

Community Participation in Flood Disaster Management in Sumbawa Regency (case study in Songkar Village)

Hendra Wirawan Zakariah¹, Kismartini¹,

¹Master Program of Environmental Science, Diponegoro University, Semarang, Indonesia Indonesia

Abstract. Flood is the most common natural disaster happen during rainy season. Based on National Agency for Disaster Management (BNPB) about flood and drought maps of vulnerable areas in 2009, Songkar Village is affected areas of flooding. Community participation is an effort to build a culture, and ensure sustainable development for all. Community participation in disaster management regulates in the Regulation of the Head of National Disaster Management Agency Number 11 Year 2014 on Community Participation in Disaster Management Implementation. This study is aimed to analyze the participation of the community in flood prevention through Village Disaster Preparedness Team, analyze the factors that support and hamper the community in flood prevention, and formulate the strategies to prevent flood disaster conducted by Village Disaster Preparedness Team. The result was showed that, participation in Songkar Village was high on ducting activities, but conducted prevention activities and flood mitigation was still less effective. The proposed strategy of community participation in flood disaster mitigation is progressive.

Keywords: **Community participative, flood.**

1. Background

Indonesia as an archipelagic State geographically located on the equator, between the Continent of Asia and Australia and between the Pacific and Indian Oceans, is at the meeting of three major tectonic plates of the world, resulting in Indonesia as a highly vulnerable territory to natural disasters. The location of the Equatorial Country also causes the Indonesian territory to have typical climatic conditions with an equally long rainy and drought season.

At a time when global climate conditions affect the climate in Indonesia, then seasonal changes can trigger the occurrence of floods, droughts, and forest fires.

Disaster is an event or series of events that threaten and disrupt the life and livelihoods of the community, both by natural factors and / or non-natural factors as well as human factors resulting in the occurrence of human casualties, environmental damage, property loss, and psychological impact [1].

Sumbawa Regency has various natural disaster threats. These threats include floods, extreme weather, drought, extreme waves and erosion, earthquakes, landslides, volcanic eruptions, tsunamis, and social conflicts [2]. Indonesia Disaster Risk Index number (IRBI) of 150 (height) and ranked 302th out of a total of 496 districts with disaster risk [3].

Based on the map of flood prone areas and drought In 2009 BNPB, Songkar Village is included in flood-prone areas in Sumbawa Regency.

Songkar Village is flooded by the Lape / Lopok River Basin which is the main cause of flooding. Other causes of flooding occur in the lowlands, wet climatic conditions (larger number of rainy months), and people's habits to use the River Basin as a place to grow crops.

Sumbawa Regency Government has encouraged the participation of the community as one of the efforts to overcome the flood disaster through the formation of community groups / Disaster Preparedness Team Village in North Moyo District which is prone to flooding. The Village Disaster Preparedness Team is a community-based organization formed to assist the Government in dealing with flood disaster. The Village Disaster Preparedness Team was established in 2013 and is under the control of the Kecamatan and is the implementing unit at the Village level.

Community participation has been recognized as an additional element in disaster management and is needed to open up new horizons about the increased incidence and disadvantages of disasters. Community participation is an effort to build a culture of safety, and ensure sustainable development for all. (Victoria, 2002). Community participation in flood disaster can be done in many issues of Disaster management. The community participation can be develop from the mitigation, preparedness, respond including rehabilitation and

reconstruction. Refer to the Huge Bangkok Thailand Flood 2011, a community participation very need for flood waste management. Learning from the Bangkok Thailand Flood, flood waste management in cities of developing countries is very difficult running flood, due to limitation of infrastructure and budgeting [4]. It is one of the critical issue to developing community participation for resilient in flood waste and flood disaster management

2 Method

The method used in this study is a qualitative descriptive method that describes the implementation of disaster risk reduction in Songkar Village.

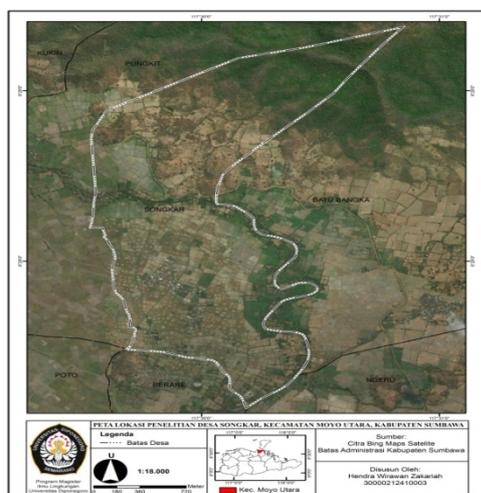


Fig. 1. Site of Songkar Village

Qualitative research method is a research method used to examine the condition on natural object condition (natural setting). The scope is emphasized on the discussion on community participation in flood prevention through Disaster Preparedness Team Village in Sumbawa Regency.

Factors that support and hamper community participation in flood prevention through Disaster Preparedness Team Village in Sumbawa Regency. Flood prevention strategies undertaken by community and Disaster Preparedness Team Village in Sumbawa Regency. The primary and secondary data used are from interviews, publications and mass media news. News and information coming from the internet (online media) is also used as a reference to events and events that are the main issues at the time.

2 Discussion

2.1 Community Participation in Flood Disaster Management

Community participation is an effort to foster a sense of ownership and enthusiasm for various community development activities based on their involvement in planning, implementation and evaluation of development [5]

2.1.1 Community participation in flood disaster management planning in Songkar Village through the involvement of metal and community emotions has been done well, can be seen from the presence of community members in the meeting almost all invites to attend. When discussing and giving suggestions, as well as community ideas is quite active, although not all provide ideas and inputs in disaster management and when asking for indication of responsibility for the work given informants to quickly answer the duties and responsibilities. This illustrates that the informant is very active in attendance in the meeting and responsible for the work given.

2.1.2 Community participation in the implementation of flood disaster management in Songkar Village through the willingness of the people in issuing the power has been done very well, can be seen from the indication of member involvement in physical activities to assist the construction / construction of drainage channels while non-physical indication can be seen at the planning stage, quite active in contributing thoughts and ideas.

2.1.3 At the maintenance stage only cleaning is done so it does not require a large cost in maintenance. Thus the participation of the community in the maintenance also determines the quality of the environment and life of the existing community, because the participation of the community is the main actor who plays an important role in the good condition of the environment around the community.

2.2 Identify Factors Affecting Community Participation in Flood Disaster Mitigation and Reduction.

Participation of society according to Slamet in Sihono (2003) influenced by several factors: Internal factors, including (a) gender, (b) age, (c) education level, (d) livelihood. External Factors, Relating to external factors of Government agencies. Kurniawan (2004) his research mentioned that the government's commitment that has not been optimal causes coordination among offices / agencies is not optimal resulting in differences in perception in the implementation of the program and lack of commitment in the allocation of funds affect the performance of the implementation of activities [6]. A model concerning to the factor identifying concerning to the same issues such as community participation, community and stakeholder intention has been conducted by maryono for tsunami disaster, especially for disaster waste management preparedness [7]. has been conducted by . Internal Factors:

a. Sex of Songkar Village population in 2017 recorded as many as 1,568 men with 678 souls while women 890 inhabitants. With female sex more than men, joining women also becomes a separate force for disaster management in Songkar Village. The role of women in households, in environmental concerns

around the home, is explained by the Rio de Janeiro Joint Earth Summit in the 20th principle of the Rio Declaration; "Women have an important role in environmental and development management. Their full participation is critical to promoting sustainable development ".Another point in the declaration explains the important role of men and women's roles that read "We are committed to ensuring that women's empowerment and emancipation and gender equality are integrated in all activities contained in Agenda 21, sustainable development objectives and implementation plans of Johannesburg.

- b. Age of Songkar Village in 2017 is divided into several categories, age 0-10 is 334 people, age 11-20 is 292, 21-30 is 265 people, age 31-40 is 261, 41- 50 recorded as many as 185 souls, ages 51-60 recorded as many as 124 and 61 years and over as many as 107 people.

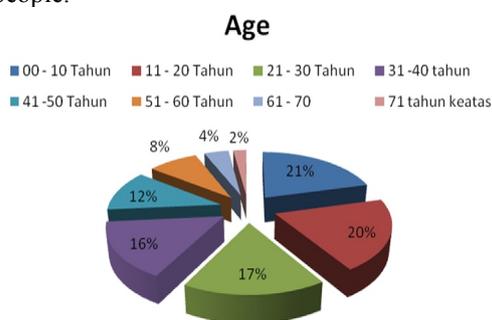


Fig. 2. Age's of resident Songkar Village

The age of the Songkar Village community is at a productive age (ages 20-40 years) to do the job. With age that is still in vulnerability in productive age in the productive age disaster assessment is considered a physical capacity in the form of human resources. In this case, of course, human resources who understand disaster risk reduction efforts and contribute in every activity therein. A person's age also affects the capability and mindset of a person.

The more ages the more will develop the ability to catch and the mindset, so the knowledge gained better. At the age of 20-35 years, individuals will play a more active role in society and social life and more to prepare for the success of adjusting to old age. In addition, they will spend more time reading. Intellectual abilities, problem solving and verbal skills are reported almost no decrease in this age. That in the productive age is the most important age and has a solid activity and have good cognitive skills. Thus, at this age has an influence on the level of knowledge [8].

- c. Age The villagers of Songkar Village have a fairly high level of education (at least graduating high school / senior high school). In the year 2017 recorded the population of Songkar Village at the age of 7-18 years who never attended school is 0, the number of aged 12-56 years who did not finish junior

high is 0 and the number of aged 12-56 years who did not finish high school / high school is 0.

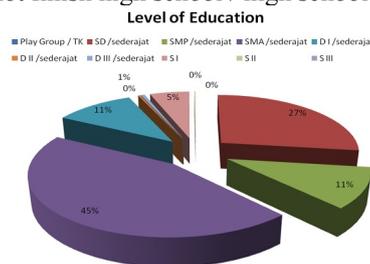


Fig. 3. Age's of resident Songkar Village

It is expected that with sufficient educational background, the informant can be more responsive with the problems faced.

The level of education is an important factor for the internalization efforts of understanding disaster risk reduction conducted by stakeholders in Songkar Village. With an adequate level of education will facilitate the community in understanding the vulnerabilities and capacities they have and manage them into the power to reduce the risk of flood disasters.

According to Carter (2011), that the higher the education level of a person will be more easily receive information so that more experience is owned, in this case, especially knowledge about the mitigation of natural disasters [9]. A person who has extensive experience will have an impact on his cognitive. According to Eberhardt et al (2007), those with higher education have a greater level of knowledge and more experience [10].

- d. Livelihood. The villagers of Songkar Village have a majority livelihood as farmers. As many as 570 people are farmers, 10 government employees, 11 private employees, 35 civil servants, and 15 entrepreneurs.

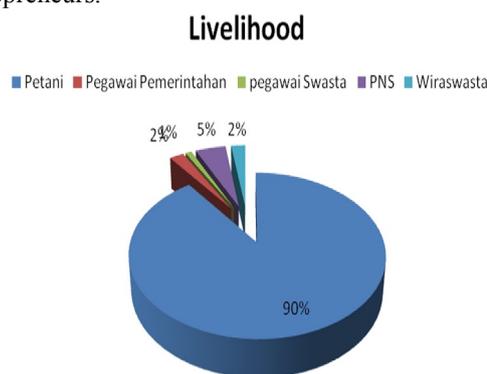


Fig. 4.Livelihood of resident Songkar Village

Often work (farmers) demand a lot of time to go home early in the afternoon, so it takes time deliberately devoted to attend and contribute in meetings and deliberations

2.2.1 External Factors

In tackling or reducing disaster risks, it is not enough to do just one group. But it also requires cooperation and proactive involvement from various parties, be it to government, groups or community organizations, businessmen and civil society. In addition, good disaster management is required from the cooperation of many parties. If the partnership works well, then the disaster management will also run well and succeed in reducing disaster risk (Johan Minnie, 2010).

The role of Regional Government has been present as a regional organizer by issuing / making Regional Regulation of Sumbawa Regency No. 5 Year 2016 on

the Regional Disaster Management Agency and the Government is present in the community through its cadres such as BPBD, providing

3 Strategy

The steps in the strategic determination include identification of internal factors, identification of external factors, SWOT analysis (IFAS and EFAS matrix), IE Matrix and SWOT Matrix so that it can finally know the position of Disaster Prevention Quadrant on the strategic map and obtained alternatives of disaster management strategy flood

<p style="text-align: center;">Internal</p> <p style="text-align: center;">External</p>	<p style="text-align: center;">Strength :</p> <ol style="list-style-type: none"> 1. Government's commitment to flood prevention and mitigation 2. Establishment of institutions 3. Good basic education 4. The existence of extension workers 5. There are countermeasures activities 6. High community participation 7. Zoning of flood-prone areas 8. The spirit of gotongroyong from the village community 9. Headmaster's appeal on garbage disposal 10. The existence of Perda on the Implementation of Disaster Management and Waste Management 	<p style="text-align: center;">Weakness :</p> <ol style="list-style-type: none"> 1. Inadequate drainage channels 2. Incomplete coordination in flood disaster management 3. The opinion of the people still see the flood as something common
<p>Opportunity :</p> <ol style="list-style-type: none"> 1. Government support 2. Support from private parties (providing early warning tools for floods) 	<p style="text-align: center;">Strategi S-O :</p> <ol style="list-style-type: none"> 1. Increasing flood disaster management activities that involve the community by utilizing the existing institutions 2. Utilizing private support for flood prevention activities for flood-prone zones / areas 3. Involving the community actively in flood disaster management 	<p style="text-align: center;">Strategi W-O :</p> <ol style="list-style-type: none"> 1. Utilize government support, for repair and drainage 2. Maximize coordination among all stakeholders in flood disaster management
<p>Threats :</p> <ol style="list-style-type: none"> 1. The more shallow and narrower the river 2. Lack of public awareness in anticipation of flooding 3. Specific monthly rainfall increases 	<p style="text-align: center;">Strategi S-T :</p> <ol style="list-style-type: none"> 1. There needs to be a local regulation concerning land use on the banks of the river 2. Enforcement of spatial plans and carry out monitoring and evaluation of spatial implementation and compliance with safety standards 	<p style="text-align: center;">Strategi W-T :</p> <ol style="list-style-type: none"> 1. Socialization to the community to be more aware in view of the danger of flooding 2. Conduct simulations or trainings on disaster management for village officials and communities to raise awareness in anticipation of floods

4 Conclusion

The results obtained show that community participation in flood disaster management in Sumbawa Regency has been actively conducted by the community. Factors that become the main drivers are education and age while the inhibiting factor is livelihood. Disaster management strategies that must be done must be more progressive by increasing the flood prevention activities that involve the community by utilizing the existing institutions

References

1. Indonesia government, *Indonesia Disaster Management regulation number 24, 2007* (2007)
2. Gusman AR, Tanioka Y, Matsumoto H, Iwasaki S. "Analysis of the Tsunami Generated by the Great 1977 Sumba Earthquake that

Occurred in Indonesia", Bulletin of the Seismological Society of America (Seismological Society of America) 99 (4): 2169–2179. (2009)

3. Sumbawa Local Government, *Local Disaster Management Operation, number 5 year 2016. Regulation*, (2016).
4. Nakayama H., Shimaoka, T., Omine K., Maryono., Patsaraporn, P., Siriratpiriya, O *Solid Waste Management in Bangkok at 2011 Thailand Floods*, Journal of Disaster Research (8).3, pp.456-464 (2013).
5. Syam. H Nur. *Community participation model.* (in Bahasa) Pustaka Pesantren Yogyakarta (2009)
6. Kurniawan. Bernanda, *Program Evaluation of Bangun Praja*, Magister Thesis in Master Program of Regional and Urban Development, Faculty Engineering, Diponegoro University. (2004).

7. Maryono, Nakayama, H., & Shimaoka, T. *Identification of factors affecting stakeholders' intentions to promote preparedness in disaster waste management: A structural equation modeling approach*. *Memoirs of Faculty Engiengeeing Kyushu University*, 74(3), 79-98 (2015).
8. Winarti. *Community planning in village for disaster risk reduction in Desa Ngargo Mulyo, Dukun Sub Distric, Magelang Regency*. Magister Program of Environmental Science Thesis, School of Postgraduate, Diponegoro Univeristy. (2011).
9. Carter, W. *Disaster Manegement: A Disaster Manager's Handbook*. Manila: ADB; 2011. 1-204
10. Eberhardt, E., Bonzanigo, L., & Loew, S. *Long-term investigation of a deep-seated creeping landslide in crystalline rock. Part II. Mitigation measures and numerical modelling of deep drainage at Campo Vallemaggia*. *Canadian Geotechnical Journal*; 44 (10): 8-12 (2007).