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COMMUNITY PREPAREDNESS POLICY MODEL IN THE ADAPTATION FOR DANGER AND RISK OF KABA VOLCANO ERUPTION SELUPU REJANG SUB-DISTRICT

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ABSTRACT: As a disaster prone area, community preparedness is needed in the adaptation for danger and risk of volcanic disasters. This study aims to formulate community preparedness policy model in the adaptation for danger and risk of Kaba volcano eruption. This research is classified as a combination research (mixed methods). The data is processed and analyzed by AHP (Analytical Hierarchy Process). The results of this research showed that the community preparedness policy model in the adaptation for danger and risk of Kaba volcano eruption is as follows: aspects of compiling the zone of danger and risk (39.1), mapping the zone of danger and risk (23.0), does not build in the danger zone (13.3), does not carry out agricultural activities in the danger zone (10.2).

Keywords: Trends, Control, Fertility, IDHS

1. INTRODUCTION

Indonesia is an archipelago country with a high intensity of volcanic disasters, because of Indonesia's geographical location which is located in the ring of fire [1-5]. Volcanic eruption is an event that occurs due to the deposition of magma in the bowels of the earth which is pushed out by high pressure gas. This event is related to the rise of magma from the bowels of the earth. According to [6-8] volcanic eruptions always emit volcanic gases that are quite dangerous and can affect environmental sustainability, both locally and globally.

Dangers that can be caused by the eruption of volcanoes include lava, clouds heat, toxic gas, and volcanic ash, which will have an impact on people's lives, such as property losses to fatalities in the housing sector, infrastructure, social, economic, and public services in the surrounding area. One of the active volcanoes that can cause danger and risk of eruptions is the Kaba volcano. Kaba volcano is one of the active volcanoes in Indonesia, which is in the Rejang Lebong Regency, Bengkulu Province.

The volcanic activity of Kaba volcano in recent years always shows its activities. The vulnerability level of Kaba volcano is divided into three levels of Disaster Prone Area (DPA), namely: DPA I at radius of 1-2 Kilometers, DPA II at radius of 2-5 Kilometers, and DPA III at radius of 5-8 Kilometers [9-14].

Disaster Prone Area I include Selupu Rejang Sub-district, Disaster Prone Area II and III include Sindang Dataran and Sindang Kelingi sub-districts. In the three of sub-districts there are settlements, public facilities, productive land, and protected forests. So this area is vulnerable based on physically, socially, environmentally and economically [15-17]. Vulnerability aspects include physical, economic, social and environmental aspects [17-22].

In anticipating the things that might happen if one day Kaba volcano erupts, it is necessary for community preparedness in facing it, which is one of the efforts to reduce the danger and risk of a disaster. Preparedness is a series of activities carried out to anticipate disasters through organizing and appropriate efficient steps [6] [23].

As a disaster prone area, community preparedness in the adaptation for danger and risk is very necessary to deal with the threat of the Kaba volcano. In this case, the government and the people of Selupu Rejang Sub-district have obligations and responsibilities in anticipating the occurrence of disasters to reduce the risk to a minimum. Selupu Rejang Sub-district is a Disaster Prone Area I and it is an area that is vulnerable based on physically, socially, environmentally and economically. The danger factors in Selupu Rejang Sub-district are a condition that cannot be changed. The potential for disasters in Selupu Rejang Sub-district is not only influenced by volcanic dangers factors, but also the vulnerability. The volcano eruption disaster that will occur at any time, requires a preparedness policy in the adaptation for danger and risk of Kaba volcano eruption.

2. METHOD

This research is a combination research (mixed methods). Data were collected using interviewing, observation and collecting relevant information. The interview method used is in-depth interviews by exploring information in depth, openly and free, with problems and research focus which directed at the research center [7].

The data that has been collected is grouped according to danger and risk adaptation criteria. The results obtained are then scored and analyzed with AHP (Analytical Hierarchy Process) which uses the criterium decision plus 3.0 application. AHP measurement is done by building a scale or in the form of indexes, scoring or certain numerical values. The stages that must be traversed in the AHP approach include:

a. Hierarchy arrangement, to break down the problem into elements in the form of alternative criteria arranged in the hierarchy
b. Criteria development is used to make decisions that are complemented by alternative forms related to each criterion.
c. Evaluation of criteria and alternatives, to see the strategic influence on the achievement of objectives assessed through pairwise comparisons. The value and definition of qualitative opinion is based on a comparison scale.
d. Priority determination, using pairwise comparison techniques for each alternative criterion. The relative comparison values are processed using matrix manipulation or through the completion of mathematical equations to determine the relative and overall rankingexisting alternatives. Furthermore, calculations are performed to see the consistency of the assessment by using the ratio inconsistency calculation [8].
e. Determine the implementation and policy implications with in-depth interview techniques.

3. RESULTS AND DISCUSSION

The study was conducted in Selupu Rejang Sub-district, Rejang Lebong Regency, Bengkulu Province. Selupu Rejang Sub-district consists of 16 villages with an area of 17,295 hectares. Selupu Rejang Sub-district belongs to the area of Disaster-Prone Areas I. The research findings show: Criteria for danger and risk adaptation policy models made 7 alternative policies that are reflected in the policy hierarchy (Figure 1). The following is an alternative model of community preparedness policy in adapting the danger and risk of Kaba volcano eruption disaster in the Selupu Rejang Sub-district. From 7 alternative models of community preparedness policy in adaptation for danger and risk of Kaba volcano eruption, 4 policies that can be taken are compiling danger and risk zoning (39.1), mapping danger and risk zones (23.0), not building on hazard zones (13.3), do not carry out agricultural activities in the danger zone (10.2).

The policy can be implemented with the implementation and implications of each policy. The implementation and implications of each of these policies based on the danger and risk aspect approach are as follows:

Build a DAM to change the lava flow

The construction of DAM in lava flow functions as a form of diversion or changes in lava flow that will threaten people's lives and also one of the efforts to prevent and reduce the impact of cold or hot lava floods during a volcanic eruption. The construction of DAM is a way to reduce the impact of pyroclastic flows resulting from volcanic eruptions, so that the effects such as lava floods and flash floods can be reduced. This DAM needs to be built in a river or broadcast area in the Kaba volcano area.

Installing volcanic eruption detection devices

The installation of volcanic eruption detection devices is carried out in disaster prone area. The purpose of installing this tool is to detect the potential for volcanic eruptions and reduce the danger and risk of catastrophic eruption if an eruption does not take many victims.

Do not build in the danger zone

The danger zone is an area that is vulnerable to impacts from disaster that happened. This danger zone must be a concern for residents around the volcano, because this area is very vulnerable which will cause damage or losses such as causing loss of life, material and life. Therefore, in areas that are classified as volcano eruption danger zones, communities are not allowed to build in these areas to avoid the impact that will occur when volcanic eruptions.

Do not carry out agricultural activities in the danger zone

Danger zone is an area that is vulnerable to the impact of a disaster that occurs. This danger zone must be a concern for the community around the volcano, because this area is very vulnerable which will cause damage or loss such as causing loss of life, material and people's lives. The use of volcanic land for agriculture is caused by fertile soil conditions. Therefore, in areas that are classified as

a volcano eruption danger zone, the community may not carry out agricultural activities. The prohibition of conducting agricultural activities is a form of misuse to reduce the impact of volcanic eruptions.

Mapping danger zones and risk of volcanic eruption

Danger and risk zone maps are needed as one component of an early warning systems an effort to minimize the number of victims and losses due to volcanic eruptions. This mapping is done to give an idea which areas are included in dangerous zones and which areas are safe at the time of the eruption. But it is also necessary to socialize about this map, so that people can know and understand the danger and risk areas.

Develop zoning of danger and risk of volcanic eruptions

Zoning of danger and risk areas is determined based on the likelihood of being exposed to pyroclastic and lava flows. The zoning of danger and risk of eruption is influenced by the level of vulnerability to disasters, so this zoning has been arranged which is usually grouped into three danger zones, namely prohibited zones, danger zones I, and danger zones II. This arrangement is an effort to reduce the impact of volcanic eruptions.

Install danger signs and risk of volcanic eruption

Efforts to build community preparedness to face the threat of danger and risk of volcanic eruptions that can be done is the installation of signs. Installation of signs does not mean automatically making an area safer, the most important thing is how people can understand and respond to these signs. These signs are in the form of directions or evacuation routes, gathering points and more. These signs are installed in locations that are easily seen by the public. The installation of these signs is usually done in prone area to volcanic eruption disaster.

4. CONCLUSIONS

In this study the criteria for community preparedness policy model in the adaptation for danger and risk of Kaba volcano eruption that need to be done is the model of danger and risk adaptation policies and mitigation in aspects of the level of danger and level of risk. The four main policies out of the seven criteria for community preparedness policy models in the adaptation for danger and eruption risks are aspects of preparing danger and risk zoning (39.1), mapping danger and risk zones (23.0), not building on danger zones (13.3), do not carry out agricultural activities in the danger zone (10.2).

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