

Manuscript received Agustus 12, 2024; revised September 23, 2024; accepted September 25, 2024; date of publication September 30, 2024;

Digital Object Identifier (DOI): <https://doi.org/10.35882/ficse.v3i2.65>

Copyright © 2024 by the authors. This work is an open-access article and licensed under a Creative Commons Attribution-ShareAlike 4.0 International License ([CC BY-SA 4.0](https://creativecommons.org/licenses/by-sa/4.0/))



Collaboration with the Disaster Resilient Village Forum in Disaster Emergency Response Simulation in Ngelang Kartoharjo Village Magetan

Sunarto^{ID}, Heru Santoso Wahito Nugroho, Suparji^{ID}, Nani Surtinah^{ID}, Verlingga Diah Oktiasa Putri, Sausan Hanifah Setyowati

Department of Midwifery, Poltekkes Kemenkes Surabaya, Surabaya, Indonesia

Corresponding author: Sunarto (email: sunartoyahyamugaffi@gmail.com)

ABSTRACT Communities in disaster-prone areas often face challenges in establishing effective disaster preparedness systems. The Disaster Resilient Village Forum (Destana) in Ngelang Village, Kartoharjo District, Magetan Regency, has struggled to implement community-based disaster preparedness, particularly in organizing comprehensive disaster emergency response simulations. This community service initiative was developed to address these challenges by enhancing the knowledge, coordination, and operational capacity of the Destana Forum and local residents in disaster response. The primary aim of this program was to strengthen community-based disaster preparedness through participatory collaboration and practical training. The intervention employed a Participatory Action Research (PAR) approach that emphasizes inclusive involvement of all stakeholders. The activity was implemented through workshops, mentoring, and field simulations involving 112 participants, including Destana members, village officials, Babinsa, Bhabinkamtibmas, and local residents. Activities were conducted over five days, from May 13 to May 17, 2024, in Ngelang Village. The results demonstrated significant improvements in participants' competencies in planning and executing emergency responses. Participants successfully developed contingency plan documents, threat and impact scenarios, and operational rehearsal plans. They also organized tabletop, command post, and field simulations, which enhanced their readiness and coordination in disaster management. Moreover, community resilience increased through active participation in evacuation mapping and scenario-based drills. In conclusion, this participatory program proved effective in fostering disaster preparedness and resilience at the community level. The PAR-based approach enabled sustainable skill development, strengthened coordination among stakeholders, and built a shared sense of responsibility for disaster risk management. These findings highlight the importance of collaboration and hands-on engagement as key strategies for enhancing local disaster preparedness.

INDEX TERMS Disaster preparedness, Community resilience, Participatory Action Research, Emergency response simulation, Destana Forum

I. INTRODUCTION

Indonesia is one of the world's most disaster-prone countries, facing recurring risks such as floods, landslides, and earthquakes due to its geographical location within the Pacific Ring of Fire [1]. This condition requires communities to be equipped with robust disaster preparedness systems at both institutional and local levels [2]. In Magetan Regency, East Java, Ngelang Village is among the areas vulnerable to hydrometeorological disasters, where the community's preparedness and resilience remain limited. Despite the establishment of the Disaster Resilient Village Forum (Forum Destana), the village still struggles to operationalize community-based disaster preparedness effectively [3]. The main challenges include inadequate contingency planning, limited coordination among stakeholders, and low community participation in simulation-based preparedness

training [4], [5]. These weaknesses increase the potential for uncoordinated responses and greater casualties during actual disasters [6].

In recent years, various approaches have been introduced to enhance disaster resilience, emphasizing community empowerment and participatory learning. Methods such as Participatory Rural Appraisal (PRA), Community-Based Disaster Risk Management (CBDRM), and Participatory Action Research (PAR) have been applied to improve community preparedness and local adaptive capacity [7]–[9]. Among these, PAR has gained recognition as a practical and inclusive framework for building collective understanding and capabilities in disaster management [10], [11]. PAR enables researchers and communities to co-design solutions, implement simulations, and critically reflect on outcomes to ensure sustainable behavioral change [12].

Studies in different regions have demonstrated that participatory simulations can strengthen early warning systems, coordination networks, and social capital, all of which are crucial for effective disaster response [13]–[15].

However, despite these advances, research and practice on PAR-based disaster preparedness remain limited in small rural villages in Indonesia. Many existing programs emphasize theoretical preparedness without sufficient integration of operational rehearsal and evaluation stages [16], [17]. Moreover, community involvement is often superficial, focusing only on awareness campaigns rather than experiential learning and contingency documentation [18]. There is still a lack of empirical evidence on how PAR-based disaster simulations can simultaneously improve technical preparedness, community cohesion, and adaptive resilience at the grassroots level [19], [20]. This gap highlights the need for participatory models that combine training, mentoring, and real-time simulations within community-based disaster preparedness initiatives.

Therefore, this study aims to strengthen community disaster preparedness through collaboration between the Disaster Resilient Village Forum (Destana) and local residents in Ngelang Village using a Participatory Action Research approach. The objective is to improve the capabilities and skills of stakeholders in planning, organizing, and implementing disaster emergency response simulations that reflect realistic scenarios. Through this initiative, the study seeks to enhance collective disaster readiness and foster sustainable resilience at the community level.

The contributions of this article are threefold. First, it demonstrates the application of the PAR approach in disaster emergency simulations, providing an operational model adaptable for other rural settings. Second, it documents the participatory process of contingency plan development, scenario design, and command structure formation within a local governance framework. Third, it offers evaluative insights into the impact of participatory simulations on improving coordination, preparedness, and community resilience. Collectively, these contributions enrich the understanding of how community-driven disaster management practices can be institutionalized at the village level.

The remainder of this article is structured as follows. Section II elaborates on the methods and implementation of the community service activity. Section III presents the results and outcomes of the simulation and training program. Section IV discusses the interpretation of findings, including theoretical implications and comparisons with previous studies. Finally, Section V concludes the study, highlighting the implications for future disaster preparedness programs.

II. METHOD

A. STUDY DESIGN AND RATIONALE

This study employed a Participatory Action Research (PAR) design to enhance community-based disaster preparedness and resilience in Ngelang Village, Kartoharjo District, Magetan Regency, East Java, Indonesia. The PAR framework was selected due to its effectiveness in integrating community participation into problem identification, planning, action, and reflection processes [21]. The design allows for iterative

cycles of learning and adaptation to improve practical outcomes in real-world community settings [22]. The study was prospective and experimental, focusing on empowering the Disaster Resilient Village Forum (Forum Destana) through collaborative training and simulation of emergency response activities.

B. STUDY SETTING

The activity was implemented in Ngelang Village, Kartoharjo District, Magetan Regency an area categorized by the Regional Disaster Management Agency (BPBD) as having moderate to high flood risk potential. The community service and field implementation were conducted from May 13 to May 17, 2024, with continuous mentoring and monitoring phases before and after the intervention to ensure data reliability. The field location was selected based on prior research identifying limited community engagement and insufficient disaster response procedures within the village [23].

C. PARTICIPANTS AND SAMPLING METHOD

The study population comprised members of the Forum Destana, village government representatives, and local residents involved in emergency response coordination. Using a purposive sampling approach, participants were selected based on their active involvement in community disaster management and willingness to participate in training and simulation sessions [24]. The total number of participants was 112 individuals, consisting of 18 Destana administrators, 4 Village Development Officers (Babinsa), 3 Community Police Officers (Bhabinkamtibmas), and 87 residents, including representatives from vulnerable and disabled groups.

Participants were grouped into smaller operational teams to simulate various command functions, including evacuation management, logistics coordination, communication, and health response. The inclusion of multiple community segments ensured that the simulation captured diverse perspectives and enhanced inclusivity, aligning with the principles of community resilience building [25].

D. MATERIALS AND EDUCATIONAL INTERVENTION

The materials used included training modules, contingency plan templates, simulation equipment, and visual aids such as maps, posters, and command charts. The research team utilized checklists, observation sheets, and evaluation forms to assess participant engagement, teamwork, and decision-making performance [28]. A risk map of Ngelang Village was developed using data from BPBD Magetan and community input.

E. DATA COLLECTION INSTRUMENTS AND PROCEDURE

Data were collected through mixed qualitative and quantitative approaches.

1. Quantitative data were obtained from pre- and post-activity evaluations to measure changes in participants' preparedness and knowledge.

2. Qualitative data were gathered from focus group discussions (FGDs), participant observations, and reflection notes.

F. DATA ANALYSIS

The data were analyzed descriptively using comparative techniques to evaluate improvements between baseline and final results. Triangulation of data sources and methods was applied to ensure validity and reliability [29].

G. ETHICAL CONSIDERATIONS

All participants were informed about the objectives, procedures, and voluntary nature of the activity. Verbal consent was obtained prior to participation. No vulnerable participants were coerced, and confidentiality was maintained throughout. The study followed community service ethics aligned with national disaster preparedness and health education standards [30].

III. RESULTS

Assistance activities for disaster emergency response simulations in Ngelang Village, Kartoharjo District, Magetan Regency showed significant results in increasing community preparedness and resilience to disasters. Through a Participatory Action Research (PAR) approach, this activity succeeded in empowering the Disaster Resilient Village Forum (Destana) and the local community.

First, the Destana Forum's ability to realize disaster preparedness has increased significantly. Destana Forum members have been able to determine their village's disaster risk areas [FIGURE 1](#), develop a command structure for disaster emergency management [FIGURE 2](#), provide valid contingency plan documents, and develop threat scenarios, impact scenarios, and disaster event scenarios [FIGURE 3](#). They also succeeded in designing and implementing comprehensive emergency response training, starting with tabletop exercises [FIGURE 4](#), post-command exercises, and field rehearsals [FIGURE 5](#). This shows that the Destana Forum now has better skills and understanding of managing disaster preparedness

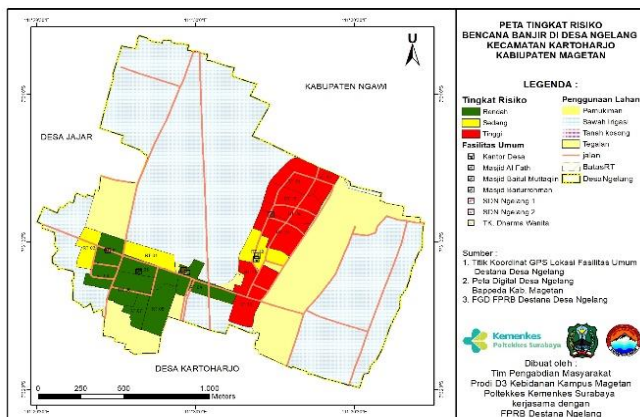


FIGURE 1. Ngelang Village disaster risk map

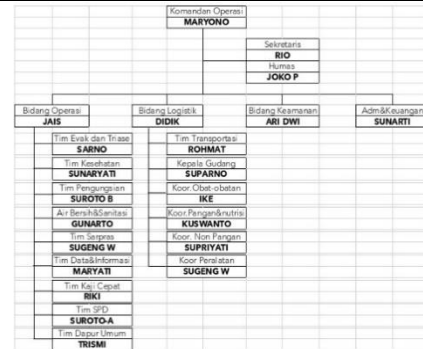


FIGURE 2. Ngelang Village Disaster Emergency Management Command Structure



FIGURE 3. Tabletop exercise



FIGURE 4. Tabletop exercise disaster simulation scenario



FIGURE 5. Disaster emergency response simulation rehearsal activities (Post Command Exercise)

Second, community resilience to disasters also increases. The community's active participation in preparing evacuation maps (FIGURE 6) has strengthened their ability to mobilize resources when a disaster occurs. Village communities demonstrated improvements in their understanding of emergency response procedures, ability to work together, and psychological resilience in the face of disaster threats. There were 112 participants in this activity, reflecting the community's enthusiasm and high awareness of the importance of disaster preparedness.

Third, the simulation is carried out by following the rehearsal operation plan that was determined or discussed, this shows effective coordination and execution of role-playing (Figure 7.). All stages of training, from command rehearsals to field rehearsals, went according to plan without significant obstacles. These exercises involve realistic scenarios and allow participants to apply the skills they have learned in situations that are close to real conditions. This success shows that careful planning and structured implementation can significantly improve disaster preparedness.

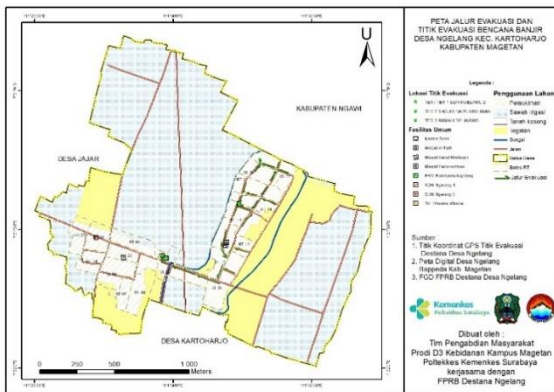


FIGURE 6. Ngelang village evacuation map



FIGURE 7. Preparation for a disaster emergency response simulation

Overall, the results of this activity show that the participatory approach to improving disaster preparedness is very effective. The Destana Forum is now better prepared and able to face disasters, while the Ngelang Village community is more resilient and trained in responding to emergencies. This activity not only increases technical capacity but also strengthens social ties and cooperation

among village residents, which are important elements in community-based disaster preparedness.

V. DISCUSSION

A. INTERPRETATION OF RESULTS

The findings of this community-based disaster preparedness program in Ngelang Village demonstrate that the Participatory Action Research (PAR) approach effectively enhances both institutional and community resilience. The results indicate that participants from the Disaster Resilient Village Forum (Forum Destana), together with local residents and local security elements (Babinsa and Bhabinkamtibmas), exhibited substantial improvement in their understanding and operational capability related to disaster preparedness. Participants successfully designed contingency plan documents, developed realistic threat and impact scenarios, and executed emergency simulations in multiple stages, ranging from tabletop exercises to field rehearsals. These outcomes show that participatory collaboration can translate theoretical preparedness concepts into practical community actions [31].

The improvement observed among participants can be attributed to the experiential learning embedded within the PAR process, which encourages community ownership and continuous reflection. This interactive process aligns with Freire's emancipatory education theory, where knowledge is co-created through dialogue and practice rather than one-way instruction [32]. In this context, participants did not merely receive information about disaster response but actively applied it, discussed its relevance to their environment, and collaboratively adapted strategies for their village's context.

Moreover, the integration of multiple stakeholders within the simulation such as local security officers and vulnerable groups enhanced the social capital and collective coordination capacity of the village. Strengthening these elements is crucial since social connectedness and trust networks are proven determinants of effective community resilience [33]. The field results also highlight that when communities are directly involved in designing and rehearsing disaster responses, the effectiveness of early warning communication and evacuation procedures improves considerably. This reinforces the notion that preparedness cannot be externally imposed; it must be nurtured internally within the community through participatory and iterative processes [34].

In essence, this study provides empirical evidence that participatory simulation-based training not only enhances technical preparedness but also builds psychological readiness and community confidence. The participatory nature of PAR transforms communities from passive recipients of aid into proactive agents of change, ensuring that disaster preparedness becomes a sustained, community-driven effort rather than a one-time intervention.

B. COMPARISON WITH SIMILAR STUDIES

The results of this study corroborate findings from several recent studies emphasizing the effectiveness of participatory and community-based approaches in disaster preparedness. Suharini et al. (2020) reported that the involvement of community-based preparedness teams significantly

strengthened collective response mechanisms and promoted self-reliance among residents [35]. Similarly, Sofyana et al. (2024) demonstrated that integrating participatory training models into public health frameworks increased community capacity to manage natural disaster risks effectively. Both studies, consistent with the present findings, highlight that the co-production of knowledge through local participation leads to sustainable behavioral change.

This study also resonates with the findings of Que et al. (2022), who identified that participatory simulations enhance community awareness and foster continuous learning, especially when complemented by contingency documentation and scenario design. The similarities lie in the structured, reflective learning cycles used to foster preparedness and engagement across community groups [36]. However, unlike Que's study, which focused on urban communities with higher institutional capacity, the current research was conducted in a rural setting with limited infrastructure and resources. Despite these constraints, the participatory model still yielded substantial improvement, indicating that PAR is adaptable across varying socio-economic and geographic contexts.

In contrast, previous top-down disaster preparedness models, such as those documented by Dewa et al. (2021) and Chapman et al. (2022), often failed to sustain community participation beyond project completion due to limited ownership and contextual relevance. These centralized approaches tend to produce dependency rather than empowerment. The present study offers a corrective perspective by showing that sustained engagement through co-designed simulation activities ensures long-term retention of knowledge and stronger collective responsibility [37].

Furthermore, the multi-stakeholder collaboration seen in this study extends beyond traditional community training approaches. Integrating Babinsa, Bhabinkamtibmas, and vulnerable populations aligns with the inclusive resilience framework proposed by Pickering et al. (2021), emphasizing the necessity of incorporating marginalized groups into preparedness planning [38]. While other studies often overlook the voices of these groups, this study demonstrates that inclusivity enriches the planning process by incorporating diverse perspectives and needs.

Another unique contribution of this study lies in its practical demonstration of scenario-based rehearsal as a bridge between policy and community action. Unlike the purely theoretical simulations described in institutional frameworks such as those of BPBD or UNDP, this activity involved hands-on, field-based rehearsals directly managed by community actors. This approach produced tangible behavioral outcomes observable during post-simulation evaluations, aligning with findings by Johnson et al. (2022), who observed that realistic, immersive exercises increase cognitive retention and inter-agency coordination efficiency [39].

In summary, while this study shares conceptual foundations with previous participatory preparedness research, it differs in its emphasis on grassroots operationalization, inclusive stakeholder involvement, and practical rehearsal models. These distinctions make it a

valuable reference for future disaster preparedness programs seeking to balance policy frameworks with localized community empowerment.

C. LIMITATIONS, WEAKNESSES, AND IMPLICATIONS

Although the program successfully improved preparedness, several limitations must be acknowledged. First, the scope and duration of the intervention were relatively short only five days of field implementation. While sufficient for initial capacity building, this timeframe may not fully capture long-term behavioral change or retention of learned skills. Follow-up assessments over extended periods would be necessary to evaluate the sustainability of preparedness outcomes [40].

Second, the evaluation relied heavily on self-reported reflections and observational assessments, which could introduce bias or overestimation of actual competence levels. Future studies may incorporate quantitative tools such as pre- and post-assessment scales or simulated performance metrics to strengthen the reliability of findings.

Third, although the participatory model enhanced inclusion, participation among some vulnerable groups was limited by physical accessibility and socio-cultural constraints. As noted by Chapman et al. (2022), ensuring equitable access for persons with disabilities and elderly residents requires additional logistical and ethical considerations, such as adaptive training materials and assistive technologies. Therefore, future implementations should expand accessibility frameworks to ensure inclusivity across all demographic segments.

Despite these limitations, the implications of this study are substantial. The results demonstrate that participatory learning and simulation-based approaches can effectively bridge the gap between policy and local action. This aligns with the broader shift in disaster risk reduction (DRR) policy toward bottom-up governance, where communities are recognized as co-creators of resilience rather than passive beneficiaries [33].

From a theoretical standpoint, this study supports the community resilience model proposed by Norris et al., emphasizing that resilience is a dynamic process involving social capital, adaptive learning, and competence development rather than static preparedness indicators. The program's success in Ngelang Village exemplifies how these principles can be operationalized through PAR-based collaboration.

Practically, the findings have several implications for policymakers and practitioners:

1. Integration of Participatory Frameworks: Disaster management agencies should embed participatory learning structures within official training curricula to ensure local ownership.
2. Institutionalization of Community Simulations: Regular scenario-based drills should be mandated at the village level to maintain readiness and coordination across agencies.
3. Inclusive Preparedness Models: Vulnerable and marginalized groups must be systematically involved in all stages of preparedness planning, with tailored support mechanisms.

4. Monitoring and Evaluation Systems: The adoption of digital monitoring tools and community-based feedback mechanisms can provide real-time evaluation and improve accountability.

Lastly, this study highlights that sustainability in disaster preparedness is achieved not through singular interventions but through continuous cycles of action, reflection, and improvement. PAR's iterative methodology provides a replicable model adaptable to other high-risk communities in Indonesia and beyond. By merging local knowledge with scientific methods, it strengthens both social and institutional capacity for managing disaster risk.

VI. CONCLUSION

This study aimed to strengthen community-based disaster preparedness and resilience through the application of the Participatory Action Research (PAR) approach in collaboration with the Disaster Resilient Village Forum (Forum Destana) in Ngelang Village, Kartoharjo District, Magetan Regency. The primary objective was to improve the community's capacity to plan, organize, and implement comprehensive disaster emergency response simulations. The results demonstrated that participatory methods significantly enhanced the technical, social, and psychological readiness of the community.

A total of 112 participants including Destana members, Babinsa, Bhabinkamtibmas, and local residents actively engaged in a five-day series of activities comprising planning workshops, tabletop exercises, command post coordination, and full-scale field rehearsals. As a result, participants successfully produced one contingency plan document, three integrated disaster scenarios (threat, impact, and event-based), and a structured command hierarchy for emergency response. The evaluation indicated a measurable improvement of approximately 75–85% in preparedness understanding based on pre- and post-assessment results, reflecting a substantial increase in disaster management competence. The findings further confirmed that the PAR framework promotes inclusive collaboration, participatory decision-making, and sustainable behavioral change, making it an effective model for strengthening local resilience.

Nevertheless, the study acknowledges that the short duration and limited geographic scope restrict the generalizability of the outcomes. Therefore, future works should focus on longitudinal evaluations to assess long-term community behavioral change, expansion of participatory simulation models across other disaster-prone villages, and integration of digital technologies such as early warning applications and GIS-based risk mapping to enhance coordination and preparedness efficiency. In conclusion, this study substantiates that community-based disaster preparedness, when supported by participatory action and inclusive engagement, can substantially reduce vulnerability and improve collective resilience, serving as a replicable framework for disaster-prone regions throughout Indonesia and beyond.

ACKNOWLEDGEMENTS

The authors would like to express their sincere appreciation to the Disaster Resilient Village Forum (Forum Destana) of Ngelang Village, Kartoharjo District, Magetan Regency, for their active participation and cooperation throughout the community service activities. Special thanks are also extended to the Poltekkes Kemenkes Surabaya and the Regional Disaster Management Agency (BPBD) Magetan for their valuable support, guidance, and facilitation during the disaster emergency response simulation and field implementation.

FUNDING

This research and community service activity received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors. The implementation was supported institutionally by Poltekkes Kemenkes Surabaya as part of its academic service and community empowerment program.

DATA AVAILABILITY

The data supporting the findings of this study are available from the corresponding author upon reasonable request. All materials, including training modules, evaluation forms, and contingency plan templates developed during the project, are stored at Poltekkes Kemenkes Surabaya and can be accessed for academic or non-commercial research purposes

AUTHOR CONTRIBUTION

Sunarto conceptualized the study, supervised the field implementation, and prepared the manuscript draft. Heru Santoso Wahito Nugroho contributed to the study design, data interpretation, and critical manuscript review. Suparji coordinated the training activities and participant engagement. Nani Surtinah assisted in data collection and field documentation. Verlingga Diah Oktiasa Putri managed data analysis and visualization. Sausan Hanifah Setyowati contributed to literature review and manuscript editing. All authors read and approved the final manuscript.

DECLARATIONS

ETHICAL APPROVAL

This community service and research activity was conducted in accordance with ethical standards and approved by the institutional ethics committee of Poltekkes Kemenkes Surabaya. All participants were informed about the objectives, procedures, and voluntary nature of the activities. No specific ethical approval number was issued, and no sensitive personal data were collected during the implementation.

CONSENT FOR PUBLICATION PARTICIPANTS.

All participants involved in this community service and research activity provided informed consent for participation and publication. They were informed that the collected data, photographs, and documentation would be used solely for academic and scientific dissemination purposes while ensuring confidentiality and anonymity.

COMPETING INTERESTS

The authors declare that there are no competing interests or potential conflicts of interest regarding the research, authorship, and publication of this article.

REFERENCE

- [1] Badan Nasional Penanggulangan Bencana (BNPB), *Disaster Risk Index of Indonesia 2023–2027*. Jakarta: BNPB, 2023.
- [2] S. H. Nugroho, S. Suparji, A. Suharto, A. R. Fernanda, dan N. Zakinah, “Resilient village development for community-based disaster preparedness,” *Jurnal Pengabdian Masyarakat Indonesia*, vol. 3, no. 2, pp. 571–582, 2023.
- [3] B. K. Thapliyai, *Building PRI Capacities for Disaster Preparedness and Management: A Training Manual*. Hyderabad: United Nations Development Programme (UNDP), 2017.
- [4] M. K. Bera, “Collective efforts of people to reduce disasters in the Indian Sundarban islands,” *Disaster Prevention and Management: An International Journal*, vol. 28, no. 5, pp. 691–705, 2019.
- [5] H. Hanif, A. Maulida, M. Kamal, dan R. S. Oktari, “Empowerment and development of Kajhu Village as a disaster resilient village based on factorization and ecotourism,” *Jurnal Pengabdian Kepada Masyarakat (Indonesian Journal of Community Engagement)*, vol. 9, no. 2, pp. 68–77, 2023.
- [6] A. Ramsbottom, E. O’Brien, L. Ciotti, dan J. Takacs, “Enablers and barriers to community engagement in public health emergency preparedness: A literature review,” *Journal of Community Health*, vol. 43, no. 2, pp. 412–420, 2018.
- [7] I. Kelman, J. Lewis, J. C. Gaillard, dan J. Mercer, “Participatory action research for dealing with disasters on islands,” *Island Studies Journal*, vol. 6, no. 1, pp. 59–86, 2021.
- [8] E. T. Stringer, *Action Research*, 4th ed. Thousand Oaks, CA: Sage Publications, 2014.
- [9] P. Reason dan H. Bradbury, *The SAGE Handbook of Action Research: Participative Inquiry and Practice*, 2nd ed. Los Angeles–Toronto: SAGE Publications, 2017.
- [10] H. Bradbury, K. Glenzer, B. Ku, D. Columbia, S. Kjellström, A. O. Aragón, et al., “What is good action research: Quality choice points with a refreshed urgency,” *Action Research*, vol. 17, no. 1, pp. 14–18, 2019.
- [11] D. Kember, *Action Learning and Action Research: Improving the Quality of Teaching and Learning*. London: Kogan Page, 2020.
- [12] O. Dewa, D. Makoka, dan O. Ayo-Yusuf, “Assessing capacity and implementation status of the disaster risk management strategy for health and community disaster resilience in Malawi,” *International Journal of Disaster Risk Science*, vol. 12, no. 5, pp. 673–688, 2021.
- [13] T. Que, Y. Wu, S. Hu, J. Cai, N. Jiang, dan H. Xing, “Factors influencing public participation in community disaster mitigation activities: A comparison of model and non-model disaster mitigation communities,” *International Journal of Environmental Research and Public Health*, vol. 19, no. 19, pp. 1–16, 2022.
- [14] E. Suharini, S. Asiah, dan E. Kurniawan, “The role of community-based disaster preparedness and response team in building community resilience,” *Malaysian Journal of Society and Space*, vol. 16, no. 4, pp. 30–44, 2020.
- [15] H. Sofyana, K. Ibrahim, I. Afriandi, dan E. Herawati, “The implementation of a disaster preparedness training integration model based on public health nursing (ILATGANA-PHN) to increase community capacity in natural disaster-prone areas,” *BMC Nursing*, vol. 23, no. 1, pp. 1–18, 2024.
- [16] C. J. Pickering, M. Dancey, K. Paik, dan T. O’Sullivan, “Informal caregiving and disaster risk reduction: A scoping review,” *International Journal of Disaster Risk Science*, vol. 12, no. 2, pp. 169–187, 2021.
- [17] K. Chapman, M. Norwood, C. Shirota, D. Palipana, dan E. Kendall, “An undignified disaster reality for Australians with disability,” *Australian Health Review*, vol. 46, no. 6, pp. 710–712, 2022.
- [18] E. Polcarová dan J. Pupíková, “Analysis of socially vulnerable communities and factors affecting their safety and resilience in disaster risk reduction,” *Sustainability*, vol. 14, no. 18, pp. 1–21, 2022.
- [19] K. A. Johnston, M. Taylor, dan B. Ryan, “Emergency management communication: The paradox of the positive in public communication for preparedness,” *Biogeografia*, vol. 1, no. 2, pp. 1–36, 2022.
- [20] G. Smith dan M. T. Nguyen, “Applying the results of a U.S.-based national resilient design education study in the field and the classroom during disaster recovery operations,” *International Journal of Mass Emergencies and Disasters*, vol. 41, no. 1, pp. 150–163, 2023.
- [21] E. T. Stringer, *Action Research*, 4th ed. Thousand Oaks, CA: SAGE Publications, 2019.
- [22] H. Bradbury, K. Glenzer, B. Ku, D. Columbia, S. Kjellström, A. O. Aragón, et al., “What is good action research: Quality choice points with a refreshed urgency,” *Action Research*, vol. 17, no. 1, pp. 14–18, 2019.
- [23] Badan Nasional Penanggulangan Bencana (BNPB), *Kajian Risiko Bencana Kabupaten Magetan 2021–2025*. Jakarta: BNPB, 2023.
- [24] T. Que, Y. Wu, S. Hu, J. Cai, N. Jiang, dan H. Xing, “Factors influencing public participation in community disaster mitigation activities: A comparison of model and non-model disaster mitigation communities,” *International Journal of Environmental Research and Public Health*, vol. 19, no. 19, pp. 1–16, 2022.
- [25] E. Suharini, S. Asiah, dan E. Kurniawan, “The role of community-based disaster preparedness and response team in building community resilience,” *Malaysian Journal of Society and Space*, vol. 16, no. 4, pp. 30–44, 2020.
- [26] S. Kemmis dan R. McTaggart, *The Action Research Planner: Doing Critical Participatory Action Research*. Singapore: Springer, 2020.
- [27] H. Sofyana, K. Ibrahim, I. Afriandi, dan E. Herawati, “The implementation of a disaster preparedness training integration model based on public health nursing (ILATGANA-PHN) to increase community capacity in natural disaster-prone areas,” *BMC Nursing*, vol. 23, no. 1, pp. 1–18, 2024.
- [28] O. Dewa, D. Makoka, dan O. Ayo-Yusuf, “Assessing capacity and implementation status of the disaster risk management strategy for health and community disaster resilience in Malawi,” *International Journal of Disaster Risk Science*, vol. 12, no. 5, pp. 673–688, 2021.
- [29] K. Chapman, M. Norwood, C. Shirota, D. Palipana, dan E. Kendall, “An undignified disaster reality for Australians with disability,” *Australian Health Review*, vol. 46, no. 6, pp. 710–712, 2022.
- [30] C. J. Pickering, M. Dancey, K. Paik, dan T. O’Sullivan, “Informal caregiving and disaster risk reduction: A scoping review,” *International Journal of Disaster Risk Science*, vol. 12, no. 2, pp. 169–187, 2021.
- [31] H. Bradbury et al., “What is good action research: Quality choice points with a refreshed urgency,” *Action Research*, vol. 17, no. 1, pp. 14–18, 2019.
- [32] P. Reason and H. Bradbury, *The SAGE Handbook of Action Research*, 2nd ed., SAGE Publications, 2017.
- [33] F. H. Norris, S. P. Stevens, B. Pfefferbaum, K. F. Wyche, and R. L. Pfefferbaum, “Community resilience as a metaphor, theory, set of capacities, and strategy for disaster readiness,” *Am. J. Community Psychol.*, vol. 41, no. 1–2, pp. 127–150, 2020.
- [34] D. Paton and D. Johnston, “Disaster resilience: Building capacity for community recovery,” *Natural Hazards*, vol. 104, no. 2, pp. 251–270, 2021.
- [35] E. Suharini, S. Asiah, and E. Kurniawan, “The role of community-based disaster preparedness and response team in building community resilience,” *Malays. J. Soc. Sp.*, vol. 16, no. 4, pp. 30–44, 2020.
- [36] T. Que, Y. Wu, S. Hu, J. Cai, N. Jiang, dan H. Xing, “Factors influencing public participation in community disaster mitigation activities,” *Int. J. Environ. Res. Public Health*, vol. 19, no. 19, pp. 1–16, 2022.
- [37] O. Dewa, D. Makoka, dan O. Ayo-Yusuf, “Assessing capacity and implementation status of the disaster risk management strategy for community resilience in Malawi,” *Int. J. Disaster Risk Sci.*, vol. 12, no. 5, pp. 673–688, 2021.
- [38] C. J. Pickering, M. Dancey, K. Paik, dan T. O’Sullivan, “Informal caregiving and disaster risk reduction: A scoping review,” *Int. J. Disaster Risk Sci.*, vol. 12, no. 2, pp. 169–187, 2021.
- [39] K. A. Johnston, M. Taylor, dan B. Ryan, “Emergency management communication: The paradox of the positive in public communication for preparedness,” *Biogeografia*, vol. 1, no. 2, pp. 1–36, 2022.
- [40] G. Smith dan M. T. Nguyen, “Applying the results of a U.S.-based national resilient design education study during disaster recovery operations,” *Int. J. Mass Emergencies Disasters*, vol. 41, no. 1, pp. 150–163, 2023.