Assessing the Moderating Role of Destana Program in Community Resilience and Climate Change

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ABSTRACT

This study aims to assess Disaster Resilience Village (DESTANA) program has managed to enhance community resilience in the face of climate change impacts in Tambakreja Village, Cilacap Regency. The study utilized primary data collected through questionnaires and employed logistic regression analysis to examine the relationship between climate change, the DESTANA program, and community resilience. The results indicate that the DESTANA program positively impacts community resilience. However, the program's moderating role in the relationship between climate change and community resilience was not significant. This suggests that factors such as program implementation quality, community participation, and local context may influence the program's effectiveness. To enhance the impact of the DESTANA program, future research should explore the role of these factors in greater detail.

INTRODUCTION

The occurrence of increasing global temperatures driving climate change has emerged as an important international issue, with effects observable globally. Climate change has modified precipitation patterns and raised the frequency of severe weather incidents, such as more regular and severe floods, droughts, and storms (Tabari, 2020; Zarei et al., 2025). In Indonesia, climate change intensifies the threat of hydrometeorological disasters, including flash floods, droughts, and forest and land fires. The increased disaster risk is closely associated with unsustainable environmental management and urban development practices (Arfanuzzaman & Dahiya, 2019; Djalante et al., 2017). This highlights the pressing requirement for enhanced mitigation efforts in Indonesia.

Based on BNPB data, there have been around 500 flood incidents documented in Indonesia in the past few years (Yonatan, 2024). The consequences of these disasters vary from damage to infrastructure and loss of property to health issues, financial losses, and interruptions to livelihoods in areas vulnerable to flooding (Febriandika & Rahayu, 2021; Kim & Gim, 2020; Wanjara &

Ogembo, 2023). A swift reaction from both governmental bodies and local communities is crucial to alleviate these effects (Ardiansyah et al., 2021; Yamamoto et al., 2021). This demonstrates the need for more coordinated and serious disaster management.

Floods, as a form of hydrometeorological disaster, contribute significantly to losses from natural events. According to the Sendai Framework, of the 22,200 disaster events recorded between 1980 and 2011, 78.4% of the damages resulted from storms, droughts, floods, landslides, extreme temperatures, and forest fires, causing economic losses of $2.6 trillion out of a total of $3.5 trillion in damages during that period (Nations Office for Disaster Risk Reduction, 2015). Floods cause considerable economic losses in various regions of Indonesia (Ilyas et al., 2025; Svetlana et al., 2015). Compared to earthquakes, hydrometeorological disasters account for over half of all disaster-related deaths, with 1.4 million deaths out of a total of 2.28 million (Ghesquiere & Reid, 2012).

In Indonesia, the vulnerability to hydrometeorological disasters has intensified, particularly due to ongoing climate change. BNPB data indicate a 583.3% increase in fatalities and

disappearances in 2020 compared to 2019 (Putra et al., 2021). Research by Kangana et al. (2024) and National Research Council et al. (2011) highlights that technology and collaboration between government and communities are critical in reducing disaster impacts. Therefore, comprehensive mitigation efforts and active involvement of all parties in addressing hydrometeorological disasters in Indonesia are essential.

Communities located in areas susceptible to disasters must have strong resilience. This strength allows communities to operate and bounce back after disasters while getting ready for future challenges (Berkes & Ross, 2013; Robertson et al., 2021). Approaches that focus on community involvement to enhance community resilience can greatly enhance disaster response abilities (Fu & Zhang, 2024; Ikumu et al., 2024). Community preparedness and the active engagement of all stakeholders in disaster response are crucial components of disaster management that bolster resilience (Nuryana et al., 2023). Aspects of community preparedness encompass disaster knowledge, risk awareness, preparedness policies, and access to early warning systems (Ayuningtyas et al., 2021). Enhancing community resilience against climate-related disasters can be accomplished through a community development strategy focused on solidarity and participation (Mahbubah et al., 2021).

The Disaster Resilient Village (DESTANA) program, launched by BNPB, seeks to improve the ability of communities to withstand disasters through education, social outreach, mitigation efforts, and disaster response strategies. The execution of the DESTANA program has had a beneficial effect on the community's understanding of disaster risks (Ningtyas et al., 2021). This legislation is consistent with the community-focused Disaster Risk Reduction (DRR) strategy presented in the Sendai Framework.

Cilacap Regency in Java is among the areas vulnerable to disasters, especially floods and tidal inundation (Subiyakto et al., 2019). Prior research has indicated that the Disaster Resilient Village (DESTANA) program in various villages within Cilacap has played a role in strengthening community resilience. Nevertheless, issues such as insufficient human resources and inadequate supporting infrastructure continue to pose considerable challenges to the program's execution (Jarodi et al., 2024).

Previous studies emphasize the important function of community-focused initiatives such as DESTANA in alleviating the negative effects of disasters on the socio-economic welfare of communities. This initiative emphasizes community education, preparedness training, and the establishment of strong emergency response systems, all contributing to the decrease of disaster-related harm, including that caused by coastal flooding. Research suggests that community-oriented preparedness initiatives significantly bolster socio-economic resilience by facilitating training and skill acquisition (Saparita et al., 2024). Communities engaged in disaster mitigation initiatives are better equipped to handle disaster risks, which helps lessen adverse economic effects (Rayawan et al., 2021). Furthermore, the DESTANA initiative is essential in increasing disaster risk awareness among communities, which favorably impacts economic resilience in areas with high risk (Handoyo et al., 2024). Integrated mitigation education and training offered by DESTANA are effective in minimizing socio-economic damages resulting from disasters (Padhilah, 2025). Consequently, disaster mitigation initiatives like DESTANA can mediate the connection between natural disasters and economic welfare, particularly in coastal regions (Irwansyah et al., 2024). Enhanced social networks and better access to disaster information through this initiative have additionally been shown to reduce economic losses (Bernita, 2024). Moreover, DESTANA is pivotal in decreasing the socio-economic susceptibility of communities facing hydrometeorological disasters (Putra et al., 2021).

Based on the research context, this study seeks to evaluate how the DESTANA program has improved community resilience against the effects of climate change. In particular, this research will concentrate on Tambakreja Village, Cilacap Regency, to assess the execution of the Disaster Resilient Village (DESTANA) program, which has been in place since 2021.

MATERIALS AND METHODS

This study employed primary data gathered through questionnaires filled out by the residents of Tambakreja Village, Cilacap Regency. The total population in the study was 3,200 individuals, representing the residents of Tambakreja Village. The Slovin formula, with a 10% margin of error, was used to determine the sample size for survey respondents. The following formula was applied to calculate the required sample size:

$$n = N / (1 + N \times e^2)$$
$$n = 3200 / (1 + 3200 \times 0,1^2)$$
$$n = 3200 / (1 + 32)$$
$$n = 3200 / (33)$$
$$n \approx 96,97 \qquad (1)$$

where n is the sample size, N is the population size, and e is the margin of error (in decimal form).

Based on this calculation, at least 97 respondents were needed. However, 166 responses were collected through the distribution of questionnaires in Tambakreja Village, Cilacap Regency. To examine the moderating role of the Disaster Resilient Village (DESTANA) program, the following logistic regression model was employed:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 Z + \beta_4(X_1 Z) + \beta_5(X_2 Z) + \varepsilon \quad (2)$$

where Y is dependent variable; β_0 is constant (intercept); β_1 is regression coefficient for X_1; β_2 is regression coefficient for X_2; β_3 is regression coefficient for Z; β_4 is regression coefficient for the interaction between X_1 and Z; $X_1 Z$ is interaction term for X_1 and Z; β_5 is regression coefficient for the interaction between X_2 and Z; $X_2 Z$ is interaction term for X_2 and Z; ε is error term or residual

The independent variable in this study is climate change, represented by the condition of tidal flooding in Tambakreja Village, Cilacap Regency. The independent variable questions were binary, requiring respondents to choose "Yes" or "No" in response. The questions were as follows:

1. Have you experienced a flood disaster while living in this village?
2. Do you know the causes of frequent flooding in your village?

The dependent variable in this study is community resilience, indicated by the socio-economic resilience of the residents in Tambakreja Village, Cilacap Regency. The questions for this variable included two binary questions and nine questions on a Likert scale, as follows:

1. I consider mutual trust between villagers important in managing flood disasters in my village.
2. In my opinion, the community here trusts each other when facing flood disasters.
3. I have a strong social network with residents in this village.
4. The social networks I have are highly beneficial for managing flood disasters in my village.
5. There are social norms in my village to maintain the environment to prevent flood disasters.
6. My job is threatened by the frequent flood disasters in my village.
7. I have access to disaster relief information provided by the government or non-governmental organizations (NGOs).
8. The disaster relief provided by the government/NGOs has been very helpful for me.
9. The government/NGOs have given sufficient attention to the economic needs of residents affected by flood disasters.
10. Flood disasters affect my monthly income.
11. I have savings to cope with disasters.

The moderating variable in this study is the Disaster Resilient Village (DESTANA) program. For this variable, two binary questions and six Likert scale questions were used, as follows:

1. I feel adequately prepared if a disaster occurs near my residence.
2. Are disaster preparedness training sessions frequently conducted in your village?
3. I have participated in several disaster preparedness training or education programs held in my village.
4. My village has a preparedness plan for disaster conditions.
5. In my opinion, the government and NGOs have been very active in providing disaster preparedness education to residents in my village.
6. The Disaster Resilient Village (DESTANA) program effectively aids residents in dealing with disasters, especially floods.
7. Community involvement in the Disaster Resilient Village (DESTANA) program has been very good.

8. In my opinion, the Disaster Resilient Village (DESTANA) program should be continuously implemented and developed in the future.

RESULTS AND DISCUSSION
Respondents Characteristics

Following the distribution of questionnaires to residents of Tambakreja Village, Cilacap Regency, primary data were obtained from 166 respondents. However, 11 respondents were excluded from data analysis due to incomplete or inconsistent questionnaire responses. Therefore, the analysis in this study is based on data from 155 respondents who met the criteria.

Descriptively, the study revealed a gender-based proportional difference among respondents. Of the 155 respondents, 47% (73 individuals) were male, while 53% (82 individuals) were female. This represents a slight majority of female respondents by a 6% margin. Despite this difference, the distribution is considered balanced enough to capture comprehensive perspectives from both genders, thus contributing to the validity of the study's findings.

Regarding monthly income, the majority of respondents (43%) reported earnings in the range of IDR 1,000,000 to IDR 2,000,000. About 30% had a monthly income between IDR 2,000,000 and IDR 5,000,000, while 15% earned more than IDR 5,000,000 per month. Conversely, only 12% had a monthly income below IDR 1,000,000. This indicates that most respondents belong to the lower-middle income group, with earnings predominantly below IDR 5,000,000 per month. It should be noted that income data includes both formal employment income and allowances received by respondents not yet in the workforce.

Regarding residency duration in Tambakreja Village, 88% of respondents have lived in the village for over 10 years, while only 12% reported residing there for less than a decade. This predominant residency duration suggests a strong attachment to the village and may enhance respondents' engagement in local socio-economic dynamics and community activities. In this research context, long-term residency could influence respondents' knowledge and experience regarding village conditions, particularly in disaster preparedness and resilience.

Model Summary and Regression Analysis: Socio-Economic Conditions (Model X1)

Table 1. X_1 model summary

Statistic	Value
R	0,81
R-squared (R^2)	0,66
Mean Squared Error (MSE)	0,46
F	96,29
p-value	0

Source: Researcher, 2025

Based on Table 1, the first test results (X1) indicate that the regression model effectively predicts the socio-economic conditions of the community. This is evidenced by a high correlation coefficient (R = 0.81), suggesting a strong relationship between the predictor variables—coastal flooding, the DESTANA program, and their interaction—and the dependent variable, namely, the socio-economic condition of the community. The determination coefficient (R-squared = 0.66) indicates that 66% of the variability in the community's socio-economic conditions is explained by the independent variables in this model. The F-test yielded a significant result (F = 96.29, p < 0.001), suggesting the model can significantly account for data variation. Thus, this regression model can predict socio-economic conditions with reasonably good accuracy.

Table 2. X_1 model test result

Model	Coef.	SE	t-stat.	p-value
Constanta	0,5	0,63	0,78	0,44
Climate change	0,32	0,66	0,49	0,63
DESTANA program	0,87	0,16	5,47	0
Interaction	-0,05	0,16	-0,31	0,76

Source: Researcher, 2025

According to Table 2, further analysis of the regression coefficients showed a constant value of 0.50, which was not statistically significant, implying that the community's socio-economic condition cannot be presumed to start from 0.50 when all predictors equal zero. The independent variable of coastal flooding had a coefficient of 0.32, but it was not statistically significant. This implies that while there is a positive relationship between coastal flooding and socio-economic conditions, it is not statistically significant. In contrast, the DESTANA program variable had a

statistically significant coefficient (0.87), indicating a positive impact on socio-economic conditions. Every one-unit increase in the DESTANA program corresponds to a 0.87 unit increase in socio-economic conditions. However, the interaction between coastal flooding and DESTANA was not statistically significant, suggesting insufficient evidence to claim that the effect of coastal flooding on socio-economic conditions is moderated by DESTANA. Therefore, the impact of coastal flooding on socio-economic conditions remains relatively constant, regardless of changes in the DESTANA program.

Model Summary and Regression Analysis: Socio-Economic Conditions (Model X2)

Table 3. X_2 model summary

Statistic	Value
R	0,81
R-squared (R^2)	0,66
Mean Squared Error (MSE)	0,46
F	96,3
p-value	0

Source: Researcher, 2025

Along with the result from Table 3, the second test (X2) confirmed that the regression model effectively predicts socio-economic conditions. A high correlation coefficient (R = 0.81) suggests a strong association between the predictors, coastal flooding, and DESTANA and the dependent variable. The R-squared value of 0.66 indicates that around 66% of the variance in socio-economic conditions can be explained by the independent variables in this model. The F-test showed a highly significant result (F = 96.30, p = 0.00), confirming the model's capacity to account for data variation.

Table 4. X_2 model test result

Model	Coef.	SE	t-stat.	p-value
Constanta	50	76	0,66	0,51
Climate change	33	77	0,43	0,67
DESTANA program	86	23	3,77	0
Interaction	-0,05	23	-0,2	0,84

Source: Researcher, 2025

From Table 4, the model's coefficients further detail these findings. The constant of 0.50 was not statistically significant, indicating that socio-economic conditions cannot be assumed to start from 0.50 when predictors are zero. The coastal flooding variable showed a coefficient of 0.33, but it was also not statistically significant, indicating a weak association with socio-economic conditions. Conversely, the DESTANA program variable demonstrated a statistically significant coefficient (0.86), confirming that it has a positive effect on socio-economic conditions. Thus, each one-unit increase in the DESTANA program raises socio-economic conditions by 0.86 units. However, the interaction between coastal flooding and DESTANA was not statistically significant, indicating a lack of sufficient evidence to suggest that DESTANA modifies the impact of coastal flooding on socio-economic conditions. In other words, the influence of coastal flooding on socio-economic conditions remains stable and is not influenced by changes in the DESTANA program.

Hypothesis testing found no moderating effect between coastal flooding and community resilience, as indicated by the socio-economic conditions of Tambakreja Village. This discovery corresponds with the necessity to evaluate the implementation effectiveness of the DESTANA program. The effectiveness of disaster reduction programs is significantly dependent on high-quality execution and community engagement. Quality implementation and proactive community participation are essential for successful disaster mitigation programs (Dewi et al., 2022). In this regard, if DESTANA is inadequately implemented or does not have sufficient community engagement, its ability to act as a factor between coastal flooding and socio-economic circumstances could be limited, highlighting the significance of community involvement in disaster mitigation programs.

Furthermore, local contextual elements must be taken into account. The effectiveness of disaster mitigation programs can be affected by local attributes, such as geographic and social elements (Ayuningtyas et al., 2021; Purworini et al., 2020; Sarjito, 2023). Tambakreja Village has specific characteristics that could influence DESTANA's operation within this local environment. If the local context is not in harmony with DESTANA's strategies, the program's ability to reduce the impacts of coastal flooding may be restricted. Acknowledging that every region has unique social and geographic dynamics highlights the necessity of adapting programs to local requirements for effective execution.

The program's correspondence with local community needs is equally essential. Disaster mitigation initiatives frequently fall short of achieving their goals when they neglect particular local requirements (Dias et al., 2019). If DESTANA does not adequately cater to the distinct needs of Tambakreja Village, it may not operate efficiently as anticipated. The relationship between program development and local community needs underscores the necessity of comprehending socio-economic traits in developing effective disaster mitigation initiatives.

The efficacy of the DESTANA program in improving socio-economic resilience might also differ based on varying levels of community involvement and the quality of implementation in different areas. The success of disaster mitigation programs frequently relies on the quality of implementation and local backing (Rozaki et al., 2024). Thus, there may be inconsistencies between the perfect program design and its practical execution. Real-world experiences often indicate that variations in local context and the quality of implementation can influence program results, highlighting the necessity for appropriate modifications during execution.

Community-oriented initiatives like DESTANA might take time to demonstrate meaningful effects, as indicated by Nugraheni & Suyatna in their research concerning the delayed outcomes of mitigation programs (Nugraheni & Suyatna, 2020). Ongoing disasters might reduce the effectiveness of mitigation programs if communities do not possess adequate adaptive capacity. This underscores the strategic significance of enhancing community adaptive capacity as a component of a more comprehensive and sustainable mitigation approach.

In Tambakreja Village, a mixture of elements probably plays a role in DESTANA's inability to effectively manage the effects of coastal flooding. The initiative might be missing design features tailored to the area or encounter difficulties in engaging the community. Furthermore, the frequent occurrence of coastal flooding events and the community's restricted adaptive capacity may serve as obstacles.

Overall, these results highlight the significance of performing a thorough assessment of the DESTANA program. Such an assessment must take into account not just technical execution elements but also the wider social, cultural, and political contexts. This would result in a deeper comprehension of the factors affecting program effectiveness and guide essential enhancements.

CONCLUSION

The occurrence of increasing global temperatures, causing climate change, has resulted in worldwide consequences, including an increase in hydrometeorological disasters in Indonesia, like floods and droughts. Based on BNPB data, there were around 500 flood incidents in Indonesia, resulting in damage to infrastructure, deteriorating health, and interruptions to livelihoods in areas vulnerable to floods. In this scenario, the Disaster Resilient Village (DESTANA) initiative, launched by BNPB, seeks to improve community resilience through disaster education and mitigation efforts. This research aims to evaluate whether the DESTANA program has succeeded in strengthening community resilience in response to the effects of climate change.

This research dismisses the suggested hypothesis, discovering no moderating influence of the DESTANA program on the connection between coastal flooding and the community's socio-economic resilience. This discovery highlights that the success of disaster mitigation initiatives is largely dependent on the quality of implementation and active participation from the community. In the absence of effective community engagement, initiatives like DESTANA face challenges in making a significant difference in socio-economic resilience concerning disasters. Furthermore, the program's effectiveness is affected by the local characteristics and the geographical setting of Tambakreja Village. Disaster mitigation initiatives that lack customization to the unique needs of the community and its socio-economic circumstances frequently do not fulfill their intended objectives. Therefore, a thorough assessment is essential, taking into account social, cultural, and political elements, alongside capacity-building approaches to assist communities in adjusting to ongoing disasters.

This study's limitations encompass the requirement to consider additional variables that might affect the link between coastal flooding and

the community's socio-economic conditions, which were not included in the moderation model applied. Numerous studies indicate that community resilience to disasters is shaped by elements such as education level, income, and availability of healthcare services. The omission of these variables in the moderation model may lead to overlooked moderation effects. Moreover, it is crucial to focus on the validity and reliability of research tools, especially questionnaires, as measurement mistakes could considerably influence statistical results. For subsequent research, it is suggested to undertake a more thorough examination of local factors affecting the efficiency of the DESTANA program, including culture, community practices, and current infrastructure. Research could investigate more inclusive strategies, wherein the community is actively engaged in crafting and executing disaster mitigation programs. In addition, longitudinal studies might be carried out to observe shifts in the community's socio-economic resilience over time with the ongoing application of the program. This study aims to offer tangible suggestions for the advancement of disaster mitigation programs that are increasingly adaptive and attuned to the needs of local communities.

REFERENCES

Ardiansyah, M., Nugraha, R. A., Iman, L. O. S., & Djatmiko, S. D. (2021). Impact of Land Use and Climate Changes on Flood Inundation Areas in the Lower Cimanuk Watershed, West Java Province. *Jurnal Ilmu Tanah Dan Lingkungan*, *23*(2), 53–60.

Arfanuzzaman, Md., & Dahiya, B. (2019). Sustainable urbanization in Southeast Asia and beyond: Challenges of population growth, land use change, and environmental health. *Growth and Change*, *50*(2), 725–744.

Ayuningtyas, D., Windiarti, S., Hadi, M. S., Fasrini, U. U., & Barinda, S. (2021). Disaster preparedness and mitigation in Indonesia: A narrative review. *Iranian Journal of Public Health*. Tehran University of Medical Sciences.

Berkes, F., & Ross, H. (2013). Community resilience: Toward an integrated approach. *Society & Natural Resources*, *26*(1), 5–20.

Bernita, B. (2024). Social networks and risk management: The role of social capital in

community resilience in Indonesia. *International Journal of Innovation and Thinking*, *1*(1), 1–12.

Dewi, R. S., Handayani, W., Rudiarto, I., & Artiningsih. (2022). Understanding the connection between urbanization and hydrometeorological disasters: An experience from Central Java Province, Indonesia. *IOP Conference Series: Earth and Environmental Science*, *1039*(1), 012015.

Dias, N., Clegg, G., Amaratunga, D., & Haigh, R. (2019). A resilient environment through the integration of CCA and DRR: An overview of existing challenges. *International Journal on Advanced Science, Engineering and Information Technology*, *9*(1), 129–135.

Djalante, R., Garschagen, M., Thomalla, F., & Shaw, R. (2017). Introduction: Disaster Risk Reduction in Indonesia: Progress, Challenges, and Issues. In R. Djalante, M. Garschagen, F. Thomalla, & R. Shaw (Eds.), *Disaster Risk Reduction in Indonesia* (pp. 1–17). Springer International Publishing.

Febriandika, N. R., & Rahayu, C. (2021). The impact of climate change on economic conditions: Evidence in Indonesia. *JEJAK*, *14*(2), 261–271.

Fu, Q., & Zhang, X. (2024). Promoting community resilience through disaster education: Review of community-based interventions with a focus on teacher resilience and well-being. *PLOS ONE*, *19*(1), e0296393.

Ghesquiere, F., & Reid, P. R. (2012). *Mainstreaming disaster risk management for sustainable development managing disaster risks for a resilient future* [Dataset]. www.worldbank.org

Handoyo, F. W., Dalimunthe, S. A., Purwanto, P., Suardi, I., Yuliana, C. I., Mychelisda, E., Wardhana, I. W., & Nugroho, A. E. (2024). Enhancing disaster resilience: Insights from the cianjur earthquake to improve Indonesia's risk financing strategies. *Sage Open*, *14*(2).

Ikumu, L. W., Kathambi, B., & Kiemo, K. (2024). Coping Strategies of Social Protection Programs for Community Resilience to Climate Shocks in Tana North Sub-County, Tana River County, Kenya.

Indonesian Journal of Social and Environmental Issues (IJSEI), 5(3), 355-366.

Ilyas, I. S., Rahardi, C. S., & Kurniawan, A. (2025). The influence of flood disasters on economic growth and poverty in Indonesia. *Ganaya : Jurnal Ilmu Sosial Dan Humaniora*, 8(1), 98–108.

Irwansyah, M., Nursaniah, C., Qadri, L., & Mariana, M. (2024). City of prone natural disasters: Mitigating post-tsunami on the coastal of Banda Aceh, Indonesia. *Environmental Challenges*, 15, 100925.

Jarodi, O., Khafid, M., & Yulianto, A. (2024). From fragmentation to coherence: Enhancing human resource capacity in Indonesian law reform for effective justice delivery. *Journal of Law and Legal Reform*, 5(4).

Kangana, N., Kankanamge, N., De Silva, C., Goonetilleke, A., Mahamood, R., & Ranasinghe, D. (2024). Bridging community engagement and technological innovation for creating smart and resilient cities: A systematic literature review. *Smart Cities*, 7(6), 3823–3852.

Kim, J., & Gim, T.-H. T. (2020). Assessment of social vulnerability to floods on Java, Indonesia. *Natural Hazards*, 102(1), 101–114.

Mahbubah, N. L., Rizki, M. F., & Atthahara, H. (2021). Community development as disaster risk reduction efforts through the disaster resilient village (Destana) program in Nganjuk Regency. *Journal of Local Government Issues*, 4(1), 60–76.

National Research Council, Division on Earth, Life Studies, Board on Earth Sciences, Geographical Sciences Committee, & Committee on Private-Public Sector Collaboration to Enhance Community Disaster Resilience. (2011). *Building community disaster resilience through private-public collaboration*. National Academies Press.

Nations Office for Disaster Risk Reduction. (2015). *Sendai framework for disaster risk reduction 2015-2030* [Dataset]. https://www.undrr.org/publication/sendai-framework-disaster-risk-reduction-2015-2030

Ningtyas, T., Larasati, E., Warsono, H., & Purnaweni, H. (2021). Optimization of Destana policies (Resilience Disaster Village) to improve community preparedness for flood disaster in Bojonegoro District, Indonesia. *Management and Entrepreneurship: Trends of Development*, 1(15), 113–126

Nugraheni, I. L., & Suyatna, A. (2020). Community participation in flood disaster mitigation oriented on the preparedness: A literature review. *Journal of Physics: Conference Series*, 1467(1), 012028.

Nuryana, M., Erwinsyah, R. G., & Suradi, S. (2023). Strengthening society preparedness as a strategy for disaster risk reduction in Indonesia. *IOP Conference Series: Earth and Environmental Science*, 1180(1), 012045.

Padhilah, R. N. (2025). Assessing the effectiveness of disaster-resilient villages in flood mitigation: A case study of Tanete Riaja District. *Meraja Journal*, 8(2), 93–108.

Purworini, D., Hartuti, D. P., & Purnamasari, D. (2020). Why is evacuation so difficult? Sociocultural aspects of landslide disaster in Ponorogo, Indonesia. *Disaster Prevention and Management: An International Journal*, 30(2), 137–148.

Putra, A., Dewata, I., & Gusman, M. (2021). Literature reviews: Hydrometeorological disasters and climate change adaptation efforts. *Sumatra Journal of Disaster, Geography and Geography Education*, 5(1), 7–12.

Rayawan, J., Tipnis, V. S., & Pedraza-Martinez, A. J. (2021). On the connection between disaster mitigation and disaster preparedness: The case of Aceh province, Indonesia. *Journal of Humanitarian Logistics and Supply Chain Management*, 11(1), 135–154.

Robertson, T., Docherty, P., Millar, F., Ruck, A., & Engstrom, S. (2021). Theory and practice of building community resilience to extreme events. *International Journal of Disaster Risk Reduction*, 59, 102253.

Rozaki, Z., Aini, N. N., Kamarudin, M. F., & Triyono, T. (2024). Developing farmers' community resilience in the volcanic area of mount Merapi, Indonesia. *Diyala Agricultural Sciences Journal*, 16(1), 41–51.

Saparita, R., Wahyono, E., Prayoga, R. A., Fatimah, S., Purbandini, L., Solekhah, N., Hakim, F. N., Azni, U. S., & Wibowo, D. P. (2024). Exploring the Dynamics of Community Transformation in the Indonesian Volcanic Region: An Analysis of Socioeconomic Metamorphosis. *International Journal of Safety and Security Engineering*, *14*(4), 1169–1180.

Sarjito, A. (2023). Evaluation of Indonesian government policies in addressing climate change and natural disasters. *JISHUM : Jurnal Ilmu Sosial Dan Humaniora*, *2*(1), 103–124.

Subiyakto, R., Suwitri, S., Larasati, E., & Prayitno, P. (2019). Implementation flood disaster policy base community in Cilacap Regency, Central Java Province, Indonesia. *Prizren Social Science Journal*, *3*(2), 50–55.

Svetlana, D., Radovan, D., & Ján, D. (2015). The economic impact of floods and their importance in different regions of the world with emphasis on Europe. *Procedia Economics and Finance*, *34*, 649–655.

Tabari, H. (2020). Climate change impact on flood and extreme precipitation increases with water availability. *Scientific Reports*, *10*(1), 13768.

Wanjara, A. O. ., & Ogembo, P. O. (2023). Impact of Climate Change on Health and Livelihoods of Pastoral Communities in Kenya: A Case of North Eastern Region. *Indonesian Journal of Social and Environmental Issues* (*IJSEI*), 4(3), 299-315.

Yamamoto, K., Sayama, T., & Apip. (2021). Impact of climate change on flood inundation in a tropical river basin in Indonesia. *Progress in Earth and Planetary Science*, *8*(1), 5.

Yonatan, A. Z. (2024, July 31). Banjir di 2024 nyaris tembus 500 kejadian. *GoodStats*. https://goodstats.id/article/banjir-di-2024-nyaris-tembus-500-kejadian-N0JFH

Zarei, E., Nobakht Dalir, A., & Saleh, F. N. (2025). Assessment of climate change impacts on floods with a hybrid data-driven and conceptual model across a data-scarce region. *Journal of Water and Climate Change*, *16*(4), 1422–1442.