

The Community Participation in Disaster Mitigation to Managing the Impact of Natural Disasters in Indonesia

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Abstract

Natural disasters that often Indonesia require disaster mitigation efforts that involve community and local government participation. Community participation is actively involved as member of community protection unit. This study aims to find out how community participation in carrying out disaster mitigation functions, and find out the obstacles faced by members of community protection in carrying out natural disaster mitigation functions. This study uses primary data in the form of observations and interviews, and questionnaires from community participants who are members of community protection, government officials in charge of disaster. The results show that the community can actively participate as members of community protection unit carrying out disaster mitigation since before the disaster occurs, and at the time of the disaster. Because of limited human resources and infrastructure facilities for members of community protection and accordance with the duties of members of community protection only as an assistant carrying out the disaster mitigation function, the role of the community participating in community protection member needs support from the government which has the main task of carrying out the disaster mitigation function.

Keywords: *disaster mitigation, community participation, community protection*

INTRODUCTION

Natural disasters are predictable and unpredictable events that can have a severe impact on population, with significant damage to infrastructure, health (Boudreaux, Escaleras, & Skidmore, 2019) and important lives (Hidalgo, 2019) and economic losses (Gallego, 2018). Natural disasters are events or series of events that threaten, disrupt life, society caused by natural factors and non-natural factors as well as human factors. The issue of environmental change caused by environmental damage is the cause of natural disasters. Environmental damage is also inseparable from humans in treating environmental sustainability.

Climate change is the biggest threat to lives of humankind today. That is because the current climate change has potential to increase the frequency of extreme events in various regions of the world. The impact of climate change is very complex because it occurs in various sectors that cover various aspects of life, including health, agriculture, forestry, infrastructure, transportation, tourism, energy and social affairs. Potential disasters related to climate change occupy nearly 80% of the various natural disasters in the world. Potential disasters include floods, droughts, tornadoes, land erosion, coastal abrasion, forest fires, disease outbreaks and food insecurity. Natural disasters also have an impact on poverty in an area (Keerthiratne & Tol, 2018). Vulnerability to state disasters is related to geomorphological conditions and geographical locations along with social and cultural challenges (Hasan, Nasreen, & Chowdhury, 2019).

Indonesia, an archipelagic country, is very vulnerable to the effects of climate change. In Indonesia, disasters due to climate change are mostly in the form of hydrometeorological disasters. In year of 2018, floods, landslides and floods accompanied by landslides reached 63% of the total disasters that occurred in Indonesia. Various disaster events have provided empirical experience to the people of Indonesia in terms of facing and reducing disaster risks. Center for Epidemiology of Disaster (CREED) records that in the last 15 years (2004 - 2019) Indonesia was hit by 219 disasters in which 186,192 people died with a further 13 million people affected and economic losses of USD 20.3 billion (Pertiwi, Llewellyn, & Villeneuve, 2020).

The adverse impacts of natural disasters in an area require an integrated framework to investigate complex social and ecological capabilities to deal with natural disasters (Brown, Fernandez, Saldivia, & Vicente, 2017). As one of the efforts to mitigate disasters in Indonesia, community participation is carried out. The community participation is by optimizing the community members who are members of Community Protection who are recruited by local government from elements of the community with one of their duties to carry out disaster mitigation functions. Based on the background of the problem, it will be investigated on how community participation in efforts to mitigate natural disasters that can reduce the impact of disasters.

The potential losses caused by disaster can be reduced through mitigation. Mitigation is defined as an effort to reduce and prevent the risk of loss of life and property through both structural and non-structural approaches (Nursa'ban et al., 2010). Structural mitigation is an effort to reduce disaster risk through physical development and technical engineering of disaster resistant buildings, while non-structural mitigation is an effort to reduce non-physical disaster risks such as policy, community empowerment, institutional strengthening, care (Sugiharyanto et al., 2014)

MATERIAL AND METHODS

This study uses primary data in form of observations and interviews, as well as questionnaires (Bavaresco, Oca, Ghisi, & Lamberts, 2019). The questionnaire was widely applied to study various aspects related to natural disaster management in local governments. Sampling is done by non-random technique. The study was conducted in three regions in Indonesia. Respondents were determined purposively,

namely the community participating in the disaster, local government officials related to disaster management. The interview was conducted in a structured manner using a list of questions in an open form.

The analysis uses a qualitative method (Czernek-marszałek, 2019) descriptive which includes community participation in carrying out the disaster mitigation function in Surakarta, Bandung and Medan which are parts of Indonesia with the intensity of natural disasters that often occur. The results of the study were carried out qualitatively using several variables, namely community participation, disaster potential, disaster mitigation, disaster management plans, coordination between institutions and the community. Then the verification of the results of the analysis is done using the triangulation method. In this case the results of the analysis of the document are verified by interview and observation, likewise the results of the interview are verified to draw a conclusion.

RESULTS AND DISCUSSION

Community Participation in Carrying Out Disaster Mitigation Functions

As the global climate heats up, the frequency of events and natural disasters increases, which is a major threat to the sustainable development of society (Wu, Wang, Gao, Guo, & Xue, 2019). One of the most important approaches in disaster management is to prevent and reduce disasters by involving the community in disaster mitigation to reduce the impact of disasters. Many countries in the world, especially those who have experienced major disasters and are vulnerable to the threat of natural disasters and caused by humans, are trying to create anticipation for the effects of natural disasters (Ahmed, 2020).

In some countries prone to natural disasters, a model that integrates the role of government and community is needed to reduce the impact of natural disasters (Xiaobing, Xianrui, Chenliang, & Zhonghui, 2019). One model that can be applied is to increase cooperation between the government and the community to carry out disaster mitigation functions in order to minimize the impact of disasters. Communities in carrying out joint mitigation functions can be carried out independently or jointly coordinated by the government to share roles and tasks in disaster mitigation.

The role of the community in the form of community participation in disaster mitigation efforts. Participation means the participation of a person or community group in the development process both in the form of statements and in form of activities by providing input of thoughts, energy, time, expertise, capital and or material, as well as participating in and enjoying the results of development. Community participation has a positive impact on the readiness of behavioral intentions to engage in an activity (Li & Liu, 2019). Someone is said to participate in a development activity if the individual truly engages himself fully with his mental and emotions, not just being present and being passive towards the activity. The sense of responsibility as one element of participation, as is a decisive aspect in making individual decisions to participate in every development activity.

The implementation of community participation in the field of disaster in Indonesia is carried out through a voluntary recruitment process. Recruitment begins by opening up information by the local government, namely the village, taking into

account the conditions of the needs and the quota given from the city or district government. Specific requirements that must be met in addition to age, domicile factors are also the main determinants, this is because the community who will become members of community protection (Linmas) must be residents of the village or local village with the aim that members of the community protection control the territorial area.

Communities that have been selected through selection to become members of community protection will then be given training on disaster. Disaster training is carried out by the Regional Disaster Management Agency (BPBD), the Indonesian Red Cross and other local government agencies related to disaster. In addition to training, the participating communities will get uniforms as members of community protection.

Implementation of Disaster Mitigation to Prevent Disasters

The role of community participants in this stage is to provide socialization to the community about disaster mitigation. The socialization by providing counseling on the potential for natural disasters in the region. In addition to the potential for disasters, the participants provided socialization on the prevention of the emergence of potential natural disasters, including giving out information on throwing garbage in the trash, not building buildings on the river, not cutting down trees carelessly. The next activity by participants in disaster prevention is to conduct security patrols at disaster prone points. In the security patrol, the participants will report the findings of the patrol that could potentially lead to natural disasters. Reports on patrol results can be submitted directly through communication technology to picket officers at the village level, and submitted in written form to superiors.

The use of information technology on disasters, from perspective of local governments, important role of information systems, information records, exchanges and processes, is very important in effective disaster management. Records and information exchange are the first functions of information systems before a disaster, while information and process exchanges become the core of disaster relief operations. At present we do not see an integrated discussion about the use of technology in each stage of the disaster. The discussion is divided into "before" and "after" disasters. disaster management and information technology improve effective disaster management for local governments, which are at the forefront of disaster preparedness and response (Xiaobing et al., 2019).

When the community protection member finds early detection of a disaster, the community protection member will report structurally to the institution at the village level, and proceed gradually to the sub-district and relevant officials at the district or city level. The potential for the emergence of such disasters will be followed up by local governments to carry out early warnings to affected communities to immediately save themselves.

At Time of Natural Disaster

The role and protection of the community in the event of a natural disaster is to provide assistance to people who are impacted by the disaster to carry out disaster evacuation. Community protection members will help evacuate victims and valuable

property from victims of natural disasters. The disaster evacuation process can be carried out by using available evacuation equipment such as rubber boats and buoys for flood victims.

When natural disasters occur that do not allow the community to return to their homes, community protection members will help set up emergency tents to become temporary shelters by disaster victims. In carrying out this role, expertise and skills of the participating communities are required to become members of community protection. The community that became refugees aims to save lives (Soto-almela & Alcaraz-mármol, 2019) from the threat of a disaster that struck. Community participation in addition to being actively involved in natural disaster management, can also be carried out by other communities, namely volunteers (Yen & Abdullah, 2019) who provide food assistance or needs needed by the riders. Community participation can also be done to provide motivation (Erlandsson, Västfjäll, Sundfelt, & Slovic, 2016) for disaster victims (Soto-almela & Alcaraz-mármol, 2019) who experience psychological pressure.

Issues by Members of Community Protection in Natural Disaster Mitigation Functions.

In the frontline disaster mitigation function is the National Disaster Management Agency at the central government level, and the Regional Disaster Management Agency at the district or city level. National Disaster Management Agency (BNPB) for disaster management efforts that handle emergency coverage, emergency response management, rehabilitation, and equitable and equitable assistance. Re-placed as Community Protection, in the sense of community protection unit is not the front guard of the disaster protection function. However, members of the community representatives have their respective regions, each of which has a different representative area. Apart from each region, each village or village area, also a member of the community representative council, also has each region.

Community participation is carried out through participation as community protection officers, who are expelled from uneducated communities specifically in the customer, of course related to the professionalism of disaster management. Next is that disaster mitigation skills will also be good with officers recruited for mushrooms such as the Indonesian red cross, and other professional officers. Based on the technical findings in the field, the role and cooperation between institutions that require budgets for work increases the capacity of community members.

The limitation of Satlinmas members from internal and external elements encourages the need for cooperation from the elements involved, such as the Regional Disaster Management Agency (BPBD), Search And Rescue (SAR), Fire Extinguisher. Many factors hinder the performance of community protection. Organized community participation (Pirannejad, Janssen, & Rezaei, 2019) can well show maximum results in dealing with disasters. Implementing the function of disaster mitigation certainly also needs to be supported by human resources who have the ability to handle disaster mitigation. The capability of disaster mitigation is one of the spearheads of whether the disaster mitigation function can be effective in the community.

Capacity building for Community Protection Unit Members is needed through training related to disaster mitigation to increase knowledge, skills, and attitudes and behavior of members of the Community Protection Unit in carrying out their duties to assist in disaster management. Implementation of capacity building for members of the community protection unit is the responsibility of the Governor for organizing capacity building for members of the community protection unit in the provincial area, while the Regent / Mayor is responsible for organizing the capacity building for members of the community protection unit in the district / city area.

Increased capacity to increase technical knowledge and skills (Umemiya, Ikeda, & White, 2019), so that as members of the community protection unit they have the ability of individuals, organizations or systems to carry out their functions properly, efficiently and continuously. Capacity building as an effort to increase the ability, skills, understanding, attitudes, values, relationships, behavior, motivation, resources, and conditions that enable each individual, organization, network / sector, and wider system to implement their functions and achieve the stated development goals from time to time. Capacity building is strongly influenced by the leader factor (Diaz, 2019) in this case the leadership in implementing disaster mitigation is led by institutions that function primarily in disaster.

Participating people who are members of community protection include having the basic rights of getting facilities, facilities and infrastructure to support operational tasks, namely in the form of green field service attire which is the identity of every member of community protection wherever they are, but in reality the budget for the provision of official clothing is good from the district, sub-district and village are very limited. The concern of the local government for the implementation of community protection is one of the causes of whether or not the sustainability of community participation as members of community protection in an area.

Efforts to increase the capacity of members of the Community Well is to conduct training activities on disaster subscriptions, especially those that often occur in the region. Flood, earthquake and tsunami subscriptions training and natural disasters that often occur in Indonesia absolutely must be carried out. The capacity building of community protection members carried out needs to be improved both in quality and quantity. These trainings must be adjusted to the needs of potential disasters in the region, and carried out for sustainability (Wade & Kallemeyn, 2019). Until now the training conducted in quality and quantity needs to be improved so that community protection members will be very in charge of the disaster mitigation process.

In addition to increasing institutional capacity, supporting facilities and infrastructure are also needed. For example in disaster mitigation efforts, rubber boats, buoys, flashlights and other supporting equipment are needed. However, in reality members of community protection are constrained by the lack of facilities and infrastructure provided, so that disaster mitigation efforts have not been optimal.

CONCLUSION

The community participation in efforts to implement community protection can be done one of them by playing an active role as a member of community protection. Participation is carried out voluntarily carrying out disaster mitigation

starting before the disaster, and at the time of the disaster. The efforts to increase the capacity of members of the community protection are conducting training activities on disaster subscriptions, especially those that often occur in the region. Flood, earthquake and tsunami subscriptions training and natural disasters that often occur in Indonesia absolutely must be carried out. The capacity building of community protection members carried out needs to be improved both in quality and quantity. The trainings must be adjusted to the needs of the potential disasters in the region. Support for the availability of facilities and infrastructure so that disaster mitigation efforts can run optimally needs to be improved. Supporting facilities and infrastructure in efforts to mitigate, rescue and restore infrastructure facilities due to disasters needs to be optimized.

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