

# Revitalization of Social Capital After Volcanic Eruption of Mount Sinabung in Karo Regency, North Sumatera, Indonesia

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Jhony Binsar Halomoan Sitohang, Badaruddin, Henri Sitorus,

Rizabuana Ismail (Correspondence author)

Ria Manurung

Magister of Sociology Study Program,

Universitas Sumatera Utara, Indonesia

## Abstract

Revitalization of social capital is a tool or way to strengthen relationship among families and to involve the community in sustainable development. The Mount Sinabung disaster recovery program carried out by the government and non-governmental organizations (NGO) has an important contribution in the social aspects of the victims. This paper uses qualitative and quantitative approach to the community affected by the volcanic eruption. The post-disaster social conditions indicate that social rifts and even social jealousy have occurred among fellow victims. This resulted from the people starting to depend on the aid provided by the government and NGO. Communities also experience changes on social capital in their lives after the disaster, from social norms, beliefs, and social networks among themselves because their environment has changed. Revitalization of social capital is conducted by creating adaptation process among disaster victims through social activities managed by the government and NGO, as an effort to restore the customs, cultures and norms in society.

**Keywords:** Revitalization, social capital, Mount Sinabung, post-disaster

## Background

Indonesia is an archipelago country situated between Pacific Ocean and Indian Ocean. It is also known for its 'ring of fire' area, which causes disaster risk that needs to be anticipated by the whole elements of Indonesian citizens. Indonesia is one of the countries with the largest number of active volcanoes (around 30% of all active volcanoes in the world), for instance Mount Sinabung in Karo Regency, North Sumatera (1). After 400 years of quiescence, Mountain Sinabung roars back to life in 2010 with its activity up to alert level warning (level IV). The eruption has been ongoing until today (December 2017) which has led to the displacement of 12,000 people. Karo Regency at the foothills of the Mountain Sinabung is famous as fruit and vegetable production area. Fifty nine percent (59%) of the damage and losses caused by the disaster is borne by the agricultural sector, especially the horticultural subsector (2).

Many of the impacts from natural disasters do not only give physical impact but also the non-physical one. The disasters have been detrimental to local people, due to the loss of their homes, livelihoods, and even their families. In this case the disaster victims need social assistance from the government and non-government parties. A review of the literature showed that social work has been less involved in this phase than in traumatic stress intervention and coordination of relief efforts. More importantly, most of the studies in the field of disaster recovery have focused on describing one or two aspects of disaster recovery, such as physical recovery, psychological interventions, physical injuries, and social capital. Consequently, there are limitations in social approaches and they usually do not properly consider the variable range of long-term social needs of societies after disasters. On the other hand, many studies have mentioned social and economic status as one of the most important predictors of rehabilitation after disasters. Ramakumar has introduced the pre-disaster economic situation of a household as one of the most important factors in determining how people will spend days, weeks, and even years after the event (3).

Disasters that have occurred in their country require Australia government to establish the planning to anticipate the hazard and mitigate its impact. The critical importance of human services responses along a continuum of emergency response to long-term recovery, evaluation, and continued planning, has been demonstrated. The need for ongoing dialogue among all levels of government and the non-government sector has been reinforced, regarding integration of services, minimizing duplication, planning withdrawal, and sharing information systems. Interventions also need to be monitored and evaluated sensitively. Primarily, this involvement at the individual level would entail case management, a highly appropriate role for social work. In



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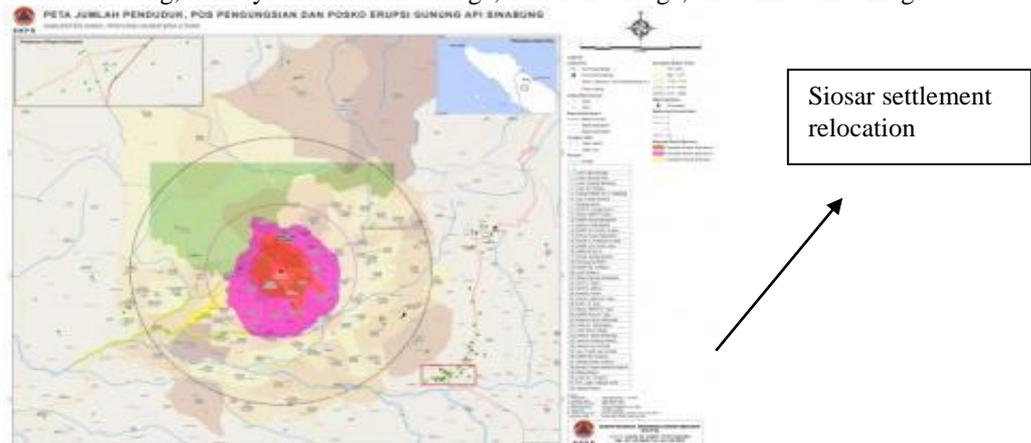
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addition, funding for community recovery interventions remains a key part of recovery plans in each state. The sharing of learning from each event, within Australia and internationally, is essential if we are to build best practices in supporting communities after disaster, and facilitate the rehabilitative process for impacted communities (4).

This paper examines the post-disaster management in Karo Regency. The approach is done through revitalizing the social capital of the community. This was stated by Windiani (5), the revitalization of social capital is heavily needed from all parties, especially the stakeholders, from local government, community leaders, youth communities to the community themselves. Revitalization of social capital is also able to provide an increasingly healthy and clean environment while at the same time bring economic benefits to local residents. Thus, public awareness on better environmental management will be raised.

**Research Methods**

According to (6),(7) mixed research is an approach that combines a qualitative approach with a quantitative approach. This paper examines the revitalization of social capital after disaster in affected communities at the relocation settlement of Siosar, Merek Subdistrict, Karo Regency, North Sumatera Province. This location used to be a production forest. This Siosar area is protected from volcanic smoke and ash of Mount Sinabung. Moreover, the location of the Siosar relocation settlement is relatively new. There are three villages affected by the eruption of Mount Sinabung, namely: Sukameriah Village, Bekerah Village, and Simacem Village.



Picture 1. Map of Mount Sinabung

Several key informants are determined for this research, such as heads of villages, community leaders, and also women and youth representatives. Some informants are from government agencies (BPBD), Social Services Agency, Cooperatives Agency, National Executives of BNPB, social workers, NGOs, and residents around Siosar, Karo Regency, North Sumatera.

The population of the people relocated to Siosar settlement was 377 families and 1,334 persons. Therefore, based on Taro Yamane formula, the number of samples is obtained from each population equally, which is:

**Table 1. Composition of Research Samples**

No	Village	Subdistrict	Number of Households	Number of Respondents
1	Sukameriah	Payung	134	28
2	Bekerah	Naman Teran	112	24
3	Simacem	Naman Teran	131	27
Total			377	79

Source: BPBD Karo Regency 2016

**Social Capital of Community in Disaster Area**

Rapid social changes cause confusion and cultural shock to society. The social changes that occur in the life of people living on the slopes of Mount Sinabung include: changes in patterns of interaction, livelihoods and economic systems, social systems, and in social organizations. Changes also occur in the pattern of settlement which are generally scattered and irregular. The settlement has become more organized and centralized. After the Mount Sinabung eruption



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disaster, the affected people were gathered in one residential area made by the government and NGOs as the form of assistance. The change in population settlement pattern also affected the interaction pattern. Even though the residents come from various villages around Mount Sinabung, they have the same fate and problem that need to be solved. Thus, the sense of solidarity in their groups is increased.

**Table 2. The Condition of The Community Settlement**

Indicator	Pre-Disaster Condition	Social Vulnerability	Revitalization of Social Capital
Settlement	Houses placement are scattered	Houses are built near each other	Post-disaster, the community must immediately adjust to the new environmental conditions, which in return automatically change the life order of community members
Livelihood	Farmers who have their own vast field	The community work on other persons' farms as labors around Refugee Camp	The government help the recovery by providing agricultural land; FAO assist the livestock sector whereas the creative economy sector is assisted by ILO.
Agricultural area	The area for farming is vast	The space available for farming is limited	The agricultural area of those three villages used to be vast, but it has become smaller and more limited

Source: Research data, 2018

According to the previously determined work plan, the number of houses built at the new relocated settlement is adjusted to the number of households in each village. Suka Meriah Village has 128 households, which means there is 128 housing units in the new location. Likewise, Simacem and Bekerah villages have 130 and 112 households respectively, so there are 130 and 112 housing units in the new settlements. During field observations, there were 103 units of finished houses intended for Bekerah Village community. In this case, the property right of the new home would fully be given to the people who were being relocated. The property right is here ditary, and it is the strongest and most accomplished right that people can have on their land where all land rights have social functions. Property right as the strongest right means that it is not easily nullified and it can be easily protected from other parties' interference. Most accomplished means that property rights offer the most extensive authority compared to other rights. The government issues certificates for the community which serves as a legal sign, written or printed statement of ownership proof.

### Social Norm

Norms are part of the social capital which are not formed or created by bureaucrats or the government. Norms are formed through tradition, history, and charismatic figures who build a behavioral order of a person or a group of people. Social capital will spontaneously arise from the norms to determine the rules that can govern personal or collective interests. The norm is a supporter and recipient of a certain behavior. The norm that can suppress interests by prioritizing community needs is a very strong form of social capital. This facilitates certain actions and also other constraints.



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**Table 3. Revitalization of Social Capital (Social Norm)**

Indicator	Pre-Disaster Condition	Social Vulnerability	Revitalization of Social Capital
Mentality	Independent	Aid Dependency	Assistance provided by BNPB was considered by the community to be less effective for daily needs, prior to living in Siosar Permanent Residence, the community received assistance of Rp. 1.8 million every 6 months. Then they got 2 million to rent a land for a year, as well as five thousand rupiahs everyday. Some refugees claimed that this amount of fund are not sufficient to get a house, let alone getting agricultural land. Out group solidarity is also increased; other people will immediately send their aid to victims of natural disasters most of the times. Due to national disasters like Merapi and many others, Indonesian people are encouraged to help each other and the concern for affected communities has been risen.
Solidarity	Helping each other out	Individual	The demands in economic aspect are very high nowadays where society is more concerned with its own interests rather than public interest.
Social bonding	It has been a tradition to visit a sick neighbor, and sometimes hanging out after working on farm	Still focusing on the economy recovery of the family	1. Government and NGO hold meetings with communities to reinvigorate social bonding among communities. 2. <i>Pesta Kerja Tahunan</i> (annual gathering), a tradition among Karonese people, is one of events where people can interact with each other.
Obeying the rule	Pre-disaster, the communities obey the rules and norms in their village	Communities no longer obey the rules because they do not trust each other	The communities in each village have to maintain good relationship among themselves.

Source: Research data, 2018

The community is directly involved before, during and after the disaster. The pre-disaster role of the community includes 1. Participating in the making of disaster risk analysis, 2. Conducting research related to disaster, 3. Creating Community Action Plans, 4. Being active in the DRR Forum, 5. Making disaster prevention efforts, 6. Cooperating with the government in mitigation efforts, 7. Participating in education, training and counseling for DRR efforts, and 8. Working together to build Disaster Resilient Villages/ Settlements.

The role of the community at the time of the disaster includes 1. Providing information on disaster events to BPBD or related institutions, 2. Carrying out independent evacuations, 3. Conducting rapid assessments of the impact of disasters, and 4. Participating in emergency response according to their expertise. Meanwhile, the role of the community during the post-disaster period are 1. Participating in the making of an action plan for rehabilitation and reconstruction, and 2. Participating in efforts to restore and develop public facilities and infrastructure.

### Trust

High level of social capital is characterized by a sense of mutual trust between communities, high network density, strong social interaction between communities, useful information exchange, high intensity of collaboration, and compliance with common norms and values to



**Table 4. Revitalization of Social Capital (Trust)**

Indicator	Pre-Disaster Condition	Social Vulnerability	Revitalization of Social Capital
Leadership	Community always put their trust on village leaders	Community do not trust their leaders as much as before	Leaders of village have to be transparent for their community
Trust among communities	Communities have trust among themselves	Inequality in the amount of aid received results in social envy	Every aid or assistance given to the village has to be managed transparently
Trust on the government	Communities still put their faith on the government	Government do not keep their promises most of the times	The Government together with NGOs like ILO and FAO are working hard to restore the level of trust by building community settlements and generating community economy

Source: Research data, 2018

According to a survey conducted on the disaster affected community, it is found that Bekerah Village has the highest social capital, followed by Simacem Village and Suka Meriah Village as the lowest. The data of respondents who gave "yes" answers on having trust in others are as follows: As many as 24 respondents in Bekerah Village (100%), 19 respondents in Suka Meriah Village (70%) and 24 respondents in Simacem Village (90%). Same thing goes for the component of social capital in the structural dimension. The high and low levels of social capital are certainly related to differences in the level of trust, cooperation, social interaction of the community and so on in each village. The level of public trust in the government can be seen from the following data where the community stated that the trust they gave to the government was very large: Bekerah Village with 23 respondents (97%), 10 respondents from Suka Meriah Village (37%) and 23 respondents from Simacem Village (87%).

### Social Networking

The development of a community needs various potentials and resources both internally and externally. Social capital, especially networking and relations, is a potential that can synergize and uncover other potential and capital. The potential of network capital and relations is the core of community development dynamics. The complexity of networks and relations created in a community is one indicator of the community's strength. The network itself can be formed from interpersonal relationships, between individuals and institutions, and among institutions. On the other hand, social networking is one dimension that can require other two-dimensional support, because cooperation or social networks will not occur without norms and mutual trust.

**Table 5. Revitalization of Social Capital (Social Networking)**

Indicator	Pre-Disaster Condition	Social Vulnerability	Revitalization of Social Capital
Involvement in groups	High level of participation from community	Low level of participation because community do not get much involved	Government and NGO try to get every members of community involved, from small group of farmers or other groups in the village
Cooperation among communities	High level of cooperation among communities	Cooperation between communities is low. This results in uneven assistance	Government and NGO always attempt to restore the economic condition of all families through activities that require involvement from all members and groups of community

Source: Research data, 2018



Based on the survey data, the cooperation among disaster victims groups can be seen from their answer, whether it is a 'yes' or 'no'. There are 23 respondents (97%) in Bekerah Village who wanted collaboration with groups. Suka Meriah Village have 19 respondents (80%) and Simacem Village have 17 respondents (63.3%) who said 'yes' to the idea of cooperation. However, there are also people who do not want to join other groups such as 1 respondent (3%) in Bekerah Village, 9 respondents (20%) in Suka Meriah Village and 10 respondents (36.7%) in Simacem Village. The development of a community cannot rely solely on its internal potential; therefore it is necessary to build relations outward. In addition to optimizing its potential, building relations outward will open up opportunities that exist outside the community. This bridging social capital is the relevant force that needs to be developed.

### Disaster Impact Assessment

The impact assessment component includes several aspects, which are economic-fiscal aspect, socio-cultural-political aspect, human development and environmental infrastructure. Disaster impact assessment is a medium and long term assessment. It is useful as a guide so that assessment on post-disaster recovery needs has strategic medium and long term orientations.

**Table 6. Components of Impact Assessment**

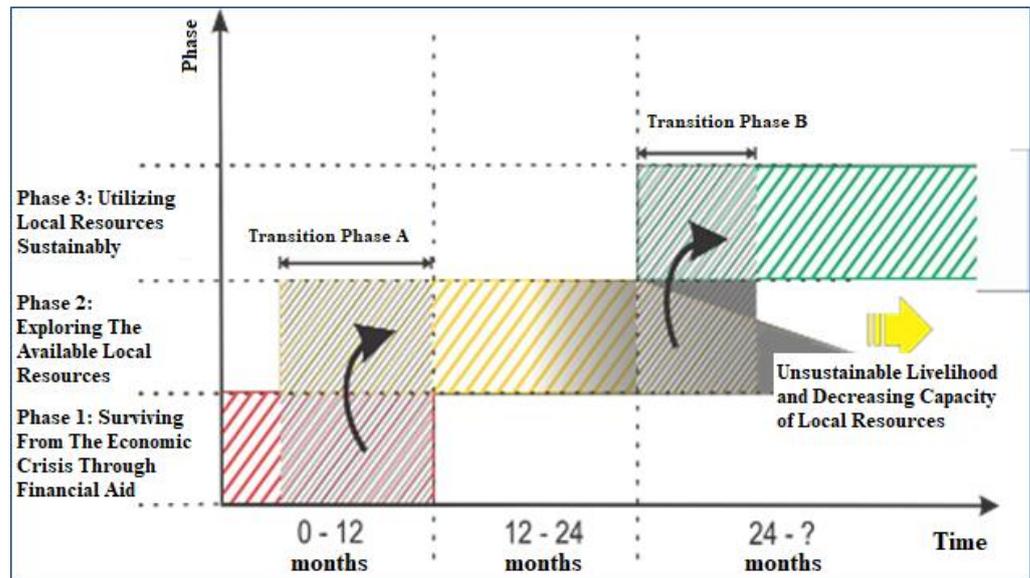
Component	Description
Economic and Fiscal	The economic impact is a decrease in the economic capacity of the community in the regency / city after a disaster that has implications for gross regional domestic production. The economic capacity of the community includes the level of inflation, the level of public consumption, the level of income inequality, the unemployment rate, the poverty rate and others. The decline in investment, imports and exports can also be identified as the impact of disasters on the economy. The fiscal impact is a decrease in the financial capacity of the central government and local governments as a result of disasters in the short to medium term. Government financial capacity includes the capacity of income derived from taxes, levies and revenue-sharing on separated state assets. This reduction in capacity has implications, such as the decline in the government's budget capacity to carry out its allocation, distribution and stabilization functions.
Social, Cultural and Political	Cultural impact is a change in the system of values, ethics and norms in society after a disaster. Examples of the cultural impact is the decline of numbers in cultural activities, the change of standards and values in society and others. The cultural impact affects the social structure in the medium and long term. This change includes the society behavior on social life after a disaster. Increasing social problems after a disaster can be a benchmark for the social impact of a disaster. For example, increasing number of social conflict, gender-based violence, divorce, and child workers. The political impact is a change in the structure of power and political behavior in the medium and long term after a disaster strikes. An example of the political impact of a disaster is the increase in political-based conflict due to the struggle for resources. Another impact is the decline of public confidence level in leaders who are democratically elected because of mismanagement in handling disasters.
Human Development	The quality of human development can be predicted from indicators of the number of children who get education, the number of women and men who get a job, the number of families who have access to clean water and the level of access to basic services such as education, health, population and others.
Environment	The impact on the environment is a decrease in environmental quality that affects human life and requires recovery in the medium and long term. This decline can be water scarcity, forest destruction, damaged watershed and the extinction of rare species after the disaster.

Source: Research data, 2018



Community socio-economic recovery strategy is important to consider because both gender have the potential to generate post-disaster livelihood resources. Empirical findings indicate that wives have an active and important role in helping husbands in overcoming the post-disaster household economic crisis by participating in finding sources of income. However, all strategies or programs for the recovery action have not provided a clear message on the role and capacity building of each gender in socio-economic recovery. In fact, gender can influence their livelihood choices because of the needs, preferences, behavior and goals (8).

Strengthening capacity related to livelihoods can reduce the vulnerability of victims, such as providing opportunities for households to diversify livelihoods for each family member and reduce dependency on one source.



Picture 2. Socio-economic Recovery Phase of Community After Disaster

From the process and time dimensions, the planned socio-economic plan for the recovery action has also not been in line with the recovery process that takes place within the community itself. The implementation period of the socio-economic recovery plan is still divided based on the annual government budget, such as productive economic returns (2011-2012) and community capacity strengthening (2013). In fact, the community has its own phase in socio-economic recovery (Figure 2).

During the first phase, the community rely on financial assistance provided by community external actors, from the emergency response period to the next 12 months. Furthermore, during the A transition period, they realize that they need to get income independently; they collect the capital (financial, skills and social capital) to find and to use local resources as source of livelihood. In the second phase, they get a variety of local resources to be utilized, but they acknowledge that some of these local resources have sustainable potential and could experience a decline in capacity.

To overcome this, they look for sustainable local resources without stopping the activities they are working on, because these activities still provide their socio-economic improvements. This study found that sustainable livelihoods can be restored when communities have already had the skills and natural resources.

For example, most people in the Siosar area are mostly dairy farmers where livestock land has already been available and supported by good climate conditions and sufficient sources of animal feed. Previously, people lost economic assets, such as cattle and maintenance costs. In the transition phase B, the community independently tries to collect these assets again by utilizing the economic benefits obtained in the second phase.

### Conclusion

Social capital as a ground theory examines how the disaster of Mount Sinabung in Karo Regency is handled with a number of important points, including the proportion of each part of social capitals. For example, the power of social norms does not propose to networks or beliefs. The social norms of the community has been “cracked” compared to before and after the



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eruption. The social network closely intertwined as an agrarian society also influences the joint lives of the victims of Mount Sinabung disaster. Trust as a separate pattern, is also affected by the impact that can be felt in refugee camps. There is a tendency in social capital to fade the values of trust caused by outsiders who are involved in the new community.

The post disaster condition of community can be viewed from the location of the adjacent settlements. This actually triggered social rift, namely social envy, because there was no harmony in the activities involvement of each family in the village. Each family has dependency on assistance from both the government and the private sector because they still consider themselves to be victims of the Sinabung eruption. Thus, the strategies for handling Mount Sinabung disaster still require in-depth study, by understanding case studies from various places. One of them is applying mitigation efforts before the disaster, during the disaster, and after disaster. Pre-disaster mitigation or efforts to provide understanding to the community aims on anticipating disasters, by providing information and increasing preparedness to minimize the disaster risk. At the moment of disaster, as an emergency response, the efforts are carried out immediately to overcome the impact, especially in the form of rescuing victims and property and doing the evacuation. Post-disaster efforts are rehabilitation and development.

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