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COMMUNITY EFFORTS IN FLOOD AND LANDSLIDE

[Upaya Masyarakat Dalam Banjir Dan Tanah Longsor]

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Abstract

Research aims to analyze community efforts in overcoming natural disasters as well as floods and landslides. The research was conducted in Lima Puluh Kota District on the basis of the consideration that in that area there are frequent natural disasters of floods and landslides. The data was collected through open interviews, observation, and document review, then the data were analyzed descriptively qualitatively. The results showed. The mitigation efforts undertaken by the Gunung Malintang village government are as follows: 1) Design of the mitigation program in the Nagari RPJM 2016-2021, 2) Implementation of the gabion making program, 3) Conducting outreach, 4) Implementing the planting program on the river bank, 5) Conducting cooperation with the BPBD of Limapuluh Kota Regency. Apart from the Nagari government, mitigation efforts were also carried out by the BPBD of Limapuluh Kota Regency, namely as follows: 1) Destroying large rocks that obstruct the flow of water in the upstream area, 2) Placing an extension of the BPBD (SAR Team) arm.Efforts to overcome natural disasters require the participation and awareness of all parties (local government officials, social organizations, community leaders, community members, families) both in managing forests, maintaining smooth flow of rivers, drainage, maintaining conservation areas, and more urban spatial planning. good.

***Keywords**: Flood; Landslide; Mitigation Efforts*

1. INTRODUCTION

Natural disasters are disasters caused by events or a series of events caused by nature, including: floods, landslides, earthquakes, tsunamis, volcanic eruptions, drought, and hurricanes (Article 1 of Law No. 24 Year 2007). Natural disasters are natural events that have a large impact on humans. Victims can be individuals, families or community groups who suffer physically, mentally or socio-economically. As a result of the disaster, it causes them to experience obstacles in carrying out their life tasks. Indonesia as an archipelagic country has various geographical characteristics, both in terms of tectonic arrangements, meteo-rological dynamics, and climatological conditions which are prone to natural disasters.

The National Disaster Management Agency (BNPB) recorded more than 2,000 disasters from January to September 2020. BNPB noted that 99% of the

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disasters that occurred were hydrometeorological disasters, such as floods, tornadoes, and landslides. "Hydrometeorological hazards remain a threat until the end of this year," said the Head of the BNPB Disaster Data, Information and Communication Center. BNPB recorded the highest number of incidents, namely flooding as much as 791 times. After that, there were 573 tornadoes, 387 landslides, 314 forest and land fires (karhutla), 26 tidal waves or abrasions, 22 droughts, 13 earthquakes, and 5 volcanic eruptions. (https://news.detik.com/berita/d-5194995/2131-bencana-terjadi-di-ri-isah-september-2020-banjir-mendomin)

Responding to the facts of these disasters, flooding is a frequent disaster. Referring to the experience of European countries, such as France in addressing that civil safety is an important individual right and must be guaranteed, civil safety is as important as the recognition of individual freedom and private property, society, especially victims, has the right to protection of their life and property. Therefore, the risk of disaster must be minimized, and morally, casualties cannot be tolerated. The government places the problem of natural disasters as one of the priorities for handling.

In accordance with the direction of the problem that emphasizes prevention efforts, in an effort to find an objective picture of natural disasters of floods and landslides as well as community efforts in overcoming this research, this research is necessary.

II. METHODS

The research location was in Lima Puluh Kota District, the location was determined purposively with the consideration that this area is one of the districts in Indonesia which is often hit by natural disasters, particularly in the form of floods and landslides. This type of research is descriptive qualitative, aims to obtain information or an objective description of natural disasters of floods and landslides and community efforts in overcoming. The data was collected using interview techniques, documentation, literature study and observation.

III. RESULTS AND DISCUSSION

a. Landslide Disaster Mitigation in Fifty Cities District and community efforts in overcoming it

Mitigation is an activity carried out before a disaster occurs to reduce and prevent the impact it causes. Landslide mitigation in Lima Puluh Kota District is carried out by BPBD as an agency that handles disaster problems. BPBD Kabupaten Lima Puluh Kota has duties related to disaster issues in accordance with Law no. 24 of 2007 concerning Disaster Management and Regional Regulation No. 5 of 2007 concerning Disaster Management Systems in Regions.

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The existence of this regulation is a reference for the BPBD of Lima Puluh Kota Regency in implementing landslide disaster mitigation.

Landslides (landslide) are a form of erosion (removal of soil mass) in which the transportation or removal of land occurs suddenly in large volumes (at once). Landslides occur if 3 (three) conditions are met, namely: (1) the slope is quite steep, (2) there is a watertight gliding area below the ground surface, and (3) there is sufficient water in the ground above the impermeable layer (glide plane) so that the soil is saturated with water.

The driving factor is what affects the condition of the material itself, while the trigger factor is what causes the movement of the material. Although the main cause of this incident is gravity which affects a steep slope, there are other factors that also influence, namely erosion caused by surface water flow or rainwater, rivers or sea waves which erode the foot of the steep slopes of the mountains.

According to Syofiarledi, as the guardian of the Situjuah Gadang nagari, said that Nagari Situjuah Gadangis a disaster-prone area. Situjuah is bordered by Tanah Datar which is only bordered by Mount Sago. Jorong Padang Kuniang, Jorong Kociak, and Jorong Situjuah Gadang are the three jorong that were badly affected by the landslide and flash floods that occurred seven months ago. Approximately 50 heads of families (KK) were affected in the three areas worst hit by landslides. There were 75 people from Jorong Kociak residents who were affected, 50 from Jorong Situjuah Gadang, and 100 people from Jorong Padang Kuniang. (Padang.tribunnews.com)

In an effort to develop awareness and responsibility of all parties regarding the importance of various policies related to natural disaster management, it is a priority and urgent matter. In order to reduce the impact of risks arising from the occurrence of a disaster, an action plan is needed in a strategic, comprehensive, and sustainable mitigation effort (Gunawan et al: 2009).

One of the ways to achieve this is by organizing the preparation of a disaster contingency plan, with the hope of producing an 'output' or important formulation within the framework of natural disaster management in areas with certain specifications. This activity is intended to develop a model that can be used as a basic plan for the region to compile actual contingency planning in the future (Cater, W. Nick: 1991).

In an effort to cope with this natural landslide disaster, it requires a high level of awareness of the community members not to destroy the forest by cutting trees illegally. Less trees in the forest will reduce water infiltration, so that water by itself without any obstacles can go straight down to a lower area, it is not uncommon for this water flow to cause landslides, causing disasters for the people in their environment. In addition, the community needs to be encouraged

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to participate in always maintaining the forest by planting plants in areas or forests that are deforested, so as to reduce or minimize the occurrence of landslides (Dwi Heru Sukoco: 2006).

Several strategies for preventing and overcoming landslide natural disasters, namely the community should avoid disaster-prone areas to build settlements and other public facilities. The local apparatus together with the community work together to reduce the steepness of the existing mountain slopes. Settlements and groundwater (the function of drainage is to keep water away from the slope, avoiding water seeping into the slope or draining water into the slope to the outer slope. So drainage must be maintained so that it does not get clogged or soak water into the ground). A building retaining anchor*(anchor)*and pilling. Terrace with drainage systemproper drainage on the terraces should not be a way of infiltrating water into the ground. Greening with plants with deep root systems and the right spacing (especially for steep slopes, with a slope of more than 40 degrees or about 80 percent, the plants should not be too dense and interspersed with shorter and lighter plants, while at the base of planting grass.). Build a building with a strong foundation, perform soil compaction around the housing complex. Introduction of landslide-prone areas, construction of retaining embankments for*rock falls*. Closure of fractures above the slope to prevent water from entering the ground rapidly. Pile foundations are highly recommended to avoid the danger of *liquefaction* (fluid infection). The utilities that are in the ground must be flexible. Prohibit the construction of houses in locations prone to landslides, especially on slopes and foothills. Strengthen soil stability with several trees whose roots can tie the soil tightly. Providing education to people living in landslide areas on how to avoid landslides. In some cases relocation is highly recommended. With various countermeasures above, the community should always be involved so that they have a sense of responsibility for natural disasters in their environment (Regional Disaster Management Agency of Pasuruan Regency: 2012).

b. **Mitigation Flood Natural Disasterand Flood Mitigation Efforts**

can be defined as a large overflow of water from a body of water, thus inundating the surrounding area. Water bodies are places where water is located, whether water is stationary, moving, or flowing. Water bodies are rivers, ditches, channels, canals, or dams. Flood is an event that occurs when excessive water flows submerge the land. Floods are caused by the volume of water in a body of water, such as a river or lake, overflowing or breaking through a dam so that the water exits its natural limits. The size of a lake or water body constantly changes according to changes in rainfall and seasonal snowmelt, but the floods that occur are not large unless the water reaches areas that are used by humans such as villages, cities and settlements (Kodoatie, 2002).

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Floods can occur in rivers when their flow exceeds the capacity of the drains, especially at river bends. Floods often result in damage to houses and shops built on natural river floodplains. Although flood damage can be avoided by moving away from rivers and water bodies, people are always staying, working near water to make a living, taking advantage of the low costs, due to the smooth travel and trade near the water. Humans continue to live in flood-prone areas is evidence that the value of staying near water is greater than the cost of damage due to periodic floods (Deden Gunawan: 2013).

Several aspects cause flood disasters, including the large amount of runoff water into rivers, which occurs due to deforestation and intensive agricultural development in river basins so that rainwater easily overflows, because rainwater cannot be stored and absorbed by plants. Geographically, Indonesia has a tropical climate and its traditional forests are known as*tropical rain forests*which have large and tall trees. Therefore, forests can function as rainwater storage, deforestation causes trees and shrubs to no longer exist so that no one captures and stores rainwater. The runoff brings the*top soil*into the river, even though the top soil layer is the most fertile soil. The fewer large trees with leaves and roots that can absorb rainwater, the greater the runoff that enters the river. The large rate of silting rivers occurs due to deforestation and intensive agriculture which causes erosion. The eroded land enters the river, if the rate of deforestation and intensive agricultural use increases, the land will enter the river. As a result, the soil will settle in the river so that there will be silting of the riverbed, if the water increases the river will overflow and there will be flooding.

There are various causes that resulted in flooding in Nagari Situjuah, LimaPuluh Kota district. As explained by one research informant, Mr. Ariffadilah (50 years old) who is the Head of Prevention and Preparedness of the Fifty Cities BPBD Office, who stated that Nagari Situjuah does have the potential for floods and landslides. For floods in the Mount Malintang area, one of the reasons for this is the high rainfall in the upstream area and also because of the presence of large rocks that obstruct the flow of water in the upstream area but this flood does not last long.

Figure 1. Condition of the upstream Batang Mahat Riverbank

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Source: RPJM Nagari Situjuah 2016-2021

Based on secondary data obtained in the field, there are various kinds of losses caused by the flood disaster in Nagari Situjuah, such as submerged houses, damaged household appliances , damage to residents' businesses, damage to agricultural land and others, as well as flood victims who have daily shop businesses also suffer losses due to flooding because their stalls are flooded, which causes their merchandise, which is the majority of daily materials or basic foodstuffs, to be submerged and some that cannot be traded anymore. .

Efforts made in dealing with flood disasters which of course resulted in losses for the people of Nagari Situjuah, the village government considered floods to be one of the village issues that must be resolved. In the Structural Functional theory put forward by Talcot Parson in the concept of the AGIL scheme, this includes the first point, namely *Adaption* (Adaptation), where in the situation of the Nagari Situjuah area that has the potential for flooding, the Nagari Situjuah government must be able to adjust development designs or In order to overcome this flood disaster, the village government must also adjust to economic factors, where the village government in designing this mitigation program must also consider the amount of budget needed and the source of funds for the budget in implementing the program. For example, the planning of making gabions on the banks of a river requires a budget of Rp. 24 billion which is taken from the APBD of Fifty Cities District. In making this plan, of course the Nagari government conducts deliberations with other sub-systems such as the community, Bamus, LPM through the Nagari Musrenbang.

activities that have been carried out in the context of flood disaster mitigation, this is in accordance with the third point of AGIL concept, namely Integration, where in regulating flood disaster mitigation efforts, the Nagari government collaborates with sub-systems such as the community and BPBD of Fifty Cities District so that mitigation efforts can be carried out properly. In carrying out flood disaster mitigation efforts, the efforts that have been made to be able to cope with flooding and reduce losses caused by flooding can be seen in the following table:

Table of Activities Efforts That Have Been Done in Flood Disaster Mitigation in Nagari Situjuah:

Activities Conducted by the	Management ofActivities
ManufacturingBronjong	Nagari Government
Socialization	of Situjuah Nagari Government and BPBD of Fifty Cities
Tree Planting at the River Edge,	Nagari Government

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From the table above it can be seen that all the designs that have been planned in the 2016-2021 RPJMNag have not been implemented. Efforts that have not been implemented are as follows: river normalization, construction of a cliff edge, and provision of disaster management infrastructure and advice. Efforts that were made before the flood disaster came at the community level, among others: The community together with related officials and the management of the nearest RT / RW worked together to clean up the surrounding environment, especially in drains or sewers from piles of garbage. Determine the appropriate location of the Flood Post to evacuate, complete with public kitchen facilities and toilets, along with the supply of clean water through coordination with related officials, along with RT / RW administrators and the community in their environment. The community together with RT / RW management in the neighborhood form a flood management team at the community level, such as the appointment of the person in charge of the Flood Post. Coordinating community members through RT / RW, local urban village councils, and NGOs to procure ropes, ropes, rubber boats and buoys for evacuation. Ensure communication equipment is ready to use, in order to make it easier to find information, ask for help or make confirmation.

Actions that must be taken to reduce the impact of flooding, namely: Local officials together with the community conduct an integrated watershed arrangement and in accordance with land functions. The development of an early warning and monitoring system in the river that often causes flooding. The community is expected not to build houses and settlements along river banks and in flooded areas. The community should be able to learn discipline by not throwing garbage into the river, as well as holding a river dredging program involving local residents. The upstream reforestation program must always be implemented jointly with the community, and reduce activities in flood-prone parts of the river.

IV. CONCLUSION

Based on the above research, Nagari Situjuah District of Fifty Cities is one of the areas prone to natural disasters, especially floods and landslides because geographically it consists of high plains in the form of steep mountains. The mitigation efforts undertaken by the Gunung Malintang village government are as follows: 1) Design of the mitigation program in the Nagari RPJM 2016-2021, 2) Implementation of the gabion making program, 3) Conducting outreach, 4) Implementing the planting program on the river bank, 5) Conducting cooperation with the BPBD of Limapuluh Kota Regency. Apart from the Nagari government, mitigation efforts were also carried out by the BPBD of Limapuluh Kota Regency, namely as follows: 1) Destroying large rocks that obstruct the flow of water in the upstream area, 2) Placing an extension of the BPBD (SAR Team) arm.

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