Strengthening The Sustainable Resilience of Communities in Facing Disasters Through the Disaster Resilience Village in Banten

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Abstract
This case study investigates the development and effectiveness of disaster-resistant communities in Banten, Indonesia, focusing on their collective ability to cope with natural adversities, such as seismic activity, flooding, and geological failures. Utilising a qualitative approach, this study assessed the implementation of disaster risk evaluations, emergency preparedness plans, the establishment of Risk Reduction Forums, and the incorporation of related legislation within community development initiatives. Participants included government officials, facilitators, and community members. Data were collected through comprehensive interviews and participatory observations, and then triangulated to reduce bias. The findings indicate that despite progress attributed to government programs, such as the Disaster Resistant Villages Program, comprehensive development is hindered by insufficient financial resources and inefficient asset distribution. This study emphasises the critical role of community engagement, traditional knowledge, and stakeholder cooperation in fostering lasting resilience. It is concluded that sustained public awareness, increased participation, and multi-sector cooperative initiatives are crucial for cultivating resilient communities capable of effectively reducing disaster risk and promptly recovering post-disaster.
Keywords: Disaster-Resilient Villages, Sustainable Development, Disaster Risk Management.

INTRODUCTION

Indonesia is prone to disasters because it is on a fire ring. This makes it one of the 35 countries most at risk for earthquakes and volcanic eruptions. Its location near the Pacific Ocean also causes the La Nina Triple Dip, leading to weather-related disasters owing to changes in surface temperatures (Anastasya et al., 2023). Indonesia receives a lot of rain each year, ranging from 1,000 to 4,000 mm. The Heavy rain, mountains, and sloping lands make it likely to cause floods and landslides (Ismana et al., 2022). The World Risk Report 2022 ranks Indonesia as the third-highest disaster-risk country, after the Philippines and India, with a Global Risk Index (WRI) score of 41.46 points (Prakoso et al., 2022). This highlights the need for better prevention plans and alert systems to reduce the impact of natural disasters and to protect people and property.The BNPB, through its Community Empowerment Directorate, has been working since 2012 to reduce disaster risk by empowering communities. The Disaster Resilience Village Program (Destana) is a community-led effort to help locals actively participate in reducing risks. Disaster-resilient villages aim to strengthen local communities and improve their ability to handle and recover from disasters. By improving infrastructure, preparing and responding better, and involving the community, these villages in Banten can lessen the impact of disasters and protect people's health and safety (Tiwi et al., 2023). The Disaster Resilient Villages Program in Banten is a key effort to help communities withstand disasters. Through different strategies, the program aims to prepare local groups to respond more effectively and recover quickly after a disaster (Tiani et al., 2022).The 2004 tsunami had a worldwide impact led to significant global aid. Since this disaster, many efforts have been made to improve tsunami early warning systems and disaster readiness in Banten's coastal areas and nearby regions. Over time, these systems have improved with advanced earthquake sensors and tsunami alerts (Anastasya et al., 2023). Besides tsunamis, Banten also faces serious flooding risks. The rainy season often causes flooding in various parts of the province. Flooding can occur because of heavy rain, overflowing rivers, or intense rain in a short time. Cities such

as Serang and Tangerang have experienced floods that disrupt their daily lives (Octavia & Marko, 2020). In addition to flooding, hilly areas in Banten are at risk of landslides, particularly during the rainy season (Naimullah, 2023).To handle the risks of natural disasters, we need a focused plan that involves both the community and its leaders. People play a significant role in reducing disaster risks (Bali, 2022). One way to do this is through the Disaster Resilience Village Program, which sees people as key players who can reduce the dangers of disasters (Subiyanto, 2023). The Tangguh Disaster Village is a community that can spot dangers around them and use local resources to reduce risks and improve their disaster response (Isnaini, 2022). This is demonstrated in their planning, which includes prevention, readiness, risk reduction, and recovery after disasters.In Destana, community members work to assess, analyse, manage, monitor, evaluate, and reducing disaster risks, especially by using local resources for sustainability (Mahbubah et al., 2021). Disaster-resilient village activities are listed in BNPB No.1 of 2012 in the General Guidelines for Disaster Resilient Villages: a) Village Risk Assessment, b) Planning and Contingency Planning, c) Setting up a PRB Forum, d) Building Capacity of Residents and Agencies, e) of PRB in Village Plans and Laws, f) Carrying out PRB in Villages, and g) Monitoring and Evaluation programs. This study seeks to evaluate how well villages in Banten can handle potential natural disasters. The focus of this study was to determine the resilience levels of both the government and community in Banten.This study aims to connect theory with practice and offer practical insights to improve disaster readiness and response strategies in different communities. By taking a broad approach, this study examines how teamwork among governments, NGOs, and civil society can strengthen local abilities to handle natural disasters.

LITERATURE REVIEW

A literature review is important for understanding the current knowledge and finding research gaps in disaster resilience, especially in Banten's unique geographical context. This research shows that strong disaster risk reduction methods are key to improving community resilience, especially in areas such as Banten, which face natural disasters. This highlights the importance of using local knowledge and traditions in disaster management plans to make them culturally suitable and effective in reducing risk (Mutiarni et al., 2022). The disaster-resistant village program in Banten is not only a quick solution; it also includes long-term plans for sustainable growth and community involvement. By focusing on education, better infrastructure, and community participation, the program aims to build a strong foundation for disaster preparedness and resilience to changing threats from natural disasters (Sun & Zhang, 2020).

Concept of Disaster Resilience

Disaster resilience refers to how well people, communities, and systems can expect, prepare, react to, and recover from bad events (Marasco et al., 2022). More people are interested in this topic, leading to increased research on how social, economic, and environmental factors help communities handle crises. Teamwork among governments, NGOs, and local communities is the key to improving disaster resilience. These efforts not only strengthen people and communities but also create a strong support system to face challenges (Fjäder, 2021). Education and training are important for teaching people how to handle emergencies, so that they can help with recovery and prevention (Cerulli et al., 2020). Using data and involving people in making policies is important for ensuring that disaster resilience plans work well. This teamwork can create solutions that fit each community's needs by involving different groups, such A governments, NGOs, and local organisations (Tleulessova, 2023).

Sustainable Community Resilience

Creating good measures and practices is the key to making communities stronger and ready for future problems. Adding these measures to community plans helps them adapt and use resources during crises (Sutrisno et al., 2023). Working together with governments, NGOs, and local people is important for building strong disaster systems. Everyone should be involved in making disaster plans because it creates a sense of belonging and responsibility for safety. This involvement not only improves policies but also builds trust, which strengthens social support in communities (Nkombi & Wentink, 2022). So, working together can help to face significant challenges in the future. Managing disasters also means learning from past events and using methods that work (Chiang, 2022). After each disaster, it is important to review them and learn from them to improve their plans and strategies. In this way, communities will be more prepared and able to handle emergencies, reducing the harm from disasters. By increasing community awareness and involvement, we can create better protection against disasters and safer environments for everyone.

Disaster Resilient Village (DRV) Approach

This method emphasises the importance of teamwork among governments, NGOs, and local communities in building strong infrastructure and effective early warning systems. By involving everyone in planning and action, this approach aims to help communities identify risks and respond quickly to disasters (Gumiran et al., 2019). The initiative also supports the creation of training and education programs to improve people's skills in handling emergencies, making them more prepared and effective when disasters occur. The awareness and involvement of each person in the community are vital for the success of this method, as a village's strength depends not only on buildings but also on the social connections and unity among its people (Galderisi & Limongi, 2019). Communities can improve their ability to deal with future disasters by building strong communication links and helping each other. These efforts aim to create a lasting culture of readiness where every community member feels responsible for maintaining collective safety and health.

Lessons from Previous Studies

Community-based resilience programmes have both successes and challenges. Successes demonstrate the power of teamwork. Communities that work together can reduce the impact of disasters (Shea et al., 2018). Challenges often arise from a lack of resources or involvement. This shows the need for ongoing learning and participation to build a strong community mindset (Leow et al., 2022). Combining training with regular workshops can increase community involvement. This ensures that people have the skills and knowledge needed to respond to emergencies (Bogdan et al., 2021). The program not only helps people handle crises, but also builds unity and trust, which are important for lasting resilience. Building strong connections with local organisations can support these efforts, creating a complete support system that improves readiness and response skills. Clear communication within the community is vital. It allows information exchange and ensures that everyone is informed and ready to act when needed (Teräs & Kartoglu, 2023). Successful training can include simulations and hands-on activities. This helps participants practice their skills in real situations and boosts their confidence (LeVake et al., 2020). Therefore, a community-focused approach to creating Disaster-resilient Villages is crucial for improving people's ability to cope with disasters, especially in vulnerable areas, such as Banten.

METHOD

This research approach employed qualitative methods. Qualitative research is utilised in case studies to investigate and comprehend the significance of various individuals or groups related to social or humanitarian concerns (Willy, 2021; Niwa, 2022). This study employed a case study method. This method investigates "tied systems" or "cases/multiple cases" over time by gathering extensive data from diverse and rich sources (Widhagdha & Ediyono, 2022). 1998). The case study method was used because the research looks at particular instances related to community strength in facing disasters via Disaster-Resilient Villages.

Interviews were conducted with 11 participants from BPBD Banten, including three officials related to the research topic: Kabid SDIB Mr. Ade Setiana, Kasi Prevention Mr. Debt, and Kasi Basic System of Disaster Mrs. Mother daughter. Five Individuals were interviewed in the Kubang Sari Ward: Mr. Irwan Sobar as Village Secretary, Mr. Maskun and Mrs. Reni as Facilitators, and Mr. Muhamad Sahrul and Mr. Fatulah from the local community. Three people from Tegal Ratu Village, 3 people participated: Mr. Mustofah, the Village Officer as Head of Government, Mrs. Ika Meirisa as Facilitator, and Mr. Muhamad from the community.

The informants in this study were chosen through purposive sampling, aiming to explore community resilience during disasters via Disaster-resilience Villages. In qualitative research, data analysis occurs alongside other elements of research development, such as gathering data and composing the findings. The information gathered during the data collection phase was subsequently analysed using the Miles and Huberman model (Zelčāne & Pipere, 2023).

Data analysis, as described by Miles and Huberman (1984), was carried out continuously until it was finished, leading to data saturation (Miles and Huberman, 1984). The steps in the data analysis include showing the data, cutting down the data, and drawing conclusions (Badia, 2020). Data validation is essential in qualitative research to avoid bias and to build trust in the findings. In this study, data triangulation was conducted by comparing the accuracy of information from one participant with that of another participant who had a different perspective. Capturing a single event from various angles allows for a more trustworthy understanding of the study (Slettebø, 2021).

RESULT AND DISCUSSION

Concrete steps to strengthen community resilience to disasters in Banten

Disaster Risk Mapping is a crucial initial step in establishing a clear understanding of the various different possible threats and weaknesses that communities may encounter in various situations. By conducting a careful and thorough mapping process, officials can pinpoint specific areas at risk of disasters, while also creating effective strategies to safeguard both the population and essential infrastructure from the effects of these disasters (Sari et al., 2022).

The process of mapping disaster risk involves the active participation of various stakeholders, including local communities, to guarantee that the data gathered truly represents the real conditions on the ground, allowing it to be utilised effectively. Mapping disaster risks with community input increases the awareness of current dangers and promotes personal action in prevention efforts. Consequently, the community is better equipped and can help build a safer and more resilient environment (Que et al., 2022). Risk mapping aids in creating contingency plans that are tailored and quick to address the unique needs of communities at risk of disasters. Through this teamwork method, the goal was to raise awareness about disaster risks and the need for readiness during emergencies. A greater understanding of community participation in disaster prevention can also boost community strength, making them ready to address future challenges.

These mapping activities help to identify risks and increase public awareness of current disaster threats. When the community participates, mapping results become more precise and useful, leading to better strategies for protecting communities from disaster impacts.

Gaining more knowledge and engaging the community in disaster prevention can enhance community strength, making them more ready to tackle future challenges. Gaining more knowledge and engaging the community in disaster prevention can enhance community strength, making them more ready to tackle future challenges.

Village disaster management plans are organised strategies for gathering support from various groups, including both government and non-government entities, within villages or wards. An RPB is built with community involvement because residents in areas vulnerable to disasters are often the first to be affected and are most familiar with their surroundings. For an RPB to include all parties effectively, there must be legal backing in the form of village regulations or other similar measures at the local level.

The research findings, shared by the Kapala Field Data System, Head of the Prevention Section, and Head of the Basic System of the Regional Disaster Management Agency (BNPBD Banten), indicate that each village already has a legal framework, and the drafting process included all relevant parties. This was also confirmed by Mustofah, the Sekertaris of Kubang Sari Kelurahan from the Tegal Ratu ward, along with Mrs. Ika Meirisa serving as a Facilitator and Mr. Muhamad representing the community.

The benefits of having a legal framework include stability in the village. A village/ward contingency plan was created to address potential crises that may or may not occur. The plan outlines the steps that each party involved in disaster management must take.

Contingency plans are designed for specific disasters and must be sanctioned by local rules or laws, according to the relevant legislative framework. Additionally, these plans should include training and practice drills to ensure that everyone knows their duties in managing disasters, thereby enhancing community readiness.

The need for teamwork among governments, communities, and NGOs is crucial, as this partnership will enhance the village's ability to face the challenges that arise from the disaster. Good teamwork ensures that resources are quickly available and easy to access when needed, and will also build a strong support system for recovery after the disaster.

This partnership aims to help villages in Banten improve their disaster management skills and develop systems that handle current risks. Additionally, enhancing the community's involvement at every phase of planning and execution will be crucial to maintaining the success of the Disaster Village Tangguh program.

Establishment of Village/Sub-district Disaster Risk Reduction (DRR) Forum

The creation of the PRB Forum was a key move to enhance public involvement in reducing disaster risks, allowing people to participate in spotting possible dangers and setting up suitable emergency plans. This action not only strengthens communities but also raises a shared understanding of the need for disaster prevention and encourages teamwork between governments and local areas to create better solutions (Nurjanah et al., 2022). By establishing the PRB Forum, the community can share information, exchange experiences, and cultivate the necessary skills to manage disasters. Additionally, it provides a venue for fostering. communication among stakeholders, ensuring that the needs and concerns of individuals are considered in policies and mitigation strategies.

By involving a diverse array of stakeholders, the forum can serve as a platform for exchanging knowledge and experiences, in addition to advocating best practices for sustainable disaster risk reduction. This initiative is expected to enhance individuals' social and economic resilience

by equipping them to face the challenges brought by both natural and human-induced disasters (Wolff, 2021).

The community's involvement in this process will lead to a safer and stronger environment, where everyone feels that they have a key role in safeguarding themselves and their neighbourhoods from disasters. Working closely together, the government and public will ensure that resources are used wisely, maximising the effectiveness of any measures taken to reduce risks (Islam et al., 2021).

This initiative may also inspire new ideas for creating technologies and methods aimed at prevent and respond to disasters, leading to better ways to safeguard lives and property. The initiative will enhance public understanding of current risks and strengthen local abilities to manage and bounce back from disasters more swiftly and efficiently (Nkombi & Wentink, 2022).

Thus, this comprehensive strategy will foster a tougher and more flexible ecosystem, allowing the Banten community to not only endure the disaster but also recover with enhanced resilience. This effort is conducted with the participation of various stakeholders, and this teamwork will bolster the support networks needed to aid the recovery process and promote sustainable development in the impacted regions. This initiative promotes advancements in technology and effective practices, thus generating improved tools and resources for future disaster risk reduction.

The community participates in PRB forums to raise awareness about disaster risks and foster a strong sense of ownership for mitigation and recovery efforts. According to Suryani et al. (2022), creating PRB Forums in local areas not only boosts community involvement but also promotes better teamwork among various groups in disaster risk reduction. It is hoped that the community will actively engage in reducing disaster risks and strengthening their resilience to ongoing threats.

Guidelines for Incorporating Disaster Risk Reduction PRB into Village Development Plans and Legislation

Currently, the elements of the PRB in Banten have been included in the Village Medium-Term Development Plan, which is approved by village law. These actions aim to increase public awareness of disaster risks and motivate active involvement in the ongoing mitigation and response efforts. These initiatives also consist of training and drills to enhance people's readiness, enabling them to react swiftly and effectively during disasters.

The findings of the study, as reported by the Kapala Field Data System, Head of the Prevention Section, and Head of the Basic System of the Regional Disaster Management Agency (BNPBD Banten), indicate that a legal framework for the PRB is already in place and is included in the RPJMS for the village. This was also verified by Mustofah, Secretary of Kubang Sari Village, from the Tegal Ratu ward.

Collaboration between village governments and universities is essential to develop effective ways to help communities withstand disasters. This partnership will enhance local capabilities and promote the sharing of the knowledge and resources needed to tackle the growing complexity of future disaster challenges. The goal is to foster a safer and more resilient environment, lessen the social and economic effects of disasters, and improve the overall quality of life for everyone (Chongbang, 2022). These initiatives will also focus on creating improved early warning systems and making disaster-related information more accessible, thereby allowing the public to take appropriate preventive actions.

The creation and approval of this law will include working together with different groups, such as governments, NGOs, and businesses, to make disaster prevention efforts more effective.

Gilev et al. (2022) mentioned that strong teamwork among governments, communities, and NGOs is crucial for building strong and responsive disaster systems in Banten. (Gilev, 2022).

Current implementation of the Disaster Resilient Village/Sub-district Program in Banten
The Destana program in Banten began in 2016 and was funded by the Disaster Management Agency; however, it was not fully established because of financial limitations that prevented its continuation. In 2022-2023, the program resumed with support from the World Bank, which was distributed by the BNPB to six wards in Banten. Two individuals were selected from each area as facilitators, who received training from the BNPB and educated the villagers. Because of budget restrictions, this new initiative is only focused on socialisation efforts, rather than practical activities or the development of physical facilities, although it has already engaged stakeholders.The Disaster Resilience Villages program in Banten is currently focusing on building community capacity through training and simulations, along with developing better early warning systems. The goal is to enhance people's readiness for different disasters and strengthen the cooperation between governments and communities to create safer and more resilient areas. The program has not yet addressed improvements to the disaster infrastructure to support community resilience.The programme engages the community at every step, which can significantly enhance the village's ability to bounce back, leading to a safer and disaster-prepared environment. These efforts aim to raise awareness of the need for disaster prevention and boost people's skills to face future challenges. According to Mahbubah et al. (2021), effective collaboration among governments, communities, and NGOs is vital for the success of the Disaster Resilience Villages program and for strengthening people's ability to cope with disasters. (Mahbubah et al., 2021). The program aims to foster cooperation among governments, communities, and NGOs to tackle future disasters through an inclusive and participatory approach. The programme's success largely depends on the active involvement of all parties in building lasting resilience for communities in Banten (Soomro, 2023).
Collaboration among governments, communities, and NGOs in the Disaster Resilience Villages program in Banten will significantly influence the success of disaster mitigation strategies in place. Communities participating in this program can enhance disaster resilience and boost social ties and cooperation among residents (Saragi et al., 2024). The launch of the programme is anticipated to boost public understanding of disaster risks and motivate them to participate in mitigation and recovery actions. Only now that there is news about the ending of the World Bank program, are people hopeful that this initiative can continue, as BNPB Daerah also has very limited funding. Therefore, the continuation of the Disaster Tangible Village program is crucial to ensure that individuals stay prepared and able to handle the risks of future disasters. The ongoing success of the program is vital to helping people in Banten enhance their resilience to potential disasters that could arise in the future.

CONCLUTION
The research findings and discussions show that the activities to develop disaster-resilient villages in Banten, including risk assessment, disaster management, contingency planning, establishing forums, and promoting PRB legislation, have been implemented and evaluated only on a small scale because of a very tight budget. The Disaster Resilient Village Program in Di Banten began in 2016 with funding from the BNPB, and has made strides, although it still faces issues with funding and execution. It will proceed from 2022 to 2023 through the World Bank to 6 Kelurahan; however, the focus will only be on training and outreach. In the future, it is hoped that the program will grow and include more hands-on activities to prepare people

for disasters. People in Banten should be motivated to participate in tangible disaster villages programs, to boost their awareness and readiness for possible disasters.

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