

Institutional Resilience Strategy BPBD in Mitigating Forest and Land Fire Hazards in South Sumatra Province

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ABSTRACT

This study aims to analyze the institutional resilience strategy of the Regional Disaster Management Agency (BPBD) in mitigating forest and land fire hazards in South Sumatra Province. This research employed a qualitative descriptive approach through in-depth interviews, observation, and documentation involving BPBD officials and community representatives. The analytical framework was based on Salusu's strategic management theory, encompassing organizational strategy, program strategy, human resource support strategy, and institutional strategy. The findings reveal that BPBD's institutional resilience is primarily strengthened through cross-sector coordination, early warning systems, and technological utilization. However, limitations remain in community participation and preventive awareness. This study contributes to disaster governance literature by emphasizing institutional resilience as a key determinant of effective forest and land fire mitigation.

INTRODUCTION

Forest and land fires are one of the most complex and recurring forms of ecological disasters in Indonesia. These disasters not only cause massive environmental damage, but also have a widespread impact on public health, the regional economy, and social stability (Saharjo & Gago, 2011).

Indonesia, as a country with vast tropical forests, faces serious challenges in managing its natural resources sustainably. Every year, forest and land fires are an almost inevitable part of the dry season, especially in Sumatra and Kalimantan (Nasution et al., 2013).

South Sumatra Province is one of the regions with a high vulnerability to forest and land fires. The characteristics of the region, which is dominated by peatlands, make this province highly susceptible to fires that are difficult to control and have the potential to spread rapidly (Hatta, 2008). Forest and land fires in South Sumatra not only cause ecological damage, but also produce cross-regional and even cross-border haze. The impact of this haze includes disruption to transportation, reduced air quality, and an increase in cases of acute respiratory infections (ARI) among the population (Perwitasari & Sukana, 2012).

From a public administration perspective, forest and land fires are a cross-sectoral and multidimensional public policy issue. Their management requires the involvement of various actors, ranging from central and local governments, security forces, the private sector, to local communities (Wibowo, 2019). Local governments have a strategic role in disaster management, as mandated by Law No. 24 of 2007 on Disaster Management. In this context, the Regional Disaster Management Agency (BPBD) is a key institution in coordinating all stages of disaster management, including forest and land fires.

BPBD is not only tasked with emergency response, but also has important responsibilities in disaster mitigation and preparedness. An approach that is solely oriented towards emergency response is considered insufficiently effective in dealing with recurring disasters such as forest and land fires (Putera et al., 2020). As the intensity and complexity of disasters increase, the disaster management paradigm is shifting from a reactive approach to a preventive and disaster risk reduction approach. This paradigm shift requires the continuous strengthening of the BPBD's institutional capacity.

One concept that is relevant in this context is institutional resilience. This concept refers to the ability of public institutions to survive, adapt, and continue to perform their core functions in the face of pressure and crisis (Capano & Woo, 2017). Institutional resilience is a crucial aspect of disaster management because the success of mitigation is determined not only by the availability of resources, but also by the capacity of organizations to manage coordination, learning, and policy adaptation (Comfort et al., 2010).

At BPBD, institutional resilience is reflected in the agency's ability to formulate strategies, implement programs, manage human resources effectively and efficiently (Suprianto et al., 2025), and build effective cross-sectoral networks.

Previous studies have shown that weak coordination between agencies is often a major obstacle in combating forest and land fires at the regional level (Kushartati, 2017; Zainal, 2020). In addition, low public awareness and

participation also increase the risk of fires, especially in areas where land clearing is carried out by burning (Darwiati & Tuheteru, 2010). Nevertheless, many regions have demonstrated improved institutional capacity through strengthened cross-sectoral coordination and the use of fire monitoring technology, such as early warning systems and satellite imagery (Sabrina, 2015).

South Sumatra Province is an interesting case study because the local Disaster Management Agency (BPBD) has developed various institutional strategies to deal with forest and land fires, including collaboration with the Indonesian National Armed Forces (TNI), the Indonesian National Police (Polri), district/city governments, and the use of geographic information technology. However, the effectiveness of these strategies has not been fully optimized, particularly in terms of community-based prevention and strengthening preparedness at the local level. This indicates a gap between the design of the strategy and its implementation in the field. Therefore, a more in-depth study is needed on how the BPBD's institutional resilience strategy is implemented in forest and land fire mitigation, as well as the factors that influence its success. This study uses the perspective of public organization strategy as proposed by Salusu (2006), which emphasizes four main dimensions, namely organizational strategy, program strategy, resource support strategy, and institutional strategy. This approach is considered relevant because it is able to explain how the BPBD as a public organization responds to the challenges of forest and land fires in a systematic and structured manner.

Unlike previous studies that focused more on policy aspects or program effectiveness, this study places institutional resilience as the main analytical framework for understanding the internal and external dynamics of BPBD. Thus, this study is expected to contribute theoretically to the enrichment of public administration studies, particularly in the field of disaster management and institutional resilience of public organizations. In practical terms, the results of this study are expected to serve as evaluation material for local governments in strengthening the capacity of BPBD in forest and land fire mitigation.

In addition, this research is also relevant in supporting more adaptive and sustainable disaster risk reduction policies at the regional level. In the context of climate change and the increasing frequency of ecological disasters, strengthening the institutional resilience of BPBD is a strategic necessity that cannot be delayed.

Based on the above description, this study aims to analyze the institutional resilience strategies of the South Sumatra Provincial Disaster Management Agency (BPBD) in mitigating forest and land fires, by examining how organizational, program, human resource, and institutional strategies are implemented in an integrated manner.

THEORETICAL REVIEW

Institutional Resilience

Institutional resilience refers to the ability of public institutions to absorb shocks, adapt to change, and maintain core functions in crisis situations (Capano & Woo, 2017). In the context of disaster management, institutional resilience is

measured not only by rapid response, but also by structural preparedness, human resource capacity, and cross-sectoral coordination capabilities.

Public Organization Strategy

Salusu (2006) divides public organization strategy into four main dimensions, namely:

1. Organizational Strategy,
2. Program Strategy,
3. Resource Support Strategy, and
4. Institutional Strategy.

These four dimensions are used as an analytical framework to assess how BPBD builds institutional resilience in forest and land fire mitigation.

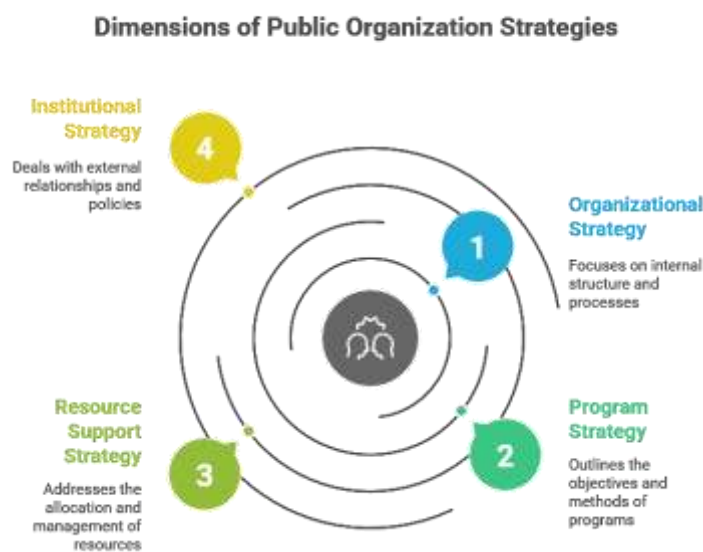


Figure 1. Conceptual Framework

METHODOLOGY

This study uses a qualitative descriptive approach (Suprianto & Riwayanti, 2024). Data were collected through in depth interviews with the Head of BPBD, technical staff of BPBD South Sumatra Province, and community representatives. Field observations and documentation were used as supporting data. Data analysis was conducted through the stages of data condensation, data presentation, and conclusion drawing and verification as proposed by Miles and Huberman. Data validity was ensured through source triangulation and technique triangulation (Bambang Suprianto & Jiwa Riwayanti, 2024).

RESULTS

Organizational Strategy

The South Sumatra Provincial BPBD's organizational strategy for forest and land fire mitigation stems from the establishment of an organizational vision and mission that places disaster risk reduction as a top priority. This vision serves as the normative foundation for all organizational activities in dealing with recurring fire threats. The BPBD's organizational structure is designed to support

coordination and rapid response to disasters. The division of tasks between departments, particularly in the areas of prevention and preparedness, emergency response, and rehabilitation and reconstruction, reflects an integrated organizational approach.

In the context of forest and land fires, the BPBD places mitigation as an important part of the disaster management cycle. This demonstrates a shift in the organization's orientation from a reactive approach to a preventive approach. The organizational strategy is also reflected in a hierarchical yet adaptive decision-making pattern. In emergency situations, BPBD has a clear command mechanism to accelerate response and cross-sector coordination. Organizational flexibility is one of BPBD's strengths in dealing with the often unpredictable dynamics of forest and land fires. Adjustments to the work structure and personnel assignments are made in accordance with the level of threat escalation.

The South Sumatra Provincial Disaster Management Agency (BPBD) has also developed a disaster-prone area-based organizational strategy. Mapping of fire-prone areas is used as the basis for determining program priorities and resource allocation. This strategy allows the organization to focus more on high-risk areas, especially peatlands that have a high potential for large fires. In its implementation, the BPBD's organizational strategy relies not only on formal structures, but also on informal working relationships between employees and between agencies.

Collaborative working relationships strengthen the effectiveness of organizations in carrying out mitigation and coordination functions. BPBD also implements a learning-based organizational strategy, in which previous firefighting experiences are used as evaluation material for improving organizational performance.

Internal evaluations are conducted periodically to assess the effectiveness of organizational structures and procedures in dealing with forest and land fires. However, the BPBD's organizational strategy still faces challenges in the form of limited authority to control community activities that have the potential to trigger fires.

Dependence on other agencies in law enforcement is a factor that affects the effectiveness of organizational strategies. However, in general, the BPBD's organizational strategy has provided a clear framework for forest and land fire mitigation. This strategy is the main foundation for the implementation of other strategies, namely program strategies, resource support strategies, and institutional strategies.

Program Strategy

The South Sumatra Provincial Disaster Management Agency's program strategy focuses on developing preventive and sustainable forest and land fire mitigation programs. The mitigation program is designed to reduce the potential for fires through monitoring, outreach, and community preparedness activities.

One of the main programs is the monitoring of hotspots, which is carried out routinely using satellite data and field reports. Hotspot information is used as a basis for decision-making in taking early preventive action before fires

spread. BPBD also implements socialization and education programs for the community regarding the dangers and impacts of forest and land fires. This program aims to raise public awareness not to clear land by burning. However, research shows that the effectiveness of the socialization program is still limited, especially in rural areas where land clearing is a long-standing tradition. In addition to socialization, BPBD has developed a training program for volunteers and village officials in initial fire response. This training program aims to strengthen local capacity to deal with fires at an early stage before they escalate. BPBD also conducts simulations and preparedness drills as part of its mitigation program strategy. Simulations are carried out to test the readiness of personnel, equipment, and inter-agency coordination in dealing with forest and land fires. The mitigation program also includes the provision of supporting facilities such as observation towers and fire watch posts. The presence of watch posts is considered quite effective in accelerating the response to fires in vulnerable areas. However, budget constraints are an obstacle to the development and expansion of mitigation programs in an equitable manner.

Overall, the BPBD program strategy has demonstrated the organization's commitment to prioritizing a preventive approach, although it still needs to be strengthened in terms of community participation.

Resource Support Strategy

The resource support strategy of the South Sumatra Provincial Disaster Management Agency (BPBD) includes human resource management, infrastructure, and funding.

Human resources are a key element in the success of forest and land fire mitigation. BPBD has personnel who have received special training in firefighting and disaster management. Training is conducted in stages to improve the technical and managerial competencies of employees. In addition to internal employees, BPBD also involves volunteers and the community in supporting mitigation activities. The involvement of volunteers is an important strategy in overcoming the limited number of BPBD personnel.

In terms of infrastructure, BPBD is equipped with firefighting equipment, operational vehicles, and monitoring technology. The use of information technology, such as geographic information systems, strengthens BPBD's ability to map fire risks. However, the distribution of equipment is not yet fully equitable, especially in remote areas.

Funding is an important factor in resource support strategies. BPBD relies on budgets from the regional budget allocated for mitigation and preparedness activities. Budget constraints often affect BPBD's ability to expand the scope of mitigation programs. To overcome this, BPBD seeks to establish cooperation with other agencies and the private sector. Resource support strategies also include efforts to maintain and optimize existing equipment.

In general, BPBD's resource support strategies have been running quite well, although they still face challenges in terms of equity and sustainability.

Institutional Strategy

The institutional strategy of the South Sumatra Provincial Disaster Management Agency (BPBD) focuses on strengthening cross-sector coordination in forest and land fire mitigation. The BPBD acts as the main coordinator, connecting various related agencies, such as the Indonesian National Armed Forces (TNI), the Indonesian National Police (Polri), regency/city governments, and other technical agencies.

Cross-sector coordination is carried out through formal forums and informal communication mechanisms. The existence of integrated command posts is one of the institutional instruments that supports effective coordination. The institutional strategy also includes the establishment of a working network with community organizations and volunteers. This network plays an important role in expanding the reach of mitigation to the local level.

BPBD also develops cooperation with research institutions and universities to support data-based policy development. This cooperation enables BPBD to utilize research results and technological innovations in fire mitigation.

In terms of regulation, BPBD plays a role in formulating and implementing regional policies related to forest and land fire management. However, the effectiveness of policies is often influenced by the level of compliance and support from other actors.

BPBD's institutional strategy also faces challenges in the form of overlapping authority between agencies. Nevertheless, BPBD continues to strengthen its institutional position by improving its coordination capacity. This strategy reflects a collaborative governance approach to disaster management. Strengthening the BPBD's institutional capacity is an important factor in building institutional resilience to forest and land fires.

Overall, the BPBD's institutional strategy shows that institutional resilience is highly dependent on an organization's ability to build and maintain sustainable cross-sector cooperation.

DISCUSSION

The results of the study show that the institutional resilience strategy of the South Sumatra Provincial Disaster Management Agency (BPBD) in mitigating forest and land fires is built through a combination of organizational, program, resource support, and institutional strategies. These findings confirm that forest and land fire management cannot be carried out partially, but requires a systemic and integrated approach.

From the perspective of organizational strategy, the establishment of BPBD's vision and organizational structure oriented towards disaster risk reduction reflects a paradigm shift from responsive to preventive. This is in line with the concept of disaster risk reduction which emphasizes the importance of mitigation as the main foundation of disaster management (United Nations Office for Disaster Risk Reduction, 2015). The organizational flexibility shown by BPBD in adjusting the work structure and command mechanism in emergency situations strengthens the organization's capacity in dealing with the dynamics of uncertain

forest and land fires. These findings support the view of Comfort et al. (2010) that resilient public organizations are those that are able to adapt quickly to environmental changes. However, the limited authority of BPBD in controlling land clearing activities shows that institutional resilience is not only determined by internal capacity, but also by policy support and cross-sectoral law enforcement. This indicates a structural dependency that needs to be managed collaboratively.

The program strategies developed by BPBD, such as hotspot monitoring, socialization, and preparedness training, reflect systematic efforts to reduce fire risk from the early stages. These findings are in line with research by Putera et al. (2020) which emphasizes the importance of preventive programs in ecological disaster management. However, the effectiveness of the socialization program still faces serious challenges, especially in changing the behavior of people who are used to clearing land by burning. This suggests that programmatic approaches need to be complemented by more contextual empowerment and incentive strategies. The passive involvement of the community shows that the BPBD program strategy has not been fully able to encourage active community participation as a mitigation actor. These findings support the view of Darwiati and Tuheteru (2010) that the success of fire mitigation is highly dependent on changes in collective behavior at the local level.

In terms of resource support strategies, the existence of trained human resources and the use of information technology are factors that strengthen the institutional resilience of BPBD. This is in line with the concept of organizational capacity which emphasizes the role of competence and technology in improving the performance of public organizations. The use of hotspot monitoring technology and geographic information systems makes a significant contribution to increasing the speed and accuracy of BPBD responses. These findings support the results of Sabrina's (2015) research which emphasizes the importance of technology in forest and land fire mitigation. However, budget limitations and uneven distribution of infrastructure facilities show that the institutional resilience of BPBD still faces structural challenges. This condition confirms that resilience is not only related to adaptability, but also the sustainability of resource support. Resource support strategies involving volunteers and cross-agency cooperation are a form of institutional adaptation in the face of internal limitations. This reflects the practice of resource sharing in disaster management.

In terms of institutional strategy, cross-sector coordination is the main pillar of BPBD's institutional resilience. The role of BPBD as a coordinator reflects the orchestrative governance approach in disaster management.

The findings of the study show that the success of coordination is highly dependent on the clarity of the role and communication mechanism between agencies. This is in line with the theory of collaborative governance which emphasizes the importance of mutual trust and commitment (Ansell & Gash, 2008). However, overlapping authority and differences in interests between agencies are still obstacles in building effective coordination. This condition shows the need to strengthen the regulatory framework and collaborative leadership.

BPBD's collaboration with community organizations and volunteers expands the reach of mitigation to the local level. These findings indicate that institutional resilience can be strengthened through social networks and community participation.

In the context of public administration, the results of this study show that institutional resilience is not only a matter of organizational internal capacity, but also the ability to build productive and sustainable external relationships. Thus, BPBD's institutional resilience strategy needs to be understood as a dynamic process that involves organizational learning, policy adaptation, and institutional innovation on an ongoing basis.

The theoretical contribution of this research lies in strengthening the concept of institutional resilience in the study of disaster management at the regional level, especially in the context of forest and land fires. Practically, the findings of this study provide implications for local governments to strengthen the capacity of BPBD through increased cross-sectoral coordination, strengthening community-based programs, and sustainable resource support.

With the increasing risk of fires due to climate change and development pressures, strengthening the institutional resilience of BPBD is a strategic need in realizing adaptive and sustainable disaster governance.

CONCLUSIONS AND RECOMMENDATIONS

This study concludes that the institutional resilience strategy of the South Sumatra Provincial BPBD in mitigating forest and land fires is built through the integration of organizational strategies, program strategies, resource support strategies, and institutional strategies. This integration is the main foundation in strengthening the capacity of BPBD to face the risk of recurrent fires.

1. BPBD's organizational strategy shows a clear orientation towards disaster risk reduction through the establishment of an adaptive vision, organizational structure, and work mechanism. Organizational flexibility in responding to the dynamics of forest and land fires is one of the important indicators of institutional resilience.
2. The program strategy implemented by BPBD emphasizes a preventive approach through hotspot monitoring, socialization, training, and preparedness simulations. However, the effectiveness of the program still needs to be improved, especially in encouraging behavior change and active participation of the community.
3. In terms of resource support strategies, the existence of trained human resources and the use of monitoring technology make a significant contribution to improving BPBD preparedness and response. However, budget limitations and equitable distribution of infrastructure are still major challenges.
4. BPBD's institutional strategy is characterized by a strong coordinating role in building cross-sector cooperation. Coordination with the TNI, the National Police, local governments, and related agencies is the key to strengthening the institutional resilience of BPBD.

Based on these findings, it is recommended that the South Sumatra Provincial BPBD continue to strengthen the organizational strategy by developing an organizational learning system based on previous fire management evaluation and experience. Strengthening program strategies needs to be directed towards a community-based approach through increasing the intensity of education, local empowerment, and providing incentives for the practice of no-burn land clearing.

In terms of resources, local governments are advised to increase budget support and expand access to technology and mitigation infrastructure, especially in fire-prone areas.

Strengthening institutional strategies needs to be carried out through affirming the role and authority of BPBD in the framework of cross-sectoral coordination, as well as improving regulations that support collaborative forest and land fire governance.

Overall, strengthening the institutional resilience of BPBD is an important prerequisite in realizing adaptive, sustainable, and disaster-risk reduction mitigation at the regional level.

FURTHER STUDY

Future research is expected to expand the scope of analysis by incorporating comparative studies across multiple provinces with similar forest and land fire risk characteristics to identify best practices in institutional resilience strategies implemented by Regional Disaster Management Agencies (BPBD). In addition, further studies may integrate quantitative approaches and longitudinal data to measure the effectiveness of coordination mechanisms, technological adoption (such as early warning systems), and community-based mitigation programs over time. Exploring the role of cross-sector collaboration involving local governments, private sectors, and civil society organizations is also essential to strengthen adaptive governance frameworks in disaster risk reduction, particularly in addressing recurring forest and land fire hazards in South Sumatra Province.

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