

RESILIENCE PATTERNS OF FARMERS AFTER THE ERUPTION OF MOUNT SINABUNG IN KUTARAYAT VILLAGE, NAMAN TERAN SUB-DISTRICT, KARO REGENCY

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Abstract

The community in Kutarayat Village has been the victim of the eruption of Mount Sinabung for years, from the first eruption that occurred in 2010 until 2021. During this vulnerable period, the people of Kutarayat Village had to evacuate several times. The majority of the community's livelihoods are as farmers, making it a significant challenge for those affected by the eruption of Mount Sinabung. Therefore, this research aims to understand how farmers perceive the eruption of Mount Sinabung, as well as the socio-economic efforts they have made after the eruption, and to identify the resilience patterns that have emerged post-eruption. The research method used in this study is qualitative and conducted in Kutarayat Village, Naman Teran District, Karo Regency. Data collection techniques include observation and in-depth interviews with informants. The results of the study found that, generally, farmers perceive the eruption of Mount Sinabung from two perspectives: positive and negative. The economic resilience efforts made by farmers include meeting family needs while evacuating, cleaning, and repairing agricultural land post-eruption, ensuring water supply for agriculture, and utilizing volcanic mud. There are three patterns of economic resilience among farmers in Kutarayat Village: first, economic resilience pattern with the same livelihood, second, economic resilience pattern by adding or changing the main livelihood, and third, economic resilience pattern by renting agricultural land in other villages.

Keywords: Resilience, farmers of Kutarayat Village, eruption of Mount Sinabung, socio-economic resilience of farmers.

INTRODUCTION

Kutarayat Village is one of the villages in Naman Teran Sub-district, Karo Regency. This village is included in the village categorized as the red zone of Mount Sinabung, because it is within a radius of 5 km from Mount Sinabung. Disasters can occur suddenly or through a process that occurs slowly (Harjadi., et al 2007). The first eruption of Mount Sinabung occurred in 2010 and continued even until 2021. The majority of the Kutarayat Village community's livelihood is as farmers, so the eruption of Mount Sinabung certainly greatly affected the local economy. According to Mosher (1991), farmers are individuals who are able to think as well as work to achieve the goal of a prosperous life without any pressure from any party. Farmers can work confidently with the abilities they have, not only as farming experts but also have the ability as leaders/managers.

During the eruption period, the people of Kutarayat Village had to evacuate repeatedly for a long time, and spread in various points of different evacuation posts, some fled to Telagah Langkat Village, then there were also several evacuation posts spread in the Kabanjahe City and Berastagi City areas. The people of Kutarayat Village, especially farmers, suffered considerable losses, plant seeds were damaged and died, young plants that

were in the growth period were completely damaged, which then many crops failed to harvest. But even though they were displaced, there were still many people who went home to Kutarayay Village almost every morning, and would return in the afternoon to the evacuation post, just to check their agricultural land, try to clean the land, and think of various plans on how to start planting again.

This research will focus on the resilience patterns of farmers due to the impact of the eruption of Mount Sinabung in 2014, this is because the eruption that occurred in 2014 was one of the worst impacts ever experienced by the people of Kutarayay Village, which not only damaged the community's plantation areas, but also damaged various public facilities, and also housing owned by residents. In general, the majority of the people of Kutarayay Village began to try to get up with all agricultural activities around 2015, they began to clean up agricultural land that had been neglected, more freely also looking for and buying seeds to plant with various limitations that existed at that time, especially for the conditions of the Kutarayay Village community who had just returned from the evacuation post. Based on this, this study will discuss the pattern of socio-economic resilience of farmers after the eruption of Mount Sinabung in Kutarayay Village, Naman Teran Sub-district, Karo Regency.

LITERATURE REVIEW

Resilience

According to Keck and Sakdaporlak (2013) resilience is an ability or capacity in social entities, either individually, communities or organizations to tolerate, absorb overcome and adapt to various threats from the environment or social. Resilience according to Moberg and Simonsen (2014) is an ability or capacity of a system of various dimensions, to continue to develop in the face of various problems and changes. Mark Pelling also explained that resilience is a product of various preparations that are very well planned, and which are created because of the potential for danger, as well as various spontaneous or planned adjustments to respond to the various dangers they feel (Pelling 2003). Resilience can also be used as a measure of the ability of a social system, when they are able to bounce back in a normal situation or the initial situation before temporary disturbances. In this case, resilience can also be said to describe the capacity of the system in terms of absorbing various disturbances and being able to reorganize (Folke, 2006). According to Holling (1986) resilience is seen as the ability of a system to return to an equilibrium situation after temporary disturbances occur.

Therefore, resilience must be seen as an adaptive process that can facilitate the ability of social systems to reorganize, change and various learning processes in responding to existing threats (Cutter et al., 2008). Another definition of resilience according to B. Obrist et al. referred to as an individual's capacity in terms of accessing capital, which is not only to face and adapt to various kinds of adverse situations (reactive capacity), but also to find and create options (proactive capacity), and then be able to develop competencies to overcome various threats (Obrist et al., 2010). Therefore, resilience is not only related to the ability of an actor or individual when protecting themselves from threats, but also how to

make the threat a useful opportunity in doing various new things in the form of innovation and development (Bohle et al., 2009). Resilience is the ability to bounce back after facing difficulties, in order to continue life and hope for the better (Rutter, 2006). The Economic and Social Commission for Asia and the Pacific (2008) defines community resilience as the ability of a system or community that can adapt to disasters to achieve and maintain appropriate functions & structures. According to Van Breda (2001), resilience is the ability or capacity of a community in terms of building, maintaining, or in terms of regaining the desired level of community capacity when facing challenges or difficulties.

Social Action Theory

Every individual will certainly always take action every day, the actions taken will usually have certain goals and purposes. Social action is an action taken by an individual by considering the behavior of other individuals. Social action not only refers to everything that is done by humans individually, but also to practices carried out by a group of actors (social groups). Max Weber mentions social reality as something based on individual goals and social actions.

According to Weber's view, to be able to understand the various characteristics of society, the best way is to appreciate all the typical forms or models of community action that have characterized it, namely by trying to understand what is the reason for human action, as well as what historical events affect their character. So that when individuals in society perform an action, the meaning and purpose of the action can be known (Jones, 2010). According to Max Weber, something can mean social action if the action contains three elements, the first is that the behavior has subjective meaning. Second, these behaviors influence the behaviors of other individuals. And third, the behavior is influenced by the behavior of other actors. Weber revealed that social action has subjective meaning, which considers the behavior of other individuals. Rational action in Weber's view is closely related to various conscious considerations of the choice that the action is stated. Rationality is a basic concept used by Weber to classify the types of social action. Weber makes the main differences that are given, namely rational action and non-rational action.

Weber (1978) classifies social action into four types, as follows:

a. Instrumental rational action

Instrumental rational action is action determined by expectations to achieve certain values or goals. This type of instrumental social action is the action that has the highest rationality, this is because the actions taken are the most reasonable conscious choices about the goals achieved, and how to achieve those goals.

b. Value-oriented rationality action

Value-oriented actions are actions taken based on beliefs related to important values, such as ethical values, aesthetics, religion, and other values that influence human behavior in their actions.

c. Affective action

Affective action is defined as action taken based on the feeling state or mental state of the individual. This action will be more dominated by feelings or emotions without any intellectual considerations or conscious and organized planning.

d. Traditional action

Traditional actions are actions taken based on local habits, actions taken by individuals because of habits or traditions that have been traditionally taught and cannot be changed.

According to Weber, the four types of social action are ideal types, which are the main key aspects of different types of action. So it can be understood that social action according to Max Weber is an individual action as long as the action has subjective meaning or meaning for him and is directed at the actions of other individuals. If an individual's actions are directed at inanimate objects then, it does not fall into the category of social action, an action will be referred to as social action if the action is actually directed at other individuals. Max Weber uses the *verstehen* approach in order to understand the meaning of one's actions that individuals in acting not only perform an action but also place themselves in the environment of other people's thoughts and behavior. This approach is focused on actions with motives to achieve goals (Ritzer & Stepnisky, 2017). Weber views social reality as something based on individual motivation and social action. According to Weber, the world exists because of social action. When humans do something, it is because they have decided to do it, and aim to achieve what they want. After the goal has been determined, then they will consider the situation, then will choose the action.

Weber's *verstehen* theory also wants to know how certain individuals in certain areas determine the meaning for their own lives when performing a certain action. Weber's *verstehen* understands how traditions, values, and community actions produce meaning in social action actors (Kuper & Kuper, 2000). Weber's *Verstehen* is a theory that contains understanding / understanding a social action, therefore to be able to understand social action, what must be seen is not only through physical action, but there is also a subjective meaning that is the basis for the action.

METHOD

This research uses descriptive qualitative method aims to explore information, this method is a research process that produces descriptive data obtained both in writing and verbally from people and behavior that is being observed according to Bogdam & Taylor (Lexy J. Moelong, 2007). The main informants in this study amounted to 9 people who were farmers, and 2 additional informants from the village government and the head of the farmer group in Kutarayay Village, Naman Teran District. Data collection techniques were carried out by observation and interviews.

RESULTS AND DISCUSSION

Disaster Meaning for Kutarayay Village Farmers

In general, farmers can perceive the Sinabung Eruption disaster from 2 different sides, namely from the positive side and also the negative side. In this case, Weber's *verstehen* is not only used to understand the meaning behind a social action carried out by farmers in Kutarayay Village but can also help us understand that farmers have their own perspective on how they interpret the disaster that occurred. Weber's *Verstehen* is a theory about understanding / understanding a social action, so to be able to understand social action needs to be seen not only through physical action, but also the subjective meaning underlying the action (Kuper & Kuper, 2000).

On the negative side, farmers suffered great losses as a result of the eruption, with many complaining about financial losses. Starting from fields, crops that failed to harvest, even houses that were damaged, and of course needed a lot of money to repair. Not only that, but they are also scattered in several different evacuation posts, thus making the people of Kutarayay Village have to be separated from their relatives, this of course greatly affects the usual interactions between communities. On the positive side, some of the positive impacts felt by farmers in general consider the Mount Sinabung eruption disaster as an experience. They are also trying to learn to manage the way they think in order to stay healthy and avoid stress. Growing awareness about the importance of managing finances, learning to be more sincere, enthusiastic, and other things.

In the explanation above, we can see a variety of feelings felt by farmers, ranging from sadness, worry, fear about the situation they face, but on the other hand they also have the same sense of community, they farmers consider that the eruption disaster gives the same fatigue for all of them. Despite all this, the farmers were still able to be grateful and foster a sense of spirit to start getting up to organize their lives. So this in social action can be called that the farmers perform affective action. According to Weber (1978) affective action is an action that is carried out due to the influence of emotions or feelings. This action occurs based on the mental state and feelings of an individual. This type of affective action is more dominated by feelings or emotions without any intellectual reflection or careful planning. Affective actions occur spontaneously, are irrational, and are the result of individual emotional feelings.

Resiliency Efforts Carried Out by Farmers After the Eruption of Mount Sinabung

a. Social Resilience Efforts

The people of Kutarayay Village recognized that social relations between communities were getting stronger after the eruption of Mount Sinabung occurred. This is due to the strong family relationships formed between each community, a sense of concern and a sense of togetherness for the Mount Sinabung eruption disaster that they experienced. The social resilience efforts made by the farmers of Kutarayay Village to maintain their social relations, as mentioned above, are included in social action. In this case, there are two types of social action carried out by them; the first is traditional action. Traditional actions are actions

carried out because of habits or because of traditions that have been taught for generations, the actions taken by each individual will be adjusted based on local customs, which have long been valid and believed by the community. In this case, Kutarayay Village farmers also have habits or traditions that have been taught for generations and are considered good by them (Turner, 2012). Some of the traditional actions they take in maintaining their social relationships are such as: mutual cooperation activities, deliberation or discussion activities or in the Karo regional language called *runggu*, besides that there is also an annual party tradition that is routinely carried out every year, as a form of gratitude for the abundant harvest, and also used as a moment to gather with distant and close families.

According to Koentjaraningrat, *gotong-royong* (mutual cooperation) is an unpaid mobilization of human labor for a job or project that is useful for the public or useful for development (Subagyo, 2021). There is a clear relationship between mutual cooperation and the farming community as mentioned by Subagyo (2012), that the maintenance of the tradition of *gotong-royong* (mutual cooperation) life in rural areas is inseparable because agricultural life requires great cooperation in efforts to cultivate land, plant, maintain and pick crops. Then the community in Kutarayay Village as a customary society, requires them to attend traditional events held by the family, whether it is a wedding ceremony, death ceremony, or other traditional events. This is a must, because every event that takes place, those who are invited have their respective duties that have become their customary responsibilities.

Then in addition to traditional actions, there are also value-oriented social actions carried out by Kutarayay Village farmers in maintaining their social relations. Value-oriented actions are actions that are carried out based on beliefs in values that apply and are considered good, and that influence human behavior in their actions. The values believed here can come from religious values, ethical values, aesthetic values, and other values (Ritzer, 2011). Some value-oriented social actions carried out by Kutarayay Village farmers are activities related to religion, then greeting each other, showing a sense of caring, willing to share, maintaining good behavior, besides that there are also those who use Facebook social media, visiting people who are sick, and visiting newborn children. As is known, the social actions carried out above are actions that are considered good, based on values that are considered good and prevail in society.

b. Farmers' Economic Resilience Efforts

Efforts to Fulfill Family Needs While Evacuating

To fulfill the needs of the family while being displaced, the community has their own ways. Some meet their family needs by becoming daily farm laborers in other people's fields not too far from the evacuation post, some at the same time take part in training in making cakes in groups for sale. In addition, there are also those who prefer to go live in other areas, some rent houses and fields, some choose to live in family homes in safer areas and start planting there. Many people, in order to make money to fulfill their family's needs, have the courage to go to the village secretly. This is mostly done by those who have coffee plants in

Kutarayat Village, because based on the results of interviews it is known that coffee plants have a strong resistance to volcanic dust or mud. In addition, at the time of evacuation the coffee plants were bearing a lot of fruit and had an expensive selling price as well. So this made many people who owned coffee more courageous to harvest their coffee despite the danger. Not only that, but there are also those who meet family needs by utilizing savings, assistance, and loans from family.

Efforts to Clean and Repair Agricultural Land after the Mount Sinabung Eruption

To clear farmland of hardened volcanic mud takes a long time, up to several months, and according to the findings of field interviews, clearing hardened volcanic mud cannot use tools such as hoes, claws or machetes, because it will damage the ends of the agricultural equipment, which will make the equipment unusable because it is damaged. So most farmers prefer to use their bare hands and wood to scrape off the hard volcanic mud layer, but there are also some farmers who choose to use tractors. To improve the quality of the soil, more fertilizer is applied.

Efforts to Fulfill Water Needs for Agriculture

Generally, all farmers have water tanks made to a certain size that suits their needs. Apart from water tanks, farmers also have drums that will also be filled with water. For water supply, farmers usually rely on rainwater collected in both the tanks and drums. However, if it is not the rainy season, and the need for water in the fields is high, the farmers will rent a pick up in Kutarayat Village to deliver water to their fields. The water carried by this pick up car usually uses a water tank to hold water, this water is usually taken directly from the river in Kutarayat Village, and is usually paid at a price of Rp.50.000-Rp.75.000 per delivery, or according to the mutually agreed price.

However, when an eruption occurs, the water collected by farmers becomes polluted because it has been mixed with a lot of volcanic dust, which is certainly not good for direct use. Therefore, to use the contaminated water, farmers usually transfer the water to a basin or drum and wait until it settles, and the top water is used and the sediment is discarded. After that, the basin or other water reserve such as drums will be emptied and cleaned. Farmers will again collect rainwater, and cover the basin or drum using boards, zinc, or plastic. Under certain circumstances farmers will also sometimes borrow water from neighboring fields for spraying crops with pesticides. However, if a large amount of water is needed, then the option of hiring a pick-up truck to deliver water is the solution chosen by farmers.

Efforts to Use Assistance

When evacuating and after returning home, the community received some assistance. The forms of assistance received were in the form of money, basic necessities, and agricultural assistance such as fertilizers, agricultural tools such as hoes and plant seeds.

Money assistance is usually used more for the needs of school children, or home needs such as consumption.

Efforts to Utilize Volcanic Mud

Some people take advantage of the many piles of volcanic mud that cover the roads and plantations in Kutarayay Village. Therefore, in the past, some people returned to the village specifically to collect volcanic mud that had hardened into sacks for sale. The selling price per sack was Rp.8000.

Patterns of Farmer Economic Resilience

a. Patterns of Economic Resilience with the Common Livelihoods

Generally, farmers in Kutarayay Village complain about the need for a lot of capital, while the economic situation of most farmers is still insufficient. Therefore, capital needs for planting are generally taken from savings and loans. Most farmers prefer to plant vegetables and corn at the beginning of planting, this is because the capital for the cost of purchasing seeds and maintenance is cheaper, and the harvest period is faster. But in reality, the quality of vegetable crops is not very good, besides that the vegetable harvest at that time did not have a demand. This made many farmers suffer losses because their vegetable crops could not be sold. In addition to vegetable crops, there are also farmers who plant corn, but corn plants cannot grow large because they die at the age of just a few weeks.

Many farmers then choose potatoes and other crops such as chili after vegetable crop losses, although it requires greater capital, but farmers believe that chili and potato plants have a stronger resistance because they include soil fruits. Farmers use much more fertilizer than the proper portion; this is done to make the soil quality better, so that potato plants can grow and bear fruit well. As for the seeds used by farmers, some come from their seed savings, some buy seeds, and some borrow seeds from friends. In terms of marketing the crops, the farmers said that at the beginning after returning from evacuation, vegetable crops were not sold because no one was interested in buying vegetable products from Kutarayay Village. The farmers felt that this happened because people doubted the quality of vegetable crops that had just been harvested in the red zone area. So that when they fail to sell the vegetable crops, the vegetables will be consumed and some are distributed to their neighbors, while the rest are wasted.

In the first resilience pattern by sticking to the same livelihood, namely as a farmer, is included in instrumental rational action. This is because before starting to grow crops again, with the main limitation being capital, this is certainly one of the main pillars that allows farmers to start organizing their lives. But behind the limited capital, the farmers in Kutarayay Village did not just give up. They then made various careful considerations with the limited capital available. Starting from considering what crops to plant, how the seeds are obtained, how the capital needs needed to care for the plants. And of course, they must also consider the tools they can use to be able to take good care of the plants until they reach harvest time.

This is in line with the definition of instrumental rational action, as explained by Weber (1978), that instrumental rational action is a series of actions taken by an individual in the hope of achieving their desired goals. Instrumental rational action is an action with high rationality, and is carried out with full awareness regarding the goals they want to achieve, therefore they will think very carefully about how they can do to achieve their goals. In addition to considering the means, they will also consider the availability of the tools they have. This can clearly illustrate the instrumental rational action taken by the farmers in the paragraph above, that every action taken by farmers is done through careful consideration, and they think of various solutions that they can do to deal with various problems when starting to farm again.

b. Patterns of Economic Resilience by Changing / Adding Main Livelihoods

Before the eruption, the majority of people, especially farmers, only focused on agriculture. However, due to the crowded traffic lanes, especially on weekends, many people started new businesses, especially those whose houses were on the edge along the Kutarayay Village crossing road. Many farmers then sell the produce from their fields by opening small tent stalls in front of their respective homes, ranging from vegetables such as cabbage, bitter vegetables, white vegetables, tomatoes, chilies, oranges and other crops. Apart from the business of selling crops, several coffee places to relax with good views have begun to appear in Kutarayay Village. Coffee shops used to be the only place to relax and drink coffee or tea. Currently there are about 4 cafes built in Kutarayay Village after the eruption of Mount Sinabung occurred.

Similar to the first resilience pattern, the second resilience pattern by changing or increasing the main livelihood is also included in instrumental rational action. Again, instrumental rational action according to Weber is action taken based on rational considerations, to achieve its goals. This is also in accordance with the actions taken by farmers who change or increase their main livelihoods. Because informants are accustomed to working as farmers to meet their needs. So when then the farmer decides to change or increase his main livelihood as in the results of the interview above, it requires careful preparation. For example, such as deciding which land will be used to start a new business, how much land can be used to build a place or business stall, how much capital and tools must be prepared, and other decisions must certainly go through various considerations. All conscious considerations that are made are really calculated to achieve the goals they want.

c. Patterns of Economic Resilience by Renting Agricultural Land in Other Villages

One of the other ways that farmers do when they are allowed to return home and resume their activities is by renting agricultural land in another village. This was done by Mr. Gunawan Sembiring, who chose to rent farmland in another village. The action taken by Mr. Gunawan was a combination of instrumental rational action, and value-oriented rational action. Mr. Gunawan, who started farming with the capital of employer, certainly had fewer risks and greater opportunities, when compared to farmers who had to farm using

their own capital. However, the actions taken by Mr. Gunawan are certainly rational actions that must go through various considerations to achieve their goals. Even though he only capitalized on labor, he also had to think about how to take care of the plants so that they would grow well and reach harvest time. This of course must be done by making various considerations about the need for seeds, the need for fertilizers, pesticides and other agricultural needs. To be able to achieve good harvests and get the expected profits. With these actions of rationality, Mr. Gunawan managed to take care of his crops and had already shared the results for 2 harvest periods within a year. He then decided to rent another farmland in another village not too far from Kutarayay Village.

The act of renting this new land is not only an instrumental rational action, but there is also a role of value-oriented rational action in it. This is because the fundamental reason that made Mr. Gunawan decide to rent agricultural land, for 5 years in another village at a cost of approximately Rp. 25.000.000, was because he wanted to help his family who at that time was in need of money. This certainly happened because the informant considered that helping a family in need was a value that was considered good. This action is in line with Weber's (1978) view that value-oriented rationality actions are actions taken based on beliefs related to values that are considered important, such as ethics, aesthetics, religion, and other values that influence human behavior in their actions. The action of value rationality is actually almost similar to the action of instrumental rationality, because this action is also carried out by making good considerations as well, carried out with awareness and of course has clear goals as well, but the thing that distinguishes it here is the values that become the main foundation in this action. After deciding to help his family, Mr. Gunawan also had goals that he wanted to achieve with the land he rented, namely to develop his capital and increase his savings. To achieve these goals, he assigned his son to help work on the land he rented, while he continued to farm in Kutarayay Village with the capital of his *tokeh*, but as explained above, he also occasionally took his limited time to check on the condition of the fields being worked on by his son.

CONCLUSION

In accordance with what Weber revealed in his social action theory, that every action taken by individuals is the result of thinking, which has meaning and is directed at other humans. Therefore, the actions carried out by humans will vary according to their respective rational processes. Social action is divided into 4 types of action, namely instrumental rational action carried out based on rational considerations to achieve the desired goal. Second, value-oriented rational action, carried out by emphasizing ideal values as the main basis. Third affective action carried out based on the impulse of the individual's feelings, emotions or mentality. Fourth, traditional actions, carried out because of habits or traditions that have been taught for generations.

Instrumental rational actions carried out by farmers, namely their economic resilience efforts include meeting family needs while evacuating, cleaning and repairing post-eruption land, meeting water needs for agriculture, using aid and utilizing volcanic mud. The efforts

made by farmers also affect the patterns of resilience that occur, and are also included in rational action. The patterns carried out by farmers are economic resilience patterns with the same livelihood, economic resilience patterns by adding or changing the main livelihood, economic resilience patterns by renting agricultural land in other villages. Value rationality actions include maintaining social relations by greeting each other, participating in religious activities, helping each other, visiting the sick, visiting newborn babies, sharing and so on. Traditional actions carried out by farmers are mutual cooperation activities, mandatory participation in family traditional events, celebrating the Year's Work (annual party). Affectionate actions include the existence of the same sense of kinship, which makes them care for each other so as to strengthen social relations between farmers, bring up their gratitude and enthusiasm to start getting up to organize their lives.

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