

Local Mass Media and Multi-Stakeholders as Leading Sector in Disaster Communication at the Community Level

Muhammad Hilmy Aziz¹, Dwi Prasetyo¹, Teguh Dwi Putranto¹, Lukman Arif²

¹Communication Science, Faculty of Social and Political Sciences, Universitas Negeri Surabaya, Jawa Timur, Indonesia

²Public Administration, Faculty of Social and Political Sciences, Universitas Pembangunan Nasional Veteran Jawa Timur, Indonesia

e-mail: muhammadaziz@unesa.ac.id^{1*}; dwiprasetyo@unesa.ac.id¹; teguhputranto@unesa.ac.id¹; lukman_arif@upnjatim.ac.id²

*Corresponding author

ABSTRACT

Indonesia is a disaster-prone country, with threats including earthquakes, tsunamis, volcanic eruptions, floods and landslides. Disaster communication at the community level means providing efforts to prevent and handle disaster events. This research aims to find the right instrument to improve digital literacy. It also describes how to implement disaster communication at the community level. The research method used to provide a new perspective related to this research is qualitative research, obtaining data using Focus Group Discussions (FGD). Research results can be used as a new standard for implementing disaster communication at the community level. First, local mass media is important in providing and optimizing literacy and community participation in disaster prevention or mitigation efforts. Local mass media are considered to have emotional and psychological closeness to the right way to approach the community based on local pride. Secondly, by collaborating with stakeholders, the community can optimize literacy with various perspectives and achievements obtained through various institutions.

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INTRODUCTION

Indonesia is one of the countries with a high level of disaster vulnerability. As an archipelago located on the Pacific Ring of Fire, Indonesia frequently experiences various natural disasters, including earthquakes, tsunamis, volcanic eruptions, floods, and landslides. This vulnerability requires effective mitigation efforts to reduce disaster risk and its impact on

communities. One important aspect of disaster mitigation efforts is communication. Communication plays a central role in all stages of disaster management: prevention, mitigation, preparedness, response, and recovery. In the mitigation stage, communication serves as a tool to disseminate information about potential hazards, prevention measures, and ways that communities can reduce risks (Wicaksono & Pangestu, 2019; Susanti & Anggara, 2021; Hafitzhah et al., 2023).

Effective communication can increase public awareness, strengthen individual and community capacity, and encourage proactive action before a disaster occurs. However, there are various challenges faced in efforts to optimise communication for disaster mitigation: unequal literacy and access to information in the community. In Indonesia, many people who live in remote areas still need more access to information (Tanjung, n.d., 2020). In addition, varying literacy levels affect people's ability to understand and utilize the information provided. Uneven availability of communication infrastructure. In some areas, especially in remote and outermost regions, there is still limited access to communication networks such as the Internet and mobile phones (Mujiono & Noviansyah, 2021; Hadi, 2024). This hampers the rapid and timely dissemination of information—community perceptions and attitudes towards disaster risk. Often, communities tend to overlook or underestimate the threat of disasters that are not immediately visible or that occur infrequently. This requires a communication approach that is not only informative but also persuasive to change community attitudes and behavior toward disaster risk.

The experience of various disasters in Indonesia provides many valuable lessons on the importance of communication. For example, during the 2004 tsunami in Aceh, the lack of adequate information and early warning contributed to the high number of casualties. After the event, Indonesia started to develop an early warning system and increased communication efforts to the public regarding tsunami risks (Andwitasari & Handayani, 2022; Suryadi et al., 2024). Optimising communication as a mitigation effort in reducing disaster risk in communities is crucial and requires serious attention. By overcoming existing challenges and implementing effective communication strategies, it is hoped that Indonesian communities can be better prepared and resilient in the face of various disasters that may occur (Syahara et al., 2021). Through increased literacy, infrastructure development, use of technology, and collaboration of various parties, communication can be a powerful tool in disaster mitigation efforts in Indonesia, reducing the impact of disasters and instilling a sense of hope and resilience.

In general, disaster communication is the most vital aspect of risk management and disaster mitigation. In a country like Indonesia, which is prone to various natural disasters such as earthquakes, tsunamis, volcanic eruptions, floods, and landslides, effective communication can be the difference between safety and a major disaster (Apriyani et al., 2022; Maulana & Andriansyah, 2024; Lestari & Susanti, 2024). Disaster communication involves the rapid and accurate dissemination of information before, during and after a disaster to minimise losses and improve community safety. Disaster communication is important because timely and accurate information can save lives and reduce material losses. When a disaster occurs, efficient communication allows governments and disaster management organisations to provide

evacuation instructions, warn the public of impending danger, and coordinate relief efforts (Risk, 2019). For example, early warnings about tsunamis can provide sufficient time for communities to evacuate, reducing the number of fatalities and emphasizing the life-saving potential of effective communication during disasters.

One of the main challenges in disaster communication in Indonesia is uneven information literacy and access. Many remote and rural areas still have limited access to modern communication technologies like the Internet and mobile phones. In addition, varying literacy levels among communities also affect their understanding of the information provided (Marina et al., 2021). In Indonesia, developing equitable communication infrastructure is still a big challenge. In urban areas, access to the internet and mobile phone networks is relatively good, but this access is still very limited in rural and remote areas. The government must invest more in developing communications infrastructure, including expanding telecommunications and internet networks to remote parts of the country.

The use of modern technology in disaster communication has shown positive results in various countries. Early warning applications, social media platforms, and emergency SMS systems are examples of technologies that can disseminate information quickly and widely. These technologies allow information to be delivered within seconds, giving communities more time to act. In Indonesia, initiatives such as the Tsunami Early Warning System (InaTEWS), which uses earthquake sensors to detect potential tsunamis and sends warnings through various communication channels, are significant (Frasetya et al., 2021).

Increasing community literacy and awareness about disaster risks and mitigation measures is key to reducing disaster impacts. Continuous education and socialization programs need to be conducted to ensure that communities understand the risks they face and know how to respond to them. This education can be provided through schools, local communities, and media campaigns. In addition, periodic disaster drills are important to ensure that communities are prepared and know what to do when a disaster occurs (Kurniawati, 2020). In this case, the mass media is important in disseminating disaster information. Television, radio, newspapers, and online media can effectively convey information on current conditions, evacuation instructions, and safety measures. The media can also help raise public awareness about disaster risks through news coverage and educational programs. In this digital age, social media is also a very effective tool for rapid and wide dissemination of information.

Collaboration between the government, non-governmental organizations (NGOs), the private sector, and the community is essential to disaster communication. This multi-stakeholder approach ensures that information is accurate, credible, and accessible to all levels of society (Darmasetiadi, 2019). This cooperation also allows for better coordination in developing and implementing disaster communication strategies. For example, NGOs can assist in disseminating information in remote areas, while the private sector can provide the technology and infrastructure needed. Indonesia has various experiences in disaster communication that can serve as valuable lessons. One of them was during the tsunami in Aceh in 2004. The lack of adequate information and early warning led to many casualties at that time. However, after the

event, Indonesia started to develop an early warning system and improved communication efforts with the public regarding tsunami risks.

The government has a key role in coordinating and implementing disaster communication strategies. The government must ensure that information on disaster risks and mitigation measures is effectively disseminated to all levels of society. In addition, the government is also responsible for building and maintaining adequate communication infrastructure and cooperating with various parties to improve disaster preparedness (Adi et al., 2022). The government must also ensure an effective and reliable early warning system. An effective disaster communication strategy involves several important elements. First, information must be conveyed clearly, and understandable for everyone, including those with low literacy levels. Secondly, information must be disseminated through various communication channels to ensure that as many people as possible can receive the message. Thirdly, communication should be done continuously and not just during a disaster. Continuous education and socialization are essential to increase community awareness and preparedness.

Effective disaster communication can increase community resilience to disasters. This resilience includes the ability to survive when a disaster occurs and the ability to recover and rebuild after a disaster. Communities that have access to timely and accurate information are better able to take the necessary steps to protect themselves and minimize losses. In addition, good communication can also help communities to support each other and work together in the face of disasters. Innovation is constantly evolving in the field of disaster communication. New technologies such as the Internet of Things (IoT), big data, and artificial intelligence (AI) can be used to improve early warning systems and disseminate information more efficiently (Bakti et al., 2020). For example, IoT sensors can monitor environmental conditions and provide early warnings about potential disasters. Big data and AI can analyze data from various sources, providing more accurate predictions of impending disasters.

Active community participation in disaster communication is crucial. Communities are not just recipients of information, but also sources. This participation can take various forms, from training and involvement in disaster drills to contributing to the dissemination of information in their communities. Active community participation can also foster a sense of ownership and responsibility toward disaster mitigation efforts. Despite challenges such as uneven literacy and limited communication infrastructure, there are numerous steps that can be taken to improve the effectiveness of disaster communication. Governments, media, technology, and communities all have vital roles to play in disseminating information that can save lives and reduce losses. It's important to remember that building a resilient society is an ongoing process that requires continuous collaboration, innovation, and education.

RESEARCH METHOD

Qualitative research provides a new insight into how to conduct research by forming constructions. Data is something that is obtained based on saturation. This means that the data obtained through qualitative methods can be said to be valid if the information that has been collected has no variations and is also in a confirmed position (Indarwati, 2020; Saragih &

Khadijah, 2022). Apart from that, it also has the aim of describing a context in a phenomenon (Putri, 2023; Ilmar et al., 2024). In this research, the author tries to elaborate on existing information by using Focus Group Discussion (FGD) to obtain information. FGDs are a series of carefully planned discussions designed to obtain perceptions about the specified in a permissive and non-threatening environment (Kruegar & Casey, 2000). It is undeniable that making a new formulation will not be possible if it is done only by observing or observing a phenomenon. Furthermore, by using FGDs, researchers can reveal new findings that can never be done using interviews in general (Marques et al., 2021; Scheller. et al, n.d. 2021; Kumari et al., 2021).

Barrows (2000) explains that FGD participants should be selected individuals who are experienced or knowledgeable about experienced or knowledgeable about a particular issue and who can contribute information about the topic in question to obtain the necessary data further that FGDs are seen as a type of group interview in which a small group of individuals are gathered together to discuss one (or sometimes more) topics of interest with time efficiency in obtaining a relatively short data (Gundumogula & Gundumogula, 2020). In this study, researchers selected informants with criteria that included people who were competent in the field of disaster mitigation. The FGD involved at least 10 participants to discuss disaster communication in the community.

RESULTS AND DISCUSSION

The Role and Strategy of Communication as a Disaster Mitigation Effort

Indonesia, situated on the Pacific Ring of Fire, is uniquely susceptible to a variety of natural disasters, including earthquakes, volcanic eruptions, tsunamis, floods, and landslides. In this context, effective communication emerges as a critical tool in disaster mitigation. It encompasses not only the timely and accurate dissemination of information, but also education, coordination, and collaboration among the involved parties. Communication's role is pivotal in all phases of disaster management, from prevention and preparedness to emergency response and recovery (Tunggali et al., 2019). In the mitigation phase, robust communication can help reduce risk by enhancing community awareness and preparedness. Clear and timely information can be life-saving and can minimize material losses.

Effective communication, in line with this, enables the rapid, accurate, and widespread dissemination of information, empowering people to take timely action to protect themselves and their property. Modern technologies, such as early warning systems, disaster monitoring apps, and social media, have proven to be highly effective tools in disseminating emergency information. However, the role of continuous education and training, which should cover all societal levels, cannot be overstated. It is instrumental in increasing disaster awareness and preparedness, and in reducing the risks faced (Wicaksono & Pangestu, 2019).

In addition, effective communication can also promote better coordination between the government, non-governmental organizations (NGOs), media, and communities. Despite its importance, communication in disaster mitigation in Indonesia faces various challenges. One of the main challenges is uneven literacy and access to information. Many areas in Indonesia, especially remote and rural areas, still need more access to communication technology, such as

the Internet and mobile phones. In addition, varying literacy levels among communities also affect their understanding of the information provided (Wekke, 2021). Another challenge is the culture and perception of people who sometimes underestimate the threat of disasters, especially if they rarely experience them.



Source: Research Documentation, 2024

Figure 1 Implementation of Disaster Communication FGD

An effective strategy is needed to overcome existing challenges and optimize the role of communication in disaster mitigation. Some of the strategies implemented include:

1. Use of Modern Technology

Modern technology plays an increasingly important role in disaster communication. Early warning systems, disaster monitoring applications, and social media platforms are examples of technologies that can disseminate information quickly and widely. For example, earthquake sensors connected to a communication network can provide early warnings seconds before a major tremor arrives, giving people enough time to evacuate. In addition, smartphone disaster monitoring applications allow people to get the latest information on disaster conditions and the steps to be taken (Syahara et al., 2021; Aziz, 2024).

2. Education and Training

Education and training are an important part of a disaster communication strategy. Ongoing education programs can help people understand the disaster risks in their environment and the steps to be taken to reduce them. Disaster preparedness training, such as evacuation simulations and emergency equipment, can improve people's ability to respond to disasters (Suherman, 2019). This education is carried out in schools and local communities through activities such as workshops and seminars.

3. Multi-stakeholder collaboration

Collaboration between the government, NGOs, the private sector, and the community is important in a disaster communication strategy. This multi-stakeholder approach ensures that the information conveyed is accurate, credible, and accessible to all levels

of society. Collaboration across all elements allows for better coordination in preparing and implementing disaster communication strategies (Mafruhah et al., 2024). For example, NGOs can help disseminate information in remote areas, while the private sector can provide the technology and infrastructure needed. In the context of disaster communication, stakeholders become collaborators where the government plays an important role as a regulator while NGOs play a role in implementing regulations (Ningtyas et al., 2020; Rozikin, 2024; Tappero & DiSabatino, 2023; Sapapthai et al., 2020). In addition, the private sector or media form bridges or infrastructure the community needs. The collaboration carried out between stakeholders forms a synergy that can create a disaster communication pattern that is very beneficial for the daily lives of the community, especially those in disaster-prone areas.

4. Use of Local Mass Media

The mass media is important in disseminating disaster information. Television, radio, newspapers, and online media can effectively convey information about current conditions, evacuation instructions, and safety measures. The media can also help increase public awareness of disaster risks through news and educational programs. Many studies have revealed that local mass media plays an important role in regional development, or what is called an actor with regional development involvement. Local mass media provides a concrete form that can be seen from the spearhead of how local mass media develops in the development of a region. This means that local mass media, in addition to being an implementer of the important function of the role of the media, are also responsible for being implementers and interpreters of educational developments in the areas around the mass media (Larisu et al., 2022; Marcelina et al., 2020; Poernomo et al., 2022). In disaster mitigation or more towards disaster communication, local mass media certainly have a major role in achieving education and literacy that can provide understanding to local communities, which in this case also have an approach based on local wisdom. This certainly makes local mass media like a leading sector that can mobilize the masses to understand the importance of disaster mitigation.

5. Improving Communication Infrastructure

The government needs to invest more in developing communication infrastructure, including expanding telecommunications and internet networks to remote areas of the country to ensure that information can be disseminated quickly and on time to the entire community, especially in remote areas that are often most vulnerable to disasters.

Improving communication infrastructure is a fundamental element in an effective disaster communication strategy. Without adequate communication networks, the dissemination of information in emergencies can be hampered, causing delays in response and increasing risks for affected communities. In disasters, fast and accurate communication is essential to provide communities with timely information on early warnings, evacuation procedures, and aid coordination. However, in many remote areas, access to telecommunications networks is still

limited due to geographical factors that are difficult to reach and minimal investment in infrastructure development. As a result, the information gap is one of the factors that worsens the impact of disasters, as communities cannot immediately obtain the right direction in dealing with emergencies.

In some cases, many victims could have been saved if they had received information quickly and accurately through a better communication system. Therefore, the government and related parties must strategically expand communication reach by building a broader and more resilient telecommunications infrastructure, especially in areas often affected by disasters. With a more structured communication system, information dissemination can be carried out more effectively and help communities take steps to save themselves and coordinate aid more efficiently. Although improving communications infrastructure is an urgent need, the challenges in its implementation remain significant. One of the main obstacles is the limited access and reach of telecommunications networks in remote areas caused by difficult geographical conditions and high construction costs. In addition, many communications infrastructures are still vulnerable to disruptions due to natural disasters such as earthquakes and floods, so more resilient technology is needed to protect them from extreme conditions. When a major disaster occurs, communications networks are often paralyzed due to damage to transmission towers or broken network cables. This is further exacerbated by the low digital literacy in some communities that are not yet accustomed to using emergency response applications or accessing information from official sources. In fact, in an emergency, information from official institutions such as the National Disaster Management Agency (BNPB) or other humanitarian agencies is essential in determining the community's actions. To overcome these challenges, innovative solutions are needed, such as using satellite-based networks, constructing more earthquake-resistant communications towers, and digital literacy education so that the community can be better prepared to face emergencies by utilizing available communications technology. The government also needs to work with the private sector and international organizations to accelerate the development of broader and more resilient communications infrastructure so emergency communications systems can continue functioning even if disruptions occur at several points.

If communication infrastructure can be effectively improved, the benefits will be felt in disaster mitigation efforts and people's daily lives, especially in remote areas. With a broader and more resilient communication network, people can get emergency information faster, thereby reducing the number of victims and increasing the effectiveness of evacuation. In addition, increasing communication access will also accelerate coordination between the government, humanitarian organizations, and the community in distributing aid and post-disaster handling. In emergencies, the speed of information dissemination can be a determining factor in saving lives and reducing the negative impacts of disasters. Furthermore, developing good communication infrastructure can also positively impact other sectors, such as education and the economy, by opening up opportunities for broader access to information and digital services for the community. In areas previously difficult to reach by telecommunications networks, developing communication infrastructure can improve community connectivity with

the outside world, allowing them to access various essential services, including health services, distance education, and digital-based business opportunities. Therefore, investment in strengthening communication infrastructure is not only relevant for disaster management but also as a strategic step in improving the welfare of society as a whole. With a strong commitment from various parties, developing a more inclusive and resilient communications infrastructure can be a long-term solution to create a better-prepared culture to face disasters and be more connected to the ever-growing digital world.

In line with this, the experience of various disasters in Indonesia provides many valuable lessons about the importance of communication. For example, when the tsunami hit Aceh in 2004, inadequate information and early warning contributed to the high fatalities (Tanjung et al., 2020). After the incident, Indonesia began to develop an early warning system and increase communication efforts with the public about the risk of tsunamis. The implementation of communication strategies in various types of disasters that are prone to occur in Indonesia includes:

1. Earthquakes

In areas prone to earthquakes, communication strategies should focus on disseminating information about the steps to take before, during, and after an earthquake. This includes education on how to take shelter during an earthquake and safe evacuation routes. An early warning system that can provide information seconds before a major quake arrives is also very important. This information can be disseminated via sirens, SMS, and smartphone applications.

2. Tsunami

In coastal areas prone to tsunamis, communication strategies should include education about the early signs of a tsunami and evacuation routes. A tsunami early warning system that uses earthquake sensors and ocean data can provide sufficient time for people to evacuate. This information must be disseminated quickly through various communication channels, including sirens, SMS, social media, and mass media.

3. Volcanic Eruptions

Communication strategies should focus on monitoring volcanic activity and disseminating early warning information in areas around active volcanoes. Education about danger zones and evacuation routes needs to be done routinely. Technology such as drones and sensors to monitor volcanic activity can help provide accurate early warnings. This information can be disseminated through mass media, SMS, and smartphone applications.

4. Floods

Communication strategies in flood-prone areas should include weather monitoring and early warning systems. Education about steps to take during floods, such as evacuating to higher ground and how to protect property, needs to be disseminated routinely. The use of technology such as weather radar and flood monitoring applications can help in providing timely information. This information can be disseminated through sirens, SMS, social media, and mass media.

5. Landslides

In landslide-prone areas, communication strategies should include education about early signs of landslides and evacuation steps. Early warning systems that use sensors to monitor ground movement can provide accurate information about potential landslides. This information must be disseminated quickly through various communication channels, including sirens, SMS, social media, and mass media. Effective communication is a crucial element in disaster mitigation efforts in Indonesia. By addressing existing challenges and implementing effective communication strategies, it is hoped that the Indonesian people will be better prepared and resilient in dealing with various disasters that may occur. Through modern technology, education, and training, multi-stakeholder collaboration, the use of mass media, and the improvement of communication infrastructure, communication can be a powerful tool in disaster mitigation efforts. The experience of various disasters in Indonesia shows that good communication can save lives and reduce losses.

CONCLUSION

Optimizing communication as a mitigation effort in reducing disaster risks in the community environment is a crucial step that must continue to be developed and refined. Effective communication allows for the rapid, accurate, and widespread dissemination of information so that the community can take timely action to protect themselves and their property. Modern technologies such as early warning systems, disaster monitoring applications, and social media have proven to be very effective tools in disseminating emergency information. In addition, continuous education and training, covering all levels of society, can increase awareness and preparedness for disasters and reduce the risks faced. In this regard, multi-stakeholder coordination in disaster communication must be addressed. Cooperation between the government, NGOs, the private sector, the media, and local communities ensures that the information conveyed is credible and accessible to the entire community by improving communication infrastructure, especially in remote areas, and adopting an approach that is sensitive to local culture, disaster communication can be more effective. Experience from various disasters in Indonesia shows that good communication can save lives and reduce material losses.

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