Formosa Journal of Social Sciences (FJSS)
Vol.4, No. 4, 2025: 435-446

Efforts of the East Luwu Regency Government to Enhance Preparedness as Part of Earthquake Disaster Risk Reduction

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A R T I C L E I N F O

Keywords: Local Government Capacity, Preparedness, Disaster Risk Reduction

Received : 19 October
Revised : 22 November
Accepted: 17 December

A B S T R A C T

Indonesia is prone to disasters, including earthquakes. East Luwu Regency in South Sulawesi is highly vulnerable due to its proximity to active faults. This study analyzes the local government's capabilities in disaster risk reduction (DRR) through literature review and analysis of KRB and RPB documents. The results show a commitment and systematic policies reflected in planning documents and cross-sectoral involvement. However, knowledge internalization is not yet uniform and human resource capacity needs to be strengthened. Technical operational capacity is adequate through training, simulations, and logistics provision. Capability is at level 3 (developing stage), with effectiveness not yet optimal, thus requiring improved coordination, data updates, and enhanced community preparedness

DOI: https://doi.org/10.55927/fjss.v4i4.623
ISSN-E: 2830-0246
https://mryformosapublisher.org/index.php/fjss

INTRODUCTION

Indonesia is a country that is geographically located in an area that is highly prone to natural disasters. Its location at the meeting point of four tectonic plates, namely the Asian Plate, Australian Plate, Indian Ocean Plate, and Pacific Plate, makes this region highly susceptible to earthquakes and geological activity. This combination of geological and geographical conditions makes Indonesia highly vulnerable to various disasters, such as earthquakes, volcanic eruptions, tsunamis, landslides, floods, and cyclones. Disaster risk is an integral part of daily life that Indonesian communities must confront on a regular basis (Akhirianto et al., 2025).

Efforts to integrate disaster risk reduction (DRR) into the development process have been ongoing for a long time, through an approach that incorporates disaster risk aspects into strategic planning, institutional frameworks, and policies, both at the national and local levels, particularly in disaster-prone areas (Marfuah et al., 2021). As part of the global commitment to building community and national resilience, the Hyogo Framework for Action (HFA) 2005–2015 served as the initial guideline for formulating DRR policies. After being evaluated, the HFA was replaced by the Sendai Framework for DRR 2015–2030, which is now the primary international reference, including for Indonesia, in strengthening resilience to disasters.

As stipulated in the 1945 Constitution, the state has a constitutional obligation to protect its citizens from various threats that could disrupt community life. Failure by the state to fulfill this responsibility not only exacerbates the impact of disasters but also has the potential to disrupt government stability and the administration of public affairs. In the context of disaster risk reduction, government preparedness is a key factor. Disaster management cannot be effective without strong and coordinated institutional support. This is emphasized in BNPB Regulation No. 3 of 2012, which states that regional capacity and commitment are important indicators in determining the success of disaster risk reduction efforts.

For local governments, disasters create situations of uncertainty and require quick and effective responses (Kusumasari et al., 2010). In such conditions, weaknesses in decision-making or delays in mobilizing resources can exacerbate the impact of disasters, both on the community and on the functioning of the government itself. Therefore, building regional preparedness is a strategic and crucial step in ensuring the continuity of government functions amid potential disaster threats, particularly natural disasters like earthquakes that occur suddenly and have widespread impacts (Marfuah et al., 2021). Readiness encompasses not only technical or operational preparedness, such as the availability of emergency response equipment and personnel, but also institutional preparedness in terms of cross-sectoral coordination, contingency planning, early warning systems, and the capacity to communicate risks to the public.

According to Yunus et al. (2024), preparedness is an integral part of disaster mitigation aimed at reducing vulnerability and enhancing the adaptive capacity of regions. This reflects the extent to which local governments can anticipate potential risks, respond quickly, and efficiently restore conditions post-disaster. In the context of earthquakes, preparedness is also closely related to risk-based spatial planning policies, strengthening earthquake-resistant infrastructure, and training and simulations that actively involve the community. Thus, preparedness is not merely a technical measure but a reflection of local governments' capabilities in managing risks comprehensively and sustainably. These efforts are not only important for minimizing the impact of disasters but also for maintaining the legitimacy and public trust in government institutions during crises.

Luwu Timur Regency in South Sulawesi Province is one of the areas with a high potential for geological disasters, particularly earthquakes. This potential is related to its geographical location near the Matano and Sorowako faults, which have the potential for significant earthquakes (Indonesian Association of Geologists, 2017). Additionally, based on earthquake disaster data, Luwu Timur is the district/city with the highest number of earthquakes in South Sulawesi (Nurfalaq et al., 2024). Although seismic activity in this region is not as high as in the southern coastal areas of Java Island, the tectonic dynamics, particularly the activation of collision forces in the southeastern part of Sulawesi, require adequate preparedness from the local government in anticipating and responding to the potential for such disasters.

The threat of earthquakes in East Luwu, as in many other regions in Indonesia, requires local governments to not only have emergency plans, but also to develop effective, efficient, and adaptive disaster management systems. This system must be able to respond quickly and appropriately, while minimizing the impact on the community and infrastructure. Therefore, preparedness is a very important element. Preparedness encompasses technical or logistical issues and demonstrates the capacity of institutions in the region to mobilize resources, coordinate across sectors, and raise social awareness of construction risks among the community. The capacity of the local government is a determining factor in developing this level of preparedness. According to (Yusuf & Syarif, 2018), organizational capacity refers to the extent to which an organization can effectively coordinate tasks, optimize resource utilization, and achieve specific strategic objectives. In the context of DRR, this means that local governments must be able to establish risk-related policies, strengthen institutional frameworks, and actively engage all stakeholders in the disaster risk reduction process.

Thus, strengthening the capacity of the East Luwu Regency Government is not only important for the local community, but also a manifestation of commitment to the national and global agenda on disaster risk reduction.

LITERATURE REVIEW

Studies on disaster risk reduction (DRR) in Indonesia cannot be separated from its geographical and geological context. Located at the meeting point of four major tectonic plates, Indonesia has a high level of disaster vulnerability, particularly to earthquakes, tsunamis, volcanic eruptions, and landslides. These conditions have led to the emergence of various theories, frameworks, and policies that emphasize the importance of strengthening the capabilities of local governments. Capacity in the context of disasters is understood as the ability of government institutions to coordinate resources, formulate effective policies, and integrate DRR into regional development. Yusuf and Syarif (2018) emphasize that the capacity of public organizations in dealing with disasters is determined by their ability to manage information, coordinate across sectors, and maintain the legitimacy of government in times of crisis.

At the global level, the Hyogo Framework for Action (HFA) 2005–2015 was the starting point for international efforts to strengthen community resilience to disasters. An evaluation of the HFA then led to the Sendai Framework 2015–2030, which is the main reference today. This framework emphasizes four priorities: understanding disaster risks, strengthening risk governance, increasing investment in resilience, and strengthening preparedness for post-disaster recovery. The Sendai Framework emphasizes that local governments play a central role in ensuring disaster preparedness, whether through risk-based spatial planning policies, early warning systems, or coordination with civil society and the private sector.

In the national context, regulations in Indonesia have provided a strong foundation for the implementation of DRR. Law No. 24 of 2007 on Disaster Management mandates that disaster management is not only the responsibility of the central government, but also of local governments. This law emphasizes the principles of participation, accountability, and inclusiveness in disaster management. Furthermore, BNPB Regulation No. 3 of 2012 concerning Guidelines for Assessing Regional Capacity emphasizes the importance of measuring the capabilities of local governments in disaster management using indicators of institutions, policies, resources, and information systems. This instrument is an important guideline in assessing regional preparedness while providing direction for continuous improvement.

In the specific context of East Luwu Regency, literature shows that this region has a high level of vulnerability to geological disasters, particularly earthquakes. A study by the Indonesian Geologists Association (2017) notes that the presence of the active Matano and Sorowako faults places this region at significant risk. Nurfalaq et al. (2024) even emphasized that East Luwu is one of the regencies with the highest frequency of earthquakes in South Sulawesi. Given these conditions, the local government's capacity in DRR is not only an administrative necessity but also a determining factor for community safety and sustainable development.

In addition to regulatory and framework factors, the aspects of knowledge and institutional learning are also important in DRR literature. Local governments are required not only to prepare documents such as Disaster Risk Assessments (KRB), Disaster Management Plans (RPB), and Contingency Plans (Renkon), but also to ensure that these documents are implemented effectively. Setiawan's (2022) research, for example, highlights the importance of disaster simulations as a means of improving the practical skills of the community. Similarly, Wicaksana (2025) emphasizes that regular training can strengthen the technical and operational capacity of local governments.

METHODOLOGY

This study uses a qualitative approach with a literature review research design. The qualitative approach was chosen because this study aims to gain an in-depth understanding of the process of internalizing disaster knowledge in the context of local government capabilities in disaster risk reduction. The study does not focus on numbers or statistics, but rather on the meaning, policies, and institutional dynamics reflected in various disaster-related documents and literature.

A literature review was chosen because the research objects are concepts, policies, and institutional achievements reflected in official documents, such as Disaster Risk Assessments (KRB), Disaster Management Plans (RPB), Contingency Plans (Renkon), and other scientific articles. Through this method, researchers can identify the extent to which local governments have internalized disaster knowledge in their planning systems, institutions, and decision-making within the framework of disaster risk reduction.

The data collection process was carried out systematically by selecting documents directly related to the research variable, namely local government capabilities. All data were then classified based on themes such as policy, institutional capacity, human resource capacity, and disaster information systems. With this technique, it is hoped that researchers will be able to formulate valid and relevant conclusions based on valid and credible data sources.

This study will use preparedness variables that refer to the Sendai Framework for DRR (2015-2030). The preparedness variables to be measured include:

1. Internalization of disaster knowledge;
2. Readiness for regional disaster risk assessment;
3. Technical and operational capacity for disaster emergency preparedness.

The leveling of local government capabilities in building preparedness is adapted from BNPB Regulation No. 3/2012 on Guidelines for Assessing Local Capacity in Disaster Management, which is divided into 5 levels.

RESULT AND DISCUSSION

Internalization of Disaster Knowledge in Related Governments

The East Luwu Regency Government has shown serious efforts in internalizing disaster knowledge into the government system. This is evident from the development of key disaster management documents, such as the Disaster Risk Assessment (DRA) for 2017–2021, the Disaster Management Plan (DMP) for 2018–2022, and the Contingency Plan (CP) for earthquakes and floods. The preparation of these documents is not only a form of compliance with national regulations, but also a means of cross-sectoral institutional learning within the local government.

The process of preparing and implementing disaster risk reduction (DRR) policies involves various government agencies. The DRP document states that the establishment of the DRR Forum and the involvement of the Regional People's Representative Council (DPRD) demonstrate cross-institutional attention and understanding of the importance of disaster risk management. Additionally, the Renkon document explicitly outlines the roles of sectors such as health, logistics, education, and security within the emergency response structure, reflecting task distribution and the internalization of technical disaster knowledge across each field.

Efforts to improve human resource capacity have also been designed through training, socialization, and strengthening of disaster information systems. The East Luwu Regency RPB mentions the need to develop a disaster information system at the sub-district level as well as training for government officials. Although quantitative data on its implementation has not been presented in full, the plan shows that the local government recognizes the importance of strengthening technical and managerial knowledge in dealing with disasters.

In addition, the internalization of disaster knowledge is also manifested in the integration of DRR issues into regional development documents, such as the RPJMD and RTRW. Regional regulations governing disaster management serve as the legal basis for strengthening the position of disaster management as a strategic development issue. This confirms that disaster knowledge is not only operational when a disaster occurs, but has also been incorporated into the framework of medium-term regional planning.

Thus, it can be concluded that the East Luwu Regency Government has begun the process of systematically internalizing disaster knowledge through strengthening regulations, planning, and cross-sectoral involvement. However, aspects such as data updating, periodic improvement of human resource competencies, and supervision of policy implementation still need to be improved so that this internalization can be carried out sustainably and evenly throughout the government structure.

The government's commitment to disaster risk reduction has been achieved and is supported by systematic policies. Its capability level is at level 3. However, the achievements obtained are considered incomplete because there are still weaknesses in implementation, limitations in data updating, and uneven internalization of disaster knowledge across all government sectors.

Disaster Risk Assessment Readiness

Since the enactment of Law No. 24 of 2007 on Disaster Management, all development activities in Indonesia are required to consider disaster risk factors. This requires a comprehensive assessment of potential risks. Regulation of the Head of the National Disaster Management Agency (BNPB) No. 2 of 2012 on General Guidelines for Disaster Risk Assessment explains that disaster risk assessment serves as a tool to evaluate the likelihood of a disaster occurring and the magnitude of potential losses it may cause. By understanding these aspects of likelihood and impact, the planning and implementation of disaster management can be developed in a more targeted, integrated, and effective manner.

Based on the Disaster Risk Assessment Document (KRB) of East Luwu Regency for 2017–2021 and the Disaster Management Plan Document (RPB) of East Luwu Regency for 2018–2022, it is known that the East Luwu Regency has a fairly high level of disaster risk, including the threat of earthquakes. The analysis in the DRR document states that the tsunami disaster risk level is categorized as moderate. This disaster is estimated to affect thousands of people living in coastal areas and high-risk zones, as well as causing significant economic losses and physical damage.

An inventory of the population potentially exposed and the critical infrastructure facilities that may be affected has been conducted and included in the Earthquake Contingency Plan for Luwu Timur District for the years 2023–2025. This document was developed as part of preparedness and emergency response planning, covering event scenarios, potential impacts, and emergency response strategies. However, the data used in this document is largely sourced from the 2017 KRB document and has not been comprehensively updated to date.

Efforts to update and monitor disaster risk data are the responsibility of the Luwu Timur District Disaster Management Agency (BPBD). The BPBD also serves as the coordinator in the preparation of disaster-related documents, including the RPB and Renkon. In its implementation, cross-sectoral coordination has been carried out involving various stakeholders, although the form of inter-district and inter-provincial cooperation has not been detailed in the available documents. Nevertheless, the collaborative spirit between the local government, community, private sector, and non-governmental organizations is reflected in the disaster management strategy, which is focused on strengthening regional capacity and improving the effectiveness of disaster preparedness and mitigation.

Information obtained from disaster risk assessments has been used as a basis for formulating disaster risk reduction (DRR) policies. Local governments have developed regulations related to disaster management and integrated them into regional development planning documents. This step is not only part of the implementation of national policies but also reflects the commitment and responsibility of local governments to protect the community. The regulatory capacity of East Luwu Regency is as follows:

1. East Luwu Regency Regulation No. 7 of 2011 concerning the 2011-2031 Spatial Plan for East Luwu Regency. **Main topic**: Regional Spatial Plan.
2. East Luwu Regency Regulation No. 14 of 2014 concerning Regional Disaster Management. **Main Topi**c: Regional Disaster Management.
3. Luwu Timur Regency Regulation No. 5 of 2020 on Amendments to Luwu Timur Regency Regulation No. 8 of 2016 on the Formation and Structure of Regional Government Agencies. **Main Topic**: Organization and Work Procedures of Other Regional Apparatus Institutions.
4. East Luwu Regency Regulation No. 74 of 2021 concerning the Position, Organizational Structure, Duties and Functions, and Work Procedures of the Regional Disaster Management Agency. **Main Topic**: Organization and Operational Procedures of the Regional Disaster Management Agency (BPBD)

Based on an assessment of the readiness of regional disaster risk assessments, the capability level of the Luwu Timur District Government is at level 3. This level aligns with the assessment that supporting data and its analysis are available

Technical and Operational Capacity for Disaster Emergency Readiness

Preparedness for emergency response is an important part of Disaster Risk Reduction (DRR) practices that must be taken seriously by local governments. Under the Sendai Framework, one of the main focuses is on strengthening technical and operational capacity to ensure a swift and effective response in emergency situations. This includes coordinating funding mechanisms and emergency assistance procedures, training for volunteers, logistical preparedness, as well as education and evacuation drills for the community.

The Luwu Timur Regency Government has demonstrated its commitment to building such preparedness through various strategic measures. The Luwu Timur Regional Disaster Management Agency (BPBD) regularly conducts disaster simulations to train the community in dealing with various threats, such as earthquakes, fires, and floods. These simulations, which involve various parties such as the Indonesian National Armed Forces (TNI), the Indonesian National Police (Polri), the National Search and Rescue Agency (Basarnas), the Indonesian Red Cross (PMI), and the Health and Social Services Department, provide practical understanding so that the community is ready to act when a disaster occurs.

In addition, the government has also strengthened its funding mechanisms and emergency aid provision. Through support from the National Disaster Management Agency (BNPB), Luwu Timur has received Ready Funds and logistical assistance, including food packages, refugee tents, and other emergency response equipment. This assistance is very important to meet the basic needs of disaster victims and support the evacuation process

Source: Setiawan, 2022
Figure 1. Earthquake Simulation

Source: Wicaksana, 2025
Figure 2. Natural Disaster Simulation

Training and education for volunteers and the community are other key aspects of preparedness. Various organizations such as BAZNAS Tanggap Bencana actively provide disaster mitigation training and simulations in schools and communities. These activities aim to improve the community's understanding and skills in dealing with emergency situations independently and in a coordinated manner.

The East Luwu Regency Government has also prepared evacuation support infrastructure, such as refugee tents and strategic evacuation routes, which facilitate the evacuation and rescue of affected residents. These efforts demonstrate adequate technical and operational preparedness in line with the principles of the Sendai Framework for increasing regional resilience in the face of disasters.

The level of capability in technical operational emergency preparedness is at level 3, with strengths in technical operational aspects and community training, as well as adequate funding and logistical support. However, there is still room for improvement in terms of funding coordination, evacuation facility provision, and evacuation management to make emergency responses faster, more effective, and more inclusive.

CONCLUSIONS AND RECOMMENDATIONS

This study shows that East Luwu Regency is an area with a fairly high level of vulnerability to geological disasters, particularly earthquakes. Its geographical and geological conditions, located near active faults such as the Matano and Sorowako faults, place this area at risk and require special attention from the local government. In response to this situation, the local government has demonstrated its commitment through the development of disaster-related documents such as the Disaster Risk Assessment (DRA), Disaster Response Plan (DRP), and Contingency Plan (CP).

Overall, the capacity of the East Luwu Regency Government in disaster risk reduction, particularly in terms of internalizing disaster knowledge, risk assessment readiness, and operational emergency response preparedness, is at a developing stage (level 3). This indicates that there is commitment and systematic policies in place, but they are not yet fully comprehensive and optimal. Therefore, institutional capacity building, data updating, human resource strengthening, and cross-sectoral collaboration are strategic steps that need to be continuously implemented to achieve a higher level of capability in disaster risk reduction efforts in the future.

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