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MODEL OF COMMUNICATION PLANNING FOR CONTINGENCY PLAN OF DISASTER RISK MANAGEMENT OF MOUNT SINABUNG ERUPTION

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ABSTRACT

This study aims to find communication model of contingency plan for disaster risk management of Sinabung volcano eruption, in North Sumatera. The object of the research is communication and coordination across the government, non-government organization, and community. This study used planning theory, the concept of communication planning, and types of disaster management plan. Descriptive qualitative is used as the method. Data collection was obtained from Focus Group Discussion (FGD), in-depth interviews, observation, and study documentation. An analysis was conducted qualitatively on the program and competence actors. The results found the communication model of disaster risk management through documents of contingency planning to overcome the threat of Mount Sinabung eruption. The core of this model is the communication planning to decrease the impact of the eruption of Mount Sinabung, especially during the emergency response. The contingency plan becomes a document of Karo District Government which is authorized by the authorized official, and ready to be implemented into Emergency Response Operation Plan (through the information of damage and the need of the result of the quick review) when disaster strikes. The contingency plan is also submitted to the legislature for political commitment and support and budget allocation. At this stage of the research, the Contingency Plan product obtains formal approval in the form of a regent regulation.

Keywords: communication model, eruption, contingency planning, Sinabung

INTRODUCTION

Mount Sinabung is located in Karo, one of regency in North Sumatra since 2010 until 2019, the eruption is not stopped yet (Kusumayudha, Lestari, & Paripurno, 2018; Puji Lestari, Kertamukti, & Ruliana, 2019). Based on the research of Lestari, Bahagiarti, Paripurno, and Jayadianti (Lestari, Kusumayudha, Paripurno, & Jayadianti, 2016:4265) Sinabung have high disaster risk. The impact of eruption also has not been handled, as problem refugees and the impact of bodily harm other. Various problems emerge caused by a factor of lack of planning communication and coordination between parties related to disaster management of sinabung itself, such a government, the community, and other private organization.

Communication is the basic element in disaster management as the way of preparedness efforts. Research that discusses the importance of disaster preparation was conducted by Grace (Nwokedi, Panle, & Samuel, 2017) on Disaster Management And Preparedness: A Case Study Of University Of Jos Library. The results of the study stated that everything must be prepared for disaster. This research focus of disaster risk management of Mount Sinabung eruption. In this case, communication needed in the formation of the readiness people in for a disaster, both natural disasters and disaster due to human (Asteria, 2016:2). Communication disaster mitigation was an act of must a top priority for thought and undertaken to the people who live in proneness. How the government and the parties involved prepare people living in proneness in preparation for disaster by means of information early problems about geology disaster (Roskusumah, 2013:60). Communication involving communicator (sender message) providers, message, channel, communicant (receiver messages), and also the effect of a message. Effective communication based on Indonesia's constitution number 24 years of 2007 (Presiden Republik Indonesia, 2007) of disaster, preparedness is a series of activities undertaken to anticipate the disaster through organizing as well as through the right steps to take effect. According to the basic laws of disaster, the one who believed to do the

coordination is Regional Disaster Management Agency (BPBD) through contingency plan. Based on government regulation number 21 years of 2008 (Indonesia, 2008) on the implementation of the disaster, stated that contingency plan is a process forward planning to the state of being erratic to prevent or remedying a better in an emergency situation or critical with agreed scenario and objectives, set the act of technical and managerial, also a respond and the potential which agreed before.

RESEARCH BACKGROUND

The research titled Model Communication Planning Based on Contingency Plan for Disaster Risk Management of Sinabung Eruption has been obtained by Lestari, et. all. This research generates a recommendation to decision-makers, both central and local government, disaster experts and the public who are expected to further improve personal communication for the implementation of disaster management as one priority in the national development and it can be realized in a variety of regions in Indonesia. SMS Gateway program and disaster communications SOP can be an alternative volcano communication model (Lestari, P., Paripurno, E. T., Wijoyono, E., Suntoro, I., & Brata, 2014:182). That study has not been effective to reduce disaster risk. This study aims to continue with the focus study about planning disaster communication uses planning theory. The study about the planning theory has been carried out by Sawitri (Sawitri, 2006:15) stated that:

Theoretically and practically, the role of the planner in participatory planning is as facilitator and communicator who help the communication between participants who produce planning effectively. In carrying out there, instead of relying on knowledge and analysis techniques, planner also needs to have the capacity building dialogue between various parties concerned. In accordance with their role, the planner must uphold ethics brought his behavior to promote public participation and responsibilities to public interests. As a communicator, planner

also has to adhere to the pragmatic natural norm in communications for obtaining public trust and able to establish communication effectively.

Researchers agreed with the finding of Sawitri about the importance of communication for implementing the plan effectively, especially in communication planning for disaster management of sinabung eruption. In a conceptual manner, communication planning is a commentary on how to disseminate the message whom a right of a communicator to public proper, through proper channels, and also the right time (Wijaya, 2015:53). The concept of communication planning used as a reference in the process of disaster management plan.

The disaster management consists of five plan as described in Table 1 (Triutomo, Widjaja, Siswanto, & Yohannes, 2011:8-9).

Table 1 Type of Plans in Disaster Management

No	Type of Plans	Principles
1.	Disaster Management Plan	<p>Arranged in normal conditions</p> <p>General estimate</p> <p>Coverage of activities broad / common covering all stages / the field of employment disaster be used for all kinds of natural disasters (multi-hazard) pre on stage, when emergency, and after a disaster.</p> <p>All parties related are involved</p> <p>Much time available</p> <p>Resources necessary are still in the “inventory” step</p>

No	Type of Plans	Principles
2.	Mitigation Plan	<p>Arranged in normal condition containing about various threats, vulnerability, resources owned, organizing and the role of / function of every single agencies/ investor be used to all kinds of natural disasters (multi-hazard) can be used as a guide for the preparation of the sector plans The activities focused on the prevention and mitigation No handle preparedness.</p>
3.	Contingency Plan	<p>Arranged before disaster happen The plan is naturally measured Includes specific activities, emphasized on activities to deal with the situation Only can be used for one type of threat(single hazard). the principals who are involved limited based on the type of threat only for a specific period of / any given of the time resources need to the “setup” level</p>

No	Type of Plans	Principles
4.	Operational Plan	<p>As a continuation or incarnation of the planned contingency, after through fast consideration</p> <p>The plan is very specific</p> <p>Activities are very specific, focused on activities in emergency step.</p> <p>Only can be used in one kind of happened disaster</p> <p>the principals who are involved only who really conduct the emergency needs while emergency, (since natural)</p>
5.	Recovery Plan	<p>Arranged after disaster</p> <p>The nature of the specific plan is according to the characteristic damage</p> <p>the scope of activities are early recovery, rehabilitation, and reconstruction</p> <p>Focusing on any sectors such as physic, social, and economic</p> <p>the only parties involved in the early recovery, rehabilitation, and reconstruction</p> <p>need for / long medium term, hanging from large extent the impact of disasters</p> <p>resources needed is in stage application/implementation of development activities medium-term/long.</p>

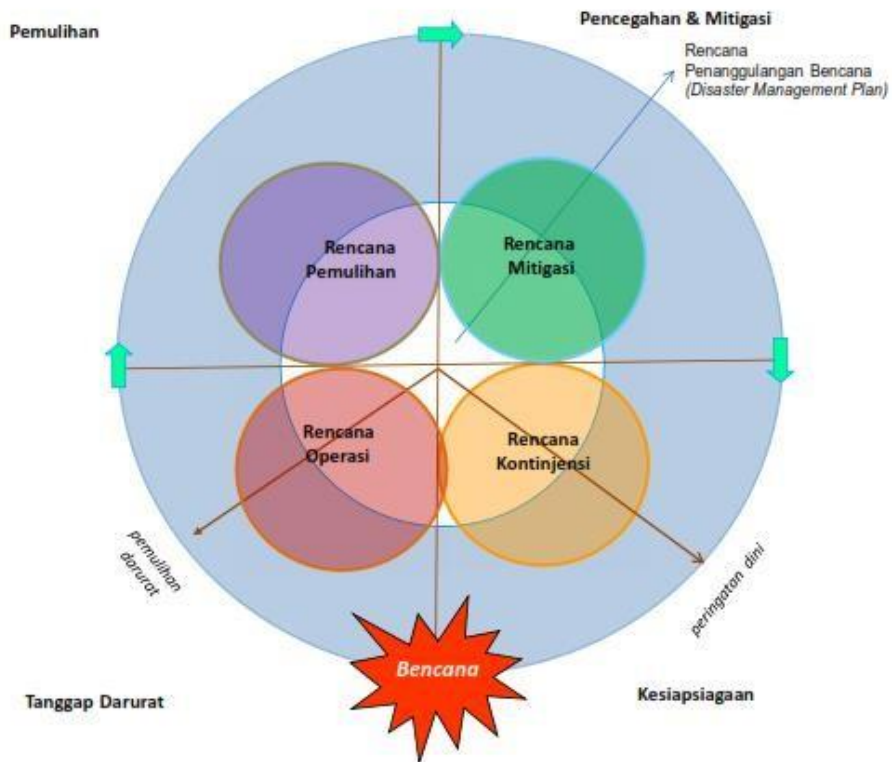
(Source: (Triutomo et al., 2011:8-9))

According to a guidebook by Triutomo (Triutomo et al., 2011:11), contingency planning is defined as the planning process forward, in a state of erratic, where scenario approved and purposed, the act of managerial and technical determined, and the system to respond to the scene arranged in order to prevent, or overcome a better state or an emergency situation faced by.

Based on the definition, a few grains that important on contingency planning are:

1. Should be done before in the form of the state of emergency planning process forward.
2. More focusing on the process rather than produce documents.
3. A consensus development process to be agreed scenario and purpose to be taken.
4. A readiness to emergency response by determining step and handling system that will be taken before an emergency occurs and includes efforts.
5. Both prevent and also limiting the possibility of consequences that will happen

Seen from the position in the field disaster, contingency plans are on stage “ preparedness” and it is described as Picture 1.



Picture 1 Type of plan in disaster management
 (Source: (Tatas, I Putu Artama Wiguna, Machus, Tridani Widyastuti, 2015:29))

In Picture 1 can be seen a program contingency plan kind of an early warning in preparedness. The contingency plan is needed to prevent the victim of disaster eruption. To contingency plans, indispensable theory planning, and planning communication.

The success of all stages in the communication process for disaster management requires the participation of all parties, not only from the government but also those who are victims of the disaster. The process starts from the planning stage, the implementation phase, to the evaluation stage as the final part of the program. In all of these stages, the participation of people who are victims of a disaster is very necessary. If only one stage is done that does not involve the community, then the

results achieved will not be maximized. As expressed by Istiyanto (Istiyanto, 2011) in his research that in the rebuilding program of the Pangandaran area affected by the disaster, the community was involved in the initial stages of planning. They can immediately file complaints and input about the amount of government replacement costs and other things that need to be built for the first time, such as anchoring structures and breakwaters. But in the next stage, such as the stages of the implementation and evaluation stages, the process of community involvement is not continued.

Based on some number of these studies, this study aims to find a model planning communication to prepare the contingency plan eruption phase of Mount Sinabung in Karo, North Sumatra.

METHODOLOGY

This study uses a qualitative approach and wrecks previous research namely disaster communication of Mount Sinabung in Karo district of North Sumatra which erupted in 2010 and 2013 ago. The research was done with descriptive of qualitative methods. This method is research to make the image of the problems regarding the situation or occurrence. Descriptive study is research that examines the status of a group of humans, an object, a condition that aims to give a picture in systematic, factual and actual concerning the facts, properties as well as the relationship between the phenomenon to be checked. The researcher develops a model of risk management disaster community-based on contingency plan through Mountain Sinabung Karo district of North Sumatra.

Primary data collected from the interview with the head of national disaster agency (BNPB), regional disaster management agency (BPBD). This study has partnered with the BPBD Karo and the Kesbanglinmas of Karo, communities, and stakeholders that involved in the disaster management. This is intended to obtain information on the establishment of a relevant model for risk management. Considering the

data and resources disaster management operates in office. Data collection of this research are; in-depth interviews, observation, and study documentation, and Focus Group Discussions (FGD) (Afiyanti, 2008:58).

Focus group discussion (FGD) was conducted by inviting research subject as follows; Element of the plan drafting contingency in Karo (government agency, army/the national police, private institutions, meteorology, climatology and geophysics (BMKG), Indonesian red cross (PMI), Search and Rescue (SAR), Volunteers disaster management, ORARI, NGO, Universities, Business institutions, Mass media, Scout, The societies, Youth Organizations, any other parties related to the threat, head of the regional disaster management board (BPBD), NGO representatives, representatives of donors, representatives of volunteers, representatives of disaster victims in Naman Teran, Simpang Empat, Tiganderket, and Payung.

The data collected through FGD included; 1) suggestions about model of communication planning to disaster mitigation mountain sinabung, 2) material plan drafting contingency to disaster mitigation mountain sinabung: location who is expected to victims, evacuation place, the number and characteristic population, access to get help, long time assistance required, profile refugees, and the total need.

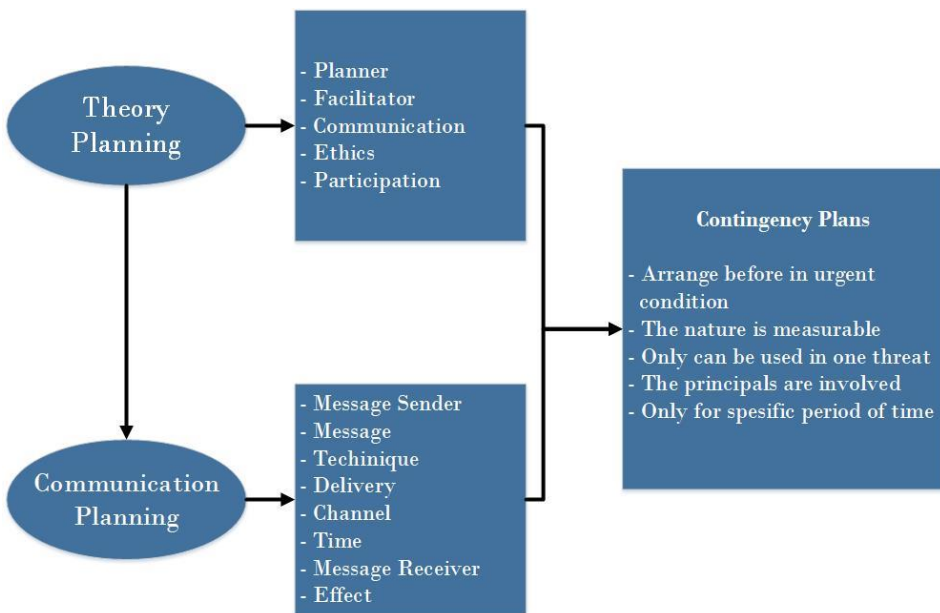
The contingency plan has to be made together by all parties (stakeholders) and multi-sector involved and role in tackling. Including in connection with this were the government associated sector, those state/regions, the private sector, the organization non-government/ NGOs, international organizations and community, and other related parties which still relevant to the type of disaster.

A contingency plan is structured through "processes" This process is essential because it is composed by the participant itself, while the facilitator only directs the process of contingency plans. Products from contingency plans are plans, inventories (stockpiles) and budgets, and not emergency response success.

The data collected analyzed by the descriptive qualitative method. First, a whole data presented in data display, then reduced which relevant and which and the main issues examined to later made categorization. The next stage is to make interpretation and the conclusion the results of the study. From the withdrawal conclusion to be obtained a picture of planning model of communications for disaster mitigation mountain sinabung through a contingency.

RESULTS AND DISCUSSION

This research finds a model communication planning for disaster risk management plan through contingency of Sinabung and can be applied to the other case of an eruption.



Picture 2 Model planning communication disaster risk management through contingency plan

Source: Author Document

Picture 2 explain a relation the theory planning, communication planning, and the contingency plan. The method scheme (consisting of

the planner, facilitators, communication, ethics, and participation) underlying planning communication (involving messaging, a message, technique delivery of the message, media or channel message, the shipping period and delivery of the message, recipients a message and the impact of messages). The theory planning and communication planning give a guide in making plan disaster management in the form of contingency plan of Sinabung eruption.

According to the results of interviews with executive chairman of the BPBD Karo and head of preparedness, the district government Karo especially the regional disaster management board (BPBD) did not have documents contingency plan. In cope with the Sinabung eruption, they use action plan documents or called operation plans. There is no difference between the contingency plan with operation plans, except time of its arrangement. Contingency plan arranged before the disasters so that the plan is based on assumptions and scenario. While operation plans compiled at disaster happen so that the state of reality prepare this plan. Operation plans arranged by adjusting the sort of activity and resources are in the contingency plan, based on the genuine needs of a disastrous kind that has happened. Update on contingency plans is very necessary.

The process of updating the contingency plan document includes;

- a) Inventory and upkeep of availability and readiness of resources, facilities, and infrastructure in every area are done periodically.
- b) Periodic gatherings for survey to refresh data and suppositions of disaster impact or projected resource needs.
- c) Developing fixed procedures that can bolster the implementation/activation of contingency plans that have been readied.
- d) Conduct periodic checking of dangers and early cautioning and dispersal.

In updating the Contingency Plan document, the researcher conducted an inventory of data.

Principles of Contingency Planning

The planning/preparation of a contingency plan has distinctive features that become the principles of contingency planning. By such

understanding, contingency plans should be made on the basis of: Joint drafting process, A disaster management plan for single hazard or collateral types, Contingency plans have scenarios, Shared scenarios and objectives, Done openly (nothing is covered), Assign the roles and tasks of each sector, Agree with the consensus that has been made together, Made for an emergency.

In general, the preparation of a contingency plan is carried out in the event of a disaster (the type of threat is known). In this situation, contingency plans are immediately prepared without going through an assessment/analysis of threats/hazards. However, the reality on the ground is difficult because the situation is chaotic or panic. It would be better if contingency plans are made when a potential disaster is known.

The period of the contingency plan

Based on the approximate situation (assumptions) by developing an agreed scenario. Given the dynamics of vulnerability and capacity that very fast, contingency plans need to be adjusted and updated the scenario. In connection with the eruption Plan Plan of the eruption of Mount Sinabung compiled by BNPB 2014, many data are changed. Therefore, it is time to update data. This is done by the research team of UPN Veteran Yogyakarta through the Budget Research Superior University (PUPT) in 2017.

In principle, the planning of contingency plans in addition to being arranged jointly by all stakeholders also develops scenarios and needs analysis. Once the requirements are determined in detail, it is resolved who the executant are, and remember to make an evaluation (availability) of resources owned by the stakeholders. From the need and availability of these resources, will be known the gap that will be met from different sources will prioritize (potential) local and surrounding resources.

Concerning the Hyogo Framework for Action (HFA Article 4), there has been international recognition of systematic disaster risk reduction efforts integrated into sustainable development and poverty alleviation

planning and program policies Disaster Risk Reduction Policy has an objective to improve disaster preparedness and to safeguard development activities from increasing to the threat of disasters. Therefore, contingency planning (as well as other types of plans in disaster management) can be established at the community/community level. This is done as a push to quicken capacity building at the community level to manage and reduce disaster risk. Due to the large area of Indonesia, it is inconceivable for the Government to handle itself. Therefore, community empowerment is needed by building the capacity of people in disaster-prone areas that are at high risk, for them to be resilient to disaster. People are the first to deal with disaster risks so they must be able to deal with it.

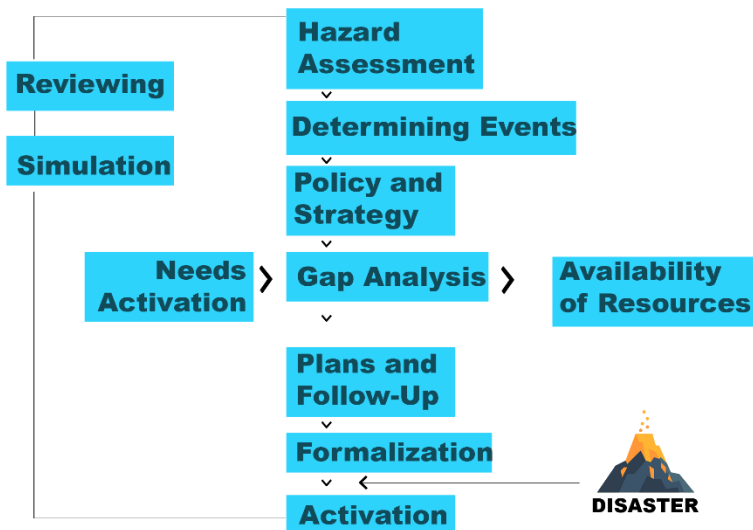
The involved component

Contingency plans are different mutually by various parties/elements/components of society. This action is intended as an preparedness exertion by all parties because disaster management is a joint matter between the government, business institutions, and the community where the government is ultimately responsible. Each party/actors can play an active role following abilities, expertise, competence, and authority and contribute/use existing resources within the scope of authority. The element of the plan drafting contingency in Karo are government agency, army / the national police, private institutions, Meteorology, Climatology, and Geophysics (BMKG), Search and Rescue (SAR), Volunteers disaster management, ORARI, NGO, Universities, Business institutions, Mass media, Scout, The societies, Youth Organizations, Any other parties related to the threat.

Implementation

In the implementation stage, their contingency planning activities are initiated in the hazard evaluation, preceded by hazard assessments and determination of the danger to decide one type of a threat or disaster those expected to occur (which became the priority).

The process of contingency plan in diagram described in Picture 3.



Picture 3 Diagram contingency plan drafting
 Source: (Tatas, I Putu Artama Wiguna, Machus, Tridani Widyastuti, 2015)

Hazard assessment is done through the distinguishing proof of types threat and weighting threat. a) Distinguish the types of disaster threats using records data/ history of calamity occasions. b) Gauging /scoring of threats/hazards of several types of threats in a district/city and surveying one by one.

The development of impact scenarios explains the impact assumptions of the impact on the on life aspects of a disaster event, especially on the community/population, taking into consideration the vulnerability and local capacity of the affected communities, including community awareness of risks, preparedness, and availability of resources in disaster management. As a result of the Sinabung eruption disaster, PVMBG recommended that the population inside radius of 10 Km from the crater to evacuate. Apparatus and the community are displaced using transportation owned by citizens and the government

that has been prepared for standby status. Evacuation was carried out from a gathering place in the village which then used a truck prepared to an evacuated shelter. There are as many as 40 evacuation areas.

1. Assuming aspects of the population from the number who died, injured, lost, evacuated, and moved.
2. The impact of the Mount Sinabung eruption in the form of ash rain resulted in disruption of flight at Kuala Namu Airport in Medan City.
3. The road from Medan to Berastagi, Kabanjahe and Aceh Province or the other way around, is an exceptionally bustling street path, will be hampered by road closures for several hours.
4. With experience, the length of the eruption of Mount Sinabung, and relocation for over two months, it will aggravate the learning and teaching process in influenced schools.
5. Impacts on the livestock sector include cow, buffalo, goats, and pigs, in four sub-districts as follows:

Subdistrict	Cow	Buffalo	Goat	Pig
Namanteran	35	42	103	5
Simpang Empat	0	4	313	26
Tiganderket	449	76	170	263
Payung	172	12	207	26
Total	656	134	793	320

A. Several villages that were severely impacted and expected to be harvest failures were:

- 1) Tiganderket sub-district, Tiganderket villages, Mardinding, and Kutambaru, Perbaji, Tiganderket, Temburuh, Sukatendel.
- 2) Namanteran sub-district, Kutarayut villages, Simacem, and Bakerah, for all commodities.
- 3) Merdeka sub-district, Ujungtera Village, Deram, Sadagperurih, Cintarayut.

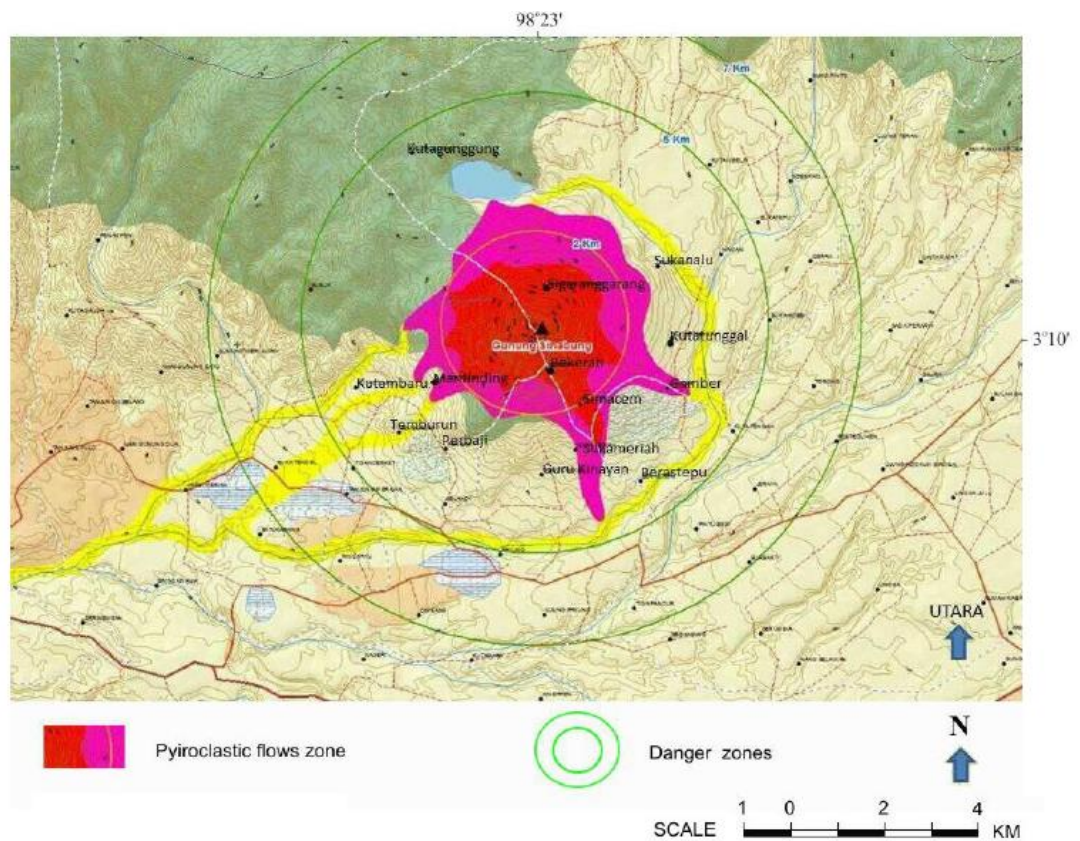
B. In the areas left by residents/farmers due to evacuate, it is estimated that the plants will be damaged, in:

- 1) Payung sub-district, the villages of Guru Kinayan, Sukameriah, Payung, Sukadi, Cimbung, Bahekarang, Rinokaro.
- 2) Tiganderket Sub-district, Mardingding Village.
- 3) Namanteran Sub-district, Simacem, Bakerah, Kuta Gunung
- 4) Simpang Empat sub-district, village of Beras Sitepu

C. The entire plant area affected by the eruption of Mount Sinabung about 25.735 Ha.

- 1) Vegetables include Leeks, potatoes, cabbage, tomatoes, cauliflower, mustard greens, carrots, celery, lettuce, chili.
- 2) Fruits include pineapple, salak, mango, duku, jackfruit, papaya, mangosteen, soursop, avocado.
- 3) Other commodities include Orange, Coffee, Avocado, Karo Eggplant, Marks. Commodity affected are:

Rice field (Ha)	Rice (Ha)	Corn (Ha)	Vegetables	Orange (Ha)	Coffee (Ha)	Fruit (Ha)	Total (Ha)
434	1.711	13.332	2.396	2.751	1.480	3.631	25.735



Picture 4 Map showing disaster prone area of Mount Sinabung
 Source: (Kusumayudha et al., 2018)

No.	Type of threat	P	D
1.	Tectonic Earthquake		
2.	Tsunami		
3.	Flood		
4.	Avalanche		
5.	Social unrest		
6.	And etc		

P = probability (the possibility of disaster)

D = impact (loss / damage inflicted)

Description:

Probability scale

5 = is almost ascertained (80 - 99 %).

4 = most likely (60% - 80 %) occurring or once in the next 10 years)

3 = possible (40-60 % occurring or once in 100 years)

2. = possibilities small (20 %- 40 %) or possibly more than 100 years.

1 = probability of very small (up to 20 %)

The impact of material losses

5 =very severe (80 % to 99 % of were destroyed and paralyzed)

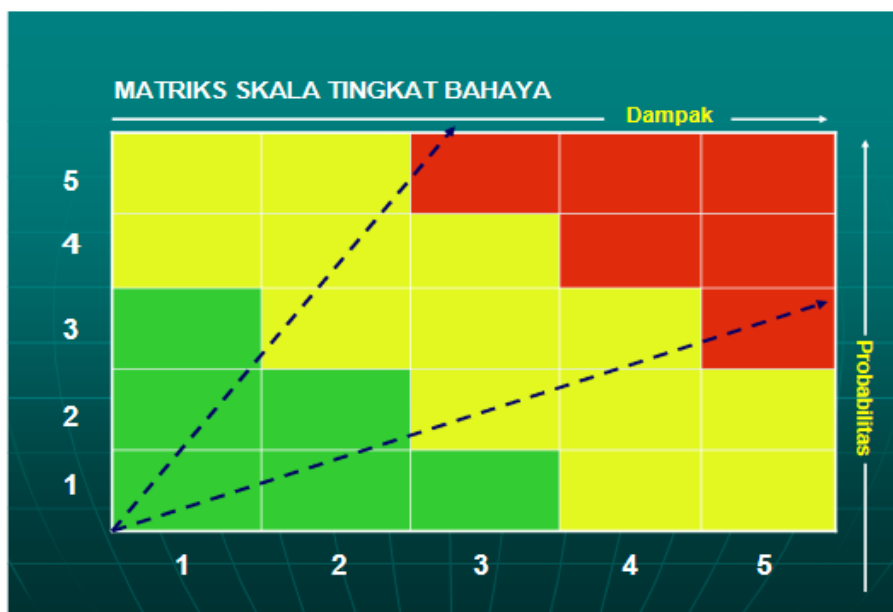
4 = severe (60 - 80 % of broken

3 = and he 40 -- 60 % of are damaged)

2 = light (20 - 40 % of are damaged)

1 very light (less than 20 % of are damaged)

After the step, the hazard assessment results are plotted into the Hazard Level Matrix to identify high-risk hazards, as a matrix in Picture 5.



Picture 5 A matrix scale of the danger
Source: (Triutomo et al., 2011)

The determination of occurrences

From the hazard scale matrix data in Fig. 5, if there are 2 (two) or more threats/hazards occupying the "red" column (the most pressing/predominant or high-hazard) that is in the top-six boxes, then disaster risk determination/assessment is done by mutual agreement (cross-sector) which is considered the most urgent/priority.

Development of scenario

Based on region map, can be identified communities and areas/locations that are threatened by disaster (hazard/disaster-prone areas) so that the extent/magnitude of the impact of disasters that may occur. In scenarios can also be described, such as: 1) Time of disaster (e.g., morning, day, night). 2) Duration/duration of events (e.g., 2 hours, 1 day, 7 days, 14 days). 3) High puddles (floods). 4) The height and distance of

the waves to the ground (tsunami). 5) Other things that affect the size of the loss/damage.

There are 5 (five) aspects affected by the disaster, i.e., aspects of life/population, facilities/infrastructure/facilities/assets, economy, government, and environment. 1) The impact on aspects of life/population can be death, injuries, displacement, disappearance, and others. 2) Impacts on aspects of facilities/infrastructure can be damage to bridges, roads, PAM installations, PLN, damage to homes, and others. 3) The impact on the economic aspects can be damage to traditional markets, crop failures, economic/trade disruptions, transport, and others. 4) Impact on aspects of government can be the destruction of documents/archives, office equipment, government buildings and others. 5) Environmental impacts can include damage to the forest, lake, tourism, pollution, destruction of plantation / agricultural lands, and so on.

To measure the impact on the aspects of life/population, it is necessary to establish pre-estimation of the number of people who are threatened, the impacts of death, injury, displacement, disappearance, and other effects will be determined to determine the number/percentage of impacts.

Impacts on aspects of facilities/infrastructure, government, economy, and environment are classified into light, moderate and severe damage.

The Determination of Policy and Strategy

Policies

The emergency handling policy is intended to guide the relevant sectors to act/execute emergency response activities. The policy is binding because, in emergency management, there are treaties that must be obeyed by all parties. Examples of policies are (1) deciding the time of emergency response to be carried out (e.g., for 14 days), (2) free care/treatment services for disaster victims.

Strategy

Emergency management strategies are implemented by each sector according to the nature/characteristics of sector tasks. This strategy is aimed at the effectiveness of policy implementation. For example, from the policy of "free care/treatment service for the victim" can be formulated strategy "appointing government hospital/private that serves as the referral medical clinic."

Sectoral Planning

The first step in sectoral planning is identification activities. All activities for handling urgent thing must be recognized that the issue is handled and finished, there are no activities that overlap and no vital activities who were left behind. Those in charge of usage plan drafting contingency joined in the sector (for instance management and coordination, evacuation, food and non-food, health, transportation, infrastructure). About the sector, the number and the nomenclature determined by actors contingency plan drafting. There was no stipulation definite/raw in determining the number of and naming to sectors. 1) Sector situation. The circumstance was a picture of the most exceedingly terrible condition amid the occurrence, intended to anticipate the level of trouble in handling emergency and effort to do. 2) Sector target. Intended as goals to achieve in the handling of emergency so that of the community or the victims could have been treated to the full. 3) Sector activity. That was conducted during an emergency to ensure that the joined sector could be actively sector. Sector activities triggered by situation sector during the incident disaster. 4) Sector's actor identification. The emergency management joined in sectors derived from a number of elements good government and non-government, including members of the community broad. 5) Implementation time activities. The implementation time activity by sector is before/ahead of natural disaster, for a moment after of disasters and any when required.

CONCLUSION

This study found Disaster Communication Planning Model through Contingency Plan, eruption case study of Sinabung Mountain of Karo Regency of North Sumatera Indonesia. An important aspect of communication planning is the message sender, message, technique, delivery, channel, time, message recipient, effect. These aspects compile contingency plans, namely arrange before in urgent condition, the nature is measurable, only can be used in one threat, the principals are involved, and only for specific period of time. The core of this model is the communication intending to diminish the impact of the eruption of Mount Sinabung particularly during the emergency response in the form of Contingency Plan document.

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