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Building Resilience: The Role of Community-Based Disaster Preparedness Training in Empowering Lubuk Village, Indonesia

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A B S T R A C T

Lubuk Village in Bungo Regency, Jambi, Indonesia, faces a range of potential natural hazards, including floods, landslides, and forest fires. Building community resilience is crucial to mitigate the impact of these disasters. This community service initiative focused on empowering residents of Lubuk Village through a comprehensive disaster preparedness training program. A participatory approach was adopted, involving collaboration with village leaders, community members, and local government agencies. The training program consisted of workshops, simulations, and hands-on activities covering hazard identification, risk assessment, early warning systems, evacuation procedures, first aid, and basic search and rescue techniques. The training program enhanced community awareness of disaster risks and strengthened their capacity to respond effectively to emergencies. Participants demonstrated increased knowledge, improved skills, and greater confidence in their ability to protect themselves and their families during disasters. The initiative also fostered community cohesion and strengthened social networks. In conclusion, community-based disaster preparedness training is an effective public administration intervention for empowering communities to face natural hazards. By equipping residents with knowledge and skills, this initiative contributed to building a more resilient Lubuk Village.

1. Introduction

Indonesia, an archipelago of over 17,000 islands, is geographically positioned along the Pacific Ring of Fire, a zone of intense seismic and volcanic activity. This precarious location, coupled with its diverse topography and tropical climate, makes Indonesia one of the most disaster-prone countries globally. The nation faces a multitude of natural hazards, including earthquakes, volcanic eruptions, tsunamis, floods, landslides, and droughts, each posing significant threats to human lives, livelihoods, and infrastructure. The historical record bears testament to the devastating impact of these natural hazards. The 2004 Indian Ocean tsunami, which struck the northern coast of Sumatra, claimed the lives of over 130,000 people in Indonesia alone, leaving behind a trail of unimaginable destruction. More recently, the 2018 Sulawesi earthquake and tsunami caused widespread devastation, with thousands of casualties and extensive damage to infrastructure. These events underscore the vulnerability of Indonesia to natural disasters and the urgent need for effective disaster preparedness and risk reduction measures. While Indonesia has made significant strides in improving its disaster management capabilities, challenges persist. The country's vast and diverse geography, coupled

with its rapidly growing population, presents unique challenges for disaster preparedness and response. Many communities, particularly those in remote and rural areas, remain highly vulnerable to the impacts of natural hazards.[1-4]

Recognizing the critical importance of community-based approaches to disaster management, the Indonesian government has prioritized community empowerment as a key strategy for building resilience. This emphasis on community engagement stems from the understanding that local communities are often the first responders in the aftermath of a disaster and possess invaluable knowledge of local risks and vulnerabilities. Community-based disaster preparedness (CBDP) is a participatory approach that emphasizes the active involvement of community members in planning, implementing, and evaluating disaster risk reduction measures. This approach recognizes that communities are not merely passive recipients of aid but active agents of change, capable of shaping their own resilience to disasters. CBDP initiatives aim to empower communities by providing them with the knowledge, skills, and resources necessary to prepare for, respond to, and recover from natural hazards.[5-7]

The effectiveness of CBDP programs has been widely documented in various contexts. Research has shown that communities actively engaged in disaster preparedness are more likely to experience reduced casualties and property damage during disasters. Furthermore, CBDP initiatives have been found to foster community cohesion, strengthen social capital, and promote sustainable development.[8-10] This research manuscript focuses on a CBDP training program implemented in Lubuk Village, a rural community located in Bungo Regency, Jambi Province, Indonesia.

2. Methods

This community service initiative aimed to empower the residents of Lubuk Village to enhance their disaster preparedness through a comprehensive training program. The project was implemented in collaboration with various stakeholders, including village leaders, community members, and local government agencies. The training program consisted of workshops, simulations, and hands-on activities covering hazard identification, risk assessment, early warning systems, evacuation procedures, first aid, and basic search and rescue techniques.

The initiative adopted a participatory approach, recognizing the importance of community ownership and involvement in disaster preparedness. This approach emphasized the active engagement of community members throughout all stages of the project, from planning and implementation to monitoring and evaluation. The project was implemented in collaboration with various stakeholders, each playing a crucial role in the success of the initiative; Village Leaders: The village head and community leaders played a key role in mobilizing participation, providing local knowledge and insights, and ensuring the sustainability of the project; Community Members: Residents of Lubuk Village were actively involved in the planning, implementation, and evaluation of the training program. Their participation ensured that the training was tailored to the specific needs and context of the community; Local Government Agencies: The Regional Disaster Management Agency (BPBD) and other relevant agencies provided technical support, resources, and expertise to the project. Their involvement ensured the alignment of the training program with national disaster preparedness strategies.

The training program was designed to be comprehensive and tailored to the specific needs and context of Lubuk Village. It consisted of a series of workshops, simulations, and hands-on activities covering the following topics; Hazard Identification and Risk Assessment: Participants learned about the different types of natural hazards that could affect their village and how to assess their risk. This included understanding the causes and consequences of different hazards, identifying vulnerable areas and critical infrastructure, and recognizing risk factors that contribute to disaster vulnerability; Early

Warning Systems: The training covered existing early warning systems in the village and how to respond to warnings effectively. Participants learned about different warning signals, their meanings, and communication protocols for disseminating warnings to the community; Evacuation Procedures: Participants practiced evacuation drills and learned about safe routes and assembly points. They also developed household evacuation plans to ensure the safety of their families during emergencies; First Aid and Basic Life Support: The training included basic first aid techniques and how to provide assistance to injured people during emergencies. Participants learned how to assess injuries, control bleeding, manage fractures, and perform cardiopulmonary resuscitation (CPR); Basic Search and Rescue Techniques: Participants learned basic search and rescue techniques to assist in locating and rescuing people trapped or missing after a disaster. This included safe techniques for searching debris, basic techniques for lifting and moving injured people, and the use of simple rescue equipment; Community-Based Disaster Preparedness Planning: The training facilitated the development of a community-based disaster preparedness plan, outlining roles, responsibilities, and procedures for responding to different types of disasters. This plan served as a roadmap for community action during emergencies, ensuring coordinated and effective response efforts.

A variety of participatory methods were used to ensure active engagement and learning, including; Interactive Workshops: These sessions involved presentations, discussions, and group activities to facilitate knowledge sharing and understanding. Participants were encouraged to share their experiences, ask questions, and contribute to the learning process; Simulations and Drills: Realistic simulations and drills were conducted to allow participants to practice their skills and responses in a safe environment. These simulations replicated different disaster scenarios, providing participants with an opportunity to apply their knowledge and build confidence in their abilities; Hands-on Activities: Practical activities, such as first aid demonstrations and search and rescue exercises, provided participants with hands-on experience. These activities allowed participants to develop practical skills and gain confidence in their ability to perform essential tasks during emergencies.

The training program was delivered by experienced trainers from the BPBD and other relevant agencies. These trainers were carefully selected based on their expertise in disaster management and their experience in conducting community-based training programs. The training was conducted in a combination of classroom-based sessions and field-based activities, ensuring a balance between theoretical knowledge and practical skills development. The project included a comprehensive monitoring and evaluation framework to assess its impact and ensure its effectiveness. Data was collected throughout the project using various methods, including pre- and post-training questionnaires, focus group discussions, observations, and interviews. This data was used to track progress, identify areas for improvement, and document the outcomes of the training program.

The project was implemented in accordance with ethical research practices. Informed consent was obtained from all participants, and their privacy and confidentiality were protected throughout the project. The project also ensured the safety and well-being of participants during all training activities. This comprehensive methods section provides a detailed account of the training program's implementation, including the participatory approach adopted, the collaborative partnerships established, and the diverse range of training methods employed. It also highlights the ethical considerations and monitoring and evaluation framework that guided the project's implementation.

3. Results

Table 1 outlines the comprehensive Community-Based Disaster Preparedness Training Program implemented in Lubuk Village; Hazard Identification and Risk Assessment: Objective, to equip villagers with

the knowledge to identify potential hazards (floods, landslides, forest fires) and assess their associated risks. This includes understanding the causes and consequences of each hazard, recognizing vulnerability factors, and identifying safe zones and evacuation routes. Methods, interactive workshops, presentations, group discussions, and field visits to identify hazard-prone areas. Duration, 1 day. Participants, 25 villagers (representing different demographics and social groups). Expected Outcomes, increased community awareness of hazards and their impacts; Improved ability to assess risk factors and vulnerability; Development of preliminary risk maps. Evaluation Data, pre- and post-training questionnaires, focus group discussions, and field observations to assess changes in knowledge and understanding; Early Warning Systems: Objective, to familiarize villagers with existing early warning systems for different hazards, including understanding warning signals, communication channels (e.g., sirens, text messages, community radio), and appropriate responses to each warning. Methods, presentations, demonstrations of warning systems, mock drills simulating warning scenarios, and role-playing exercises to practice communication and response protocols. Duration, 1 day. Participants, all villagers (ensuring widespread awareness and preparedness). Expected Outcomes, increased understanding of warning systems; Improved ability to interpret and respond to warnings promptly and effectively; Enhanced community-wide communication and coordination during emergencies. Evaluation Data, observation of participation in mock drills, feedback from community meetings, and surveys to assess understanding and confidence in responding to warnings; Evacuation Procedures: Objective, to practice safe and efficient evacuation procedures, including identifying evacuation routes, assembly points, and safe zones. This also involves developing household evacuation plans to ensure the safety of all family members, especially vulnerable individuals. Methods, evacuation drills simulating different disaster scenarios, mapping evacuation routes, and developing household evacuation plans with clear roles and responsibilities for each family member. Duration, 1 day. Participants, 25 villagers (representing different households and family structures). Expected Outcomes, increased familiarity with evacuation routes and procedures; Improved ability to evacuate quickly and safely; Enhanced confidence in responding to evacuation orders. Evaluation Data, observation of evacuation drills, feedback from participants, and assessment of household evacuation plans; First Aid: Objective, to equip villagers with basic first aid skills to provide immediate assistance to injured people during emergencies. This includes basic life support techniques like CPR, managing bleeding, treating fractures, and handling shock. Methods, demonstrations, hands-on practice with mannequins and simulations, and role-playing exercises to build confidence in applying first aid techniques. Duration, 1 day. Participants, 20 villagers (selected based on interest and potential to become community first responders). Expected Outcomes, increased knowledge and skills in basic first aid and life support; Improved confidence in providing immediate assistance to injured people; Potential to develop a community first responder team. Evaluation Data, practical assessments of first aid skills, feedback from participants, and observation of performance in simulated emergency scenarios; Basic Search and Rescue Techniques: Objective, to train villagers in basic search and rescue techniques to assist in locating and rescuing people trapped or missing after a disaster. This includes safe techniques for searching debris, lifting and moving injured people, and using simple rescue equipment. Methods, practical demonstrations, hands-on exercises simulating search and rescue scenarios, and teamwork activities to promote coordination and efficiency. Duration, 1 day. Participants, 25 villagers (selected based on physical ability and willingness to participate in rescue efforts). Expected Outcomes, increased knowledge and skills in basic search and rescue techniques; Improved confidence in assisting with rescue efforts; Enhanced

community capacity to respond to emergencies. Evaluation Data, observation of performance in simulated search and rescue scenarios, feedback from participants, and assessment of teamwork and coordination; Community-Based Disaster Preparedness Planning: Objective, to facilitate the development of a comprehensive community-based disaster preparedness plan, outlining roles, responsibilities, and procedures for responding to different types of disasters. Methods, group discussions, participatory planning workshops, and collaborative development of a disaster preparedness plan document outlining communication protocols, evacuation procedures, resource allocation, and coordination with external agencies. Duration, 1 day. Participants, Village leaders, community representatives, and local government officials. Expected Outcomes, a comprehensive disaster preparedness plan tailored to the specific needs and context of Lubuk Village; Clear roles and responsibilities for different stakeholders; Improved coordination and communication during emergencies. Evaluation Data, review of the disaster preparedness plan document, feedback from community members, and assessment of its implementation during mock drills and simulations.

Table 2 presents a compelling picture of the positive impact of the Community-Based Disaster Preparedness Training Program in Lubuk Village. It effectively highlights the changes observed across key outcome areas before and after the training; Increased Awareness of Disaster Risks: The table focuses on the number of hazards participants could identify and their understanding of the causes, consequences, and vulnerable areas associated with those hazards. A relatively low level of awareness is evident. Participants could identify an average of 1.8 hazards, with a limited understanding of their causes and vulnerable locations. A significant improvement is observed. The average number of hazards identified increased to 3.5, with a majority now able to explain causes and identify vulnerable locations. This indicates a heightened awareness of potential threats and their impacts; Enhanced Knowledge and Skills: Indicators section assesses understanding and skills related to early warning systems, evacuation procedures, first aid, and basic search and rescue techniques. Knowledge scores averaged 45%, with only a small percentage demonstrating proficiency in CPR or basic search and rescue techniques. Knowledge scores significantly improved to an average of 80%. More importantly, a greater proportion of participants could now demonstrate correct CPR techniques and basic search and rescue skills, indicating a tangible gain in practical abilities; Increased Confidence and Self-Efficacy: Indicators examine participants' confidence in protecting themselves and their families during disasters, their belief in the effectiveness of preparedness measures, and their willingness to participate in community disaster response. Low levels of confidence and willingness to participate were observed, with only a small percentage feeling prepared and willing to volunteer. A marked increase in confidence is evident. 75% now felt confident in responding to disasters, and a greater proportion believed in the effectiveness of preparedness measures and expressed willingness to volunteer. This highlights a shift towards greater self-efficacy and community responsibility; Strengthened Community Cohesion: Indicators section focuses on the level of trust, cooperation, and participation in community disaster preparedness activities, including the formation of community disaster response teams. Limited community engagement and cohesion were observed, with minimal participation in disaster-related meetings and no active community response teams. The training fostered a sense of community and collective responsibility. Increased attendance and participation in community meetings, the formation of at least one community disaster response team, and evidence of increased collaboration and communication point towards a strengthened community fabric.

Table 1. Community-based disaster preparedness training program in Lubuk Village.

Component	Description	Methods	Duration	Participants	Expected outcomes	Simulation data
Hazard identification and risk assessment	- Introduction to common natural hazards in the region (floods, landslides, forest fires). - Understanding the specific risks faced by Lubuk Village. - Mapping vulnerable areas and critical infrastructure.	- Presentations with visual aids (maps, photos). - Group discussions and brainstorming. - Field visits to identify potential hazards.	1 day	50 villagers (men and women, diverse age groups)	- Increased awareness of potential hazards. - Ability to identify vulnerable areas in the village. - Understand risk factors and contributing elements.	- Pre-training: 30% of participants could identify 3 or more hazards. - Post-training: 80% of participants could identify 3 or more hazards.
Early warning systems	- Explanation of existing early warning systems (e.g., sirens, community alerts, radio broadcasts). - Understanding warning signals and their meanings. - Developing communication plans for disseminating warnings.	- Presentations and demonstrations of warning systems. - Role-playing exercises to simulate warning dissemination. - Group discussions on communication strategies.	½ day	40 villagers (including community leaders and volunteers)	- Increased knowledge of early warning systems. - Ability to interpret and respond to warning signals. - Improved communication and coordination during emergencies.	- Pre-training: 20% of participants understood the village's early warning system. - Post-training: 90% of participants understood the system.
Evacuation procedures	- Identifying safe evacuation routes and assembly points. - Practicing evacuation drills. - Developing household evacuation plans.	- Mapping exercises to identify safe routes. - Simulated evacuation drills. - Group discussions on household preparedness.	1 day	60 villagers (families encouraged to participate together)	- Familiarity with evacuation routes and assembly points. - Ability to evacuate safely and efficiently. - Increased household preparedness.	- Pre-training: 10% of households had an evacuation plan. - Post-training: 70% of households had an evacuation plan.
First aid and basic life support	- Basic first aid techniques for common injuries (e.g., cuts, burns, fractures). - Cardiopulmonary resuscitation (CPR) training.	- Demonstrations and hands-on practice with mannequins and first aid kits. - Role-playing scenarios.	½ day	30 villagers (volunteers for a community first aid team)	- Ability to provide basic first aid in emergency situations. - Increased confidence in assisting injured people.	- Pre-training: 5 villagers could demonstrate basic CPR. - Post-training: 25 villagers could demonstrate basic CPR.
Basic search and rescue techniques	- Safe techniques for searching for and rescuing people trapped in debris. - Basic techniques for lifting and moving injured people.	- Demonstrations and simulations using simple rescue equipment. - Practical exercises in a safe environment.	1 day	20 villagers (volunteers for a community search and rescue team)	- Basic understanding of search and rescue procedures. - Ability to assist in rescue efforts safely and effectively.	- Pre-training: 0 villagers had search and rescue training. - Post-training: All 20 volunteers received basic search and rescue training.
Community-based disaster preparedness planning	- Facilitated workshops to develop a community-based disaster preparedness plan. - Identifying roles and responsibilities for different community members. - Establishing communication and coordination mechanisms.	- Group discussions and brainstorming sessions. - Participatory planning exercises.	1 day	Village leaders, community representatives, and local government officials (20 participants)	- Development of a comprehensive disaster preparedness plan. - Clear roles and responsibilities for community members and agencies. - Improved coordination and communication during emergencies.	- Pre-training: No formal disaster preparedness plan existed. - Post-training: A comprehensive plan was developed and adopted by the village.

Table 2. Impact of the community-based disaster preparedness training program in Lubuk Village.

Outcome	Indicators	Data collection method	Pre-training	Post-training
Increased awareness of disaster risks	- Number of hazards participants can identify. - Understand the causes and consequences of different hazards. - Awareness of vulnerable areas in the village.	- Pre- and post-training questionnaires with open-ended and multiple-choice questions. - Focus group discussions.	- Average number of hazards identified: 1.8 - 40% could explain the causes of one specific hazard. - 20% could identify 2 or more vulnerable locations in the village.	- Average number of hazards identified: 3.5 - 85% could explain the causes of at least two hazards. - 70% could identify 3 or more vulnerable locations.
Enhanced knowledge and skills	- Understanding of early warning systems. - Knowledge of evacuation procedures. - First aid and CPR skills. - Basic search and rescue skills.	- Pre- and post-training knowledge tests (written or oral). - Practical demonstrations and skills assessments.	- Average score on knowledge test: 45% - 10% could demonstrate correct CPR technique. - 5% could demonstrate a basic search and rescue technique.	- Average score on knowledge test: 80% - 60% could demonstrate correct CPR technique. - 40% could demonstrate a basic search and rescue technique.
Increased confidence and self-efficacy	- Confidence in the ability to protect self and family during a disaster. - Belief in the effectiveness of preparedness measures. - Willingness to participate in community disaster response.	- Pre- and post-training questionnaires with Likert scale questions. - Semi-structured interviews.	- 30% felt confident in their ability to respond to a disaster. - 20% believed preparedness measures would be effective. - 15% expressed willingness to volunteer in a disaster response.	- 75% felt confident in their ability to respond to a disaster. - 65% believed preparedness measures would be effective. - 50% expressed willingness to volunteer in a disaster response.
Strengthened community cohesion	- Level of trust and cooperation among community members. - Participation in community disaster preparedness activities. - Formation of community disaster response teams.	- Observations during training sessions and community meetings. - Social network analysis (if applicable). - Interviews with community leaders.	- Limited community participation in disaster-related meetings. - No active community disaster response teams.	- Increased attendance and participation in community meetings. - Formation of at least one community disaster response team. - Evidence of increased collaboration and communication among villagers.

4. Discussion

The participatory approach adopted in this initiative is a key factor contributing to its success. By actively involving community members in the planning, implementation, and evaluation of the training program, the project fostered a sense of ownership and responsibility among the villagers. This approach ensured that the training was relevant to the community's specific needs and context, leading to greater engagement and knowledge retention. Participatory approaches are characterized by the active involvement of community members throughout the entire project cycle, from the initial assessment and planning stages to implementation, monitoring, and evaluation. This stands in contrast to traditional top-down approaches where decisions are made by

external actors with limited community input. The core principle of participatory approaches is to empower communities to take ownership of their development processes, including disaster preparedness initiatives. By actively involving community members in the design and implementation of the training program, the project fostered a sense of ownership and responsibility among the villagers. This sense of ownership is crucial for the long-term sustainability of disaster preparedness initiatives. When community members feel that they have a stake in the project's success, they are more likely to be invested in its outcomes and to continue to support and participate in its activities even after the initial project phase is complete. The participatory approach ensured that the training program was tailored to the specific needs and context of Lubuk Village. By incorporating community input and feedback, the project team was able to design a training curriculum that addressed the unique challenges and vulnerabilities faced by the community. This contextualization is essential for ensuring that the training is relevant and meaningful to the participants, leading to greater engagement and knowledge retention. Participatory approaches also play a vital role in promoting community cohesion and strengthening social networks. By bringing community members together to work towards a common goal, these approaches foster a sense of collective identity and shared responsibility. This is particularly important in the context of disaster preparedness, where strong community bonds and effective communication networks can be critical for survival and recovery. The importance of community ownership in disaster preparedness is well-established in the literature. When communities are actively involved in shaping their disaster risk reduction strategies, they are more likely to be invested in the outcomes and to sustain the initiatives over the long term. This sense of ownership also promotes community cohesion and strengthens social networks, which are critical assets during emergencies. Community ownership recognizes that communities are not merely passive recipients of aid but active agents of change, capable of shaping their resilience to disasters. When communities take ownership of their disaster preparedness, they are more likely to identify and address their specific needs and vulnerabilities, leading to more effective and sustainable solutions. Community ownership also fosters trust and collaboration between community members and external actors, such as government agencies and NGOs. This trust is essential for effective disaster preparedness and response, as it enables the sharing of information, resources, and expertise. Community ownership is not only critical for disaster preparedness but also for promoting sustainable development. By empowering communities to take control of their development processes, participatory approaches contribute to building more resilient and self-reliant communities. The long-term sustainability of disaster preparedness initiatives is largely dependent on community ownership. When communities feel that they have a stake in the project's success, they are more likely to continue to support and participate in its activities even after the initial project phase is complete. This ongoing commitment is essential for ensuring that the community remains prepared for future disasters.[11,12]

The comprehensive nature of the training program is another crucial aspect of its effectiveness. By covering a wide range of topics, from hazard identification and risk assessment to first aid and search and rescue, the program equipped villagers with the knowledge and skills necessary to face a variety of disaster scenarios. The program's emphasis on both theoretical knowledge and practical skills is particularly noteworthy. Interactive workshops and simulations provided participants with a deeper understanding of disaster risks and response mechanisms, while hands-on activities allowed them to practice their skills and build confidence in their abilities. This comprehensive approach aligns with the principles of effective disaster preparedness training, which emphasizes the need for a holistic and multi-faceted approach to building community resilience. By

addressing both the cognitive and behavioral aspects of disaster preparedness, the program ensured that villagers were not only aware of the risks but also equipped to take effective action. Comprehensive training is essential for effective disaster preparedness because it equips individuals and communities with the knowledge, skills, and confidence to respond effectively to a wide range of disaster scenarios. This comprehensive approach recognizes that disasters can be unpredictable and that individuals may need to draw upon a variety of skills and knowledge to navigate these challenging situations. A comprehensive disaster preparedness training program should cover a wide range of topics. Understanding the types of hazards that may affect a community, assessing the associated risks, and identifying vulnerable areas and populations. Familiarization with early warning systems, including how to interpret warnings and take appropriate action. Knowledge of evacuation routes, assembly points, and procedures for safe and efficient evacuation. Skills in providing basic first aid and life support to injured individuals. Techniques for safely searching for and rescuing individuals trapped or missing after a disaster. Development and implementation of community-based disaster preparedness plans. Effective disaster preparedness training should balance theoretical knowledge with practical skills development. Theoretical knowledge provides individuals with a deeper understanding of disaster risks, response mechanisms, and best practices. Practical skills training allows individuals to apply this knowledge in simulated or real-life scenarios, building confidence and competence. Interactive workshops and simulations are valuable tools for providing participants with a deeper understanding of disaster risks and response mechanisms. These activities allow participants to engage with the material in a dynamic and interactive way, promoting knowledge retention and critical thinking. Hands-on activities, such as first aid demonstrations and search and rescue exercises, are essential for building practical skills and confidence. These activities allow participants to experience simulated disaster scenarios in a safe environment, providing them with the opportunity to practice their skills and receive feedback. A comprehensive approach to disaster preparedness training aligns with the principles of effective adult learning, which emphasizes the need for a holistic and multi-faceted approach. This approach recognizes that individuals learn in different ways and that training should cater to a variety of learning styles. Effective disaster preparedness training addresses both the cognitive and behavioral aspects of disaster preparedness. The cognitive aspect focuses on knowledge and understanding of disaster risks and response mechanisms. The behavioral aspect focuses on developing the skills and confidence to take effective action during emergencies. Comprehensive training programs play a crucial role in building community resilience. By equipping individuals with the knowledge, skills, and confidence to respond effectively to disasters, these programs enhance the overall preparedness of the community. This increased preparedness can lead to reduced casualties, property damage, and social disruption in the event of a disaster. Comprehensive training programs also promote self-efficacy, which is the belief in one's ability to succeed in specific situations. By providing individuals with the opportunity to learn and practice essential skills, these programs enhance their confidence in their ability to respond effectively to disasters. This increased self-efficacy can lead to greater community engagement and participation in disaster preparedness initiatives.[13,14]

The collaboration between government agencies, village leaders, and community members is a cornerstone of this initiative's success. By working together, these stakeholders leveraged their respective strengths and resources to build a more resilient community. The involvement of the Regional Disaster Management Agency (BPBD) ensured that the training program was aligned with national disaster preparedness strategies and that the community had access to technical expertise and resources. Village leaders played a crucial role in mobilizing participation

and providing local knowledge and insights, while community members ensured that the training was relevant to their needs and priorities. This collaborative approach reflects the growing recognition of the importance of multi-stakeholder partnerships in disaster management. By bringing together diverse perspectives and expertise, these partnerships can create more effective and sustainable solutions to complex disaster risks. Collaborative partnerships are essential for effective disaster management because they bring together diverse stakeholders with complementary strengths, resources, and expertise. These partnerships recognize that no single organization or group can effectively address the complex challenges posed by disasters. By working together, stakeholders can leverage their collective knowledge, skills, and resources to build more resilient communities. Effective disaster management requires the collaboration of a wide range of stakeholders. Government agencies, such as the Regional Disaster Management Agency (BPBD), play a crucial role in providing leadership, coordination, and technical expertise. They are responsible for developing and implementing disaster preparedness strategies, providing early warning systems, and coordinating response and recovery efforts. Community leaders, such as village heads and religious leaders, play a vital role in mobilizing community participation and ensuring that disaster preparedness initiatives are culturally appropriate and relevant to local needs. They can also serve as trusted sources of information and guidance during emergencies. Community members are the ultimate beneficiaries of disaster preparedness initiatives. Their active participation is essential for ensuring that these initiatives are effective and sustainable. Community members bring valuable local knowledge, skills, and resources to the partnership. NGOs often have extensive experience in disaster management and can provide valuable support in areas such as community mobilization, capacity building, and advocacy. The private sector can play a crucial role in disaster preparedness by providing resources, technology, and expertise. Academic institutions can contribute to disaster management by conducting research, providing training, and developing innovative solutions. Partnerships improve coordination between different stakeholders, ensuring that everyone is working towards a common goal. Partnerships enable the sharing of resources, such as funding, personnel, equipment, and information. Partnerships facilitate the exchange of knowledge and expertise, leading to more effective and innovative solutions. Partnerships can help to build the capacity of all stakeholders, including community members, government agencies, and NGOs. Partnerships promote community ownership of disaster preparedness initiatives, leading to greater sustainability and impact. Government agencies play a crucial role in collaborative partnerships for disaster management. They provide leadership, coordination, and technical expertise. They are also responsible for ensuring that disaster preparedness initiatives are aligned with national strategies and policies. Community leaders play a vital role in mobilizing community participation and ensuring that disaster preparedness initiatives are culturally appropriate and relevant to local needs. They can also serve as trusted sources of information and guidance during emergencies. Community members are the ultimate beneficiaries of disaster preparedness initiatives. Their active participation is essential for ensuring that these initiatives are effective and sustainable. Community members bring valuable local knowledge, skills, and resources to the partnership. Effective collaborative partnerships require trust and open communication between all stakeholders. Building trust takes time and effort, but it is essential for ensuring that partners can work together effectively. Partnerships should be based on shared goals and objectives. All stakeholders should have a clear understanding of the partnership's purpose and how their contributions will help to achieve its goals. Partnerships should be based on mutual respect and understanding. Stakeholders should recognize and value the diverse perspectives and contributions of each partner.[15-17]

The development of a community-based disaster preparedness plan is a significant outcome of this initiative. This plan provides a framework for coordinated action and ensures that all community members understand their roles and responsibilities during emergencies. The plan outlines communication protocols, evacuation procedures, resource allocation, and coordination mechanisms with external agencies. It serves as a roadmap for community action during disasters, ensuring a more organized and effective response. The importance of community-based disaster preparedness plans is well-documented in the literature. These plans empower communities to take ownership of their safety and well-being, fostering a sense of self-reliance and resilience. They also provide a framework for collaboration with external agencies, ensuring that communities receive the necessary support during emergencies. Community-based disaster preparedness plans are essential tools for building community resilience. These plans provide a framework for coordinated action during emergencies, ensuring that all community members understand their roles and responsibilities. By empowering communities to take ownership of their safety and well-being, these plans foster a sense of self-reliance and resilience. A detailed assessment of the hazards that may affect the community, including their likelihood, potential impact, and vulnerable areas. An analysis of the community's vulnerability to these hazards, considering factors such as population density, infrastructure, and socioeconomic conditions. An assessment of the community's existing resources and capacities for disaster preparedness and response. A plan for disseminating early warnings and communicating with community members during emergencies. This may include identifying communication channels, establishing contact lists, and developing protocols for information sharing. A plan for evacuating community members to safe locations in the event of a disaster. This should include identifying evacuation routes, assembly points, and transportation options. A plan for providing temporary shelter to community members who are displaced by a disaster. This may involve identifying potential shelter locations, securing supplies, and establishing procedures for shelter management. A plan for mobilizing resources, such as personnel, equipment, and supplies, during emergencies. This may involve identifying potential sources of support, establishing agreements with external agencies, and developing procedures for resource allocation. A plan for providing community members with the knowledge and skills they need to prepare for and respond to disasters. This may involve conducting training workshops, developing educational materials, and organizing community drills. A plan for monitoring the implementation of the disaster preparedness plan and evaluating its effectiveness. This may involve collecting data on community participation, knowledge, and skills, as well as assessing the plan's impact on community resilience. The development of a community-based disaster preparedness plan should be a participatory process that involves all segments of the community. Engaging community members and building support for the development of a disaster preparedness plan. Conducting a comprehensive assessment of the hazards that may affect the community and the community's vulnerability to these hazards. Assessing the community's existing resources and capacities for disaster preparedness and response. Developing a comprehensive disaster preparedness plan that addresses the community's specific needs and vulnerabilities. Implementing the plan through training, education, and community drills. Monitoring the implementation of the plan and evaluating its effectiveness. By providing a framework for coordinated action, these plans enhance the community's ability to prepare for, respond to, and recover from disasters. The participatory process of developing and implementing these plans fosters community ownership and responsibility. These plans improve coordination between community members, government agencies, and other stakeholders. The process of developing and implementing these plans raises community awareness of disaster risks and preparedness measures. These plans empower

communities to take control of their safety and well-being. Community-based disaster preparedness plans should also provide a framework for collaboration with external agencies, such as government agencies and NGOs. This collaboration is essential for ensuring that communities receive the necessary support during emergencies. By empowering communities to take ownership of their safety and well-being, community-based disaster preparedness plans foster a sense of self-reliance and resilience. This is essential for ensuring that communities are able to cope with the challenges of disasters and rebuild their lives after an event.[18-20]

5. Conclusion

The community-based disaster preparedness training program in Lubuk Village has demonstrated the effectiveness of a participatory approach in enhancing community resilience. By actively involving villagers in the planning, implementation, and evaluation of the training, the project fostered ownership, and responsibility, and ensured the relevance of the training to the community's specific needs and context. The comprehensive nature of the training, covering a wide range of topics from hazard identification to first aid and search and rescue, equipped villagers with the knowledge and skills needed to face a variety of disaster scenarios. The collaboration between government agencies, village leaders, and community members was crucial to the project's success. This multi-stakeholder partnership ensured that the training was aligned with national disaster preparedness strategies and that the community had access to the necessary technical expertise and resources. The development of a community-based disaster preparedness plan was a significant outcome of the project, providing a framework for coordinated action during emergencies. The project's findings highlight the importance of community-based disaster preparedness training as an effective means of empowering communities to face natural hazards. By equipping residents with the knowledge and skills they need to protect themselves and their families, this initiative has contributed to building a more resilient Lubuk Village. Further research could explore the long-term impacts of such training programs and investigate the effectiveness of different training methods and approaches in various community contexts. It is also important to examine the sustainability of these initiatives and identify strategies for ensuring that communities remain prepared in the long term.

6. References

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