

## Conference Paper

# Capability of Local Government Organizations in Handling Natural Disasters in Maros Regency

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The capabilities of local government organizations play an important role in handling natural disasters. This study describes these capabilities and the factors that influence them. Through qualitative research, it was found that strong policies and regulations, trained human resources, resilient infrastructure, good preparedness and planning, and active community involvement are key factors for improving organizational capabilities. Constraints and challenges, such as limited resources, complex coordination, lack of community understanding, climate change, and policy updates, are also faced. However, recent efforts and innovations in overcoming these constraints, such as the use of information technology, early warning systems, collaboration with external parties, and increased community participation, have had a positive impact on improving the organizational capabilities of local governments. The recommended practical and policy implications include policy strengthening, investment in human resources, infrastructure development, improved preparedness and planning, and increased community engagement. In conclusion, it is hoped that the results of this study will provide a better understanding of the capabilities of local government organizations in handling natural disasters and serve as a reference for more effective policies and practices in facing future disaster challenges.

**Keywords:** kwd

## 1. Introduction

Natural disasters are unpredictable events that can cause extensive damage and have negative impacts on human life, the environment, and the economy. Natural disasters include earthquakes, floods, landslides, tsunamis, tropical storms, droughts, and forest fires Somantri [1] These disasters often occur suddenly and require a rapid and effective response to protect human lives, reduce material losses, and restore the affected areas. Handling natural disasters is the responsibility of local governments to protect their citizens and ensure sustainable development Dianty, [2]. Natural disasters can cause significant losses in terms of both casualties and economic losses. Therefore, it is

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important for local governments to have adequate organizational capabilities to respond to, manage, and recover from disaster-affected areas.

The increasing frequency and intensity of natural disasters in various parts of the world are becoming an increasingly urgent challenge. Climate change, rapid urbanization, and human activities that have the potential to damage the environment contribute to the increased risk of natural disasters Kurniawan, [3] Local government organizations are recognized as key players in facing this challenge, as they are at the forefront of providing responses and coordination in emergencies. The capability of local government organizations to handle natural disasters involves various aspects, including policies and regulations, early warning systems, personnel training, interagency coordination, and post-disaster recovery Rizki et al., [4]

Rahma (2018) argued that improving the capabilities of local government organizations in handling natural disasters is critical to reducing risks, protecting communities, and building more resilient communities in the face of disasters. This involves developing effective strategies, policies, and programs as well as close cooperation between local governments, communities, and other stakeholders. In an era of globalization and evolving information technology, the exchange of information and learning between local governments is becoming more feasible. Local governments can share experiences, best practices, and lessons learned from previous disasters. This can improve the capability of local government organizations to deal with natural disasters. Natural disaster management has a multidisciplinary dimension and involves various stakeholders. Cooperation among local governments, civil society organizations, humanitarian agencies, the private sector, and local communities is crucial Herdiansah, [5]

Increasingly evident climate change and its significant impact on weather patterns and natural events add complexity to disaster management Sulistyono et al., [6]. Local governments must consider climate change in their planning and decision making. These include adaptation, mitigation, and disaster risk-reduction measures associated with climate change. The capability of local government organizations to deal with climate change and handle natural disasters is very important to ensure the sustainability of development and environmental protection. Heryati [7] argues that the handling of natural disasters shows the importance of the capabilities of local government organizations. Handling natural disasters depends not only on emergency response but also on the ability of local governments to prepare, manage risks, and recover after disasters. In a changing and complex world, local governments must have strong and evolving organizational capabilities to effectively face the challenges of natural disasters. The

purpose of this literature review is to determine the organizational capabilities of local governments in handling natural disasters.

Existing policies and regulations at the national and local levels can influence the capabilities of local government organizations in natural disaster management. The presence of clear policies, operational guidance, and a strong legal framework can provide a solid foundation for local governments to develop effective disaster-management strategies, programs, and plans.

Several studies have been conducted to evaluate the capabilities of local government organizations in handling natural disasters. The following are some examples of related research. The study "Assessment of Local Government Capacity for Disaster Risk Reduction in Indonesia" aims to evaluate the capability of local governments in reducing disaster risk in Indonesia. This study used quantitative and qualitative approaches to collect data and analyze the capabilities of local government organizations in terms of planning, human resources, coordination, and community participation. The results showed variations in local government capabilities in different regions, and recommended improvements in capacity development for disaster management.

Research conducted by Mendoza et al. [8] analyzed the capabilities of local government organizations in the Philippines in the face of natural disasters. This study used quantitative and qualitative approaches to measure and compare local governments' capabilities in terms of policy, planning, implementation, and monitoring of disaster management. The findings showed that there were shortcomings in the planning and implementation of disaster management programs at the local level and recommended improvements in coordination and collaboration between local governments and relevant stakeholders.

Furthermore, Parsons et al. [9] examined the capabilities of local governments in Fiji to adapt to climate change and deal with climate-related disasters. This research used a participatory approach to collect data through interviews and discussions with relevant stakeholders. The results showed that local governments in Fiji have challenges in integrating climate change into disaster management policies and plans and recommended improvements in adaptive and participatory capacity at the local level.

Existing policies and regulations at the national and local levels play an important role in determining the focus, priorities, and framework of natural disaster management Nursyabani et al., [10]. Clear policies and comprehensive operational guidelines provide directions to local governments on how to plan, implement, and manage disasters. Existing policies at national and local levels are frameworks that govern approaches and strategies in natural disaster management. These policies usually include the general

principles, objectives, and guidelines that local governments should follow when dealing with disasters. For example, policies can establish the importance of prevention, risk mitigation, preparedness, emergency response, and post-disaster recovery. Policies may also include arrangements related to disaster management, such as the establishment of special institutions or organizational structures responsible for disaster management Arifin, [11] Strong and integrated policies can provide a clear direction for local governments to plan and implement disaster-management efforts Ahdi, [12]

Rules or regulations are legal instruments that regulate the actions and obligations that must be followed by local governments in handling natural disasters. These regulations can be in the form of laws, regional regulations, or executive orders established by central government or local authorities. Clear and applicable regulations provide a strong legal framework for local governments to implement disaster management efforts, a clear legal basis, and clear authority and responsibility Bangun, [13]

Local governments' ability to respond to natural disasters depends on sound, comprehensive rules and regulations. They offer precise instructions and directions on what to do, how to do so, and who is in charge of disaster management. Local governments may create efficient strategies, programs, and action plans, and ensure adherence to established standards with the help of a solid policy and regulatory framework.

## 1.1. Literature Review

Qualified and trained human resources within the local government are critical for improving an organization's capability in natural disaster management. This includes staff with knowledge and skills in disaster management, weather monitoring, risk analysis, crisis communication, logistics, and post-disaster recovery, as well as expertise and understanding of the technical aspects related to natural disasters. Adequate human resources enable local governments to plan, implement, and coordinate disaster management efforts effectively Ariyanto, [14] The expertise and experience possessed by human resources also play an important role in improving the capability of local government organizations in disaster management. Experience dealing with previous disasters can provide valuable insights into dealing with similar situations in the future. Specialized skills such as proficiency in risk analysis, vulnerability mapping, weather monitoring technology, and logistics management can also contribute significantly to disaster management.

Adequate infrastructure is an important factor in strengthening the capabilities of local government organizations in the face of natural disasters. Good infrastructure includes

reliable and resilient communication networks, including emergency communication systems that can operate during disasters; effective early warning systems to notify the public of disaster threats; well-functioning transportation for personnel mobility and logistical supplies; and safe and adequate shelter facilities and evacuation sites to accommodate disaster-affected populations. Good infrastructure facilitates effective coordination, rapid information exchange, and timely responses when disasters occur. Adequate infrastructure is an important factor that influences the capability of local government organizations in natural disaster management. Reliable infrastructure in terms of communication networks is critical in natural disaster management, because it enables local governments to coordinate well with disaster management teams, other agencies, and communities to provide early warnings, convey critical information, and direct quick and effective response actions.

Well-functioning transportation is essential for natural disaster management. This includes road networks, bridges, ports, and airports, which can facilitate the mobility of personnel, equipment, and logistical supplies to disaster-affected areas. In addition, adequate Shelter and Evacuation Site Facilities for shelter and evacuation site are essential in natural disaster management. This includes the development and maintenance of buildings and locations that can be used as temporary shelters for disaster-affected communities. These facilities should be safe, adequate, and able to accommodate a significant number of people in emergencies. In addition, the facility should have basic health facilities, clean water, sanitation, and access to necessary medical services.

The level of preparedness of local governments in the face of natural disasters also affects their organizational capabilities. Good planning, including risk identification, vulnerability assessment, the development of contingency plans, and regular training and simulations, can improve quick and appropriate responses and decision-making when disasters occur. Preparedness refers to the steps taken before a disaster occurs to effectively prepare Salasa et al [15]. This involves understanding the specific disaster risks in the area, developing emergency plans, training staff, and simulating or exercising preparedness. Good preparedness allows local governments to respond quickly, take proactive measures to protect communities, and reduce the impact of disasters. Emergency plans should be continuously updated and adapted to current disaster risks and involve the active participation of various stakeholders, including local governments, aid agencies, and communities Putri, [16]. Careful planning allows local governments to respond quickly and in an organized manner when disasters occur, ensuring efficient use of available resources. With detailed emergency plans and strong preparedness mechanisms, local governments can respond quickly, effective

coordination can take place, and necessary response actions can be taken more efficiently. Good preparedness and planning also provide a sense of confidence and faster recovery for disaster-affected communities.

Community engagement is important in building the capabilities of local government organizations in natural disaster management. By actively involving communities, local governments can utilize local knowledge, build community capacity, gain community support, and ensure that policies and actions reflect the needs and aspirations of local communities. Through education and socialization campaigns that involve communities, people can be more proactive in taking preparatory steps such as developing family plans, preparing emergency kits, and attending disaster training. Thus, community involvement can increase community awareness of disaster risks and change their behavior to be more prepared and responsive in the face of disasters.

In addition, community engagement can strengthen a community's capacity to provide assistance and support to those affected by disasters. Local governments can work with community groups, such as volunteers, NGOs, religious groups, and local organizations to set up volunteer programs, engage communities in evacuation and rescue, and distribute post-disaster relief and recovery. By involving communities in the disaster management process, local governments can expand the reach and effectiveness of disaster management efforts, and accelerate post-disaster recovery and rebuilding.

Community involvement also has long-term benefits for building community resilience to disasters. By involving communities in planning and decision-making processes, local governments can help build communities' abilities to identify risks, plan mitigation measures, and develop sustainable local resources. Community engagement is an important factor that influences the capability of local government organizations in natural disaster management Meiwanda, [17]. This includes strengthening people-to-people cooperation, developing local expertise, and improving the disaster-resilient community infrastructure. By strengthening community engagement, local governments can help create more resilient communities that are better able to cope with natural disasters in the long term.

Amritanand et al [18] analyzed the capabilities of local governments in Kerala, India, in handling natural disasters. This study used a survey approach and descriptive analysis to evaluate local government's capabilities in terms of policy, planning, implementation, and post-disaster recovery. The findings showed that there were deficiencies in planning, coordination, and cross-sector integration in disaster management at the local level and recommended improvements in natural disaster management.

Research conducted by Hibino and Shaw [19] compared local government capabilities in disaster management in Japan and Indonesia. This study used a comparative approach to compare the policies, planning, implementation, and monitoring of disaster management in both countries. The results showed differences in local government capabilities, including planning, human resources, and community participation, between Japan and Indonesia. This study provides insights into best practices that can be adopted from Japan's experience in disaster management.

Tran et al. [20] examined the capabilities of local governments in Vietnam in reducing disaster risk. This study used a survey approach and descriptive analysis to evaluate disaster management policies, planning, implementation, and monitoring at the local level. The findings show that there are challenges in inter-sectoral coordination, access to resources, and community participation in disaster management in Vietnam. This research provides recommendations for improving the capacity of local governments to deal with disasters.

Narayan et al. [21] analyzed the capability of local governments in Nepal in reducing disaster risk. This study used a qualitative approach to collect data through interviews and group discussions with relevant stakeholders. The results revealed deficiencies in planning, coordination, human resources, and community participation in disaster management in Nepal. This study recommends improvements in local government capacity, including active community engagement.

Based on previous research on the organizational capabilities of local governments in natural disaster management. By evaluating existing capabilities, local governments can identify their strengths and weaknesses, and design more effective strategies to reduce disaster risk, improve preparedness, and restore communities post-disaster. These studies also provide recommendations for local governments to improve their capacity to address the challenges of natural disasters.

The implication of some previous studies is the focus on assessing the capability of local government organizations to handle natural disasters. All these studies involved the analysis of disaster management policy, planning, implementation, and monitoring at the local level. They also highlight the importance of local government organizational capabilities in natural disaster management.

## 2. Methods

This study uses a qualitative approach with a case study model. Specifically, the case examined is the capability of local government organizations to handle the natural

disasters that have been implemented. This study describes the capabilities of local government organizations in dealing with natural disasters and the factors that influence them.

This study was conducted in the Maros Regency, South Sulawesi Province. This locus was chosen based on the considerations described in the Introduction. In addition, the positive impact of improving the capability of local government organizations provides practical implications and recommended policies, including policy strengthening, investment in human resources, infrastructure development, improved preparedness and planning, and increased community involvement. The results of this study are expected to provide a better understanding of the capabilities of local government organizations in natural disaster management and serve as a reference for more effective policies and practices in facing future disaster challenges. Primary data were sourced from purposively traced Key Informants, consisting of directly involved local stakeholders (community/community leaders, government, and local government organizations based on the snowball method). Secondary data are in the form of documents related to local disaster management capabilities and programs that can be obtained from relevant stakeholders. Based on the chosen approach, the researcher functioned as a key instrument. Data were collected through in-depth interviews, limited observations, and limited documentation. The data collected are then analyzed using the development of the Miles and Huberman model (1992), which consists of data reduction, data display, conclusion, and verification.

### 3. Results and Discussion

#### 3.1. Supporting Factors that Influence the Improvement of The Capability of Local Government Organizations

Supporting factors that influence the improvement of the capability of local government organizations to handle natural disasters are very important in strengthening their ability to face disaster challenges. High awareness of disaster risks and a deep understanding of disaster potential in a particular region are key factors for improving capabilities. In addition, strong leadership and high commitment from local government leaders provide an important impetus for strengthening coordination and mobilizing necessary resources. According to Ahdi [12], policies and regulations that support disaster management also provide a solid framework for local governments to deal



with disasters. Strong collaboration among local governments, other government agencies, non-governmental organizations, the private sector, and local communities is also an important factor in improving organizational capabilities Herdiansah, [22] Through collaboration and partnership, local governments can optimize existing resources and improve the effectiveness of post-disaster response and recovery. In addition, continuous training and education programs for local government staff are important support factors for improving capabilities. With improved knowledge and skills, local government personnel are better prepared and skilled in dealing with disasters. Overall, these factors interact and support each other to improve the capability of local government organizations to handle natural disasters.

### **3.2. Constraints and Challenges Faced in Improving Organizational Capability**

Improving the capability of local government organizations to handle natural disasters faces a number of obstacles and challenges that need to be overcome. One of the main obstacles is the limited resources, whether in terms of budget, manpower, infrastructure, or necessary equipment. A lack of sufficient funds to develop capabilities, insufficient numbers of trained personnel, or inadequate infrastructure can hinder capability building efforts.

A lack of public understanding and awareness of disaster risks and mitigation measures are obstacles that need to be overcome. Improving the capabilities of local government organizations also depends on community participation and readiness. However, there are constraints in the community's understanding and awareness of disaster risks, mitigation measures, and steps that must be taken in emergency situations. This lack of awareness can hinder capability-building.

Climate change and the complexity of natural disasters are also challenges to building capabilities Hadiana et al., [23]. Changes in extreme weather patterns, increasing frequency and intensity of disasters, and different vulnerabilities in each region require adaptations and updates to disaster management capabilities. Finally, the lack of relevant policy updates for disaster management is a constraint. Inadequate or outdated policies may not be able to address the new challenges in natural disaster management.

To overcome these constraints and challenges, collaborative efforts and strong commitments from local governments, relevant stakeholders, and communities are required. Adequate resource allocation, improved coordination, increased public awareness, adaptation to climate change, and appropriate policy updates are the steps that

must be taken. By addressing these constraints and challenges, the capabilities of local government organizations in natural disaster management can be significantly improved.

### **3.3. Recent Efforts and Innovations in Overcoming Obstacles and Improving Organizational Capabilities**

Recent efforts and innovations to improve the capabilities of local government organizations in natural disaster management have led to a number of effective measures. The use of Information and Communication Technology (ICT) has become a major option for improving organizational capabilities. Local governments are adopting various ICT-based applications and systems, such as geographic information systems (GIS), online communication platforms, and social media, to improve disaster monitoring, early warning, inter-agency communication, and data management.

Therefore, the development of faster and more accurate early warning systems is a priority. Local governments are incorporating the latest technologies, such as sensors, radar, and real-time weather monitoring, to detect disaster threats early and provide accurate warnings to the public. Establishing trained and prepared emergency response teams is an important strategy for capability building. These teams are equipped with the necessary equipment and skills to respond quickly and effectively to emergency situations.

Local governments are increasingly encouraging community awareness and participation in disaster management. Education and training programs are organized to improve the community's knowledge and skills in dealing with disasters. Participatory approaches, such as the formation of local disaster committees, volunteer groups, and dialog forums with communities, are routinely conducted to strengthen the collaboration between local governments and communities.

Collaboration and partnership with external parties are also a strategy pursued by the local government. Partnerships with non-governmental organizations, the private sector, and international organizations provide access to additional resources, knowledge, and technical support for disaster management. Non-governmental organizations can assist in aid distribution, the private sector can provide financial and logistical resources, and international organizations can provide technical assistance and experience in disaster management.

By continuing to develop these efforts and innovations, local governments can improve their organizational capabilities in natural disaster management. However, it

is important to continuously identify new challenges and quickly adjust strategies and innovations. Thus, local governments will be better prepared and able to deal with natural disasters effectively and responsibly.

## 4. Conclusion

The ability of local governments to organize themselves is crucial. In this essay, we have identified several elements that affect an organization's capacity, including rules and guidelines, personnel, physical assets, infrastructure, readiness and planning, and community involvement. Modern inventions and improvements in organizational capacity. The primary techniques implemented include the use of information and communication technology, creation of early warning systems, installation of trained emergency response teams, greater community knowledge and engagement, and cooperation with outside parties. However, hurdles and obstacles are encountered in enhancing organizational skills. To improve local government organizations' ability to handle natural disasters, they need to strengthen policies, invest in training and disaster-resistant infrastructure, improve preparedness and planning, and enhance community involvement in disaster management. These practical and policy implications will enhance disaster management capabilities and reduce obstacles, such as limited resources, coordination complexity, public understanding, climate change, and policy updates.

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