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ADMINISTRATIVE CAPACITY AND DISASTER RISK GOVERNANCE IN SMALL ISLAND PROVINCES: LESSONS FROM NORTH MALUKU, INDONESIA

Muhammad Darsan Hi. Adam
Ministry of Social Affairs
muhdarsan90@gmail.com

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Abstract

Small island provinces face acute disaster risks due to their geographic isolation, ecological vulnerability, and exposure to natural hazards. Effective disaster risk governance in these regions fundamentally hinges on public administrative capacity. This study examines how administrative capacity shapes disaster risk governance in North Maluku, an archipelago province in eastern Indonesia. Employing a qualitative case study design, data were collected through in-depth interviews with local government officials, emergency management agency (BPBD) practitioners, and community leaders, alongside policy document analysis and field observations. The findings reveal that disaster risk governance in North Maluku is constrained by structural administrative deficits, including limited institutional coordination across island clusters, fiscal dependencies, and insufficient technical expertise in risk assessment. However, local administrative adaptation manifested through informal inter-island emergency networks and community-based co-governance arrangements partially mitigates these institutional shortfalls. The study concludes that standard decentralized administrative frameworks are inadequate for archipelago geography without tailored organizational designs. Strengthening disaster resilience in small island provinces requires shifting from conventional top-down administration to adaptive, multi-scalar governance models that incorporate decentralized logistics and flexible fiscal mechanisms. These insights contribute to public administration discourse by demonstrating how geographic fragmentation demands a localized recalibration of administrative capacity in disaster management.

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INTRODUCTION

Archipelago provinces and small islands are at the forefront of facing the threat of natural disasters and the impacts of global climate change. In the region archipelagic like North Maluku Province, disasters are not simply understood as ordinary natural events or statistical technical calculations, but as social realities and humanitarian experiences that shape the pulse of coastal communities' daily lives (Kelman, 2020). Landscapes fragmented by oceans create geographically isolated spaces, accessibility limitations, and deep social vulnerabilities (Martínez et al., 2025). When extreme weather halts modes of sea transportation, the outer island communities often have to struggle independently amid limited emergency assistance. This condition confirms that the safety of lives and the sustainability of life of people in the archipelago depend heavily on the extent to which the state is present through responsive, adaptive, and humanitarian-minded bureaucratic governance.

The presence of the state in mitigating disaster risk is largely determined by the public administrative capacity owned by local governments. However, the urgency of this research is based on the fact that public administration practices in the archipelago are still often trapped in a centralistic paradigm and Land-biased governance (Edi et al., 2026) . Conventional bureaucratic assumptions that assume ease of land connectivity and centralized logistics networks have proven to fail to address geographically unique challenges archipelagic (Shair-Rosenfield, 2025). In crisis situations, the spatial

distance between provincial government centers and remote islands often slows down the coordination and distribution of aid. As a result, bureaucratic capacity inequality is not only an administrative problem, but also has a direct impact on the neglect of basic human rights of islanders when disasters strike.

Although studies on disaster risk management (Disaster Risk Governance) has grown rapidly in recent decades, there is a research gap (Research gap) significant in previous literature (state of the art). Most studies of public administration and disaster management have so far focused more on mainland areas (Mainland) or densely populated urban areas (Shair-Rosenfield, 2025). In addition, existing studies tend to treat administrative capacity as a uniform attribute without taking into account archipelago administrative friction (Hi Arby et al., 2026). This lack of focus on the social dynamics of bureaucracy in remote areas creates a knowledge limit on how bureaucratic capacity actually works in isolated island areas and how local actors adapt amid institutional limitations.

The novelty of this research lies in the integration between the analysis of public administration capacity with the perspective of social and humanitarian dynamics in the archipelago. This research not only examines the structural limitations of formal bureaucracy, but also highlights local adaptations such as community based co-governance and informal inter-island humanitarian networks that grow organically in response to the limitations of the state. By placing North Maluku as the focus of the study, this research provides a scientific contribution that enriches the study of humanities and social sciences, especially in redesigning public governance with spatial justice.

Based on the background and gaps of the study, this study formulates the main question: How does the administrative capacity of local governments affect disaster risk management in North Maluku Province, and what is the form of local socio-administrative adaptation in responding to these limitations? Specifically, this study aims to analyze the dynamics of public administration capacity in the geographical space of the archipelago and formulate an adaptive, decentralized, and humanitarian protection-oriented disaster risk governance model in the archipelago province.

METHOD

Research Approach and Design

This study uses a qualitative approach with a single case study design with embedded units (Yin, 2018). The qualitative approach was chosen because it is able to explore in depth the social context, the perception of bureaucratic actors, and the complex dynamics of public administration capacity that cannot be measured quantitatively alone (Creswell & Creswell, 2017). North Maluku Province was chosen as the location of the case study deliberately (Purposive Case Selection) because it represents the characteristics of the archipelago province (Archipelagic Province) with a high level of vulnerability to geological and meteorological disasters, but faced with limited infrastructure capacity and regional administration (Saputro & Sejati, 2026).

Data Sources and Research Informants

The data in this study consisted of primary data and secondary data. Primary data was obtained directly through in-depth interviews (in-depth interviews) semi-structured and field observation. The selection of informants was carried out using purposive sampling combined with Snowball Sampling to reach key actors at the site level (Huberman, 2014). The research informants consisted of: Officials and practitioners of the Regional Disaster Management Agency (BPBD) at the North Maluku Province level and archipelago Regencies/Cities (Ternate City, South Halmahera Regency, and Sula Islands Regency), development planners from the North Maluku Provincial Bappeda, Sub-district Heads and Heads of Villages/Village Heads in small islands prone to disasters, community leaders, local volunteer organization leaders, and coastal communities.

Secondary data was obtained through the analysis of public policy documents, including the Regional Medium-Term Development Plan (RPJMD), Disaster Management Plan (RPB), BPBD Government Agency Performance Accountability Report (LAKIP), Regional Revenue and Expenditure Budget (APBD) documents, and disaster vulnerability maps in the North Maluku region.

Data Collection Procedure

Data collection was carried out through three main techniques, namely; In-depth interviews (In-Depth Interviews) which focuses on the three dimensions of administrative capacity (analytical, operational, and coordinated), inter-island logistical challenges, and informal forms of adaptation carried out during emergency response. Document Analysis (Document Analysis) is to critically examine regulations, budget allocations, and contingency plans to see the extent to which local government policies accommodate the geographical reality of the archipelago (Bowen, 2009). and field observation (Field Observation) carried out on disaster facilities, operation control centers

(Pusdalops), and patterns of social interaction of coastal communities in the study area.

Data Analysis Techniques

Data were analyzed using thematic analysis techniques (Thematic Analysis) interactively following the model (Huberman, 2014), which includes three main stages: Data Condensation (Data Condensation) in the form of interview transcripts and codified field notes (Coding) based on the main themes of administrative capacity (analytical, operational, coordinated) and local adaptation. Data Presentation (Data Display) in the form of findings presented in the form of a qualitative matrix, descriptive-analytical narrative, and a flow chart of relationships between actors. And, Drawing Conclusions and Verification (Conclusion: Drawing/Verification) in the form of integrating field findings with the theoretical framework of archipelago disaster risk management.

Trustworthiness

To ensure the validity and reliability of qualitative data, this study applies credibility criteria through triangulation techniques (Erlandson, 1993). Triangulation is carried out both by triangulation of sources (comparing information from BPBD officials, official documents, and statements of residents/volunteers) and triangulation methods (confirming interview data with the results of observations and budget documents).

RESULTS AND DISCUSSION

Structural Administrative Capacity Deficit in Archipelago Governance

The findings of the study show that disaster risk governance in North Maluku Province is faced with structural obstacles rooted in limited public administration capacity. These limitations are identified in three main dimensions:

Operational Capacity and Spatial Logistics

Based on asset inventory and analysis of logistics documents of the Regional Disaster Management Agency (BPBD) of North Maluku Province and BPBD of supporting districts/cities, it was found that there was an imbalance in the concentration of operational facilities of the Operation Control Center (Pusdalops). As much as 68% of the total fleet of land transportation, rigid inflatable boats (RIB), and satellite communication equipment are focused on Sofifi (the center of the provincial government) and Ternate City (the center of logistics and economy).

In contrast, in the outermost archipelago such as the Sula Islands and Obi Island (South Halmahera Regency), emergency relief facilitation is in very limited condition. Table 1 summarizes the distribution of disaster management operational assets at the research site.

Table 1. Distribution of BPBD's Main Operational Assets in North Maluku (2024–2025)

Location/Region	Rubber Boat / RIB (Unit)	Satellite Phone/HF Radio (Unit)	Operational Vehicles / Multi-Purpose Trucks (Units)	Average Logistics Response Time (Lag Time)
Kota Ternate & Sofifi	8	12	10	< 6 hours
Obi Island (South Halmahera)	1	2 (1 Damaged)	2	24 – 48 hours
Sula Islands	2	2	3	48 – 72 hours

Source: Primary Data Processing of Interviews and Asset Reports of BPBD North Maluku (2025)

The limitations of BPBD's sea fleet force local governments to rely on commercial ship rentals or assistance for the TNI/Polri fleet in the event of a disaster emergency. This obstacle is exacerbated by seasonal high waves (Western Season) which often paralyze small shipping, thus triggering a lag time (lag time) in the delivery of logistics assistance and the Rapid Reaction Team (TRC) up to 24-72 hours after the disaster.

To get an in-depth picture of operational obstacles in the field, in-depth interviews were conducted with several key informants who are competent in the field of regional disaster management. The Head of Emergency and Logistics of the North Maluku Province BPBD explained how the geographical constraints of the islands directly hinder the rapid response:

> *"Our main problem in North Maluku is not only the availability of logistics stock in the central warehouse, but how to move it across the sea during a crisis. Our main warehouses are in Ternate and Sofifi. Once there is a report of an eruption or flash flood disaster in the*

> *Sula or Obi Islands, we cannot immediately launch BPBD's small rubber boat because of the high free sea waves. We have to negotiate for the rental of a community motorboat or wait for the schedule of the Pelni/TNI ship. As a result, the delay in the delivery time of emergency logistics can take 1 to 3 days. Assistance only arrives when the residents have passed the most critical period."* (Interview February 12, 2026).

The impact of this facility inequality is felt directly by BPBD personnel at the district/island level. The Sula Islands Regency BPBD Field Officer revealed the lack of local Pusdalops support facilities:

> *"Our Pusdalops in the area is very poorly equipped. HF radios are often disrupted by weather, and internet-based communication systems are often completely paralyzed once the power goes out during disasters. We are often only able to send damage reports and assistance needs to the province a few hours after the incident because we have to find a signal point in the hills. When provincial assistance is approved, sea transportation constraints again hold back the logistics at the Ternate transit port."* BPBD Field Officer of Sula Islands Regency, interview February 18, 2026).

An expert in disaster management and local governance from Khairun University of Ternate provided a critical analysis regarding the administrative capacity of disaster management in the archipelago:

> *"The disaster operational capacity allocation model in North Maluku still adopts a land-based approach, where infrastructure is centered in the capital city assuming mobilization can be carried out quickly. In archipelagic disaster risk governance, this logic is wrong. Marine spatial friction should be responded to by decentralizing logistics warehouses and placing rescue assets independently in each outermost island cluster (such as the Sula-Taliabu cluster and the Obi cluster). Without this spatial redistribution, the 24-72 hour lag time will continue to repeat every time a hydrometeorological disaster occurs."* Academic/Public Administration Researcher at Bumi Hijrah University Tidore, Interview February 22, 2026).

From the field findings and the results of interviews in the exhibition, it can be described that the operational capacity of the Regional Disaster Management Agency (BPBD) in North Maluku is experiencing complications due to geographical obstacles of the archipelago (archipelagic friction). Based on the analysis of budget documents and field interviews, Pusdalops facilities are mostly concentrated in the government centers (Ternate and Sofifi Cities). When hydrometeorological disasters or volcanic eruptions hit the outer islands (such as the Sula Islands or Obi Island), the limited fleet of sea transportation and emergency relief facilities owned by the region results in A Time of Lag (time lag) significant distribution of logistical assistance reached the first 24 to 72 hours after the disaster (Sakir, 2025).

Coordination Capacity Between Island Clusters

Based on the search of operational documents and the evaluation of the handling of hydro-meteorological disasters and extreme waves for the 2024–2026 period in North Maluku, it was found that the flow of emergency response coordination between the Provincial BPBD and the Regency/City BPBD (especially archipelago areas such as South Halmahera Regency and the Sula Islands) experienced functional paralysis every time extreme weather hit.

The vulnerability of this coordination system stems from two main obstacles, namely; Wireless Communication Infrastructure failure: During periods of storms or extreme weather, signal transmitting towers (BTS) on small islands often lose electricity supply due to local generator failures or fuel shortages. This results in the blackout of the wireless communication network that cuts off the flow of real-time data from the affected areas to the provincial level. And the rigidity of the bureaucratic flow of decisions in the form of Standard Operating Procedures (SOPs), the deployment of emergency logistics assistance and the use of the Unexpected Budget (BTT) still requires tiered administrative verification through the Emergency Response Decree passed by the Regent/Governor. This rigidity triggers a procedural bottleneck when regional officials are isolated due to the absence of signals.

Table 2. Evaluation of Coordination Flows and Duration of Administrative Barriers during Extreme Weather (2024–2026)

Island Cluster Region	Types of Communication Vulnerabilities	Major Administrative Barriers	Impact on Operational Decisions

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South Halmahera Cluster (Obi Island)	Signal paralysis of BTS and power outage > 12 hours	Determination of Emergency Response Decree Withheld Verification of Physical Files	Delay in the deployment of TRC personnel and key logistics
Sula Islands & Taliabu Island Cluster	HF radio frequency disruption and satellite internet due to storms	Obligation of the approval of the central command before the issuance of local stock	Local officials are hesitant to take discretionary action on the ground

Source: Results of Interview Data and Disaster Evaluation Report for North Maluku (2026)

In order to validate the findings of the field regarding coordination constraints and bureaucratic rigidity, in-depth interviews were conducted with parties directly involved in the chain of command for disaster management in North Maluku Province. The Head of the Communication and Information Section of the North Maluku Province BPBD highlighted how reliance on standard wireless networks has become a major weak point during the crisis:

> *"Our coordination system relies heavily on mobile networks and the internet. The problem is, as soon as bad weather hits the archipelago, the transmitter towers on the small islands immediately shut down completely due to the absence of backup electricity supply. We in the province often do not get status data updates (sitrep) for tens of hours. Without real-time data, we cannot establish provincial emergency status or move logistics fleets precisely. Vertical coordination is instantly cut off precisely at the most crucial times."* Head of Communication and Information of BPBD North Maluku Province, Interview January 14, 2026).

The rigidity of the hierarchical command flow is felt directly by BPBD officials at the archipelago district level. The Chief Executive of the Sula Islands Regency BPBD revealed the administrative dilemma faced when isolated:

> *"Our administrative rules are very rigid and hierarchical. To issue relief rice stocks or rent people's boats during emergency response, we need written administrative approval and a decree signed by the leadership. When the signal breaks and transportation access is stopped due to the storm, we cannot contact the regent or the province. Officers in the field are afraid to take discretionary action because they imagine the risk of audit audits in the future if the formal procedures are skipped. As a result, our response is slow not because we don't want to work, but because of a locked bureaucracy."* Chief Executive of BPBD Sula Islands Regency, Interview January 22, 2026).

An expert in Public Administration from Bumi Hijrah Tidore University gave a critical review of the mismatch between the conventional bureaucratic structure and the fragmented condition of the archipelago:

> *"The administrative structure of disaster management in Indonesia still adopts a land-centric hierarchical-centralistic style. In the context of physically fragmented small island regions such as North Maluku, this model has proven to fail to stretch its flexibility in times of crisis, exactly as emphasized by Zheng (2026). Regions need a polycentric governance framework, where decision-making authority and operational discretion are delegated independently to island cluster commands without having to wait for validation of a long bureaucratic chain from the center of government."* Public Administration Researcher Bumi Hijrah Tidore, interview February 3, 2026).

From the results of the field findings and interviews with the informants above, it can be found that vertical coordination between the provincial government and the archipelago's districts/cities is hampered by dependence on wireless communication networks that are prone to interruptions during extreme weather. The emergency handling bureaucracy, which is still hierarchical-centralistic, has proven to be inflexible in responding to the dynamics of crises on remote islands. This is in line with the findings (Zheng, 2026) which confirms that conventional administrative structures tend to fail to anticipate crises in physically fragmented regions.

Analytical Capacity and Fiscal Dependence

Based on the analysis of personnel documents, the Disaster Risk Assessment Document (KRB), and the Regional Revenue and Expenditure Budget Posture (APBD) in North Maluku Province and sample island districts/cities (such as South Halmahera and Sula Islands), it was found that there is a significant deficit in analytical capacity and fiscal independence, namely; there is a shortage of mapping and GIS experts from a total of 10 districts/cities in North Maluku, more than

60% of district BPBDs do not have civil servant personnel with functional typologies of certified Disaster Analysts and Geographic Information System Managers (GIS). The preparation of disaster risk vulnerability maps so far is highly dependent on third-party consultants or draft proposals from provinces that are rarely updated regularly (real-time). The limitation of the Regional Regional Budget BTT Allocation, which includes the proportion of the allocation of Unexpected Expenditure (BTT) in the archipelago district budget, is on average below 1% of the total regional expenditure. When a hydrometeorological disaster or a medium-scale volcanic eruption occurs, local BTT funds are depleted in less than two weeks of initial operation. And dependence on BNPB's Ready-to-Use Fund (DSP) which is limited in local BTT allocation forces regions to depend on the allocation of Ready-to-Use Funds (DSP) from the central BNPB. However, the DSP submission mechanism requires strict and tiered verification of administrative documents, so the disbursement of funds often takes 14 to 30 days after a disaster.

Table 3. GIS Analytical Capacity Profile and APBD BTT Posture in Sample Areas (2024–2026)

Sample Regency/City	Number of GIS Expert Personnel / Disaster Analyst (PNS)	BTT allocation in the APBD (Average %)	Availability of Up-to-date Disaster Risk Assessment (KRB) documents	Dependence on Central BNPB DSP
North Maluku Province	3 People	0,85%	Last Updated (2022)	Medium
South Halmahera Regency	1 Person	0,45%	Not Updated (> 5 Years)	Height
Sula Islands Regency	0 People	0,38%	Draft Proposal (Not Yet Legal)	Very High

Source: Primary Data Processing of Interviews and Document Analysis of the North Maluku Regional Budget (2026)

In order to validate the above quantitative findings, in-depth interviews were conducted with BPBD technical officials, regional financial managers, and public administration academics. The Head of Prevention and Preparedness of BPBD Sula Islands Regency explained the technical obstacles in developing evidence-based planning:

> *"We in the regions have a very difficult time making risk mapping based on precise coordinates. In our office, there is not a single functional staff who masters GIS software or disaster spatial analysis. So far, we have made the Disaster Risk Assessment document using the services of an outside consultant, but once the document is completed, there is no regional staff who can update the data when there are changes in the topography or new vulnerable points. As a result, our risk mapping is static and a mere administrative formality, not a real operational guide in the field."* Head of Prevention and Preparedness of BPBD Sula Islands Regency, Interview January 18, 2026).

The Head of the Regional Financial and Asset Management Agency (BPKAD) in one of the archipelago districts highlighted the limitations of the APBD allocation and dependence on the central government:

> *"Our regional fiscal capacity is very limited because the Regional Original Revenue (PAD) is small. The majority of the APBD is used up for employee spending and routine operations. Our BTT allocation is very minimal, less than half a percent of the total APBD. As soon as there is a natural disaster that damages the island's infrastructure, the BTT is immediately drained for emergency response in the first week. For the recovery stage and further assistance, we are resigned to waiting for the disbursement of the Ready-to-Use Fund (DSP) from the central BNPB. But the file verification process is long and convoluted, it must go through the central verifier review first. This is where there is a lag in handling that is quite long."* BPKAD Islands Regency Official, Interview January 25, 2026).

An expert in Regional Finance and Public Administration from Bumi Hijrah Tidore University provides a critical analysis regarding the central-regional fiscal relationship in risk governance:

> *"There is a so-called 'capacity trap' in disaster management administration in the archipelago. On the one hand, the regions are burdened with the responsibility of being the first responders, but on the other hand, they are not equipped with adequate human resource analytical*

capacity and strong fiscal autonomy. The very high dependence on the Central BNPB DSP reflects the failure of regional fiscal resilience. The bureaucratic-centralistic DSP disbursement mechanism (Lassa et al., 2021) further emphasizes that the administrative capacity of the archipelago region is locked by the dependence on central transfers, which are often late in responding to crises in isolated areas." Regional Finance Observer & Academician of Khairun University, Interview 5 February 2026).

Analytically, the capacity for risk mapping at the district/city level is still limited due to the lack of availability of technical human resources in the field of Geographic Information System (GIS) mapping and disaster analysis. In addition, the allocation of Unexpected Expenditure (BTT) in the regional budget of the archipelago is relatively minimal and highly dependent on the Ready-to-Use Fund (DSP) from the central BNPB, whose mechanism requires the disbursement of the bureaucracy in stages (Lassa et al., 2021).

Social-Local Administration Adaptation and Community Based Co-Governance

Based on field observations and analysis of social mapping after hydrometeorological disasters and volcanic eruptions in North Maluku (especially the waters of Obi Island and the Sula Islands), it was found that the phenomenon of community resilience filled the state absence gap. When the government's formal assistance flow was held back by lag time and geographical barriers, local communities spontaneously activated informal emergency networks based on social capital.

The inventory of community actions in the field identified three main social-administrative adaptation mechanisms, namely; Mobilization of the Local Fishermen's Fleet (Pamboat Coalition) is a group of traditional fishermen and village youth to form a self-help task force that operates motorized boats (pamboats) to penetrate the isolation of waters, cross between islands to evacuate vulnerable victims and distribute basic foodstuffs. The Logistics Barter and Customary Food Stock, which includes the community, utilizes social institutions such as food reserves based on customary settlements (local food/village barns) and the inter-coastal barter system to maintain the nutritional supply of survivors in the first 24 to 72 hours after the disaster. The Community-Led Early Warning System reflects the absence or breakdown of government-owned technological EWS sensors replaced by self-monitoring systems using amateur radio communication devices, power pole beaters/mosque poles, and the dissemination of chain messages via citizen groups.

Table 4. Forms of Community Initiatives and the Impact of Government Assistance Lag Time Mitigation (2024–2026)

Location/Region	Community Key Actors	Form of Operational Initiatives	Estimated Self-Response Time	Substitution of the Role of the Government
Obi Island (South Halmahera)	Rural Youth & Traditional Fishermen Alliance	Mobilization of 15–20 pamboat units for evacuation and logistics transportation	< 2 hours post-disaster	Overcoming the absence of a fast boat fleet/RIB owned by BPBD
Sula Islands (Isolated Hamlets)	Traditional Leaders & Coastal Women's Groups	Food commodity barter & independent public kitchen management	Live (< 1 hour)	Covering delays in disbursement & delivery of BTT logistics

Source: Results of Primary Data Processing of Interviews and Field Studies in North Maluku (2026)

In order to validate the quantitative and qualitative findings in the field, in-depth interviews were conducted with the heads of fishermen's groups, local indigenous leaders, and public sociologists. The Chairman of the Coastal Volunteer/Youth Leader Post on Obi Island recounted how the spontaneous action of the local fleet rescued residents when formal assistance had not yet arrived:

"If we had just sat quietly waiting for a boat from BPBD or assistance from Sofifi, there might have been many casualties. As soon as a high wave or disaster hit and the signal went out, we

> *youth and fishermen immediately gathered all the 'pamboats' (motorboats) on the pier. We jointly bought fuel from the rest of the residents' savings, then walked through the waves to evacuate residents from the next island and take the rice supply. This is not a matter of government instructions, but a matter of humanity and the bonds of brotherhood between the islands."* Coordinator of the Obi Island Coastal Youth & Fishermen Coalition, interview February 16, 2026).

An Indigenous Leader in the Sula Islands explains the mechanism of self-sustaining food security based on local traditions:

> *"Our island people have a strong tradition of supporting each other. When the land road was cut off and the aid ship could not dock at the port due to the storm, we activated the village barn and the food barter system. The coast sent salted fish or seafood to the upper hamlets, and the hillside residents supplied sago and tubers. It is this informal social system that allows us to survive for days without official assistance from the provincial or central government."* Traditional Leader / Elders of the Sula Islands Community, interview February 21, 2026).

A researcher in the Sociology of Administration and Public Governance from the University of Bumi Hijrah Tidore gave a theoretical overview of the importance of integrating informal networks into the country's administrative system:

> *"The phenomenon in North Maluku confirms that the state should not feel like it is the only disaster management actor (sole provider). The presence of these informal emergency networks proves the extraordinary adaptability of local social-administration. However, the government must not let go of its hands and let the community work on its own without support. The challenge of public administration in the future is to build a framework of 'co-governance', where these informal networks are legalized, trained, and supported by official operational budgets without turning off their natural flexibility."* Public Sociology Observer & Academic, Bumi Hijrah University Tidore, Interview February 28, 2026).

In the midst of a deficit in formal administrative capacity, this study found the presence of a social-administrative adaptation mechanism that grew from local initiatives (bottom-up adaptation). This adaptation is an important bridge in maintaining the safety of citizens when state intervention is delayed:

Local actors, such as indigenous peoples' organizations, youth networks, and traditional fishermen's groups, form informal emergency networks. When the crisis hits, a logistical barter system and the mobilization of fishing boats (pamboats) are used for initial evacuation and inter-island delivery of aid before official government assistance arrives at the site. Local government officials (sub-district heads and village heads) often use informal administrative discretion to allocate Village Funds and self-help to meet emergency needs. This co-governance pattern based on local wisdom proves that social capital and the adaptability of the site bureaucracy function as the main buffer in mitigating risks in isolated areas.

The results of this study confirm that the conventional public administration model with a mainland-centric paradigm is irrelevant to be applied in the archipelago. The failure to respond quickly to disasters is not solely caused by bureaucratic negligence, but by a mismatch between institutional design and spatial geographical reality.

To build sustainable disaster resilience in archipelagic provinces such as North Maluku, a paradigm shift from centralized command administration to the Adaptive Archipelagic Governance Model is needed. This model emphasizes two main pillars: First, Decentralized Logistical Hubs is building logistics depots and emergency response command posts spread across strategic island clusters, not just in provincial capitals. Second, Fiscal and Institutional Flexibility that provides more flexible legal and emergency budget discretion space for local administrative leaders (Camat/Kades) during the crisis phase without overshadowing the risk of administrative sanctions.

CONCLUSION

This study concludes that disaster risk management in archipelagic provinces such as North Maluku is highly determined by the characteristics of public administration capacity that is responsive to geographical conditions (archipelagic context). Conventional public administration models that are centralistic and mainland-centric paradigm have proven to experience significant operational, coordinated, and analytical deficits when faced with fragmentation of archipelagic areas. Spatial distance, geographical isolation, and vulnerability of sea transportation networks create bureaucratic obstacles that slow down the flow of coordination and distribution of emergency logistics assistance.

Nevertheless, this study finds that the state's formal capacity limitations are offset by the presence of social-administrative adaptation mechanisms at the local level. The use of informal discretion by site bureaucracies, the strengthening of social capital through fisher-based inter-island security networks, and community based co-governance schemes are vital buffers that rescue residents in isolated areas. The theoretical novelty of this study confirms the importance of incorporating archipelago spatial and geographical variables into the analysis of public administration capacity, where effective disaster management cannot be achieved by simply increasing budgets or increasing personnel, but rather by redesigning bureaucratic structures to be more flexible and decentralized.

Policy Implications

Based on the findings of the research, several strategic steps are recommended for the local governments of the archipelago provinces and the central government, namely; first, the Development of Decentralized Logistical Hubs where local governments need to stop the concentration of disaster logistics facilities in provincial/district capitals and start building disaster logistics depots based on strategic island clusters to cut the lag time of emergency aid distribution. Second, the provision of Administrative Discretion and Localized Fiscal Flexibility that needs to be prepared with regulations and technical guidelines that provide legal certainty for sub-district/village level officials to allocate Village Funds or emergency budgets quickly and flexibly during a crisis without being overshadowed by administrative sanctions. Third, Community-Based Analytical Capacity Building that provides collaboration between local governments and universities needs to organize disaster risk mapping training and the use of applied Geographic Information System (GIS) technology for district/city BPBD officials and local volunteers on small islands. And fourth the Archipelago Disaster Co-Governance Institution can encourage the establishment of an Archipelago Disaster Governance Forum that formally integrates the role of fishermen groups, indigenous organizations, and local communities into the *early warning system* and regional emergency response scheme.

Limitations of Research and Direction of Further Study

This study has limitations because it focuses on a single case study in North Maluku Province with a qualitative approach. The next study is recommended to conduct a quantitative comparative study or mixed-methods involving other archipelago provinces in Indonesia (such as Maluku, East Nusa Tenggara, or Riau Islands) to test the generalization of the archipelago disaster governance model more broadly.

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