

The Strategy of the Pandeglang Regency Regional Disaster Management Agency in Handling Flood Disasters in Disaster-Prone Areas

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Abstract

This study examines the strategy of the Pandeglang Regency Regional Disaster Management Agency (BPBD) in flood disaster management in disaster-prone areas. This research is motivated by the continued frequency of flooding in Pandeglang Regency. This study aims to determine the strategy of the Pandeglang Regency Regional Disaster Management Agency (BPBD) in flood disaster management, as well as the supporting and inhibiting factors in implementing this strategy. This study uses the Strategic Management theory according to Fred R. David (2019), which includes strategy formulation, strategy implementation, and strategy evaluation. The research method uses a descriptive qualitative approach, collecting primary data through observation and interviews with the Pandeglang Regency BPBD, village governments, and the community, and secondary data through literature review and documentation. The data analysis technique uses an interactive model that includes data collection, data reduction, data presentation, and drawing conclusions. The results show that the Pandeglang Regency BPBD's flood disaster management strategy is implemented through mapping flood-prone areas, preparing a Contingency Plan Document (Renkon), coordinating with various parties, implementing evacuations and distributing logistical assistance, and evaluating improvements. However, the implementation of this strategy has not been optimal. Supporting factors include inter-agency cooperation and coordination, human resource support, community involvement, outreach activities, and the availability of facilities and infrastructure. Inhibiting factors include limited facilities and infrastructure, budget constraints, extreme weather, suboptimal infrastructure conditions, inadequate road access, and suboptimal normalization of the Cilemer River and embankment construction.

Keywords: Strategy, BPBD, Flood Disaster Management.

Introduction

Geographically, Indonesia is located between the continents of Asia and Australia and between the Indian and Pacific Oceans. This location gives Indonesia a tropical climate with relatively high rainfall throughout the year (Shalih & Nugroho, 2021). Furthermore, geologically, Indonesia lies at the confluence of three active tectonic plates:

the Indo-Australian, Eurasian, and Pacific Plates. This condition makes Indonesia one of the countries with a high level of disaster vulnerability, both geological disasters such as earthquakes, volcanic eruptions, and tsunamis, as well as hydrometeorological disasters such as floods, landslides, droughts, and tornadoes (Habibullah, 2013). The diversity of disaster threats demands a planned, integrated, and sustainable disaster management system to minimize the risks posed to the community (Suharto & Setiawan, 2022).

One of the most frequent hydrometeorological disasters in Indonesia is flooding. Flooding is the inundation of an area due to increased water volume exceeding the capacity of drainage channels, rivers, or water catchment areas (Ritonga, 2024). Flooding is influenced by various factors, including high rainfall, river overflows, reduced water catchment areas due to land conversion, river sedimentation, poor drainage systems, and increased development activities that ignore environmental aspects. In recent decades, the intensity and frequency of flooding in various regions of Indonesia have tended to increase in line with population growth, urbanization, and global climate change, which influence rainfall patterns (Kholil et al., 2024).

The impacts of flooding disasters include not only physical damage to infrastructure, such as roads, bridges, settlements, educational facilities, and health facilities, but also significant social, economic, and environmental losses (Purwoningsih et al., 2025). Community activities are disrupted due to hampered mobility, damage to production facilities, and disruption of access to public services. Furthermore, flooding has the potential to cause health problems due to the emergence of various environmental-related diseases, such as diarrhea, leptospirosis, and skin diseases. The resulting economic losses can also impact community well-being, particularly vulnerable groups with limited capacity for post-disaster recovery (Daffa et al., 2025). Therefore, flood management requires a comprehensive approach encompassing mitigation, preparedness, emergency response, and rehabilitation and reconstruction (Data from the Pandeglang Regency Regional Disaster Management Agency, 2021 Flood Disaster Contingency Plan Document).

As a manifestation of the state's commitment to protecting the public from the threat of disasters, the government has enacted Law Number 24 of 2007 concerning Disaster Management. This law affirms that the central and regional governments have responsibility for implementing disaster management, encompassing the pre-disaster, emergency response, and post-disaster stages (Isngadi & Khakim, 2021). This responsibility is realized through policy development, institutional strengthening, budget allocation, human resource capacity building, early warning system development, and community and stakeholder engagement in disaster risk reduction efforts. Thus, disaster management is not solely the responsibility of the government but also requires cross-sector collaboration for more effective implementation (Setyorini, 2023).

Pandeglang Regency is one of four regencies in Banten Province with a high level of disaster vulnerability. According to the 2014–2018 Pandeglang Regency Disaster Risk Assessment Document, flooding is a high-risk disaster threat, alongside drought, extreme weather, landslides, earthquakes, and tsunamis. Pandeglang Regency's geographical location, located within a river basin (DAS), lowlands, hills, mountains, and coastal areas,

makes it vulnerable to flooding. In addition to being influenced by high rainfall, flooding is also caused by changes in land use, reduced vegetation and water catchment areas, river sedimentation, and suboptimal drainage capacity.

According to Fred R. David (2011), strategic management is the art and science of formulating, implementing, and evaluating cross-functional decisions that enable an organization to achieve its stated goals effectively and efficiently. Strategic management focuses not only on developing organizational plans but also encompasses a systematic decision-making process that considers the organization's internal and external conditions so that the resulting strategy can address the various challenges faced (Rahmawati et al., 2022). Fred R. David divides the strategic management process into three main stages: strategy formulation, strategy implementation, and strategy evaluation.

Based on initial field observations, several challenges remain in flood disaster management in Pandeglang Regency. These challenges include the lack of normalization of the Cilemer River, inadequate flood embankment construction, inadequate road access, inadequate facilities and infrastructure, and a lack of coordination between village and sub-district government agencies and the Pandeglang Regency Regional Disaster Management Agency (BPBD). From the problems that the author has described, the author will examine more deeply regarding flood disaster management entitled "Strategy of the Pandeglang Regency Regional Disaster Management Agency in Handling Flood Disasters in Disaster-Prone Areas." This study aims to analyze the strategies implemented by the Pandeglang Regency BPBD in handling flood disasters and identify supporting and inhibiting factors in their implementation..

Method

This study employed a qualitative method with a descriptive approach. A qualitative approach was chosen because it provides a deep understanding of the strategies of the Pandeglang Regency Regional Disaster Management Agency (BPBD) in managing flood disasters in disaster-prone areas (Sugiyono, 2016). Through this approach, researchers were able to comprehensively describe the process of formulating, implementing, and evaluating flood management strategies based on actual conditions in the field. The focus of the research was not on testing hypotheses or measuring relationships between variables, but rather on uncovering facts, phenomena, and meanings derived from the experiences and perspectives of informants. Data collection was conducted through several techniques: observation to obtain a picture of field conditions, in-depth interviews to elicit information from informants, documentation of various documents related to disaster management, and literature review as a theoretical basis and support for the research analysis.

Informants were selected using purposive sampling, a deliberate selection of informants based on their knowledge, experience, and direct involvement in flood disaster management in Pandeglang Regency. The research informants consisted of the Secretary of the Pandeglang Regency Regional Disaster Management Agency (BPBD), the Head of the Prevention, Preparedness and Strategy Division, the Disaster Management Operations Control Center (Pusdalops) representing the Head of the Prevention and

Preparedness Section, the Head of the Strategy and Operations Control Section, the Head of the Emergency Management Section, the Head of Idaman Village, the Secretary of Bulagor Village, and the community residing in Idaman Village and Bulagor Village as areas with a high level of flood vulnerability. The data obtained were then analyzed using the Miles, Huberman, and Saldaña interactive data analysis model which includes four stages, namely data collection, data reduction, data display, and conclusion drawing and verification. The analysis process was carried out continuously from the beginning of the research until all data were deemed adequate, so that the results of the study were expected to provide an objective and in-depth picture of the Pandeglang Regency BPBD strategy in handling flood disasters.

Result and Dicussion

Pandeglang Regency's Regional Disaster Management Agency's Strategy for Flood Management in Disaster-Prone Areas

Pandeglang Regency is one of the regions in Banten Province with a high level of vulnerability to natural disasters, particularly annual flooding. Its geographical location, surrounded by lowlands and large rivers such as the Cilemer River, makes it highly vulnerable during periods of increased rainfall intensity. To minimize the impact of material losses and loss of life, the Pandeglang Regency Regional Disaster Management Agency (BPBD) is required to implement comprehensive strategic management. This management approach is systematically applied through three main, interconnected stages: formulation, implementation, and evaluation of emergency response strategies.

The formulation stage serves as a crucial initial foundation for determining the direction of disaster management policies in the region. During this phase, the Pandeglang Regency BPBD focuses its activities on collecting real-world data and mapping locations categorized as flood-prone. This geographic identification process aims to map high-risk clusters so that preventive measures can be allocated effectively and efficiently. Through accurate mapping, agencies can project potential flooding and estimate the number of affected residents in each sub-district.

As a legal and operational product of the formulation phase, the Pandeglang Regency Regional Disaster Management Agency (BPBD) has compiled a flood disaster Contingency Plan (Renkon) Document. This Renkon Document serves as a guideline and primary scenario governing response procedures when a disaster emergency is declared. This document details the division of tasks between agencies, the allocation of available resources, and the determination of primary evacuation routes for residents. This document is periodically revised to adapt to the dynamics of environmental change and demographic developments in vulnerable areas.

Information transparency and a participatory approach are also crucial pillars in the formulation of this strategic document. The BPBD actively engages with village government officials to gather first-hand information on local topography and the basic needs of the local community. Village governments are considered the most knowledgeable representatives of the flood threat in their communities. Through this bottom-up dialogue, the resulting contingency document is not merely theoretical but based on the realities of needs on the ground.

On the other hand, community contribution in the strategy formulation stage is realized indirectly through hierarchical coordination. Residents living along river basins convey complaints, historical flood experiences, and aspirations for response to local village officials. This communal information is then summarized by the village and forwarded to the planning team at the Regional Disaster Management Agency (BPBD). This mechanism ensures that local wisdom and community behavior patterns in the face of flooding are incorporated into the disaster management blueprint.

Entering the strategy implementation stage, the agreed-upon Contingency Plan Document is translated into concrete actions on the ground. This implementation is realized through strengthening solid, multi-sectoral coordination with various stakeholders. The BPBD cannot work alone, therefore, synergy is built vertically and horizontally, starting from the village government level, sub-districts, and relevant technical Regional Apparatus Organizations (OPD). This structured relationship pattern aims to prevent overlapping authority during the critical period of emergency response.

In addition to the government bureaucracy, the execution of the response strategy in the field also involves elements of the Indonesian National Armed Forces (TNI), the Indonesian National Police (Polri), and a network of humanitarian volunteers. When the Cilemer River's water level began to exceed the safe threshold, all elements were mobilized to conduct independent evacuations, establish evacuation posts, and secure residents' assets. The presence of Indonesian National Armed Forces (TNI) and Indonesian National Police (Polri) personnel expedited the mobilization of logistics to isolated areas, while volunteers assisted with managing public kitchens and providing psychosocial support to victims.

The Pandeglang Regency Regional Disaster Management Agency (BPBD) also recognizes that disaster management cannot solely focus on reactive measures when floodwaters rise. Therefore, the implementation strategy includes a long-term disaster risk reduction (DRR) program through regular outreach and independent evacuation simulations for vulnerable groups. These educational activities target school communities and housewives' groups to provide them with basic knowledge of pre-disaster natural signs, how to save themselves, and emergency contact numbers.

Another concrete step in strengthening community capacity is the implementation of the Disaster Resilient Village Program (Destana). Through this locally adopted national program, the BPBD establishes and trains village-level volunteer forums to become independent in organizing initial responses when floods occur. Villagers are equipped with basic skills in damage assessment, first aid, and small-scale logistics management. Destana is expected to shift the paradigm of communities from passive recipients of aid to active subjects resilient in the face of disaster threats.

Despite the carefully designed implementation scenario, the reality on the ground shows that the strategy's implementation still faces various classic obstacles. Limited operational facilities and infrastructure, such as a shortage of rubber boats, emergency tents, evacuation trucks, and radio communication equipment, often hampered the speed of relief efforts. Pandeglang's vast geography exacerbated these limitations, as logistics travel time to flooded areas increased due to damaged road infrastructure, which was also submerged.

In the final stage of strategic management, the evaluation phase, the Pandeglang Regency Regional Disaster Management Agency (BPBD) conducted a comprehensive review of the effectiveness of post-disaster response. This evaluation process objectively uncovered communication bottlenecks and delays in inter-agency coordination that had occurred during the emergency response period. Based on the results of this evaluative study, it was concluded that the implementation of the flood management strategy had not been fully effective due to a gap between the written guidelines in the Regional Disaster Management Plan (Rencana Renkon) and the actual actions on the ground.

The recommendations from this evaluation confirmed that resolving the flooding problem in Pandeglang Regency requires a much broader and long-term cross-sectoral commitment. The BPBD encouraged the involvement of relevant ministries and the provincial government in immediately normalizing the Cilemer River, which had experienced severe silting. In addition, the construction of flood embankments at critical points and improvements to drainage in residential areas urgently need to be realized so that future flood management will no longer focus solely on evacuation, but rather on permanent structural mitigation.

Supporting and Inhibiting Factors in the Pandeglang Regency Regional Disaster Management Agency's Strategy for Flood Management in Disaster-Prone Areas

The success of the Pandeglang Regency Regional Disaster Management Agency (BPBD) in executing its flood management strategy is heavily influenced by the dynamic interaction of internal and external factors. As a region with a high level of hydrometeorological vulnerability, crisis management in this region cannot rely on a single variable. Based on field data analysis and in-depth interviews with stakeholders, it was found that the BPBD's operational effectiveness lies between collaborative strengths as a supporting factor and structural challenges as a inhibiting factor. Objectively mapping these two aspects is key to formulating more responsive tactical disaster management measures in the future.

The main supporting factor, a pillar of strength for the Pandeglang Regency BPBD, lies in its robust multi-sectoral cooperation and coordination system. In dealing with escalating flooding, the BPBD has successfully established an integrated communication network with village governments, sub-districts, and relevant technical Regional Apparatus Organizations (OPD). This synergy breaks down bureaucratic barriers that often hamper emergency response in the field. Through a clear division of roles, these agencies can act simultaneously to quickly activate emergency response status without having to wait for complicated bureaucratic procedures.

The active involvement of the Indonesian National Armed Forces (TNI) and the Indonesian National Police (Polri) strengthens the supporting factors in terms of security and mass mobilization. TNI and Polri personnel provide vital contributions in field command, opening isolated evacuation routes, and securing the assets of displaced residents. The discipline of the military and police structures has been proven to expedite the tactical evacuation process in the first hours of the flood. Furthermore, the presence of officers at evacuation points helps maintain psychological and social stability in the midst of a crisis.

In addition to formal authorities, the existence of a community-based humanitarian volunteer network is an equally important driving force in supporting the BPBD's strategy. These volunteers are spread across various flood-prone areas in Pandeglang and have the flexibility to move at the forefront. They supplemented the limited number of BPBD (Regional Disaster Management Agency) personnel by managing public kitchens, distributing logistical aid, and administering first aid to injured victims. The high level of dedication of this volunteer group provided a massive boost in morale and manpower, contributing to the efficiency of disaster management operations in the field.

The availability of basic facilities and infrastructure at the BPBD was also a contributing factor to the smoothness of the initial evacuation. Equipment such as rubber boats, emergency tents, field operational vehicles, and basic rescue equipment, readily available in the logistics warehouse, significantly accelerated the evacuation of residents from the deepest flooded areas. Although insufficient to cover the entire Pandeglang area simultaneously, these well-functioning equipment provided the rapid response team with the primary means of rescuing vulnerable groups such as the elderly, children, and pregnant women.

The harmonious, reciprocal communication between the BPBD and the village government provided a strategically advantageous information bridge. The village government acted as a disaster intelligence hub, providing real-time data on the dynamics of rising water levels and community movements. This open communication channel made it easier for BPBD management to monitor the situation from the main command post without losing sight of the micro-situation in each hamlet. Accurate information from village officials minimizes the risk of mispredictions in tactical decision-making.

Information flowing directly from affected communities also enhances the accuracy of the response strategies implemented by the Pandeglang Regional Disaster Management Agency (BPBD). Through tiered reports submitted by residents to village officials, the BPBD can identify specific urgent needs at each evacuation point, from specific medicines and clean water supplies to baby food. This flexibility means that the distribution of logistical aid is no longer uniform but can be tailored to the characteristics of real needs on the ground. This citizen-driven, data-driven approach directly improves the satisfaction and safety of affected communities.

Despite strong social networks and coordination, the Pandeglang Regency Regional Disaster Management Agency (BPBD) strategy still faces natural challenges in the form of weather anomalies and extreme rainfall. When the rainy season reaches its peak, the intensity of extremely high precipitation over a prolonged period often exceeds the capacity of Pandeglang's main rivers. This natural factor, beyond the control of technology and human management, frequently triggers sudden flash floods. This constant rainfall not only expands the inundated area but also limits visibility and the mobility of rescue teams in the field.

Pandeglang Regency's geographical location, dominated by lowlands and surrounded by critical watersheds (DAS), exacerbates its vulnerability to flooding. The basin-like topography in several sub-districts causes runoff from the hills to collect and

stagnate for long periods before finally flowing into the sea. This vulnerable spatial characteristic makes flooding in Pandeglang not merely a passing inundation but a persistent annual disaster. This geomorphological condition demands a much more complex mitigation strategy and significant infrastructure investment costs.

Another inhibiting factor that often poses a problem during emergency response operations is limited accessibility to affected areas. Many flood-prone villages in Pandeglang are located in remote areas with inadequate transportation infrastructure. When flooding strikes, main roads connecting villages are often cut off due to high water levels or small-scale landslides. This geographic isolation hampers the movement of trucks carrying heavy supplies and lengthens the travel time for evacuation teams to reach residents in need of emergency assistance.

While the availability of equipment was a supporting factor in the first half, the overall limited quantity of facilities and infrastructure remains a significant structural obstacle. The BPBD's fleet of rubber boats and amphibious vehicles is currently inadequate for the vast area affected by flooding, which occurs simultaneously in several sub-districts. Due to these limited operational assets, field officers are forced to implement a priority system or evacuation shifts. This has slowed the response process at several secondary locations and has not been fully optimized.

significantly impacted the achievement of the strategic targets outlined in the Contingency Plan Document. Logistical constraints and limited equipment often create a gap between paper plans and the reality of implementation on the ground. This situation emphasizes the need for strategic document readiness to be balanced linearly with strengthening physical capacity. Without synchronization between strategic planning and adequate operational capital, emergency response performance will consistently hit an unsatisfactory ceiling.

As a solution moving forward, the analysis recommends urgent intervention based on three main pillars. First, increased budget capacity is needed to procure adequate modern evacuation support facilities. Second, local governments must prioritize the repair and construction of disaster-resilient road and bridge infrastructure along key evacuation routes. Finally, strengthening inter-agency coordination commitments must be continuously maintained and enhanced to ensure a more robust and adaptive disaster management ecosystem in Pandeglang Regency, capable of sustainably minimizing the risk of flooding.

Conclusion

Based on the analysis that has been done, it can be concluded that the Strategy of the Pandeglang Regency Regional Disaster Management Agency in Handling Flood Disasters in Disaster-Prone Areas, at the Strategy formulation stage, the Pandeglang Regency BPBD has developed a flood disaster management strategy through mapping flood-prone areas and preparing a Contingency Plan Document (Renkon) as a guideline in facing disasters. The preparation of this strategy is the basis for determining handling steps and the division of roles of the parties involved in flood disaster management. Meanwhile, at the strategy implementation stage, the Pandeglang Regency BPBD has carried out flood disaster management in accordance with the strategy that has been

prepared through coordination with various related parties, such as village governments, sub-districts, OPDs, the TNI, POLRI, and volunteers. The implementation of handling when a flood occurs is carried out through data collection activities on affected areas, community evacuation, distribution of logistical assistance, and increasing community preparedness through socialization activities and the Disaster Resilient Village program. Meanwhile, during the strategy evaluation phase, the Pandeglang Regency Regional Disaster Management Agency (BPBD) conducted an evaluation of the flood disaster management process by reviewing the processes undertaken, such as inter-agency coordination, evacuation, and aid distribution. This evaluation was conducted to improve the implementation of flood management in future incidents. Although the evaluation results indicated that improvements were still needed, particularly in long-term management and improvements to flood control infrastructure.

Supporting factors in the flood management strategy include cooperation and coordination between the Pandeglang Regency BPBD and village and sub-district governments, regional government agencies (OPD), the Indonesian National Armed Forces (TNI), the Indonesian National Police (POLRI), and volunteers. Furthermore, human resource support, community involvement, preparedness outreach activities, and the availability of flood management facilities and infrastructure were also factors. Inhibiting factors in the flood management strategy included limited facilities and infrastructure, budget constraints, extreme weather conditions with high rainfall that increased the water discharge of the Cilemer River, and suboptimal infrastructure. Furthermore, inadequate road access, suboptimal normalization of the Cilemer River, and the construction of embankments that were not fully able to reduce flood risk also hampered the implementation of flood management.

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