

## VOLCANIC DISASTER MANAGEMENT PRACTICES FOR PEOPLE WHO LIVED IN DISASTER PRONE II

Diah Setyawati Dewanti<sup>1</sup>, Dusadee Ayuwat,<sup>2\*</sup> and Sekson Yongvanit<sup>1</sup>

**Abstract:** Mt. Slamet as the second highest active volcano in Java island has fluctuation seismic activities since early in 2014. Government sets disaster prone II as the nearest area for villagers lived near to Mt. Slamet. This paper is describing the perspectives and the way of life for people who live in disaster prone II and volcanic disaster management practices for centuries. This research employed qualitative method. Sawangan hamlet and Guci village chosen as the area for this research since it's located in the prone area for lava flow. This research used in-depth interview for 29 KI's which divided into 10 KI's from local stakeholders and 19 KI's of households who lived in the two villages. Data collection was done during January to February 2016 and content analysis was done in the process of data analysis. The result found that Sawangan applied volcanic disaster management practice without any support from other parties. Volcanic disaster management means as the practices of mitigation, preparedness, response and recovery phases during the eruption of Mt. Slamet. Sawangan practices those phases based on the spiritual belief or Moslem practices on their way of life through doing jamiyahan (praise of Allah through reading Al-Qur'an and praying) in every week. This activity did also as the base meeting and coordination for all Sawangan's villagers during the response phase of Mt. Slamet's eruption. It's also influence to their decision and action for refusing to do evacuation during the eruption. In the other hand, Guci receive more support from local government in culture application as their disaster management practices. One of example culture practice is Ruwat Bumi which held in annually as their belief to safe the villager's life from the impact of Mt. Slamet's eruption. It is supportive and fully funded by the local government. The different way of life and inter-agency on mitigation phase bring two villages having different skills of disaster management's practices. However, Sawangan and Guci has their own way of life for strengthen their disaster management practices

**Keywords:** disaster management, volcanic disaster management, way of life, Mt. Slamet, disaster prone II

### INTRODUCTION

Mt. Slamet is one of the active mountain located in the Central Java Province, which is the highest density population province in Indonesia. It is the second

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<sup>1</sup> Department of Development Science, Faculty of Humanities and Social Sciences, Khon Kaen University, Khon Kaen, Thailand

<sup>2</sup> Department of Sociology and Anthropology, Faculty of Social Sciences, Khon Kaen University, Khon Kaen, Thailand

\*Corresponding author: [dusayu@yahoo.com](mailto:dusayu@yahoo.com), [dusayu@kku.ac.th](mailto:dusayu@kku.ac.th)

highest mountain (3,428 meter) in Java island. Mt. Slamet has a stratovolcano type; it is structured by the rock from the previous eruption with the changing type of explosion. The geographical of Mt. Slamet located in the central of the Java island which could bring impact during the eruption. North path ways as the connection between West Java and East Java will be closed during the eruption. Recently, Mt. Slamet has increasing and fluctuation seismic activities since 2014 and in 2015, it's become normal. Mt. Slamet never has big eruption which could impact in massively to the surrounding area. However, Mt. Slamet has a possibility to have big eruption and impact in massive area in Java island. It also described by the myth of the Mt. Slamet from the ancestor. Mt. Slamet is known if it has big eruption, it will divide the Java Island into two part.

Disaster always co-existed to any era or civilization. The eruption from an active mountain could bring disaster when vulnerability factors bring greater impact and the trigger event was not handled by the people who impacted and known as the victims. Disaster managements have four main components, which are hazards, vulnerability, capacity and risks (Khan, Khan & Vasilescu, 2008). Disaster management has been developed to improve the humanitarian solutions for decreasing the greater impact from disaster occurrence. Indonesia government aware to a trigger event in disaster, one of them is disaster from volcano eruption. In 2004, Indonesia established national agency called as *Badan Nasional Penanggulangan Bencana*, abbreviated as BNPB to raise the humanitarian aid for any disaster occurrence in Indonesia. The agency is helped by the ministry of energy and mineral resources issues Regulation number 15 year 2011. It is regulated concern the mitigation guidance for volcanic, landslide, earthquake, and tsunami disaster. In the regulation, mitigation guideline was divided into pre-disaster, response and post-disaster phases. The volcanic disaster management in Indonesia regulating under the ministerial regulation which also mentioned concerning the general guideline to villagers who lived in the disaster prone. Disaster prone is determined into three levels which is divided based on the level of the risks, and it sets the range of disaster prone area in different for each volcano. Mt. Slamet has ranged in each level of disaster prone area is 2 km. BNPB stated general guideline for villagers who lived in the disaster prone based on the seismic activity status of the mountain. During beware status, the communities have to evacuate based on the order of local government. During standby status, the communities need to prepare themselves to evacuate while waiting order from local government. However, during normal and alert status, the community could do the daily activities (Republic Indonesia Minister Regulation of Energy and Mineral Resource, 2011).

The mitigation guideline for the community who lived in the disaster prone recognize applied in very general cases. The disaster management guideline in Indonesia needs to have specifically based on the type of disaster, since the needs,

action and measurement in each disaster and area is different (AusAid, 2012). To make an appropriate measures for dealing the hazards from volcanic eruption, it is necessary to know the types of volcanic phenomena and extent of the damage (Yamaguchi, 2013). To decrease the great impact from disaster, disaster management is critical for the households because it is needed to intensify the disaster management knowledge to improve their life safety, protecting their property and survive from hazardous events (Sutton and Tierney, 2006). Volcanic disaster management in Indonesia applied for one of active mountains on Java Island, Mt.Merapi. There is a problem in the policy making based on the mitigation guideline implementation which brings antipathy to the villagers who live in the disaster prone 3 area. The government builds settlement in the border of disaster prone 2 to facilitate villagers who lived in the disaster prone 3. Disaster prone 3 is prohibited for human settlement, that is why government' settled and ask the villagers to move. Several households refuse and the government cut the electricity access and resist to all supporting rural development programs to the villagers as their policy to force them to leave their house in the disaster prone 3 and move to the new house which provide by the government in disaster prone 2 (McDermott, 2010). Sawangan hamlet recognize as one of the area where located in the disaster prone 2 of Mt. Slamet. Social capital supported their livelihoods assets to achieve the livelihoods outcome. Sawangan lived through agriculture supported their living in the disaster prone area. Living in this area bring more benefit for their liveihoods because of the natural fertilizer with high quality available freely from Mt.Slamet. Livelihoods on agriculture in disaster prone 2 of Mt.Slamet bring benefit to achieve lifelihoods outcome based on the villager's perspective (Dewanti and Dusayu, 2015).

The different perspectives concerning disaster and disaster management in the villager's thought could bring resistance to the any program support for improving the capacities of the villagers facing disaster. Disaster management for disaster prone area is the area where has a larger vulnerability and risk and need to be concern. Thus led the researchers interested in knowing: "How are the perspectives and way of life for people who live in disaster prone 2 through their volcanic disaster management?".

### **OBJECTIVE OF THE STUDY**

To describe the perspectives and ways of life for people who live in disaster prone 2 and their practices of volcanic disaster management for centuries.

### **THEORIES AND CONCEPTUAL FRAMEWORK**

Volcanic disaster management is the applied of disaster management to one of natural event caused by volcanic eruption. It has an aim to reduce the hazard impact to all villagers who lived in surround or people who will receive an impact

from the eruption. Volcanic disaster management has already implemented and spread all over the world. In example volcanic disaster management application which push government established a regulation in the Disaster Countermeasures Basic Act of Japan article number 63 concerning prohibition for entry zone in the disaster prone area. However, the villagers were break the rule and crossing the no-entry zone to carry out their agriculture practices and commercial or industrial business activities to support their livelihoods. The other impact was the number of tourist became decreasing cause of the enforcement from no-entry zone. Based on this fact, Japan government promote geo-park as part of volcano disaster management act and finally volcano disaster management guideline was created in March 2008 includes the provision using volcano tourism (Sugimoto, 2013). In Indonesia, volcanic disaster management has also studied to improve the enforcement. Tuswadi (2014) study concerning mitigation phase through public education and increase the villager's awareness for children as the vulnerable group. He use action research to improve the awareness and education concerning disaster management in the all part elements in school. Not only to the students, Tuswadi (2014) also put teachers as their respondents to educate to the children for disaster management action.

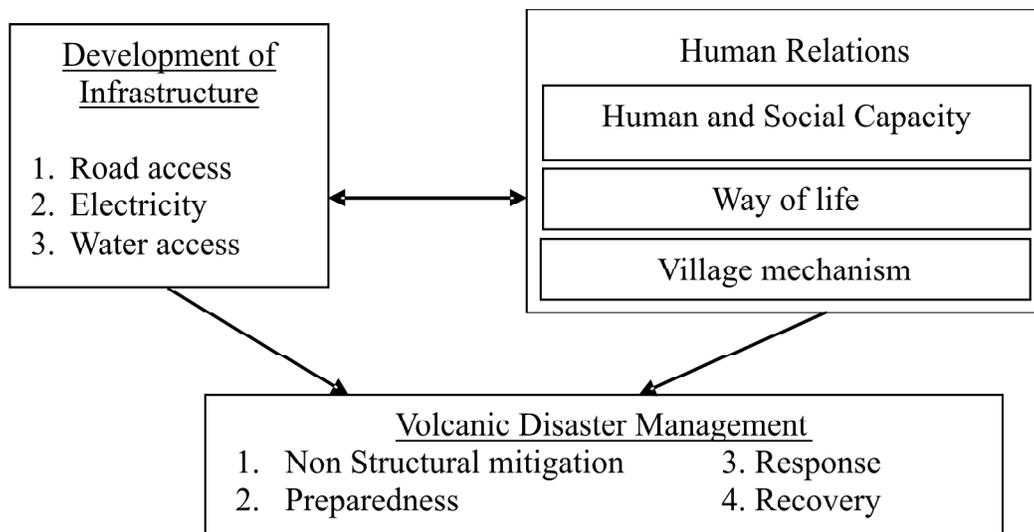
Disaster Management Practice (DMP) is the implementation of people to reduce the possibility outcome of risks and undertake appropriate measures to mitigate their impact through reliable information and resources. In current days, social action though DMP could refer to any purposive undertaking of disaster before, during and after the occurrence. It is exemplified as the concept of disaster management as the cycle with different phases. This ability to promote the holistic approach to disaster management as well as to demonstrate the relationship of disaster and development. However the increasing of risk caused by inadequate from traditional of disaster management and the flawed from development activities (Guzman, 2003).

In current research for DMP, most of them describe information flows during disaster occur. In the other side, the modern DMP recognizes the importance from strong and well-structured local disaster management capacity. Since Indonesia's government has decentralization system for the government administration, the need for decentralization authority could achieve effective response and mitigation phases (Essay UK, 2003). The implementation of DMP in Indonesia has collaboration between local villagers, government and other supporting third party. DMP for the cycle of disaster management involve of preparedness, mitigation, response and recovery phases.

Preparedness phase involve preparing and supply people which may impacted to the disaster by increase their chance to survive and minimize their financial to other losses. DMP for the preparedness phase could practice by all activities to plan the activities integrated to the social action for reduce the possibilities impact

to their life from hazard. Response phase carried out the DMP integrated with risk analysis during disaster occur. Post-disaster cycle has an aim to have easy for recovery of affected victims immediately after disaster attack (Coppola, 2007). Recovery phase consist of short and long term practices after the occurrence of disaster. Garnett and Moore (2010) explain three keys approaches to enhance disaster recovery for DMP; they are (1) incorporated long-term recovery aims for response and preparedness phases; (2) expand the knowledge by incorporating research and harnessing lessons learned from international experiences; and (3) develop disaster recovery planning including measurement on community-level outcomes. Barakah (2003) explain more to the long-term recovery process is reconstruction on the building and infrastructure. However, through DMP, all area is executed balance.

Volcanic disaster management practices (abbreviated and mentioned in future as Volcanic DMP) has meaning as the applied of disaster management by people who lived near to volcanic hazards to reduce the possibility outcome of risk and carried out the appropriate measurement for mitigate the impact through resources. This paper reveals the implementation of volcanic disaster management practices in Mt. Slamet, begin with the perspectives of meaning of DMP and their application for the Volcanic DMP. The researchers describe the Volcanic DMP in three cycle (pre-disaster, during and post-disaster) through 4 phases (non-structural mitigation, preparedness, response and recovery phases). Thus, the researchers describe the volcanic DMP applied with the interaction of human relations and development from the physical infrastructure (Figure 1).



**Figure 1: Conceptual Framework**

## RESEARCH METHODOLOGY

This paper has the aim to describe the perspectives and way of life for people who live in disaster prone II, which implemented volcanic DMP for centuries. We identify the human relations and development infrastructure supported their volcanic DMP. Human relations defined by Haynes, Barday and Pidgeon (2008) consist of (1) capacities of each individual and also the community; (2) way of life, which is influence by spiritual belief, ancestor's advice belief and myth are applied into part of their way of life; (3) village mechanism is the village's way of working to practices volcanic disaster management and made them survive living in the disaster prone area.

In this study, a specific conceptual framework developed by volcanic DMP which designed between development infrastructure and the human relations who build in the village mechanism. Development infrastructure focus on three basic of human needs for living, they are the improvement from the condition of road access, water and electrical supply. Human relations focus on human and social capacity, way of life and village mechanism.

Human capacity in this paper focus on the use the knowledge and attribute embodied to individuals and social capacity is focus on the networking which shared for norms and values to have cooperation within groups. Way of life is the practice from the people's living who lived in the disaster prone area. Village mechanism is appear from the interaction of human and social capacity to the practical of people's living for people who lived in the disaster prone area.

The researchers use qualitative research methodology to describe the perspectives and way of life for people who live in disaster prone II and volcanic DMP to centuries. The scope of study is the volcanic DMP in 4 phases; preparedness, response, mitigation, and recovery. The unit of analysis is village based for the purpose of research objective (Tashakkori & Teddlie, 2003). The key informants were chosen by particular setting based on the unit of analysis for this research. They were local villagers who born on this area and grown up at least half of their age living in the area, so it could considered to give valuable informants based on the research objective (Maxwell, 1997). The key informants consist of two groups, local stakeholders and household groups. Local stakeholders were the head of village and hamlet from both of the study area. This study used in-depth interview concerning the topic of the study (Neuman, 2003) in the Sawangan hamlet and Guci village.

This research does not specify to an exact number of key informants, however, to decide the number of sample size using qualitative research methodology, it involves saturation of information. The researchers use saturation of information and do not specify an exact number of the key informants (Strauss & Corbin, 1998). When the researchers have already achieved levels of information, the researchers

do not get further new information and it is described as saturation (Krueger & Casey, 2000). In this paper, the researchers involved saturation and had interviewed 1 head of urban village; 2 head of hamlet; 7 head of neighborhoods and 19 head of households. The collection of data for this research was carried out from January to February 2016.

The key informants have criteria for selection in each group. The first group is for the local stakeholder, consist of 1 head of Guci village, 2 head of hamlet in Sawangan and Guci; and 7 head of neighborhoods. Head of Guci village recognized as *Lurah*, head of hamlet was known as *Ketua RW* or *Ketua Rukun Warga*, and head of neighborhood known as *Ketua RT* or *Ketua Rukun Tangga*. The *Lurah* is the leader of Guci village and is the person who had the power to communicate with the sub-district and district's government staff. He/she had the power to make decisions and manage the village in order to develop their area. The *Ketua RW* is the leader of Sawangan hamlet who had power to mobilize one big cluster which consists of more than 500 households and several head of neighborhoods. Head of neighborhoods recognized as *Ketua Rukun Tangga* or *Ketua RT* who lead households in cluster area with maximum consist of 30-50 households. *Ketua RW* lead several *Ketua RT* in one of hamlet. The criteria of this group is appointed as the leader of the area by the government, appointed as *Lurah*, *Ketua RW*, *Ketua RT* and the community who settled based on the geographical parceling. The second group is the households group which consists of farmers, seller in tourism area, workers, agriculture-middleman and service group for transporting the agriculture products. Criteria is witnessing the Mt.Slamet's eruption on 2009 and 2014; and who had permanent shelter located in Sawangan hamlet and Guci village.

## RESULTS

Through this study, we describe the volcanic DMP with the interaction of human relations and development from the physical infrastructure as the objective. The results of the study are discussed below in the topics of: (1) Development of infrastructures from the basic of living needs, they are road access, electricity and water access; (2) Village mechanism as part of the human relations between people who lived in the disaster prone, including the human and social capacity, way of life as their living practice to carry out village mechanism; (3) Volcanic DMP which applied on four phases; they are non structural mitigation, preparedness, response and recovery.

### 1. Development of infrastructures

The road access and electricity in Sawangan and Guci for 20 years ago were described in the same situation. The difference was come from the donor or fund to develop the road access, electricity and water supply. In Sawangan village, most of the road access, electricity and water supply were come from their own fund-

sharing with all the villagers. Sawangan village does not have enough livelihoods assets to support their infrastructure in the current means of livelihoods. However, the plan from government support on improving the road access is appear to the future means of livelihoods (Dewanti and Ayuwat, 2015). Guci had development for road access and electricity supported by local government. This difference brings both of this village has different perspective concerning government. Sawangan who is more self-reliant compare to Guci, evaluate developing basic infrastructures using their own money is better. It is stated by Sawangan because they had an experience concerning the government support for their water supply and result with many conflicts because the government only funded in small and certain area. This is why Sawangan assess self-reliance is better and make less conflict among them.

“... even though, clean water, alhamdulillah Sawangan never funded or helped by the government. Previously, government help only small amount money and its insufficient which made many case result lots of conflict” (Male, Sawangan, 36 years old, 21 January 2016).

In the other side, Guci village also describes that the development of this village starts in the year 2000 when government build Guci hot water tourist-attraction. Before 2000, the economics condition of Guci villagers were worse, less of tourist coming and they work as corn farmer to fulfill their daily needs for foods. They usually consume rice-corn (*nasi jagung*) which now they could not found it anymore. Government support is the important development process for Guci to improve their socio-economic status.

“The changing was massive. In that time, the life of Guci village before the development of tourist-attraction from hot water, the economic level was worried. The guci tourism spot was developed first to increase the economic status. So, at that moment, they work as a farmer and as you know farming in this area is not resulting good product. So, after the local government pay attention to this tourist development, now it increase the economic status for us until now, local tourist coming from other cities, Jakarta, Semarang, Pekalongan... So, Alhamdulillah it could contribute for economics level in Guci, since previous year, Guci tourism spot still in plain with less of development, but it is already develop we felt the increasing of economic status. So, 20 years is an awesome development” (Male, Guci, 34 years old, 28 January 2016).

Development of basic infrastructure in Sawangan and Guci has different process. Sawangan has self-reliant development process to sufficient their basic needs on electricity and water supply. They build the water distribution access by themselves and give less attention from government support. It is because the history of government which brings conflict during they established water supply program in this area. Contradically, Guci's development mostly relies to government support. After 1964, the hot water fountain open as one of the tourist attraction in Guci and bring more positive influence to infrastructure development from

government. In 2000, asphalt road construct in Guci to attract tourist to come in hot water fountain. Furthermore, electricity access also established to fulfill the tourist infrastructure and spread to the villagers in Guci.

## **2. Village mechanism through human relations**

Village mechanism appear with the same mechanism from 20 years ago until nowadays in Sawangan and Guci village. The village lead by *Lurah* which consists of several hamlet or recognized as RW (*Rukun Warga*) in Indonesia. Head of hamlet divide based on cluster area and this consist of head of neighborhood or recognized as RT (*Rukun Tangga*). Head RT lead several households in one certain cluster area, approximately 30-50 households. Sawangan describe the difference the village mechanism compare to 20 years ago, one key informant explain that previously there were *bayan* who work as security in the village who always take responsibility on the village's safety. But now, *bayan* have already changes to be *kaur*. The responsibility morely is to provide services for villagers and support *Ketua RT*. The other key informants state the same description concerning the changing of the village mechanism. The number of head neighborhoods add more under the leadership head of hamlet (or *Ketua RW*) because more households lived in Sawangan and Guci.

“... nowadays they already change as *kaur*, previously we have *bayan* or village policeman. But now changes as *kaur* who work with *Ketua RT*” (Male, Sawangan, 51 years old, 24 January 2016).

In Sawangan, village mechanism mostly implemented through social kinship relations. Since Sawangan's villagers never want to move from their local area, after finish their study in junior high school, the villagers go back to their local area to develop their potato agriculture plantation. It impact that the village mechanism in Sawangan is really strong, and every villagers and also the local stakeholders in Sawangan are working using kinship approach. Less conflict among villagers and united to build their area. Other application to Guci, since tourism is promising business, lots of people from other Guci move to Guci to run tourist business. The village mechanism and human relations is not really strong compare to Sawangan and they implement top to bottom leading system. Every activities and decision mostly came from the local government construction.

Guci and Sawangan villages have similar on how the individual capacity could act independently to increase their economic status and level. However, the difference was appeared on their influence choices and opportunities to develop their area. Sawangan make choice to do it independently without any influence on governance structures. Even though Sawangan's received opportunity to receive government support, but it was refused with reason to alleviate any conflict and envy in between households. Different to Sawangan, Guci take the influence choice and opportunity from government support and build Guci as the tourist spot. It

bring Guci more develop and diverse their livelihoods activities to help the households achieve their means of living.

The relations between development process of infrastructure and human relations part could influence each other. However, the development process could impact to the human relations directly on the strong of human and social capacity. The self reliance appear in Sawangan bring the strong social kinship networking on the human and social capacity and bring this as their way of life. Guci has developing process influence by government support and bring this to the village mechanism and way of life by years. However, we could not find the impact from human relations to the development meaning. There is only one way impact from development of basic infrastructures build the human relations of Sawangan and Guci.

### 3. Volcanic Disaster Management Practices

This paper is described the perspectives, ways of life of people who live in the disaster prone II and implementation of volcanic disaster management practices to centuries. To know the application of volcanic DMP, the researchers belief that villagers have their own perspectives of meaning concerning disaster and disaster management. Through villager’s point of view, the researcher will bring the application of volcanic DMP in Sawangan and Guci.

The researchers found out Sawangan and Guci’s perspectives of disaster are different (Figure 2). UN (1992) describes the meaning of disaster as the disturbance

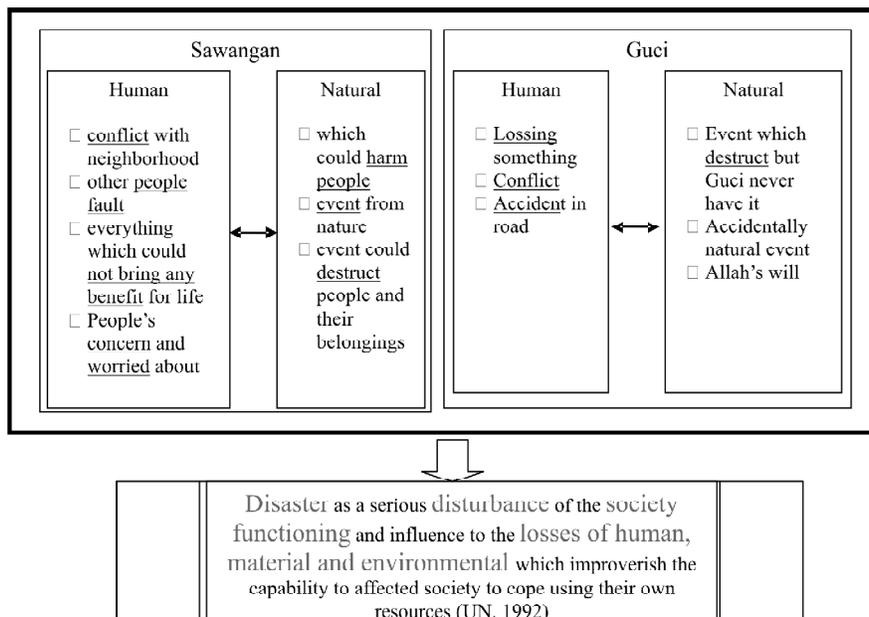


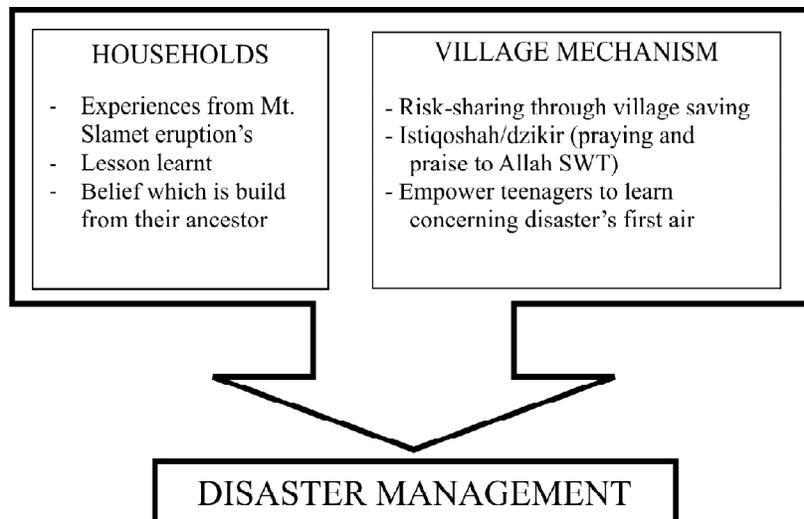
Figure 2: Disaster meaning for Sawangan and Guci perspective

in the society which could losses of life, material and environmental impact. Sawangan and Guci explained in similar meaning to the concept defined by the UN. Disaster could divide into two parts which are natural and human event. Sawangan defined disaster in the human caused by conflict or people’s fault which could bring any conflict or miss perception between villagers.

In human relations approach, Sawangan defined the meaning disaster as the imbalance harmony of the villagers. Moreover, problem one villager with another villager is part of the disaster meaning who could disturb the harmony of the society. Guci villagers describe disaster in the part of human’s perspectives as the same to the Sawangan. In natural event, Sawangan and Guci explained disaster as the destructive event which could harm people and environment surround.

“...disaster it doesn’t need to be destructive from earth, for me itself, disaster could be as conflict to our neighbor, mam. So, disaster should not be related to the natural. Or probably, in our daily life or as Javanese mention “uyah” in behavior it will be a disaster. I sit here and i have a conflict with my neighbor, it is include as disaster. So disaster is not always related to the natural only, it is also related to the character and relation to other people...” (Male, Sawangan, 28 years old, 20 January 2016).

Sawangan defined disaster management as the self-reliance; however Guci take government support as one of the important part from the process for saving their life, property and environment from the hazard of disaster. Sawangan describe disaster management as the interaction between households and village mechanism to support each other, for saving from the impact of hazard (Figure 3). In the household level, there are experiences, lesson learnt and belief from villagers as their basic skill to recognize and handle disaster.



**Figure 3: Disaster management’s perspectives by Sawangan**

Experiences and lesson learnt from the previous pattern of seismic activities from Mt. Slamet could be the tool for the knowledge or awareness before disaster occurs. Knowledge and awareness as part of the non-structural mitigation of disaster management has been owned by the villagers. Belief from each of households from the ancestor's advice was also kept by Sawangan, appear to the meaning of disaster management. Belief and trust from the story of Mt. Slamet which will never have big eruption unless if God's will as the end of the world appear. The researchers found belief that the largest eruption from Mt.Slamet is nearly as the end of the world. The other thing that the villagers trust to the ancestor's advice is concerning the meaning of Mt.Slamet itself. *Slamet* is a Javanese word with meaning as safety and all the villagers in Sawangan belief that this mountain will never bring any harm to Sawangan and all villages surround it.

Guci's villagers define disaster management as two different parts between households and village part, and supported to government intervention (Figure 4). Following parent's or older villagers advices were appear to be households part and play role to the village mechanism for doing the frequent patrolling, *istiqoshah* and cultural practice. Frequently patrolling is one of the village mechanisms which is held under the head of the village and appear to be their awareness based on the parent's advices in their family. Frequent patrolling was carried out during the eruption of Mt.Slamet or the highest level of seismic activities of Mt.Slamet. *Istiqoshah* or praying has the same practical issue mentioned by the Sawangan sub-village. The other thing which made different to Sawangan was

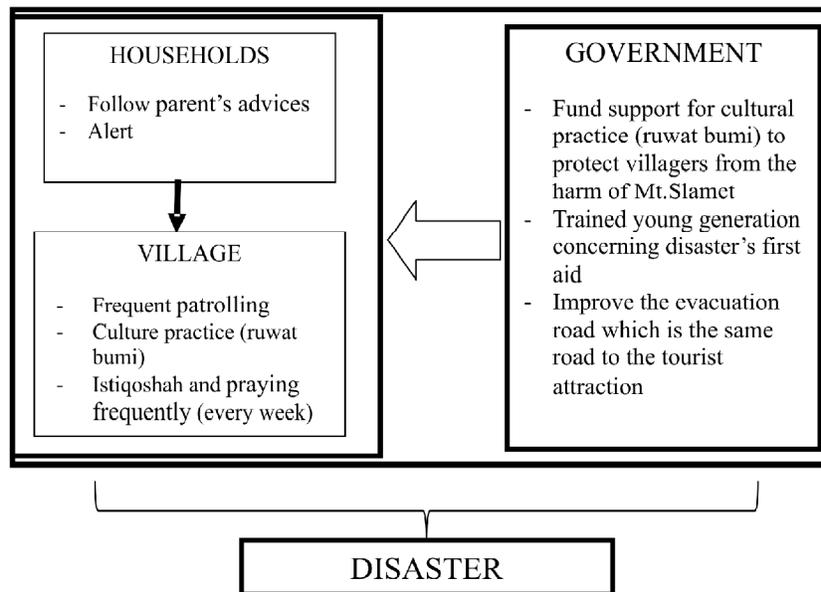


Figure 4: Disaster management's perspectives by Guci

the cultural practices of *Ruwat Bumi*. It is held annually based on the elder's and ancestor's advices to regularly carry out this culture event as their gratitude and proposing of safety from any hazards in earth.

Even though some of the key informants stated clearly that *Ruwat Bumi* as their gratitude to their older, they still do the ceremony. If there is no any elder advice and instruction, they prefer to leave the ceremony.

"...since my parents and all the old villagers in here ask us to do *Ruwat Bumi*, so we carried it out. However, it is to respect to the older, ancestor and the heroes behind Mt.Slamet's apperance ... young generation need to be moved again, they only waiting from the local government ask them to carried out some activities" (Male, 34 years old, Guci, 28 January 2016)

The difference geographical position, include the village mechanism through human relations between Sawangan and Guci village bring different actions for the application of volcanic DMP. The practice for mitigation, preparedness, response and recovery phase of Sawangan and Guci are different. We compose (1) mitigation in the non-structural mitigation part to describe the community awareness and education program; (2) preparedness, is to explain all activities plan integrated to reduce possibilities impact from the hazard; (3) response phase, is to do the risk analysis during disaster occur; and (4) recovery phase through knowledge of post-disaster planning.

#### ***(a) Non-structural mitigation phase***

Regulatory measures hazard risk by legally dictating human actions which could applied to several facets of households life. It is consist of practical to limit the activities of people in areas that are known to be at high risk for one of more hazards; density control for propose limitation the possibilities of doing evacuation and made regulation to guide safe activities and practices. Through this understanding, Sawangan's and Guci's effort is independently build by lesson learnt on previous history of Mt. Slamet eruption. Using the guidance from their ancestor, strong belief and practical of religion, Sawangan could have their own safe activities and practices.

Community awareness and education programs has an aim to improve awareness to protect their family, begin with public education, warning system and risk mapping are the activities need to be implement for the disaster prone area. Sawangan and Guci's have the same effort to improve their awareness by telling a story from their ancestor to their children, and build the understanding of Mt.Slamet type of eruption. Even though disaster management is not appears as their primary subject in their school, but they learnt it from their parents.

"... i deliver some advices from my parents and grandparents concerning previous eruption of Mt. Slamet to my children. But the important thing is, if the parents is calm

down facing the eruption, they would also calm down and will not panic... i give them this understanding after 2014's eruption" (Male, 34 years old, Sawangan, 28 January 2016).

Behavioral modification is the collective action in the community which can alter the behavior of households, resulting in some common risk reduction benefit. Researchers focusing to strengthen of social ties as withstand on hazard's stresses. Sawangan and Guci's collective action could be seen in the religion approach which is frequently held *istiqoshah* and praying together in every week or every month.

### **(b) Preparedness phase**

The government's intervention was the main supporting for Guci villagers implement and develop disaster management awareness. This part was make difference from Guci to Sawangan is the government support. Sawangan recognize as the self reliance for disaster management perspectives, however Guci appear to be supported and collaborated well to government. Government play role on the fund support, human empowerment and physical capacity improvement. Fund support was mostly found to describe of key informants for cultural practice in *Ruwat Bumi*. Government give fund support also as the hidden agenda to support the tourism revenue, it is known as the public confidential for all villagers in Guci. It is why lots of people willing to support this event annually. Almost all the Guci villagers work in the tourism sector which is also bring win-win solution between governments to the Guci itself. Training to the young generation as one of the program from government appears differently from Sawangan. Young generation in Sawangan was trained by the local people who also work as the volunteer from Red-Cross Indonesia. Even though Sawangan were acted independently for practice their disaster management, there is a villager who also work as the rescuer in Red Cross organization who in charge for taking care of Mt. Slamet. He described that there were no myth or any cultural practice they belief to increase their safeness from Mt.Slamet. Moreover, he, personally, trained young generation to have disaster's first aid and teach how to appreciate earth with keeping the clean environment surround Sawangan. It is part what villager's belief, when they respect the earth or nature, they will get lots of value from them.

In the other side, Guci young villagers were trained by the government. They also has teenager's team who trained by local government concerning disaster's first aid. Some of villagers evaluate that this team is passive, since they only rely on the government instruction. When there were no activities, they choose to stay still and do nothing. It is different with Sawangan who establish *Bosapala* as active teenager's team in Sawangan independently.

"Alhamdulillah, we have already make it, start end of last year 2015. We build team who concern to the natural conversation, first is to reduce the possibility of having flood. We make one young generation organization called as *Bosapala*. This team is in

charge to keep our mother earth always green and beautiful... Moreover, i give them more knowledge concerning Mt.Slamet's eruption, from why to how manage the Mt. Slamet's eruption" (Male, 34 years old, Sawangan, 28 January 2016)

Twenty years ago, the width area of Sawangan were limited, however it become more develop since most of the farmers rent field area from *Perhutani* to plan potato. The development of width area is on the north, west and east side of Sawangan to wider their plantation opportunities on potato. Sawangan agreed 2014 was the biggest eruption from Mt.Slamet compare to 2009. In 2014's eruption, Sawangan could feel the big earthquake caused by seismic activities from Mt.Slamet. Even though, it was not impact to heavy rain volcanic dust, but the villagers need to be harvest their crop earlier. Again, Sawangan refuse to evacuate or move from their area based on the parent's advices; they belief Mt.Slamet is never harm them and bring safety and life to them.

"...based on my parent's story, it was big eruption, even my ancestor said the big rock was jump into the west java. That's the story and the impact spread to west java. Even though in year 1988 was big eruption but the ashes was not that thick, the ash was thick in Cirebon, Kuningan and also rocks in there..." (Male, 34 years old, Guci, 28 January 2016).

Government start gave their attention concerning volcanic disaster management to Sawangan and Guci after the Mt.Slamet's eruption on 2009. On the eruption of 2009, Sawangan belief, during Mt.Slamet eruption, they only need to pray or do *istiqoshah*. They practice in many times during eruption and belief that eruption is God's will and they could only propose with praying for their safety. However, after the 2014's eruption, they were ready to evacuate if needed. Some villagers still refuse to do evacuation or move from their house even though government asked to have evacuation during the eruption which mostly had age more than 60 years old. The strong belief from their ancestor's was kept which is Mt. Slamet won't have big eruption until end of the world came.

Previously, in the 2014's eruption, the villagers were not gather in the meeting point because they belief it is only small eruption from Mt.Slamet. The previous eruption was normal eruption of Mt.Slamet for Guci and it is better to have frequent eruption which means that the activities under the mountain could reduce the risk of big eruption. However, they belief on elder advices to practice a culture event called as *Ruwat Bumi*. This ceremony is frequently carried out and funded by Tegal local government to keep the culture practice and invite more tourists to come to Guci. Month of *Sura* is javanese month which measured as the first month in a year. *Sura* consists of 30 days and the total amount of days of Javanese year measurement is 354/355 days. So, every 1st of *Sura*, Guci made a culture big event with an aim to protect Guci from any destructive or harm from Mt. Slamet (Picture 5). *Ruwat Bumi* is a blessing event and it is a must for all village made offerings from their own crops (vegetables) which build like a mountain. This offerings or

we called as *gunungan* will give lots of bless and praying from a person who trust as the great person in Guci. Then, the villagers together compete take the vegetables in *gunungan*. Moreover, they also sacrifice one goat to the earth which belief that this blood and head are the reward for Mt.Slamet. If they done this ceremony, they belief that they will safe from the eruption of Mt.Slamet.

“The belief of ruwat bumi has been carried out every Sura month, previously it was held on 20 Muharram (3 November 2015), we usually cut one goat (kendit) which has black color in the middle of its body. This cultural ceremony was invite tayub dancers, then done the blessing ceremony with praying. Previously we held this ceremony to ask the safeness of Guci” (Male, 38 years old, Guci, 2 February 2016).

### **(c) Response phase**

Through the perspectives, appear on the capacities belongs to the households, it brings to the interaction as village mechanism. Risk sharing as they carried out seems to be the basic principle on the mechanism. Based on the previous eruption of Mt.Slamet on 2009 and 2014, the meaning of disaster management defined the experiences to support each other as their risk sharing during the alert phase on the high seismic activities. Moreover, during the response phase, the villagers carried out *istiqoshah* or praying together in mosque. These activities mentioned by the villagers as their activities to carry out disaster management. However, the *istiqoshah* was not only carried out during the eruption of Mt.Slamet, but they implement it frequently, every week and mostly on Friday.

“...yes.. make disaster as a friend, so whenever it came, we could make friendship with disaster and whenever it came, we could think, owh, this is the cause why the disaster occur so we could know what to do or re-act ...” (Male, 28 years old, Sawangan, 20 January 2016).

*Ketua RW* discuss with the head of the regency in Tegal concerning disaster management guideline. He describes the planning during a disaster or the response phase on the disaster management from Tegal’s local government. He explained the evacuation path in Sawangan, the evacuation area should be in Brebes regency and the meeting point for all villagers is in front of the big mosque. Based on the disaster management in the phase of response, several independent actions have already practice during Mt.Slamet eruption on 2014 are: (1) preparing all valuable statement/letter; (2) shift-patrol; (3) preparing warning system when they need to evacuate. Moreover, the disaster planning which applied on Volcanic DMP, some households have already obey the instruction from *Ketua RW* and prepare their valuable statement/letter to pack into their bag before Mt.Slamet eruption again in the next future.

However, the head of the village (*Pak Lurah*) explains the disaster path to the local stakeholders of Guci. The problem appears when the communication from the head of the village could not distribute widely to all the head of hamlet and

head of neighborhood. The meeting point for all villagers is in front of the village office of Guci, but there is no signpost for evacuation path in the village.

*(d) Recovery phase*

The knowledge of post-disaster planning and financial investment plan and support could not find explicitly in Sawangan and Guci. Most of them have resigned or giving to faith stronger than to be a good planner after having experience of eruption. *Ketua RW3* in Guci has been as one of the victim from tectonic earthquake impact from Mt.Slamet eruption in 2014.

“...in here, the condition was only split the land, you can see my house cracking and plummeted around 10 cm. On 2014’s eruption, Mt.Slamet produced big exruption sound and earthquake in surrounding. This is the impact ... no no no, government did not give money to me. That is why i did not repair my house and it’s still broken because i do not have more money. Let it be...” (Male, 60 years old, Guci, 30 January 2016).

The land-move accompanied with strong big eruption sound destruct one cluster area of Guci village. However, they mentioned that even there were lots of destructive impact to their village, the local government did not help for any support to make their house got repaired. The knowledge of the post-disaster was found almost none because the victims could not explain their next plan after had this lesson learnt from the previous eruption.

## **CONCLUSION AND RECOMMENDATION**

Two areas who known as the disaster prone from Mt.Slamet because of the geographical location, the nearest to the peak of Mt.Slamet and as the area for the lava path flow, have different perspectives on the word meaning of disaster and disaster management. Sawangan as the self-reliance practices describe disaster management without any government intervention as the disaster management support. Different to Guci which clearly explain government include as the part of disaster management practices.

Disaster management practices appear significantly the same and linearity to the point of view from the meaning explained by Sawangan and Guci villagers. For Guci, the implementation of nonstructural mitigation, preparedness, response and post-disaster were influenced by government support. Recommendation for Guci’s improvement of disaster management practices has to be significant to the local government’s program. Moreover, since Guci village has disaster-tourism sector, the cultural practices for promoting disaster management practices need to be kept by the villagers. Since only the villagers who only know the disaster path to rescue them during disaster; as the response phase; it brings weakness to Guci as the disaster-tourist spot. The infrastructures support the disaster management

practice need to be complete, in example as the sign or board of evacuation to show the tourist where they could go during the eruption of Mt. Slamet occur.

Sawangan sub-villages have the capability for self-reliance on the disaster management practices. However, their perspectives from old villagers to have an evacuation during the disaster occurrence, need to be changed. Most of them refuse to have evacuation caused by their belief of the meaning from Mt. Slamet itself. It will make barrier to the practical improvement on response phase. From the conceptual framework concept which bring by the researchers found several results: (1) the influence between development process is only the impact in one way to the human relations building. There is no impact in contradictory; (2) The development process could influence to the volcanic DMP on non-structural mitigation, preparedness and response phase; (3) Furthermore, human relation have one way impact to improve the volcanic DMP in Sawangan and Guci. The strong human and social capacity and social kinship as the base of the applied village mechanism are impact to the volcanic DMP applied with self reliance and less government support. However, higher self reliance brings more different point of view concerning evacuation program during the response phase. The refusal from having evacuation was came from Sawangan villagers who have strong belief in culture and spiritual. Recommendation purpose is to have more government support to increase the awareness and knowledge to some of the groups of villagers who refuse to evacuate when big hazard impact to the village.

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