COMMUNITY PREPAREDNESS FOR NATURAL DISASTERS IN CIKAHURIPAN VILLAGE, LEMBANG DISTRICT, WEST BANDUNG REGENCY

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Abstract

This study aims to determine the level of disaster preparedness among the community of Cikahuripan Village, Lembang Subdistrict, West Bandung Regency, in facing 4 natural hazards. A quantitative descriptive approach was used, applying the LIPI–UNESCO/ISDR (2006) instrument, which consists of four parameters: disaster risk knowledge, emergency response planning, early warning systems, and resource mobilization. A total of 98 respondents from all neighborhood units (RW) in the village were selected as the research sample. The results showed that the Community Preparedness Index (CPI) reached 74.2, which falls into the "Prepared" category. The highest score was in disaster risk knowledge (83.15), followed by emergency response planning (76.4), early warning systems (67), and the lowest score was in resource mobilization (46.5). The low score in resource mobilization indicates a lack of capacity among residents in organizing logistics, emergency funds, and asset protection during disasters. Based on these findings, a community-based intervention program named "SIAGA CIKAHURIPAN" was designed, focusing on simulation and training activities to enhance the community's ability to mobilize local resources. The program is structured to involve village authorities, community organizations, women, and youth as key actors. This research is expected to serve as a reference for disaster preparedness policy development and the implementation of community-based disaster management programs in high-risk rural areas.

Keywords:
natural disaster preparedness; preparedness index; resource mobilization

INTRODUCTION

Indonesia is located at the confluence of three major global plates: the Eurasian Plate, the Indo-Australian Plate, and the Pacific Plate. This geological condition makes Indonesia highly vulnerable to natural disasters, such as earthquakes, volcanic eruptions, floods, landslides, and tsunamis. Data from the National Disaster Management Agency (BNPB) shows that thousands of disasters occur annually in various regions of Indonesia, resulting in loss of life, infrastructure damage, and significant economic losses.

One area with a high level of natural disaster vulnerability is West Bandung Regency, particularly Lembang District. This region is traversed by the Lembang Fault, an active fault with the potential to cause major earthquakes. Furthermore, the hilly topography and high rainfall make this area prone to landslides. Cikahuripan Village, one of the villages in Lembang District, is categorized as a disaster-prone zone, making community preparedness a crucial aspect to study and improve.

Community preparedness for natural disasters is a key pillar of the disaster management system. Good preparedness can minimize the negative impacts of disasters, including loss of life, physical damage, and economic losses. Conversely, low levels of community preparedness can exacerbate the impact of a disaster. Therefore, efforts to improve community preparedness must be a priority in disaster management programs in disaster-prone areas.

This research is motivated by the phenomenon of low community capacity to respond to natural disasters, particularly in terms of resource mobilization and early warning systems. Based on initial observations and interviews with village officials, it was discovered that most residents of Cikahuripan Village lacked an adequate understanding of emergency response procedures, evacuation routes, and logistics management during a disaster. This indicates the need for targeted and sustainable interventions to improve community preparedness.

The purpose of this study was to measure the level of community preparedness in Cikahuripan Village, identify the weakest parameters in preparedness, and formulate effective community-based intervention strategies. This research is expected to contribute both theoretically and practically to efforts to increase community capacity in disaster management.

METHOD

This research uses a quantitative approach with descriptive methods. This approach was chosen because the research aims to objectively measure the level of community preparedness through numerical data that can be analyzed statistically. Descriptive methods are used to provide a systematic, factual, and accurate overview of the facts and relationships between the phenomena studied, particularly regarding community preparedness for natural disasters in Cikahuripan Village.

The research location was determined in Cikahuripan Village, Lembang District, West Bandung Regency. This location was selected based on the village's geographical characteristics, which are located in a disaster-prone area. The research was conducted from January to March 2024, encompassing the preparation phase, data collection, data analysis, and preparation of the research report. The population in this study was the entire community of Cikahuripan Village, spread across 10 neighborhood units (RW). Based on

the latest population data, the village population is 7,824. The sample was selected using proportional random sampling to ensure proportional representation in each RW. The sample size was calculated using the Slovin formula with a 10% error rate, resulting in a sample size of 98 respondents. This sample was considered representative of the overall level of preparedness of the village community.

Data collection was conducted using several techniques, namely questionnaires, interviews, and observations. The questionnaire served as the primary instrument to measure the level of community preparedness based on four main parameters. In-depth interviews were conducted with several key informants, such as village officials, neighborhood unit (RW) heads, and disaster volunteers, to obtain qualitative data to support the quantitative results. Field observations were conducted to validate the data obtained from the questionnaires and interviews, as well as to directly observe community preparedness and disaster support infrastructure in the village.

The research instrument used was a questionnaire developed based on community preparedness indicators according to LIPI–UNESCO/ISDR (2006). The questionnaire consisted of four main parameters: disaster risk knowledge, emergency response plans, early warning systems, and resource mobilization. Each parameter consisted of several indicators measured using a Likert scale. The validity and reliability of the instrument were tested prior to use in the field research, with Cronbach's alpha results showing values above 0.7, indicating instrument reliability.

Data obtained from the questionnaires were analyzed using descriptive statistics to obtain an overview of the level of community preparedness. Scoring was carried out based on the weighting of each parameter, then the community preparedness index (IKM) was calculated using a predetermined formula. The IKM values were then categorized into several levels of preparedness: very prepared, prepared, moderately prepared, less prepared, and not prepared. Qualitative data from interviews and observations were analyzed thematically to support the results of the quantitative analysis.

This research was conducted in several stages: (1) the preparation stage, including proposal development, obtaining research permits, and developing instruments; (2) the data collection stage, including conducting questionnaire surveys, interviews, and observations; (3) the data analysis stage, including data processing and interpretation; and (4) the research report preparation stage. Each stage was carried out according to a predetermined schedule to ensure the research was effective and efficient.

RESEARCH RESULT

Cikahuripan Village is located in a category A1 disaster-prone zone, indicating a high level of vulnerability to earthquakes, landslides, and extreme weather. The village's geographical characteristics, located in a hilly area with uneven settlement density, are a major factor in its high exposure to disaster risk. This aligns with the concept of "place-based vulnerability" proposed by Cutter (2003), where the physical and social conditions of an area interact to shape a community's level of vulnerability to disasters. Local knowledge and experience in dealing with disasters are crucial foundations for assessing the adaptive capacity of communities living in high-risk disaster areas.

This study measured community preparedness using four parameters developed by LIPI–UNESCO/ISDR (2006): disaster risk knowledge, emergency response plans, early warning systems, and resource mobilization. The overall community preparedness index score reached 74.2, categorizing it as "Ready." While this figure is positive, the distribution of scores across parameters shows significant disparities, particularly in the resource mobilization aspect, which recorded the lowest score of 46.5.

The disaster risk knowledge aspect received the highest score of 83.15, classified as "Very Prepared." The majority of residents were able to identify the main types of disasters in the village, such as landslides, earthquakes, floods, and extreme weather. This knowledge stems from the community's historical experience in dealing with disasters, as well as information from local figures and village institutions. This understanding reinforces the concept put forward by Creswell (2004), that place is not only geographical but also understood through experience and social relationships within it.

However, the recapitulation results also showed that in-depth understanding of disaster causes and mitigation measures varied among respondents. For example, 39 respondents did not understand that forest fires are a cause of natural disasters. This variation indicates the need for more systematic and sustainable disaster education, given the importance of risk literacy in decision-making during emergency phases, as emphasized by Smit & Wandel (2006) regarding community adaptive capacity.

The emergency response plan received an index score of 76.4, also in the "Ready" category, but with important caveats. Most residents had prepared important documents, light logistics, and emergency communication channels. However, only 38 of the 98 respondents had prepared evacuation route maps, and only 14 had stored non-perishable food. This indicates that preparedness is partial and not yet structured collectively. Individual preparedness does not necessarily reflect community preparedness, as IDEP (2007) suggests that true preparedness requires synergy between personal and institutional preparation.

The community early warning system scored the minimum in the "Ready" category, at 67. Although residents reported receiving information from local figures, social media, and news broadcasts, many still did not recognize formal signals or indicators from the official warning system. Only 62 of the 98 respondents had flashlights as part of their emergency kits, and only 73 were consciously prepared to assist vulnerable groups during evacuation. This demonstrates a gap between knowledge and implementation. Lindell and Perry (2012) emphasize the importance of trust and clarity of information in protective decision-making. When information sources are perceived as unreliable or untimely, communities tend to delay or ignore warning instructions.

The resource mobilization aspect showed the most significant weakness, with an index score of only 46.5. Communities generally lack emergency logistics, disaster training, or access to emergency funds for crisis situations. Only nine respondents stated they had built their homes in safer locations, while none had built earthquake-resistant houses. This lack of preparedness reflects the suboptimal role of local institutions and government intervention in providing supporting infrastructure. Research by Barney (1991) supports this finding, stating that individuals with resources

from jobs based on risk management or public service (e.g., civil servants) are better prepared than laborers or livestock farmers.

DISCUSSION

1. 1. Differences in preparedness are also evident in social characteristics, such as gender and occupation. Male respondents scored higher on preparedness than female respondents, particularly in the resource mobilization parameter. This indicates the need for a more inclusive approach and empowerment of women in the disaster management system. Research by IDEP (2007) also emphasized the importance of involving vulnerable groups in training and decision-making to make the system more resilient.
2. 2. In a socio-cultural context, Cikahuripan Village has strong social capital, such as mutual cooperation and deliberation. However, these values have not been fully integrated into formal disaster planning. If developed, a community-based training and outreach system could be implemented through religious study forums, farmer groups, or youth organizations. This strategy aligns with Ahimsa's (2012) findings, which state that community adaptation to disasters will be more effective if aligned with existing social structures.
3. 3. Utilizing local information systems, such as community leaders, village officials, and integrated health post (Posyandu) cadres, can be an effective communication channel in establishing a community-based early warning system. As found in this study, most warning information was received from informal systems rather than formal channels such as sirens or national SMS.
4. 4. Differences in preparedness based on occupation are also noteworthy. Civil servants (ASN) recorded the highest index score (76.88), while livestock farmers recorded the lowest (58.69). This difference indicates that occupational background determines the level of knowledge, experience, and access to disaster training. Therefore, program interventions need to be designed according to the community's socioeconomic segments.
5. 5. This study also found that 95.9% of respondents no longer use radio as a source of information. This is an important indication that digital technology-based information systems are becoming the primary channel for risk communication, necessitating the integration of information technology and social media-based training as educational and early warning tools.
6. 6. As a recommendation, the researchers developed the "SIAGA CIKAHURIPAN" intervention program, which emphasizes training, simulations, and the formation of neighborhood unit-based preparedness teams. This program was designed with a participatory approach, involving village government, community leaders, women, youth, and social institutions as the main implementers. The goal is to reduce resource mobilization gaps and improve cross-sector collaboration.

   Overall, the findings of this study indicate that the preparedness of the Cikahuripan Village community has reached a fairly good level. However, critical aspects still require strengthening, particularly in establishing a functional warning system, providing emergency logistics, and providing disaster training that targets all segments of the community. If left

unaddressed, these gaps could increase the risk of losses when a disaster occurs.

CONCLUSION

This study shows that the community preparedness of Cikahuripan Village is generally quite good, but there are still significant weaknesses in the aspect of resource mobilization with an index of 46.5. The SIAGA CIKAHURIPAN program is an intervention designed to increase community capacity through disaster training and simulations. This program is oriented towards strengthening local resource systems, active involvement of vulnerable groups, and integration into the village institutional system. Cross-sector commitment and sustainable training are needed for this program to be replicated and used as a model for strengthening community-based preparedness in other areas with similar characteristics.

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