

Effectiveness of Disaster Management Programs: a Collaborative Governance Analysis of Flood Response in North Kalimantan Province

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Abstract. *Flood disaster is a significant hydrometeorological risk in North Kalimantan Province, demanding effective management programs. This research aims to analyze the effectiveness of flood disaster management programs in North Kalimantan Province with a focus on collaborative governance aspects. Using a qualitative approach with a case study method, this research collected data through in-depth interviews, observations, and documentation from key stakeholders, including the BPBD, local government, TNI/Polri, and community elements. The analysis was conducted through a program effectiveness framework that includes input, process, output, and outcome stages. The results showed that the disaster management program was quite effective at the output stage, especially in the emergency response aspect. However, effectiveness at the input and process stages still faces significant obstacles. Limited resources (input) and weak coordination, incidental collaboration, and unstructured participation (process) are the main obstacles to achieving long-term outcomes, namely increased community resilience. This research concludes that the effectiveness of the program is hampered by the suboptimal implementation of sustainable collaborative governance. It is necessary to strengthen the joint commitment between institutionalized stakeholders to improve the overall effectiveness of the program.*

Keywords: *Flood Disaster, Management Program, Collaborative Governance*

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INTRODUCTION

Indonesia is an archipelagic country that is geographically prone to high levels of disaster risk, including both geological and hydrometeorological disasters (Fahrudin et al., 2022). Among these threats, flooding is one of the most frequent disasters and causes significant losses. North Kalimantan Province, one of the youngest provinces in Indonesia, has unique geographical characteristics with an extensive river basin system and high rainfall. This situation, exacerbated

by factors such as land use changes and environmental degradation, places the region at a very high risk of flooding (Ianoş et al., 2019; Nguyen et al., 2023). Data from the local Disaster Management Agency (BPBD) consistently shows that flood disasters not only occur repeatedly but also have widespread impacts, causing damage to vital infrastructure, economic losses in the agricultural and trade sectors, and threatening the safety of residents. Therefore, the existence of an effective disaster management program is no longer merely a necessity but an absolute requirement to ensure sustainable development and public safety (Schipper & Pelling, 2006).

In response to these challenges, the government has institutionalized a comprehensive disaster management framework through Law No. 24 of 2007, which covers the disaster management cycle from mitigation, preparedness, emergency response, to recovery. Gable (2012) and Han (2015) said that the modern disaster management paradigm has shifted from a top-down, government-centered approach to a collaborative governance model. This approach emphasizes that the effectiveness of disaster management depends heavily on strong synergy and cooperation among various stakeholders (Noran, 2014; Booth et al., 2020; Serrao-Neumann et al., 2015). In North Kalimantan Province, the BPBD, as the leading sector, is expected to be able to orchestrate collaboration involving relevant regional government agencies (OPD), vertical agencies such as the TNI/Polri, the private sector, academics, the media, non-governmental organizations, and, most importantly, the community itself.

Although the regulatory and institutional framework in North Kalimantan has adopted this multi-stakeholder principle, initial observations in the field indicate a gap between policy design and implementation reality (Muttaqin & Dharmawan, 2023). Various critical issues still frequently arise, such as suboptimal cross-sectoral coordination, collaboration that tends to be reactive and only occurs when a disaster strikes, community participation that is still limited to the emergency response phase, and resource allocation that is not yet strategically integrated. These issues collectively raise fundamental questions about the extent to which current disaster management programs are truly effective. Therefore, this research is crucial for conducting an in-depth analysis of the effectiveness of flood disaster management programs in North Kalimantan Province, with a particular emphasis on how collaborative governance practices among stakeholders shape outcomes on the ground

METHODS

This research uses a qualitative approach aimed at gaining an in-depth and holistic understanding of the phenomenon of disaster management program effectiveness. This approach was chosen because it is able to capture the complexity of social interactions, institutional dynamics, and the specific context surrounding disaster governance, which cannot be measured numerically. The research design used is a case study, which allows researchers to conduct an intensive investigation of the "case" of flood disaster management programs in North Kalimantan Province in its natural setting. The location was selected purposively with the consideration that North Kalimantan Province has a high level of flood risk and represents a governance challenge in a new autonomous region.

Data collection was conducted using several techniques to ensure data richness and validity. The main technique was semi-structured in-depth interviews with informants selected through a purposive sampling technique. Informants were individuals with knowledge, experience and direct involvement in the disaster management process, including leaders and staff from BPBD, Bappeda, the Social Service, officers from the TNI/Polri assigned to the area, Baznas administrators, as well as community leaders and affected residents. In addition, non-participant observation was conducted to directly observe the dynamics of interaction, decision-making processes, and communication flows in coordination meetings, disaster simulations, and activities in emergency posts. The third technique was documentation study, which involved analyzing relevant documents such as the Regional Medium-Term Development Plan (RPJMD), Disaster Management Plan (RPB), budget realization reports, meeting minutes, and regulations related to disaster management.

Data analysis was conducted interactively and continuously throughout the research process, adopting the model developed by Miles & Huberman (2014). This process consisted of three simultaneous streams of activity: data reduction, data presentation, and conclusion drawing (verification). Data reduction is the process of selecting, focusing, simplifying and abstracting raw data from interview transcripts and field notes into themes and categories relevant to program effectiveness. Furthermore, the data that has been reduced is presented in the form of matrices and narrative descriptions to facilitate understanding of the patterns of relationships between variables. Finally, conclusion drawing was done carefully by continuously verifying the findings on the raw data. To maintain the credibility of the research results, source triangulation was conducted by comparing data obtained from interviews, observations, and documents.

RESULTS AND DISCUSSION

The current analysis summarises empirical findings based on in-depth interviews, human observation, and documentary search in an analytical framework in which the input, process, output, and outcome variables are disaggregated. This disaggregation is related to the most fundamental aspects in evaluating the program effectiveness and converts to the full picture of collaborative governance in flood disaster management in the Province of North Kalimantan.

Resources, Capacity, and Structural Foundations

The results put forward the internal weaknesses that limit the programme. Despite the dedication of the human resources, they are inadequate and their technical skills are not substantial. According to interviews with members of the BPBD and local OPDs, the majority of the staff develop their competencies on the job, as opposed to being certified or disaster-trained. One BPBD officer said,

“We learn as we go, usually when there is a flood. There is not that much formal training here.”

This technical shortcoming causes a failure to provide consistent answers and excessively count on personal experience. Finances are also not distributed equally. According to budget documents and interviews, there is an inappropriate distribution of funds on emergency response as opposed to mitigation and preparedness. Over 70 percent of annual disaster management funds are channeled towards post disaster recovery and little less than 20 percent towards capacity building, or the establishment of early warning systems. Such an orientation indicates reactive financial strategy at the expense of long-term planning in health resilience. Facilities such as flood surveillance equipment, evacuation machines and logistical warehouses are poorly funded or non-existent in other key risk areas. The testimonies of observational evidence support the fact that standard evacuation signs and access to boats or high-ground shelters, especially in the countryside, is limited.

Collaborative Governance Dynamics

The current step in the analysis is the examination of the engagement, interaction, and coordination of the stakeholders. Whilst the regulatory frameworks promote cross-sectoral collaboration, in practice it is realised on a low level of integrations and is characteristically ad hoc. The coordination of the working relationship between BNPB and the local government agencies, NGOs communities, and TNI/Polri tends to be re-active more than pro-active. A Social Agency officer noted:

“We don t meet, except when the flood takes place. It has no standing forum and regular coordination.”

The information shows there is a want on institutional mechanisms pertaining to concerted planning and concerted implementation. The collaborative governance proposed by Emerson et al. (2012) puts the center of focus on the collective motivation and directed action, and joint capacity. In North Kalimantan, principled interaction and collective strength are not

widespread in daily operations but mutual motivation is apparent in situations where there is a need of emergency. Such spontaneous methods of coordination (the WhatsApp groups) are rather effective in transferring the information, but they simply cannot replace a centralized data hub or structured decision-making processes. In addition, there is a phony community involvement. In spite of the efforts undertakings like Desa Tangguh Bencana include to expand the community participation, the interview with the community members reveal that the participation is usually superficial. As one of the local citizens voiced:

“We attend meetings when invited, but we’re not involved in the planning or evaluation stages.”

This highlights the absence of institutionalized community roles in the disaster management cycle.

Tactical Successes in Emergency Response

Despite being fraught with weaknesses both at the input and process levels with regard to operations, the program has proved to be operationally effective in case of disasters. There is agility in the stakeholders in terms of logistic distribution, evacuation and shelter setup. However, the high level of coordination of the emergency posts was captured during the field observations during the 2023 flood events where TNI/Polri arranges transportation and local volunteers help in distributing aid.

But the tactical successes are incident-based and are not related to institutional capacity systems. As stated through post-disaster evaluations based on the meeting minutes, failure fails to turn into planning improvements and regularized learning processes. As a result, the future of adaptive changes and institutional resilience of the program is jeopardized.

Long-Term Resilience and Disaster Risk Reduction

Finally, the empirical appraisal of programme efficacy in disaster risk reduction relies on observable results, especially the level to which the disaster risk reduction programmes reduce vulnerability and builds resilience of the communities. North Kalimantan shows the evidence of most questionable nature. Flooding has continued to happen in recurrent patterns with worsening effects. Monitoring done by RPJMD indicates limited progress in critical areas, including trained local receptions, functional early warning systems and vested land use practices. With few investments in prevention and institution learning, this has limited programme effectiveness due to a sustained dependence on short-term emergency management. There is still high vulnerability particularly with the marginalised rural citizens who do not have resources and are not included in the formal planning.

These results reveal an extreme incongruence of the disaster management system in the region of North Kalimantan, which is effective in failure response but still unacceptable in terms of prevention, planning, and resilience training. According to Bryson et al. (2006), the collaborative arrangements present in the region are characterised by the “collaboration in name but not in structures.” Individual failures at the entry level- a lack of professional training, little or no investment in preparedness and a lack of infrastructure infrastructure- highlights systemic disregard of all the building blocks to resilient disaster governance. As a result, the programme does not have adaptive and anticipatory capacity of governance. Even more disturbing is the process stage, since collaboration is performed in a reactive, disjointed and non-institutionalised way. Poor institutional design is enhanced by the lack of formalised systems of lasting interactions. Ansell & Gash (2008) affirm that long-term partnership requires trust, mutual understanding and commitment as are virtually non-existent in the culture of governance in disasters in North Kalimantan.

Generating the maintenance of emergency response at tactical levels does not intersect into strategic capacity. Interpersonal coordination based on second-order mutual influence and crisis urgency is usually covering up the cooler institutional failures. Without adequately

developed learning processes and continuity planning, the collaborative process is restarted by each disaster, but to no greater progress. The presented empirical study of the disaster management framework of North Kalimantan offers a list of interesting findings that should be considered by the academic community. Most prominent among them is the lack of a concrete accomplishment, especially the inability to reduce the systemic risk significantly enough, thus raising the question regarding the long-term sustainability of what is being practiced currently. The research hence emphasizes on the need to shift to proactive and integrated model of governance.

This transition cannot be achieved unless with a set of measures of establishing permanent inter-agency coordination mechanisms, institute of legally-based disaster planning forums, and formalization of community-welcoming roles. Moreover, technological investment, data platforms, and extensive training should become the priority areas of investment. The results support the evidence that the disaster management framework of North Kalimantan is competent enough to operate in extreme conditions, but it lacks strategic and cooperative process mechanisms that would guarantee lasting resilience. In order to meet the mandate of Law No.24/2007 adequately, the governance of disasters should be institutionalized, anticipatory and inclusive and based not only on episodic responsive but on commitment to live together through shared and sustained resilience.

Evaluating Collaborative Governance Performance in North Kalimantan

The results of this paper indicate that a balanced analysis on the disaster-management performance within the North Kalimantan Province requires an examination of the degree to which collaborative governance practice has been combined into the daily operations of disaster-management. The collaborative governance system that has been promoted in Ansell & Gash (2008) outlines four fundamental factors, which make possible the effective alliance: starting conditions, design, leadership, and collaborative process itself. In this context, the cooperation that has been witnessed in North Kalimantan lacks the requisite permanence and structural levels to function beyond the occurrence of crisis incidents and it cannot build lasting loyalties or create unified feeling of accountability.

The initial state in the province shows high interdependence among stakeholders that include BPBD, TNI/Polri as well as local government agencies but the stakeholders do not share the ownership of combined efforts. The roles and position are rather regarded as siloed mandates, and the interests of sectors or directives of superior-agency still have priority in decision making and operations. This kind of fragmentation reduces the ability to come up with some shared ground on action.

Another weakness is on the issue of institutional design. The lack of formal mechanisms to coordinate among agencies including chiefly inter-agency disaster planning committees established by statute has contributed to the fact that collaboration has been informal and lacks accountability. Whether in form or in relatively sturdy neutral status, facilitators are not institutionally prescribed, and coordination often rests on personal relationships among middle- and lower-level officials and less on established procedural requirements. As such, the collaborative process is not an iterative process.

According to field evidence, collaborative initiatives are not pre-mobilised but rather are mobilised on a reactive basis as a component primarily during the emergency-response phase, and quickly re-assembled once the immediate crisis has been overcome. Collaboration in conducting joint risk assessments, co-designed preparedness plans or co-financed mitigation projects is not well documented, which has highlighted a difference between ad hoc cooperation and actual collaborative governance: the former is contextual, the latter is ongoing and highly institutionalized.

Digital platforms (e.g. WhatsApp groups) offer convenient coordination efficiency, compared to the more traditional forms of coordination mechanisms, but do not have the

formality to ensure such inclusion, guarantee transparency of data, or ensure policy consistency. Also, lack of cohesive data architecture available to all stakeholders makes aligning strategies challenging as well as limits real time response capabilities. The isolated systems of data also hamper post-event assessments, which secondly limit the scope of adaptive learning.

Resilient and Institutionalized Governance Model

The chronic issues faced in the disaster governance require a shift of reactive to being proactive and institutionalized regime. Long-term sustainability of disaster programming can only be established after systemic reform has been developed to reduce the gap between the policy stipulations and their practical usefulness.

Taking a second look at collaborative governance as an aspect of disaster management regimes forms a central position at the time of this turn. The peculiarities of the current reality in North Kalimantan preclude the deepening of inter-agency coordination frameworks at the provincial and district level. In this regard, multi-stakeholder disaster forums have to be institutionalized at the regional level by means of legislation (Perda). These forums would be required to work outside the context of an emergency situation to co-develop regional disaster plans, carry out vulnerability analyses and make common financial and human resource allocations. This type of institutionalization would inoculate such forums against reliance on passing project funding and political l ups and downs.

Along with these structural reforms is the need to strengthen competency amongst stakeholders. Precise training, role-playing trainings, and peer-to-peer learning training are necessary to establish and enhance competences between governmental agencies, local governments, and non-governmental actors (namely community organizations). Of specific interest is the kind of leadership development which fosters officials who are able to move across the institutional boundaries. Enhancement of data infrastructure makes another pillar of reform. The key in informed decision-making may lie in a common digital platform combining hazard mapping, demographic data and resources inventories and emergency routines. Participatory planning would also be enabled on such a platform, and during crises, real time coordination will be possible, as well as transparent monitoring and evaluation of group efforts.

Lastly, there should be an increase in participation of the community that should not be symbolic consultations, but instead proper systematic engagement. Desa Tangguh Bencana needs to go beyond emergency preparedness to infuse it in the processes of planning and development the village. The village-level disaster committees ought to be provided with exclusive funding, formalized under law, and specially built capacities in order to be positioned as independent, grass-roots structures of governance. Sub-national disaster risk reduction activities need to be integrated into provincial planning processes so that its resilience-building initiatives are undertaken in a context specific and locally owned manner. Also, there is a cultural shift in governmental institutions: teamwork should be exalted, and the institutional learning should be given powerful encouragement. Performance measurement structures ought to be attached to post-disaster reviews which should be compulsory. Besides, risk reduction should be mainstreamed not only into the plan of the Bureau for Preparedness and Business Continuity (BPBC) but also in spatial planning, infrastructure building, the field of public health, as well as the educational field.

The analysis of the effectiveness of the flood disaster management program in North Kalimantan shows a paradox, where the program is relatively successful at the level of direct output (output) but not optimal in achieving long-term results (outcome). This can be broken down through evaluation at each stage of the program, starting from inputs, processes, to the results achieved. Effectiveness at the input stage, which includes the availability of resources, is a crucial initial foundation. Findings in the field indicate that there are significant limitations in this aspect. Existing human resources (HR), while dedicated, are often lacking in terms of numbers and certified technical capacity. The budget allocated tends to be greater for the emergency response phase than for preventive mitigation and preparedness programs. In addition, the

condition of vital infrastructure such as evacuation equipment, logistics and early warning systems is also inadequate, which directly undermines the initial capacity of the program.

This weakness at the input stage is compounded by ineffectiveness at the process stage, which is the core of collaborative governance. Collaboration between stakeholders including BPBD, TNI/Police, technical agencies, NGOs and communities tends to emerge reactively when a disaster occurs, rather than as a structured anticipatory measure. As expressed by informants, this cooperation is still "incidental" and "sectoral," where each agency moves based on its own mandate without strong integration in joint planning. This lack of collaboration is also intertwined with community participation that has not been institutionalized. Although initiatives such as Desa Tangguh Bencana (Destana) have been introduced, community involvement is often limited to the spirit of gotong royong during the emergency phase and has not yet entered the realm of systematic risk mitigation planning. Meanwhile, in terms of communication, the use of informal channels such as WhatsApp groups is effective in accelerating coordination, but this is not matched by a centralized data platform that can be accessed together, which often leads to miscommunication and overlapping information between agencies.

Paradoxically, although the collaborative governance process has not been optimal, the program has shown good effectiveness at the output level. When a flood disaster occurs, emergency response mechanisms can work, logistical assistance is distributed, and victims can be evacuated quickly thanks to tactical cooperation in the field. Stakeholders were able to temporarily put aside sectoral egos in favor of emergency management. However, this success at the output level is not directly proportional to the achievement of long-term outcomes, namely increased community resilience and a significant reduction in disaster risk levels. As the program focuses more on reactive response rather than proactive mitigation, floods continue to recur with similar loss impacts year after year. Failure to build systematic collaboration in the pre-disaster phase makes disaster management programs more effective as "fire-fighting" than as sustainable preventive efforts.

CONCLUSION

Flood disaster management programs in North Kalimantan Province show partial and unequal effectiveness. Program effectiveness is only prominent in the output aspect in the form of rapid emergency response, but is still very weak at the input stage due to limited resources and, more crucially, at the process stage due to the lack of institutionalized collaborative governance. Collaboration that is still reactive, sectoral and incidental is a major obstacle in achieving long-term outcomes, namely the realization of a resilient and disaster-resistant community. To improve the overall effectiveness of the program, a fundamental shift is needed from reactive governance to proactive and integrated governance. The key to this shift is the strengthening of shared commitment among all stakeholders. This commitment must be institutionalized in the form of permanent coordination mechanisms, integrated data sharing platforms, joint resource allocation for mitigation, and structured community involvement in every disaster management cycle. Without a strong and institutionalized shared commitment, the effectiveness of disaster management will remain limited to momentary emergency response and fail to build long-term resilience.

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