

Integrated Disaster Management Governance in Supporting Regional Resilience: A Case Study of Pidie Jaya Regency, Indonesia

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Abstract: *Pidie Jaya Regency is one of the disaster-prone areas in Aceh Province, Indonesia, facing complex challenges in disaster risk management, including planning and budgeting consistency, institutional capacity, and community preparedness. This study aims to analyze the implementation of integrated disaster management governance in supporting regional resilience in Pidie Jaya Regency. A qualitative descriptive approach with a case study method was employed, utilizing policy document analysis, data from the Indonesian Disaster Risk Index (IRBI) and the Regional Resilience Index (IKD), as well as interviews with relevant stakeholders. The findings indicate that the integration of disaster management into regional development planning, budgeting, and cross-sectoral programs contributes significantly to enhancing regional resilience. This is evidenced by a decline in IRBI values and an improvement in IKD scores during the observation period. Integrated governance strengthens inter-institutional coordination, enhances institutional capacity, and increases community involvement in disaster risk reduction. This study confirms that strengthening integrated disaster management governance is a key determinant in achieving sustainable regional resilience, particularly in disaster-prone regions.*

Keywords: *Disaster Governance; Disaster Risk Reduction; Regional Resilience; IRBI; IKD*

1. Introduction

Disaster risk has become an increasingly critical development issue, particularly in regions that are geographically and socially vulnerable to natural hazards (Chubachi et al., 2024). In many developing countries, disaster impacts are not only determined by the magnitude of hazards, but also by the quality of governance systems, institutional capacity, and the effectiveness of development planning (Sunarty & Akmal, 2024). As emphasized in global frameworks such as the Sendai Framework for Disaster Risk Reduction, disaster risk reduction should be integrated into development policies, planning processes, and public investment decisions (Sugiarti & Sunarty, 2020). This perspective highlights that disaster management is not merely a technical or emergency response issue, but a governance challenge that requires coordination across sectors, institutions, and levels of government. Despite growing scholarly attention to disaster governance, limited empirical research has examined how operational coordination mechanisms function at the sub-national level in decentralized contexts (Akmal et al., 2024). Building on disaster governance and multi-level governance perspectives, this study addresses this gap and advances disaster governance theory by conceptualizing task-based institutional coordination as a practical instrument of decentralized disaster management.

Indonesia is one of the most disaster-prone countries in the world, facing multiple and recurring hazards such as earthquakes, floods, landslides, and tsunamis (Pelegrín, 2025). Within this national context, Pidie Jaya Regency in Aceh Province represents a region with a high level of disaster risk, as reflected in its Indonesian Disaster Risk Index (IRBI) scores and its vulnerability to seismic and hydro-meteorological hazards (Jaya, 2024). Despite continuous efforts by the government, disaster risk management in the region has long faced structural challenges, including inconsistencies between development planning and budgeting, limited institutional capacity, and uneven levels of community preparedness (BPBD, 2025). These challenges indicate that improving technical response capacity alone

is insufficient, and that stronger, more integrated governance mechanisms are required (Yamani et al., 2015).

This study examines the implementation of integrated disaster governance in supporting regional resilience in Pidie Jaya Regency. The study focuses on how disaster risk reduction has been mainstreamed into regional development planning, budgeting, and cross-sectoral programs, and how this governance approach influences institutional capacity, community participation, and overall resilience outcomes. By using policy document analysis, Indonesian Disaster Risk Index (IRBI) and Regional Resilience Index (IKD) data, as well as interviews with key stakeholders, this study aims to contribute to a deeper understanding of how integrated governance can serve as a strategic foundation for building sustainable regional resilience in disaster-prone areas.

2. Methodology

2.1 Research Design

This study adopts a qualitative case study approach using governance-oriented document analysis to examine disaster management governance in Pidie Jaya Regency. The analysis focuses on the Disaster Management Plan (RPB) 2025–2029 and related annual reports issued by the Regional Disaster Management Agency (BPBD). The selected documents represent formal institutional outputs produced through structured planning and coordination processes. Rather than examining individual perceptions or conducting field-based inquiry, this study analyzes these officially published documents as institutionalized representations of governance arrangements. Although the Disaster Management Plan was originally formulated through stakeholder consultations and inter-agency coordination, this research does not involve primary interviews or additional field data collection. The analysis is strictly limited to documented materials. This study applies a governance framework—particularly disaster governance and multi-level governance perspectives—to assess institutional structures, coordination mechanisms, and policy alignment.

2.2 Data Sources

The primary data consist of:

- The Disaster Management Plan (RPB) of Pidie Jaya Regency 2025–2029
- Annual reports issued by BPBD
- Relevant regional and national disaster management regulations

These documents are treated as institutional artifacts that reflect governance structures and policy implementation mechanisms. Secondary data include academic literature on disaster governance, institutional coordination, and public sector reform to provide theoretical grounding and analytical criteria.

2.3 Data Analysis

Data were analyzed using qualitative content analysis with a deductive thematic approach. Analytical categories were derived from established disaster governance frameworks and applied systematically across documents. The analysis focused on:

- Institutional structure and role distribution
- Inter-agency coordination mechanisms
- Vertical and horizontal policy integration
- Indicators of governance reform reflected in planning and reporting instruments

Cross-document comparison was conducted to identify patterns of consistency, alignment, and institutional change over time. Interpretation was guided by theoretical constructs rather than normative evaluation.

3. Results and Discussion

3.1 Integrated Disaster Management Governance in Strengthening Regional Resilience

The findings indicate that disaster management in Pidie Jaya Regency is directed toward strengthening an integrated governance framework that connects planning, budgeting, institutional arrangements, and community participation within a coherent policy structure. This approach is consistent with the disaster risk governance paradigm, in which disaster risk reduction is not treated as a separate sector, but rather as an integral part of regional development. The integration of disaster management into regional planning and budgeting documents serves as a fundamental pillar of this

governance system (Tri et al., 2021). Previous inconsistencies between planning documents and budget implementation had the potential to undermine the effectiveness of disaster risk reduction efforts. Therefore, the strategy adopted by the Pidie Jaya Regency Government emphasizes cross-sectoral coordination, strengthening the capacity of planning officials, and implementing regular evaluation mechanisms to ensure that policies are effectively translated into operational actions. This integrated approach reflects a shift from reactive emergency response toward preventive and mitigation-based disaster risk management, which represents a key indicator in building sustainable regional resilience (Khairulyadi & Nusuary, 2021).

3.2 Objectives and Targets as Instruments for Strengthening Regional Resilience

The formulation of disaster management objectives and targets in Pidie Jaya Regency has been strategically designed to respond to the region's priority disaster risk issues (Tri et al., 2021). The objectives are not merely oriented toward reducing disaster impacts, but also toward strengthening institutional capacity, improving community preparedness, and enhancing the professionalism of government personnel involved in disaster management. This comprehensive orientation reflects an understanding that regional resilience cannot be achieved solely through emergency response, but must be built through systematic and sustained capacity development.

The use of the Indonesian Disaster Risk Index (IRBI) and the Regional Resilience Index (IKD) as the main evaluation indicators provides a strong quantitative basis for assessing policy effectiveness. These indicators allow disaster risk reduction efforts to be measured in a transparent and accountable manner, while also serving as benchmarks for policy performance over time. To demonstrate the temporal relationship between governance reform and index improvement, the following table presents IRBI and IKD values across multiple years:

Table 1. IRBI and IKD Values of Pidie Jaya Regency (2020–2029)

Year	IRBI Score	IKD Score	Policy Context
2020	138.75	0.398	Baseline condition prior to governance strengthening
2021	137.90	0.405	Initial institutional coordination improvements
2022	136.80	0.414	Capacity-building and community preparedness programs expanded
2023	135.70	0.420	Strengthening of disaster data management and early warning systems
2024	135.10	0.423	Integration of DRR into sectoral planning
2025	134.60	0.426	Formal adoption of structured DMP 2025–2029
2026*	133.20	0.458	Implementation phase of governance reform
2027*	131.80	0.492	Institutional consolidation and technical assistance
2028*	130.20	0.545	Expansion of adaptive capacity programs
2029*	128.60	0.598	Targeted resilience strengthening achieved

3.3 Strategies and Policy Directions within the Framework of Integrated Governance

The disaster management strategies and policy directions in Pidie Jaya Regency are formulated through a comprehensive approach that encompasses institutional, technical, social, and financial dimensions (Maghelal et al., 2026). These strategies are designed not merely as operational guidelines for disaster management, but as instruments for governance transformation that also support bureaucratic reform and the improvement of public service quality. In this context, disaster management policy is positioned as an integral part of broader governance and development reform, rather than as a sectoral or incidental intervention. At the core of the policy direction is the mainstreaming of disaster risk reduction and climate change adaptation and mitigation into all stages of regional development planning. This approach ensures that disaster risk considerations are embedded in policy formulation, program design, and budget allocation processes. To support this integration, the local government has strengthened cross-sectoral coordination mechanisms, developed technical guidelines, and implemented capacity-building programs for planning officials to enhance their ability to translate disaster risk assessments into concrete, measurable, and accountable development programs.

In addition to the planning dimension, strategic emphasis is also placed on strengthening preparedness and emergency response systems. This includes the development of disaster-resilient communities, the establishment of emergency communication systems, and the standardization of emergency response procedures. This policy orientation reflects a shift from a government-centered approach toward a community-based disaster risk management model, in which local communities are not merely beneficiaries of policy, but key actors in disaster risk governance.

By positioning communities at the center of preparedness and response efforts, regional resilience no longer depends solely on governmental capacity, but also on the awareness, readiness, and collective action of local stakeholders. This approach strengthens social capital and ensures that disaster risk management becomes embedded in everyday social practices, thereby reinforcing the sustainability of resilience-building efforts. For clarity and analytical coherence, the strategic framework of integrated disaster governance in Pidie Jaya Regency is summarized in Table 2 which presents the key strategic dimensions, policy directions, and expected outcomes.

Table 2. Strategic Directions for Integrated Disaster Governance in Pidie Jaya Regency

Strategic Dimension	Policy Direction	Main Focus	Expected Outcome
Institutional	Strengthening coordination and governance mechanisms	Cross-sector integration, regulatory harmonization, capacity building	More coherent and effective disaster governance
Planning & Technical	Mainstreaming DRR and climate adaptation into development planning	Risk-based planning, technical guidelines, measurable programs	Development programs that are resilient to disaster risks
Social & Community	Development of disaster-resilient communities	Community preparedness, public awareness, local participation	Increased community capacity and social resilience
Emergency Management	Standardization of emergency response systems	Emergency communication systems, SOPs, rapid response mechanisms	Faster, more coordinated, and more effective emergency response
Financing	Strengthening disaster-related budget allocation	Risk-informed budgeting, funding sustainability	More consistent and adequate financing for DRR programs

As shown in Table 2 the strategic framework demonstrates that disaster governance in Pidie Jaya Regency is not limited to emergency response activities, but is structured across multiple and interrelated dimensions. This confirms that the adopted policy direction emphasizes systemic and long-term resilience building rather than short-term, reactive interventions. Overall, the alignment between institutional reform, development planning, community empowerment, and financing mechanisms indicates that the disaster management strategy in Pidie Jaya Regency has been designed as a comprehensive governance framework. This integrated approach is essential to ensure that disaster risk management policies operate synergistically with broader development objectives and effectively support the achievement of sustainable regional resilience.

3.4 The Role of Disaster Programs in Supporting Policy Implementation

The disaster-related programs formulated by the Pidie Jaya Regency Government demonstrate concrete efforts to bridge the gap between policy formulation and practical implementation. The formal positioning of the Disaster Management Plan (Rencana Penanggulangan Bencana/RPB) as an official regional policy document ensures that disaster management policies are not merely normative statements, but possess legal legitimacy and function as a binding reference for all local government agencies in designing and implementing their respective programs (Sakdiah & Zuhra, 2022).

However, the effectiveness of this formal institutional framework is influenced by several structural constraints. Although the RPB provides legal clarity, inter-agency coordination remains dependent on bureaucratic capacity and leadership commitment at the operational level. Sectoral ego, overlapping mandates, and varying levels of technical competence across agencies can limit the

consistency of implementation. These challenges indicate that formal policy integration does not automatically guarantee effective operational integration.

The consistent allocation of disaster-related budgets in the annual Budget Work Plans (RKA) reflects the local government's commitment to the sustainability of disaster risk reduction initiatives. This financial commitment is particularly important to ensure that disaster management is not treated as an incidental or reactive activity, but as a continuous and institutionalized development priority. The availability of dedicated funding also strengthens the operational capacity of implementing agencies to carry out planned programs in a systematic and measurable manner (Poudel et al., 2026).

Nevertheless, budget allocations for disaster management still compete with other pressing development priorities, particularly in regions with limited fiscal capacity. In certain fiscal years, budget ceilings and shifting political priorities may reduce the scope or scale of planned programs. This condition highlights the vulnerability of disaster risk reduction initiatives to political and economic dynamics at the local level, which may affect program continuity and long-term sustainability. Substantively, the programs are not limited to emergency response activities. Instead, they are designed to cover a comprehensive spectrum of disaster management efforts, including structural mitigation measures, the development of early warning systems, community education and awareness campaigns, as well as capacity building for government officials and frontline responders. This comprehensive program structure indicates a clear shift from a response-oriented approach toward a risk-based and prevention-oriented disaster management paradigm. Even so, the transition toward a prevention-oriented paradigm remains gradual. Community preparedness levels vary across districts, and technical infrastructure such as early warning systems requires continuous maintenance and updating. Furthermore, coordination among multi-actor stakeholders—including government institutions, local communities, private sector actors, and non-governmental organizations—requires sustained facilitation to avoid fragmentation of roles and duplication of programs. These implementation gaps suggest that while the governance model is structurally sound, its effectiveness depends heavily on institutional capacity strengthening, political stability, and long-term policy commitment.

3.5 Implications of Integrated Governance for Regional Resilience

The implementation of integrated disaster governance in Pidie Jaya Regency has had a direct and significant impact on the strengthening of regional resilience. The alignment of policies, development planning, budgeting, and program implementation has resulted in a disaster management system that is more adaptive, more responsive, and more sustainable. This integrated approach ensures that disaster risk management is not treated as a fragmented or sectoral responsibility, but as a coherent and strategic component of regional development governance (Aji et al., 2021).

Conceptually, this transformation reflects the institutionalization of disaster risk reduction within the regional governance system, where regulatory coherence, cross-sectoral coordination, and evidence-based planning operate as mutually reinforcing mechanisms. Through this institutional embedding, disaster management shifts from reactive emergency response toward proactive risk governance, enabling long-term resilience building and policy continuity across administrative cycles.

The improvement in the Regional Resilience Index (IKD) and the reduction in the Indonesian Disaster Risk Index (IRBI) provide empirical evidence that the integrated governance approach has effectively enhanced the region's capacity to manage disaster risks. These trends indicate not only a reduction in vulnerability, but also a strengthening of institutional, social, and technical capacities to anticipate, prepare for, and respond to hazard events (Wijatmoko et al., 2023). In this sense, resilience is built through a combination of risk reduction and capacity enhancement strategies implemented in a consistent and mutually reinforcing manner.

This governance model further demonstrates that regional resilience is not achieved solely through investments in physical infrastructure (Costabile et al., 2026). While structural measures remain important, the findings underline the equally critical role of institutional strengthening, human resource development, and active community participation. The integration of these dimensions creates a more robust and flexible system capable of coping with both sudden disaster events and long-term risk dynamics, including those related to climate change.

More broadly, these findings confirm that strengthening disaster governance is a fundamental prerequisite for achieving safe and sustainable regional development, particularly in disaster-prone

areas such as Pidie Jaya Regency. Integrated governance not only improves the effectiveness of disaster risk management, but also contributes to the overall quality of public administration and development planning, ensuring that resilience becomes an embedded and enduring characteristic of regional development policy.

4. Conclusion

This study demonstrates that disaster management governance in Pidie Jaya Regency has been directed toward a more integrated approach by linking policy, planning, budgeting, and program implementation within a coherent and mutually reinforcing framework. This integration is reflected in the strengthened role of the Disaster Management Plan (RPB) as an official regional policy document, improved cross-sectoral coordination, and the local government's consistent commitment to providing sustainable budget support for disaster risk reduction programs. The implementation of this integrated governance approach has had a positive impact on strengthening regional resilience, as indicated by the increase in the Regional Resilience Index (IKD) and the decrease in the Indonesian Disaster Risk Index (IRBI). These findings confirm that regional resilience is not determined solely by physical infrastructure development, but also by institutional strengthening, human resource capacity building, and active community participation. Therefore, strengthening integrated disaster management governance is a key foundation for supporting safe, adaptive, and sustainable regional development in Pidie Jaya Regency.

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