal areas of Sendana District and its surroundings, with a maximum *run-up* height of 4 meters in Peletoang and 1.5 meters in Parosanga and Palipi. The tragedy killed at least 64 people, with a potential 600 additional tsunami victims, and injured 97 people (Pranantyo, I. R., et al., 2021). The Sendana District was severely damaged, with four out of five brick buildings suffering heavy damage to their foundations. Conventional wooden buildings were relatively unscathed, and just before the tsunami struck, Abdul Rajab (72 years old), a resident of Sendana District who witnessed the earthquake and tsunami, described hearing a "rumbling sound":

"It was Sunday, market day, because here the market is held every Sunday on the beach. At that time, there was a loud noise, but I didn't know where it came from, whether it was from underground or in the sky. The noise was loud, accompanied by an earthquake, and it was very scary."

Meanwhile, Sudirman (70 years old) added a similar experience regarding the long-term impact of the disaster:

"At that time i was 14 years old, the market was crowded, then the earthquake struck. My family and I fled to the mountains and lived there for months. We stayed there for so long that we built temporary shelters (refugee houses in the Mandar language). Sendana was quiet for months, no one dared to go down to the lower areas, even during the day we were afraid."

Furthermore, the Majene Regency was again hit by a powerful earthquake on January 15, 2021, with a magnitude of 6.2 Mw, centered 7 km northeast of Majene at a depth of 10 km. This earthquake, which occurred at 02:28 WITA, was preceded by a 5.9 Mw foreshock on January 14, 2021, followed by 28 aftershocks. The 2021 tragedy claimed 81 lives (11 people in Majene, 70 people in Mamuju) with more than 7,800 damaged houses and around 37,000 people displaced (Kartikaningrum, 2021). The 2021 earthquake occurred on the same fault system as the 1969 earthquake, namely the Makassar Strait Thrust, indicating a recurring pattern of seismic activity in this region with an interval of 52 years. Data from the Majene District Disaster Management Agency (BPBD) shows that major earthquakes and tsunamis have been recorded several times in the last century, including the January 15, 2021 earthquake that had a widespread impact on Malunda and Ulumanda subdistricts. This is evidenced by the statement of Safwan (37 years old), a staff member of the post-disaster recovery division of the Majene District:

"The earthquake at that time was quite devastating, because we immediately went there after the earthquake. In Malunda, there were two villages that we relocated after the disaster, namely Aholeang Village and Rui Village, because the two villages were located on higher ground and were completely buried. Aholeang Village suffered a landslide due to the strong earthquake and was no longer habitable."

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This statement was also confirmed by Naharia (40), a resident of Mekatta Village, Malunda District:

"When I think back on the 2021 earthquake, it was terrifying. We all ran outside, trying to get up the mountain as quickly as possible, bringing our families with us. Our initial plan was to evacuate to Aholeang Village because it is located on top of a mountain, but before we could get there, we met residents of Aholeang who were coming down because Aholeang had completely collapsed due to the earthquake."

Meanwhile, in Ulumanda District itself, due to its predominantly hilly and mountainous topography, the earthquake also caused landslides. A total of six villages located at the epicenter of the earthquake were isolated due to landslides after the earthquake, namely Sambabo Village, Kabiraan Village, Tandiallo Village, Ulumanda Village, Popenga Village, and Panggallo Village. This was confirmed by Amiruddin (40 years old), a resident of Kabiraan Village, Ulumanda Subdistrict:

"When the earthquake struck, the Kabiraan Village office was destroyed, leveled to the ground. Many residents' homes were also destroyed, especially those near the village office. We did not flee because we were already at a high elevation. People in the lowlands were afraid of a tsunami, but since we live at a high elevation, we were not worried. However, the earthquake caused landslides. Access to aid was blocked, so we had difficulty and it took a long time for aid to arrive."

Finally, the earthquake was also felt in Pamboang District and East Banggae District. Although there were no recorded casualties, the earthquake caused damage to houses and facilities and disrupted public services. The Head of Pamboang District, Muhammad Akbar Tambaru (46 years old), explained:

"In Pamboang, the earthquake was quite strong. Residents panicked, but because they had experienced earthquakes before and there have been several earthquakes here, they were fairly prepared. Some residents' houses were damaged, but there were no casualties."

Gunawan (33 years old), a resident of Banggae Timur District, also explained in an interview*:*

"We felt the earthquake, but we weren't too panicked, perhaps because the epicenter was not here. However, several families chose to evacuate to higher ground (the mountains)."

The five subdistricts targeted in the study showed diverse vulnerability characteristics. East Banggae Subdistrict, as an urban area with high population density, faces the risk of shock amplification in critical infrastructure. Pamboang and Sendana Subdistricts have the potential to experience variations in shock intensity based on local geological conditions. Meanwhile, Malunda and Ulumanda subdistricts, despite their low population density (20 people/km² for Ulumanda), face the challenge of geographical isolation that can hamper emergency response. The recurring pattern of major earthquakes with decadal intervals indicates that these five subdistricts are located in a high seismic hazard zone that requires comprehensive mitigation strategies. In the context of this study, the optimization of mitigation communication based on local wisdom is highly relevant, given that the people of Majene Regency have empirical experience in dealing with earthquake disasters for more than five decades. Through an

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ethnographic approach, this study seeks to gain a deeper understanding of how the Mandar community understands, communicates, and responds to disaster threats. This understanding is shaped not only by direct experience of disasters, but also by knowledge and practices that have been passed down from generation to generation and accumulated over centuries of their lives.

Local Terminology System in Disaster Mitigation Communication

The results of the study show that communities in five subdistricts in Majene Regency have a very rich traditional communication system in the context of earthquake mitigation. The local terminology system in the Mandar language (the indigenous language of Majene Regency) has become the foundation for effective communication between generations. The use of the term *"linor"* in four subdistricts, namely East Banggae, Pamboang, Sendana, and Malunda, and *"lino"* in Ulumanda Subdistrict to refer to earthquakes indicates dialectical variations that need to be understood in designing targeted communication strategies. This variation in terminology is not merely a linguistic difference, but reflects different nuances of understanding and response to the phenomenon of earthquakes in each region.

In the context of communication about the threat of tsunamis, communities in these five subdistricts use the term *"lembo tallu"* to describe tsunami waves approximately 3 meters high and *"lembo pitu"* for tsunami waves approximately 7 meters high. The application of local terminology in community mitigation communication practices demonstrates its function as an efficient and effective communication code system. In emergency situations, the use of the terms *"linor"* or *"lino"* allows for the rapid dissemination of information without the need for lengthy technical explanations. Every member of the community has a uniform understanding of the meaning and implications of these terms, allowing for high-speed communication. Similarly, "*lembo* tallu" and "*lembo pitu*" directly communicate the gradation of tsunami threats without the need for further elaboration. This terminology system reflects the standardization of knowledge that has been formed through centuries of collective experience, creating a common language that facilitates disaster response coordination at the community level. The effectiveness of communication using this local terminology contrasts with the use of technical terms in formal government socialization, which often requires additional explanation and does not resonate with the understanding of the general public.

Non-Verbal Communication Through Observation of Natural Signs

In the Mandar community in Majene Regency, West Sulawesi, there is also an aspect of non-verbal communication in the traditional warning system of the Majene Regency community. This is reflected in the community's ability to read natural signs. Observation of changes in animal behavior, meteorological conditions, and environmental anomalies is part of the natural communication understood by the community. In Mandar society, there is a myth related to the phenomenon of increased dog feces on the side of the road as an indicator of water-related disasters (tsunamis or floods). Very calm weather conditions and the disappearance of animals from human sight are also considered "natural language" that has

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been understood communally. The ability to read this natural communication is a valuable asset that can be integrated with modern warning systems.

The practice of communication based on natural observation in Mandar society does not stop at the stage of individual observation, but continues to the stage of information dissemination through community social networks. When a resident observes anomalies such as an increase in dog feces, unusual weather changes, or the disappearance of animals from view, this information is immediately communicated to neighbors and relatives through informal conversations in various forums such as markets, mosques, or visits between homes. This mechanism for sharing information creates a community-based early warning network that operates horizontally without relying on technological infrastructure or government coordination. The speed of information dissemination within this network often exceeds that of formal communication systems because it is based on interpersonal trust and close social ties. This communication pattern shows that observing signs of nature is not only local ecological knowledge, but has been integrated into an active and responsive mitigation communication system.

Mitigation Communication Through Traditional Architecture

Through participant observation conducted in Majene Regency during the period of June-September 2025, this study reveals that the architecture of traditional Mandar houses serves as a highly effective medium of communication for mitigation. Among the Mandar people of Majene Regency, traditional houses are known as *"Banua Kayyang," which* literally means "big house." These houses are constructed using ironwood and a unique locking system on each side of the house. Ironwood is typically used for the main pillars (because it is resistant to decay even when submerged in water or damp soil), sturdy floor frames that can withstand heavy loads, and beams and roof frames that enable the building to withstand strong winds and earthquakes.

Based on direct observation of the well-preserved *Banua Kayyang* units, the selection of wood and unique locking systems on each side of the house are not only technical solutions, but also a form of visual communication about the principles of earthquake resistance. Each construction element contains a message about how to deal with earthquake shocks using the principles of flexibility and adaptability. The traditional houses of the Mandar tribe in Majene serve as a "text" that can be read by the community about how to live in harmony with earthquake-prone geographical conditions.

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Figure 1. Banua Kayyang as a traditional Mandar tribe house
Source: Researcher's Processed Data, 2025

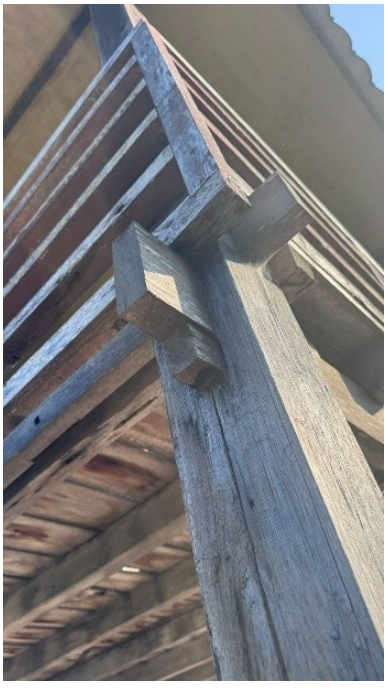

Figure 2. Unique lock system at each corner of a traditional Mandar house
Source: Researcher's Processed Data, 2025

Furthermore, the existence *of banua kayyang* in the community landscape serves as a medium for continuous visual communication about the principles of structural mitigation. Unlike verbal socialization, which is temporary and easily forgotten, communication through architecture is permanent and accessible to the community at all times. Every element of

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construction, from the selection of ironwood to the unique lock system, becomes a visual text that communicates the philosophy of adaptation to the threat of earthquakes. The process of building or renovating traditional houses also creates moments of practical communication where structural mitigation knowledge is transferred through direct learning from experienced craftsmen to the younger generation. Communication through this practice results in a deeper understanding than verbal explanations because it involves sensory experiences and motor skills.

Ritual and Spiritual Communication in Disaster Mitigation

The spiritual dimension in mitigation communication in Majene Regency is manifested through the ritual *of "tolak bala*" which literally means "rejecting disaster" and serves as a medium for communal communication about disaster preparedness. Observations of this ritual practice were conducted during the field research period from June to September 2025 in five target subdistricts. In three subdistricts in Majene Regency, namely East Banggae Subdistrict, Malunda Subdistrict, and Ulumanda Subdistrict, *"Tolak bala"* is manifested in the recitation of prayers in mosques, private homes, or subdistrict halls.

Figure 3. "Tolak Bala" ritual in East Banggae District
Source: Researcher's Processed Data, August 16, 2025

Meanwhile, in Pamboang and Sendana subdistricts, *"Tolak Bala"* is manifested in two ways, namely reciting prayers at the mosque and offering sacrifices to the sea. The practice of offering sacrifices to the sea in the Sendana area reflects a form of symbolic communication with nature. The researcher's observations of the ritual of throwing offerings into the sea on September 7, 2025, at Sendana Beach and the ritual of tolak bala in the East Banggae Subdistrict Hall on August 16, 2025, show that this ritual not only functions as a prayer for safety but also as a moment of communal reflection on the relationship between humans and the environment. Observations also show that in the implementation of the ritual, there is communal communication that transcends the dimension of prayer for safety alone. The community uses this gathering to remind each other of the importance of vigilance, share

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information about current environmental conditions, and strengthen collective solidarity in facing the threat of disaster. Communication in the context of rituals has a high persuasive power because it involves emotional and spiritual commitment, making preparedness messages easier to accept and internalize than formal socialization, which often feels impersonal and instructive.

Figure 4. "Tolak Bala" ritual in Sendana District
Source: Researcher's Processed Data, September 7, 2025

Furthermore, in Malunda Subdistrict, there is a legendary spiritual figure titled "Pua Kalli" who plays a central role in the local belief-based mitigation communication system. According to Malunda residents, this figure is believed to have special abilities to ward off disasters and is the main reference for the community in facing natural threats. Pua Kalli's role in mitigation communication is not only ritualistic but also educational, as he is a source of information and guidance for the community on how to deal with disaster threats. One of the most influential narratives in the local mitigation communication system, which continues to be passed down from generation to generation in Malunda District, is the heroic story of how Pua Kalli successfully warded off the 1969 tsunami centered in Sendana District so that it did not reach Malunda District. This story tells how Pua Kalli used his turban to hit the waves on the coast of Malunda as a spiritual act to protect his territory. This narrative is not merely a mystical story, but serves as a highly effective medium of communication in instilling awareness about the threat of tsunamis and the importance of preparedness. This story also strengthens the credibility of spiritual figures in the local mitigation communication system, where information or advice associated with these figures has high authority in the eyes of the community.

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Integration of Local Wisdom in Community Response to Mitigation Communication

Analysis of community responses to mitigation communication shows that local wisdom is not merely a cultural heritage that is passively learned, but rather an active communication system used by communities to build and maintain collective preparedness. Community responses to mitigation communication differ fundamentally from formal government communication models in terms of mechanisms, channels, and effectiveness.

First, the community responds to the need for mitigation communication by using local terminology as an emergency communication language. When an earthquake occurs, communication between residents does not use technical terms such as "magnitude" or "epicenter," but rather the terms "linor" or "*lino*," which are commonly understood. This response creates communication efficiency because it does not require time for explanation or clarification of meaning. Similarly, in communicating the threat of a tsunami, the use of "*lembo tallu*" and "*lembo pitu*" immediately provides a visual picture of the level of danger that must be faced, allowing the community to immediately make evacuation decisions without confusion.

Second, the community's response to the absence of a formal early warning system is to independently establish an observation-based warning network. The community does not wait for the government to install detection devices or alarm systems, but instead proactively observes and communicates the natural signs they understand. When a resident observes an environmental anomaly, the spontaneous response is to share this information with neighbors and relatives. This response pattern creates a horizontal communication system that operates based on trust and social proximity, rather than institutional hierarchy. The speed of response in this network is often higher than that of formal communication channels because it does not go through bureaucracy.

Third, intergenerational knowledge transfer became the community's response to the absence of ongoing formal education programs. The experiences communicated by Abdul Rajab and Sudirman about the 1969 earthquake did not remain as personal memories, but were used as educational material to be passed on to the next generation. The response of Naharia, Amiruddin, and Gunawan during the 2021 earthquake, which demonstrated their readiness to evacuate to higher ground and their understanding of the risk of landslides in Ulumanda District, proves that knowledge transmitted through narrative communication is effectively applied in real situations. This community response shows that mitigation communication does not have to depend on formal government socialization programs, but can take place organically through family and community interactions.

Fourth, the community responds to the need for structural mitigation education by utilizing the architecture of *banua kayyang* as a visual learning model. The presence of traditional buildings in the physical environment serves as a continuous reminder of earthquake-resistant construction principles. The community, especially the younger generation involved in construction or renovation processes, learns these principles through direct experience rather than through lectures or guidebooks. This response creates deeper learning as it involves concrete practice, not merely theoretical understanding.

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Fifth, the community's response to the psychological dimension of fear of disasters is through rituals that integrate spiritual and practical aspects. These rituals are not only about praying for safety, but also serve as a forum where the community can emotionally support one another and share information about preparedness. This response demonstrates the community's understanding that effective mitigation communication is not enough to convey technical information, but must also manage the emotional and spiritual dimensions to build the psychological resilience of the community.

Sixth, the community's response to technological developments is to independently integrate local knowledge with modern information. The community does not replace the natural observation system with technology, but uses the BMKG application to verify and complement their observations. This demonstrates good technological literacy as well as wisdom in not abandoning traditional knowledge that has been proven effective. This integration by the community occurs organically without government direction, reflecting a high level of adaptability.

The integration of mitigation communication with local wisdom in community responses occurs through several mechanisms. First, functional integration, where each element of local wisdom, such as terminology, natural observations, narrative experiences, architecture, and rituals, is practiced as complementary components of mitigation communication. Second, temporal integration, where communication occurs continuously across generations through informal knowledge transmission. Third, spatial integration, where communication occurs in various social spaces such as homes, mosques, markets, and other public spaces. Fourth, epistemological integration, where traditional knowledge and modern science are not seen as contradictory but complementary. These findings show that community responses to mitigation communication are active, creative, and adaptive. The community does not passively wait for socialization or programs from the government, but proactively builds a communication system based on local wisdom that has proven to be effective. The integration of local wisdom in mitigation communication occurs organically in daily practice, not through formal program design. This shows that local wisdom is a living and evolving communication system, not a static cultural artifact.

Analysis of the Role of Government in Disaster Mitigation Communication

As an elaboration of the findings on local wisdom-based disaster mitigation communication systems, this study also analyzes the role of formal government institutions in disaster mitigation communication. This analysis is important to identify the gap between effective traditional communication practices and formal communication systems that should support community preparedness. The findings show a significant gap between community needs and existing institutional capacity.

Analysis of the governmental role in disaster mitigation communication in Majene Regency demonstrates a significant gap between community needs and existing institutional capacity. The forms of mitigation communication currently employed by the local government remain confined to conventional socialization activities conducted by the Regional Disaster

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Management Agency (BPBD). Nevertheless, the implementation of such socialization encounters structural constraints that impede its effectiveness, particularly concerning budgetary limitations that preclude activities from being conducted regularly and comprehensively across all sub-districts, notwithstanding the critical nature of such endeavors.

Furthermore, the problem of government disaster mitigation communication has become more complex with the intervention of politics in disaster programs. In reality, mitigation outreach in Majene Regency is often taken over by members of the House of Representatives who have disaster-related work programs as part of their political agenda. In practice, members of the House of Representatives delegate the implementation of activities to third parties as *event organizers*, while the Regional Disaster Management Agency (BPBD) only acts as a resource person. This implementation model creates a distance between the program designers and the audience, so that the dissemination tends to be formal and unable to reach the right target. The limitations of government communication channels in earthquake mitigation are also evident in the lack of visual communication infrastructure in the field. Field observations conducted from June to September 2025 revealed that along the roads in East Banggae District and other districts, there were no adequate evacuation signs to deal with the threat of earthquakes or tsunamis. This condition reflects the government's weak commitment to providing an emergency navigation system that is easily understood and accessible to the public. Only Malunda District has one evacuation sign, which was only installed as a reactive response after the 2021 earthquake, rather than as a systematic preventive measure.

The absence of this visual communication infrastructure forces the community to rely on traditional knowledge in determining the direction of evacuation. The majority of the people in Majene Regency obtain information about evacuation routes independently based on stories and knowledge passed down by previous generations. This situation creates a paradox where local wisdom becomes the only reliable source of evacuation information, while the government's formal communication system is absent.

The digital communication gap is also a fundamental weakness in the local government's mitigation strategy. The Majene Regency BPBD does not have a social media platform that can be used to disseminate mitigation information in *real-time* and be easily accessed by the community. This lack of digital presence is in stark contrast to the community's increasing dependence on information technology to access news and important information. As a result, there is a disconnect between how the government conveys information and how the community consumes information. This situation has prompted the community to independently access information directly from authoritative sources such as the Meteorology, Climatology, and Geophysics Agency (BMKG) through applications on their smartphones. This pattern of information consumption actually shows that the public has sufficient digital literacy to search for disaster information, but does not receive adequate communication support from local governments. The dependence on BMKG also shows that the public trusts sources of information that have scientific credibility and consistency in delivering information.

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The contrast between the limitations of formal government mitigation communications and community-based communications practices rooted in local wisdom reveals a duality of systems operating separately. In the absence of government visual communication infrastructure and digital platforms, communities did not passively wait for institutional intervention. Instead, they proactively implemented traditional knowledge-based communication systems that had proven effective. The transmission of knowledge about evacuation routes through oral narratives has become an adaptive solution to the absence of formal evacuation signs. The response shown during the 2021 earthquake proves that knowledge transmitted through interpersonal and narrative communication is effectively applied in emergency situations.

The community's ability to independently integrate local wisdom with modern technology also demonstrates a high level of literacy and initiative. The use of the BMKG application to verify observations of natural signs reflects a synthesis of traditional and scientific epistemology, where local knowledge and scientific data are viewed as complementary rather than competitive sources of information. This integration occurs organically without government facilitation, showing that the community has the capacity to optimize various sources of information to improve the accuracy of preparedness. This fact should be an important lesson for local governments that effective mitigation communication is not about replacing community communication systems with top-down formal systems, but rather about strengthening and facilitating communication practices that have developed at the community level by providing supporting infrastructure that is appropriate to the local context.

Theoretical Framework of Local Wisdom-Based Mitigation Communication

Analysis of the local wisdom-based mitigation communication system in Majene Regency can be understood through several relevant theoretical perspectives on communication. The Cultural Communication Theory developed by (Philipsen, 1992), provides a framework for understanding how the people of Majene Regency use cultural symbols to create a shared meaning about the threat of earthquakes and tsunamis. Terminology such as *"linor"* and *"lino"* and *"lembo tallu"* and *"lembo pitu"* are not mere names, but symbolic constructions that contain a collective knowledge system about the characteristics of and responses to disasters.

Furthermore, the source credibility theory introduced by Hovland, Janis, and Kelley (Hovland, C., Janis, I. L., & Kelley, 1953) is also highly relevant in understanding the role of the figure *"Pua Kalli"* as a key communicator in the mitigation system. *Pua Kalli's* credibility is built through three dimensions: expertise, demonstrated through his ability to "ward off" the tsunami in 1969; *trustworthiness*, embedded through spiritual tradition; and *attractiveness*, derived from his high social and spiritual status. The heroic narrative about *Pua Kalli* serves as empirical evidence that reinforces his credibility in conveying mitigation messages.

Meanwhile, (Rogers, 2003) *diffusion of innovations theory* can provide perspective on how traditional mitigation knowledge is disseminated within communities. Systems for observing natural signs and earthquake-resistant construction techniques represent local

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innovations that have been widely adopted through interpersonal communication and social learning mechanisms. This diffusion process is reinforced by opinion leaders in the community, including spiritual leaders such as *Pua Kalli* and traditional construction experts.

Based on theoretical analysis and empirical findings on community responses and communication practices, the optimization of mitigation communication in Majene Regency can be developed through the Convergent Communication Model introduced by (Rogers, 1981). This model emphasizes a two-way communication process that focuses on achieving mutual understanding between communicators and communicants. This approach is relevant for integrating the power of traditional communication based on local wisdom that has been practiced by the community with modern technological infrastructure that should be provided by the government. Integration can be realized through the use of bilingual communication materials that combine Mandar terminology with Indonesian to create a cross-generational cognitive bridge, the development of visual communication infrastructure such as evacuation signs that adopt symbols and colors that resonate with local aesthetics, the institutionalization of spiritual leaders and traditional elders as official communicators in government disaster mitigation programs by providing adequate training and incentives, and the development of digital platforms that not only distribute information from the government but also accommodate information sharing practices that have been taking place at the community level. By adopting the principles of mutual understanding from Rogers and Kincaid, mitigation communication is no longer top-down from the government to the community, but rather opens up space for feedback and active community participation to enrich communication materials and strategies.

Conclusion

This study successfully revealed that the people of Majene Regency actively engage in disaster mitigation communication through practices rooted in local wisdom. Disaster mitigation communication from the community side is manifested in six main practices: (1) the use of local terminology such as "*linor,*" "*lino,*" "*lembo tallu,*" and *"lembo pitu*" as an efficient emergency communication code system; (2) the development of a horizontal and independent early warning network based on the observation of natural signs; (3) transmission of evacuation knowledge through intergenerational narratives of experience that proved effective during the 2021 earthquake; (4) learning earthquake-resistant construction through "*banua kayyang*" architecture as a medium for sustainable visual communication; (5) communal communication that integrates spiritual and practical dimensions through rituals to ward off evil spirits; and (6) independent integration of traditional knowledge with BMKG information through smartphone technology. These mitigation communication practices demonstrate multidimensional characteristics encompassing linguistic, structural, observational, and spiritual aspects that have proven effective in building community awareness and preparedness for disasters.

Furthermore, this research also reveals the duality of the mitigation communication system operating in Majene Regency. The local government's formal mitigation

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communication encounters structural barriers such as budget constraints, political intervention, minimal visual communication infrastructure, and the absence of accessible digital platforms. Conversely, the Mandar community has established a mitigation communication ecosystem that operates effectively based on social capital and collective knowledge accumulated across generations through functional, temporal, spatial, and epistemological integration. The characteristics of the community's response which is horizontal, continuous, multidimensional, and adaptive demonstrate advantages that compensate for the weaknesses of the government's formal system, which is hierarchical, sporadic, monodimensional, and less responsive to local contexts. The proposed convergent communication model aims to optimize the synergy that has occurred organically by providing institutional support that strengthens the capacity of the local wisdom-based mitigation communication system without replacing or dominating this proven effective system. Moreover, the implementation of local wisdom-based mitigation communication optimization requires solid political commitment, adequate budget allocation, and harmonious collaboration among government, academia, and community leaders. A training program for local mitigation communicators involving traditional leaders, religious figures, and community activists can serve as a long-term strategy to strengthen communication capacity at the grassroots level, while the development of disaster education curricula that integrate conventional knowledge with modern science can ensure the continuity of intergenerational mitigation knowledge transfer.

Rerefences

BMKG. (2022). *Katalog Gempa Bumi Indonesia 2021*. Badan Meteorologi Klimatologi Dan Geofisika.

BNPB. (2021). *Laporan Harian Penanganan Gempa Majene-Mamuju*. Badan Nasional Penanggulangan Bencana.

Braun, V., & Clarke, V. (2006). *Using thematic analysis in psychology*. Qualitative Research in Psychology.

Daly, P., Ninglekhu, S., Hollenbach, P., Duyne B, J., & Nguyen, D. (2019). Situating local stakeholders within regional disaster risk management organizations: The case of Nias Island, Indonesia. *International Journal of Disaster Risk Reduction*, 101–155.

Fajrin, J., Alam, S., & Johnson, R. (2016). Traditional Minangkabau Architecture and its earthquake resistance design principles. *Asian Culture and History*, 88–105.

Hammersley, M., & Atkinson, P. (2019). *Ethnography: Principles in practice (4th ed.)*. Routledge.

Hovland, C., Janis, I. L., & Kelley, H. H. (1953). *Communication and persuasion: Psychological studies of opinion change*. Yale University Press.

Islam, M. F., & Fattah, A. (2019). Merawat ingatan untuk mitigasi bencana: Sejarah gempa bumi dan tsunami di Majene tahun 1969. *Historia Madania*, 45–62.

Kartikaningrum, R. (2021). *Berita (BNPB) Dipetik Agustus 12, 2025*.

https://jurnalrisetkomunikasi.org/index.php/jrk/about
Submitted: 2025-09-28; Revised form: 2025-11-06; Accepted: 2025-12-19; Published: 2026-02-24

https://bnpb.go.id/berita/-update-sebanyak-73-orang-meninggal-akibat-gempa-m6-2-di-sulawesi-barat

Lewis-Beck, M. S., Bryman, A., & Liao, T. F. (2024). *The SAGE encyclopedia of social science research methods*. SAGE Publications.

Nowell, L. S., Norris, J. M., White, D. E., & Moule, N. J. (2017). Thematic analysis: Striving to meet the trustworthiness criteria. *International Journal of Qualitative Methods*, 1–13.

Pakniany, Y., Tiwery, W. Y., & Rakuasa, H. (2022). Mitigasi bencana gempa bumi berbasis kearifan lokal di Desa Nuwewang Kecamatan Pulau Letti Kabupaten Maluku Barat Daya. *Dialektika: Jurnal Pemikiran Islam Dan Ilmu Sosial*, 1–17.

Philipsen, G. (1992). *Peaking culturally: Explorations in social communication*. University of New York Press.

Pink, S., Horst, H., Postill, J., Hjorth, L., Lewis, T., & Tacchi, J. (2020). *Digital ethnography: Principles and practice (2nd ed.)*. SAGE Publications.

Pranantyo, I. R., Cipta, A., Shiddiqi, H., & Heidarzadeh, M. (2021). Source reconstruction of the 1969 Majene, Sulawesi earthquake and tsunami: A preliminary study. *IOP Conference Series: Earth and Environmental Science*, *1*(1), 873.

Pratama, A. D., Sari, E. K., & Rahman, M. T. (2024). Peran media tradisional dan media modern dalam diseminasi informasi bencana di Indonesia. *Media Komunikasi FPIPS*, 142–158.

Puspitasari, A. E., Bima, D. P., & Dewi, T. P. (2018). Mitigasi bencana berbasis kearifan lokal di Desa Tieng, Kabupaten Wonosobo. *Jurnal Geografi Lingkungan Tropik*, 42–49.

Putri, N. A., Sutiyo, S., Ristiani, I. Y., Supriatna, A., & Uluputty, I. (2024). Mitigasi bencana berbasis kearifan lokal pada masyarakat adat Kasepuhan Ciptagelar. *GEMA PUBLICA*, 65–82.

Rahmani, M., Muzwagi, A., & Pumariega, A. J. (2022). Cultural Factors in Disaster Response Among Diverse Children and Youth Around the World. *Current Psychiatry Reports*, 481–491.

Rogers, E. M. (1981). *Communication networks: Toward a new paradigm for research*. The Free Press.

Rogers, E. M. (2003). *Diffusion of innovations (5th ed.)*. Free Press.

Sari, D. P., & Wijaya, K. (2024). Komunikasi dalam mitigasi bencana gempa dan tsunami Palu. *Triwikrama: Jurnal Ilmu Sosial*, 178–195.

Sartini, N. . (2008). Menggali Kearifan Lokal Nusantara: Sebuah Kajian Filsafat. *Jurnal Filsafat*, 111–120.

Shaw, R., Mallick, F., & Islam, A. (2021). Menggali Kearifan Lokal Nusantara: Sebuah Kajian Filsafat. *International Journal of Disaster Risk Reduction*, 102–401.

Syafwina, S. (2014). Recognizing indigenous knowledge for disaster management: Smong,

https://jurnalrisetkomunikasi.org/index.php/jrk/about
Submitted: 2025-09-28; Revised form: 2025-11-06; Accepted: 2025-12-19; Published: 2026-02-24

early warning system from Simeulue Island, Aceh. *Procedia Environmental Sciences*, 573–582.

Undang-Undang Republik Indonesia Nomor 32 Tahun 2009 Tentang Perlindungan Dan Pengelolaan Lingkungan Hidup (2009).

UNDRR. (2015). *Sendai framework for disaster risk reduction 2015–2030.*

UNDRR. (2021). *Words into Action: Using traditional and indigenous knowledges for disaster risk reduction.*

Wachinger, G., Renn, O., Begg, C., & Kuhlicke, C. (2013). The Risk Perception Paradox—Implications for Governance and Communication of Natural Hazards. *Risk Analysis*, 1049–1065.

Zulfadrim, Z. (2019). The integration of indigenous knowledge for disaster risk reduction practices through scientific knowledge: Cases from Mentawai Islands, Indonesia. *International Journal of Disaster Management,* 15–28.

https://jurnalrisetkomunikasi.org/index.php/jrk/about
Submitted: 2025-09-28; Revised form: 2025-11-06; Accepted: 2025-12-19; Published: 2026-02-24