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SOCIO-ECONOMIC IMPACT OF THE RELOCATION POLICY OF MOUNT SINABUNG VICTIMS: COMPARISON OF FIRST AND SECOND STAGES

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ABSTRACT

The series of eruptions from Mount Sinabung in recent years caused significant damage to the surrounding villages. This led to the implementation of a relocation policy. Three villages were relocated to the Siosar Relocation Area in the first stage, while four other villages were given the freedom to choose their new homes in the second relocation stage. The villagers moved from their hometowns to new places to start fresh lives. This raised questions about the relationships and social status of the relocated communities. The villagers lost their agricultural land. The government provided 0.5 hectares of land for farming for those who were moved to the Siosar Relocation Area and cash amounting to Rp. 20,000,000 for the second stage. However, the new land had different edaphic conditions, steeper topography, cooler temperatures, and new marketing arrangements. This raised questions about how these new conditions affected the economy of the relocated communities in both the first and second stages. Using a qualitative approach, this study applied in-depth interviews and direct observations. The findings showed differences in the social and economic conditions of the relocated communities between the two stages. Overall, the economic and social conditions of the people moved to the siosar relocation area were better compared to those who received cash in the relocation stage.

Keywords: *socio-economi impacts; relocation policy; first-second stage relocation*

INTRODUCTION

Mount Sinabung in Karo Regency, North Sumatra, Indonesia last erupted around 400 years ago. When it first erupted again on August 27, 2010, no one expected that the volcano had become so active with several eruptions in the last 12 years (Gunawan et al., 2019; Nurwihastuti et al., 2019). Furthermore, there were four subsequent eruptions on August 29 and 30, September 03 and 07, 2010. These eruptions emitted pyroclastic material and volcanic ash under intense pressure. The series of eruptions destroyed

surrounding villages that caused 34 villages in 4 sub-districts namely Naman Teran, Payung, Simpang Empat and Tiga Nderket sub-districts (detiknews, 2010). The entire village is divided into 3 eruption danger zones. The first zone is called Siaga I. This area is within a 6 km radius of the eruption center of Mount Sinabung. There are 12 villages in the zone, namely Sigarang-garang, Sukanalu, Bekerah, Simacem, Gamber, Sukameriah, Kutarakyat, Kutagunggung, Naman, Kutambelin, Kebayaken and Guru Kinayan villages. The second zone is called Rawan I, located >6 km away. There are 10 villages in this zone, namely Silandi, Berastepu, Kuta Tengah, Sukandebi, Sukatepu, Ndeskati, Gungpinto, Payung, Perbaji and Nardinding Village. Meanwhile, the third zone is called Rawan II. There are 12 villages included in the zone, namely Ujung Teran Village, Cinta Rakyat, Torong, Ujung Payung, Rimo Kayu, Batukarang, Kuta Tonggal, Cimbang, Temburun Tiganderet, Tanjung Morawa and Kutambaru.

The destruction in the red zone was so severe that the villages became uninhabitable. As a result, the number of displaced residents reached 18,665. Thick black haze accompanied by sand rain and volcanic dust covered thousands of hectares of farmers' crops within a six-kilometer radius. The volcanic dust caused many farmers' crops on the slopes of the mountain to die and be damaged. An estimated 15,341 hectares of agricultural crops are threatened with crop failure (Barasa, Raja Forman, Abdul Rauf, 2013). Head of the Geological Agency of the Ministry of Energy and Mineral Resources (ESDM) Surono predicts that the eruption of Sinabung will continue for 5 to 10 years. Therefore, Surono recommended to President Jokowi to immediately conduct permanent relocation for local residents in order to avoid the risk of disasters that may have more negative impact again (Asril, 2015).

The central government and the Karo Regency government issued a mandatory post-disaster rehabilitation and reconstruction policy, namely conducting housing construction where residents will be moved from destroyed areas to areas outside the red zone (relocation) (Hermon et al., 2019; Situmorang, 2017; Sukarman, 2015). This decision is in line with Bawole's (2015) research which revealed that the impact of the eruption of Mount Merapi in 2010 caused people on the slopes of

Mount Merapi to experience severe difficulties. To overcome this problem, the local and central government implemented various strategies with the support of donor agencies such as the World Bank and other donor agencies to help communities on the slopes of Mount Merapi recover from the impact of the eruption. One of the strategies used is Community-Based Settlement Relocation. This involves moving the community to a new area, not just providing houses and infrastructure facilities, but also moving the lives of individuals, families, and communities to a new environment. In other words, a settlement relocation program means moving the whole life of the community, including livelihoods, socio-culture, and environmental awareness.

The Karo Regency Government is finalizing the relocation of 3,331 families from Sinabung. The initial relocation program is dedicated to seven villages divided into two stages. The first relocation stage was carried out since 2015 accommodating three villages, namely Sukameriah Village in Payung Sub-district with 128 families, as well as Simacem Village with 130 families and Bekerah Village with 112 families in Naman Teran Sub-district with a total of 370 families. The residents of these villages were relocated to the Siosar Relocation Area, which is about 46 kilometers from Mount Sinabung (Azmi & Sunarno, 2021). The second relocation stage in 2016 fulfilled the needs of 1,655 independent relocation families and an additional 181 families from four villages, namely Gurukinayan Village 778 families in Payung Sub-district, Berasitepu Village 611 families and Gamber Village 158 families in Simpang Empat Sub-district, and Kutatonggal Village 108 families in Naman Teran Sub-district with a total of 1,863 households (RT) (Manurung & Trimurti, 2020). Residents of these villages were given the freedom to choose wherever they wanted to move as long as it was outside the red zone. Therefore, this second stage is also known as independent relocation (Depari & Sitepu, 2019). Meanwhile, another 1,098 households will be relocated to the Siosar Relocation Area in the third stage of the relocation program (Suri, 2015). However, this paper will only discuss and compare the first and second stages of relocation. Many researchers have discussed various topics regarding the relocation of Mount Sinabung refugees and the Siosar Relocation Area.

However, few have compared the social and economic impacts of the relocation policy across stages. Among the few are Rigitta and Nadra who discuss gender participation in improving the socio-economic level of households in the relocation area (Rigitta & Nadra, 2019), Situmorang who discusses the socio-political impact of relocation (Situmorang, 2017), and Novira who discusses the socio-economic impact of the Siosar Relocation Policy (Novira et al., 2019). However, these studies did not conduct a comparison between the first and second relocation stages.

Uprooted from their roots, relocated people must move to a completely new place. In addition to having to adapt to the new physical conditions in the new place, they also have to adjust to the existing social and cultural order (Hadi, 2017). Therefore, this study aims to see how the relocation programme affects people's social relations and social status and compare the differences between the first and second stages. Many people living on the slopes of Mount Sinabung rely on the agricultural sector for their livelihoods. This condition has the consequence that the impact of the eruption of Mount Sinabung is very influential on community life, especially farming communities who depend on agricultural businesses that are supported by the natural fertility of the volcano's slopes. Potential losses are very likely to be experienced by farming communities after a disaster, such as the loss of agricultural land as a place of livelihood and the loss of yards that are usually also used as production activities (Meiarti et al. 2016) in (Suharyono et al., 2020). In terms of economic impact, the relocated communities had to leave their farms and plantations, which on average had large, mature coffee plantations per family. They had to start a new life as farmers with limited agricultural land in the relocation site, which is about 46 kilometers from Mount Sinabung and 17 kilometers from Kabanjahe, the capital of Karo Regency (Indra, 2021). New land means new edaphic conditions, different relief and other physical properties for farming, lower temperatures, and last but not least, new marketing (distribution) arrangements. Therefore, the second objective of this study is to explore how relocation affects the economic welfare of relocated communities and also to compare the differences between the two stages.

MATERIALS AND METHODS

This research was conducted in two locations, the first and second stages of Mount Sinabung relocation. The first study area is located in the Siosar Relocation Area in Tiga Panah Sub-district, approximately 46 kilometres from Mount Sinabung and 17 kilometres from Kabanjahe, the capital of Karo Regency. The second study area is the second stage of relocation. Because the second relocation stage is an independent relocation, there are several relocation sites with four relocated villages, namely Gurukinayan 778 families, Kutatonggal 108 families, Berastepu 611 families and Gamber 158 families. Therefore, this study selected one case study village. The selected case study village is Guru Kinayan Village. This village was chosen because there were one or more residents who moved back from the relocation site. The location of Mount Sinabung and the relocation sites for stage 1 and stage 2 are presented in **Figure 1.**

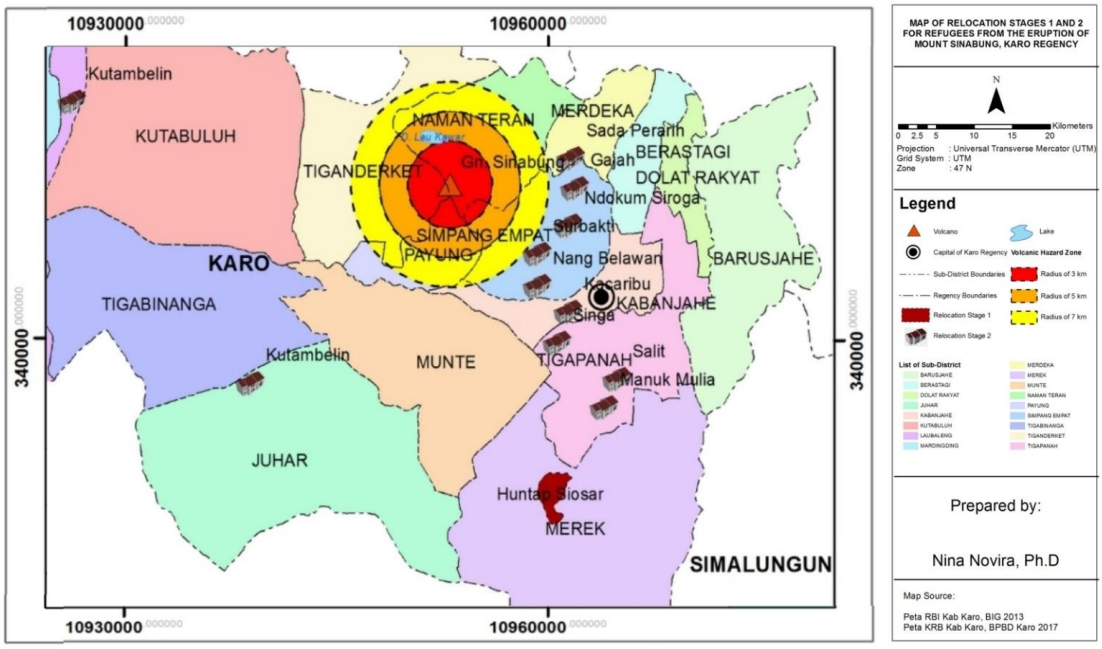

Figure 1. Map of Mount Sinabung Refugee Relocation Location Stage 1 and 2
Source: Obtained from processed primary data

This research is a qualitative study. Data was collected using semi-structured in-depth interviews and direct observation of the relocation area's farmland. Interviewees were determined using a snowball technique (chain-referral sampling). Sampling in the snowball technique is obtained through a rolling

process from one respondent to another, usually this method is used to explain social or communication patterns (sociometrics) of a particular community (Nurdiani, 2014). This research chose the snowball technique because in determining the sources, the researcher had difficulty in identifying the relocation community. In the stages I relocation area, this area is close to Siosar tourism so that the community mingles with tourists. Meanwhile, in the second stages of the relocation area, the community mingles with the old residents. The use of the snowball technique is quite efficient and effective when the relocation community itself appoints other relocation communities as resource persons.

The interview data collected was analyzed using the Daily Interpretive Analysis (DIA) method. With this method, the researcher conducted normal interview activities such as taking notes and recording the results of the interview. However, after each interview, the interviewer conducted intensive reflections on each interview, including noting unusual points and hidden meanings expressed by the interviewee. At the end of each interview day, initial analyses were conducted and preliminary conclusions drawn. At the end of the interview day, an overall analysis was immediately conducted and final conclusions were drawn. This method saves time as there is no need to transcribe the recorded interviews, which would otherwise take researchers hours to do. Therefore, this method is suitable for exploring the socio-economic impacts of relocation policies: first and second stage comparison.

The social impact of the relocation policy of Mount Sinabung victims is seen based on social interaction, conflict identification, settlement order, identity status, public facilities, electricity availability, and water distribution. While the economic impact is measured from agricultural land assistance, housing assistance, and job diversification.

RESULTS AND DISCUSSION

Comparison of the Two Stages of the Mount Sinabung Relocation Process

At the beginning of the implementation of the Mount Sinabung victim relocation programme, almost everyone rejected the idea of being relocated to Siosar (Sukarman, 2015). The targeted land was a vast pine plantation before it was cleared and designated as a relocation

area. Reluctance to move to a new area and start a new life in an unfamiliar place is a common reaction. The perception that the former pine forest land was infertile or at least less fertile than their previous land and thus would require extra effort to start cultivating added to residents' hesitation. However, after a series of negotiations with various parties, village heads, community leaders, and residents from the three villages in the first stage finally agreed to move to the Siosar Relocation Area. In the relocation area, not only houses were built, but also public facilities, supporting facilities and infrastructure, and social facilities for residents such as village halls, village offices, health centers/clinics, and communal livestock pens. In December 2015, they held a mass traditional ceremony to celebrate the move and welcome the new home (Oktorie, 2018).

Problems arose during the preparation of the second stage of relocation to Siosar. The community was not only reluctant. They firmly refused to move to Siosar and demanded to be given the freedom to choose where to live. The reason for the refusal is slightly the same as the first stage residents, namely the fear that the infertile former pine forest land will cause changes in activity and agricultural and plantation crop failures. The community also expressed their concern about the distance of Siosar from other public facilities, such as markets, government offices, places of worship, and schools.

Negotiations between the government and the community lasted for a long time. In the end, the government decided that the communities were given the freedom to choose where they wanted to relocate to as long as it was within the Karo Regency area and outside the range of the Mount Sinabung Danger Estimate Zone. This decision led to jealousy from the first stage communities. They argued that the government was unfair because it accommodated the requests of the second stage communities, but did not accommodate the requests of the first stage relocation communities. The second-stage communities were free to choose which villages they would live in in Karo Regency. The communities were also given the freedom to build their own houses. To this end, they received a housing grant of Rp. 110,000,000 plus Rp. 20,000,000 in lieu of their agricultural land. The cash caused jealousy from the first stage relocation community. They considered the cash

more valuable than what they had received in the form of houses and farmland. This difference caused tension and disappointment among the relocated communities. The government's policy in the second stage of relocation is in line with the results of Bawole's research (2015) which concluded that relocated communities received funds and land for house and business development. In this relocation programme, each family received Rp. 30,000,000 to build a core house with an area of 36 m2 and a plot of land with ownership rights of 100 m2. For infrastructure facilities, each family received Rp. 50,000,000, which was directly managed for the construction of technical and social infrastructure facilities. Community assistance continues until the community can manage their sustainable livelihood. Similarly, research conducted by Suwartana & Anggarawati (2018) showed that the impact of the earthquake and tsunami disaster in the Mentawai Islands also caused damage and loss of community agricultural land. This loss triggered a response from the government to open new agricultural land to support community agricultural activities. As a result of this action, there was an increase in the amount of paddy field use. Communities that previously did not have access to agricultural land now have the opportunity to cultivate it after the disaster. The average area of cultivated farmland was 0.5-1 Ha with a percentage of 1.33 per cent before the disaster, and 24.67 per cent after the disaster. On the other hand, the second Sinabung relocation community demonstrated that they managed to gather enough power to pressure the government into agreeing to their terms. In political ecology perspective, this was an example of people power where the people succeeded to win a negotiation with the government.

For more details, the relocation process of Mount Sinabung in both stages can be seen in **Table 1**.

Table 1. Comparison of the Relocation Process of Both Stages

Relocation Process	Stages 1	Stages 2
Determination of Relocation in Siosar Area	Decline	Decline
Negotiation between Government and Community	Accepting relocation in the Siosar Region	Decline and asked to be given the freedom to choose where they wanted to move as long as it was still in the Karo Regency area and outside the range of the Mount Sinabung Danger Estimate Zone.
Relocation decision	Relocation in the Siosar Area. Communities receive permanent housing and 0.5 hectares of agricultural land	People are free to choose where to relocate. They received a house fund of Rp. 110,000,000 and Rp. 20,000,000 to replace their farmland.

Source: primary data analysis

Social Aspects

The eruption of Mount Sinabung has not only destroyed settlements but has also damaged agricultural areas which are the main source of livelihood for the local community. The community relocation policy aims to normalize all aspects of post-disaster governance and community life and restore the welfare of affected communities, not only in moving people to habitable places but also in providing agricultural land as well as social facilities and public facilities.

The social relationships that occur within individuals or communities in the first and second stage relocation communities affected by the eruption of Mount Sinabung have influenced how the community's resilience in the face of the eruption disaster. Resilience is the adaptive ability of individuals or communities to handle disruption, deal with change, and maintain function, structure and identity, will be influenced by the dynamics of social relations formed in the community (Suharyono et al., 2020). The term resilience refers to the ability and skills to recover and return to their original state quickly. The Mount Sinabung relocation policy improved farmers' resilience in the first and second stages. The recovery and promotion of farmers' resilience is done through cooperation between farmers after relocation in terms of obtaining and rebuilding agricultural land, obtaining seed assistance, and providing emotional and financial support to each other. In addition, the enhancement of farmers' resilience is also realised through increased income from previous harvests as well as having alternative sources of income through other occupations.

In obtaining housing and agricultural land assistance, the first stage went through an easier process than the second stage. Housing assistance and agricultural land assistance for the first relocation stage have been fulfilled without causing conflict between the relocation community and the surrounding community. For the purpose of agricultural land, the first stage of relocation has already obtained permission from the Ministry of Environment and Environment (KLHK) for an area of 416 hectares. Unlike the second relocation stage, 975 hectares of land is needed for agriculture. However, until now the borrow-to-use permit from the Ministry of Environment and Forestry has not been issued, so the second stage of relocation is an independent relocation where the community seeks their own land outside the red zone according to the recommendation of PVMBG (Centre for Volcanology and Geological Disaster Mitigation). The plan to build an independent relocation in Lingga Village was rejected by the local community. The behaviour of the Lingga villagers was triggered by perceptions of the designation of their village as a relocation area and fears of a struggle for livelihoods with migrants where the relocation process is considered to only benefit migrants. In the end, the situation in Lingga village resulted in riots, destruction of infrastructure, and loss of life. This happened because of the negative attitudes that led to repressive behaviour by the people of Lingga Village. To resolve the conflict, the government looked for other villages that still had adequate land availability to accommodate the relocation community. The conflict also demonstrated power relation, where the relocation community was overpowered the the local native community.

Karo people have strong cultural roots based on their home villages. Moving to another place raises concerns about the displacement of the cultural values they bring with them by the cultural values of the local community. To address this concern, the first stage of the relocation process accommodated this issue by placing the entire community from one village into the relocation village as a whole. This means that all residents from one village relocated to the new relocation village live together. The social structure remained unchanged. The village officials are the same. They even named the village with the same

name. This provides a sense of home and harmony and reduces social friction despite moving to a new place and living side by side with people of different religious and ethnic backgrounds.

After the first batch of relocated people had been relocated and the decision for the second batch of people had been made, the first batch of relocated people were busy organizing their new lives in the designated locations. Since the people in the village are still the same, adaptation is easier for them because the social aspect of adaptation is the most important. If the relocated people are strong as a community, then facing the new future will be easier. Meanwhile, the second stage communities were busy discussing the prospective location of their new homes. This discussion turned out to be not as easy as imagined. It was very difficult to come to a unified voice. After further discussion, it was decided that it was not possible to move all four villages to one place, as it was almost impossible to find such a large area of land to accommodate the entire population. It was even decided to divide the villages. The inhabitants of one village did not move to one specific area, but were scattered in several different places.

The second stages of relocation continued by empowering the relocation communities themselves. Once a fixed location was determined and houses were built, people began to occupy their new homes. Differences in the social aspects of life began to appear. The first stages communities moved to the Siosar Relocation Area with an orderly settlement arrangement where the houses of the relocated communities were placed at the same point as a unified community. They brought with them their social ties and structures. They can even still preserve old religious and customary rituals. Each village usually has a *Jambur*, a hall-like building for cultural events as well as other ceremonies and traditional gatherings. Jambur is attached to a village and its original inhabitants. Jambur is very important in the life of the Karo people. It is attached to who they are. Therefore, the new village in the relocation area is also equipped with a *Jambur*.

A contrasting situation was seen in the second stages of relocation. Unlike Siosar, which was previously a plantation area, the second stages of the community moved to an existing village with an irregular settlement arrangement. This means that people moved scattered,

not all residents from one village could move together to the same village because the available land was limited. This had a major impact. The community lost their identity. Generally in North Sumatra, especially in Kabupaten Karo, a person's village of origin is an identity. Because they moved to an existing village, they are considered newcomers, forever! As such, they also do not have access to the *Jambur* available in the village, as they are not from the village. Newcomers have no right to use the *Jambur*. If they want to use it, they have to ask permission to borrow the *Jambur*. A Karo person not associated to a *Jambur* is tantamount to having a part of his or her soul ripped out. Since the relocated people are considered newcomers, they cannot bring their old traditional rituals and customs with them. This condition has a very negative impact on the social relations of the relocated community where there is a decline in the customary activities of the local community. The newcomers do not have the authority to form their own village organizations and must follow the existing village leaders and all applicable policies. In addition, leaders from the old village cannot maintain the same social position in the new place. In terms of communication, however, the situation is reversed. The change in social position and the new environment had a positive impact on the relocation community's communication patterns. Initially, they only interacted with fellow migrants. However, due to the relocation community's dependence on the *jambur* and other facilities, they met more often and began to adapt to social activities and managed to interact with the indigenous community well. They are aware of their social position as migrants and realize that the ability to adapt in a new environment is very important. Although they are not natives of the area, they share the same ethnic background and some migrants are related to the indigenous community. This maintains a strong sense of kinship among them. Their attitude of always being ready to provide assistance and co-operate with the newcomers is a key success factor in the social interaction between the newcomers and the indigenous people in the relocation village. The results of this study are similar to the findings of Harliani (2014) who explained that the flood disaster that occurred in Kampung Cieunteung, Bandung Regency, brought the

indigenous people to live side by side with the migrants. Social relations are well established. Based on the results of the analysis, 64.62% of the respondents considered that the social relations were very close, while the remaining 35.38% of respondents considered that the social relations were normal. Respondents who considered that social relations in Cieunteung Village were very close had the reason that neighbors had a high sense of understanding and helping each other. This is also because most of the neighbors are still related. Respondents who considered the social relations in Cieunteung Village to be normal, argued that after the floods many of the neighbors had moved away.

The relocation community's concerns about the lack of public facilities such as houses of worship, schools and health facilities did not occur. This is evident from the findings in the field. In the Siosar area there are two mosques, one church (Oikumene Church), one health centre, and an open space used as a football field. The government has also built schools, including primary, junior and senior high schools. Health center and *jambur* were also built to increase the comfort and harmony of the community in the relocation. Each village has a *jambur*. In other words, there are three *jambur* in Siosar relocation. Similar to the second stage relocation community, the availability of public facilities is no longer a concern because they live in villages that already have residents, although they have to get permission before using them.

The interview results show that the construction of the first stage of residential houses has been completed but the distribution of clean water is still uneven and the supply of clean water entering the house is limited so that it cannot fulfil all household water needs. The limited availability of clean water hampers the relocation community's domestic activities and needs such as bathing, washing dishes, cooking and drinking. In overcoming this problem, one form of government support for the Mount Sinabung relocation community is to mobilize the use of groundwater and raw water by building ABSAH (Artificial Rainwater Storage Aquifer) in the Siosar relocation area, precisely in Suka Meriah Village in 2020 (Marsada, 2021). The application of the ABSAH concept in independent raw water supply utilizes rainwater that is stored and flows in an artificial aquifer. This ABSAH building is a modified Rainwater Storage

(PAH) building. Rainwater harvesting is carried out in the relocation area of Mount Sinabung victims in the Siosar area of Karo Regency by taking into account that most water users still use boreholes, springs, and other water sources. By using the rainwater harvesting method, it is expected that the use of water from boreholes and other water sources can be reduced so as to reduce the operational costs associated with the use of clean water. It is necessary to know how much rainwater volume can be accommodated by a building as a rainwater catchment tank to achieve optimal utilisation of the Rainwater Harvesting System (ABSAH). In this case, researchers will not discuss it because it needs further research that requires rainfall data to find out the information. The condition of clean water in the second stage of the relocation village is not much different. The condition of clean water in each house still cannot fulfil all household water needs. In addition to implementing a rainwater harvesting system, relocation communities often ask for permission to collect clean water from local residents' houses or by splitting the water bill. In this situation, they depend on the hospitality and willingness of local residents to allow them to access available water sources. This is important as relocation communities do not yet have adequate access to clean water supply in their new areas.

Access to electricity in the second stage of relocation has become a complaint for the relocation community. This issue has become the focus of attention for the government and the State Electricity Company (PLN). In this case, the community gets electricity from the State Electricity Company (PLN) on a limited basis. This is because the electricity network is damaged and the government is hesitant to make repairs because it cannot be predicted when the eruption will end. The community responded that the limited electricity has disrupted their activities. These impacts were not imagined by the second stage communities when they demanded the freedom to move. It was also unimaginable to the first-stage people when they protested and were jealous of the second stage people. After observing how the second-stage people did it, the first stage people realized that they had not lost their identity. In fact, in the end they were grateful to have taken the decision to comply with what the government ordered to move to Siosar.

Based on the explanation above, the conclusion of the comparison of social impacts due to the Mount Sinabung relocation policy can be seen in **Table 2**.

Table 2. Comparison of Social Impacts of Mount Sinabung Relocation

Social Impacts	Stages 1	Stages 2
Settlement Order	**Regular** Relocation community houses are centered in one village	**Irregular** The relocation community's houses are scattered to several villages.
Identity	**No Loss of Identity** The community has the same social structure and village apparatus as in the previous place	**Loss of identity** People are perceived as newcomers
Social Interaction	Relocated people feel at home and comfortable communicating with fellow migrants	Relocated communities learn to adapt and mingle with old residents
Jambur (multipurpose room)	**Unlimited Access** Government builds new jambur	**Limited Access** Newcomers must obtain permission before using it
Public Facilities	The government builds public facilities so that people have access to them	Each village already has public facilities, and the community can access them freely
Electricity Availability	Unlimited electricity flow	Limited electricity flow
Water Distribution	Uneven and limited	Uneven and limited

Source: primary data analysis

Economic Aspects

The first stage of relocation communities who lost their agricultural land have received agricultural land assistance so that it does not shift the community's livelihood as farmers. The marketing of agricultural products is still the same as before the relocation, namely distributed to toke, collective traders, and sold directly to consumers. However, the situation is different with the second stage relocation community who refused to be relocated to Siosar. One of the reasons they consider is that the land is not fertile and the market is far away. This means that it will make their economy difficult. However, the 0.5-hectare land for the Siosar community is only valued at IDR 20,000,000, which is lower than the price of land around their new residence. With this amount, they can only get a maximum of 0.4 hectares. The location is not too far from the market. However, the new farmlands are not all located near the new houses. This means that there is an additional burden and may have implications for the additional costs to be borne by second-stage communities.

On the other hand, communities relocated to the Siosar Relocation Area received 0.5 hectares of land per

household located quite close to their new homes. Thus, farming becomes hassle-free, going back and forth to the fields and returning home to rest or have lunch is possible, and controlling the fields becomes easier. Indeed, the market to sell their agricultural products is far away, which is their biggest obstacle. However, sometimes there are collectors who come to the area to buy their produce directly from the fields. Although the selling price is lower, this makes it very easy for them. If the big traders do not come to buy their products, they can use the school bus to take them to the market for little money. Thus, marketing their agricultural products was not as difficult as they had imagined before moving.

The fear of difficulty in fulfilling daily needs feared by the first and second stage relocation communities is not so much. Although the relocation community lost income generating activities through off farm activities such as renting out agricultural land, renting out tools and livestock for ploughing rice fields. Prices are also slightly higher, some residents have started to open several stalls that provide daily necessities for villagers. Not a few people also diversify their work or look for other jobs to increase their sources of income such as working in other people's fields or their own relatives' fields in other words as farm laborers (in Karo called Aron), becoming scrap collectors, public transport drivers, laundrymen, and dishwashers in rice stalls to meet their daily needs. Some other people work in the Siosar tourism sector, a new job that did not exist in the village before, namely tour guides, providers of tourist services and facilities for visitors. The results of this study are supported by the study of Jamin & Risfaisal (2021) which revealed that relocation due to natural disasters will cause changes in people's livelihoods, especially for people who utilize natural resources in their neighbourhood to make ends meet. The flash floods that hit the Meli Village community caused them to be relocated. Before the flash floods occurred, the majority of Meli villagers worked as rice farmers and were able to fulfil their needs from the harvest, and even send their children to school without financial difficulty. However, after the relocation due to the flash floods, there were significant changes in their economic conditions, types of work, and income. The people of Meli Village were forced to switch to various types of livelihoods,

ranging from farming rice fields, planting oil palm, to engaging in other agricultural sectors. The impact was even felt by a number of traders in the area, highlighting the complexity and widespread impact of flash floods on the livelihood structure and economic life of the Meli Village community. The results of this study are also in line with the findings of Hasan, H. R., Rochayati, N., Riska, R., Sudrajad, M. M., & Anugrah (2022) in (Samad et al., 2020) saying that the earthquake, tsunami and liquefaction that occurred in Palu City had a huge impact on the social conditions of the community. People who previously worked as fishermen lost their jobs because their boats were lost in the tsunami. The majority of people who used to work as sellers around the Talise platform have now switched professions to become housewives only because their income is not sufficient to be used as trading capital. However, some people who were relocated to permanent housing managed to restore their economy by opening small and medium-sized businesses such as small kiosks or stalls, vegetable traders, gallon sellers, and clean water providers.

To increase family income, diversification of work is not only done by the head of the household. Wives and children are also involved in earning a living or just helping out in the fields after school. Before the eruption of Mount Sinabung, mothers usually only helped with light work in the fields such as picking coffee in their own fields. However, after the eruption of Mount Sinabung and the relocation of the village, mothers in the relocation village also worked hard such as hoeing in other people's fields. For the underprivileged, earning a living is not only the husband's job but also that of the wife and children. This is not considered a breach of norms for employing underage children.

for employing underage children.

Based on the explanation above, the conclusion of the comparison of the economic impact of the Mount Sinabung relocation policy can be seen in **Table 3**.

Table 3. Comparison of Economic Impacts of Mount Sinabung Relocation

Economic Impacts	Stages 1	Stages 2
Farmland Assistance	Communities acquire 0.5 hectares of farmland	The community was given Rp 20,000,000 to replace their farmland
Home Assistance	The government builds permanent housing	The community was given Rp 110,000,000 to build their houses,
Job Diversification	Working in the Siosar tourism sector, new jobs that did not exist in the village before are tour guides, service providers and tourist facilities for visitors.	Working on other people's farms or their own relatives' farms, in other words as farm laborers (called Aron in Karo), scrap collectors, public transportation drivers, laundrymen, and dishwashers at rice stalls.

Source: primary data analysis

CONCLUSIONS

The series of eruptions of Mount Sinabung resulted in a relocation policy. The relocation process between the first and second stages differed significantly. The first stage of relocation assigned the relocated communities to the Siosar Relocation Area, while the communities included in the second stage of relocation were given the freedom to choose a relocation site on the condition that it was still within the Karo Regency area and outside the reach of the Sinabung Hazard Estimate Zone (ZPB). In terms of economic aspects, in general, people in both stages have advantages and disadvantages. However, in terms of social aspects, the first stage community is much better. The first-stage communities moved to Siosar as a whole community, unifying their customs and social order. On the other hand, the second batch of people lost their village identity and became newcomers in a new place because they moved to a preexisting village. At first, some people who were relocated to Siosar felt jealous of the second-stage community because of the money and freedom that the second-stage community received. As time goes by and life goes on, the people relocated to Siosar feel grateful for having agreed to be relocated to Siosar.

Based on the above conclusions, we recommend that the government implement educational programs on disaster mitigation and emergency situation management for communities and educational institutions. This is expected to increase the understanding and preparedness of the community towards potential disasters that may occur in the future. In addition, it is recommended that local governments

develop regulations or local regulations that specifically regulate legal protection for freehold landowners after a natural disaster. With this regulation, it is expected that it can be applied in various disaster conditions and is not only situational. This policy will contribute to reducing the potential for conflict between the government and the community, as well as between communities and other communities related to land ownership rights.

This research has limitations in obtaining data from relevant agencies and available literature sources. This was due to several factors, including lack of access to official data and time and distance constraints in collecting information. Therefore, to complete the analysis, some of the sources of information used in this study were taken from online mass media articles.

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