Research Article

Crisis, Disaster Management, and Resilience: A Multilevel Governance Analysis of Disaster Management Gaps in Indonesia

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Abstract.

Indonesia's geographical conditions that make the country prone to natural disasters encourage the government to improve disaster management. The increasing frequency of disasters from year to year requires the government to continue to innovate and improve disaster risk reduction governance. Sustainable resilience is the way to prepare Indonesia for the uncertainty of natural disasters in the future. National Board for Disaster Management/ Badan Nasional Penanggulangan Bencana (BNPB) as the main guardian of disaster management has a series of disaster management systems and participation in global disaster management efforts. Even so, Indonesia's natural disaster management governance still has many shortcomings. In several natural disasters, including the 2018 Palu earthquake, Indonesia's natural disaster management governance has not been fully holistic. Both at the local and the regional scale, Indonesia's disaster management is still fragmented, has minimal coordination, and lacks coherence. The AHA Center (The ASEAN Coordinating Centre for Humanitarian Assistance on Disaster Management) as a natural disaster coordination center in Southeast Asia still has a gap both institutionally and practically with the Regional Disaster Management Agency. This research will study the governance structure of Indonesia's disaster management with a multi-level governance approach. It will analyze how power, responsibilities, and resources are distributed, and provide recommendations on multi-level governance between Indonesia and the Association of Southeast Asian Nations (ASEAN).

Keywords: resilience disaster management, multi-level governance, AHA center, regional disaster management agency

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1. Introduction

Indonesia is an archipelagic country located at the convergence of three major tectonic plates, making it one of the most disaster-prone regions in the world. This vulnerability includes geological, volcanological, and hydrometeorological hazards that have been increasing year by year [1]. In 2023 alone, more than 5,400 disaster events were recorded in Indonesia, over 95% of which were hydrometeorological disasters—primarily driven by climate change and human activities. Although the trend of fatalities and

infrastructure damage has shown a decline, the complexity of disaster management continues to grow in parallel with emerging challenges such as urbanization, environmental degradation, and land-use change.

In practice, disaster management governance in Indonesia still exhibits fundamental weaknesses, particularly in terms of coordination across actors and levels of government. The 2018 Palu earthquake and tsunami revealed serious fragmentation between central institutions such as BNPB, local units such as BPBD, and regional actors like the AHA Centre [2]. The event highlighted limitations in communication, command, and policy integration—factors that are crucial to effective disaster management. At the regional level, the ASEAN Declaration on Sustainable Resilience encourages more integrated and responsive cross-border cooperation in addressing disaster risks [3]. However, harmonization between regional frameworks and national governance structures has not yet been fully operationalized on the ground.

A number of statements from leaders and stakeholders at the Global Forum for Sustainable Resilience (GFSR) 2024 supported the urgency of a paradigm shift in disaster risk reduction. The Head of BNPB emphasised that Indonesia can no longer rely solely on response, but must build a system that is able to reduce risks systemically and sustainably [1]. Minister of Foreign Affairs Retno Marsudi added that resilience must be the foundation of every national development initiative. Meanwhile, BNPB Deputy Raditya Jati underlined the importance of an integrated and evidence-based approach in building resilient governance [3].

In that context, this research identified a significant gap: what exactly is the structure and relationship of authority and resources between the local, national and regional levels in Indonesia's disaster management system? Why is coordination between actors such as BPBDs, BNPB and the AHA Centre often partial and out of sync, despite the framework being in place? And to what extent can a Multi-Level Governance (MLG) approach explain this fragmentation and offer solutions?

2. Literature Review

2.1. The Concept of Multi-Level Governance in Disaster Management

The Multi-Level Governance (MLG) approach emphasizes coordination across various levels of government in the implementation of disaster management [4]. This means that

disaster risk governance is not solely the responsibility of the central government, but also involves local governments, communities, and supranational actors at the regional and global levels. Global frameworks such as the Sendai Framework for Disaster Risk Reduction 2015–2030 highlight the importance of strengthening disaster governance at all levels as a prerequisite for effective disaster risk reduction [5]. The Sendai Framework promotes the integration of efforts among national and local governments, the private sector, academia, civil society, and the international community in building disaster resilience [4].

By adopting such a multi-level approach, disaster management can be implemented in an integrated and coordinated manner across all levels of government, thus addressing the complex, systemic, and cross-border nature of disaster risks [6]. Researchers have also argued that conventional governance frameworks need to evolve into more polycentric models to effectively address interconnected disaster risks [6].

2.2. Decentralization and Indonesia's Disaster Governance Framework

Indonesia has adopted a decentralization policy in disaster management since the enactment of Law No. 24 of 2007 on Disaster Management. This law established the National Disaster Management Agency (BNPB) at the national level and Regional Disaster Management Agencies (BPBDs) at the provincial and district/city levels, thereby distributing disaster responsibilities across multiple tiers of government [6]. In practice, this decentralization enhances the role of local governments as the front line in disaster response and risk reduction. However, the implementation of decentralized disaster governance still faces significant challenges. Local capacities and resources are often limited, resulting in disparities in disaster management capabilities across regions [6]. Vertical coordination among central, provincial, and local governments remains ineffective due to communication barriers, bureaucratic inertia, and differing perceptions of risk.

Recent studies emphasize the need for innovation in governance frameworks to be more responsive to local conditions. Triyanti et al. identified a gap between policy frameworks and their field-level implementation, particularly in responding to systemic and cascading disaster risks. In recent years, the Indonesian government has made efforts to strengthen local capacities through the development of integrated plans, multi-hazard early warning systems, and increased community engagement [7].

2.3. The Role of Regional Actors: ASEAN Cooperation and the AHA Centre

Indonesia also actively participates in regional disaster response mechanisms, particularly within ASEAN. The primary cooperation framework is the ASEAN Agreement on Disaster Management and Emergency Response (AADMER), which came into force in 2009. AADMER provides a legal foundation for ASEAN member states to assist each other in disaster management. As part of AADMER's implementation, ASEAN established the ASEAN Coordinating Centre for Humanitarian Assistance on Disaster Management (AHA Centre) in 2011, which functions as the operational body coordinating humanitarian assistance in the region [6].

In practice, the AHA Centre plays a key role in coordinating collective disaster responses, including aid management, information exchange, and enhancing national capacities [5] [1]. For instance, during the 2018 Lombok earthquake, the AHA Centre assisted BNPB in needs assessments and logistics distribution. Similarly, in the 2018 Palu disaster, the AHA Centre coordinated the mobilization of ASEAN support through the ASEAN Emergency Response and Assessment Team (ASEAN-ERAT). Nevertheless, the role of the AHA Centre is often limited by the principle of non-interference, meaning that support is only provided upon request from the affected country [1]. Furthermore, ASEAN's contributions are generally more prominent in the emergency response phase, with less involvement in long-term recovery efforts [8].

Although the literature on Multi-Level Governance (MLG) has played a significant role in conceptualizing governance across various levels and actors, several theoretical limitations remain. Most existing studies focus on the normative aspects of MLG, such as its emphasis on coordination, decentralization, and inclusivity. However, these works often fail to critically examine the persistent challenges related to power asymmetries, political interests, and institutional fragmentation [9]; [10]. In the context of Indonesia, these limitations are particularly evident due to the complex nature of decentralization, the overlapping mandates between the National Disaster Management Agency (BNPB) and Regional Disaster Management Agencies (BPBDs), and the primarily symbolic rather than operational engagement of regional actors such as the AHA Centre.

Furthermore, while the ASEAN framework under the ASEAN Agreement on Disaster Management and Emergency Response (AADMER), along with the AHA Centre, constitutes an institutionalized mechanism for regional disaster cooperation, its actual integration into Indonesia's national and subnational disaster governance remains limited. The

principle of non-interference, coupled with the voluntary nature of coordination, restricts the AHA Centre's capacity to engage meaningfully at the local level. These constraints raise important questions regarding the effectiveness of the diagonal dimension within the MLG framework [11]; [1].

This article seeks to contribute to the academic discourse by addressing the identified theoretical gaps. It presents an empirical analysis of how MLG operates, and at times fails to operate, within Indonesia's disaster management context. Through case studies of significant disaster events, including the 2018 Palu earthquake, the 2021 Semeru eruption, and recurrent floods in Jakarta, this study aims to refine and extend MLG theory in contexts characterized by institutional dualism, limited subnational capacity, and the restricted operational role of regional governance actors.

3. Methods

This study adopts a descriptive qualitative approach with an exploratory design, relying exclusively on secondary data sources. The objective is to analyze Indonesia's disaster governance gaps using the Multi-Level Governance (MLG) framework, focusing on the interaction among national, local, and regional actors.

A total of 34 documents were systematically reviewed, including:

- 11 national policy and institutional documents (e.g., Law No. 24 of 2007, BNPB and BPBD regulations, national disaster plans),
- 8 regional or ASEAN-related publications (e.g., AADMER, AHA Centre reports),
- 7 international institutional reports (e.g., UNDRR, GFDRR, World Bank),
- 8 peer-reviewed academic journal articles indexed in Scopus, DOAJ, and SINTA 2, and
- additional data from government websites such as BNPB, PreventionWeb, and RSIS.

Documents were identified through targeted keyword searches across databases such as Google Scholar, Scopus, and institutional repositories using combinations of the terms:

"disaster governance," "multi-level governance," "Indonesia," "BPBD," "BNPB," "AHA Centre," "disaster coordination ASEAN," "diagonal governance," and "systemic risk."

The inclusion criteria were:

- Publications from the last 10 years (2014–2024),
- Focus on disaster risk governance in Indonesia or Southeast Asia,

- Use of the MLG framework or addressing inter-agency coordination.

Exclusion criteria included:

- Articles that only discussed natural science aspects (e.g., geological hazard modeling) without institutional or policy focus,
- Non-English or non-Indonesian language documents,
- Unverified sources (e.g., blogs, Wikipedia).

Data were analyzed using a thematic analysis technique, following Braun & Clarke's (2006) six phases:

- Familiarization with data,
- Initial coding (e.g., vertical/diagonal/horizontal coordination, resource asymmetry),
- Searching for themes across levels of governance,
- Reviewing themes to ensure coherence with MLG framework,
- Defining and naming themes, and
- Producing the final report.

Themes were structured around the three dimensions of MLG (vertical, horizontal, and diagonal). Actor mapping, function alignment, and coordination mechanisms were extracted and analyzed from policy texts, disaster response reports, and regional case studies (Palu 2018, Semeru 2021, Jakarta floods).

Triangulation was applied to ensure validity by comparing insights across:

- Government reports (BNPB, BPBD),
- Regional data (AHA Centre, ASEAN),
- Scholarly analysis (e.g., Triyanti et al., Shaw, Suzuki),
- Independent evaluations (e.g., RSIS, Mercy Corps).

Although the research relies on secondary sources and does not include field interviews, the breadth and credibility of the data offer a robust, context-rich analysis of Indonesia's disaster governance under the MLG framework.

4. Results and Discussion

4.1. Institutional Framework of BNPB and BPBD

The Indonesian National Disaster Management Agency (BNPB) is a non-ministerial government institution established under Presidential Regulation No. 8 of 2008, operating

directly under the President of the Republic of Indonesia. BNPB holds the mandate as the implementing coordinator in formulating disaster management policies, as well as organizing, mobilizing, and overseeing national disaster resources throughout the disaster cycle (BNPB, 2008). The agency is headed by an official at the ministerial level and is responsible for designing a comprehensive, integrated, and planned disaster management policy.

At the subnational level, the Regional Disaster Management Agencies (BPBD) were formed under BNPB Regulation No. 3 of 2008 and act as the technical implementers of disaster management policies in provinces and districts/municipalities. BPBDs are accountable to local heads of government (governors or mayors/regents). Although structurally independent from BNPB, the relationship between the two is coordinative. BNPB provides technical guidance, operational directives, training, and logistical support during emergency situations. This relationship reflects the vertical dimension of the Multi-Level Governance (MLG) framework, which links national and subnational authorities within the disaster management system.

Regionally, the coordination of disaster management is facilitated by the ASEAN Coordinating Centre for Humanitarian Assistance on disaster management (AHA Centre), which was established through the ASEAN Agreement on Disaster Management and Emergency Response (AADMER). The AHA Centre functions as a regional coordination and facilitation hub for transboundary humanitarian assistance in Southeast Asia [3]. The relationship between BNPB and the AHA Centre has been institutionalized through several joint initiatives, such as the ASEAN Emergency Response and Assessment Team (ASEAN-ERAT), the ASEAN Regional Disaster Emergency Response Simulation Exercise (ARDEX), and capacity development programs in disaster risk and logistics management. The Centre's location in Jakarta facilitates direct coordination with BNPB, which serves as Indonesia's national focal point. This collaboration exemplifies the diagonal dimension of MLG, wherein supranational actors engage directly with national and subnational institutions.

4.2. Case Study: Coordination Analysis in the 2018 Palu Earthquake and Other Relevant Disasters

The 7.4-magnitude earthquake that struck Palu, Central Sulawesi, on 28 September 2018—followed by a tsunami and soil liquefaction—caused widespread infrastructure damage and significant casualties. In the immediate aftermath, BNPB coordinated the

emergency response with support from local BPBDs and relevant ministries. The AHA Centre deployed the ASEAN Emergency Response and Assessment Team (ERAT) to assist BNPB in conducting needs assessments and coordinating international assistance.

Despite these collaborative efforts, coordination challenges emerged due to overlapping authorities between national and local agencies and limited communication with affected communities. Reports from the AHA Centre noted that the establishment of the Joint Operations and Coordination Centre for International Assistance (JOCCIA), alongside the BNPB's National Post in Palu, aimed to facilitate international aid coordination. However, its implementation was hindered by logistical constraints and damaged infrastructure [2].

Similar coordination issues have been observed in other disaster events, such as urban flooding in Jakarta and volcanic eruptions in other regions. During the major flood event in Jakarta in January 2020, BNPB held inter-agency coordination meetings involving multiple ministries to address the emergency. Nevertheless, challenges in aid distribution and cross-agency coordination persisted.

Evaluations of Indonesia's disaster response efforts indicate that, although institutional frameworks have been established to support multi-level coordination, implementation on the ground continues to face various challenges. These include limited subnational capacity, insufficient joint training mechanisms, and inconsistencies in information systems across agencies—all of which undermine the effectiveness of disaster coordination and response [12].

4.3. Identifying Coordination and Authority Distribution Weaknesses

An analysis of various disaster events in Indonesia reveals several structural and operational deficiencies in interagency coordination and the distribution of authority. These issues span the vertical, horizontal, and diagonal dimensions of the Multi-Level Governance (MLG) framework and have a significant impact on the effectiveness of disaster response.

a. Overlapping Authorities between BNPB and BPBD

The lack of clear delineation between the roles of the National Disaster Management Agency (BNPB) and the Regional Disaster Management Agencies (BPBDs) often results in confusion during decision-making and disaster response operations. Although Law

No. 24/2007 designates BNPB as the national coordinator and BPBDs as technical implementers at the regional level, in practice, ambiguity arises, particularly when emergency status is declared. This is compounded by the institutional structure differences—BNPB being a non-ministerial agency directly under the President, while BPBDs fall under the authority of regional heads (governors or regents/mayors). Such disparities lead to misalignment in strategic decision-making, as exemplified during the Mount Merapi eruption in 2010 and the Sinabung eruption in 2014, where disputes emerged over evacuation zones and logistics distribution between central and local governments.

b. Weak Horizontal Coordination among BPBDs and Peer Institutions

Coordination between neighboring BPBDs and peer-level agencies such as the military (TNI), police (POLRI), Indonesian Red Cross (PMI), and NGOs remains limited and lacks institutionalization. A clear example can be seen in the flood response in Purworejo Regency, where multiple agencies were involved in horizontal coordination, yet the absence of a permanent forum, shared protocols, or inter-agency interoperability systems led to ineffective outcomes [13]. This lack of joint procedures contributed to fragmented task distribution and delays in aid delivery.

c. Limited Capacity and Resources at the Local Level

Many local BPBDs face significant challenges in terms of human resources, logistics, and budget. Technical disruptions—such as power outages and damaged communication systems after earthquakes—impeded the delivery of early warnings. In Palu City, the Operations Control Center's (Pusdalops) backup generators and UPS systems failed, and the city's only tsunami siren could not be activated. Consequently, the public did not receive official evacuation alerts.

Disaster management budgets at the district/city level remain critically low, often below 0.5% of the regional budget (APBD), as observed in regions such as Sleman, Sigi, and Lampung [14]. The disparity in capacity between BNPB and BPBDs represents a major challenge in Indonesia's disaster governance. Local BPBDs frequently struggle with limited human resources, logistical constraints, and access to timely information, all of which hinder rapid and effective disaster response. For instance, an institutional capacity assessment conducted by BNPB's Disaster Management Systems Directorate in 2023 revealed that among 51 BPBDs assessed, many still demonstrated weak institutional capacity, particularly in planning, budgeting, and inter-agency.

To measure local disaster preparedness, BNPB developed the Regional Resilience Index (Indeks Ketahanan Daerah/IKD), which utilizes 71 indicators across institutional,

policy, logistics, and community participation dimensions. However, IKD implementation still faces challenges in some regions, including a lack of understanding of the indicators and limited data availability.

d. Ineffective Communication across Government Levels and Communities

Uncoordinated communication between central and local authorities, as well as with the public, has further weakened disaster response systems. Inaccurate or delayed information dissemination can cause public confusion and erode trust in disaster authorities. This was evident during the 2018 Palu earthquake and tsunami, where many residents failed to receive timely evacuation alerts due to disrupted communication channels and overlapping responsibilities. The failure of the tsunami early warning system to reach at-risk communities in Palu is a case in point. Although the Meteorology, Climatology, and Geophysics Agency (BMKG) issued a tsunami warning within five minutes of the earthquake, delays in the alerting chain—requiring approval from the regional command (composed of the governor, military commander, and police chief)—hampered the activation of sirens, significantly reducing the golden time available for evacuation [15].

Furthermore, the absence of a formal mechanism for integrating non-governmental organizations (NGOs) into emergency response phases led to a lack of transparency regarding their interventions, complicating government coordination efforts during recovery [16].

e. Limited Involvement of AHA Centre in Local-Level Coordination

As a regional coordination body established under the ASEAN Agreement on Disaster Management and Emergency Response (AADMER), the AHA Centre plays a crucial role in facilitating disaster response cooperation among ASEAN member states. Although the AHA Centre's headquarters is located in Jakarta and it maintains a close relationship with BNPB, its direct engagement with BPBDs at the local level remains limited. This results in poor integration between regional and local disaster response mechanisms.

For example, during the 2018 Lombok earthquake, the AHA Centre acted as a facilitator and liaison for international aid coordination and assisted BNPB with damage assessments and logistics distribution. However, the AHA Centre's involvement was mainly focused on national-level coordination with BNPB, while direct interaction with local BPBDs was suboptimal [17]. This limitation can be attributed to several factors, including ASEAN's principle of non-interference, which restricts the AHA Centre's ability to intervene directly in the domestic affairs of member states. Additionally, the AHA

Centre's government-to-government approach inhibits deeper engagement with local stakeholders and civil society.

These various weaknesses—ranging from overlapping authorities and poor horizontal coordination to limited local capacity and ineffective communication—indicate that disaster governance issues in Indonesia are not only technical but also structural and systemic. To fully understand these root causes and design comprehensive reforms, an analytical approach is needed to map power relations, actor roles, and cross-level coordination mechanisms. In this regard, the Multi-Level Governance (MLG) framework offers a relevant conceptual lens to evaluate how central, regional, and supranational actors interact in shaping disaster management effectiveness in Indonesia. The following section will examine the vertical, horizontal, and diagonal dimensions of this governance framework, supported by real-world case studies to provide contextualized and measurable insights.

4.4. Disaster Governance in Indonesia from a Multi-Level Governance (MLG) Perspective

The Multi-Level Governance (MLG) approach conceptualizes governance as a process that spans across levels of government (vertical), across stakeholders at the same level (horizontal), and includes actors beyond the nation-state (diagonal). In the context of disaster management in Indonesia, this approach is particularly relevant due to the country's decentralized governance structure and the involvement of various non-governmental and international actors in disaster response and mitigation. Since the enactment of Law No. 24 of 2007 on Disaster Management, Indonesia has adopted a decentralized system, establishing the National Disaster Management Agency (BNPB) at the national level and Regional Disaster Management Agencies (BPBDs) at the provincial and district/city levels.

This section evaluates disaster governance in Indonesia across the three dimensions of MLG: vertical (central-local relations), horizontal (coordination among governmental and non-governmental institutions at the local level), and diagonal (collaboration with supranational actors such as ASEAN through the AHA Centre). Each dimension is discussed in depth with academic references and real-world case studies (e.g., the 2018 Palu earthquake, 2021 Semeru eruption, and recurrent Jakarta floods) to illustrate both the challenges and best practices in disaster governance.

a. Vertical Governance: Central-Local Government RelationsIndonesia's institutional disaster management framework places BNPB at the national level and BPBDs at provincial, district, and municipal levels. The vertical dimension of MLG refers to the hierarchical relationship between central and local governments in disaster response. The legal framework delineates authority: BNPB, as a non-ministerial body accountable directly to the President, coordinates national disaster management, while BPBDs, under regional heads, manage local-level disaster responses. Regional autonomy principles assign a pivotal role to local governments, as mandated by Law No. 24/2007, enabling context-specific and rapid responses at the local level.

However, studies indicate that the implementation of decentralization remains suboptimal. Fikri et al. [18] found that the performance of BPBDs and local governments across pre-disaster, emergency response, and recovery phases is often inadequate. Contributing factors include: (1) weak political commitment from local leaders to mainstream disaster risk reduction (DRR), (2) low local budget allocation for disaster-related programs, and (3) limited capacity of BPBD staff. Consequently, local governments still heavily depend on central government support during emergencies. Similar findings underscore that limited local resources and capacities hinder independent disaster response; for instance, logistics and basic needs provision often cannot be fulfilled locally. This indicates that despite an existing vertical structure, capacity constraints lead to a top-down dynamic during large-scale disasters.

The 2018 Palu earthquake illustrates this vertical governance dynamic. The earthquake, tsunami, and liquefaction disaster in Central Sulawesi overwhelmed local capacities, necessitating dominant roles from BNPB and central government agencies in emergency operations. The national government quickly declared a disaster status and deployed cross-ministerial support, the military/police, and national-level resources. A regional think tank noted that Indonesia's disaster management capacity has improved significantly post-2004, with a policy of "national-led, regional and international support when needed." In Palu, BNPB led the National Command Post, the military managed air bridges for logistics, and ministries provided technical aid (e.g., Public Works for emergency infrastructure). Local authorities were involved primarily in field coordination and data collection, while strategic direction was set by the center. Thanks to central intervention, resource mobilization was swift and integrated; for example, 17 foreign military aircraft operated under TNI coordination, showcasing effective integration of

national and international support. Despite early communication and bureaucratic challenges, the center-local relationship in Palu demonstrated a strong vertical governance model where the national government served as meta-coordinator.

A similar pattern was observed in the 2021 Semeru eruption in Lumajang Regency, East Java. Though managed as a "district-level disaster," vertical support was significant. Following the major eruption on December 4, 2021, local authorities declared an emergency and activated a local Incident Command System. Simultaneously, the President and BNPB provided strategic direction and resource support. A Participatory Review reported that BPBD Lumajang managed evacuation and field operations, while BNPB guided the transition to recovery and enforced specific protocols (e.g., COVID-19 measures in shelters). The central government, through BNPB, the Ministry of Social Affairs, Health, Public Works, the military, and the National Search and Rescue Agency (Basarnas), bolstered the local response with logistics and personnel. This reflected an effective vertical coordination mechanism: local units acted swiftly under SOPs, while the center supplemented with policy and resources. In early recovery, the central government funded home and infrastructure reconstruction, while the provincial government facilitated inter-district coordination. Vertical coordination accelerated response—e.g., the emergency Gladak Perak bridge was built within weeks by the Ministry of Public Works, beyond the local government's capacity.

While these examples underscore the importance of central intervention, ideal vertical governance is bidirectional and subsidiarity-based—local authority should be respected and supported, not overridden unless necessary. Ongoing challenges include regulatory synchronization and coordination between BNPB and the Ministry of Home Affairs, which supervises local governments. The current structure requires BPBDs to report administratively to local heads and the Ministry of Home Affairs, but functionally to coordinate with BNPB. This duality can lead to overlapping mandates and miscommunication. Improvement efforts include data-sharing platforms (InaSAFE and InAWARE) and the formulation of joint disaster management plans. The midterm review of Indonesia's Sendai Framework implementation highlights the need to enhance local government capacity to handle routine disasters independently, while the central government focuses on policy, standards, and large-scale disaster support. Therefore, the vertical dimension of MLG in Indonesian disaster governance is about finding a balance between local autonomy and proportional central support.

b. Horizontal Governance: Cross-Sector and Inter-Institutional Coordination at the Local Level

The horizontal dimension refers to interactions and coordination among actors at the same level of government, especially in disaster-affected localities. This includes coordination among local government departments or agencies (OPDs), between neighboring local governments (e.g., municipalities and adjacent regencies), and partnerships between local governments and non-governmental organizations (NGOs), local communities, and private sector actors in the area. In the context of disaster management, effective horizontal coordination ensures a collaborative and complementary response across actors, rather than fragmented or siloed actions. The disaster governance literature emphasizes that multi-agency and whole-of-society efforts at the local level can enhance disaster response effectiveness by fostering synergy, preventing duplication, and addressing capacity gaps.

In Indonesia, the responsibility for formal horizontal coordination lies with the BPBD (Regional Disaster Management Agency), as the local disaster management coordinator. BPBDs are tasked with coordinating local government units (relevant offices, subdistrict heads, etc.), vertical agencies at the local level (e.g., branch offices of national ministries), private actors, and community groups at all stages of disaster management. Coordination mechanisms are established: during emergencies, a Command Post (Posko) is formed under an Emergency Response Commander (typically the Regional Secretary or equivalent) to centralize command across institutions. This command post model is effective in ensuring inter-agency coordination during emergency declarations since all units operate under a unified command structure. However, outside of emergency periods, coordination tends to be more relaxed. BPBD, as a peer agency, lacks hierarchical authority over other departments, meaning collaboration depends on mutual understanding and voluntary alignment across OPDs. Common challenges include sectoral egos and silo mentalities, where departments focus narrowly on their own mandates, hampering proactive collaboration. As a result, disaster risk reduction (DRR) initiatives that require cross-sectoral efforts (e.g., spatial planning by Public Works together with BPBD, or disaster education by the Education Office) are often impeded.

Studies have shown that effective coordination relies more on mutual understanding among OPDs than formal structure alone. Accordingly, many regions have formed informal coordination forums as supplements to official structures, such as Disaster Risk Reduction Forums (Forum PRB) or local volunteer communication forums. For instance, Sigi Regency (Central Sulawesi) has a PRB Forum, Sleman Regency (Yogyakarta) has a Volunteer Communication Forum, and South Lampung has a Disaster Observer Forum, all facilitated by the BPBD to engage local volunteers and NGOs. These forums, often

supported by WhatsApp groups and regular meetings, help with early information sharing, public education, and voluntary coordination, thus complementing the formal structures.

Horizontal coordination also includes collaboration between local governments and non-governmental actors in the same area. Many humanitarian organizations—such as the Indonesian Red Cross (PMI), philanthropic institutions, religious organizations (e.g., Muhammadiyah, Nahdlatul Ulama, churches), and local communities—are actively involved during disasters. While their involvement enhances capacity and outreach, it also requires orchestration to align with government efforts. The 2018 Palu earthquake offers a case in point: hundreds of local, national, and international NGOs mobilized immediately in Palu and Donggala. To prevent chaos, BNPB issued a directive designating PMI to support the management of incoming humanitarian logistics.

PMI, in collaboration with the International Federation of Red Cross and Red Crescent Societies (IFRC), established a dedicated Relief Cell to coordinate the reception and distribution of international aid supplies, working closely with customs authorities and local governments. This initiative represents a horizontal coordination innovation (between government and a national humanitarian organization) that streamlined aid delivery and prevented logistical bottlenecks. On the ground, sectoral coordination posts (clusters) were established for health, water and sanitation, shelter, and others, involving local agencies, NGOs, and UN agencies—even though Indonesia did not officially activate the full international cluster system. While initial coordination among these actors faced challenges related to communication and data overlap, these were later resolved through the Joint Operations and Coordination Centre led by a combined BNPB–TNI task force.

The Palu experience illustrates the massive collaboration between local governments, local NGOs, community-based organizations, and the private sector (e.g., companies providing CSR-based aid). The solidarity of Forkompimda (Regional Leadership Communication Forum, which includes mayors/regents, TNI, police, and local parliament) played a crucial role in coordinating these actors. This aligns with the pentahelix concept promoted by BNPB, which posits that disaster management should involve government, community/NGOs, academia, business, and media.

During the 2021 Semeru eruption, horizontal coordination was again evident through the pentahelix approach in Lumajang Regency. The regent and Forkompimda led the initial response, involving local religious organizations (e.g., LPBI NU, Muhammadiyah

Disaster Management Center), volunteer communities, and local private firms to deliver assistance. A participatory review noted that the response and recovery strategies were collectively designed, involving cross-sectoral local government actors and the East Java Provincial PRB Forum, with strong community engagement. Various civic organizations such as Tagana (community volunteers), youth groups, and local disabled groups participated, though with limited capacity.

Such coordination is not always smooth—challenges like duplicate refugee data, unclear command structures for volunteers, and overlapping task assignments occasionally emerged. However, daily command post meetings and task zoning helped reduce friction. A notable best practice from Semeru was the integration of community members into the command structure: local volunteers were assigned to subtask forces under subdistrict leadership, ensuring alignment with government systems while maintaining field agility. Thus, horizontal coordination was strengthened without compromising response speed.

Jakarta's almost-annual floods underscore the critical importance of horizontal coordination across agencies and jurisdictions. Flood management in Jakarta involves numerous stakeholders: the Jakarta provincial government (BPBD, Water Resources Agency, Social Office, etc.), adjacent municipal/regional governments (Bogor, Depok, Tangerang, Bekasi) due to the transboundary nature of flooding, the River Basin Management Authority (BBWS) from the national government for river control, and riverside communities. This multi-actor collaboration is essential for effective flood response. Studies show that Jakarta's flood response increasingly emphasizes community and local NGO involvement—for instance, through Flood Alert Villages, evacuation training, and participatory decision-making. However, coordination is hampered by fragmented authority (e.g., Ciliwung River managed by the national government, urban drainage by the city), slow bureaucracy, and upstream-downstream priority mismatches.

Research by Wicaksono & Herdiansyah [19] and Rochim et al. [20] reveals that collaboration among the Jakarta government, BNPB, and communities is essential for integrated flood mitigation but is often hindered by institutional silos and limited community participation in planning. For example, the Ciliwung normalization project was delayed due to unsynchronized land acquisition agendas between the Jakarta provincial government and the Ministry of Public Works. Moreover, community involvement was often limited to information dissemination, not decision-making, even though public acceptance is critical for program success (e.g., flood victim relocation). These

obstacles indicate that horizontal governance in a metropolitan context requires special inter-jurisdictional coordination mechanisms. One initiative is the establishment of the Greater Jakarta Cooperation Agency and joint forums for transboundary flood response—though implementation still needs improvement.

In summary, the horizontal dimension of MLG in Indonesia's disaster management emphasizes inclusive local collaboration and strong cross-sector coordination. The success of horizontal governance often depends on informal factors such as strong local leadership and well-established communication networks among actors. When local actors function as a collaborative and trust-based network, disaster response tends to be faster and more targeted. Therefore, strengthening horizontal networks—through joint drills, PRB forums, and shared information systems—is essential for improving disaster governance in Indonesia.

c. Diagonal Governance: Collaboration with Supranational and International Actors

The diagonal dimension in Multi-Level Governance (MLG) refers to cross-level interactions that do not follow formal government hierarchies, particularly involving supranational or international actors. This includes relationships between national or subnational governments and regional organizations, international institutions, donor agencies, and international NGOs. In the context of Indonesia's disaster management, the diagonal dimension became increasingly prominent following the 2004 tsunami, when the massive involvement of international actors necessitated a dedicated coordination framework. The 2004 Aceh tsunami experience highlighted the importance of international collaboration while also exposing risks to national sovereignty and effectiveness when coordination is weak.

In response, Indonesia and fellow ASEAN members formulated the ASEAN Agreement on Disaster Management and Emergency Response (AADMER), which led to the establishment of the ASEAN Coordinating Centre for Humanitarian Assistance on Disaster Management (AHA Centre) in 2011. Headquartered in Jakarta, the AHA Centre is mandated to coordinate ASEAN regional humanitarian assistance and bridge collaboration with UN systems when necessary. This partnership with supranational actors, such as the AHA Centre, exemplifies diagonal governance.

The 2018 Palu earthquake and tsunami served as a major test case for ASEAN's diagonal coordination mechanisms. For the first time, the Indonesian government designated the AHA Centre to coordinate incoming international aid during the Central Sulawesi response. This step aligned with the "One ASEAN One Response" initiative, Phase

2.0, aimed at mobilizing ASEAN-wide disaster responses with speed and solidarity. In practice, appointing the AHA Centre brought both opportunities and challenges. For Indonesia and national actors, cooperation with the AHA Centre was seen as convenient due to familiarity and proximity in both geographic and bureaucratic cultures.

The AHA Centre facilitated the use of ASEAN Standard Operating Procedures (SASOP) forms to streamline aid requests from member states and filter the types of assistance needed. Consequently, Indonesia adopted a selective approach—accepting only foreign aid that addressed specific gaps in national capacity (e.g., air transport, hospital ships, specialized medical teams). International NGOs were required to partner with local organizations or be formally registered in Indonesia; for instance, Save the Children operated as Yayasan Sayangi Tunas Cilik with local staff to align with government coordination. These adaptations show how international actors collaborated diagonally by respecting national systems and structures.

Conversely, for some "offshore" actors without prior presence in Indonesia, the ASEAN mechanism introduced an additional bureaucratic layer. They had to coordinate with both the AHA Centre and the Indonesian government, which some perceived as delaying access. Multilateral organizations like the UN (OCHA) were also challenged to adjust, since they typically lead international coordination, but in Palu, this role was assumed by ASEAN.

Nevertheless, this collaboration demanded flexibility. The UN ultimately cooperated with the AHA Centre through joint coordination on the ground, testing ASEAN-UN interoperability. According to evaluations by the S. Rajaratnam School of International Studies (RSIS), the AHA Centre's role in Palu successfully demonstrated operationalization of the "ASEAN Way" in large-scale disaster response. The AHA Centre adapted by establishing a Joint Operating Coordination Centre for Assistance (JOCCA) to manage incoming aid and conducted joint needs assessments with partners to map local requirements. This marked a new era of disaster governance in which regional organizations played significant roles alongside national governments.

Beyond ASEAN mechanisms, diagonal governance also materialized through bilateral engagement and international NGOs. The Indonesian Armed Forces (TNI) employed defense diplomacy protocols to receive foreign military assistance, as seen in Palu—where militaries from countries like Australia, India, and Japan sent aircraft and logistics operated under TNI command. This military-to-military coordination was praised for

accelerating mobilization while minimizing legal and sovereignty concerns. Simultaneously, international NGOs with a longstanding presence in Indonesia (e.g., Oxfam, Mercy Corps, World Vision) collaborated closely with local BPBDs and domestic NGOs, filling capacity gaps. RSIS noted a common trait among approved international NGOs in Palu: they had pre-disaster operations and strong histories of government collaboration, enabling smoother emergency coordination.

In essence, these diagonal relationships were built during "peacetime" through capacity building and DRR programs, allowing for rapid and effective collaboration during crises. Some international NGOs even adopted localized identities and staffing strategies to blend into the national system—improving government trust and facilitating knowledge transfer to local actors.

In smaller-scale disasters like the 2021 Semeru eruption, the involvement of supranational actors was limited as national capacities sufficed. The AHA Centre issued flash updates and offered logistical support (e.g., family kits from ASEAN stockpiles), but the central and local governments led the response. UN agencies (e.g., UNICEF, WFP) and international NGOs provided technical assistance (e.g., tents, water treatment units) through coordination with relevant ministries. This reflects a pattern in which international actors engage based on disaster scale and government request.

Diagonal governance also featured in the recovery phase. For instance, housing reconstruction programs were financed through World Bank loans and foreign grants, with technical assistance from agencies such as Japan's JICA for volcanic early warning systems. These initiatives exemplify international cooperation in DRR and the "build back better" principle.

Jakarta's flood mitigation efforts, while not an international emergency, also reflect diagonal governance. The World Bank, via the Global Facility for Disaster Reduction and Recovery (GFDRR), funded the Jakarta Flood Management project, including rehabilitation of 11 flood canals. Such financial and technical aid highlights the diagonal dimension of disaster risk reduction: national and local governments collaborate with international financial institutions for long-term solutions. Similarly, global frameworks like the Sendai Framework for DRR and the 2030 Agenda influence national policies as part of diagonal multi-level governance—Indonesia aligns its National Disaster Plan (Renas PB 2020–2044) with global targets and reports progress in international forums.

Academically, the involvement of supranational actors like the AHA Centre introduces a new layer to disaster governance. Gustafsson referred to such arrangements as

"zigzagging governance," where information and resources flow across levels in non-linear ways—e.g., between local officials and international organizations—without always passing through national hierarchies. While this can accelerate aid or knowledge transfer, it must be aligned with national frameworks. Indonesia appears to manage diagonal governance through a localization principle: channeling international aid via ASEAN or local partners, thus safeguarding sovereignty while enhancing field effectiveness. This principle aligns with global humanitarian trends post-World Humanitarian Summit 2016, which advocate for stronger local actors.

Within ASEAN, Indonesia plays a proactive role in strengthening the AHA Centre and mechanisms like the ASEAN Emergency Response and Assessment Team (ERAT), deployed in multiple disasters including Palu. Moving forward, the key challenge for diagonal governance is harmonizing protocols across national, regional, and international systems. The Palu experience offers optimism that multi-level governance involving supranational actors can be effective—provided roles and boundaries are clearly defined from the outset (e.g., via standing arrangements among BNPB, AHA Centre, and OCHA, as tested in 2018).

5. Conclusion

Disaster governance in Indonesia has undergone significant institutional development since the post-2004 Aceh tsunami reform. Through the enactment of Law No. 24 of 2007 and the establishment of agencies such as BNPB and BPBD, Indonesia has endeavored to build an adaptive and decentralized system. However, the cross-sectoral and cross-jurisdictional complexity of disasters indicates that conventional, sector-based approaches remain insufficient.

Through a Multi-Level Governance (MLG) perspective, this study identifies that coordination and authority distribution issues arise not only in the vertical dimension—between central and local governments—but also horizontally at the local level and diagonally in relations with supranational actors such as the AHA Centre. The evaluation of major disaster cases, including the Palu earthquake, the Semeru eruption, and Jakarta's recurrent floods, reveals that the success of disaster response relies heavily on effective cross-actor communication, clarity of command, and synergy between national resources and local capacities.

Weaknesses in coordination structures—whether technical, institutional, or bureaucratic—continue to pose significant obstacles. These are exacerbated by the limited capacity of BPBDs across regions, regulatory fragmentation, and the lack of a fully integrated disaster information system. Meanwhile, although the AHA Centre has played a vital role in regional disaster response, its engagement at the local level remains limited and largely dependent on national coordination initiatives.

This study recommends that the Government of Indonesia strengthen the three dimensions of MLG in a balanced manner: (1) clarify the distribution of roles and responsibilities between national and local governments, (2) develop inclusive and effective horizontal coordination forums, and (3) enhance integration and interoperability with regional and international mechanisms. In this context, it is essential to design collaborative mechanisms that allow the AHA Centre to interact more directly with subnational disaster governance structures, without breaching ASEAN's non-intervention principle. Bridging the coordination gap between the supranational and local levels remains a critical challenge.

Investing in local resilience—through training, contingency financing, and data strengthening—is the cornerstone of a system that is not only responsive but also robust and sustainable in the long term (GFDRR, 2023; UNDRR, 2023). By consistently applying the principles of Multi-Level Governance, Indonesia's disaster management system can progress toward a governance architecture that is more collaborative, coordinated, and responsive to future systemic risks.

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