

THE EFFECT DISASTER LITERACY ON STUDENTS PREPAREDNESS MITIGATING TSUNAMI IN COASTAL AREA PANGANDARAN

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ABSTRACT

The potential for a tsunami disaster in Indonesia is very high. Pangandaran has many residential areas and school buildings that stand along the coast of the Indian Ocean. Disaster literacy studies are an alternative in disaster studies or studies, especially in the realm of tsunami disaster mitigation. In this research, the method used was to use a descriptive method with a quantitative approach analysis.. With the result of the study showing that: 1) level of disaster literacy at the elementary school (SD) is Enough category. The secondary school (SMP) is result Enough category. and the high school (SMA) result is Enough category. 2) level of preparedness disaster at the elementary school SD is Ready category. The secondary school (SMP) is result Ready category. and the high school (SMA) result is Almost Ready category. 3) The effect of disaster literacy on student preparedness mitigating tsunami disaster is The percentage of results from the test of the effect of disaster literacy on student preparedness in mitigating tsunamis, namely Identifying disasters by 87%, Understanding disasters by 86%. Analyzed disasters by 72%, and Produced and Communicated disasters by 69%

Keywords: Disaster, Literacy, Tsunami, Mitigation

INTRODUCTION

The territory of Indonesia is traversed by two world mountain passes and is located between four plate meetings, namely the Eurasian Plate, the Plate, the Indo-Australian, the Pacific Plate and the Philippine Plate. As stated by (Banowati, p.5). "The existence of mountainous paths and the confluence of earth plates causes Indonesia to be prone to volcanic eruptions, earthquakes and tsunamis, the areas directly adjacent to it are the West Coast of Sumatra Island, Java Island, the South Coast of Bali to Nusa Tenggara". As a result of this geological situation, the Indonesian region has a high level of tsunami vulnerability. The map of the distribution of the tsunami index in Indonesia can be seen in **Figure 1** below :

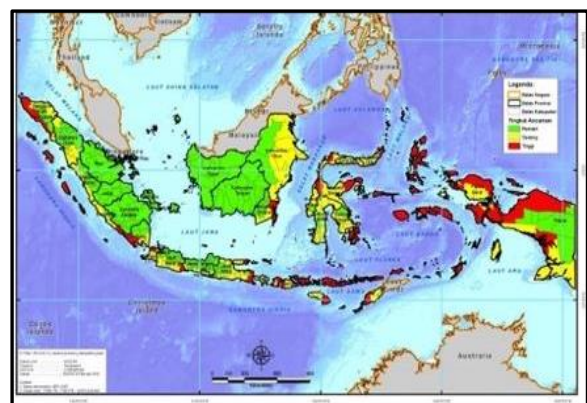


Figure 1. Tsunami Hazard Index
Map Indonesia

The level of tsunami disaster vulnerability in Indonesia can be seen from the frequency of tsunamis. The potential for a tsunami disaster in Indonesia is very high. Indonesia is ranked second as the country most

often hit by tsunamis with 71 events or almost 9% of the number of tsunamis in the world (Sri Naryanto et al., 2019). The lack of public awareness related to the tsunami disaster caused more than 600 people to die, 65 missing, 9,299 in care, and more than 75,000 (Lppm et al., n.d.).

Java island is the island with the most populous population in Indonesia. Based on data (BPS, 2020) it is recorded that Java Island has a population of 151,646 million people, or 56.23% of the total population of Indonesia, namely 269,603 million people. In other data such as found on page bbc.com of the July 22, 2019 edition, it is stated that the south coast has the potential for a large tsunami disaster due to the subduction of the Indo-Australia and Eurasian earth plates. Among other regions in West Java, the highest level of tsunami threat based on the data and map information above is the Pangandaran Regency area.

Pangandaran as an area famous tours have speed growth and development (Yanti et al., 2020). Demographically, Pangandaran has many residential areas and school buildings that stand along the coast of the Indian Ocean (Suradi, 2021). Based on data (Disdukcapil Pangandaran, 2019) it is stated that Pangandaran Regency has a fairly high population density of 544 / Km². In understanding disasters in an area, it is necessary to involve various stakeholders with different roles either in the scope of education or society.

Tsunami is a sea waves that occur suddenly are caused by disruption of seawater stability caused by earthquakes and due to impulsive disturbances to seawater (Pasaribu, p.1). Potential disasters could occur again in Pangandaran. to minimize the impact of disaster losses due to the tsunami disaster. One way is to improve literacy skills.

The only effort to minimize disasters is to prepare human resources, namely students through learning by building knowledge and skills in disaster preparedness situations (Kamil et al., 2020). The characteristics of digital native generation students are like freedom, short attention span, like to express themselves, think fast but not deep, learn from looking not instructions, download and upload,

social interaction on social media, like sharing and collaborating (Ridwana et al., 2022). Literacy can help in building disaster skills through learning resources.

Disaster literacy is the ability to deal with disaster threats through a set of knowledge that covers all necessary aspects in an effort to improve disaster risk reduction. Disaster literacy studies are an alternative in disaster studies or studies, especially in the realm of tsunami disaster mitigation (Suharini et al., 2020).

Literacy has a reason in developing knowledge and skills. These literacy skills include developing language to represent ideas, the ability to read and interpret texts, ideas both orally, in writing, and in images. (Dodd-Butera et al., 2021) . Disaster literacy needs to be discussed by students as a medium in building disaster skills (Prakoso et al., 2021).

Disaster literacy factors in primary and secondary schools are very important to improve the ability of students to deal with disasters. Factors as a basis in determining the next steps aimed at providing the role of disaster mitigation for students in dealing with tsunami disasters.

RESEARCH METHOD

The method used was to use a descriptive method with a quantitative approach. Quantitative descriptive method is research conducted to give a picture of a symptom or phenomenon. (Priyono, p.37) .

The descriptive method is one of the research methods that tries to solve problems that arise at the present time. (Sukmadinata, p. 72). The descriptive method is one of the research methods that tries to solve problems that arise at the present time.

Descriptive research aims at solving problems that exist today. The knowing to literacy level at the Primary School (SD), Secondary School (SMP), and High School (SMA). Researchers have distributed literacy instruments to respondents which are divided into three levels, namely Primary School students (SD Negeri 1 Pangandaran as many as 27 respondents, SD Negeri 2 Karangjaladri as many as 21 respondents), while respondents at

the Secondary School level, namely (SMP 1 Pangandaran as many as 104 respondents, SMP 2 Sidamulih as many as 28, and SMP 1 Parigi as many as 21 respondents), while at the research location, namely in the coastal area of Pangandaran Regency.

Research data are grouped into primary and secondary data. To measure the preparedness of students in mitigating tsunami disasters at each level, namely primary school (SD), secondary school (SMP), and high schools (SMA), refer to the calculation scale sourced from LIPI and UNESCO (2006). In measuring the level of preparedness, it has been determined into 27 question items.

1. Levels of Disaster Literacy

To measure the preparedness of students in mitigating tsunami disasters at every level, namely elementary, middle, and high schools, refer to theories sourced from LIP and UNESCO (2006). In measuring the level of preparedness it has been determined into 27 question items.

- Level of disaster literacy student (SD)

$$\text{Index} = \frac{5}{12} \times 100 = 41,66$$

- Level of disaster literacy student (SMP)

$$\text{Index} = \frac{6}{12} \times 100 = 50$$

- Level of disaster literacy student (SMA)

$$\text{Index} = \frac{7}{12} \times 100 = 58,3$$

RESULTS AND DISCUSSION

Table 1. Table Disaster Literacy Index

Schools Level	Value Index	Categories
Student Disaster Literacy (SD)	41,66	Enough
Student Disaster Literacy (SMP)	50	Enough
Student Disaster Literacy (SMA)	58,33	Enough

Source: Data analysis (2022)

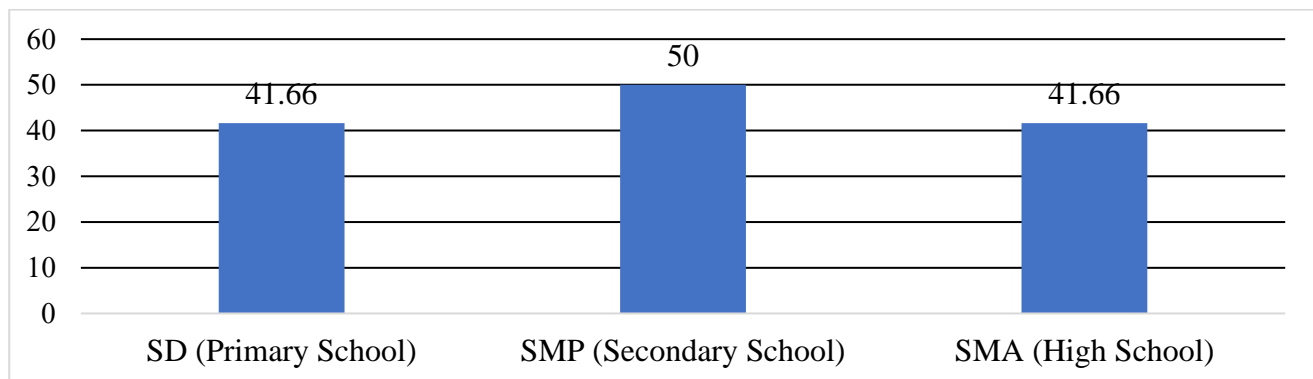


Figure 2. Graph of Levels of Disaster Literacy Students

Table 2. Table Disaster Literacy Index

Interval Score	Index Category	Levels
20 - 40	Low	Level 1
41 - 60	Enough	Level 2
61 - 80	High	Level 3
80 - 100	Very High	Level 4

Source: Data analysis (2022)

It can be concluded, in the analysis of the data above, the disaster literacy rate at the elementary school (SD) level is at Level 2,

which is score 41.66 “Enough”. The Secondary School (SMP) level is at Level 2, which is score 50 “Enough”, and the Senior

High School (SMA) level is 58.33 Level 2 "Enough".

2. Levels of Preparedness Students

To find the category size of the level of disaster preparedness of students at each level is explained through a formulation (LIPI and UNESCO, 2006) as follows:

- Level of disaster literacy student (SD)

$$\text{Index} = \frac{5}{12} \times 100 = 41,66$$
- Level of disaster literacy student (SMP)

$$\text{Index} = \frac{6}{12} \times 100 = 50$$
- Level of disaster literacy student (SMA)

$$\text{Index} = \frac{7}{12} \times 100 = 58,3$$

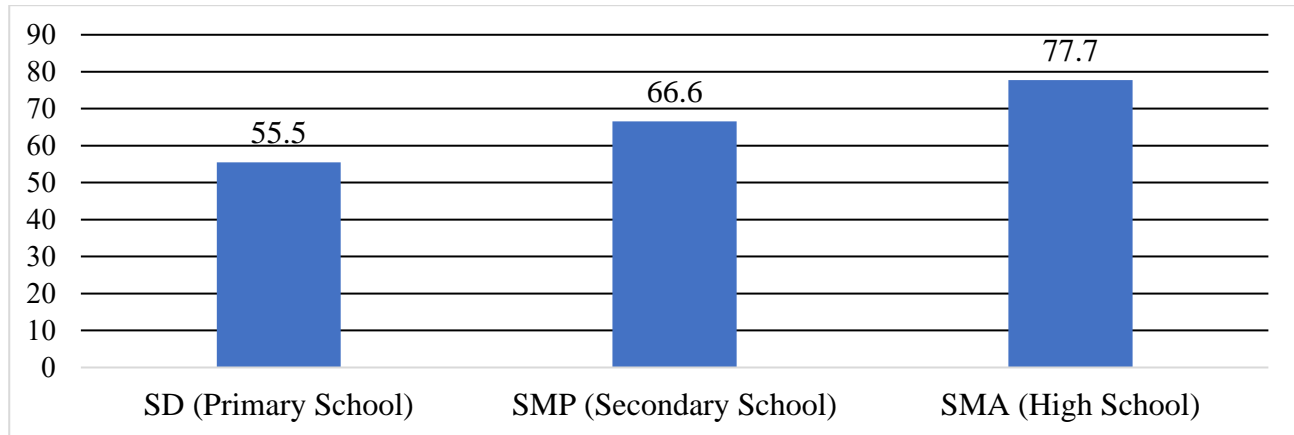


Figure 3. Graph of Levels of Preparedness Students

Table 3. Table Disaster Literacy Index

Value of Index	Preparedness Level Category
80 - 100	Very Well Prepared
65 – 79	Ready
55 – 64	Almost Ready
40 – 54	Unprepared
> 40	Not Ready Yet

Source: LIPI (2022)

Based on the result of the calculations above, it can be categorized into the level of disaster preparedness categories for students at

the primary school (SD), secondary school (SMP), high school (SMA) levels can be described further in **Table 4.** below :

Table 4. Preparedness Disaster Category Index

Schools Level	Value Index	Categories
Student Disaster Preparedness (SD)	55,55	Almost Ready
Student Disaster Preparedness (SMP)	66,6	Ready
Student Disaster Preparedness (SMA)	77,7	Ready

Source: Data analysis (2022)

Based on **Table 4.** and **Figure 3,** it is explained that the Preparedness of elementary school (SD) students has an index value of 55.55. Meanwhile, disaster preparedness for junior high school students has an index result of 66.6. Meanwhile, the disaster preparedness

rate of students at the Senior High School level is 77.7. It can be concluded based on the data above the disaster preparedness level of elementary school students is categorized as "Almost Ready", while the disaster preparedness level of junior high school

students is categorized as "Ready", and the level of preparedness of high school students is categorized as "Ready".

3. The Effect of Disaster Literacy on Student Preparedness in Mitigating Tsunami Disasters

The result of calculation using descriptive analysis using SPSS ver.26 for effect disaster literacy on preparedness student in school coastal areas Pangandaran Regency. The data findings can be seen in the following **Table 5.** :

Table 5. Preparedness Disaster Category Index

Variable (X)	Variable (Y)	Result (r)	Coefficient Determinant
Disaster Identify	Student Preparedness in Mitigating Tsunamis	0,872	87 %
Disaster Understand	Student Preparedness in Mitigating Tsunamis	0,867	86 %
Disaster Analysis	Student Preparedness in Mitigating Tsunamis	0,724	72 %
Disaster Predict and Communicate	Student Preparedness in Mitigating Tsunamis	0,690	69 %

Source: Data analysis (2022)

Based on the data in **Table 5**, it can be seen that the magnitude of the influence of disaster literacy on the disaster preparedness of students in mitigating tsunami disasters. Disaster identification of student preparedness showed a figure of 0.872. Understanding disasters on student preparedness shows a figure of 0.867. Analyzing disasters on student preparedness showed a figure of 0.724. predicting and communicating disaster disasters to student preparedness shows a figure of 0.690.

The percentage of results from the test of the effect of disaster literacy on student preparedness in mitigating tsunamis, namely Identifying disasters by 87%, Understanding disasters by 86%. Analyzed disasters by 72%, and Produced and Communicated disasters by 69%. It can be concluded that the magnitude of the influence of disaster literacy on student preparedness in mitigating tsunami disasters has a strong influence level > 69%.

CONCLUSIONS

Level of Disaster : Literacy the disaster literacy rate at the elementary school (SD) level is at Level 2, which is score 41.66

“Enough”. The Secondary School (SMP) level is at Level 2, which is score 50 Enough”, and the Senior High School (SMA) level is 58.33 Level 2 "Enough". 2) Level Preparedness Student : It can be concluded based on the data above the disaster preparedness level of elementary school (SD) students is categorized as "Almost Ready", while the disaster preparedness level of junior high school (SMP) students is categorized as "Ready", and the level of preparedness of high school (SMA) students is categorized as "Ready". 3) The effect of disaster literacy on preparedness student in mitigating tsunami It can be concluded that the magnitude of the influence of disaster literacy on student preparedness in mitigating tsunami.

RECOMMENDATIONS

Analysis of the effect of disaster literacy on student preparedness in mitigating tsunami disasters in the coastal area of Pangandaran district is generally categorized as having an influence and correlation based on Pearson corellation which shows an angda of 0.724 with an influence strength level of 72%. However, there are samples at the

primary school level that you still need to improve the literacy of the disaster context. Efforts that can be made to improve literacy levels at the elementary school level are to train to identify by coming directly to the field. In addition to training and providing awareness in disaster literacy. The data teacher element is a means of strengthening student disaster of literacy. There are local government programs working together to increase the effect of disaster literacy on student preparedness on a regular basis.

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