

Brief

Strengthening Disaster-Resilient Villages Through Participatory Approaches: Policy Recommendations for Village Governments

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ABSTRACT

Village resilience is an important foundation in community-based disaster risk reduction efforts. This policy brief is prepared based on recommendations from the results of village resilience assessment research. The research as the basis for the policy brief was conducted in 30 Disaster Resilient Villages in Magetan Regency using the Participatory Action Research (PAR) method, which emphasizes active community involvement in the assessment process. The assessment was carried out by filling out a questionnaire from the National Disaster Management Agency (BNPB) containing 128 questions and covering five main aspects: basic services, regulations and policies, prevention and mitigation, emergency preparedness, and post-disaster recovery. The questionnaire was filled out through interviews and focus group discussions (FGD). The results showed that only around 20% of villages achieved the Main Disaster Resilient Village category. This shows the need for an increase in overall efforts made by the disaster resilient village forum together with the village government. Two main recommendations are proposed. First, strengthening the capacity of the Disaster Resilient Village Forum as the driving force for disaster risk management activities at the village level. This forum needs to be supported through training, facilitation, and strengthening its role in program planning and implementation. Second, the allocation of village funds needs to be increased by around 5–8% to fund activities such as disaster-resistant infrastructure development, disaster mitigation, capacity training, emergency response simulations, procurement of facilities and infrastructure, emergency response funds, and post-disaster recovery. The success of both recommendations is highly dependent on collaboration between local and village governments. Local governments need to support with clear regulations, technical assistance, and adequate budgets. Meanwhile, village governments need to include disaster risk reduction in development plans. This synergy will accelerate the realization of disaster-resilient villages.

Keywords: Disasters; participatory action research; village resilience

1. INTRODUCTION

Magetan Regency, which has various disaster risks such as landslides, floods, wind, forest and land fires, drought, earthquakes, and disease outbreaks, has made efforts to improve the resilience of its communities through the Disaster

Resilient Village (Destana) program. To date, a resilience assessment has been conducted on 30 villages in the regency, which are divided into three categories: 14 villages in the Pratama category, 12 villages in the Madya category, and 4 (four) villages in the Utama category.^(1,2) This assessment shows the diversity of village readiness levels in facing disasters, while also illustrating that there are still challenges to increasing village capacity, especially in the Pratama category which is at the initial level of resilience.^(3,4)

Village resilience is key to minimizing disaster risks and their impacts on people's lives. However, the assessment results show that villages in the Pratama category still have limitations in terms of human resource capacity. The impact of these limitations have an impact on low basic services, disaster management policies that have not been included in the village's long-term development program, low institutional coordination, and difficult access to disaster management plan documents, emergency response plans, and recovery plans.⁽⁵⁾ On the other hand, villages in the Madya and Utama categories have shown progress, although they still need strengthening in the integration of cross-sector programs and the use of information technology for early warning systems.⁽⁶⁾ Limited funds for routine and sustainable emergency response simulations. Disaster Resilient Villages in the Pratama category generally face fundamental challenges such as low community understanding of disaster risks, minimal village institutional capacity, and limited budget allocation and infrastructure support. These challenges not only hinder the progress of villages to the Madya category, but also impact the consistency and sustainability of efforts in villages that have reached the Madya or Utama categories. When Pratama villages are unable to increase their capacity, collaboration between villages in one area becomes weak, thus affecting the effectiveness of early warning systems, resource distribution, and regional emergency response coordination. In contrast, progress in the Madya and Utama categories shows the importance of institutional support, integration of disaster risk reduction programs in development planning, and the success of local resource mobilization which, if replicated in Pratama villages, will accelerate the improvement of resilience as a whole. This emphasizes the need for more strategic policy interventions to ensure the sustainability of the Destana program.⁽⁷⁾

The evaluation and monitoring plan for the village resilience program is designed in a participatory and sustainable manner to ensure the effectiveness and flexibility of the initiatives being implemented. Evaluation is carried out periodically through measurable indicators, such as increasing the availability of basic services, increasing institutional capacity, utilizing village funds for disaster risk reduction activities, and active community involvement in disaster simulations and training. Monitoring involves the village government, the Disaster Resilient Village Forum, and technical assistance from the local government to identify obstacles and needs for program adjustments. The data collected will be used to provide direct feedback in re-planning and strengthening implementation strategies. With this approach, the program can continue to be adjusted to local conditions, strengthen village responsiveness to disaster risks, and increase resilience gradually but consistently.

Improving village resilience requires a holistic approach that includes community empowerment, infrastructure improvement, strengthening policies in village budget management in disaster management, and strengthening collaboration between stakeholders.^(8,9) Through this policy brief, policy recommendations are formulated based on findings from the assessment of the resilience of 30 disaster-resilient villages in Magetan Regency, which aim to accelerate village transformation to a higher category and ensure village resilience in facing better disaster threats in the future.

2. PROBLEM DESCRIPTION

In the period 2020 to 2024, Magetan Regency, East Java Province in Indonesia experienced various natural disasters such as floods, landslides, forest and land fires, and strong winds, which revealed several some many challenges in disaster preparedness and management at the village level. One of the main problems is the limited human resources (HR) trained in disaster management. Many capacities do not yet have adequate knowledge and skills to respond effectively to emergencies. This is in line with findings showing that increasing community capacity through the formation of Disaster Resilient Villages (Destana) is an important factor in disaster risk reduction.⁽¹⁰⁾

In addition, the budget allocation for disaster management programs at the village level is still

minimal. This limited funding hampers the implementation of education, socialization, training, and emergency response simulations as well as the procurement of equipment needed for disaster preparedness. Previous studies indicate that the

minimal budget allocated for increasing community capacity from the district revenue and expenditure budget (APBD) and village funds is one of the obstacles to establishing disaster-resilient villages.⁽¹¹⁾

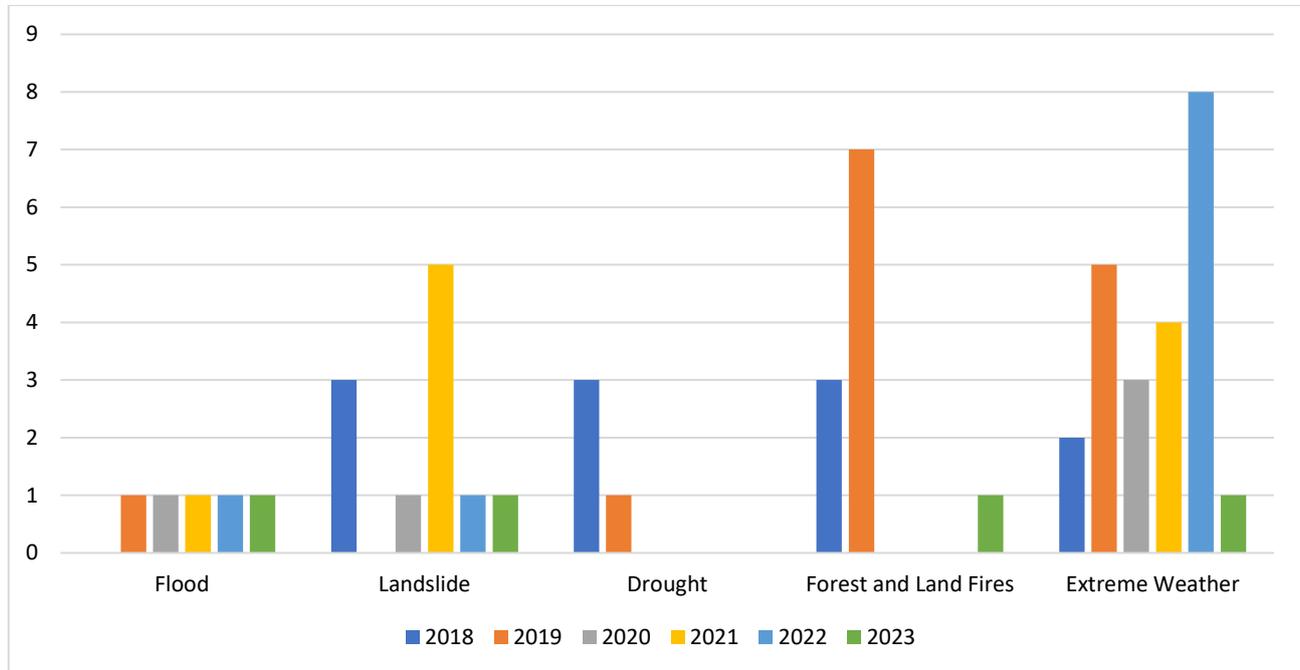


Figure 1. Magetan district disaster data 2018-2024 (BPS East Java Province)

Disaster cluster readiness at the district level is also not optimal. Coordination between various stakeholders, such as local governments, non-governmental organizations, businesses, academics, mass media, and local communities, is often ineffective, resulting in slow and poorly coordinated disaster responses. Research shows that strengthening the institutional capacity of village communities in resource management and disaster risk reduction is essential to increase disaster resilience.⁽¹²⁻¹⁴⁾

Community participation in disaster preparedness efforts is also still low. Many residents are not yet aware of the importance of their active role in disaster mitigation and response. This is exacerbated by the lack of socialization and education regarding disaster risks and the steps that must be taken when a disaster occurs. A case study in Jatinegara District, East Jakarta, shows that the level of community resilience in dealing with flood disasters still needs to be improved through ongoing education and training.⁽¹⁵⁾

Institutions at the village level tasked with handling disasters have also not functioned optimally. Many villages do not yet have a clear organizational

structure for disaster management, as well as standard operating procedures that must be followed when a disaster occurs. This results in a response that is not focused and less effective. Research in Sumenep Regency shows that several villages are still included in the category of not being disaster resilient, which indicates the need to strengthen institutions at the village level.^(16,17)

The impact of these problems is the high vulnerability of villages in Magetan Regency to natural disasters. Every time a disaster occurs, the losses experienced are not only in the form of physical damage, but also loss of life, economic disruption, and psychological trauma for the community.⁽¹⁸⁾ Therefore, a comprehensive solution is needed to increase village resilience by strengthening the Destana program. Steps that can be taken include increasing the capacity of the Destana forum through emergency response training and simulations, increasing budget allocations for disaster management programs, establishing and strengthening disaster management institutions at the village level, and increasing community participation in disaster preparedness efforts.^(3,14) Thus, it is hoped that

villages in Magetan Regency can be better prepared and resilient in facing disasters in the future.⁽¹⁹⁾

The Madiun City area shows quite good village resilience in dealing with floods, especially through the active role of the community in disaster simulation and education activities. The Madiun City Government has strengthened community capacity through emergency response training programs and improving drainage infrastructure to minimize the impact of flooding. In addition, villages in Madiun City have also received assistance in preparing contingency plan documents and early warning systems as part of a resilience improvement strategy.^(10,11) In Madiun Regency, although the main challenge is flash floods, several villages have been categorized as Destana with community-based activity initiatives. The Madiun Regency BPBD routinely conducts training for village volunteers, provides emergency evacuation equipment, and integrates early warning systems in disaster-prone areas.⁽¹¹⁾

Ponorogo Regency focuses on increasing village resilience by optimizing the role of community groups through the formation of disaster volunteers in each village.⁽²⁰⁾ This effort is supported by the implementation of evacuation simulations involving all disaster clusters, including schools and religious institutions. Pacitan Regency, which has a high risk of flooding and landslides, has formed Destana in vulnerable areas and allocated village budgets for mitigation activities, such as strengthening cliffs and normalizing rivers.^(21,22) In addition, an institutional capacity-building program is carried out by involving village governments and communities to prepare disaster risk maps.⁽²³⁾ Meanwhile, Ngawi Regency emphasizes the importance of integrating disaster management through a community approach. Programs in Ngawi include empowering women's groups in disaster preparedness and providing technical training for village officials so that village resilience is increasingly increasing.^(24,25)

3. RECOMMENDATION

In efforts to increase village resilience to disasters in Magetan Regency, two operational recommendations that can be carried out are the formation and strengthening of the capacity of the Destana forum in realizing resilience based on priority recommendations from the results of resilience assessments as well as

village fund allocation for disaster preparedness program.

1. The establishment and strengthening of the Destana forum in realizing resilience based on the priority recommendations of the resilience assessment results aims to strengthen the role of the Destana forum as the main driving institution in disaster risk reduction efforts at the village level. The forum is expected to be able to prepare a work plan based on the results of the resilience assessment, coordinate independent evacuation training and simulation activities, and ensure the integration of resilience programs into village planning and budgeting. Through active community participation and support from the village government, this forum is key to building a resilient and sustainable preparedness system.
2. Increased allocation of village funds for disaster preparedness programs. The recommendation to increase the allocation of village funds for disaster preparedness programs aims to ensure the availability of adequate resources to support all disaster risk reduction activities at the village level. Village funds are expected to be allocated for the development of disaster-resistant infrastructure, procurement of emergency equipment, disaster training and simulations, and logistical support for post-disaster recovery. With a planned and integrated budget in village development documents such as the RKPDes and APBDes, village governments have the flexibility to respond to disasters quickly and effectively, while encouraging village independence in building resilience based on local needs.

4. CONCLUSION

Accelerating village resilience to disasters must begin by following up on recommendations from the results of resilience assessments in a concrete and planned manner. Strengthening the Disaster Resilient Village Forum is a strategic and crucial step as a driving force in building the foundation of village resilience. Financial support through the allocation of 5–8% of village funds needs to be prioritized for disaster risk reduction programs, preparedness, emergency response, and recovery. Strong commitment and synergy between local and village governments are the keys to success in realizing resilient villages. In addition, active community involvement in every stage of

program planning and implementation has proven effective in strengthening collective awareness and village capacity in facing disaster threats in a sustainable manner.

Ethical Approval

Ethical approval issued by the Health Research Ethics Commission of the Surabaya Ministry of Health Polytechnic, with reference number: EA/3177/KEPK-Poltekkes_Sby /V/2025.

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Competing Interests

Although there is funding support from the Magetan Regency Disaster Risk Reduction Forum, East Java, Indonesia, there is no conflict of interest between the author and the forum the research results can be used by the forum to assist other disaster-resilient villages.

Funding Information

This research received funding from the Surabaya Ministry of Health Polytechnic, so this research has obtained ethical approval from the Surabaya Ministry of Health Polytechnic's health research ethics commission.

Underlying Data

Derived data supporting the findings of this study are available from the corresponding author on request.

REFERENCES

- Nugroho HSW, Sunarto, Suparji, Prasetyo A, Koesmantoro H. Risalah Kebijakan (Policy Brief): Harmonisasi dan Akselerasi Destana (HaDe) Sebagai Pendekatan Pengembangan Desa Tangguh Bencana di Kabupaten Magetan. 2024;1–4. Available from: https://drive.google.com/file/d/1m_o3sBHsA2keVuIla3Srq0xFv9va6pH/view?usp=sharing (Accessed on 13 March 2025)
- Kafle SK. Measuring disaster-resilient communities: A case study of coastal communities in Indonesia. *Journal of Business Continuity & Emergency Planning*. 2012;5(4):316–326. <https://doi.org/10.69554/YNFR8429>
- Hutagalung SS. Adaptive capacity in the implementation of disaster response village programme in Indonesia: Literature review. *Jambá Journal of Disaster Risk Studies*. 2023;15(1):a1470. <http://dx.doi.org/10.4102/jamba.v15i1.1470>
- Arifin S, Wicaksono SS, Sumarto S, Martitah M, Sulistianingsih D. Disaster resilient village-based approach to disaster risk reduction policy in Indonesia: A regulatory analysis. *Jambá Journal of Disaster Risk Studies*. 2021;13(1):a1021. <http://dx.doi.org/10.4102/jamba.v13i1.1021>
- Finucane ML, Acosta J, Wicker A, Whipkey K. Short-Term Solutions to a Long-Term Challenge: Rethinking Disaster Recovery Planning to Reduce Vulnerabilities and Inequities. *International Journal of Environmental Research and Public Health*. 2020;17(2):482. <http://dx.doi.org/10.3390/ijerph17020482>
- Muhtar EA, Abdillah A, Widianingsih I, Adikancana QM. Smart villages, rural development and community vulnerability in Indonesia: A bibliometric analysis. *Cogent Social Sciences*. 2023;9(1):2219118. <http://dx.doi.org/10.1080/23311886.2023.2219118>
- Shelton RC, Lee M. Sustaining Evidence-Based Interventions and Policies: Recent Innovations and Future Directions in Implementation Science. *American Journal of Public Health*. 2019;109(S2):S132–S134. <http://dx.doi.org/10.2105/ajph.2018.304913>
- Boston M, Bernie D, Brogden L, Forster A, Galbrun L, Hepburn LA, et al. Community resilience: A multidisciplinary exploration for inclusive strategies and scalable solutions. *Resilient Cities and Structures*. 2024;3(1):114–130. <http://dx.doi.org/10.1016/j.rcns.2024.03.005>
- Widianingsih I, Abdillah A, Hartoyo D, Putri SSU, Miftah AZ, Adikancana QM. Increasing resilience, sustainable village development and land use change in Tarumajaya village of Indonesia. *Scientific Reports*. 2024;14(1):31831. <http://dx.doi.org/10.1038/s41598-024-82934-2>
- Tariq H, Pathirage C, Fernando T. Measuring community disaster resilience at local levels: An adaptable resilience framework. *International Journal of Disaster Risk Reduction*. 2021;62:102358. <http://dx.doi.org/10.1016/j.ijdr.2021.102358>
- Apryana H, Nugraheni KR, Wardhana F. Policy Analysis of Budget Allocation for Disasters in Indonesia. *Social, Humanities, and Educational Studies (SHEs): Conference Series*. 2020;3(1). <http://dx.doi.org/10.20961/shes.v3i1.45029>
- Tariq H, Pathirage C, Fernando T. Measuring community disaster resilience at local levels: An

- adaptable resilience framework. *International Journal of Disaster Risk Reduction*. 2021;62:102358. <http://dx.doi.org/10.1016/j.ijdrr.2021.102358>
13. Ayuningtyas D, Windiarti S, Hadi MS, Fasrini UU, Barinda S. Disaster Preparedness and Mitigation in Indonesia: A Narrative Review. *Iranian Journal of Public Health*. 2021;50(8):1536-1546. <http://dx.doi.org/10.18502/ijph.v50i8.6799>
 14. Sunarto S, Heru Santoso Wahito Nugroho, Suparji, Nani Surtinah, Verlingga Diah Oktiasa Putri, Sausan Hanifah Setyowati. Collaboration with the Disaster Resilient Village Forum in Disaster Emergency Response Simulation in Ngelang Kartoharjo Village Magetan. *Frontiers in Community Service and Empowerment*. 2024;3(2). <http://dx.doi.org/10.35882/ficse.v3i2.65>
 15. Pratita Sari D, Susiloningtyas D, Rizqihandari N. Drought Adaptation of Water Usage in Regular and Irregular Settlements (Case Study: Jatinegara District, East Jakarta). *IOP Conference Series: Earth and Environmental Science*. 2019;338(1):012022. <http://dx.doi.org/10.1088/1755-1315/338/1/012022>
 16. Zakki N, I, Andini IY. Analisis Potensi dan Tingkat Perkembangan Desa di Kabupaten Sumenep. *Performance: Jurnal Bisnis & Akuntansi*. 2017;7(1):65–80. <http://dx.doi.org/10.24929/feb.v7i1.348>
 17. Haryadi B, Ariefiana A. Village Poverty And Financial Performance Study Between The Land Area And The Archipelago In The District Of Sumenep - Madura. *Media Trend*. 2021;16(1):90–99. <http://dx.doi.org/10.21107/mediatrend.v16i1.9511>
 18. Gim J, Shin S. Disaster vulnerability and community resilience factors affecting post-disaster wellness: A longitudinal analysis of the Survey on the Change of Life of Disaster Victim. *International Journal of Disaster Risk Reduction*. 2022;81:103273. <http://dx.doi.org/10.1016/j.ijdrr.2022.103273>
 19. Sunarto S, Nugroho H, Suparji S, Santosa B. Quadrant of difficulty and usefulness for prioritizing community-based disaster preparedness parameter elements. *Rawal Medical Journal*. 2024;49(1):172-175. <http://dx.doi.org/10.5455/rmj.20230918043333>
 20. Pramono MF, Lahuri S, Ghozali M. Disaster Resilient Village Based On Sociocultural Aspect in Ponorogo. *MIMBAR: Jurnal Sosial dan Pembangunan*. 2020;36(1):63–73. <http://dx.doi.org/10.29313/mimbar.v36i1.5194>
 21. Putra AN, Nita I, Rifqi Al Jauhary M, et al. Landslide Risk Analysis on Agriculture Area in Pacitan Regency in East Java Indonesia Using Geospatial Techniques. *Environment and Natural Resources Journal*. 2021;19(2):141–152. <http://dx.doi.org/10.32526/ennrj/19/2020167>
 22. Nita I, Putra AN, Albayani HK, Khakim AW, Nurhutami SR. Analysis of Flood Potential and Risk on Agricultural Land in Pacitan Regency. *Jurnal Tanah dan Sumberdaya Lahan*. 2022;9(1):37–48. <http://dx.doi.org/10.21776/ub.jtsl.2022.009.1.5>
 23. Astuti SJW, Sulistyowati A, Fauzuddin Y. Strategy to Increase the Effectiveness of Capacity Building Programs for Village-Owned Enterprises. *Ilomata International Journal of Management*. 2023;4(4):544–561. <http://dx.doi.org/10.52728/ijjm.v4i4.933>
 24. Krisdiyanto R, Harisudin M, Irianto H. Technical efficiency of organic rice farming in Ngawi Regency (The case of the Komunitas Ngawi Organic Center). *IOP Conference Series: Earth and Environmental Science*. 2021;824(1):12103. <http://dx.doi.org/10.1088/1755-1315/824/1/012103>
 25. Zain IM, Utami WS. Potential of Natural Resources in Renewable Energy Development in Ngawi District, Ngawi Regency. *Proceedings of the International Joint Conference on Arts and Humanities 2021 (IJCAH 2021)*. *Advances in Social Science, Education and Humanities Research*. 2021;618:691-696. <http://dx.doi.org/10.2991/assehr.k.211223.119>