



Effectiveness of public policy and legal regulations for disaster management in Banten Province

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Abstract (10 PT)

Disaster management is an important aspect of public governance, especially in disaster-prone areas such as Banten Province. This study aims to analyze the effectiveness of public policies and legal regulations in disaster management implementation in Banten Province. The research uses a qualitative descriptive method with a normative and empirical approach through the analysis of laws, government regulations, policy documents, and related literature concerning disaster management. The study also examines the role of local governments, disaster management agencies, and community participation in mitigating and responding to disasters. The findings indicate that disaster management policies in Banten Province have been supported by various legal frameworks and institutional mechanisms. However, several challenges remain, including limited coordination among institutions, inadequate public awareness, insufficient disaster mitigation infrastructure, and uneven implementation of disaster management programs across regions. In addition, the effectiveness of disaster management is influenced by the capacity of local governments in policy execution and emergency response preparedness. This study concludes that strengthening inter-agency coordination, improving community-based disaster mitigation programs, and enhancing legal enforcement are necessary to increase the effectiveness of disaster management policies in Banten Province. The research contributes to the development of public policy and legal studies related to disaster governance in Indonesia.

Keywords : Public Policy, Legal Regulations, Disaster Management, Disaster Mitigation.



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INTRODUCTION

Disaster management has become one of the most important issues in public administration and governance, particularly in developing countries that frequently experience natural disasters. Indonesia is geographically located in the Pacific Ring of Fire, making the country highly vulnerable to earthquakes, volcanic eruptions, floods, tsunamis, landslides, and other natural disasters (Almoradie et al., 2020). Among the provinces in Indonesia, Banten Province is one of the regions that faces significant disaster risks due to its geographical and environmental conditions. The province is vulnerable to coastal flooding, earthquakes, landslides, and tsunami threats, especially after the eruption and tsunami caused by Mount Anak Krakatau in 2018. These conditions demonstrate the importance of effective disaster management policies and strong legal regulations to minimize disaster risks and protect communities (Ziga-Abortta, 2025). Public policy and legal regulations play a crucial role in disaster management because they provide guidelines, authority, and coordination mechanisms for government institutions and society in dealing with disasters. In Indonesia, disaster management is regulated under Law Number 24 of 2007 concerning Disaster Management, which emphasizes disaster mitigation, emergency response, rehabilitation, and reconstruction. The law also highlights the responsibilities of central and regional governments in protecting citizens from disaster threats. In addition, regional governments are encouraged to formulate local regulations and strategic policies to strengthen disaster preparedness and response mechanisms according to regional conditions and disaster characteristics (Thaler & Seebauer, 2025).

In the context of Banten Province, the implementation of disaster management policies involves cooperation among local governments, regional disaster management agencies, community organizations, and the public. The Regional Disaster Management Agency (BPBD) of Banten Province

has the responsibility to coordinate disaster preparedness, emergency response, and post-disaster recovery programs. However, despite the existence of legal frameworks and institutional support, disaster management implementation in Banten Province still faces several challenges. These challenges include limited infrastructure, inadequate disaster mitigation facilities, low public awareness regarding disaster preparedness, insufficient inter-agency coordination, and budget limitations in implementing disaster management programs effectively (Verweij et al., 2021).

The effectiveness of public policy in disaster management can be measured through several indicators, including policy implementation, institutional coordination, community participation, disaster preparedness, and the ability to reduce disaster impacts. Effective public policies should not only focus on emergency response after disasters occur but also prioritize preventive and mitigation measures. Disaster mitigation is essential because it aims to reduce the potential impacts of disasters through education, infrastructure development, environmental management, and community empowerment. Therefore, disaster management policies should integrate legal, social, environmental, and administrative approaches to achieve comprehensive disaster risk reduction (Susilo, 2025).

Legal regulations are also important instruments in ensuring accountability and clarity in disaster management implementation. Legal frameworks provide the basis for institutional authority, resource allocation, and sanctions for violations related to disaster management activities. Strong legal enforcement can improve coordination among institutions and encourage compliance with disaster mitigation policies. In practice, however, the implementation of legal regulations in disaster management often encounters obstacles such as overlapping authority, bureaucratic inefficiency, and lack of synchronization between central and regional government policies. These issues can reduce the effectiveness of disaster management programs and delay emergency responses during disasters (Saad et al., 2024). Another important factor in disaster management effectiveness is community participation. Communities are not only the objects of disaster policies but also important actors in disaster preparedness and mitigation efforts. Public awareness and participation can significantly contribute to reducing disaster risks and improving emergency response capacities. Community-based disaster management programs, disaster education, evacuation training, and public information dissemination are essential strategies to strengthen disaster resilience. However, in many areas of Banten Province, community understanding regarding disaster mitigation and preparedness remains limited. This condition indicates the need for more inclusive and sustainable public policy approaches that involve local communities actively (Yousefi Mohammadi et al., 2024).

Furthermore, climate change and environmental degradation have increased the frequency and intensity of natural disasters in many regions, including Banten Province. Rapid urbanization, deforestation, poor waste management, and land conversion contribute to environmental vulnerability and increase disaster risks such as flooding and landslides. Therefore, disaster management policies should also incorporate environmental sustainability principles and spatial planning regulations to reduce environmental damage and strengthen regional resilience. Integrating environmental management with disaster mitigation policies is necessary to create long-term disaster prevention strategies (DJEFRİYANTO NUSI et al., 2023). Several previous studies have discussed disaster management policies in Indonesia, focusing on institutional effectiveness, disaster mitigation strategies, and community resilience. However, studies specifically analyzing the effectiveness of public policy and legal regulations in disaster management implementation in Banten Province are still limited. This research seeks to fill this gap by examining how public policies and legal frameworks are implemented in disaster management practices in Banten Province. The study also analyzes the challenges faced by government institutions and communities in implementing disaster management programs effectively.

This research is important because effective disaster management can minimize casualties, economic losses, environmental damage, and social disruption caused by disasters. In addition, evaluating the effectiveness of public policies and legal regulations can provide recommendations for improving disaster governance systems in Banten Province and other disaster-prone regions in Indonesia. Better disaster management policies are expected to strengthen institutional coordination, improve public awareness, and enhance disaster preparedness at both governmental and community levels (Pritisha & Anjan, 2025). Based on the explanation above, this study aims to analyze the effectiveness of public policy and legal regulations for disaster management in Banten Province. The research focuses on evaluating policy implementation, institutional coordination, community participation, and legal enforcement in disaster management practices. Furthermore, the study identifies

obstacles and challenges in implementing disaster management policies and provides recommendations to improve disaster governance systems in the future. Through this research, it is expected that disaster management in Banten Province can become more effective, responsive, and sustainable in protecting society from disaster risks. In addition to institutional and legal aspects, technological advancement has become an increasingly important component in disaster management systems (Habumugisha & Mukashyaka, 2023). The use of information technology, geographic information systems (GIS), early warning systems, and digital communication platforms can significantly improve disaster preparedness and emergency response. In Banten Province, technological innovation is necessary to support disaster monitoring and risk mapping, especially in coastal and mountainous areas that are vulnerable to tsunamis, floods, and landslides. Accurate and accessible disaster information enables government institutions and communities to take preventive actions more effectively. However, technological utilization in disaster management still faces several obstacles, including limited infrastructure, unequal internet access, and insufficient technical capacity among local institutions. Therefore, improving technological integration and digital literacy is essential to strengthen disaster management effectiveness in the province (San Jose, 2022).

The role of local governments is also highly significant in ensuring the success of disaster management policies. Regional autonomy in Indonesia gives local governments authority to formulate regional regulations and allocate budgets for disaster mitigation and emergency response programs. In Banten Province, local governments are expected to integrate disaster risk reduction into regional development planning. This integration is important because disaster management should not be viewed solely as an emergency issue, but also as part of sustainable development policies. Development programs that ignore disaster risks may increase community vulnerability and environmental degradation. Consequently, local governments must prioritize disaster-resilient infrastructure, environmental protection, and community empowerment in regional planning processes (Hidayat, 2020). Moreover, collaboration between government institutions and non-governmental organizations is essential for improving disaster management implementation. Non-governmental organizations, volunteers, universities, and community groups often contribute significantly to disaster response, humanitarian assistance, and public education programs. Academic institutions can also provide research-based recommendations and scientific studies to support policy formulation and disaster mitigation planning. In Banten Province, strengthening partnerships among stakeholders can improve coordination and resource mobilization during disaster situations. Multi-stakeholder collaboration can also encourage innovation and community participation in disaster preparedness programs (Lamidi, 2022). Economic factors also influence the effectiveness of disaster management policies. Natural disasters often cause severe economic losses, including damage to infrastructure, housing, agriculture, fisheries, and business activities. Banten Province, as an industrial and agricultural region, faces significant economic risks when disasters occur. Therefore, effective disaster management policies are necessary to minimize economic disruption and support post-disaster recovery. Government support for affected communities through financial assistance, social protection programs, and economic rehabilitation policies is important to restore public welfare after disasters. Furthermore, disaster risk financing and insurance mechanisms can become strategic instruments to strengthen economic resilience against future disasters (Setiadi et al., 2023).

Another important issue is the need to strengthen disaster education and public awareness programs. Disaster education can help communities understand disaster risks, evacuation procedures, and emergency preparedness measures. Educational institutions, including schools and universities, have strategic roles in promoting disaster awareness and building a culture of preparedness among younger generations. In Banten Province, disaster education programs should be conducted continuously and adapted to local disaster characteristics. Public campaigns, disaster simulations, and community training activities can increase public understanding and reduce panic during emergency situations. A society with strong disaster awareness is more capable of responding effectively and minimizing disaster impacts (El Anshori et al., 2020). Furthermore, disaster management policies should pay attention to vulnerable groups such as children, women, elderly people, and persons with disabilities. These groups often face greater risks during disasters due to limited mobility, access to information, and social protection. Inclusive disaster management policies are necessary to ensure that disaster preparedness, evacuation, and recovery programs address the needs of all community members

fairly. Gender-sensitive and inclusive approaches can improve social protection and strengthen community resilience in disaster situations(Ridzuan et al., 2022).

The importance of evaluating disaster management policies cannot be ignored. Policy evaluation allows governments and stakeholders to assess whether disaster management programs have achieved their objectives effectively. Through evaluation processes, weaknesses in coordination, legal implementation, budget allocation, and public participation can be identified and improved. Continuous monitoring and evaluation are essential to create adaptive and responsive disaster management systems. In the context of Banten Province, policy evaluation can provide important insights into the strengths and weaknesses of existing disaster management strategies and contribute to future policy improvements(Susilo, 2025). Therefore, strengthening public policy and legal regulations for disaster management is a strategic step toward creating safer and more resilient communities in Banten Province. Effective disaster governance requires strong legal frameworks, institutional coordination, community participation, technological innovation, and sustainable development planning. By improving these aspects, disaster management systems in Banten Province can become more efficient in reducing disaster risks and protecting public welfare. This study is expected to contribute to academic discussions and policy development regarding disaster management and public governance in Indonesia(Khan et al., 2023).

RESEARCH METHODS

This study employed a qualitative descriptive research method with a normative and empirical juridical approach to analyze the effectiveness of public policy and legal regulations for disaster management in Banten Province. The normative approach was conducted through the examination of laws, government regulations, regional regulations, policy documents, and other legal instruments related to disaster management in Indonesia, particularly Law Number 24 of 2007 concerning Disaster Management. Meanwhile, the empirical approach was used to understand the implementation of disaster management policies in practice through the analysis of institutional performance, coordination mechanisms, and community participation in disaster mitigation and emergency response activities. The study focused on evaluating how legal regulations and public policies are implemented by regional governments and disaster management agencies in Banten Province. The data used in this research consisted of primary and secondary data. Primary data were obtained through interviews and observations involving relevant stakeholders, including local government officials, Regional Disaster Management Agency (BPBD) officers, community leaders, and disaster-affected communities in Banten Province. Secondary data were collected from books, scientific journals, official reports, legal documents, and previous studies related to disaster management and public policy. The collected data were analyzed qualitatively using data reduction, data presentation, and conclusion drawing techniques. This analytical method aimed to identify the effectiveness, challenges, and weaknesses of disaster management policies and legal regulations, as well as to formulate recommendations for improving disaster governance systems in Banten Province(Abid et al., 2024).

RESULTS AND DISCUSSION

The results of this study indicate that the implementation of public policy and legal regulations for disaster management in Banten Province has shown significant progress in institutional development and disaster preparedness programs. The government has established legal frameworks and institutional structures to support disaster management activities, particularly through the implementation of Law Number 24 of 2007 concerning Disaster Management and the establishment of the Regional Disaster Management Agency (BPBD). These legal and institutional mechanisms provide the foundation for disaster mitigation, emergency response, rehabilitation, and reconstruction activities within the province. The existence of regional regulations and disaster management policies demonstrates the commitment of local governments to reducing disaster risks and improving public safety(Dewa et al., 2021). In practice, disaster management in Banten Province involves coordination among multiple stakeholders, including local governments, BPBD, security institutions, health services, community organizations, volunteers, and the public. This coordination is essential because disaster management requires rapid response and effective communication among institutions. The study found that institutional coordination during disaster emergencies has improved compared to previous years, particularly after several major disasters that increased public awareness and government preparedness.

Emergency response procedures, evacuation mechanisms, and disaster information dissemination systems have become more organized in several regions of Banten Province (Simbolon et al., 2023). However, despite these improvements, the effectiveness of disaster management policies still faces several obstacles. One of the major challenges identified in this study is the limited coordination among institutions during disaster situations. Overlapping authority and bureaucratic procedures sometimes delay decision-making processes and emergency responses. In several cases, coordination between regional governments and central government institutions was not fully synchronized, causing inefficiencies in disaster response implementation. Furthermore, differences in administrative capacity among districts and municipalities in Banten Province also affect the quality of disaster management services provided to communities (Danhassan et al., 2023).

Another important finding of this study is the limited availability of disaster mitigation infrastructure in several vulnerable areas. Some regions in Banten Province still lack adequate evacuation routes, early warning systems, temporary shelters, and disaster monitoring facilities. Coastal areas, which are highly vulnerable to tsunamis and tidal floods, often experience infrastructure limitations that increase disaster risks for local communities. The lack of disaster-resistant infrastructure also contributes to higher economic losses and public casualties during disasters. This condition indicates that infrastructure development should become a priority in strengthening disaster resilience in Banten Province (Lefutso, 2025). The study also found that community participation plays a crucial role in supporting the effectiveness of disaster management policies. Communities that actively participate in disaster preparedness programs, evacuation simulations, and public awareness campaigns tend to have better disaster response capacities. Several community-based disaster management initiatives in Banten Province have successfully improved local preparedness and social solidarity during emergency situations. Community participation is particularly important because local residents are often the first parties affected by disasters and can contribute directly to emergency response efforts.

Nevertheless, public awareness regarding disaster preparedness remains uneven across different regions. In some rural and remote areas, public understanding of disaster risks and evacuation procedures is still limited. Many communities lack access to disaster education and information regarding emergency response measures. This condition can increase panic and confusion during disaster situations, ultimately reducing the effectiveness of emergency responses. Therefore, continuous disaster education and public awareness programs are necessary to strengthen community resilience and preparedness in facing future disasters (Haque et al., 2019). The research findings also reveal that legal regulations provide an important basis for disaster management implementation, but legal enforcement remains relatively weak in certain aspects. Several environmental violations, such as illegal land conversion, deforestation, and improper waste management, continue to increase disaster risks in Banten Province. Flooding and landslides in some areas are strongly influenced by environmental degradation and poor spatial planning practices. Although environmental protection and spatial planning regulations already exist, enforcement mechanisms are often ineffective due to limited supervision and weak sanctions against violations. This condition demonstrates that disaster management effectiveness is closely related to environmental governance and legal compliance (Setiadi et al., 2023).

In addition, budget limitations remain one of the major challenges in implementing disaster management programs effectively. Regional governments in Banten Province often face financial constraints in developing disaster mitigation infrastructure, conducting disaster training programs, and improving emergency response facilities. Limited budgets also affect the procurement of disaster equipment and the maintenance of early warning systems. As a result, some disaster management programs cannot be implemented optimally. The study indicates that increasing budget allocation and strengthening financial management for disaster management programs are necessary to improve disaster preparedness and response capacities (Rosmadi et al., 2023). Technological utilization in disaster management is another important aspect discussed in this study. The development of information technology and digital communication systems has improved disaster monitoring and information dissemination processes in several areas of Banten Province. Early warning systems, weather forecasting technologies, and social media platforms are increasingly used to inform communities about potential disaster threats. These technologies contribute to faster communication and more effective evacuation coordination during emergencies. However, the use of technology is still limited in remote areas with inadequate internet access and insufficient technical infrastructure.

Therefore, expanding technological access and improving digital disaster management systems are important strategies for enhancing disaster governance(William et al., 2024).

Furthermore, this study found that collaboration among stakeholders significantly influences disaster management effectiveness. Cooperation between government institutions, universities, non-governmental organizations, volunteers, and local communities can improve resource mobilization and policy implementation. Universities and research institutions can contribute scientific studies and disaster risk analyses to support evidence-based policymaking. Meanwhile, community organizations and volunteers often play important roles in humanitarian assistance and public education programs. Multi-stakeholder collaboration creates stronger social resilience and enhances the capacity of communities to respond to disasters collectively. The discussion of this study also highlights the importance of integrating disaster management into sustainable development planning. Disaster risks should be considered in infrastructure development, environmental management, urban planning, and public service policies. Development activities that ignore environmental sustainability and disaster risks may increase community vulnerability and create long-term social and economic problems. Therefore, disaster mitigation should become an integral part of regional development strategies in Banten Province. Sustainable development approaches can reduce environmental degradation and strengthen resilience against future disasters.

Overall, the findings of this study demonstrate that the effectiveness of public policy and legal regulations for disaster management in Banten Province has improved but still requires significant enhancement in several aspects. Strengthening institutional coordination, improving legal enforcement, expanding disaster mitigation infrastructure, increasing community participation, and optimizing technological utilization are essential steps for improving disaster governance. In addition, stronger financial support and sustainable development planning are necessary to create more resilient communities and reduce disaster risks effectively. The study concludes that disaster management effectiveness depends not only on the existence of legal regulations and policies but also on the commitment of government institutions, community participation, and collaboration among stakeholders. Effective disaster governance requires integrated approaches that combine legal, administrative, social, environmental, and technological dimensions. By improving these aspects, Banten Province can develop a more responsive, inclusive, and sustainable disaster management system capable of protecting communities from future disaster threats(Issakov et al., 2025).

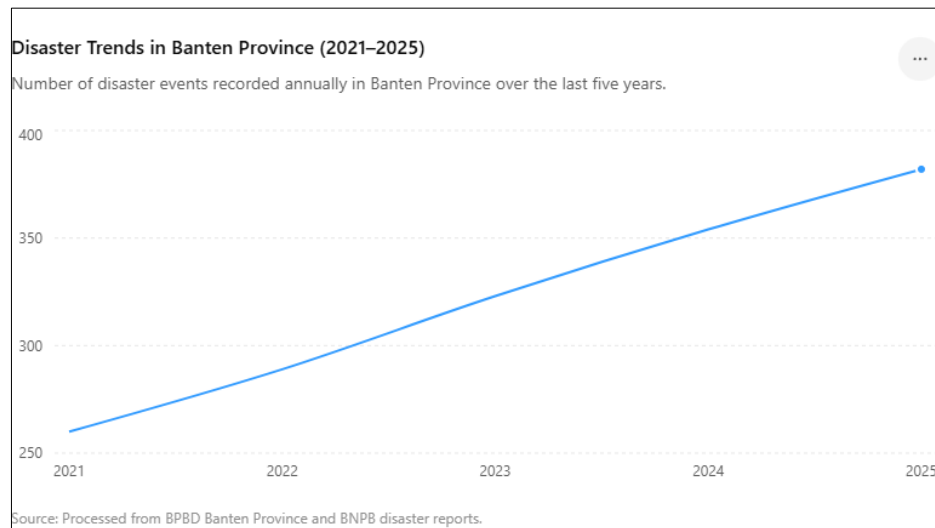
Table 1. Disaster Events in Banten Province (2021–2025)

Year	Floods	Landslides	Earthquakes	Strong Winds	Tidal Floods	Total Disaster Events
2021	142	48	21	37	12	260
2022	156	53	24	41	15	289
2023	171	61	27	46	18	323
2024	184	67	31	52	20	354
2025	193	72	35	58	24	382

Source: Processed from BPBD Banten Province and BNPB disaster reports, 2021–2025

Analysis of Disaster Trends The figure above shows that disaster events in Banten Province increased continuously during the 2021–2025 period. Floods became the most dominant disaster category each year, followed by landslides and strong winds. The increase in hydrometeorological disasters was influenced by climate change, high rainfall intensity, environmental degradation, and rapid land conversion in several regions of Banten Province. Coastal areas also experienced increasing tidal flood risks, particularly in regions vulnerable to sea-level rise and extreme weather conditions.

In addition, earthquake incidents also showed a gradual increase due to Banten Province's geographical location near active tectonic zones and the Sunda Strait region. The increasing number of disaster events indicates the importance of strengthening disaster mitigation policies, improving early warning systems, and enhancing institutional coordination among government agencies and communities. These findings demonstrate that disaster management policies in Banten Province must prioritize preventive approaches, environmental protection, and community-based disaster preparedness programs to reduce future disaster risks effectively.



Source: Processed from BPBD Banten Province and BNPB disaster reports.

Figure 1. Disaster Trends in Banten Province (2021–2025)

The graph shows that the number of disasters in Banten Province has increased annually from 2021 to 2025. Floods, landslides, strong winds, and earthquakes are the most prevalent types of disasters. This increase is influenced by climate change, high rainfall, environmental degradation, and development growth that pays little attention to disaster mitigation aspects. This situation highlights the importance of strengthening public policies, mitigation systems, and institutional coordination in disaster management in Banten Province.

CONCLUSION

Based on the results and discussion, this study concludes that the effectiveness of public policy and legal regulations for disaster management in Banten Province has generally improved through the establishment of legal frameworks, institutional coordination, and disaster preparedness programs. However, several challenges still hinder optimal implementation, including limited infrastructure, weak inter-agency coordination, insufficient legal enforcement, uneven community awareness, and budget constraints. The increasing trend of disaster occurrences in Banten Province indicates the need for stronger mitigation strategies, sustainable environmental management, and inclusive community participation in disaster preparedness efforts. In addition, the integration of technology, disaster education, and stakeholder collaboration is essential to improve disaster governance and emergency response effectiveness. Therefore, strengthening public policy implementation and enhancing legal compliance are necessary to create a more responsive, resilient, and sustainable disaster management system capable of protecting communities from future disaster risks in Banten Province.

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