



Liquifaction And Its Impact On The Communities In Jonooge Village And South Sibalaya Village, Sigi Regency

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ABSTRACT

Natural disasters not only result in physical destruction and loss of life but also significantly affect the local economy. Disasters have the potential to severely disrupt economic activities by damaging infrastructure, interrupting communication networks, triggering disease outbreaks, causing crop failures, and generating other adverse impacts. The purpose of this study is to analyze the income levels of residents in Jono Oge Village and South Sibalaya Village before and after the natural disaster, to understand the shift in employment opportunities, and to determine the importance of regulations as a mitigation measure going forward. Data analysis shows that the socio-economic conditions of the community in Jono Oge Village and South Sibalaya Village have changed, meaning that before the liquefaction natural disaster, the community's socio-economic conditions were balanced and after the disaster, the community's socio-economic conditions experienced less positive changes. Following the disaster, health facilities and services experienced a slight decline, the education of school-age children was disrupted due to interruptions in the teaching and learning process, and many community members faced damage or loss of their homes. The current condition after the rehabilitation phase should be like the construction of elementary schools and community health centers. The economic side after the earthquake was completely paralyzed, because all economic activities had no source of livelihood, resulting in a decline or even complete loss of community income, because there was no production process running. For this reason, mitigation regulations are essential to address natural disasters such as earthquakes and liquefaction.

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Introduction

Indonesia is one of the countries whose regions are highly prone to earthquakes. In addition to being known as an archipelago and maritime country, it is also famous for its beauty from Sabang to Merauke. However, it must be acknowledged that Indonesia is considered a country prone to earthquakes and tsunamis. This is evident from the large

number of areas that have been hit by natural disasters. This is because Indonesia's geographical and geodynamic location has the potential to cause high volcanic and seismic activity in certain areas that are the epicenters. In addition, it is also influenced by Indonesia's varied relief, ranging from mountains to beaches, all of which are prone to natural disasters such as earthquakes and tsunamis (Emrizal, 2015).

Natural disasters cause physical damage and loss of life, and they also have an impact on the community's economy on a certain scale. Disasters can paralyze the economy by destroying infrastructure, disrupting communication networks, causing disease outbreaks, crop failures, and so on. Natural disasters that cause physical damage and loss of life can directly result in a decline in regional economic performance. Disasters are events or series of events that threaten and disrupt people's lives, caused by natural and non-natural factors as well as human factors, resulting in human casualties, environmental damage, property loss, and psychological trauma (Isa, 2016). Natural disasters show that the regional economy does not only have a negative impact, but can actually trigger new economic growth in the affected areas (Benson and Clay, 2003).

Disasters are phenomena that occur without us realizing it and come suddenly. Law No. 24 of 2007 defines a disaster as an event or series of events that threaten and disrupt the lives and livelihoods of the community, caused by natural and non-natural factors as well as human factors, resulting in human casualties, environmental damage, property loss, and psychological impacts. Disasters cannot be predicted precisely in terms of time, magnitude, or where the greatest impact will be, but they can be estimated based on modern knowledge, traditional natural signs, and historical recurrence of disasters. Based on records from the Indonesian Disaster Data and Information (DIBI), disasters that have occurred in Central Sulawesi include floods, landslides, earthquakes, liquefaction, and tsunamis.

The natural disasters that occurred in Palu City, Sigi Regency, Donggala Regency, and Parigi Moutong Regency not only caused casualties but also environmental damage () and property losses. The losses and damage caused by the impact of the disaster covered five development sectors, including housing, infrastructure, productive economy, social sector, and cross-social sector, with the greatest losses and damage occurring in the housing sector (BNPB). BNPB Indonesia reported that the total losses and damage caused by this disaster amounted to USD 95 million (Rp 13.82 trillion); this figure is expected to increase, as the release only includes temporal data (Sfiya, Kadavi and Lee, 2019).

Natural disasters harm the economy but also have a social impact on communities. From a sociological perspective, disasters are often understood based on people's

perceptions and what they feel in relation to their emotional experiences of events that threaten their survival (Pramono, 2016). Disasters have had a huge impact physically, psychologically, and socially. Given the magnitude of the impact caused by these disasters, it is necessary to develop communities that have the ability to organize, learn, and adapt in the face of disasters (Setiawan and Pratitis, 2016).

The natural disasters of earthquake, tsunami, and liquefaction on September 28, 2018, in the Central Sulawesi region in Palu City, Donggala Regency, Sigi Regency, and Parigi Moutong Regency (PADAGIMO) had a devastating impact on the socioeconomic conditions of the communities affected by the disaster. This caused extensive damage, such as the destruction and loss of residents' homes, places of worship, schools, campuses, hospitals, roads, and other public facilities, as well as loss of life.

Natural disasters can cause stress symptoms in communities and disrupt their daily activities, both physically and non-physically. Social changes can occur as a result of natural disasters such as floods, landslides, earthquakes, liquefaction, tsunamis, and other natural disasters. Not only do social changes occur, but the economic system of a community is also affected by natural disasters. When a community is hit by a natural disaster, the economic situation of that community changes and becomes the same.

Based on the Decree of the Governor of Central Sulawesi Number 360/006BPBD-G.ST/2019, the number of fatalities (missing and unidentified/mass grave victims), the number of families and the number of victims, and based on the condition of people's homes (minor damage, moderate damage, severe damage, and lost) in Sigi Regency, the total number of victims was 405 people, 289 fatalities, 116 missing persons, based on 127 evacuation points, 11,175 households, and 40,374 individuals. Based on 160 evacuation points, 29,867 households, a total of 93,187 people, and based on the number of houses damaged, 10,612 units were slightly damaged, 6,480 units were moderately damaged, 12,842 units were severely damaged, and 302 units were lost, bringing the total number of damaged houses in Sigi Regency to 30,236 units.

Sigi Regency experienced socioeconomic changes after the natural disaster of an earthquake that caused liquefaction and flash floods in several villages in Sigi Regency. As a result of the disaster, which claimed lives and destroyed homes and livelihoods, social and economic changes automatically occurred. Jono Oge Village lost 140 houses, 80 hectares of agricultural land, and 23 male and 34 female victims. Meanwhile, in Sibalaya Selatan Village, 80 houses were lost, 100 hectares of agricultural land were destroyed, and 5 people died. Referring to these natural events, this study aims to examine the economic and social

impacts on the community after the earthquake and liquefaction that occurred in Jono Oge Village and Sibalaya Selatan Village in Sigi Regency.

Literature Review Disaster

The Big Indonesian Dictionary (KBBI) explains that a disaster is defined as something that causes (brings about) hardship, loss, or suffering. Meanwhile, Law Number 24 of 2007 concerning disaster management defines a disaster as an event or series of events that threaten and disrupt community life, caused by either natural or non-natural factors, resulting in loss of life, environmental damage, property loss, and psychological impacts.

UNISDR (2017) defines a disaster as a serious disturbance that impacts a community due to a hazardous event, where it interacts directly with the affected conditions, vulnerability, and capacity, leading to one or more targets. The targets referred to are as follows: human, material, economic, and environmental losses, as well as the social and physical impacts of disasters. Referring to Indonesian Law No. 24 (2007), the causes of disasters are divided into three categories, namely:

1. Natural disasters: disasters caused by a series of events caused by nature, such as earthquakes, tsunamis, volcanic eruptions, floods, droughts, hurricanes, landslides, and others.
2. Non-natural disasters: disasters caused by non-natural events or series of events, including technological failures, modernization failures, epidemics, and disease outbreaks.
3. Social disasters: disasters caused by events or a series of events caused by humans, including social conflicts between groups or communities, and terrorism.

Impact of Disasters

Disasters that occur in urban coastal areas, such as hurricanes, heavy rains, and tsunamis, will cause damage to roads, parking lots, construction sites, buildings, seawater pollution, and other serious damage (Li et al, 2014). The potential for loss of life, injury, or destruction or damage to assets that may occur to a system, society, or community at a given period of time is determined probabilistically as a function of hazard, exposure, vulnerability, and capacity.

The impact of a disaster is divided into two categories: immediate impact and long-term impact. The impact of a disaster that causes physical damage to victims, loss or damage to property and infrastructure, includes social impacts on the community such as

psychosocial, socio-demographic, socio-economic, and socio-political disturbances (Chong et al, 2018).

The European Commission for Latin America and the Caribbean (ECLAC) proposed a methodology designed to assess the economic impact of disasters (Zapata-Marti, 1997), which is divided into three groups:

1. Direct damages, which include all damage to fixed assets, capital, and supplies of finished and semi-finished goods, raw materials, and spare parts that occur simultaneously as a direct consequence. At this stage, it will involve spending on emergency assistance.
2. Indirect damages, the impact of which is more on the flow of goods that will not be produced and services that will not be provided after the disaster. These indirect damages can increase operational expenses due to infrastructure damage. The additional costs lie in the provision of alternative services (alternative methods of production, distribution, and provision of goods and services).
3. Secondary effects include impacts on overall economic performance as measured by the most significant macroeconomic variables. Relevant variables include Gross Domestic Product (GDP) covering the whole and sectors, trade balance and balance of payments, debt levels and monetary reserves, public finances and gross capital investment. On the public finance side, such as a decline in tax revenue or an increase in expenditure, can be very important.

Social Economy

Social economics is everything related to meeting the needs of society, including clothing, food, housing, education, health, and others. Meeting these needs is related to income. This is adjusted to the research to be conducted. Impact in English is synonymous with effect or consequences. In Indonesian, impact means a strong influence that brings about consequences. Impact implies influence. So, when we talk about the impact of development, we are talking about the consequences of development. Economic development is a multidimensional process that results in major changes in social structures, community attitudes, and national institutions, including accelerated economic growth, reduced welfare gaps, and poverty eradication. High sustainable economic growth is an achievement of economic development sustainability and welfare improvement (Dedeh Maryani and Ruth Roselin E Nainggolan, 2019).

According to Dalyono (2012), social conditions are all people or other individuals who influence us. The social environment also influences the achievement of children's

education. Social conditions influence individuals in two ways, namely directly and indirectly. Direct influences include family, social environment, work environment, organizations, and so on.

The following explanation is related to the previous page. If social changes occur due to various factors, both internal and external, in a short period of time, they will change the social behavior and actions of the community. As a result of these various factors, the socio-economic conditions of the community are in a state of decline, including if the earth's movement cycle in recent years has caused frequent natural disasters, as experienced by Sigi Regency.

Methods

This study uses a descriptive approach to describe the socio-economic phenomena of communities affected by liquefaction in Jono Oge Village and South Sibalaya Village, Sigi Regency. These locations were chosen because they were the most severely affected areas in terms of casualties, property losses, and loss of livelihoods. The unit of analysis for this study was the directly affected community, with respondents selected using purposive sampling. There were a total of 84 respondents, consisting of aid recipients in Sibalaya Selatan, Jono Oge, and Huntap Pombewe. The data used included qualitative and quantitative data obtained from interviews, surveys with questionnaires, and secondary data from village documents, the Central Statistics Agency (BPS), and related literature.

Data collection techniques were carried out through literature studies, field observations, in-depth interviews, and documentation to strengthen the findings. Data analysis was carried out interactively with the stages of information collection, reduction, presentation, and conclusion drawing, as well as using triangulation techniques to test data validity through comparison of observation, interview, and documentation results. The operational definitions of the research included the concepts of disaster, disaster impact, socio-economic aspects, and specific indicators such as income, agricultural land, plantation land, and public infrastructure. With this approach, the study sought to assess the socio-economic impact of post-disaster events in a comprehensive and systematic manner.

Results

Socio-Economic Impact on Communities After Earthquakes and Liquefaction

The earthquake that occurred in PADAGIMO, particularly in Jono Oge Village and South Sibalaya Village, Sigi Regency, on Friday, September 28, 2018, had a social and economic impact on the communities of Jono Oge Village and South Sibalaya Village, which

were among the areas that suffered the most damage from the earthquake and liquefaction in Sigi Regency.

The villagers depend on nature for their daily lives. Nature is everything to the villagers, because nature provides everything they need for their livelihood. They cultivate the land with simple tools to harvest crops to meet their daily needs. As is well known, rural communities are often identified as agrarian communities, i.e., communities whose economic activities are centered on agriculture. This is the case in the villages of Jono Oge and Sibalaya Selatan in Sigi Regency, where most of the residents work as farmers and depend on agriculture for their livelihoods. This is because the soil is fertile and irrigation is reliable. Therefore, it is not surprising that the residents take advantage of the fertility of nature to support their daily lives.

Earthquakes also have positive and negative impacts on the environment and communities in Jono Oge Village and South Sibalaya Village. The negative impacts of earthquakes and liquefaction include direct damage involving the complete destruction or partial destruction of physical assets in both the *public* and private sectors. Examples include infrastructure, buildings, installations, machinery, finished goods, raw materials, equipment, transportation, agriculture, harvested crops, and irrigation. In addition, death and injury are also direct impacts of the earthquake.

Economic Impact on the Community After the Earthquake and Liquefaction

The earthquake and liquefaction disasters in Jono Oge and South Sibalaya villages have impacted the community's economy. As a result of the earthquake and liquefaction, many people have lost their livelihoods, which has affected their income compared to before the liquefaction and the lack of irrigation flowing to the fields due to the damage caused by the earthquake. Currently, almost all residents depend on assistance from volunteers and the government for their livelihood, and many of them are forced to find other sources of income even though they are not experts in those fields. For example, before the disaster, they worked to meet their household needs, but after the disaster, they were forced to learn new skills, such as becoming construction workers, to meet their daily needs.

One of the impacts caused by the earthquake and liquefaction in the villages of Jono Oge and South Sibalaya was damage to the irrigation system that supplies water to the fields, so that farmers are currently unable to use their land to grow rice. However, because some of them cannot earn income from other sources of livelihood, they continue to be farmers by planting corn. However, the income they earn from harvesting rice and corn is far more profitable than harvesting rice, resulting in a decline in the amount of income they

earn after the earthquake and liquefaction disaster. This has an impact on the production, distribution, and consumption activities of the farming community after the disaster. The impact of loss of livelihood and decline in income after the disaster was not only experienced by farmers, but also by private employees, construction workers, and other types of workers who experienced a decline in income.

Social Impact on the Community After the Earthquake and Liquefaction

The simultaneous occurrence of an earthquake and liquefaction in the villages of Jono Oge and South Sibalaya in Sigi District certainly had an impact and resulted in physical, economic, social, and environmental damage and losses. The earthquake and liquefaction in Jono Oge and South Sibalaya Villages caused damage to several public facilities such as mosques, schools, community houses, health centers, offices, and others. In addition to damage to public facilities, there was also damage to infrastructure such as roads, bridges, road embankments, irrigation channels, and water sources.

As a result of the earthquake and liquefaction in Jono Oge and South Sibalaya villages, residents' houses were lost due to liquefaction, claiming lives and causing damage ranging from minor to moderate to severe (classification of house conditions based on damage criteria by BNPB). The following is the number of houses classified as minor damage, moderate damage, severe damage, and lost:

Table 4. Condition of Houses Damaged by Earthquake and Liquefaction in Jono Oge and Sibalaya Selatan Villages

| No | House Condition | Jono Oge | Sibalaya Selatan | Number |
|------------------------|-----------------|----------|------------------|--------|
| 1 | Minor Damage | 230 | 27 | 257 |
| 2 | Moderate damage | 235 | 7 | 242 |
| 3 | Severe Damage | 329 | 4 | 333 |
| Total Damage to Houses | | 794 | 38 | 832 |

Source: Sigi District Disaster Management Agency, 2024

Based on Table 4.8, it can be seen that the level of damage to residents' houses was very high due to the earthquake and liquefaction in Jono Oge and South Sibalaya villages. This was very detrimental to the communities affected by the earthquake and liquefaction, as they suffered both economic and social losses.

In 2019, many residents of Jono Oge and South Sibalaya villages were still living in permanent shelters, but many of them had returned to their own homes or were temporarily staying with family members. This was because at that time, the Sigi Regency Government had not yet implemented the construction of permanent shelters, while their current conditions were very concerning.

In addition to damaging people's homes, the earthquake and liquefaction in Jono Oge and South Sibalaya Villages also had an impact on the health of the community. This can be seen from the fact that there are still people living in temporary shelters, both those set up by volunteers and privately.

In the early days after the earthquake and liquefaction in Jono Oge and South Sibalaya villages, there was no access to health services, medicines, health facilities, or health workers. The delay in providing post-disaster assistance in Jono Oge and South Sibalaya villages had an impact on the health of the community () who were in an emergency situation. A month after the disaster, the community was finally able to access health services in emergency tents set up by volunteers. A month after the earthquake and liquefaction in Jono Oge and South Sibalaya villages, the community was able to easily access health services even though they were living in emergency tents set up by volunteers. Before and after the earthquake and liquefaction in Jono Oge and South Sibalaya villages, the community was able to easily access health services even though they were living in emergency tents set up by volunteers.

When the community was able to easily access health services, a new problem arose for refugees living in temporary shelters, namely the lack of toilets and clean water in their surroundings. This was because after the earthquake and liquefaction, their water sources and toilets were damaged and inaccessible. The water sources they had been using (DAP and dug wells) had dried up as a result of land shifts.

In addition to impacting health, this also impacted education. For some time after the earthquake and liquefaction, children did not receive formal education at school, until around mid-2019 when the teaching and learning process at school resumed. Although they still study in tents and damaged buildings with limited facilities, they are very happy that they can finally gather with their friends again. Just a few months after returning to school, they are once again unable to attend due to the global COVID-19 pandemic.

Discussion

Social Impact on Educational Conditions

The liquefaction earthquake on September 28, 2018, particularly in the villages of Jono Oge and South Sibalaya, caused damage to school buildings and facilities, including elementary, junior high, and high schools. As a result of the disaster, teaching and learning activities at schools were temporarily suspended. Not long after teaching and learning activities resumed, the process of teaching and learning in schools was temporarily suspended due to the COVID-19 pandemic. As a result of the temporary suspension of

teaching and learning activities in schools due to damage to buildings and learning facilities, as well as the limited number of teachers in schools due to the earthquake and liquefaction, parents have experienced some difficulties in helping their children study at home.

Education is one of the most important elements in development, because through education, the community will develop high-quality human resources () that will greatly influence the implementation of rural development, especially in terms of village community participation. The progress of education in Jono Oge and South Sibalaya villages can be seen from one of the benchmarks, namely the adequate number of schools, ranging from early childhood education/kindergarten, elementary school, junior high school, and high school, all of which are available in these villages.

After the disaster, volunteers worked with the community and village government to set up emergency tents to help children resume their studies, which they called child-friendly spaces, even though the learning methods were not based on the existing school curriculum. Over time, children in Sibalaya Village have progressed smoothly in their education and the infrastructure is now adequate. Meanwhile, in Jono Oge Village, schools are still undergoing repairs and construction.

Social Impact on Health Conditions

Currently, the people of Jono Oge Village, who are still in the transmigration area, still buy water for their daily needs. The Sigi Regional Government has made several attempts to provide clean water, but the budget is insufficient, and when the work is about to be carried out, there are always problems related to the loss of materials for clean water. The government continues to strive to provide clean water as soon as possible. The refugees in Jono Oge Village have been provided with two permanent housing locations, some in the transmigration area and some in Pombewe Village. However, the clean water supply in Pombewe is not very reliable and is not available for agricultural land.

Before the earthquake and liquefaction disaster occurred, South Sibalaya Village had an auxiliary health center, but after the disaster it was not used because there was no funding for repairs. Meanwhile, in Jono Oge Village, the auxiliary health center is still being used for integrated health service posts (posyandu) because the building is still usable. All health centers, including those in Jono Oge and South Sibalaya villages, have integrated services that use clusters, so that services for posyandu, posbindu, and productive age groups are carried out at the health center every month, unlike before the earthquake when services were scheduled. The community still lacks awareness about health, especially for pregnant women, because some people still believe in traditional healers for pregnant

women, even though all villages have midwife assistants for every pregnant woman. Meanwhile, the health center in Sibalaya Selatan Village provides 24-hour services for childbirth. Therefore, there is still a need for health awareness, especially for pregnant women, toddlers, productive-age children, adolescents, and the elderly.

Social Impact on Traditional Customs

Before the earthquake and liquefaction disaster, the customs in Sibalaya Selatan Village dictated that if a husband or wife was caught cheating with someone else's spouse, they would be fined: men would be fined one cow and women would be fined one goat. This was processed at the Bantaya meeting place, but after the earthquake and liquefaction disaster, customs were no longer enforced, and they preferred to complain to the government. Similarly, the harvest festival or Mompanai Pinovali was held in South Sibalaya Village before the earthquake and liquefaction disaster, but after the earthquake and liquefaction disaster, it was no longer held. Before the earthquake and liquefaction disaster, there was a dispute between North Sibalaya Village and Lambara Village. The police came to the traditional leader to ask him to pray for the protection of the village. The police and the traditional leader went around North Sibalaya Village, South Sibalaya Village, and West Sibalaya Village, accompanied by prayers for safety, and thank God, everything has been safe until now. According to the traditional leader, Mr. Ambo Sidi, before the earthquake and liquefaction disaster, the custom that was still practiced was the custom of *tolak bala* (safety), and according to him, "Something will happen later, which is clearly a good thing."

The customs in Jono Oge Village before the liquefaction disaster were marriage customs. The people of Jono Oge Village still held wedding parties according to the customs of their parents, such as the *gembilan* or proposal for the bride-to-be. The bride's family invited or involved traditional elders or representatives to accept the proposal. After the proposal was completed, both parties decided on an auspicious day and month and agreed on what gifts would be brought. After reading the gifts, the bride's family accepted what had been agreed upon previously. If the bride and groom have not had children after two or three years of marriage, the people of Jono Oge Village still perform the *no lomba asu* custom so that the couple will have children. Once they have children, they must perform another custom, namely *pantala* and hair cutting. After the liquefaction disaster, the traditional marriage customs were temporarily suspended because the people of Jono Oge Village were traumatized by the disaster. However, after seeing that the situation was possible, the community continued to practice the traditional marriage customs as usual.

Mr. Arman, a member of the traditional council, said, "*In addition to marriage customs,*

he also talked about other customs, such as their culture of performing the *balia* ritual to ask for the healing of the sick". He also said that they had performed the *poave sakaya* ritual at the Three Palu Bridge river. Jono Oge Village also recently performed a ritual by releasing white chickens as a sign of their permission to the supernatural realm to prevent the water from receding. This ritual was performed because there were still many victims who had not been rescued after the liquefaction disaster. After completing the ritual, thank God, the water flowed smoothly for three days, and coincidentally, there was a project by PT. Arava Alam Sejahtera, which did not hinder their activities.

Economic Impact on the Community After the Earthquake and Liquefaction Disaster

When the earthquake and liquefaction occurred in the villages of Jono Oge and South Sibalaya, the economy experienced difficulties. This was especially true for those whose main source of income was farming, because as a result of the earthquake and liquefaction, the agricultural land near the liquefaction site was completely eroded by liquefaction and the irrigation channels were damaged, so there was no water source to irrigate the residents' agricultural land. Of course, this was very detrimental to residents who lost their rice fields. The land was still uneven and had not been completely leveled, but it was not only the farmers who lost their rice fields who suffered losses. Other farmers whose rice fields were not affected by liquefaction also suffered losses because it was difficult to irrigate their rice fields. This had a direct impact on the community's income, as some experienced a decline in income and some did not earn any income at all.

As stated by Mr. Haerudin, "*Before the earthquake and liquefaction, the economy of the communities in Jono Oge Village and South Sibalaya Village was fairly good, because on average they could grow rice, so the harvest greatly supported the economy. However, after the earthquake and liquefaction, the economy was disrupted because agricultural land could not be maximally cultivated due to a lack of water. As a result, the harvest naturally decreased, and my income also declined.*"

The people of Jono Oge currently depend on various types of work to meet their daily economic needs, with many involved as construction workers, farm laborers, and motorcycle taxi drivers. The income earned from these jobs is often insufficient, so women in the village also take additional initiatives, such as washing clothes, becoming domestic helpers, and selling cakes to increase their income. In addition, some residents have small-scale livestock businesses, such as chickens, cows, and goats, which are not optimally utilized to increase household income. Therefore, the development of livestock businesses

must be a focus of attention in order to provide support and assistance to improve the economic capacity of the community. Overall, these conditions indicate the need for further intervention from relevant parties to encourage economic growth and the welfare of the Jonooge community.

Mr. Laidi said, *"Before the earthquake, I worked as a farm laborer, but after the earthquake, I had no income because I had no other skills to work. So now, my wife is the breadwinner of the family because she can make cakes and sell them to earn a daily income."*

The economic conditions of the community in South Sibalaya Village after the natural disaster and liquefaction show significant resilience. Many residents have switched to becoming farm laborers, working in rice fields or gardens owned by neighbors, while some of the community still have limited land to grow corn and chili peppers, although the results are not optimal due to the impact of the earthquake. In addition to agriculture, some people work as construction workers, traders, and small-scale farmers raising chickens, goats, and cows—many of whom are the result of government assistance. Most women in this village work as housewives and run small businesses, such as selling cakes and drinks. Young people also seek employment in Palu City in various fields. However, overall, the community's income is only sufficient to meet their daily needs and they are still very dependent on government assistance. Although there have been government efforts to support small and medium enterprises, the progress achieved is still limited, with much of the capital allocated for daily needs and children's education. Therefore, the village's economic recovery still requires more effective attention and strategies to create security and prosperity for the community after the disaster.

Social Condition Recovery Strategy

Natural disasters such as earthquakes and liquefaction have a significant impact on housing conditions, health, and the education of school-age children, requiring immediate action to address these basic needs. The strategy for restoring social conditions after the disaster has been carried out by providing permanent housing assistance to the community in accordance with the condition of damage to their respective homes, socializing to residents the actions to be taken by the community before, during, and after a disaster, and increasing human resources to utilize the natural resources available in Jono Oge Village and South Sibalaya Village.

In addition to the recovery strategies carried out by post-disaster survivors, government intervention is also needed in the recovery strategy for the community after a disaster. After the earthquake and liquefaction, the Sigi Regency Government collaborated

with the Jono Oge and Sibalaya Selatan village governments to jointly restore the community by providing small and medium enterprise (SME) assistance specifically for women.

Regulations on the impact of natural disasters in Jono Oge Village and Sibalaya Selatan Village

In terms of regulations, there are no local regulations in Sigi Regency related to the situation after the disaster and liquefaction that regulate the protection and management of land after liquefaction, so that to this day, the land and soil of the communities in Jonooge Village and South Sibalaya Village are still in the same condition as before the disaster in terms of land and soil ownership rights (certificates). After the disaster, the land shifted or moved from its original location. Therefore, what is needed from the government is to create regulations or regional regulations related to the community's land ownership rights and support during the post-disaster emergency response period.

According to an interview with Mr. Abdul Rifai Arif (June 2025) as a member of the Sigi Regency Regional Representative Council (DPRD), he said that "government policy regulates everything in accordance with the Spatial Planning Agency. Regarding regulations to protect community rights, I strongly support the creation of such regulations. Regarding land ownership rights, meetings have been held with the Ministry of Agrarian Affairs and Spatial Planning and the National Land Agency (ATR-BPN) team to ensure that ownership rights are not lost and remain valid even if the land is designated as a red zone."

Conclusion

Based on results the above findings concluded that :

Condition socio-economic community in the village Jono Oge and Village South Sibalaya is experiencing change , meaning before occurrence disaster natural liquefaction socio- economic conditions public walk balanced and after occurrence disaster condition social economy public experience less change good . Post occurrence disaster facilities and services health A little decrease consequence disaster , education child age school hampered Because the existence of a learning process teaching in schools and conditions House damaged and lost society . Conditions Now after phase rehabilitation should like existence construction of elementary schools and health centers .

Side economy after earthquake experience totally paralyzed , because all over activities economy No There is source eye livelihood is lost result in decline even is lost income society , because No there is a production process running . For That needed

regulations mythization face disaster nature .

Recommendations

The author recommends that the government accelerate post-disaster recovery in Jono Oge and South Sibalaya villages by fulfilling children's educational needs up to university level through rebuilding school infrastructure, ensuring that all communities have adequate access to health services, and restoring the economy by rehabilitating agricultural land, building irrigation systems, providing seeds and agricultural tools to farmers, and supporting women's business groups through training, mentoring, and providing business capital.

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