ANALYSIS REGION CAPACITY LEVELS IN THE FACE TSUNAMI IN LEBAK REGENCY OF BANTEN

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ABSTRACT: This study aims to determine the capacity of the Bayah coastal area in dealing with the tsunami disaster. The research method used in this research is descriptive method. This study is a population study consisting of 4 villages, including Sawarna Village, East Sawarna Village, West Bayah Village, and Darmasari Village. The unit of analysis in this study is the region. In this study the instrument used was a questionnaire as a guide to interview respondents who represented the area under study. The assessment of regional capacity in disaster management is carried out by looking at the four priorities of disaster risk reduction programs. These priorities are adopted in the Hyogo Framework for Action (KAH). With the following priorities: 1) Disaster education, 2) Early warning and disaster risk assessment, 3) Reduction of basic risk factors, and 4) Development preparedness on all lines. The results of this study indicate that the Bayah Coast region in the face of tsunamis has a low capacity of 18.7% which falls into the level 1 category. The area has had small achievements in disaster risk reduction efforts by implementing several advanced actions in plans or policies. This shows that the regional capacity in implementing disaster management is still very lacking, requiring intensive capacity building.

1. INTRODUCTION

Indonesia is located in the Pacific Ring of Fire, which geographically has challenges to protect and strengthen communities from the threat of disaster risk. The movement of three large tectonic plates, namely the Indo Australia plate in the south, the Pacific Ocean plate in the east, the Eurasian plate in the north (where in most of Indonesia) and accompanied by watersheds (5,590 watersheds) result in the risk of geological disasters such as earthquakes, tsunamis, volcanic eruptions (129 active volcanoes) and landslides [1].

Historical records of tsunamis in Indonesia show that approximately 172 tsunamis occurred in the period between 1600-2012. Based on the source of the generator it is known that 90% of the tsunamis are caused by tectonic earthquake activity, 9% due to volcanic activity and 1% by landslides that occur in bodies of water (lakes or seas) or landslides from land that enter the body of water [2].

During the last two decades there have been at least ten tsunami events in Indonesia. Nine of them were destructive tsunamis and caused material and casualties, namely the tsunami in Flores (1992); Banyuwangi, East Java (1994); Biak (1996); Maluku (1998); Banggai, North Sulawesi (2000); Aceh (2004); Nias (2005); West Java (2006); Bengkulu (2007); and Mentawai (2010). The impact of the tsunami was that around 170 thousand people died. Areas with a very high tsunami threat are scattered in almost all regions of Indonesia, starting from the west coast of Sumatra Island, southern Java, Nusa Tenggara, central and northern Sulawesi, Maluku and northern Maluku and western and northern Papua [1] [2].

The Sunda Strait is located in the transition area between the Sumatra segment and the Java segment of the Sunda Arc, which is also an area in Indonesia that is very active in terms of volcanic activity, seismicity and vertical tectonic movements. The eruption of Mount Krakatau which occurred in 1883 occurred in the middle of the Sunda Strait and triggered a tsunami on the southern coast of Lampung as well as the northern, southern and western parts of Banten. Meanwhile, in the case of the subduction zone in the south of Java Island, the Java segment of the Sunda Arc extends from the Sunda Strait to the Bali Basin in the East. Three large earthquakes occurred in this zone in 1840, 1867 and 1875. In the last three hundred years there was no Megathrust earthquake on a scale as large as the earthquake in 1833 and 1861 in Sumatra which occurred in this region [1][2][3].

Regional capacity in the implementation of disaster management is an important parameter to determine success for disaster risk reduction. Regional capacity in disaster management must refer to the National Disaster Management System

contained in Law Number 24 of 2007 concerning Disaster Management and derived regulations [1] [2] [3][4].

Disaster management capacity in Indonesia still needs to be strengthened. The strengths and resilience that exist in the community must continue to be identified and developed. Cultural values that are rooted in the community need to be continuously explored and developed as a strength of social capital that will support the achievement of a resilient community against disaster. By utilizing appropriate scientific and technological advances, the strengthening of our nation's ability to deal with disasters will be a reality and we can suppress both the amount and impact it causes [3][4][5].

2. METHOD

This research was conducted in the villages of West Bayah, Sawarna, East Sawarna, and Darmasari, Bayah District, Lebak Regency, Banten Province. This research was conducted in April to July 2019. The research method used in this research is descriptive method.

3. RESULTS AND DISCUSSION

Region capacity levels

The Capacity level analysis on the Bayah Coast is assessed based on the Hyogo Action Framework, namely (1) Early warning and disaster risk assessment (2) Disaster education (3) Reduction of basic risk factors (4) Preparedness in all lines. From the results of the research, the capacity index component can be seen in Table 1.

Table 1. The Capacity Index Component

Bayah Coastal Area Capacity	Level
Early warning and disaster risk assessment	
- Regional disaster risk assessment	
- Disaster potential data system	🔴
- Early warning system	
- Cooperation between	
regions Disaster education	
- Access to disaster information	
- Education and training	🔴
- Research methods	
- Disaster-resilient culture	
strategies. Reduction of basic risk factors	
- environmental management and protection plans	
- social development plans	🔴
- post-disaster rehabilitation and recovery	
- disaster impact assessment	
procedures. Preparedness in all lines.	
- Disaster management mechanisms	
- Contingency plans and regular training	🔴
- Financial and logistical reserves	
- Post disaster review procedures	

🔴 Low 🟡 Medium 🟢 High

The based on Table 1 it can be seen that the capacity of the Bayah Coastal area is included in the level 1 category with a value of 18.7%. That means

the regional capacity in the implementation of disaster management is lacking, requiring intensive capacity building. The region has had small achievements in disaster risk reduction efforts by implementing some advanced actions in plans or policies. Can be seen that the capacity with the highest value is the reduction of basic risk factors with a value of 17.18% and the priority with the lowest value is early warning and disaster risk assessment with a value of 12.5%.

Level of early warning capacity and disaster risk assessment

The capacity of early warning and regional disaster risk assessment of the Bayah Coast can be known from (1) Regional disaster risk assessment (2) Disaster potential data system (3) Early warning system, (4) Cooperation between regions. Level of early warning capacity and disaster risk assessment can be seen on Figure 1.
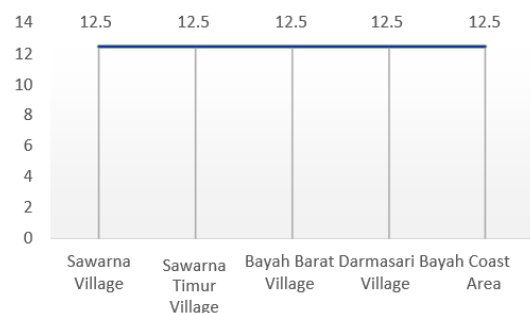

Fig 1. Level of early warning capacity and disaster risk assessment

From the aspect of disaster risk assessment, Coastal Bayah has identified locations at high risk of disaster. However, Bayah Coast has not yet prepared a disaster risk assessment. Viewed from the aspect of a potential disaster data system, the unavailability of a potential disaster data system on the Bayah Coast. Furthermore, it can be known aspects of the early warning system, the unavailability of an early warning system that is ready to operate for a large scale with wide reach to all levels of society. In this case the community still uses traditional tools to warn of the coming of a disaster. From the aspect of inter-regional cooperation, there has not been an assessment that considers cross-border risks in order to foster inter-regional cooperation for risk reduction.

It is known that the regional capacity value in the early warning and regional disaster risk assessment on the Bayah Coast is 12.5% so that it is at level 1. The area has had small achievements in disaster risk reduction efforts by implementing several advanced actions in plans or policies. This shows that local capacity in early warning and

disaster risk studies is still lacking and requires intensive capacity building. this disaster risk all villages have the same value which is 12.5%. This is because the villages in the Bayah Coast have known areas that have a high tsunami hazard and the people in the four villages still use local wisdom and natural phenomena as warnings of impending disasters, namely using "kentongan" and mosque loudspeakers in each village

Disaster Education Capacity Level

Disaster education capacity can be seen from 4 aspects (1) Access to disaster information, (2) Education and training, (3) Research methods, and (4) Disaster-resilient culture strategies. Disaster education capacity level can be seen on Figure 2.

Fig 2. Disaster Education Capacity Level

From the aspect of access to disaster information, there is already relevant information about the disaster and can be accessed but not evenly distributed in all villages in Figure 2. Disaster education capacity level the Bayah Coast, there are villages that do not have access to information about the disaster. Educational and training aspects, school curriculum, relevant education and training materials not including concepts and practices regarding disaster risk reduction and recovery. Aspects of research methods, research methods for multi-disaster risk studies have been carried out by the district for the Bayah Coastal area. And aspects of cultural disaster resilience strategies, there is no strategy to build awareness of the entire community in implementing disaster resistant cultural practices that are able to reach the wider community.

The capacity of hate education in the Bayah Coastal area is 18.7% which falls into the level 1 category. The region has had small achievements in disaster risk reduction efforts by implementing several advanced actions in plans or policies. This shows that the regional capacity in disaster management is still very poor and requires intensive capacity building.

It is known that the value of the regional capacity in disaster education in the Bayah coastal area is 18.7% in the level 1 category. This shows that the regional capacity in the management of disaster education is very insufficient and requires intensive capacity building. The village that has the highest value is West Bayah Village with a value of 37.5% and the village with the lowest value of disaster education capacity is East Sawarna Village with a value of 0%. That is because the West Bayah Village and Sawarna Village have relevant information about the disaster and can be accessed at all levels by all stakeholders. It is not found in the Village of East Sawrna and Darmasari Village.

Capacity level reduction of basic risk factors

The capacity to reduce basic risk factors can be identified through aspects of (1) environmental management and protection plans (2) social development plans (3) post-disaster rehabilitation and recovery (4) disaster impact assessment procedures. Capacity level reduction of basic risk factors can be seen on Figure 3.
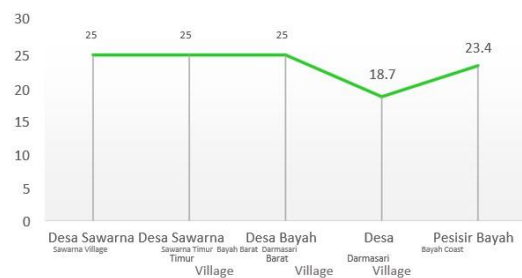

Fig 3. Capacity Level Reduction of Basic Risk

From the aspect of the environmental management and protection plan, Bayah Coast has carried out activities to protect and manage the environment and natural resources. From the aspect of development plans, there have been plans and implementation of social development implemented to reduce the vulnerability of the population most at risk of being affected by hazards. From the aspect of post-disaster rehabilitation and recovery. Bayah Coast does not yet have disaster risk reduction measures integrated into the post-disaster rehabilitation and recovery processes. In the aspect of disaster impact assessment procedures, procedures are not available to assess the impacts of infrastructure disaster risk on the Bayah Coast.

It is known that the capacity of the area in reducing the basic risk factors on the Bayah coast is 23.4% so that it is included in the level 1 category. The region has had small achievements in disaster risk reduction efforts by implementing several advanced actions in plans or policies. This shows that regional capacity in reducing basic risk factors is lacking and requires intensive capacity building. West Bayah Village, Sawarna Village, and East

Sawarna Village have a value of reducing basic risk factors by 25% and Darmasari Village have a capacity value of reducing basic risk factors by 18.7%.

The level of preparedness capacity on all lines

The capacity of preparedness in all lines can be known from aspects (1) Disaster management mechanisms, (2) Contingency plans and regular training, (3) Financial and logistical reserves, and (4) Post disaster review procedures. Preparedness is an activity which is active protection when a disaster occurs and provides short-term solutions to provide support for long-term recovery. The level of preparedness capacity on all lines can be seen on Figure 4.
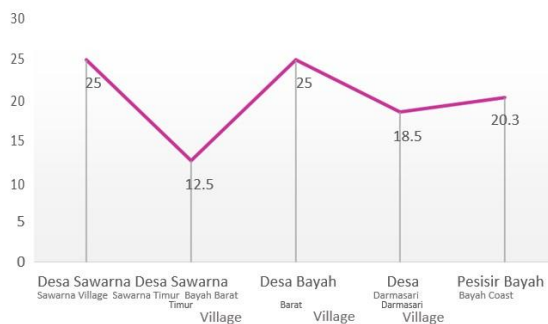

Fig 4. The Level of Preparedness Capacity on All Lines

From the aspect of disaster emergency management mechanism, it can be seen that in Bayah Coast, there is a strong institutional technical capacity and disaster emergency management mechanism with a perspective of disaster risk reduction in its implementation, but it is still not comprehensive. and evacuation drills have been held, only they are not held on an ongoing basis. From the aspect of financial and logistical reserves, there are financial reserves but they are still considered insufficient plus the absence of logistical reserves. From the aspect of the post disaster review procedure, Bayah Coast does not yet have a standard operating procedure for disaster emergency management.

It is known that the value of the regional capacity in preparedness on all lines in the Bayah coastal area is 20.3% so that it is included in the level 1 category. This shows that the regional capacity in disaster management is still very poor and requires intensive capacity building. The villages with the highest preparedness capacity in all lines are Sawarna Village and West Bayah Village with a value of 25% and the lowest is East Sawarna Village with a value of 12.5%.

4. CONCLUSIONS

Based on the results of research on the analysis of the Bayah Coastal area capacity, Lebak Regency, Banten Province, it can be concluded that the Bayah Coastal has a low capacity level of 18.8%, the Bayah Coastal regional capacity is included in the level 1 category. The region has had small achievements in the effort disaster risk reduction by implementing some advanced actions in plans or policies. This shows that the regional capacity in disaster management is still very poor and requires intensive capacity building.

5. REFERENCES

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