



THE DYNAMICS OF MULTI ACTORS ROLES IN POST-SUNDA STRAIT TSUNAMI DISASTER MANAGEMENT: LESSONS FROM THE INFRASTRUCTURE DEVELOPMENT PHASES

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Abstract

Purpose of the study: This study aims to explore the role of government and non-government actors and analyze the dynamics of the multi-actor's role in the phase of infrastructure development after the Sunda Strait tsunami disaster in South Lampung Regency, Indonesia.

Methodology: The study was conducted in a qualitative approach that analyzes regulative, technical, and implementation aspects. Data is collected from the local government, parliament, community leaders, and private organizations—data collection through in-depth interviews with 20 informants, observation, and documentation. Meanwhile, data analysis was carried out using interactive analysis with the use of data type and data sources triangulation.

Main Findings: The results of the study identified the involvement of government, community, and private organizations in the post-disaster phase, which had a positive impact on refugees. Dynamics occur at the stage of temporary and permanent housing development, where there is a change in the role of district, provincial and private governments and community institutions.

Applications of this study: The results of this study can be a reference in managing the role and managing the dynamics that occur in the interaction between actors in disaster management in local governments.

Novelty/Originality of this study: This research shows the dynamics of the role of actors in disaster management, which fluctuate but are not accommodated institutionally, even though the potential of this group can strengthen disaster management governance and build an active collaborative model in post-disaster management. The findings can be useful in strengthening government networks in disaster management in various regions and countries.

Keywords: *Disaster Management, Multi Actor Roles, Sunda Strait Tsunami, Non-Government Organization, Voluntary Action.*

INTRODUCTION

Indonesia is a country that has a high vulnerability to natural disasters. It is noted that almost all of the Indonesian archipelago has risks of various types of disasters ([Sudibyakto, 2018](#)). One of the provinces that often faces disasters is Lampung Province, one of the disasters which caused many casualties is the tsunami. Sundanese strait tsunami occurred in the South Lampung region at the end of 2018, where the number of fatalities was 126 people and injured victims as many as 4008 people. While the material loss of 600 houses was severely damaged, 70 were moderately damaged, and 1029 slightly damaged ([BBC, 2018](#)).

Based on the information presented by the Meteorology, Climatology and Geophysics Agency (BMKG), it was reported that the Geological Agency of the Ministry of Energy and Mineral Resources (ESDM) and the Center for Volcanology and Geological Disaster Mitigation (PVMBG) had detected eruption activity at Mount Anak Krakatau, Lampung, on Friday, 21st of December 2018. At exactly 21:30 West Indonesian Time (WIB), Earthquake and Tsunami Center officials on BMKG received reports of public panic in the Banten and Lampung regions, due to abnormal tidal seawater. Looking at the results of BIG tide gauge records, BMKG believes that this is a tsunami wave. At 22.30 West Indonesian Time, BMKG immediately issued a press statement related to the tsunami that had occurred in Banten and Lampung, which was not triggered by a tectonic earthquake ([CNN Indonesia, 2018](#)).

The tsunami as a result of the Krakatau eruption has been studied by several experts, including in mapping and zoning of tsunamis in Indonesia ([Hamzah et al., 2000](#)), and ([Grilli et al., 2019](#)), studies of tsunami prediction due to volcanic eruptions that might occur ([Carey et al., 2001](#)) and ([Maeno & Imamura, 2011](#)), even recorded in the history of Mount Krakatau which erupted several times with tsunamis ([P. Francis & Self, 1983](#)), and ([Newcomb & McCann, 1987](#)).

The tsunami disaster was quickly responded by the government; their involvement became a mandatory task of the government. The existence of regulations on disaster management is the main thing needed to reflect the presence of the country in the midst of a disaster. That is mandated by Law of, the Republic of Indonesia Number 24 of 2007



toward Disaster Management Article 5, in which the Central Government and regional governments are responsible for organizing disaster management. Based on this regulation, the government becomes the main actor who manages disasters and carries out all phases of disaster management (Kusmiati, 2005).

Disaster management thus becomes urgent in disaster areas, South Lampung Regency as one of the affected areas needs adequate organization and management of disaster management, bearing in mind that disasters cannot only be handled by one or two organizations, although their governance must still be maintained (Ahrens & Rudolph, 2006). Just relying on the government is not enough because a large-scale disaster will cripple local government infrastructure, paralyze the performance of the bureaucratic apparatus and create complicated conditions that are difficult to regulate (Daly & Feener, 2016). In this condition, a coordinated actor is needed to intervene quickly with victims and move the recovery phase quickly so that the wheels of government in the regions can return to normal (Brown, 2014). What is intended to emerge from this research is an analysis of the dominance of actors that emerged in the initial phases of the disaster and the post-disaster recovery phase, where the shadow government can carry out disaster management activities when the local government is not ready to coordinate its resources. Shadow government can arise in conditions where the role of government does not exist and the stakeholders are not connected to each other and have their own mission (Hudalah, 2017).

On the other hand, if the relationship between non-governmental actors is maintained autonomously, the relations that can be formed are self-organization without hierarchy. Self-organization is a concept that is often used to legitimize government withdrawal from sectors in which has traditionally played a vital role (Nederhand et al., 2016). Both of these concepts occur if the role of government is minimal, there is not even an active role, but in disaster management governance that has been strong will potentially present an integrative governance model where collaboration between government and non-government occurs actively (Sledge & Thomas, 2019) and the community also has a cooperative response (Joshi & Nishimura, 2016). The form of the role of government in disaster conditions is interesting to analyze in order to present a more appropriate model of stakeholder relations in post-disaster management in the future. The dominant role of actors in disaster management will have varied long-term impacts; the government remains dominant even though its capacity is inadequate (Pathak & Ahmad, 2018). However, if the government must be dominant, then the required prerequisites of available resources must be optimal, while if non-governmental actors are open to being dominant, then a strong governance chain is needed (Fallah & Hosseini nejad, 2018).

In line with the conceptual framework and taking the Sunda Strait tsunami case as a disaster event that is highlighted by the world because of the nature of the disaster, this article intends to analyze

1. What is the role of government and non-governmental actors in the phase of post-tsunami shelter construction in the Sunda Strait?
2. How are the dynamics of multi-stakeholders in the post-tsunami shelter construction phase in South Lampung,
3. How is the multistakeholder dynamics model in post-disaster management, which is inspired by the post-tsunami development in South Lampung? The research questions that will be described in the discussion in the next section.

RESEARCH METHODS

This research was conducted in a descriptive qualitative approach that analyzed the technical and implementation aspects that occurred at the focus of the research discussion. This phenomenological research focuses on abstract and symbolic data with the main aim of understanding phenomena that emerge as a unified whole, where the dynamics of the multi-factor role are the phenomenon. Data collection is done through interviews with informants, observations, and field documentation. Data was collected from the Regional Government, Local Parliament, and community and private organizations that were selected *purposively* with the criteria for their active formal role on tsunami disaster management activities in South Lampung. Informants from the local government were chosen by 2 people from each agency involved in the handling of the tsunami disaster, namely the Government Bureau, the Social Service, the Public Works Agency and the South Lampung Regional Development Agency, then 4 people from the Indonesian National Army which included the Garuda Hitam Military District Command and Naval Marine Base in Lampung Province. At the same time, informants from non-government organizations were obtained by 2 people, each from Muhammadiyah and Nahdlatul Ulama in South Lampung, who were responsible for handling the Sunda Strait tsunami disaster. In the private sector institution, 2 people were chosen from PT. KIM and 2 people from Icon + who were involved in the disaster management process. So, in this study involved 20 informants whose credibility in providing information can be guaranteed. In addition, data collection and other relevant information used in this study, including news from local media in the period from January 2, 2019, to May 2, 2019. The analysis used in this study is an interactive analysis model with data reduction work procedures, data presentation, data verification, and concluding (Miles & Huberman, 1994). Interview transcripts, observation notes, and documentation identification results are processed and verified and then input into the triangulation table. Discussion of research results is carried out based on the results of data reduction and conclusions drawing that are carried out manually using triangulation

tables to facilitate analyzing interview data, document analysis, and direct observations conducted interactively.

RESULTS AND DISCUSSION

The occurrence of the tsunami disaster before the turn of 2018 caused by the eruption of Mount Anak Krakatau and pushed its material to a landslide of about 64 hectares of material into the ocean. It is estimated, the volume of the collapse reached 150-180 million cubic meters. This avalanche is also believed to have created the Sunda Strait tsunami that struck coastal areas of Lampung and Banten Provinces. It is estimated that the total death toll reached 430 people and injured thousands of people. Various facilities and infrastructure on the coast of the Sunda Strait, including the coast of South Lampung, suffered severe damage. The disaster became the center of people's attention and was responded quickly by the government by carrying out collaborative disaster management activities involving various stakeholders.

A. Multi-Stakeholder Governance Emergency Response Phase

The tsunami of South Lampung was followed up with an emergency response phase with time intervals on December 23, 2018–January 19, 2019. The phases were implemented in 3 phases; (1). Emergency Response is based on Decree No: B / 400 / VI.02 / HK / 2018 in 23rd of December 2018 – 29th of December 2018, (2). Extension of Emergency Response I is based on Decree No: B / 405 / VI.02 / HK / 2018 in 30th of December 2018-05th of January 2019, and (c). Extension II of Emergency Response is based on Decree No: B / 30 / VI.02 / HK / 2019 in 6th of January 2019-19th of January 2019. The second phase of the emergency response focus is on finding victims who are reportedly still missing and meeting the basic needs of affected refugees the impact of the Sunda Strait tsunami in South Lampung. In this phase, the activities of evacuation and disaster victims were carried out simultaneously and involved three groups of organizations; Government (civil and military), community organizations, and the private sector. If you look at the distribution of disaster locations, it can be understood if joint movements are needed in this phase.

The distribution of the impact of the Sunda Strait tsunami in South Lampung covers land areas and islands which are close to Mount Krakatoa. Noted in the South Lampung region, there were 12 fatalities affected by the Sunda Strait tsunami. In the initial phase of the emergency, coordination between actors was carried out in a joint team of Basarnas, BPBD, TNI, medical teams and volunteers focused on the evacuation of victims affected by building debris in Kunjir and Way Muli and Cugung Villages in Rajabasa District of South Lampung Regency. Emergency management is carried out by BNPB together with the TNI, Polri, Basarnas, Ministry of Social Affairs, Ministry of Health, Ministry of PUPR, Ministry of Energy and Mineral Resources, as well as ministries and related institutions that continue to assist local governments in handling emergencies. While the Provincial and Regency Governments continue to coordinate with various parties in the procurement of coordination posts, health posts, public kitchens, and refugee posts to deal with victims.

In the early days of the emergency, the coordination role was carried out by BNPB and Basarnas as institutions that had the role of disaster management and rescue of victims related to disasters. Basarnas and BNPB became a kind of government *ad hoc* that played a dominant role. Under their coordination, the joint Team scoured the disaster site and took the necessary actions to rescue and minimize casualties. Meanwhile, the regional government was given the role to support the joint Team in the form of mobilizing medical personnel and emergency health service facilities. The coordination carried out at this critical stage is an important part that determines the effectiveness of the activities afterward (Ariyanto, 2018). At this stage, non-governmental organizations have not been formally organized as part of the handling of the emergency response phase; initiatives are still spontaneous. Likewise, private organizations have not yet played a formal and active role.

B. The Role of Stakeholders in the Disaster Recovery

The recovery phase of a disaster is marked by the reduction in the role of the National Disaster Management Agency and the National Safe and Rescue Agency (Basarnas), then the role of disaster recovery is given to the Regional Government (Provincial and Regency Governments). However, cooperation was identified as various involved parties in the region and outside the region in the construction of temporary and permanent shelters. Furthermore, it can be explained in the form of multistakeholder cooperation in the section below.

Construction Phase of Temporary Shelter

Temporary Shelters are built based on the needs of handling refugees who originally lived in tents and began to be exposed to several types of diseases. In addition, the available tents began to feel uncomfortable for the victims in carrying out household activities (Santoso et al., 2016). Therefore, based on the initiative of the South Lampung Regency Government, temporary shelters were built, which involved several non-government parties. Strong leadership was identified in this phase so that it could invite several actors to collaborate in this residential development phase. The distribution of locations and building of temporary shelters can be seen from the figure as follows:

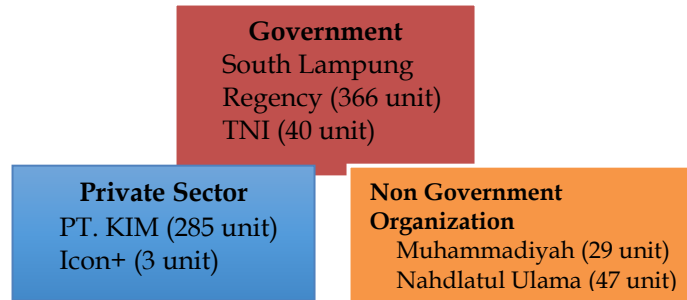


Figure 1: Contribution of Stakeholders to the Construction of Temporary Shelter in South Lampung

Source: Data on Government Sector of South Lampung Regency, 2019

From this figure, it can be identified the involvement of government groups, namely: Local Government and the Indonesian National Army, community organizations such as Muhammadiyah and Nahdlatul Ulama, and private groups, namely Icon + and PT.KIM. The collaboration of these three parties has had a positive impact on refugees so that the availability of various temporary residential units in some areas can prevent further social, economic, and health impacts. In this collaboration, the role of the South Lampung regional government as a policymaker and coordinator directs community organizations and private groups to contribute and participate in dealing with refugees.

Stage of Construction of Permanent Shelter

The phase of construction of permanent housing starts from the formation of the Land Procurement Preparation Team for the Provision of Huntap Land through the Decree of the Regent No. B / 132 / IV.05 / HK / 2019 dated 22nd of January 2019. Based on the decree, the Land Procurement team conducted a survey with the Team from the South Lampung Land Office. Meanwhile, in the process, coordination was also carried out with BNPB and PVMBG regarding the condition of the vulnerability of permanent residential locations. Then, in the next stage, the Submission of South Lampung Regent submits a proposal for the determination of the location to the Governor through Letter Number 593/1125 / I.01 / 2019 dated 28th of March 2019, until then a discussion on the proposed location determination island in Kunjir Village and East Way Muli Village, led by the Assistant of Economy and Development of the Province of Lampung, on 2nd of April 2019. As a sign of good cooperation, the provincial government/governor agreed to the location determination. The Locations that are the residential development plan are still spread over 7 locations with varied land area. The location of relocation and the construction of the largest permanent residences is in Kunjir Village, East Way Muli Village, and Bumin Agung Village. The three locations from each village are close together and have been surveyed by the South Lampung district government team and the National Land Agency. At this stage, the roles of the Regency and Provincial Governments were at the forefront, where the authority related to land and infrastructure development was indeed under the two governments, while the role of the private sector and community institutions began to diminish. It can be understood that this phase is a phase that is long-term and involves complete infrastructure (Suprayitno & Soemitro, 2019). From the overall emergency phase, it can be observed that there is a shift in the role and change of authority in the provision of emergency infrastructure development for refugees. These changes can be observed from the following figure:



Figure 2: Changes in Stakeholder Roles and Main Factors Directing Their Role

Source: Data Analysis, 2019

When examined the table, it can be seen the dynamics in the role of stakeholders in the disaster management phase. These changes are in line with the regulatory aspects and the suitability of their disaster management capacity. First, in the emergency response phase, the central government is dominant because it is related to the responsiveness of the state in disaster management and the need for skilled rescue expertise and is part of crisis management that is carried out when the local government is still beaten and has not been coordinated again. The government, in this phase, carries out its role as the information command center ([Yang et al., 2018](#)), and regulators in the distribution of actions ([Zhang et al., 2017](#)). Military involvement in this phase also shows their position as the command instrument of the National Disaster Management Agency led by the military. Their presence indicates their active role in specific civic activities; this is often found in other countries such as China ([Chen, 2016](#)). A large disaster relief response contains complex interactions between multi-actors and multi-disciplines. Meanwhile, local governments and affected community groups are the main stakeholders, in dealing with disasters that should be open for foreign governments to send aid, international organizations, non-governmental organizations (NGOs), and their donors, and so-called hybrid organizations, such as Indonesian Red Cross ([Chan & Li, 2016](#)).

Secondly, in the temporary residential development phase, the role of the central government began to diminish given that no longer needed skilled rescue workers and local governments had begun to be able to move back, at this phase crisis management was still implemented considering disaster victims still faced the dangers of disease and challenges in their survival. The role of non-governmental groups also strengthened and was given space by local government leadership in the form of temporary infrastructure development cooperation. This role is not regulated in disaster management policies in Indonesia but is a good local initiative put together by the local government. On the same side, these non-governmental groups made their contribution as part of their charity activities in the form of collecting donations or helping to build residential facilities. Their position in this phase is complimentary, meaning that their presence complements the role of the community that is collected through donations as an effort to maintain the survival of disaster victims ([Humphrey, 2019](#)).

Third, in the residential development phase, the role of the local government is increasingly dominant because this phase of activities requires a long-term commitment of resources and aims at rebuilding the lives of people affected by the disaster ([Nowell et al., 2018](#)). Meanwhile, the role of non-governmental organizations and private sector organizations began to diminish and was limited to mobilizing the assistance of primary and secondary staples of disaster victims. The role of the central government remains in the form of mapping disaster-prone areas, which are part of the policy recommendations for the relocation of disaster victims, and the mobilization of budget resources to rebuild destroyed public facilities. The results of the mapping of tsunami-prone areas can be seen in the following figure 4.



Figure 3: Red Zones as Tsunami Prone Areas in South Lampung

Dynamics of this role indicate several things, namely: first, the capacity of local governments in the aftermath of a disaster is still vulnerable and can create temporary paralysis of institutions. In this phase, the role of community organizations is in complementing the role of government and intergovernmental organizations in disaster relief situations and demonstrating creative forms of local initiatives to strengthen mutual aid and post-disaster development assistance programs ([Anderson et al., 2019](#)). Community organizations such as Muhammadiyah and Nahdlatul Ulama become part of the rescue despite carrying out non-complex activities; it becomes interesting if they, as part of a social network, are given technical and complex capabilities ([Jones & Faas, 2016](#)).



Second, there is the potential for involving non-governmental and private groups as an institutional element that can strengthen local government in the event of a disaster. Shortly after the disaster, the role of the community group was the most important, because the community became the first closest group after the incident. However, it is important to understand the urgency in the rescue operation is technical skills and cooperation with local residents (Shaw, 2003). This potential could actually be realized as an institutional collaboration between stakeholders and could become an ad hoc government in the early post-disaster period. The collaboration was established to prepare for the rehabilitation phase that was required to remain planned to meet minimum standards of medical health (Koenig & Schultz, 2016) and social health (Bhasker et al., 2017). Collaborative networks should strengthen in this phase, with the central government sharing its role openly (Balcik et al., 2019).

Third, there is the potential for collaboration and collaboration with non-governmental and private groups in handling long-term disaster victims, bearing in mind that the government budget only covers the relocation and construction of houses and public infrastructure affected by disasters, while the needs of other supporters are not ready yet—the rehabilitation and reconstruction phase requires solid commitment. As has been stated, if after the disaster, it is possible there is a concentration of NGOs in the relief and rescue phase. However, continuing efforts in the and rehabilitation phase require long-term commitment. In this phase, NGOs can play an important role as a link between the community and the government, communicating the needs and priorities of the government. Therefore, the most challenging is the aspect of readiness to play a role, where the capabilities involved in post-disaster reconstruction can be transmitted to future generations to anticipate the next disaster (Shaw, 2003). The dynamics in the role of the government shows that if the government cannot become self-government, in the context of disasters more collaboration and tactical collaboration between stakeholders is needed, only the position of non-government groups can be further strengthened. Under these conditions, more governmental networks are generally needed more like a decentralized organization and joint network governance that can facilitate collaboration by optimizing trust and legitimacy and minimizing power imbalances (Hermansson, 2016). In addition, community involvement in disaster risk reduction and pre-disaster management can provide benefits in terms of trust, ownership, and reduction of losses due to disasters due to dynamic processes that enable community groups to contribute, exchange ideas, and inclusive decision-making activities (Pandey, 2019). Finally, the future model of disaster management needs to be multi-stakeholder and involve more active roles of non-government groups and private organizations that have the capacity to manage disasters.

CONCLUSION

Based on the discussion that has been described, it can be concluded that there are dynamics in the post-disaster emergency response phase where the central government is dominant, then at the stage of temporary housing development the dynamics of government groups in the development of dominant temporary housing are identified by the regional government, the Indonesian Armed Forces, and community organization groups namely Muhammadiyah and Nahdlatul Ulama, and private groups namely Icon + and PT.KIM. The collaboration of these three parties has had a positive impact on refugees so that the availability of temporary shelter can prevent further social, economic, and health impacts. In this collaboration, the role of the South Lampung regional government as policymakers and coordinators is to direct community organizations and private groups to be able to contribute and participate in dealing with refugees. The role dynamics transform again at the stage of permanent housing development, where the roles of the Regency and Provincial Governments are at the forefront, where authority regarding land and infrastructure development is indeed under the two governments, while the private sector and community institutions begin to diminish their role. It can be understood that this phase is a phase that is long-term and involves complete infrastructure.

In the future, it is possible to have a network disaster management model by placing non-government groups and private groups as a complementary part in handling the emergency response phase, on condition that there is a strengthening of the capacity of technical expertise and specifically emergency response. The role of the two groups can strengthen the role of the government which has bureaucratic limitations and the gradual procedure of procuring resources, although in the rehabilitation phase the role of the government will further strengthen the position of the two groups still fills the secondary aspects of the needs of disaster victims.

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AUTHORS CONTRIBUTION

Simon Sumanjoyo Hutagalung coordinated the research and writing of this article. He participated in preparing research plans, collecting data, data analyzing, and making this papers. Nana Mulyana's contribution was in preparing the research



plan, data analysis, and writing this paper. Meanwhile, Eko Budi Sulistio participated in data collection and writing this paper.

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