JAKPP
Jurnal Analisis Kebijakan dan Pelayanan Publik

pISSN: 2460-6162
eISSN: 2527-6476

Journal Homepage:
journal.unhas.ac.id/index.php/jakpp

Volume 10 No. 1, Juni 2024

Governance and Resilience: Unpacking Policy Decisions in Mamuju's Earthquake Aftermath

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ARTICLE INFO

Keywords: *governance; disaster policy; earthquake; disaster recovery*

How to cite:
Syam, A.R., Putra, M. A., & Muslim, A. (2024). Governance and Resilience: Unpacking Policy Decisions in Mamuju's Earthquake Aftermath. JAKPP (Jurnal Analisis Kebijakan dan Pelayanan Publik), 10(1), 1-17

ABSTRACT

The study is aimed at knowing government decisions to make post-earthquake recovery in the city of Mamuju, where decisions have become binding policies and have become basic concepts in the restoration practice of the Mamuju city. The method used is researchers is descriptive research using a qualitative approach. The approach to this study is a narrative description because it is directed to illustrate the facts with scientific & academic arguments. The results of the provincial government's policy research in the reconstruction of the city's Mamuju following the earthquake's efforts, such as the allocation of the public budget (APBD), the structural improvements of the office building with bracing and jacketing concepts, provide financial assistance to disaster affected communities, the formation of working groups (POKJA), and finally the reconstruction of the affected areas. Policies adopted by governments have been carefully thought out by stakeholders to accelerate recovery. The government issued swift and precise decisions, as they were pushed by the circumstances and conditions following the earthquake hit the city of Mamuju. The policies issued by the government are well considered. Because the essence of the policy itself is the decisions governments make to simply achieve a common goal.

Introduction

Indonesia is an archipelago where three of the world's major plates converge – the Indo-Australian Plate, Eurasian Plate and Pacific Plate (Susanti, 2021). The interaction of tectonic plates in Indonesia indicates an area with significant potential for high volcanic activity and earthquakes. The latter are natural occurrences where the earth moves inside and on the surface, causing jolts. Richter scale magnitudes can indicate the potential damage of an earthquake. Furthermore, plate tectonics have created a unique and varied topography on the Earth's surface, encompassing rugged terrain with steep slopes that indicate a high vulnerability to landslides, subsidence, and potential disasters including flooding, earthquakes, and even

tsunamis. The numerous disasters that Indonesia has faced in recent years have prompted heightened public awareness regarding disaster vulnerability, which may strike unpredictably and in any location (Bachri, 2021). Indonesia's geographical, demographic, sociological, methodological, and climatological characteristics not only endow it with abundant natural resources but also render it vulnerable to both natural and man-made disasters as well as social inequality (Yulianto, 2021). In accordance with the present situation, it is necessary for all parties involved to maximize existing spaces and evaluate government policies, as outlined in Law No. 24 of 2007 on the framework for disaster management. Indonesia is currently prioritizing a policy paradigm for disaster mitigation, necessitating the strong commitment and participation of all parties to build and collaboratively run the system effectively. It is generally understood that mitigation is divided into three stages: pre-disaster, emergency response and ultimately post-disaster recovery and rehabilitation (Hartono, 2021). Several instances of disasters that Indonesia has encountered, particularly in recent times, have heightened awareness of societal vulnerability. Reactive attitudes and disaster management practices that were previously implemented are no longer sufficient. Thus, more proactive, comprehensive, and fundamental approaches are necessary in addressing the three different types of disasters: natural, non-natural, and social disasters. Indonesia is highly susceptible to three types of disasters: natural, non-natural, and social. Natural disasters that may occur include earthquakes, tsunamis, volcanoes, landslides, floods, droughts, and erosion. Non-natural disasters may arise from technological failures, epidemics, and disease outbreaks. Social disasters may include conflicts such as terrorism. However, natural disasters are a fundamental aspect of this article given their unpredictable nature, thus highlighting the need for mature policy implementation for effective mitigation (Susanti, 2021).

The enactment of Law No. 24/2007 on disaster management and its accompanying regulations - Presidential Regulation No. 08/2008 on the National Disaster Management Agency, Government Regulation No. 21/2008 on the Implementation of Disaster Management, Government Regulation No. 22/2008 on Disaster Relief Funding and Management, and Government Regulation No. 23/2008 on the Participation of International Institutions and Non-Governmental Foreign Institutions in Disaster Management - has revolutionized the practice of disaster management. A significant factor contributing to heightened vulnerability is inadequate land use practices. Should government officials and the community remain unaware and unresponsive to potential natural disasters, such vulnerability may be further exacerbated. Considerable loss and suffering have been evidenced by the combination of natural hazards and other complex issues brought about by natural disasters (Kunci, 2010). In the United States alone, much effort since 1971 has been devoted to explaining the causes of earthquakes based on dilatancy and fluid flow (Panel, 1971). Dilatancy, the stress-induced non-elastic expansion of volume, has been acknowledged in the soil mechanics discipline for the past three decades (Mjachkin, 1975). Meanwhile, from a physical perspective, the source of an

earthquake is essentially a broken material due to tectonic stress. This concept can be summarized as follows:

1. The fracture of statistically heterogeneous materials is caused by an increase in the number and size of defects such as cracks.
2. Damage/defects can develop in time under more or less constant stress and the rate of formation increases as the stress increases.
3. The total deformation consists of intrinsic elastic deformation and deformation caused by crack edge displacement.
4. Macrofracture (major fault development) is the result of avalanche growth and instability occurring upon reaching a certain crack density.
5. The formation of the main fault results in a decrease in the stress level in the surrounding volume; as a result, the growth of new defects stops and the number of active cracks decreases.
6. The faulting process is less dependent on the scale (Mjachkin, 1975, p. 170).

The earthquake that took place in Nias, Sumatra on 28th March 2005 caused approximately 1,000 fatalities. Additionally, the earthquake that struck Yogyakarta in 2006 resulted in around 5,782 deaths. Moreover, a quake that occurred on 12th September 2007 in Bengkulu, Sumatra caused nearly 70 fatalities (Febriana, 2015). Given the severe losses resulting from such catastrophic events, short-term forecasts spanning just a few days or months can be utilised by communities as they institute emergency measures to alleviate harms and preserve usual operations (Amri, 2016).

One natural disaster transpired in West Sulawesi Province. At 14:35 WITA on January 14th, 2021, Mamuju, West Sulawesi, and the surrounding locality experienced an earthquake with a magnitude of M 5.9. This initial earthquake was succeeded by a more substantial subsequent earthquake (M 6.2) that hit the vicinity an additional 13 hours later. The first earthquake's epicentre, according to the Meteorology, Climatology and Geophysics Agency, was located at 118.89oBT and 2.99oLS, with a depth of 18 km. The second earthquake had its epicentre at 118.94oBT and 2.98oLS, also with a depth of 18 km. Furthermore, 39 aftershocks of lesser magnitude were recorded (Supartoyo, 2022). The earthquake in Mamuju, West Sulawesi Province resulted in both damage and casualties. The occurrence adds to the numerous natural disasters experienced in Indonesia and particularly Sulawesi.

This is due to its location amidst active faults, including the Makassar thrust fault situated in the southwestern area of Mamuju Regency. Mamuju is a region with a higher probability of experiencing earthquakes. Additionally, Mamuju serves as the capital of West Sulawesi Province, and is recognized as a significant centre for economic growth, trade, industry, and tourism, setting an example for other cities within the province. Mamuju stands out as a severely affected region with substantial economic losses impacting West Sulawesi. Consequently, initiating post-earthquake protocols is crucial as a regional recovery effort, with particular emphasis on the economic sector. The earthquake resulted in damages surpassing

a considerable amount. Mamuju district, in particular, witnessed the highest number of casualties and destruction compared to other affected districts.

Table 1. Earthquake Losses

Mamuju	
Residential Damage	270.1 Billion
Infrastructure	1,3 Billion
Social	17,4 Billion
Economic Sector	50,4 Billion
Cross Sector	39,9 Billion
Total	379'3 Billion

Source : Sulawesi.bisnis.com. (Dewi, 2021)

According to the table, Mamuju city incurred significant losses due to the earthquake. As the district capital of West Sulawesi Province, the local government should prioritize rehabilitation and reconstruction efforts. The government bears the most responsibility in this situation and thus must increase its level of activity. Efforts by the government to assist victims of earthquake disasters can be achieved through emergency response, disaster mitigation, and reconstruction, which includes building and psychological reconstruction for those affected. However, earthquakes are not solely the responsibility of the government but also of individuals, necessitating an understanding of earthquakes to minimize the number of victims. Currently, communities exhibit minimal preparedness for earthquakes.

Literature Review

Restoration

Recovery represents the ultimate phase in the disaster management cycle, succeeding emergency response actions. Post-disaster recovery measures are aimed at repairing the damages inflicted by natural disasters, such as earthquakes and tsunamis. Restoration entails the recovery of infrastructure and other essential services after a natural disaster (Syugiarto, 2022). Previous researchers have conducted various studies on post-earthquake recovery with diverse areas of focus. This article draws on the works of three specific scholars cited in the references section. Among others, these researchers have explored different aspects of disaster management and recovery.

The paper titled "Reviving micro, small and medium businesses and industries to restore the economy after the West Nusa Tenggara earthquake" authored by Sri Marvanti, Iga Oka Netrawati, and Faezal highlights the objective of rehabilitating the local economy after the disaster. The article explains the necessity of prioritizing affected micro, small, and medium enterprises and industries within the recovery efforts. The authors also stress the significance of collective efforts and

efficient distribution of resources towards a successful economic resurgence. This research discusses the focus of recovery efforts on business and industrial sectors, while highlighting the need for a description of the distribution of micro, small, and medium enterprises and industries in West Nusa Tenggara. This will facilitate the implementation of a recovery programme aimed at moving the economy after the earthquake, and will be beneficial to various parties (Maryanti, 2019) .

Then, Heru Kusuma Bakti and Achmad Nurmandi authored an article titled "Post-Disaster Recovery from the North Lombok Earthquake in 2018". The purpose of their research is to examine the rehabilitation and reconstruction efforts taken by the local government. Interestingly, there are five fundamental aspects that reconstruction or rehabilitation should focus on, including social, economic, infrastructure, settlement, and cross-sector sectors. Why is post-disaster recovery crucial in Indonesia? Recovery is an integral part of disaster management in Indonesia and must be carried out to effectively address the impacts of disasters (Bakti, 2020).

The previous publication, entitled "Family Economic Recovery Model: A Solution for Survivors of the Sunda Strait Tsunami Disaster in Banten Province", was co-authored by Bambang Dwi Suseno and Febi Almafutra. The focus of this article is on the recovery efforts following the tsunami in Banten Province; however, it is important to note that all natural disasters require restoration and recovery. The paper demonstrates that reconstruction efforts are the chosen recovery model and aims to emphasize that these efforts offer opportunities to minimize the impacts of future disasters by enhancing construction standards, avoiding hazardous locations and increasing public awareness and readiness. Rebuilding after a natural disaster provides an opportunity to address longstanding issues, including structural repairs, economic reinvention, and improved governance. It offers a chance for improvement and progress (Suseno, 2020).

The three articles discuss post-natural disaster recovery, highlighting the impact of conditions and circumstances of the affected area. Consequently, the policy model and decision-making of the local government as the governing body will take effective measures to promote the recovery process. Rebuilding after an earthquake demands financing and the cooperation of all societal elements, making it reliant on regional resource availability. While the situation in Mamuju Regency is not unique, it is worth noting that this location serves as one of the West Sulawesi Province's capitals, therefore, rendering the local government's efforts towards recovery compelling.

Research Methods

In this study using qualitative research, qualitative research is a research process and understanding based on a methodology that investigates a social phenomenon and human problems. In this approach, researchers create a complex picture, examine words, well-detailed reports from the views of respondents, and conduct studies in natural situations (Murdiyanto, 2020). The study adopts a

descriptive narrative research approach to objectively describe facts with scientific and academic arguments in accordance with conventional academic writing conventions (Rianto, 2020). The research is intended to collect information about the status of an existing symptom, namely the state of the symptom according to what it is at the time the research is conducted. The purpose of this descriptive research itself is to make a systematic, actual, and accurate explanation of the facts. However, in its development, in addition to explaining the situation or events that have taken place, descriptive research is also designed to make comparisons or to determine the relationship of one variable to another (Prasetya, 2017).

The research data has two primary sources: primary and secondary. Primary data was obtained through interviews conducted with the Governor of West Sulawesi, the West Sulawesi Regional Disaster Management Agency, and all affected community members. Technical terms were defined when first used, and the language adhered to formal writing standards, promoting clear, focused, and value-neutral communication. The logical structure of the text helped to create a clear progression between statements and their causal connections. Language was precise, and the text was free from grammatical and punctuation errors. Conversely, secondary data was retrieved from library resources such as books, magazines, journals, articles, and other relevant reference materials. Data collection methods are obtained through observation, interviews and documentation. Following this, the data analysis stage commences where all available information from sources such as interviews, observations written in field notes, and documents are reviewed. The data is subsequently analysed and conclusions drawn (Sugiyono, 2016).

Results and Discussion

Earthquakes are among the most unpredictable calamities in Indonesia, causing extensive damage and numerous fatalities. The incidents that transpired in Mamuju Regency serve as a typical illustration of the numerous earthquake catastrophes that afflict Indonesia. After an earthquake, the local government has a duty to engage in recovery efforts by offering compensation to disaster victims, repairing damaged infrastructure, and promoting disaster response strategies aimed at raising public awareness of potential disaster risks and preventing them to minimise casualties. Policies adopted by the government need to be geared towards the expedited recovery of Mamuju City. Public policy is an action undertaken by the government to meet the needs of the community. Public policy is typically determined by the local government. Policies are carefully formulated and measurable, as they aim to achieve specific objectives.

Public policy refers to government actions. According to philosopher Thomas R. Dye (1992), public policy comprises the choices the government makes in its pursuit of state objectives. To achieve these goals, the government must take planned and measurable actions (Anggara, 2018). Government policy to carry out recovery efforts in Mamuju city remains a top priority. It is imperative to implement rehabilitation and reconstruction policies urgently after an earthquake. Recovery

has an indirect impact on the economic activities that were initially disrupted by the disaster. Improving the condition and situation of Mamuju city is the ultimate objective of recovery efforts. However, the success of recovery is also dependent on the preparedness of the community and all levels of local or provincial government to carry out effective disaster mitigation. The policies implemented to support the recovery of Mamuju city have been crucial. The earthquake that hit Mamuju city in West Sulawesi has caused nationwide concern. The aftermath of such disasters often raises the question of how to carry out rehabilitation and reconstruction efforts. This earthquake caused damage to various forms of infrastructure, including roads, bridges, schools, places of worship, and other buildings. Immediate repairs are necessary, and sufficient funds will be required to undertake rebuilding efforts. The responsibility for implementing disaster management in this case lies with the local government, including the allocation of funds to support rehabilitation and reconstruction efforts.

Following an interview with the Governor of West Sulawesi Province, it was stated that the government policy involves allocating the 2021 Regional Budget for disaster management through necessary changes due to the emergency. These changes will ultimately result in amendments to the final Regional Budget. Additionally, in 2022, the Regional Budget will prioritize the recovery of earthquake victims, including housing, relocation and infrastructure repairs. The distribution of Regional Budget funds for disaster management is determined by decree of the Governor of West Sulawesi Number 188.4/28/Sulbar/1/2021. This decree is a legally binding document that emphasizes earthquake disaster management, with a particular focus on infrastructure repair during the recovery stage (Masdar, 2022).

Infrastructure Improvement

The local authority is collaborating with the central government to renovate or mend several pieces of infrastructure, as the rehabilitation of infrastructure is a key concern. The Ministry of Public Works and Public Housing (PUPR) is repairing various buildings and public amenities that were damaged by the earthquake in West Sulawesi. Minister Basuki Hadimuljono (2021), The speaker outlined several steps for post-disaster management in West Sulawesi. Firstly, the priority is to open up access to Majene and Mamuju connectivity. Secondly, debris clearance is essential. Thirdly, all buildings, particularly government buildings and housing that remain standing, are being audited for technical feasibility to ensure safety. The aim is to determine the feasibility of a building even if it appears fine upon first glance. Nonetheless, it may be possible to renovate the buildings to some degree. In accordance with the local government's decision and agreement, aided by a decree from the Governor of West Sulawesi, infrastructure rehabilitation has become more accessible (Mes, 2021). Ministry of Public Works and Housing, by looking at the points presented using a table to facilitate understanding, as follows:

Table 2. Implementation of Infrastructure Recovery by Ministry of Public Works and Housing

No	Implementation of Infrastructure Recovery by Ministry of Public Works and Housing
1.	The Ministry of PUPR handles 96 buildings consisting of 56 government buildings, 29 health facility buildings, 2 public university buildings, 2 worship facility buildings, 5 flats/housings and 2 drinking water installations.
2.	Of the 96 buildings, 82 buildings have begun to be handled with the achievement of physical progress reaching 34.15%. The buildings consist of 46 buildings in the repair process, 11 buildings in the demolition process and 25 completed buildings of which 12 buildings have been handed over for utilisation.
3.	The handed-over buildings comprise the West Sulawesi Communication and Information Service building which received minor damage. The rehabilitation of this building occurred over 23 days, from 18th February 2021 to 14th March 2021, followed by the handover on 19th March 2021. Additionally, the Laboratory Building and Emergency Room Installation of the Mamuju Regency Regional General Hospital underwent moderate damage. The refurbishment was executed over a period of 44 days spanning from 8 February 2021 until 23 March 2021, and was delivered on 25 March 2021.
4.	The Ministry of Public Works and Housing rehabilitated 41 public schools and 3 madrasas that were previously damaged. In 2021, the Directorate of Strategic Infrastructure of the Directorate General of Human Settlements is set to include one public school in their regular handling programme.
5.	The requirement for structural restoration has been stated by Director General of Cipta Karya, Diana Kusumastuti, to be a total of Rp. 856.8 billion. This requirement will be dispersed over a period of two budget years: in 2021, Rp. 400.9 billion will be allocated, and in 2022, Rp. 455.8 billion will be allocated.

Source : (Mes, 2021)

Then, in relation to the rehabilitation of the implementation on site, it is divided into 5 clusters to facilitate the handling. The criteria for cluster division are the zoning of the handling location (proximity to the handling location), the complexity of the handling, the ability and willingness of the service provider, and the experience of similar work. The cluster division is shown in the table below:

Table 3. Cluster Division

No	Building	Contractor
1.	9 Government Buildings and 3 Health Facility Buildings	PT Waskita Karya with PT Virama Karya construction management
2.	12 Government Buildings, 1 House of Worship and 4 Flats/Housings	PT Brantas Abipraya and PT Indah Karya construction management
3.	16 Government Buildings, 12 Health Facility Buildings, 1 House of Worship, and 1 Flat/Residential House	PT Hutama Karya and PT Virama Karya construction management
4.	3 Government Buildings, 11 Health Facility Buildings	PT Wika Gedung with PT Indah Karya construction management
5.	3 Health Facility Buildings, 2 Education Facilities and 2 Other Infrastructure.	PT Adhi Karya with PT Yodya Karya construction management

Source: (Mes, 2021)

Not only earthquakes, but almost all natural catastrophes cause damage. The amount of damage depends largely on the size of the disaster. The Mamuju earthquake caused a lot of damage to infrastructure, including government offices, residential buildings and others. The use of state budget funds allocated for post-earthquake reconstruction and rehabilitation should, of course, be optimally and effectively utilized, taking into account the level of priority. In addition to supporting the socio-political activities of the community in Mamuju District, repairing the infrastructure and speeding up the development of functional facilities can also promote and revitalize the community's economy, which has been crippled by the disaster.

Social Recovery Stimulant Assistance

Social Recovery Stimulant Assistance Programme: Stimulant Assistance for House Building Materials in the Form of Cash Grants to Earthquake Victims The provision of social recovery stimulant assistance in the form of cash to repair the homes of disaster victims has advantages and disadvantages compared to in-kind assistance. The main advantage of cash assistance is that it does not directly distort prices. The second advantage is that cash transfers can have a stabilizing effect on the macro-economy, in the sense that the targeting of such transfers increases when the economy weakens and decreases when the economy recovers. In addition, the cost of running a cash transfer programme is lower than that of providing in-kind transfers, provided the administrative resources are in place (Habibullah, 2014).

The speeding up of the stimulus aid was reinforced by the direct intervention of the Regent of Mamuju Regency, Hj. Sitti Sutinah Suhardi, by visiting the office of

the National Disaster Management Agency and was warmly received by the Head of the National Disaster Management Agency, Suharynto, S. Sos. MM. together with the Principal Secretary of the National Disaster Management Agency, Rustian and a number of representatives of the Deputy of the National Disaster Management Agency. The communication carried out by the Regent of Mamuju brought positive results and was confirmed by the Head of BPBD Mamuju, Muh, Taslim Sukirno, who admitted that he was very grateful for the initiative of the Regent of Mamuju to establish communication with the National Disaster Management Agency as part of an effort to accelerate the distribution of stimulus funds. This step is considered and a form of seriousness of the local government and has received the green light from the head of the National Disaster Management Agency, and of course this stimulus fund will be used properly and distributed according to the data that has been collected previously. And this is one of the concrete steps taken by the local government to support reconstruction through stimulus funds (Timkip, 2023).

In the report of the Head of the Social Service, read by the Secretary of the Social Service of Mamuju Regency, Dr. Muzakkir, it was explained that the basis for the distribution of this assistance is the Minister of Social Affairs Regulation No. 10 of 2020 on Amendments to the Minister of Social Affairs Regulation No. 4 of 2015 on Direct Assistance in the Form of Cash to Disaster Victims (Hasran, 2021). The aim of providing direct financial aid is to implement stimulant aid activities for effective and efficient recovery and social strengthening that meet the basic needs of disaster victims. Furthermore, it is intended to facilitate responsible rehabilitation, reconstruction, and relocation of those affected by natural disasters.

The distribution of stimulant assistance to victims certainly uses the Regional Budget, where it has been explained previously that the Governor of West Sulawesi has issued a Decree, as a form of policy that allows for the Regional Budget for 2021 and 2022 to be focused on reconstruction and rehabilitation during the earthquake in Mamuju. the distribution of this assistance began on 24 February 2021. The value of social stimulant assistance for the heirs of earthquake disaster victims is IDR 15,000,000 per victim, with a total assistance of IDR 1,425,000,000. And that is the nominal stimulant fund disbursed by the local government of Mamuju Regency for social recovery (Hasran, 2021).

Based on what was conveyed by the "Acting Head of the Mamuju Regional Disaster Management Agency Taslim Sukirno that the National Disaster Management Agency disbursed Rp 209,535,000,000 to the Mamuju Regency Government for assistance for damaged houses after the 6.2 Magnitude earthquake that shook West Sulawesi, in the National Disaster Management Agency data the funds were intended for 9,719 houses with details of 1,501 severely damaged getting Rp 50 million. Then 3,487 moderately damaged houses received IDR 25 million, while 4,731 lightly damaged houses received IDR 10 million (Hamdan, 2023). There are 3 categories that are determined to be able to receive financial assistance. Those with severe damage will be entitled to funding assistance of around 50 million, those with moderate damage will receive 25 million, and finally those with light damage will receive 10 million. This decision was taken by the relevant government

without exception, as an effort to supplement the spirit of the earthquake victims, and this is also part or one of the post-earthquake restoration. The issuance of considerable funds is part of the impact of budget recofusing. To accelerate the post-earthquake recovery process, this aid budget can be directly monitored by the local parliament as a supervisor of the government, so that the distribution of funds can be right on target. (Akbar, 2022).

Renewal of post-earthquake building structures

One step towards restoring and reconstructing buildings in Mamuju is to promote building models that integrate disaster mitigation. The Mamuju city government has identified several buildings as a top priority, such as Building A, an office building located in Mamuju City; Building B, another office building; and Building C, a tower building.

Based on the Regional Regulation of Mamuju Regency Number 2 of 2016 concerning Building in paragraph 8 Building Safety Requirements in paragraphs 43, 44 and 45 as follows:

1. Paragraph 43 states that the reliability requirements for a building comprise safety, health, comfort, and convenience requirements.
2. Paragraph 44 states that the safety requirements for buildings as outlined in Article 43 incorporate the capacity of buildings to withstand load, fire hazards and lightning hazards.
3. Article 45, paragraph 1 specifies the necessary criteria for buildings to support loads as described in article 44. These requirements encompass building structures, loads on buildings, superstructures, sub-structures, direct and deep foundations, structural safety and collapse prevention, as well as material specifications. It is critical to adhere to these guidelines for effective and safe building construction. The aforementioned auditory phenomena discussed in paragraph 4 of the superior edifice, as mentioned in paragraph 1, pertain to various building methodologies such as concrete, steel, wood, bamboo, and techniques utilizing specialized materials and standards.
4. Article 80 paragraph 4 reads that building operators in earthquake-prone areas as referred to in paragraph 1 (earthquake-prone areas are areas that have the potential and or have experienced earthquakes on a scale of VII to XII Modified Mercally (MMI)). Must have certain technical engineering that is able to anticipate damage and or collapse of the building due to earthquake vibrations in a certain period of time.

So based on several articles in Mamuju Regency Regional Regulation Number 2 of 2016, it is clear that every building must pay attention to the strength of the building and this regulation leads to how the building administration must follow the development of technical engineering to be able to anticipate future natural disaster events. The foundation of the policy is to create a building that is certainly strong and sturdy. Then the local government decided to remodel several buildings.

Following a survey conducted by a team of experts, this building incorporates a reinforced concrete frame and is insulated using brick walls. The building has primarily experienced damage to non-structural components (Pradono, 2021). To remodel or reconstruct analyzed buildings efficiently, an approach to enhance their structural capacity against seismic activity is necessary. Two primary methods for structural improvements are typically employed - bracing and jacketing to bolster the building's column structure.

Bracing

Modelling bracing on structural elements positioned diagonally throughout the portal structure, namely concrete columns and beams, assists in bolstering the portal's capacity to withstand and counteract loads on the structure (Tiara, 2018). Bracing systems are utilized to withstand gravitational and seismic forces, preventing excessive swaying of structures. The use of bracing is essential, particularly during an earthquake (Mahadewi, 2021). The structural integrity of a building combating lateral forces is maintained not only by the foundational beams and columns but also by its bracing system. This component strengthens a building's ability to endure an earthquake, thus mitigating the likelihood of its collapse (Rienanda, 2019).

Therefore, the government of Mamuju implemented the Bracing and Jacketing model, based on the explanation given by the Governor of West Sulawesi that infrastructure improvements are crucial and must be addressed. The allocation of the Regional Budget for earthquake recovery greatly facilitated repairs and the remodelling of various sampled buildings. Additionally, there are significant reasons as to why we considered the bracing model, as stated below:

1. Earthquake Resilience: Mamuju is situated in a region susceptible to earthquakes. Installing braces or reinforcing the structure with a binkai or earthquake containment system can enhance the building's ability to withstand seismic shocks and vibrations, thereby reducing the risk of significant destruction caused by earthquakes.
2. Public Safety: The government places utmost importance on public safety. The use of bracing modelling can assure a higher level of safety for public buildings and structures constructed after an earthquake. Such measures will aid in safeguarding residents from potential earthquake hazards.
3. Resource availability certainly influences this decision, including the availability of funds and materials. Bracing is viewed as a more cost-effective solution, especially for those impacted by natural disasters who must utilize their funds wisely. Not only must we ensure proper infrastructure, but we must also provide necessary assistance to residents, including basic necessities, among other considerations. This is an important aspect for us as the government to consider when taking on the task of modelling supportive structures (Masdar, 2022).

Jacketing

Modelling jacketing is a method for strengthening or assembling concrete by enveloping existing concrete with additional material. The approach involves enlarging dimensions and adding reinforcement to improve the performance of structural elements. Jacketing concrete materials has been proven to be an effective solution for reinforcing building columns. To increase the shear strength and moment of the concrete, the cross-section of the column is enlarged with the aim of expanding its cross-section (Kaontole, 2015). Based on the results of the expert team's analysis and study, the reconstruction of office buildings damaged by the earthquake was accelerated by selecting two models, namely bracing and jacketing. One of the teams from the Centre for Disaster Studies of Andalas University conducted a survey and socialization of the experience of dealing with the West Sumatra earthquake in 2009, as well as reviewing damaged buildings both community homes and other infrastructure and determining the category of damage to the building, Fauzan as team leader, After conducting a thorough review and assessing the extent of the damage to the building, we will offer appropriate methods to repair and reinforce it in compliance with construction standards and models in use. For example, one method may involve installing planting wires into the building's foundation to enhance its structural integrity. He added that standing buildings need not be demolished; rather, they can be strengthened to reduce costs and expedite repairs through methods such as bracing and jacketing modelling (Rahmawani, 2021).

Establishment of Working Group (NWG)

Following the announcement by Regent Sutinah Suhardi of Mamuju, as reported by Antara South Sulawesi, the working group is recognised as an instrumental partner in the area's earthquake response. The group consists of Non-Governmental Organisations, volunteers, national, and local organisations, and will work alongside the government of Mamuju to provide assistance in the earthquake response. This collaborative effort between the government and all volunteers ensures comprehensive support for the area affected by the earthquake (Hanapi, 2021). The establishment of this working group is driven by the presence of a considerable number of individuals who are yet to receive aid subsequent to natural disasters, potentially leading to delays in post-earthquake reconstruction efforts. The creation of the Working Group aims to establish a community facility and governmental extension to assist direct victims of the disaster. The goal is to promptly address community needs and accelerate the handling of community aspirations (Kuncoro, 2019). The NWG, initiated by the Regional People's Representative Council (DPRD), will assess the disaster-affected village directly, and use the data collected to expedite aid distribution through direct coordination with the Mamuju city government. The NWG, initiated by the Regional People's Representative Council (DPRD), will assess the disaster-affected village directly, and use the data collected to expedite aid distribution through direct coordination with the Mamuju city government. This process constitutes a tangible form of work for the DPRD, as representatives of the people. This is a contribution by the DPRD

to aid the Mamuju district government in addressing a challenging scenario, particularly in the restoration efforts following the earthquake (Akbar, 2022).

Conclusion

Earthquakes are unforeseeable calamities, and mitigation policies necessitate each region's heightened consideration toward disaster prevention or management. The earthquake that transpired in Mamuju, the capital of West Sulawesi province, had a significant impact. Therefore, the government promptly and accurately made decisions, prompted by circumstances and conditions following the earthquake's devastation in Mamuju. The government's policies issued have undergone comprehensive assessment. The policy's core objective is for the government to make decisions that solely achieve common goals. The policies include allocating APBD funds to support structural repairs, renovating damaged office buildings, providing financial assistance to communities affected by natural disasters, and forming POKJA working groups to accommodate community aspirations while also supporting post-earthquake recovery productivity.

References

Akbar, M. R., Muhayyang, M., Khaidir, S. N. F., Iswar, A., & Salam, F. A. (2022). Mitigasi Bencana Berbasis Pengetahuan Lokal Masyarakat Majene. *Kybernology : Journal of Government Studies*, *2*(2), 120–132. https://doi.org/10.26618/kjgs.v2i2.9661

Amri, M. R., Yulianti, G., Yunus, R., Wiguna, S., Adi, A. W., Ichwana, A. N., Randongkir, R. E., & Septian, R. T. (2016). *BNPB RBI Resiko Bencana Indonesia* (R. Jati & M. R. Amri (eds.)

Anggara, S. (2018). *Pengantar Kebijakan Publik*. Pustaka Setia.

Bachri, S., Sumarmi, Irawan, L. Y., Utaya, S., Tyas, L. W. N., Nurdiansyah, F. D., Nurjanah, A. E., Wirawan, R., Adillah, A. A., & Purnama, D. S. (2021). Landslide Risk Analysis in Kelud Volcano, East Java, Indonesia. *Indonesian Journal of Geography*, *53*(3), 408–423. https://doi.org/10.22146/IJG.40909

Bakti, H. K., & Nurmandi, A. (2020). Pemulihan Pasca Bencana Gempa Bumi Di Lombok Utara Pada Tahun 2018. *Jurnal Geografi*, *12*(02), 137. https://doi.org/10.24114/jg.v12i02.16750

Dewi, F. S. (2021). Total Kerugian Akibat Gempa di Sulbar Mencapai Rp829,1 Miliar. *Bisnis.Com*.https://sulawesi.bisnis.com/read/20210127/539/1348322/total-kerugian-akibat-gempa-di-sulbar-mencapai-rp8291-miliar

Febriana, D. S. (2015). Kesiapsiagaan Masyarakat Desa Siaga Bencana Dalam Menghadapi Bencana Gempa Bumi Di Kecamatan Meuraxa Kota Banda Aceh. *Jurnal Ilmu Kebencanaan,* *2*(3), 42. Retrieved from https://jurnal.usk.ac.id/JIKA/article/view/5671/4690.

Habibullah, Bambang Pudjianto. (2014). Gotong Royong Pada Program Bantuan Stimulan Pemulihan Sosial Di Mamuju, Sulawesi Barat Mutual Aid Stimulant Recovery on Social Assistance Program and Mutual Assistance in Mamuju, West Sulawesi. *Sosio Konsepsia*, *5*(01), 17–35.

Hamdan, H. (2023). *Rp 20 M Dana Bantuan Rumah Rusak Korban Gempa di Mamuju Mengendap di Bank*. https://www.detik.com/sulsel/berita/d-6524213/rp-20-m-dana-bantuan-rumah-rusak-korban-gempa-di-mamuju-mengendap-di-bank

Hanapi, F. (2021). *Mamuju Bersinergi dengan Pokja Demi Percepatan Pemulihan Pascagempa*. https://makassar.antaranews.com/berita/245802/mamuju-bersinergi-dengan-pokja-demi-percepatan-pemulihan-pascagempa

Hartono, D., Khoirudin Apriyadi, R., Winugroho, T., Aprilyanto, A., Hadi Sumantri, S., Wilopo, W., & Surya Islami, H. (2021). Analisis Sejarah, Dampak, Dan Penanggulangan Bencana Gempa Bumi Pada Saat Pandemi Covid-19 Di Sulawesi Barat. *PENDIPA Journal of Science Education*, *5*(2), 218–224. https://doi.org/10.33369/pendipa.5.2.218-224

Hasran. (2021). *Dinas Sosial Kabupaten Mamuju Salurkan Bantuan Sosial untuk Ahli Waris Korban Bencana*. https://mamujukab.go.id/dinas-sosial-kabupaten-mamuju-salurkan-bantuan-sosial-untuk-ahli-waris-korban-bencana/

Kaontole, J. T., Sumajouw, M. D. J., & Windah, R. S. (2015). Evaluasi Kapasitas Kolom Beton Bertulang yang Diperkuat dengan Metode Concrete Jacketing. *Jurnal Sipil Statik*, *3*(3), 167–174. https://ejournal.unsrat.ac.id/index.php/jss/article/view/8151

Kartika, K., Mu'alim, A., & Riski Fadhilah, R. F. (2018). Faktor Yang Mempengaruhi Implementasi Kebijakan Mitigasi Bencana Gempa Di Kecamatan Bandar Baru Kabupaten Pidie Jaya. *An-Nadaa: Jurnal Kesehatan Masyarakat*, *5*(2), 77. https://doi.org/10.31602/ann.v5i2.1654

Kunci, K. (2010). Gempa Bumi, Tsunami Dan Mitigasinya. *Gempa Bumi, Tsunami Dan Mitigasinya*, *7*(1). https://doi.org/10.15294/jg.v7i1.92

Kuncoro, D., & Indrawati. (2019). Proses Komunikasi Dalam Implementasi Kebijakan Mitigasi Bencana. *Mutakallimin: Jurnal Ilmu Komunikasi*, *2*(2), 13–19.https://ojs.uniskabjm.ac.id/index.php/mutakallimin/article/view/3513

Mahadewi, D. A. U., & Khatulistiani, U. (2021). Pengaruh Penempatan Bresing Inverted V dan X-One Story terhadap Simpangan Horisontal Pada Gedung Bertingkat Struktur Baja. *… Dan Industri Jasa …*, *1*(1), 25–34. http://prosiding.uika-bogor.ac.id/index.php/kiijk/article/view/330

Maryanti, S., Netrawati, I. O., & Faezal, F. (2019). Moving the economy through the recovery of small medium business and micro industry post earthquake disaster in Nusa Tenggara. *Binawakya*, *44*(12), 2–8. http://ejurnal.binawakya.or.id/index.php/MBI

Masdar, A. A. (2022, Maret 03). Pengalokasian APBD dalam Penanggulangan Bencana Gempa Bumi Mamuju Tahun 2021. (M. Heril, Interviewer)

Mes. (2021). *Rehabilitasi Gedung dan Fasilitas Umum Pascabencana Gempa Bumi di Sulawesi Barat Capai 34,15%*. https://pu.go.id/berita/rehabilitasi-gedung-dan-fasilitas-umum-pascabencana-gempa-bumi-di-sulawesi-barat-capai-3415

Mjachkin, V. I. (1975). Two models for earthquake forerunners. *Pure and Applied Geophysics PAGEOPH, 113*(1), 174. doi:10.1007/bf01592908

Murdiyanto, E. (2020). Metode Penelitian Kualitatif (Sistematika Penelitian Kualitatif). In *Bandung: Rosda Karya*.

http://www.academia.edu/download/35360663/metode_penelitian_kualitaif.docx

Nelwan Tiara, I., Wallah E., S., & Dapas O., S. (2018). Respondinamisbangunan Bertingkat Banyak Dengansoftfirststorydan Penggunaan braced frames element terhadap Beban Gempa. *Universitas Sam Ratulangi Fakultas Teknik Jurusan Sipil Manado*, *6*(3), 175–188.

Panel, J. (1971). *The San Fernando Earthquake of February 9, 1971 Lesson From a Moderate Earthquake on The Fringe of a Densely Populated Region*. https://doi.org/10.17226/20501

Pradono, M. H., Shafira Rahmadilla Hape, Ahmad Fauzi Yunus, & Muhammad Ravi Yufhendmindo. (2021). Pemodelan Struktur Bangunan di Mamuju Pasca Gempabumi 15 Januari 2021. *Jurnal ALAMI : Jurnal Teknologi Reduksi Risiko Bencana*, *5*(1), 1–7. https://doi.org/10.29122/alami.v5i1.4864

Prasetya, A., & Isbandono, P. (2017). Implementasi Kebijakan Pengelolaan Mitigasi Bencana Gunung Kelud Di Badan Penanggulangan Bencana Daerah (BPBD) Kabupaten Kediri. *Jurnal Mahasiswa Universitas Negeri Surabaya*. https://core.ac.uk/display/230719290

Rahmawani, E., & Fajari, F. (2021). *Tim PSB Unand Lakukan Peninjauan Infrastruktur Rusak Pasca Gempa Mamuju Majene*. https://www.gentaandalas.com/tim-psb-unand-lakukan-peninjauan-infrastruktur-rusak-pasca-gempa-mamuju-majene/

Rianto, P. (2020). Modul Metode Penelitian Kualitatif. In *Metode penelitian* (Issue July).

Rienanda, F. E., Kumaat, E. J., & Windah, R. S. (2019). Pengaruh bracing pada bangunan bertingkat rangka baja yang berdiri di atas tanah miring terhadap gempa. *Jurnal Sipil Statik*, *7*(6), 605–614.

Sugiyono. (2016). Metode Penelitian Kuantitaf Kualitatif Dan R&D. In *Angewandte Chemie International Edition, 6(11), 951–952.*

Supartoyo, Suwargana, H., & Karim, A. (2022). Dampak Gempa Bumi Di Sulawesi Barat Dan Upaya Mitigasi. *Jurnal Geominerba (Jurnal Geologi, Mineral Dan Batubara)*, *7*(2), 104–118. https://doi.org/10.58522/ppsdm22.v7i2.101

Susanti, E., & Anggara, I. P. (2021). Analisis Mitigasi Penanggulangan Bencana di Kabupaten Ogan Komering Ulu. *Jurnal Ilmiah Wahana Bhakti Praja*, *10*(2), 324–332. https://doi.org/10.33701/jiwbp.v10i2.1374

Suseno, B. D., & Almafutra, F. (2020). Model Pemulihan Ekonomi Keluarga: Solusi Bagi Penyintas Bencana Tsunami Selat Sunda Di Provinsi Banten. *Jurnal Abdimas Bina Bangsa*, *2*(2), 9–17. https://doi.org/10.46306/jabb.v2i2.102

Syugiarto, S., Khaldun, R. I., Tawil, Y. P., & Kusnadi, H. W. (2022). Pemulihan Pasca-Bencana di Indonesia: Perlukah Dilakukan Perubahan Kebijakan? *Jurnal Ilmiah Ilmu Sosial*, *8*(2), 152–161. https://doi.org/10.23887/jiis.v8i2.47443

Timkip. (2023). *Demi Percepatan Dana Stimulan Tahap 2, Bupati Mamuju Temui Kepala BNPB*. https://mamujukab.go.id/demi-percepatan-dana-stimulan-tahap-2-bupati-mamuju-temui-kepala-bnpb/

Yulianto, S., Apriyadi, R. K., Aprilyanto, A., Winugroho, T., Ponangsera, I. S., & Wilopo, W. (2021). Histori Bencana dan Penanggulangannya di Indonesia

Ditinjau Dari Perspektif Keamanan Nasional. *PENDIPA Journal of Science Education*, *5*(2), 180–187. https://doi.org/10.33369/pendipa.5.2.180-187