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The Role of the Sahabat Bencana Website in Strengthening Village Resilience: An Analysis of the Utilization of Disaster Information in Forming Disaster-Resilient Villages in Pasaman Barat Regency

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Abstract:
Indonesia, as the largest archipelagic country in the world, faces significant natural disaster risks due to its geographic location between three major tectonic plates. West Sumatra Province, particularly Pasaman Barat Regency, is a high-risk area for disasters such as flash floods, exacerbated by geographical conditions, high rainfall intensity, and spatial planning violations. This study aims to design and evaluate flood disaster management strategies through the utilization of information from the internet, particularly via the "Sahabat Bencana" website. A qualitative approach with descriptive methods was employed in this research. Data were collected through interviews, observations, and document studies, and analyzed using strategy theory. The results indicate that the "Sahabat Bencana" website can be an effective tool in forming Disaster-Resilient Villages by providing up-to-date information, early warnings, and mitigation steps. However, its effectiveness is influenced by digital literacy, information technology infrastructure, and content relevance. Challenges in implementing this website include low digital literacy, limited internet access, and socio-cultural factors. Therefore, improving digital literacy, providing adequate infrastructure, and involving community leaders in website socialization are necessary. Overcoming these challenges will maximize the effectiveness of the "Sahabat Bencana" website in strengthening village resilience against disasters in Pasaman Barat Regency and other regions in Indonesia.

Keywords: Natural Disasters; Mitigation; Flooding; Digital Literacy; Technology Infrastructure; Disaster-Resilient Villages;

1. Introduction

Indonesia, as the largest archipelagic country in the world, faces a significant number of natural disasters with high incidence rates and potential impacts. Its geographic location between three major tectonic plates—the Pacific, Eurasian, and Indo-Australian plates—increases its vulnerability to disasters such as tsunamis, earthquakes, and volcanic eruptions (Maulana, 2024). This geological condition is a critical factor that heightens the disaster risk in the country.

West Sumatra Province is categorized as a high-risk area for natural disasters. Pasaman Barat Regency, one of the 19 regencies in West Sumatra, stands out as an area that exhibits these characteristics. This region consists of highlands and mountains, with much of its area comprising protected forests that support agricultural sectors such as plantations, dryland farming, and horticulture (Astuti, 2018). However, the region remains vulnerable to various types of natural disasters, including landslides, coastal erosion, tsunamis, and floods.

Pasaman Barat Regency has geographical conditions that make some areas prone to flooding. With a coastline stretching 152 kilometers and a sea surface area of 800.47 square kilometers, as well as significant groundwater levels and pressure, there is no significant difference between the average heights of large and small rivers and the surrounding sea level (BPS, 2023). The average rainfall in Pasaman Barat Regency is also relatively high, making the area susceptible to flood disasters.

Flash floods in Pasaman Barat Regency are generally triggered by high-intensity rainfall exceeding normal limits, causing river overflow. Additionally, other factors include damaged river bodies, the deterioration of catchment and infiltration areas, high instances of spatial planning and legal violations by the community—such as illegal logging and mining activities—and a lack of coordination in development planning (Mulki, 2022; Murdhani, 2024).

In response to the threat of flooding, mitigation efforts are needed to reduce its negative impacts. Law Number 24 of 2007 on Disaster Management defines disaster mitigation as a series of activities aimed at reducing disaster risk through physical development or capacity building to face disaster threats (Wahyudi, 2020). Therefore, this study aims to design and evaluate flood disaster management strategies by utilizing information from the internet.

2. Research Method

This study employs a qualitative approach with descriptive methods. Data were collected through interviews, observations, and document studies. Each piece of information obtained from the field is clearly and systematically described according to the existing facts. The analysis was conducted based on strategy theory according to Kooten in Salusu (2006) as the conceptual framework. Solutions are also offered for each issue identified related to the implementation of flood disaster management strategies in Pasaman Barat Regency.

The data sources in this study include primary data obtained from semi-structured interviews and secondary data from literature reviews of articles, scientific journals, and supporting books. The informants in this study are parties involved in the implementation of flood disaster management strategies in Pasaman Barat Regency, as well as the community that is the target of these strategies.

3. Results and Discussion

3.1 Effectiveness of Utilizing Disaster Information through Websites in Forming Disaster-Resilient Villages

Utilizing disaster information through websites can be an effective tool in forming Disaster-Resilient Villages. Websites like "Sahabat Bencana" provide up-to-date information on natural disasters, preventive actions, and mitigation measures that can be undertaken by village communities. With easy access and wide dissemination of information, this website helps enhance the preparedness and resilience of villages in facing disaster threats (Anwar, 2020). Accurate and real-time information is crucial in disaster management as it can provide timely and precise guidance for communities in disaster-prone areas.

One of the primary benefits of this website is its ability to disseminate information in real-time. During a disaster, village communities can receive early warnings and evacuation instructions via the website, helping reduce the risk of casualties and material losses. Timely early warnings can give communities the

opportunity to evacuate to safer areas before the situation worsens. This demonstrates that digital technology can play a vital role in improving rapid disaster response.

In addition to providing early warnings, the website can also serve as a platform for sharing information, experiences, and best practices among villages in dealing with disasters. With a platform for sharing, villages can learn from each other's disaster management experiences, thereby collectively strengthening their capacity (Hasanah, 2019). This synergy and collaboration are crucial in creating community resilience against natural disasters.

However, the effectiveness of utilizing this website depends on several factors, such as the digital literacy of the village communities. Good digital literacy enables the community to access and understand the information provided. Without adequate digital literacy, communities will struggle to optimally utilize this technology. Therefore, digital literacy improvement programs need to be integrated into disaster management strategies to ensure that communities can effectively use the website.

Apart from digital literacy, adequate information technology infrastructure is also a key factor. Stable and widespread internet access is necessary for real-time information to be accessed without hindrance. In many villages, especially remote ones, internet access may still be a significant issue. Therefore, improving information technology infrastructure should be a priority to ensure that all villages can fully utilize this platform.

The content provided on the website must also be accurate, up-to-date, and tailored to the local context of each village. Information relevant to local conditions will be easier for the community to understand and apply. Content tailored to the local context can also increase the community's trust in the information provided, as they feel the information is applicable to their daily situations (Prasetyo, 2018). The accuracy and relevance of this information are crucial to ensuring that the actions taken by the community based on this information are effective and targeted.

Furthermore, efforts to improve digital literacy and provide adequate infrastructure in villages are essential to maximize the utilization of this website. Training and education on how to use technology and access disaster information should be conducted regularly. The government and non-governmental organizations can collaborate to provide the necessary resources and support to enhance digital literacy at the village level. This will ensure that the entire community, including vulnerable groups, can maximally benefit from this technology.

Overall, the "Sahabat Bencana" website has significant potential in helping to form Disaster-Resilient Villages. However, to optimize its utilization, collaborative efforts are needed to improve digital literacy, provide adequate technology infrastructure, and ensure relevant and accurate content. With these measures, the website can become a highly effective tool in enhancing the preparedness and resilience of village communities in facing natural disasters.

3.2 Challenges in the Implementation and Use of the Sahabat Bencana Website

Despite the benefits provided by the "Sahabat Bencana" website in strengthening village resilience against

disasters, several challenges exist in its implementation and use. One of the main challenges is the low level of digital literacy in some villages, especially in remote or rural areas (Rahmah, 2019). A lack of understanding and skills in using digital technology can hinder communities from effectively accessing and utilizing information from the website. Many villagers are not yet familiar with using the internet and technological devices, making technology use training and socialization essential.

Another challenge is the issue of infrastructure, such as the limited or uneven availability of internet access in rural areas. Poor internet connectivity can impede the real-time dissemination of information and reduce the website's effectiveness in providing early warnings or evacuation instructions during disasters (Nurhayati, 2021). Without reliable internet access, critical disaster-related information may not reach the community in time, resulting in greater risk. Therefore, improving internet infrastructure in rural areas is a crucial priority in disaster mitigation.

Additionally, the lack of adequate technological devices at the village level can be a barrier to optimal website utilization. Many villages may not have sufficient computers or mobile devices to access online information. Procuring necessary technological devices and ensuring that they can be effectively used by the community is an important step in addressing this issue. The government and non-governmental organizations need to collaborate to provide the necessary devices and technical support in villages.

Socio-cultural factors can also pose challenges in the implementation of this website. Some village communities may still trust traditional knowledge or local information sources more than the information provided through the website (Pratama, 2021). Community trust in digital information can vary, and often, information from community leaders or local figures is more relied upon. Therefore, it is important to involve community leaders and local figures in the socialization and adoption process of the website, thereby increasing the community's trust in the information provided (Efendi, 2018; Wahyudi, 2019).

Involving community leaders and local figures in the website socialization process can enhance community acceptance and trust in this technology. Trusted community leaders can act as intermediaries between the new technology and the community, helping to explain the benefits and how to use the "Sahabat Bencana" website. Effective socialization can be conducted through village meetings, training sessions, and direct demonstrations on how to access and utilize the information available on the website.

To address digital literacy challenges, digital literacy improvement programs need to be integrated into disaster management strategies. Regular training on digital technology use and disaster information access must be conducted to ensure that all community members can utilize this website. The government and non-governmental organizations can collaborate to provide the necessary training and resources to enhance digital literacy at the village level. With better digital literacy, communities will be more prepared and capable of using technology to face disasters.

Improving information technology infrastructure is also a critical priority. The government needs to invest in expanding internet access to remote and rural areas and ensuring that internet connectivity quality is sufficient to support the use of the "Sahabat Bencana" website. Additionally, procuring adequate technological devices and implementing user training programs should be part of these efforts. With good infrastructure and high digital literacy, the utilization of the "Sahabat Bencana" website can be more effective in strengthening village resilience against disasters.

4. Conclusion

This study indicates that the "Sahabat Bencana" website has significant potential in helping to develop Disaster-Resilient Villages in Indonesia, particularly in Pasaman Barat Regency. By providing up-to-date information, early warnings, and disaster mitigation measures, this website can enhance the preparedness and resilience of village communities in facing natural disaster threats. However, the effectiveness of utilizing this website depends on several factors, such as the digital literacy of the community, adequate information technology infrastructure, and the quality of content presented in the local context.

On the other hand, there are several challenges in the implementation and use of the "Sahabat Bencana" website in villages, such as low levels of digital literacy, limited infrastructure and internet access, and socio-cultural factors that may influence community trust in the information provided. To overcome these challenges, efforts are needed to improve digital literacy, provide adequate infrastructure, and involve community leaders and local figures in the socialization and adoption process of the website. By addressing these challenges, the utilization of the "Sahabat Bencana" website can be more effective in strengthening village resilience and developing Disaster-Resilient Villages in Pasaman Barat Regency and other regions in Indonesia.

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