


The Level of Disaster Literacy in South Java and Banten

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INFO	ABSTRACT
<p>Submitted: 12-08-2025, Revised: 26-08-2025, Accepted: 03-09-2025 Available Online: 09-09-2025</p> <p>Copyright ©2025 by Journal of Judikaltura (s) This work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.</p>  <p>Keywords: <i>Disaster literacy, disaster communication, disaster mitigation, risk perception, Destana, community resilience, disaster-prone areas, disaster management, communication theory</i></p>	<p><i>This research assesses disaster literacy within Disaster Resilient Villages (Desa Tangguh Bencana or Destana) situated in the high-risk southern coastal zones of West Java and Banten, Indonesia. Utilizing a mixed-methods design, the study evaluates key literacy dimensions—knowledge, risk perception, mitigation skills, and response capabilities—across Utama, Madya, and Pratama village categories. The analysis demonstrates a critically low level of disaster literacy across all groups, with Destana Pratama exhibiting the most acute vulnerability. Notably, the results highlight a disconnect between cognitive knowledge and practical mitigation skills. Consequently, the study argues for the implementation of strategies anchored in disaster communication theory. These findings underscore the necessity of tailored communication interventions to mitigate vulnerability and enhance disaster literacy in hazard-prone communities..</i></p>

INTRODUCTION

The provinces of West Java and Banten are among the regions with a relatively high disaster vulnerability. The southern part of these areas is a tsunami-prone zone. The high potential threat in these regions necessitates that each area must have the capability to mitigate its community (Cahyadi & Amelia, 2022).

In the West Java and Banten communities, disaster understanding has historical roots. For example, the West Java community possesses local wisdom related to disasters that can serve as

a disaster mitigation strategy (Putra et al., 2021). This local wisdom has also been correlated by the National Disaster Management Agency (BNPB) with rural communities by establishing the Disaster Resilient Village (Desa Tangguh Bencana) policy. This policy aims to strengthen villages as the forefront of disaster management services for the community (Najib & Rahmat, 2021; Octafanny & Putra, 2022). The presence of Destana (Disaster Resilient Villages) is expected to strengthen the village's position in reducing disaster risk.

Currently, the government has several participatory programs related to Destana. The existence of Destana in disaster-prone areas can also increase disaster literacy (Chung & Yen, 2016). Disaster literacy is the understanding of disaster knowledge. Brown, a disaster literacy expert, defines disaster literacy as the ability of individuals, groups, or communities to understand, prepare, respond, and recover from the impacts of disasters. Disaster literacy includes understanding the types of disasters, factors influencing vulnerability to disasters, and ways to reduce disaster risk (Brown et al., 2014; Brown & Peterson, 2020).

LITERATURE REVIEW

Disaster literacy is an effort to equip the community to become more resilient in facing disasters. Ideally, areas with higher disaster vulnerability should have better disaster literacy compared to regions without such risks. However, do these vulnerable regions possess the disaster literacy necessary to reduce disaster risk? Furthermore, the question arises whether villages that have been designated as Destana have a high level of disaster literacy (Najib & Rahmat, 2021).

Lisa Brown, a disaster researcher, has developed several disaster literacy models. One of her models is the "A Proposed Disaster Literacy Model," which outlines four basic components of disaster literacy (Brown et al., 2014; Brown & Peterson, 2020):

1. **Disaster Knowledge:** The ability to understand the characteristics and types of disasters, including factors influencing their occurrence.
2. **Risk Perception and Vulnerability:** The ability to recognize disaster risks and identify vulnerabilities within oneself or the community.
3. **Mitigation and Adaptation Skills:** The ability to take concrete actions to reduce disaster risk and adapt to environmental changes.
4. **Response and Recovery Skills:** The ability to respond quickly and effectively during a disaster and recover physically and psychologically afterward.

Lisa Brown's proposed disaster literacy model emphasizes the importance of education and effective communication in developing disaster literacy within communities. It also highlights the significance of active community participation in disaster mitigation and adaptation efforts. Similarly, Fang and colleagues see disaster literacy as a critical element in increasing public understanding to reduce disaster risks. With these various studies, it is important to examine how disaster literacy relates to disaster communication as a crucial part of reducing disaster risk in Disaster Resilient Villages (Mufit et al., 2020).

Several studies on disaster literacy have examined the characteristics of disasters or threats in specific regions. Disaster literacy studies have largely focused on students, teachers, university students, or groups directly engaged with education. However, studies that emphasize disaster literacy among the public are still limited. Moreover, there has been limited focus on disaster literacy approaches that incorporate disaster communication (Zhang et al., 2021).

Based on these considerations, the researcher proposes a problem-solving approach that examines the extent of the disaster literacy model in Disaster Resilient Villages located in disaster-prone

areas, particularly for earthquakes and tsunamis (**Kamil et al., 2020; Logayah et al., 2022**). This communication approach examines the pre-disaster cycle, which can be carried out by the government or even the Penta helix, including the community. Communication here serves as an effort to enhance disaster literacy, ultimately increasing the capacity of all parties to mitigate potential disasters (**Muktaf, 2017; Rice & Jahn, 2020**).

This model is reflected in the objectives of this research, which are:

- To assess the level of disaster literacy in Disaster Resilient Villages along the southern coast of West Java and Banten.
- To determine if there are differences in disaster literacy levels among Destana classified as Main, Intermediate, and Basic.
- To explore how disaster communication approaches can improve disaster literacy in Destana regions.

These questions are designed to develop a disaster literacy model in Disaster Resilient Villages and other disaster-prone areas. Disaster literacy targets all residents aged 17 and above. This research can also be used to formulate community-based disaster risk reduction strategies in the future.

Research related to disaster literacy has been extensively conducted by researchers. Since 2014, this research has continued to evolve. This study has also been linked to public health. As identified by **Çalışkan and Üner (2021)**, disaster literacy is in health, which then intersects with other disciplines. Other studies on disaster literacy emphasize aspects of disaster education in schools. The proposer's previous study also focused on disaster literacy among Indonesian students in Turkey, examining disaster literacy in earthquake-prone areas in Turkey (**Lathifa & Putra, 2022**).

The novelty offered by this research is its perspective on disaster literacy through a communication lens, making the public the subject of the research. Additionally, the proposer emphasizes the aspects of local wisdom and culture. This research utilizes GIS for spatial data collection, which is useful for policymakers.

METHODS

This research employs a sequential mixed-methods approach, beginning with quantitative research followed by qualitative, as has been done in other disaster-related studies. This study combines surveys, in-depth interviews, and Focus Group Discussions (FGD) to address the research questions posed.

The survey focuses on assessing disaster literacy and disaster communication levels (Tomaszewski et al., 2020). In-depth interviews aim to explore survey findings and investigate cases found in the survey. The FGD serves as a data collection method for disaster stakeholders to provide input on strategies for building a resilient community (McGowan, 2020).

Preparation: In this phase, the proposer prepares instruments, tests the instruments, recruits field enumerators, and provides enumerator training, which includes enumerator recruitment, training, and managing research permits in each region.

Field Survey: Surveys are conducted in West Java and Banten provinces, specifically in tsunami and earthquake-prone coastal districts. Villages are randomly selected, with 10 villages in total. Each village will be selected with a stratified random sample using the Primary Sampling Unit (PSU) at the neighborhood or hamlet level, with each village having 4 PSUs. The proportion of

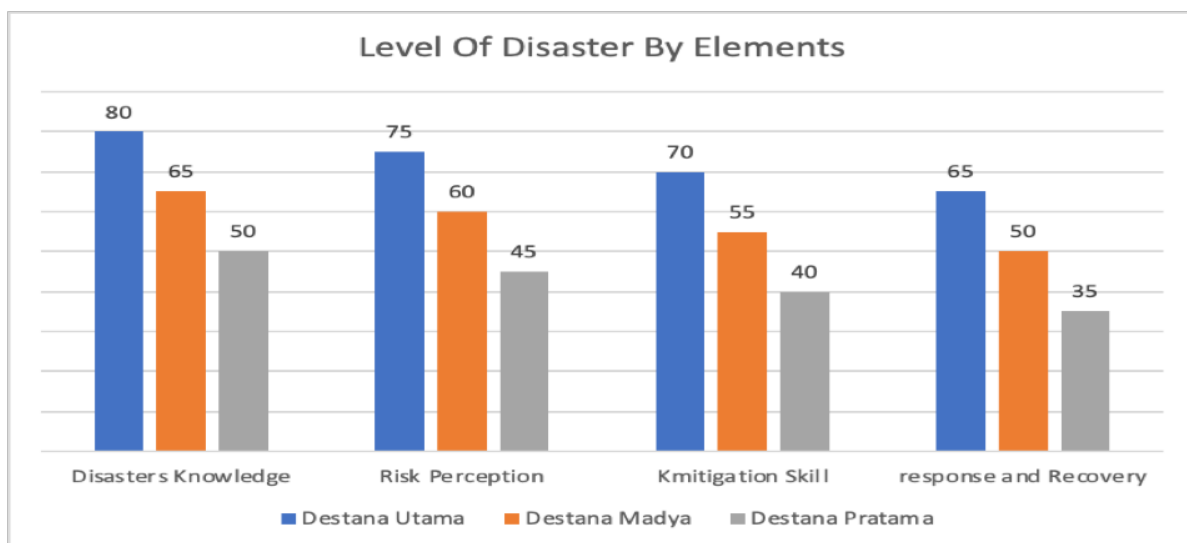
respondents will be 50:50, with a total sample of 400. Each PSU will select 10 respondents.

The sample size is determined using the Slovin formula, incorporating the population in five districts, with a margin of error of 5% and a confidence level of 95%. The survey uses questionnaires and spatial data points collected through ArcGIS, which will conduct data quality testing by performing spot checks in 10 regions to ensure the data collected aligns with the proposal and is accountable. This also includes checking the data coordinates based on GPS to determine spatial data. Prepare a quantitative report, starting with data cleaning, data tabulation, and quantitative data analysis. The analyzed data will then be compiled with qualitative findings.

RESULTS AND DISCUSSION

This study involved a total of 400 respondents, 49% of whom were male, while 51% were female. This proportion is balanced, although there is a slight dominance of female respondents. This is important in providing a balanced perspective in understanding disaster literacy levels, risk perception, and mitigation skills based on gender.

Table 1: The Level of Disaster by elements The first chart, titled "Level of Disaster by Element," compares different elements related to disaster preparedness across three categories: Destana Utama, Destana Madya, and Destana Pratama. The elements evaluated include Disaster Knowledge, Risk Perception, Mitigation Skill, and Response and Recovery.



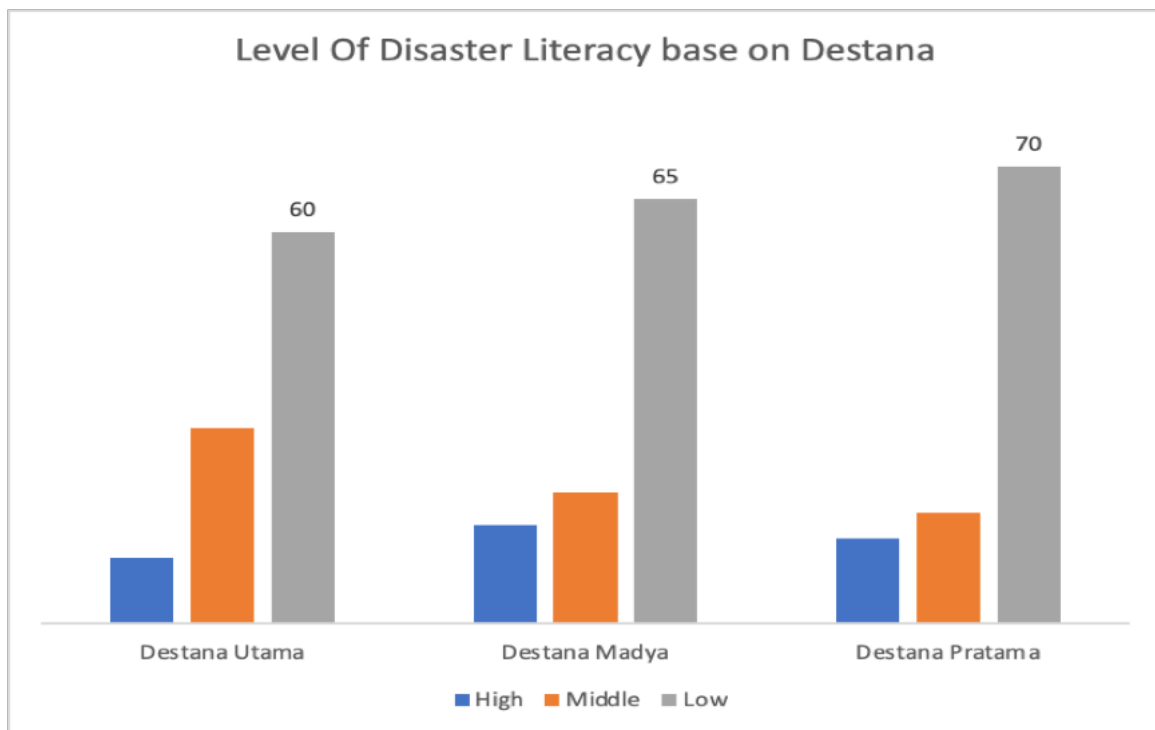
In terms of Disaster Knowledge, Destana Utama shows the highest level of preparedness, with a score of 80, followed by Destana Madya with 65 and Destana Pratama with 50. A similar pattern is observed in the Risk Perception element, where Destana Utama again leads with 75, while Destana Madya scores 60 and Destana Pratama is behind with 45.

When it comes to Mitigation Skills, Destana Utama remains at the forefront with a score of 70, while Destana Madya and Destana Pratama score 55 and 40 respectively. The trend continues in Response and Recovery, where Destana Utama scores 65, followed by Destana Madya with 50 and Destana Pratama with 35.

Overall, Destana Utama consistently performs the best across all disaster-related elements, indicating a higher level of preparedness and skills. Destana Madya ranks in the middle, showing moderate preparedness but still room for improvement, while Destana Pratama demonstrates the lowest levels of preparedness, suggesting significant vulnerability in all categories.

The second chart, titled "Level of Disaster Literacy Based on Destana," highlights the disaster literacy levels—categorized as High, Middle, and Low—across the same three groups: Destana Utama, Destana Madya, and Destana Pratama.

In Destana Utama, the majority of people are classified as having low disaster literacy, with 60% falling into this category. A smaller percentage belongs to the middle literacy group, and even fewer demonstrate high literacy. Destana Madya follows a similar pattern, with 65% of individuals categorized as having low literacy, while a moderate percentage falls into the middle

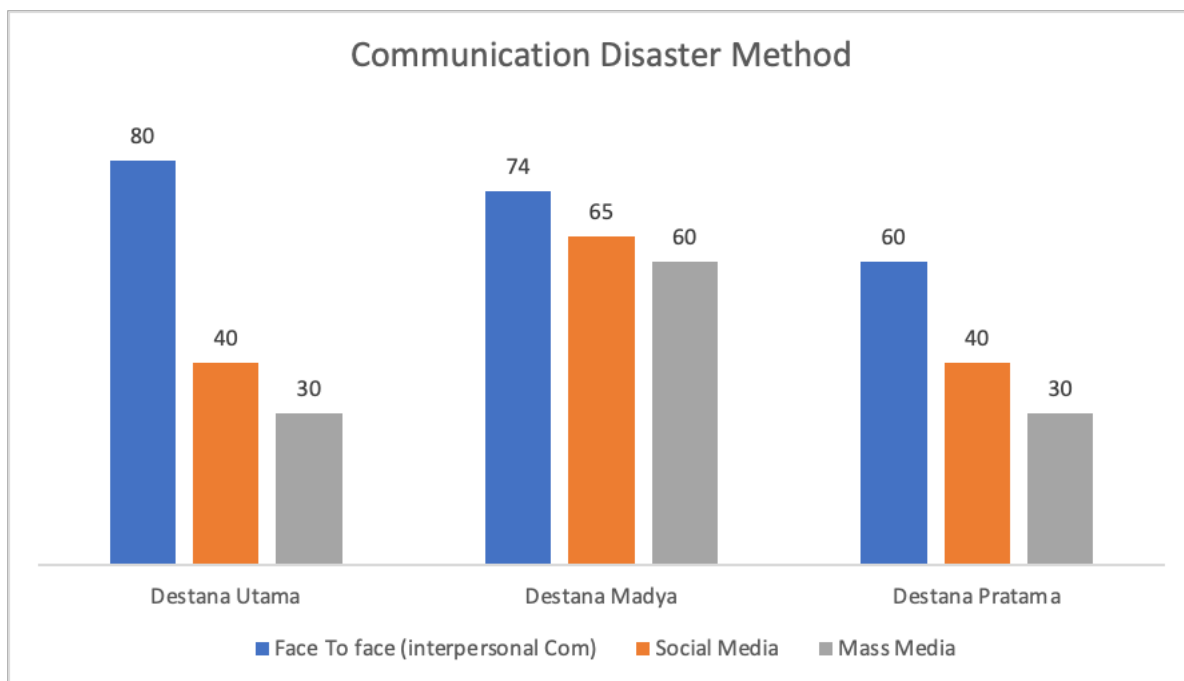


literacy group. Destana Pratama displays the highest percentage of low disaster literacy, with 70% of the population in this category, and only a small portion showing high literacy.

The narrative indicates that low disaster literacy is a widespread issue across all Destana groups, especially in Destana Pratama, where literacy levels are critically low. Destana Utama and Destana Madya have somewhat better literacy rates, particularly in the middle literacy group, but there is still a significant gap in high-level disaster literacy across all categories.

The chart presents a comparison of disaster communication methods across the three categories of Destana: Destana Utama, Destana Madya, and Destana Pratama, evaluating their reliance on face-to-face communication, social media, and mass media. This offers valuable insights into how different communities prefer to receive and engage with disaster information, and how this ties into their overall disaster literacy and preparedness.

Destana Utama demonstrates a clear preference for face-to-face communication, with 80% of respondents in this group relying on interpersonal methods. This high reliance on direct communication reflects the importance of trusted, community-based interactions in this group. Face-to-face communication allows for more detailed, two-way exchanges of information, which can help address individual concerns and provide tailored disaster preparedness advice. This is especially important in fostering higher disaster literacy, as interactive methods allow for immediate clarification of uncertainties, which in turn can strengthen understanding and prompt more effective disaster responses. Given Destana Utama's relatively high level of disaster preparedness in previous analyses, it is clear that interpersonal communication plays a vital role in achieving these outcomes. Social media and mass media, by contrast, are used to a far lesser extent



(40% and 30% respectively), suggesting that while digital and broadcast platforms do play a role, they are supplementary to the community's primary reliance on direct communication channels.

In Destana Madya, a similar pattern emerges, though with notable differences. Face-to-face communication still holds the strongest influence, with 74% of respondents indicating this method as their primary source of disaster information. However, social media is more prominent here than in Destana Utama, with 65% of respondents using it as an important communication channel. This could indicate that Destana Madya, potentially having a younger or more digitally connected population, is more engaged with online platforms, which offer real-time updates and wide-reaching dissemination of disaster information. Social media's rise as a significant communication tool in this group highlights its growing importance in modern disaster management. It enables rapid communication, especially during times of crisis, when traditional face-to-face methods may not be as timely or feasible. Mass media, although still relevant (60%), lags behind digital platforms, signaling a shift towards more interactive and immediate forms of communication. Despite this, the prominence of face-to-face interaction in Destana Madya suggests that interpersonal methods still hold significant value, reinforcing the idea that a hybrid approach to disaster communication is most effective.

Destana Pratama, in contrast, shows a less pronounced reliance on any single communication method, though face-to-face communication still leads with 60%. This is notably lower than in the other two groups, indicating that interpersonal communication, while important, is less entrenched in Destana Pratama's disaster communication strategies. The lower reliance on face-to-face communication might reflect weaker community structures or less organized direct engagement around disaster preparedness. Social media and mass media both play a lesser role (40% and 30%, respectively), suggesting that while these methods are used, they are not highly relied upon. The lower engagement across all communication methods might help explain the lower disaster literacy and preparedness levels observed in previous analyses for Destana Pratama. This group appears to have less comprehensive access to disaster information across both traditional and digital platforms, contributing to their heightened vulnerability.

From this, we can deduce that face-to-face communication continues to be the most effective disaster communication method across all groups, particularly in Destana Utama and Madya, where higher disaster literacy and preparedness levels are observed. This aligns with disaster communication theory, which emphasizes the importance of two-way communication in building trust and ensuring that disaster information is not only received but also understood and acted upon. Interpersonal communication allows for a deeper level of engagement, enabling

individuals to ask questions and clarify doubts, which is particularly important in disaster-prone areas where the stakes are high.

At the same time, the increasing role of social media, especially in Destana Madya, suggests that as communities become more digitally connected, they are relying more on online platforms for disaster information. Social media's ability to disseminate information quickly and to a wide audience makes it an invaluable tool for disaster management, especially when complemented by strong digital literacy. However, as the lower engagement with social media in Destana Pratama suggests, not all communities have equal access to or familiarity with these platforms, which could limit their effectiveness in certain contexts.

Mass media, while still relevant, is less dominant across all groups, particularly in Destana Utama and Pratama, where only 30% of respondents rely on it. This suggests that mass media, with its one-way communication structure, may not be as effective in engaging communities that value more interactive and responsive communication methods. Nonetheless, it still plays a crucial role, especially in areas where digital access may be limited or where large-scale broadcast messages are necessary during immediate disaster events.

Brown (2015) defines disaster literacy as the ability to access, comprehend, and act upon information before, during, and after disasters. Disaster literacy encompasses more than just factual knowledge; it includes the capacity to understand risk information, apply it in context, and take appropriate actions based on that information .

When viewed through Brown's lens, the data from these charts points to a critical gap between knowledge and literacy. Even though Destana Utama demonstrates higher preparedness in practical aspects (like mitigation skills and recovery), their literacy remains low. This suggests that while they may have developed practical capabilities through training or previous experience, a deeper understanding of disaster risks and how to engage with disaster information (e.g., reading disaster reports, engaging with emergency communication systems) is still lacking.

For Destana Pratama, the issue is even more severe. Their low performance in both disaster literacy and practical preparedness (as shown in both charts) makes them extremely vulnerable in the face of disasters. This could be due to a lack of effective communication of risk information or the absence of proper education and training programs targeting disaster preparedness.

Disaster Communication Theory

Effective disaster communication is crucial in building both disaster literacy and practical disaster management skills. According to disaster communication theory, there are several critical elements that influence how communities respond to disaster-related information:

1. **Risk Communication:** The ability of authorities and organizations to communicate potential risks clearly and effectively is crucial. The lower literacy levels observed in the chart suggest that risk communication might be failing to resonate with or reach a significant portion of these communities, particularly in Destana Pratama and Destana Madya.

2. **Two-Way Communication:** Theories in disaster communication also emphasize the importance of interactive, two-way communication, where authorities engage with communities, receive feedback, and adapt messages accordingly. A lack of feedback mechanisms may be contributing to the low levels of disaster literacy observed across all groups. It's possible that disaster-related messages are being communicated but are not being sufficiently absorbed or understood due to their complexity or lack of relevance to the local context.

3. **Channel Effectiveness:** Different communities may have different levels of access to communication channels. For example, relying solely on digital communication in a rural area with poor internet infrastructure may lead to the low disaster literacy rates seen in Destana Pratama. This points to the importance of multi-channel communication strategies, including community meetings, radio broadcasts, and social media, tailored to local circumstances.

4. Message Framing: How disaster information is framed can influence how it is understood. If information is too technical or abstract, it may not resonate with less literate populations, explaining the significant proportion of people with low disaster literacy. Disaster communication should focus on simple, actionable information to ensure that all community members can understand it, particularly in Destana Pratama and Destana Madya .

The data indicates that Destana Pratama and Destana Madya are particularly vulnerable due to their low disaster literacy levels and weaker disaster management skills. Destana Utama shows stronger preparedness and skills but still has room to improve in terms of literacy and understanding.

- Tailored Communication Strategies: Authorities need to implement targeted communication strategies based on community needs. For communities like Destana Pratama, focusing on building fundamental disaster literacy through simplified, community-based education programs is crucial. For Destana Utama, more advanced programs that enhance both literacy and practical skills are needed.
- Enhancing Disaster Literacy: Disaster education should go beyond practical skills training and focus on improving the overall disaster literacy of communities. This includes teaching communities how to interpret weather alerts, understand evacuation maps, and engage with early warning systems. Integrating local knowledge with formal disaster communication can also make messages more relevant and impactful.
- Multi-Channel Risk Communication: Authorities should ensure that communication about risks and preparedness reaches all levels of society by using a range of communication channels that are accessible to everyone, including marginalized and low-literacy groups.

CONCLUSION

Politics, in its broadest meaning, encompasses the activities and connections of individuals in society that pertain to the identification and resolution of shared societal issues. Politics refers to the dynamics and interactions of different social classes and groups in their pursuit, retention, and utilization of governmental authority. The political system serves the purpose of organizing, distributing, and exerting political authority among individuals and groups within a society. The Vietnamese political system comprises legitimate political entities in society, such as political parties, the state, and socio-political groups. A system of structures and functions, along with operational processes and linkages, interconnects these entities to exercise political power. A single Communist Party governs the Vietnamese political system. The absence of opposition political parties in former socialist nations is indicative of the widespread support for the political system. Marxism-Leninism and Ho Chi Minh's ideology form the intellectual framework that structures and functions the entire political system. The Vietnamese political system is both unified and centralized in terms of authority. The political system's unity stems from the people's approved power, granted by the Party and the State, to achieve a shared objective. The overarching political objective of the entire system is to effectively establish socialism and communism in Vietnam. The specific goals are defined as achieving prosperity for the people, strengthening the nation, promoting democracy, ensuring fairness, and fostering civilization.

The study reveals a significant gap in disaster literacy levels across the three Destana categories, with Destana Utama demonstrating the highest level of preparedness and Destana Pratama the lowest. Despite relatively better practical skills in disaster mitigation and recovery, all categories show alarmingly low disaster literacy levels, highlighting the critical need for improved disaster education and communication. Brown's disaster literacy model suggests that enhancing knowledge, risk perception, and response capabilities is essential for reducing vulnerability in disaster-prone areas.

The research concludes that disaster communication must be tailored to local contexts, with a

focus on accessible, two-way communication to ensure messages resonate with all community members. The application of multi-channel strategies, including face-to-face communication and digital platforms, can significantly enhance the reach and effectiveness of disaster preparedness efforts. Integrating local wisdom into these communication strategies is also critical for improving disaster resilience at the community level.

the idea that effective disaster communication requires a multi-channel approach. While face-to-face communication is critical for building trust and ensuring community engagement, particularly in communities with higher disaster literacy like Destana Utama, the increasing use of social media cannot be overlooked. In Destana Madya, social media's growing role shows that digital platforms can significantly enhance disaster preparedness, especially when integrated with interpersonal communication. However, the situation in Destana Pratama, with lower engagement across all communication methods, highlights the need for targeted interventions to improve both access to communication channels and the community's disaster literacy. Ultimately, disaster communication strategies should be tailored to the specific needs and contexts of each community, combining interpersonal, digital, and mass media to ensure that all segments of the population are reached and prepared for disaster events.

The study recommends focusing on community-based education programs to elevate disaster literacy, particularly in Destana Pratama, where the population is most vulnerable. Additionally, continuous evaluation of communication strategies should be conducted to ensure they align with the community's needs and literacy levels.

We suggest Longitudinal Studies on Disaster Literacy: Future research could explore longitudinal studies to assess how disaster literacy evolves over time, especially in communities that have implemented targeted communication and education programs. Tracking improvements in disaster knowledge, risk perception, and response skills can provide insights into the long-term effectiveness of various interventions. Besides that, we offer Comparative Studies Across

Regions: A comparative study between different disaster-prone regions, both nationally and internationally, could provide valuable data on how different cultural, economic, and infrastructural contexts influence disaster literacy. Such comparisons could highlight best practices that can be adapted to other vulnerable areas.

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Conflict of Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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