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## Disaster Risk Reduction in Muslim Residential Areas Based on Community Participation (The Case of Kayupuring Petungkriyono Pekalongan)

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### **Abstract**

*The purpose of this study is to practice the commands in Islam to participate in disaster management through appropriate mentoring activities to support community members in the community in terms of disaster risk reduction in Kayupuring Village. This study uses the Participatory Action Research method. The research was conducted in Kayupuring Village with the research subjects of community members, especially those who are members of the Tourism Awareness Group (POKDARWIS) and Karang Taruna who have an interest in realizing an independent village in facing potential disaster threats and increasing the role of the community in processing resources to reduce disaster risk. This research resulted in several activities, including 1) Socialization and Formation of a Disaster Resilient Village Volunteer Team (Destana); 2) Revitalization and Disaster Risk Assessment; 3) Self-Assessment and Creation of Evacuation Paths; and 4) Tree Planting.*

**Keywords:** *Islam, Disaster Risk Reduction, community participation*

### **INTRODUCTION**

Indonesia is one of the countries that are prone to disasters. In-Law no. 24 of 2007, disaster is defined as an event or event that threatens and disrupts people's lives caused by natural or non-natural factors, as well as human factors that cause environmental damage, loss of life, property loss, and psychological impact (UU No. 24 Tahun 2007). In Islam, there are several views regarding the meaning of disaster. This can be seen from some of the words used to describe disasters as contained in the Qur'an. Among them, calamities (disasters that befall humans), slander (social disasters), bala` (disasters that are a test), and others. From these several

definitions of disaster, it can be concluded that disaster is a form of test to determine human quality, with disaster whether humans will become better or vice versa (*liyabluwakum ayyukum ahsanu amala*). Disaster can also be interpreted as a warning to humans so that they immediately return to the path of goodness (Mughni, 2018).

When a disaster occurs, whether it causes small or large losses/victims, it is necessary to respond quickly or responsively. Even so, disaster management would be better if it was not only carried out responsively but also preventively. As the saying goes, "prevention is better than cure".

Building disaster preparedness is very important in Disaster Management (DM). So the DM paradigm has shifted, from Fatalistic Responsive, oriented towards emergency response due to disasters to Proactive Preparedness (Boentoro, 2019). Indonesia itself is currently in a transitional position of changing the paradigm of disaster management from responsive to preventive or disaster risk reduction.

The emergence of the paradigm of disaster risk reduction began with the Decade for Disaster Risk Reduction issued by the United Nations on July 30, 1999, continued to the Yokohama Strategy (Japan) in 1994, the Hyogo Framework for Action (Japan), and the Beijing Framework for Action (China) in 2005, and the Framework for Action Sendai (Japan) 2015.

Disaster Risk Reduction (DRR) can be defined as a systematic process of using administrative decisions, institutions, operational skills, and adaptive capacity of communities and communities to reduce the impact of natural hazards and related environmental and technological disasters (Tukino, Aria Mariany & Sorja Koesuma, 2019). In Islam, efforts to prevent the emergence (*madlarrat*), either due to natural factors (*sunnatullah*) or because of human factors is an obligation. This is in accordance with the rules of *ushul fiqh* which reads "*Ad Dhararu Yuzalu*", which means "That disadvantage must be eliminated". Not only in *Fiqh*, Disaster Risk Reduction also mentioned in the field of morality, as conveyed in the hadith of the Prophet which reads, "Have mercy on something on Earth, but you will also surely be loved by the inhabitants of the sky." The message in this hadith is that we always preserve nature and love everything that is on earth by taking care of it properly, both humans and nature (Tholhah, 2015).

In DRR, the community is introduced to the types of disaster hazards in which the community lives, how to avoid and reduce hazards and vulnerabilities, and increase their ability to deal with each disaster threat so that the risks posed can be reduced or not exist at all (Koesuma, et al, 2018). Thus, it can be said that DRR aims to reduce vulnerability and disaster

risk in a community, to prevent (preventive) and reduce (mitigation) the unwanted impacts of disaster threats.

Part of disaster risk reduction efforts is to carry out disaster mitigation efforts. According to Sudibyakto, natural disaster mitigation is an action to reduce the impact of disasters and is almost the same as prevention activities (Sudibyakto, 1985). Sutikno added, mitigation is defined as an action before a disaster occurs to reduce the loss of property or loss of life to a minimum (Sutikno, 1994). Meanwhile, the Directorate of Community Empowerment, Deputy for Prevention and Preparedness of the National Disaster Management Agency (BNPB), has clarified the definition of mitigation as a series of efforts to reduce disaster risk, both through physical development as well as awareness and capacity building in dealing with disaster threats (Sigit Purwanto, et al, tth).

From the above understanding, disaster mitigation can be divided into two types, namely structural mitigation and non-structural mitigation. Structural mitigation is an effort to minimize disasters that are carried out through the construction of various physical infrastructure and technological approaches. Meanwhile, non-structural mitigation is an effort to reduce the impact of disasters apart from physical infrastructure and technological approaches, such as making policies, regulations, and strengthening community capacity (Maulana, et al, 2016).

One of the disaster-prone locations in Indonesia is Kayupuring Village, which is one of the villages in the Petungkriyono District, southern Pekalongan Regency, which is directly adjacent to Mesoyi Village, Kasimpar Village, Tlogohendro Village, and Lemahabang Village. In general, the physiography of this area is valleys and hills that have several variations in slope from low to high. Kayupuring Village is located in the north of Petungkriyono District and directly adjacent to Doro District, as well as being the gateway to enter Pekalongan Regency.

Kayupuring Village is a village located in a highland area in Pekalongan Regency which has six hamlets, including the hamlets of Soko Kembang, Tinalum, Kayupuring, Jimat, Stipis, and Tembelan. Kayupuring Village holds natural wealth and amazing natural charm, as evidenced by the presence of naturally clear river waters such as those in Welo Asri and Black Canyon tourism sites. In addition, the view of the waterfall and clusters of towering cliffs with a million pine trees, and the expanse of terraced rice fields make the atmosphere cool and full of tranquility. The majority of its citizens work as farmers in the fields, breeders, and seekers of palm sugar water every day.

In addition to storing exotic beauty, Kayupuring Village, which is located in the highlands, also has the potential for disasters such as landslides/landslides, both eroding road soil on the edge of riverbank cliffs and those located adjacent to people's homes. Unfortunately,

although Kayupuring village is a village that is prone to disasters such as landslides, the village government and the community have not been too serious in anticipating this. Even though village governments and communities have rights and obligations in disaster management as explained in chapter 26 paragraph (e) of UU no. 24 of 2007, it is stated that: "Everyone has the right to participate in making decisions on disaster management activities, especially those relating to themselves and their communities". Then in chapter 27 paragraph (b) it is stated that: "Everyone is obliged to carry out disaster management activities" (UU No. 24 of 2007). For that, it is necessary to provide assistance related to disaster risk reduction based on community participation in Kayupuring Village.

The method in this study uses Participatory Action Research (PAR). Suharsimi Arikunto defines Participatory Action Research, namely research activities carried out by emphasizing community involvement so that they feel they have participated in the program of activities and intend to actively participate in solving community-based problems (Suharsimi Arikunto, 2014).

Participatory action research was chosen because this research method involves a community in assessing the community situation to improve or answer problems. The research was conducted from January to April with the research subjects of the Kayupuring Village community in areas with potential disasters. The research was conducted in several steps as follows:

1. Preliminary study on the characteristics of community members or regional characteristics through social integration. Before actually being intensely involved with the community, the researchers and the team must first coordinate and socialize with the intention of being able to merge with the community and local government by conducting friendships, casual dialogue with the community, regular meetings, and so on.
2. Assessing the level of Disaster Risk and Preparation of Disaster Risk Reduction. After mingling with community members and the local village government, the researcher and the team along with the prospective volunteer team (local youth) carried out spatial mapping and social mapping. The data obtained in the mapping is analyzed to identify the types of threats, rankings, and the character of the threats in the location. Then a conclusion is made that describes the circumstances that can be used as reasons for determining one or more activities related to disaster risk reduction/DRR activities or actions.
3. Implementation and monitoring of disaster risk reduction activities or actions. These two types of activities are an inseparable whole series. Each activity must have continuous

monitoring to see if this activity is leading to the stated goals. Important activities at this stage include capacity building and regular assistance.

4. Evaluation. The steps taken at this stage are to carry out systematic recording and periodic analysis together with the community on the results obtained during the activity or action. The reflection and evaluation carried out is an assessment of the relevance, appearance, efficiency of the disaster risk reduction activities or actions that have been determined.

## RESULT AND DISCUSSION

Disaster risk reduction activities or actions are obtained after going through a fairly long process, including having to carry out social integration, spatial and social mapping to get an assessment of the type of threat, ranking, and character of the threat, to further determine the activity or action. The following is a complete description of disaster risk reduction activities or actions carried out by researchers, teams, and members of the Kayupuring village community, including the following:

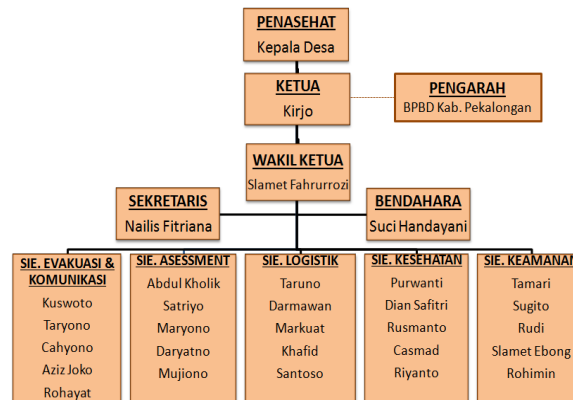
### **Socialization and Formation of a Disaster Resilient Village Volunteer Team (Destana) Kayupuring Village**

Socialization is a process of internalizing social values in a group or society. Socialization is a learning process carried out by someone to certain groups in a forum in order to provide knowledge that is more comprehensive and interactive.

The socialization activity for the Disaster Resilient Village of Kayupuring Village, which was initiated by researchers and a team (students) presented Mr. Muhammad Ali as the Head of the Prevention and Preparedness Section of the Regional Disaster Management Agency (BPPD) of Pekalongan Regency as a resource person. The formation of a Volunteer Team is very necessary given the importance of village resilience in dealing with disasters, it requires active community participation to take part in disaster prevention, preparedness and capacity building efforts as an effort to reduce disaster risk.



This activity was attended by the Tourism Awareness Group (POKDARWIS), Karang Taruna, village officials, and also elements of the Kayupuring Village community. This socialization ended with the formation of a Disaster Resilient Village Volunteer Team/Destana to create an independent village in dealing with potential disaster threats and to increase the role of the community in managing resources to reduce disaster risk. The following is the management structure of the Kayupuring Village Destana Volunteer Team:



### Revitalization and Disaster Risk Assessment

Disaster risk reduction activities are carried out by revitalizing existing irrigation in Kayupuring village and conducting disaster risk assessments such as viewing and assessing the condition of cliffs, seeing and assessing soil cracks, seeing and assessing blockages in waterways. The condition of the village under the cliff makes a real threat to the residents of Kayupuring village. The head of Sitipis Hamlet, Mr. Sukaryat said that the position of the Kayupuring village settlements, such as in Tembelan Hamlet, Sitipis Hamlet, was under a cliff which caused a real threat to the community.

"We hope that there will be a program to minimize disaster risk, we all know and can see for ourselves that the condition of the Kayupuring village settlement is very vulnerable to the threat of landslides. So there needs to be an intense and structured effort to minimize existing threats, revitalization and assessment of Disaster Resilient Villages (Destana) and cleaning waterways and fixing roads that are lush with wild trees are also one of the efforts in overcoming disasters so that blockages can be avoided. the water channel above the cliff can function normally, so that when it rains, the water can flow smoothly from top to bottom, so that the potential for disasters in the form of landslides can be reduced because rainwater does not pool on the cliff so that water enters through between the soil and when the soil is not strong enough to hold water, then what happens is a landslide, in addition to cleaning waterways and assessing potential disaster-prone areas, it also affects the village, namely the village becomes clean and looks beautiful." Said Mr. Sukarit.

Efforts to revitalize and assess disaster risk are carried out by improving irrigation and cleaning garbage, thick grass covering irrigation, closing soil cracks, and cleaning the main access

road connecting residential houses. Repair of irrigation canals and cleaning of garbage is carried out so that there is no water blockage which will later cause water blockages and disruption of village road access, crack closures are carried out so that when it rains water does not seep into the cracks in the soil so that water does not pool in the soil resulting in soil formation. Avalanche. Of course, this will endanger and disturb the comfort of the people living in the area, if the Revitalization and Assessment activities are not carried out regularly. Considering the condition of the steep cliffs near people's homes, they are very vulnerable if they are not noticed.

This activity is a form of mitigation through increasing public awareness. Revitalization and Assessment is a series of efforts to reduce or minimize disaster risk either through environmental improvement, physical development as well as awareness and capacity building in dealing with disaster threats that exist in certain areas. So with routine activities like this, it will change the mindset of the community to always care for and maintain the environment so that it is safe and clean, rehabilitation or restoration of a cool and beautiful environment will be maintained again with mutual cooperation activities between villagers.



Photo with the Volunteer Team, residents, and youth

### **Self-Assessment and Creation of Evacuation Paths**

Initial assessment activities and determination of disaster evacuation routes with the community and the Kayupuring village volunteer team with direct guidance from the Kab. Pekalongan. In the initial assessment and determination of the disaster evacuation route, our focus point was Dusun Tembelan, why we chose this hamlet because of the 6 hamlets in Kayupuring Village, Kec. Petungkriyono, Tembelan Hamlet, one of the hamlets that is very vulnerable and has the potential for landslides and landslides, seen from its towering cliffs and adjacent to residential areas, is very scary and worrying. causes the soil to sink to the bottom. So with the initial assessment activities and the creation of a disaster evacuation route, it is hoped that it will make it easier for residents whose houses are on the edge of a cliff, if unexpected

things happen, where is the evacuation route, gathering point and the safest one. place for residents.

"It is very necessary to make an evacuation route, both a safe point, a gathering point, as well as a moving ground detection device, if you don't make early countermeasures for the determination of a disaster evacuation route in Tembelan hamlet, I think the people who live here will find it difficult to be confused if one day a landslide occurs because there is only one main road here if the cliff sinks down, the fear is that the residents don't understand where it will run and gather at the safe point of gathering. In addition, there is also the need for early anticipation, for example by planting root or veteran trees, this is very important to strengthen soil texture. Because the vetiver plant has a strong contribution with its roots that are quite deep and clawed to the surface of the ground, I think it is necessary to plant it on various cliffs here." Mr. Nidhom said the BPBD Team of Pekalongan Regency.

The same thing was conveyed by one of the residents of Tembelan hamlet.

"Yes, this is how our settlements are, we know that this hamlet is very prone to landslides but how else can it be our residence. Sometimes there are cracks in the ground and the ground sinks, but we immediately close it, bro, if it's the rainy season like this month, we'd better go downstairs to anticipate ground motion. We hope that we can build a bridge or foundation on this cliff soon so that the residents here are calm and not worried." said Abdul Kholiq, one of the residents of Tembelan hamlet.

Early assessment efforts and determination of disaster evacuation routes are carried out by determining which paths are safe, vulnerable routes, gathering point routes, safe points, and cleaning up the thick grass trash on the cliffs that cover the main access road connecting residential houses.



This activity is a form of mitigation through increasing public awareness. Early assessment and establishment of evacuation routes is a series of efforts to reduce or minimize disaster risk either through improving the supporting environment, physical development as well as awareness and capacity building in dealing with the threat of disasters in this region. So with activities like this, it will change the mindset of the community to always care for and maintain a safe and clean environment, rehabilitation or restoration of a cool environment will be maintained again with mutual cooperation activities between villagers.



These seeds are planted on a sloping land surface. The roots of tamarind and sugar palms play a role in gripping the soil to reduce the possibility of soil movement. For very sloping land, vegetation with deep root types with many fibrous roots is needed. The purpose of carrying out tree planting activities is to reduce disaster risk, besides being able to restrain the flow of water, erosion and reduce the impact of global warming.



## CONCLUSION

In Islam, the command to save oneself from calamity or disaster is an obligation. The paradigm of disaster rescue has now shifted from activities that are handling to one called Disaster Risk Reduction. Community Participation-Based Disaster Risk Reduction Activities or Actions are obtained after the researcher and the team take several steps beforehand, such as carrying out social integration and conducting an assessment of the level of Disaster Risk and Preparation of Disaster Risk Reduction. From social integration, data is obtained which will then be used in mapping activities (spatial and social). The mapping results are then used to analyze the types of threats, rankings, and the character of the threats in the location. Then a conclusion is made that describes the circumstances that can be used as reasons for determining one or more activities related to disaster risk reduction/DRR activities or actions. Among them are the Socialization and Establishment of a Disaster Resilient Village Volunteer Team (Destana), Revitalization and Disaster Risk Assessment, Self-Assessment and Creation of Evacuation Paths, and Tree Planting. Activities carried out with community members that are preventive and mitigating must be controlled by community members, especially the Destana Volunteer Team that has been formed, to then also agree on further activities or actions outside of this research.

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