## **Globalization for Volcanic Disaster Management Sustainability**

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Abstract: - This paper has an aim to study the globalization impacted for volcanic disaster management sustainability in Mt.Slamet, Indonesia. To answer the research objective, this study use Qualitative research methods in Guci village. It was carried out by twice indepth interview to the Key Informants concerning the study of globalization development towards volcanic disaster prone area. The first phase was carried out by indepth interview to 9 key informants which explained the brief description of the village and daily life impacted by globalization. The second phase was done by 14 key informants which supported data regarding the volcanic disaster management practices of household living in disaster prone II as comparation 10 years before tourism attraction established by the government. Guci village has designated as the study area because it has different characteristics among neighborhood area. Tourism development supported the livelihoods of households and brought different capacities among others. Guci is located 6 km from the peak of Mt.Slamet and stated as the Red-area since lava path pattern flow through this village. As the first phase of the study, the main aim is to study the practical aspects of disaster management for households. It is found, Guci's household practice disaster management by government supported. This research describe how the massive development after tourist attraction view funded by government in the ecology and social-culture perspectives. In ecological perspective, households were well-informed concerning the impact of geothermal establishment by private organization. Households could have communication access easier through television and internet access compare to other neighborhood area. However, the social-culture perspectives had more influences in modern life for household living in disaster prone II. The government try to keep the cultural belief of households as part of their best practice in volcanic disaster management.

Key-Words: Globalization, Ecology, Social-culture, Volcanic disaster management

## **1** Introduction

Globalization has been influence in many sectors, including disaster management. It is not the new phenomenon but it has an antique roots (Alexander 2006). It is affected as the opportunities and threats by the modernization. Climate change, environments and economics are the key of global challenge valued by potential impact for vulnerable groups (Research 2014). Globalization effected to disasters in several perspectives, in example economic. First, disaster impact to economic losses, especially in economically localized in area where impacted directly. Second, globalization is positive effected to the access of developing markets and supplies. However, it brought negative impact since are fast efficiency and productivity there improvements come from privatization which lead to less localization economic empowerment (Albala-Bertrand 2008). (Norton 1969) describe how globalization could develop many aspects start the people perspective. By people. from development are started to improve or decrease the economic sectors.

Disasters always exist to any era. Volcanic disaster management are the study based of people perspectives and enforcement to reduce risk from volcanic disaster which cause negative impact to their life (Erickson 2011). Globalization to natural disasters has inter-connected problem due to the population movement in the area (Bosher 2013). Guci as one of the sub-urban area has developed massively after tourist sector found in this area. Many migration in and out to this place; "the growth of informal economy, high-income commercial and residential gentrification" (Sasen 2010) will affect to the disaster vulnerability and risk reduction strategies (Bosher 2013).

Globalization indices and sustainability indicators in any theme would define the relation in each of indicators. In the best-case scenario contributes to sustainable development of economy, society and ecology aspects to achieve the volcanic disaster management performance (Martens and 2005). Globalization Rotmans indices for sustainability performances impact to environment, such as polluting side-effects. However, the development in some area supported higher quality of public facilities, including transportation and road quality. Mt. Slamet choosen in this study because it is the highest mountain in central Java where has the highest density population in Indonesia. After having long Sleep phase, on 2014, Mt.Slamet had been awake several time by having the long period of eruptions. Many myths of Mt.Slamet aware to all people how dangerous and high impacted when it is erupted. In this case, the aim of this study is to study the globalization impacted for volcanic disaster management sustainability in Mt.Slamet, especially in Guci area.

Globalization has meaning as opportunities and threats from the impact of modernization to

each national culture. It can also be the process of integration to international or world wide which appear from products, ideas and culture. In the other side, there is localization held when the impact of disaster is only exposed to several cluster area where located in the red-zone area. Massive disaster could be international problem but impacted in local area, called as localization area (Okuyama 2008). Localization area has measured in economic impacts of disaster exposed in this area. Disaster mostly is a local problem and the management applied from the grassroots level of communities and administration (Alexander 2006). Disasater management practice (DMP) as the implementation of people to decrease risk and mitigate the impact using reliable information and sources. Increasing risk factors caused by the imbalance disaster management practice and the rapid development from globalization (Hirata, Kose, and Otrok 2013). Volcanic DMP describe before, during and after the disaster. It divide into four phases, such as mitigation, preparedness, response and recovery (see Figure 1). This four phases play role as management and cycle every disaster's occurs (Erickson 2011)



Figure 1. Disaster Management Cycle Source: Coppola, 2007

Preparedness phase has an aim to create and applied the Emergency Operation Plan or abbreviated as EOP for individuals, household and business. Every actors need to know what to do, how to do it and well-equiped of the effective tools. Preparedness phase is the important role in volcanic DMP. Globalization support preparedness on sharing the information and knowledge as basic requirement of this principle. Government support preparedness phase by five categoris such as Planning, Exercise, Training, Equipment and Statutory Authority. Those are pack as EOP document as important actions in planning.

Response phase is the action from the EOP but generalize with recent condition during the occurance of volcanic disaster. During disaster, globalization play role important where many national and local aid organizations support the vulnerables and victims (Munro, 2006). Hereafter, recovery phase is the post disaster activities which evaluate and plan for the next possibilities of volcanic disaster occurance. Volcanic disaster is a type of disaster which could be predicted by human, however, most of the villagers and government were took this event as part of hazard shock. The recovery play role as assessment of the damage and the renovate or re-build the public infrastructure. Volcanic DMP need to learn, plan and prepare for next disaster event. Those is accumulated and settled as the planning for mitigation phase. Mitigation phase in volcanic DMP seeks to decrease the hazards from the negative effects. Mitigation has two type based on kind of activities, such as structural mitigation and non-structural mitigation. Structural mitigation define as risk reduction carried out through physical construction and altering the physical environment. Non-structural mitigation describe as activities to decrease the risk through the modification of human behavior and do not use the engineering structures.

## **2** Problem Formulation

This study has an objective to study the globalization impact to sustainability volcanic disaster management performance in Mt. Slamet, Indonesia. Natural disasters is increased the rate of vulnerability group, globalization could impact negative and positive to facilitated the physical, social, economic and environmental factors or process (Unisdr 2004). During mitigation, preparedness and response phase, the international aid play role at the same time with local and national part.

This research has specific conceptual framework describe the globalization impact support the sustainability of volcanic disaster management in one study site as the disaster prone area in Mt.Slamet. Researchers use qualitative research methodology to get the aim of this study by describe the development impact which influenced and support by government to the vulnerable area. It is explain and compare the development between ten years ago, when government did not support for the area to have volcanic disaster management practice. This paper is explain the positive and negative impacted of globalization to support sustainability volcanic disaster management.

The study is use qualitative research methodology with scope of the study for volcanic disaster management in four phase, such as mitigation, preparedness, response and recovery phase. The unit of analysis is village based on the purpose of the research aim. The key informants were choosen based on the setting of the aim of this study and unit analysis. Guci village is choosen based on the location who exposed of globalization from its livelihoods. The key informants have characteristics as the local villagers who born and lived in Guci for their living. However, researchers divide the key informants into two groups, such as local stakeholders and household groups. Local stakeholders consist of the head of the village and hamlet who lead more than 20 households in Guci. Indepth interview applied to collect the data concerning the topic of the study (Neuman 2014).

Triangulation methods were applied as to measured the validity and reability of this research. Triangulation refers to the multi-checking from different sources, which were based on time, location and person (Babbie n.d.). Before collecting the data, researcher visit Guci village and stay to choose three key informants from each group. Structured interview guideline was use as tools for data collection and provide two different tools for each of group. The first structured interview guideline focused on brief description of the village and daily life impacted by globalization. The second is focused to the development of the village and volcanic disaster management practices by each group of key informants supported by government. This research did not specify the exact number of sample size because it use saturation of information (Packer-muti 2009). The saturation was applied by stop the indepth interview when researchers have already achieved levels of information (Krueger and Casey 2009). This study, the number of key informants were twenty three key informants which divide into 9 key informants in the first stage of indepth interview and 14 key informants in the second stage of in-depth interview.

## **3** Problem Solution

Guci village is located 6 km from the peak of Mt.Slamet and include into the disaster prone II area. Government settled three different disaster

prone in each of volcanic disaster area. The most risky area is disaster prone III which forbidden to have human settlement and activities. It is 4 km from the peak. Disaster prone II is the area for human setllement and done their living where located 4-8 km from the peak. Guci is include to the Red-zone since lahar flow directly path to this village. However, Guci receive benefit to developed their tourism attraction from the heat of fountain from the mountain. It is supported fully by the local government and many private institution to invest many tourist sectors in this area. In this reason, researcher found exposed of globalization impact to the villagers to practice sustainability volcanic disaster management. In this paper is described as follows: (1) development of the village and sustainable volcanic disaster management practices as support by the government and (2) daily life of villagers and sustainability of volcanic disaster management practice as globalization effect.

#### 1. Development of the village

The development of the village is comparing the ten years of Guci village and recent time. The comparation is describe the basic infrastructure, include road access, clean water (sanitation). public transportation, supply communication access, electricity, education and health development. Recently, Guci has good quality of road access compare to other village located in the same disaster prone II. The asphalt were found in every access include in the small road connected to other hamlet. However, it is developed since year 2000, where local government collaborate with private institution improve the tourism spot. Head of the village was describe the first condition concerning road access in Guci. The previous, road was soil and stone. However, water access is not as a problem for Guci, since they have the source of fountain as their water resources. But, distribution the clean water to each of households is the main problem of water access. They were use traditional way by carving from the fountain to their house by their own buckets. However, the development after year 2000, local government help this village by support pipe to distribute the clean water to each of household.

"... Road in Guci on 1998 was hard to had passed with motorcycle, only walk or bicycle. It tooks more than 3 hours just to go to the Bumiayu market. It's only near, 2 km from here but we have to walk. There is no public transportation to help us or even *carry our things...*" (Male, Guci, 41 years old, 1 February 2016).

Before year of 2000, Guci village has the communication access problem. There were no communication access found in this village. It describe this village as nearly isolated while it is located in the red-zone disaster area. Moreover, the electricity was owned by several house of the villagers who have high economics status. Guci village was living in the basic limited access in daily living. The local government start to pay a visit in this area and calculated their cost-benefit analysis to develop tourism sector in this area. In year 2001, local government of Tegal collaborate with national agency who work in environment and foresty, called Perhutani, develop spring fountain as the first tourism spot. It is called Pancuran 13. Start from this tourist spot, Perhutani recruit local workers to build asphalt road connecting to Pancuran 13. Moreover, public transportation has already build and develop under the assistance of local government of Tegal. Electricity has also spread and every house already access to have electricity with free of installment by Perhutani.

Guci was the silent village before 2000, hereafter, Perhutani did came bring many easiness ofelectricity, access on transportation and road. Start from Pancuran 13, the tourist spot build by Perhutani and helped by the local workers. We are feeling bless and thanksfull that government support us. They also open job opportunities to local workers in many sectors. Our village become better, from nothing into something. We can watch news with TV ... (Male, Guci, 55 years old, 28 January 2016).

The government build the electricity pole mostly to support the Pancuran 13 tourist spot, hereafter, the villagers access the electricity faster compare to the other area. More villagers exposed to TV and receive information easier. Guci got famous cause of the tourist spot and Perhutani develop more touris attraction such as more than 10 location of hot spring fountain, water boom, outbond activities, mountain climbing, tea garden and local market for vegetables special plant in Guci. Therefore, the infrastructures developed fast and bring positive impact to the villagers. Hereafter, electricity carry more access on communication, more operators build signal tower near to Guci and impact to easier villagers access the communication and receiving information. Recently, many private investors build new business, in example drinking water, hotels, restaurants and also geo-thermal project. Geo-thermal projects bring many contra's from villagers since they receive information the negative impact to the environment. However, the villager's turmoil to reject the geo-thermal project is failed.

"... We only villagers, when the government already said yes and receive money from the investor, the project will be carry out, no matter what. We already made some revolt with all the villagers in here, but nothing. The project will be start from this year. But based what I've read and learn from internet, based on some geothermal projects did not impact to the environment. Hopefully. it is also to this project..."(Male; 38 years old; July 28, 2015)

The development of Guci village brought by the government and private institution support cause of the potential tourism sector (Dewanti&Ayuwat, 2016). Road access, public transportation, electricity, communication access were implied from the effect of development in the hot spring fountain called Pancuran 13. Hereafter, the distribution of clean water supply is the government program to support local villagers in Guci. Education and health facilities find much more complete in the Guci village. The local government provide the basic education facilities, start on primary, junior high school and high school. The nearest Islamic boarding school for Bumijawa subdistrict is located in Guci. Health facilities has also build in Guci village as the health center of Bumijawa sub-district. In conclusion, rapid development appear in Guci after goverment set Guci as the famous ecology-community-based tourism.

# 2. Daily life of villagers and sustainability volcanic disaster practices as globalization effect

Guci village is well-recognize as one of the local tourist destination in Indonesia. There were several changes of daily life impacted to the villagers which changing in economic, religion, environment and culture perspectives. Globalization impact in positive and negative effect to the villagers (Graphic 1). As the description of Guci development caused of tourism establishment by the local government and *Perhutani*, the daily life and villager's perspective have been change. In economic perspective, young teenagers has already think that cellphone and TV as their primary utilities. It impacted to the religion behavior which decreasing number of villagers pray in mosque and choose to pray at their own home. If it is compare to the condition when Guci developed as tourism area, this village is well-known as high number of villagers pray in mosque and early morning praying is a must to all villagers.

"...Nowadays, less teenagers want to pray in mosque, even to children refuse to pray in mosque. They choose to watch TV and play games in their cellphone. You can find most people praying here (mention as mosque) only old people... (Male, 62 years old, 20 July 2015)"

The researcher compare to other village located in disaster prone II area, Guci has the highest average income for households. Most of them work as trader or seller, work as staff in hotel, motel, restaurants, farmer, drinking water factory or local government staff. Moreover, the migration in and migration out are high number in Guci. Researcher also found several people who are not Guci villagers build and established motel near to the hot spring fountain belong's to *Perhutani*.

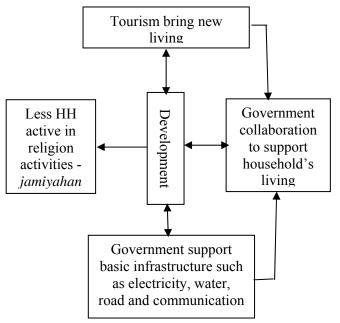


Figure 2. Development of Guci Source: primary data (2017)

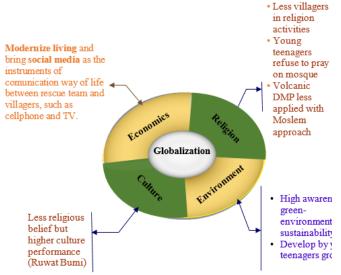


Figure 3. Globalization in four dimension Source: primary data (2017)

In the environment perspective, young group is trained to be young rescue and protect green environment for Guci. Since Guci is famous as the mountain climbing path of Mt.Slamet, the village need to have rescue team from it's own local villagers. Moreover, villagers are more known the Mt.Slamet's behavior compare to others. The Training On Trainer (TOT) program was carried out by regency agency concerning disaster management, known as BPBD of Tegal (abbreviate as Badan Penanggulangan Bencana Daerah or Agency of Local Disaster Management). Tegal district is know as area with keeping culture and herritage, one of them is their annual belief called as Ruwat Bumi. As globalization impact bring the massive development, the good thing is to carried out the culture and tradition process which supported by local government and Perhutani. Ruwat Bumi held each of 1<sup>st</sup> Sura, and Sura is the Javanese month measured 354 days in each year. The belief of held this event as to protect Guci from any destructive or harm from natural hazards (Figure 2).

*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, 2 February 2016).

"...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 appearance ... 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, 28 January 2016)

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. It is found that young generation try to leave the culture and herritage of Guci. However, the government is support this annual event as part to attract more local tourist to arrive and come to Guci.

Sustainability of volcanic disaster management practices in Guci village has been carried out based on the government support. Moreover, globalization impact to the international and national responses to natural hazards. During Mt.Slamet eruption, information spread easier and coordination between local stakeholder has carried out with the help of communication access. When it is compare to other village in Red-zone of Mt.Slamet, in example Sawangan hamlet, Guci has and more international national responses. Mitigation and preparedness phase have also held by more training on evacuation to the villagers which supported by ABRI (abriviated as Angkatan Bersenjata Republik Indonesia or Indonesia National Soldier Agency).

"...ABRI has tought me how to do and where to run when Mt.Slamet eruption. On March 2016, before Mt.Slamet eruption, many times from national agency come and train us to do evacuation. They asked us to run, pay attention to old people, carry the important documents and help children to go to the meeting point or evacuation point. Unfortunately, now, many evacuation board are missing, someone took it off from ground. There is something reason in Perhutani stated concerning this evacuation board... (Male, 41 years old, 21 January 2016)"

Volcanic disaster management practices express into four phases, such as mitigation, preparedness, response and recovery phase. Globalization impact positive and negative effects to the volcanic disaster management practices to Guci. In mitigation and preparedness phase, globalization play role in the improvement knowledge of survive living in red-zone area. Local government was not only train Guci village on disaster management practices, but also how to improve their livelihoods and prepare themselves on financial when Mt.Slamet eruption. Globalization could be seen when there is not only local government support mitigation phase but also another national aid called MDMC (abbreviated as Muhammadiyah Disaster Management Center), Jalin Merapi and other social organization support them in any planning of mitigation phase. Jalin Merapi, in example, support and help Guci to read and support evacuation place when Mt.Slamet have big eruption. Moreover, MDMC and local government help and give the safety instruction to each of households. In the other side, negative impact of globalization appear in the Guci, since this village is always be noticed by whole local tourists, several group try to make Guci as less dangerous and hide several evacuation board and warning inside the village. The meeting point board and evacuation board did not appear during researchers collect the data in the Guci, however, the head of the hamlet stated, ABRI and BPBD have already put the sign board in each of the corner of the village. Then in the next several days were missing or gone.

As in response phase, globalization impact to the rescue aid support from many organizations since Guci is famous place as tourist spot. During Mt.Slamet eruption on 2014, researcher compare to several village near to Guci and located in the same regency in Tegal, it is found only Guci received more attention from other national and community group aid to help the preparation of evacuation. Otherwise, the recovery phase has not been applied in this area. Several houses got damage cause of the tectonic earthquake during Mt.Slamet eruption. The renovation for houses did not supported by national and local organization, and mostly funded by the villager's money and helped from social funding of the village.

In consequence, volcanic disaster management has already applied as sustainability program in Guci since the development of tourism attraction. It was begin from development the basic infrastructure and build communication tower to support communication access, Guci impacted the globalization from visitors and the ease informations as national and global coming to villagers. It changes their daily life and their life perspectives. But it also support positive volcanic disaster management practices including sustainability program collaborate with international, national and local agency to support aid as response from natural hazards.

## 4 Conclusion

The development of Guci was started from the potential findings of tourism spot to get the local revenue of Tegal Regency. Started from the hot spring fountain called as *Pancuran 13* and thrive to have more tourist attraction places for ecocommunity tourism management. Local government and *Perhutani* are the public institution who helped Guci. This development brought globalization impact coming to Guci until nowadays. Start from electricity ease more information receive by the villagers; green environment information exposed by *Perhutani* and many private institution build business in Guci.

International Monetary Fund (2000)identified four basic aspects reflect of globalization, which are trade and transaction; capital and investment movements; migration and movement of people; and the dissemination of knowledge. The basic aspects effected to the environmental challenge. In this research, the four basic aspects have been reflected by Guci as the impact of the infrastructure massive development carried out by Perhutani and local goverment. Trade and transaction were found increase since local people change their livings as farmers, other job is a trader of their harvest in the tourist spot stall. The government found gave training to process their product to be typical food of Guci sold as one of tourist attraction. Hereafter, the capital and investment movements are increase because of

developing of tourist by *Perhutani* as the inducement. However, the migration and movement of people are also increasing since Guci bring profitable investment on hotels, restaurants and others investment. The dissemination of knowledge concerning volcanic disaster management and improve livelihoods are given by many institutions and organizations. In conclusion, the identification of four basic aspects of globalization has impacted to Guci.

The dissemination of knowledge could be seen in Figure 3 in each phase. Volcanic disaster management practices divide into four phases as describe in his handbook of International of Disaster Management. The researchers explain and analyze the globalization impacted to Guci by globalization in volcanic disaster management practices. Guci is located in the red-zone or disaster prone II area, so, the comparation with supporting documents was made to the other area near to Guci who have the same characteristics of villagers. It was found, the globalization support volcanic disaster management practices in sustainable program.



#### Figure 4. Dissemination of Knowledge to support Volcanic Disaster Management Practice Source: primary data (2017)

The implications for globalization for future disaster relief and response operations can be learned from several experiences (Munro, 2006):

1. Widespread human impact: National vacationing across the province or even international tourist were the pay attention to the Mt.Slamet's condition during eruption periods. Without globalization and the increased migration of people concerning economic reasons and tourism, these natural hazard would immediate ease spreading the not information to affected areas. Through globalization, many people were paying attention on helping the emergency condition of Guci.

2. Multiciplity of actors and ease of information exchange: By the development of massive infrastructure for Guci, information could be accept and send easier. Moreover, more investors, politicians, government, entrephreneurs and local villagers are the actors to sustainability volcanic support the disaster management practices to reduce the risk caused of natural hazard of Mt.Slamet.

In conclusion, the natural hazards and globalization are inter-connected to support or even bring negative effect when multi-actors do not work in the same humanity goal. Globalization support many good ways to village designated in disaster prone area. The sustainability of volcanic disaster management practices have been helped by the massive infrastructure development and widespread of human impact. The four basic aspects of globalization found support to Guci when local government and *Perhutani* invest to develop the tourism attractions.

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