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The Level of Mental Condition of South Slope Merapi Volcano Using Community Response Analysis

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Abstract. Mount Merapi's activity in 2010 erupts VEI-4 which resulted in loss of life as much as 347 inhabitants, with most victims in the Regency of Sleman was 246 inhabitants. This problem causes of trauma in general slope of Merapi's volcano. This research aims to know the impact of Merapi's eruption on the mental condition of Merapi Community. This research uses qualitative research using the analysis of the percentage of public response questionnaire and in-depth interviews of 42 respondents from 13 villages in the southern slope of Merapi's Volcano about the mental condition of the southern slopes of Merapi's volcano. The variables used in this research are the variable response of the community towards disaster preparedness, report of Merapi's volcanic activity, experience, knowledge, and disaster response of the community. The results of this research are the community in Cangkringan Merapi Sub-district has a very bad mental condition, whereas in Pakem district experience a mental condition, and at sub-district of Turi have a very good mental condition. The community response rate is higher in Cangkringan sub-district because the eruption set into the Cangkringan Sub-district than other Sub-district in Sleman Regency. Community preparedness is very high, but the necessary trauma healing programs, especially in the area of Cangkringan Sub-district in order to minimize loss due to panic during the evacuation in the eruption.

1. Introduction

In 2014, the Merapi Volcano Eruption occurred again, but the eruption only for 5 minutes and there were no evacuation directions because it was not dangerous. The low VEI level in 2014 is likely to occur due to a large 2010 eruption [1]. In the 2014 eruption, there was panic when the eruption occurred, namely, the community in Cangkringan Sub-district immediately rushed to the Village Hall (Evacuation Zone) [2], this also happened in Phreatic Eruption, May 21 2018. There was a high panic from the community in Cangkringan Sub-district. Even in the second eruption, May 28, 2018 which lasted 2 minutes, the community immediately descended before the evacuation was requested, this caused loss of goods in several hamlets such as Jambu Hamlet, Umbulharjo Village, and Kali Tengah Lor Hamlet, Glagaharjo Village.

Although there are many fatalities and deep trauma, community who live and work daily in areas that are at risk of the danger of hot clouds are increasing. Residents who inhabit Disaster Prone Areas III (Disaster-Prone Region III), namely areas that have historically been affected by pyroclastic flows continue to increase. The eruption of Mount Merapi in 2010 was the biggest eruption in the last decade. The death toll from the 2010 Merapi Volcano eruption was 347 community. The most victims were in Sleman Regency, which was 246 community, then followed by Magelang District with 52 community, Klaten Regency with 29 community, and Boyolali Regency with 10 community. Whereas refugees reached 410,388 community [3].



In 2011, after the eruption of Mount Merapi, the government drafted a National Action Plan for Post-Disaster Rehabilitation and Reconstruction of the Merapi Volcanic Eruption in Yogyakarta and Central Java Province 2011-2013 [4]. The National Action Plan for Rehabilitation and Reconstruction contains a policy of relocation for the community on the slopes of Mount Merapi Volcano.

The relocation policies are based on the Merapi Volcano Volcanology and Geological Disaster Mitigation Center, Ministry of Energy and Mineral Resources. This map was made after going through an evaluation to get a major change that occurred in the morphology of Mount Merapi after the 2010 eruption. The mapping of this disaster-prone area is very dynamic. The map of the danger zone of Merapi Volcano since it was first made by Stehn in 1935, has been revised five times, following the eruption dynamics which vary in terms of the magnitude of the eruption, type of eruption, distribution of eruptions, and range of eruptions [5]. Based on these provisions, the community living in Disaster-Prone Region III Volcano Merapi are required to relocate. There are 3,612 households in Central Java and the Special Region of Yogyakarta who needs to relocate to a safer place [6], both from the threat of eruption and the cold lava of Mount Merapi Volcano.

Disaster Prone Area III of Merapi Volcano is an area that is located near the source of danger that is often hit by hot clouds, lava flows, rock avalanches, throwing stones (incandescent) and heavy ash rain. Because of the high level of vulnerability, this area is not permitted to be used as permanent housing [7]. However, in the area there are still many residents who do not want to be relocated and remain and stay, this is due to the population remaining in disaster-prone areas including economic, social and environmental factors. Even though the community themselves will panic if there is an eruption even during a small eruption (Alert Status) [8], therefore an analysis of the community response to the Merapi Volcano disaster is needed to determine the mental condition of the Merapi Volcano community through an analysis of the community response to the Merapi Volcano disaster. To find out which areas need Trauma Healing programs in the III Disaster Prone Areas of Merapi Volcano, Sleman Regency.

2. Method

The study was conducted using a qualitative – quantitative approach [9], namely by providing qualitative facts on conditions in the field and describing the proportions of data in groups. This method positions participants as subjects with a large space, which does not limit the answers to each available question, but provides more opportunities for participants to convey information that is owned and relevant to the research objectives.

The analysis carried out is a description of the phenomena that occur at field. Measurements in the field are carried out by interviews and observations to obtain information related to the phenomenon under study. The variables used in the study were examined by descriptive analysis to describe a phenomenon in a manner in detail.

The study was conducted in the III Disaster Prone Areas of Merapi Volcano in the Province of Yogyakarta Special Region found in 7 villages spread in Cangkringan District, Pakem District, and Turi District. Seven villages including the KRB III Volcano Merapi in the Province of D.I. Yogyakarta, namely: Wonokerto and Girikerto Villages in Turi District, Purwobinangun Village and Hargo Binangun Village in Pakem District, Umbulharjo Village, Kepuharjo Village and Glagaharjo Village in Cangkringan District (Figure 1). The choice of location was based on the proximity of the village to the peak of Mount Merapi and was in two and three KRBs where there were threats of hot clouds, lava flows, rock avalanches, poison gas and other eruption results. The threat can be suppressed by mitigation efforts carried out by the community and the government.

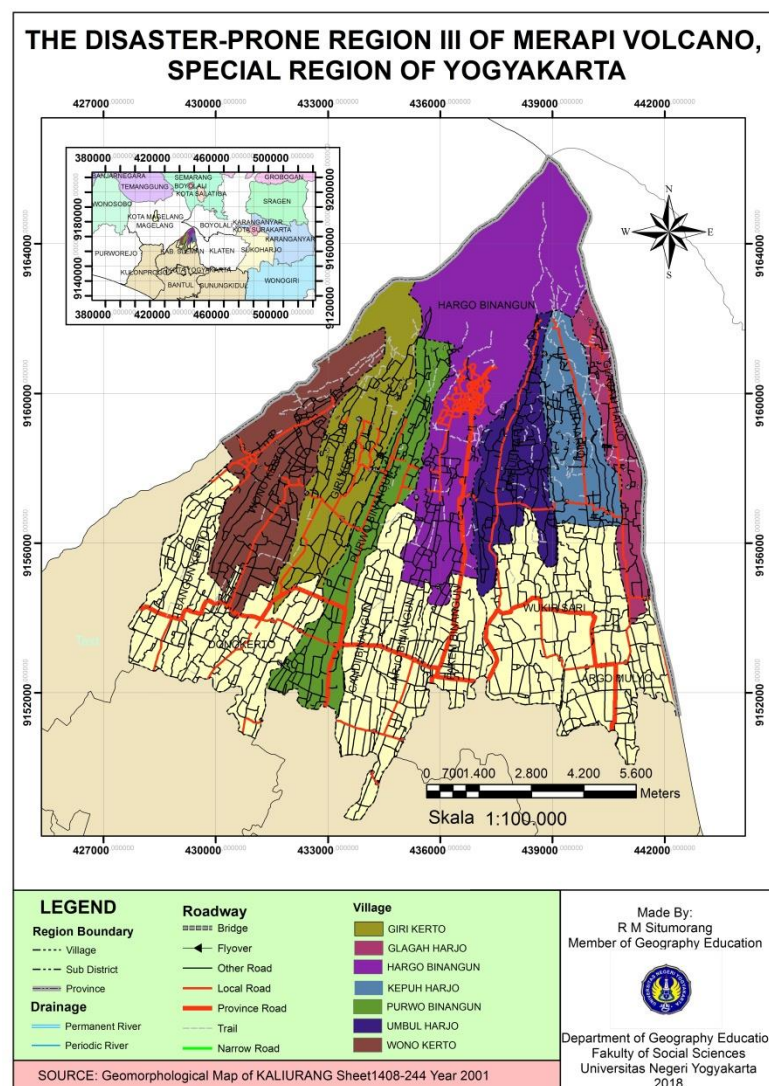


Figure 1. The disaster-prone Region III Map of the volcano Merapi in Yogyakarta

The field activity for primary data collection begins with Rapid Rural Appraisal (RRA) activities, where researchers identify the profile of the village in general. Identification is done by interviews, interviews, and observations to find out issues in the Ngargomulyo Village that are relevant to the research objectives. Primary data is collected by interviewing the community to obtain data that is relevant to the first objective. Then for the second and third objectives based on the FGD approach by trying to facilitate community opinion.

3. Results and Discussion

The table on the top showing about quantitative from observation. The score in the table from respondents answer about agreement and disagreement of the statement from the questionnaire. Contents of the question about knowledge, willingness and behaviour of the community towards the disaster activities of the Merapi volcano.

Based on the percentage analysis, it is known that the frequency of answers strongly disagrees that there is a percentage of answers of 0%, which indicates that no respondent chose the answer strongly disagree. In this study, negative item scores were not used, to make respondents comfortable with the presence of researchers, so that they did not experience counterintuitive thinking, which meant the questions were more focused on what was desired by the community or pro-society.

The frequency of disagreeing answers has a percentage of answers of 2.14%, which means that only a small percentage of them do not agree with the public response that the respondent should have

done. If analysed in the questionnaire section, it is known that those who do not agree are from the age group 50 years and above. With a low level of education, respondents chose to follow the government's direction without having to take part in making evacuation maps.

Disagreement with the obligation to follow the evacuation directives were filled by respondents from Ngringging Hamlet, Girikerto Village, this was because in 2010 the house had not been damaged, so it did not agree to be told to evacuate unless it was already very dangerous, and in its confession, it never erupted damage to the house because the house is not close to the direction of the eruption flow. While disagreement in participating in early warning training activities due to age which is already quite vulnerable, respondents suggested that the community only take part in early warning exercises. This also influences the neutral the choice on the measurement of agreement on the variable responsibility of the community.

Disagreement on the variables of community mobilization and evacuation is in the statement that the family already has an evacuation plan other than the government as much as 1 respondent. Respondents did not agree because evacuation not from the government would only make it difficult for themselves, going to the child's home would be troublesome for the child, because like in 2010, the respondents fled for almost 1 month and that only harmed the family, it was better to join the government. The other 14 respondents chose neutral because the individual's evacuation felt selfish, in displacement it was more fun because it could feel grief along with the villagers and help each other, so they got in touch with each other. In addition, he agreed and the results of the community response were quite satisfactory because of the very high level of agreeing.

In the variable evacuation map, the community needs to develop an evacuation map for a disaster. There were five respondents who expressed disagreement, this was due to the existence of an evacuation map made by the government so that people no longer need to make or develop it. Respondents agreed more that the community only agreed on evacuation routes that had been made and developed by the government. The 5 respondents were known to be respondents with age above 40 years. Meanwhile, respondents under the age of 40 are known to agree and strongly agree to redevelop the evacuation map made by the government.

The frequency of neutral answers has a percentage of answers of 13.33%, according to respondents the reason for choosing neutral is because people only want to follow the flow of the government in setting up evacuation maps. If seen from the age group, it is known that the voters are 45 years and above with a low level of education. Respondents speculate that making maps is entirely what makes the government a must, which is why the government is needed.

The frequency of answers agrees to have an answer percentage of 42.14%, which means that less than half choose to agree. And the frequency of answers strongly agrees to have an answer percentage of 42.61%, which means that less than half choose strongly agree. These two frequencies are taken by the 45 community groups downwards, with various levels of education. This indicates that not the main education, but the mindset of the young generation is more positive in the future than backward



Figure 2. Pos Ronda Activities at the Alert Level in Kali Tengah Lor Hamlet, Glagah Harjo Village, Cangkringan District (Radius 3 km from Merapi)

The eruption of Merapi Volcano in 20 May 2018, the people of Mount Merapi who were in a radius of 3 km were asked to leave the house. However, the slopes of Gunungpi Merapi chose to stay at home because of the property that was still at home. The Merapi phreatic eruption, on May 21 2018, known that there are people who enter Kali Tengah Lor village to collect goods, and some residents in Jambu Hamlet, Kepuharjo Village, Cangkringan District, Sleman Regency suffered crop losses in the garden due to theft.

Community responses to National Disaster Management Authority-based disaster response [4] on the community responsibility variable showed there were community disagreements about their responsibilities as many as 3 questions from a total of 210 measures of agreement. This is considered reasonable. Disagreement is known in the obligation to follow the evacuation directives as much as 1 respondent and 2 respondents disagree participating in early warning training activities.

Table 1. The Results of The Response of The Community Towards Disaster Response version National Disaster Management Authority

Variable Statement	Measurement of Agreement					Total
	Strongly Disagree	Disagree	Netral	Agree	Strongly Agree	
Responsibilities of the Community	-	3	28	90	89	210
The deployment and the evacuation of the community	-	1	16	55	54	126
Evacuation Map	-	5	12	32	35	84
Total of Agreement	-	9	56	177	179	420
Analysis of presentation (%) = total/Total x 100%	0.00	2.14	13.33	42.14	42.61	100

Source: Processed Public Response Questionnaire Data Collection (Observation Data, 2018)

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4. Conclusion

The response of most of the people in the Disaster Prone Areas of Merapi Volcano is in a strong category. Imperfect conformity does not seem to affect the response of the community. The framework of thinking, experience and interests of the community contribute greatly in forming a positive response. With the value of the existing community response, it seems that it still supports the community domiciled in the area of Disaster-Prone Region III of Mount Merapi Volcano. However, trauma healing to the community of Disaster-Prone Region III of Mount Merapi Volcano must be carried out, due to many complaints about the fear of erupting Merapi Volcano even when the Merapi volcano erupted small, the community went directly to the Village Hall to evacuate, this could cause harm if the community too worried before a small eruption in the future.

Cangkringan Merapi Subdistrict Community who suffered a very bad mental condition, whereas in Pakem district experienced a mental condition, and at sub-district of Turi, a mental condition is very good. The community response rate is higher in Cangkringan sub-district caused the eruption of direction to tend to the Cangkringan Subdistrict than other Subdistrict in Sleman Regency. Community preparedness is very high, but the necessary trauma healing programs, especially in the area of Cangkringan Subdistrict in order to minimize loss due to panic during the evacuation in the eruption.

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