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Dynamics of Post-Earthquake and Tsunami Settlement Relocation Social

Benyamin Pamasi[1], Hasan Muhamad[2]

[1] *Faculty of Social and Political Sciences, Tadulako University, Indonesia. E-mail: pamasib@gmail.com*
[2] *Faculty of Social and Political Sciences, Tadulako University, Indonesia. E-mail: hasanmuhamad1011@gmail.com*

Abstract: The earthquake, liquefaction, and tsunami disaster that occurred on September 28, 2018, in Palu City had multidimensional impacts on the lives of the community, not only in the form of physical damage but also serious disruptions to social structures and the economic continuity of survivors. One of the main post-disaster government policies is the settlement relocation program for communities living in Disaster-Prone Zones (ZRB), including the Dupa Indah community in Layana Indah Subdistrict. This study aims to analyze the conflicts that arise in the post-disaster settlement relocation process, particularly the factors driving community resistance to this policy. This research uses a qualitative approach with data collection techniques through in-depth interviews, observation, and document studies, involving the Dupa Indah community and the Palu City Government as units of analysis. The research results indicate that the rejection of relocation is influenced by interconnected economic and social factors, particularly the attachment between residents' living locations and their livelihood activities, limited access to business-supporting infrastructure, and perceptions of policy injustice due to differences in treatment between residential areas and commercial property zones that are at relatively the same risk. These findings suggest that relocation policies oriented toward structural mitigation without considering the socio-economic sustainability of communities have the potential to trigger vertical conflicts between the government and affected communities. Therefore, a more participatory, contextual, and socially equitable relocation approach is needed to ensure that post-disaster recovery programs can be implemented sustainably and be accepted by the community.

Keywords: resettlement of settlements, social conflicts, post-disaster, coastal communities.

1. Introduction

The Central Sulawesi region has a history of disasters marked by a series of earthquakes and tsunamis with significant impacts, both in terms of physical damage and loss of life. One notable event occurred on December 1, 1927, when a 6.5-magnitude earthquake struck the city of Palu and its surroundings. The earthquake was triggered by the Watusampo tectonic activity centered in Palu Bay, resulting in 14 fatalities and 50 people injured. Furthermore, on January 30, 1930, an earthquake along the west coast of Donggala Regency triggered a tsunami about two meters high that lasted for approximately two minutes. Another event occurred on August 14, 1938, when a magnitude 6 earthquake centered in Teluk Tambu, Balaesang District, Donggala Regency, triggered a tsunami with heights reaching 8–10 meters along the west coast of Donggala. The disaster resulted in around 200 deaths, damaged 790 homes, and caused most villages along the west coast of Donggala to be almost submerged (Jamidun, J., et al. 2019).

In addition, on January 24, 2005, Central Sulawesi once again experienced an earthquake with a magnitude of 6.2, with the epicenter located about 16 km southeast of Palu City. This event caused damage to around 100 homes, resulted in one fatality, and caused four people to be

injured. Furthermore, on November 7, 2008, a 7.7-magnitude earthquake centered in the Sulawesi Sea shook Buol Regency, Central Sulawesi, resulting in four deaths. Another earthquake occurred on August 18, 2012, with a magnitude of 6.2, at a time when people were breaking their fast. This earthquake caused eight deaths and led to three subdistricts becoming isolated due to the disaster's impact (Amalia, N. 2023).

A major natural disaster in the form of an earthquake accompanied by liquefaction and a tsunami occurred simultaneously on September 28, 2018, affecting the city of Palu, Sigi Regency, Donggala Regency, Parigi Moutong Regency, and other areas around the earthquake epicenter. The event caused significant damage to residential areas, with a total of 2,790 houses destroyed. In addition, the disaster resulted in 2,113 fatalities, 4,612 people injured, and 223,751 people displaced (BNPB, 2018). The impact of the disaster was not only in the form of physical losses but also the loss of family members, property, homes, and livelihoods of the communities in the affected areas due to severe damage and conditions that forced people to evacuate (Akifah, A., & Alfiyaty, R. 2021).

The areas of Palu City affected by the disaster show several points with very severe levels of damage, particularly due to the liquefaction events in the Balaroa and Petobo sub-districts, as well as the tsunami waves that struck the coastal areas of Talise Beach, Tondo, Layana, and Mamboro, resulting in a high number of casualties jiwa (Kusumawardani, R., et al. 2021). Furthermore, the disaster also impacted the damage of various disaster management support facilities, including several hospitals, as well as the disruption of main access points and connecting routes within the city of Palu. This condition hindered the optimal handling of victims. During the emergency response phase, humanitarian volunteers played an active role in the evacuation of victims' bodies, the establishment of shelter posts, the provision of temporary housing, and the fulfillment of basic needs for refugees. The National Disaster Management Authority (BNPB) also played a role in providing shelter posts and information centers for disaster response developments, as well as in meeting the basic needs of affected communities.

In addition, the Dupa Indah area is also one of the residential areas affected by disasters, with a community primarily engaged in furniture business and fishing. The pattern of residential and business development side by side has resulted in limited access to effective evacuation for the local community (Bathara, L., et al. 2021). These conditions become factors that increase vulnerability to tsunamis, considering the characteristics of tsunamis, which have high speeds and strong wave forces, thereby contributing to the high number of casualties. Meanwhile, the people of Layana Indah Village who survived the disaster experienced the loss of their homes as well as psychological trauma, forcing them to evacuate and stay in public facilities such as mosques, churches, and the homes of residents in surrounding areas that were not affected by the disaster.

The government and volunteers have gradually tried to provide assistance to the Layana Indah community by offering temporary housing, which will later be relocated to permanent housing provided by the government and international humanitarian organizations. However, on the other hand, the community not only needs a place to live but also economic income, so people are trying to rebuild their businesses in their original locations.

However, those areas have been designated as disaster-prone zones, referred to as ZRB 3T: High Tsunami Prone Zones Outside Coastal Boundaries with Spatial Utilization Provisions. 1. New construction for residential purposes as well as important and high-risk facilities is prohibited (according to SNI 1726). 2. Reconstruction of residential functions must be reinforced according to applicable standards (SNI 1726). 3. In areas that are undeveloped and located in zones highly prone to liquefaction or severe land movement, priority is given to protective areas or non-built-up cultivation (Government Regulation No. 21 of 2008 on Disaster Management Implementation). Therefore, based on these issues, the Palu City government, through the Layana Indah village officials, held a deliberative meeting with the community to find the best decision regarding the plan for rebuilding residential areas and business locations along the Dupa Indah beach coast.

2. Method

Qualitative research methods are research methods based on the philosophy of post-positivism, used to study objects in their natural conditions (as opposed to experiments) where the researcher acts as the key instrument, sampling of sources and data is done purposively and through snowball sampling, data collection techniques are conducted with triangulation (a combination), data analysis is inductive/qualitative, and qualitative research results emphasize meaning rather than generalization (Sugiyono, 2010). Thus, the method used in this research is a qualitative research method, which aims to understand facts, phenomena, and the objects being studied and provide an in-depth depiction of vertical conflicts in post-disaster relocation conflicts affecting the community of Dupa Indah in Layan Indah Village.

The research location is in the Dupa Indah area, Layana Indah Village, Mantikulore District, Palu City. This area is a residential neighborhood located along the coast of Palu Bay and is one of the regions heavily affected by earthquake and tsunami disasters. The choice of research location is based on the social dynamics in the community, particularly the opposition of some residents to the resettlement policy set after the disaster.

The unit of analysis in this study includes the Dupa Indah community in Layana Indah Village as well as the Palu City Government. The determination of the unit of analysis is carried out by selecting and appointing informants who are deemed capable of providing relevant and accurate data and information related to the research problem. In this context, the research object focuses on the conflict that occurs, while the research subjects include families or community groups as well as government parties directly involved in the conflict.

Data collection is an important part of research. The data or information obtained determines the success of a study, whether it is qualitative or quantitative data sourced from primary or secondary data. Data collection in this research plan is carried out in two stages, namely:

1. Primary Data, Data Collection Through In-Depth Interviews Before conducting the in-depth interviews, the researcher first seeks key informants (community figures) to ensure that the people chosen for the interviews are the right ones. After that, to obtain more detailed information, the researcher conducts direct interviews with the informants. In this interview activity, the researcher uses an interview guide. Through in-depth interviews, the researcher

gains deeper insights about the informants in interpreting situations and phenomena that occur, which cannot be discovered through observation. It is hoped that this interview will gather the necessary data to facilitate the writing process.

2. Secondary data is collected through searches or literature studies from various research archives, articles, documents, and books, as well as data available from the city government, results of previous research, and relevant government agencies related to this study.

The use of primary and secondary data is carried out simultaneously with the aim of complementing each other according to the research needs. This approach is also intended to allow researchers to make comparisons between field findings and supporting data, resulting in a more comprehensive and valid analysis.

3. A Brief History of Indah Dupa, Layana Indah Village

Before the region was split, Layana Indah Village was part of Tondo Village, which was divided into several hamlets, namely Wintu Hamlet, Padanjese, Old Layana, and Dupa Hamlet. In 1987, the Old Layana area was designated as a transmigration settlement area known as the Small Industry Environment (LIK). This policy aligned with the Palu City Government's idea of encouraging the formation of self-sufficient village areas through strengthening collective spirit, hard work, and accelerated development aimed at improving the community's welfare evenly. The shift in the development paradigm emphasizing efforts to catch up prompted the Palu City Government to conduct various studies, particularly regarding community empowerment and population growth dynamics, which showed a significant increase. On the basis of the initiative of the local government together with the community leaders of Tondo and Layana villages at that time, in 1998 the Layana area was officially expanded and designated as a guided sub-district.

3.1. Geographical Condition

Layana Indah Subdistrict is located at an altitude of around 50 meters above sea level and is one of the subdistricts situated in the easternmost part of the Mantikulore District. Geographically, this subdistrict is approximately 4 km from the center of Palu City and has an area of about 1,779 hectares. The topographical characteristics of the area are dominated by mountainous and hilly regions, while lowland areas only account for about 20 percent of the total area.

Administratively, Layana Indah Subdistrict covers an area of approximately 1,779 hectares, divided into 6 Community Units (RW) and 19 Neighborhood Units (RT). The population is recorded at 3,288 people, comprising 848 households. The physical condition of the area shows topographical characteristics dominated by mountainous regions, which account for about 70 percent of the total area, followed by hilly areas at 20 percent, and coastal areas at around 10 percent. Geographically, Layana Indah Subdistrict is situated at an elevation of approximately 50 meters above sea level, with a relatively high annual rainfall of about 5,000 mm per year.

3.2. Economic and Socio-Cultural Conditions of Society

Regarding the economic and socio-cultural conditions of a society, the focus is on the system of search or the types of jobs within the community. After that comes the situation according to the religion practiced. Basically, the people in Dupa Indah have a variety of occupations such as

Alternative Medicine Practitioners, Casual Laborers, Farm Workers, Agricultural Trade Service Workers, Private Teachers, and many more.

3.3. Relocation Process of the Dupa Indah Community Settlement After the Earthquake and Tsunami Disaster in Layan Indah Village, Palu City

In order to address the earthquake and tsunami disaster that struck the city of Palu on September 28, 2018, the local government took various strategic measures to minimize the impact of the disaster and to restore the condition of affected communities. One of the main policies undertaken by the Palu City Government is the implementation of a residential relocation program for disaster victims (Wirawan, R., et al. 2024). This policy aligns with Government Regulation Number 21 of 2008 on Disaster Management, particularly Article 1 Paragraph 6, which states that disaster mitigation is a series of efforts to reduce disaster risk through physical development, raising awareness, and strengthening community capacity in facing potential disaster threats. In this context, the initial step for implementing disaster mitigation in Palu City is focused on resolving relocation issues for affected communities, thus requiring the formulation and implementation of strategic measures to support the smooth execution and success of the relocation program.

Within two months after the earthquake and tsunami disaster, the Palu City Government provided temporary housing for survivors whose homes were severely damaged and no longer habitable, as well as for those living in areas with high disaster risk. The provision of this temporary housing is intended as a transitional solution to meet the basic shelter needs of survivors before the relocation process to permanent housing is carried out. This policy is part of the emergency response and early recovery strategy aimed at ensuring the safety and continuity of life for communities affected by the disaster.

3.4. Socialization of the Relocation Program for Earthquake and Tsunami Disaster Victims

Socialization is the initial stage that is commonly carried out in the process of natural disaster mitigation, including in handling disasters that occur in Palu City. One form of implementation is the settlement relocation program, which is carried out through the delivery of information openly and transparently to people living in affected areas and in areas with high potential risk of damage due to natural disasters. This socialization effort aims to increase public understanding of the level of vulnerability in their area, as well as build a sense of community. and preparedness in supporting relocation policies as part of disaster risk reduction strategies.

The People (PUPR) have reached an agreement and approved the Disaster-Prone Zone (ZRB) Map for Palu City and its surroundings in a limited meeting held at the Office of the Vice President of the Republic of Indonesia. The ZRB map contains the classification of zones and disaster typologies, definitions and vulnerability criteria, as well as post-disaster spatial guidelines which serve as the basis for spatial utilization regulations. In the implementation of disaster mitigation policies, the government divides the management into two main schemes: relocation of settlements and provision of stimulus assistance. The relocation program is intended for

communities living in areas designated as disaster-prone zones as determined in the DRZ Map, with the requirement of owning a land ownership certificate at their previous residence. Meanwhile, stimulant assistance is provided in the form of financial support for rebuilding the homes of disaster-affected communities. Thus, the Disaster-Prone Zone Map serves as the main reference in determining disaster management policies, particularly in deciding the type of intervention provided to communities residing in disaster-prone areas.

3.5. Provision of Permanent Housing

The government has provided a schedule for the provision of permanent housing or the handover of keys for phase 1B in the Tondo, Duyu, Sigi, and Donggala areas, which indicates the communities that have completed their documents and serves as a sign for communities that meet the criteria for receiving permanent housing. The process of providing permanent housing is carried out randomly so that residents cannot choose their preferred area. This demonstrates the emergence of new social integration among communities that previously lived and built communities based on their type of work and still had strong family ties. It is directed towards a society more like a residential complex, where neighbors do not necessarily know each other.

4. Analysis of Factors Behind Community Rejection of Dupa Indah at the Relocation Site

In addition, economic and social aspects are inseparable from relocation because essentially these two aspects are interrelated with each other, where no economic activity occurs without affecting social conditions. Conversely, every social activity will have an impact or at least utilize economic logic in its calculation (Istiqomah, N. 2019).

The resettlement program implemented by the Palu City Government for the Dupa Indah community in Layana Village is part of efforts to rehabilitate and reconstruct post-disaster life, particularly in the provision of public and social facilities (Bawole, 2015). This policy is a follow-up to the preparation of a master plan for the relocation of settlements and community activities from Disaster Prone Areas (ZRB) located in Tondo Village to a new location approximately two kilometers from the original area. Although the plan is based on the Palu ZRB Map and its surroundings, which includes zone division and disaster typology, criteria definitions, as well as post-disaster spatial guidelines as a basis for spatial planning, its implementation actually triggered resistance from the affected community. The refusal arose because the relocation policy was deemed to limit the sustainability of community economic activities, especially those dependent on proximity to strategic areas for trading, opening workshops, and carrying out loading and unloading activities of fish catches. There are various factors underlying the opposition of the Dupa Indah community to the relocation that was carried out.

1. Economic Factors

In post-disaster relocation programs, the economic aspect becomes a crucial dimension that is inseparable from modern community life, considering the complexity of living needs that must be met sustainably. For the Dupa Indah community, the connection between residential location and economic activity is inherent, so the relocation process creates various obstacles in efforts to restore livelihoods. Disaster survivors face significant difficulties in rebuilding their businesses, partly due to limited access to basic infrastructure such as electricity from PLN, which is a vital need, especially for residents who work as furniture craftsmen. This condition directly impacts

reduced productivity and hampers the production process of economic commodities that were previously the primary source of livelihood.

On the other hand, the prolonged post-disaster situation has led to social fatigue, as reliance on government aid can only meet basic consumption needs, while other needs such as children's education and other socio-economic requirements still require independent income. This situation has driven the community of Dupa Indah, Layana Indah Village, to seek alternative sources of income outside of government assistance, including rebuilding businesses in areas designated by the city government as certain zones. This choice was not made without risk but rather as a response to limited economic options, considering that before the tsunami and earthquake, Dupa Indah was a strategic location for community economic activities, so relocating to a new area requires significant costs and is not easily accessible to most affected residents.

2. Social Factors

Social factors are one of the crucial aspects in the relocation process, especially when linked to the socio-economic dimensions of the affected community. For the people of Dupa Indah, a region they have occupied since before the natural disaster in 2018, the area is perceived as strategic for maintaining their livelihoods. The settlement's location along the main Trans Sulawesi Palu road provides easy access for customers and increases the visibility of community economic activities. This condition reinforces residents' decisions to stay and inhabit the area, not only as a place of residence but also as the main location for business activities that support their daily lives. The strong connection between home and livelihood makes relocation policies seen as potentially threatening the community's economic sustainability.

In this context, the community of Dupa Indah also compares the government's policy regarding the presence of the CitraLand property area, which is located not far from their settlements and business areas. The luxurious CitraLand housing is known to have been established long before the natural disaster on September 28, 2018, and spatially is located in a relatively similar disaster-prone zone, yet it is not included in the government's relocation plan. Although situated very close to the community's settlements, the level of damage experienced by the property area is considered not as severe as the damage that occurred to the surrounding residents' settlements. The difference in the impact of this damage has led to assumptions among the community that the existence of CitraLand housing contributes to the magnitude of the tsunami that hit the Dupa Indah area. This perception is built through visual comparisons of damage between the property and residential settlements, which the community interprets as an indication of the presence of building structures functioning like a breakwater and diverting the impact of the tsunami to their residential areas.

5. Conclusion

Based on the results of the research and discussion, it can be seen that the policy of post-disaster relocation of settlements following the 2018 earthquake and tsunami in the Dupa Indah area, Layana Indah Subdistrict, Palu City, is not only related to the physical safety aspects of the community but also has complex implications for the social and economic dimensions of the survivors. The implementation of relocation based on the Disaster-Prone Zone (ZRB) Map as a structural mitigation instrument has not fully been able to accommodate the socio-economic realities of the community, which have a strong attachment between their place of residence and livelihood activities. Economic factors are the main cause of relocation refusal, particularly due to limited access to supporting business infrastructure, the loss of strategic locations that previously supported economic productivity, and high adaptation costs in the new location.

In addition, social factors also strengthen community resistance, marked by perceptions of policy injustice due to differences in treatment between residential areas and commercial property zones located in relatively similar risk zones. This condition indicates that top-down relocation policies have the potential to trigger vertical conflicts if not accompanied by a participatory approach that is sensitive to the socio-economic needs of affected communities. Therefore, the success of post-disaster relocation programs requires the integration of disaster risk mitigation aspects and the sustainability of community socio-economic life so that the policies implemented are not only ecologically safe but also socially just and sustainable.

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