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THE VULNERABILITY OF FLOOD DISASTER TO THE STUDENTS SECONDARY SCHOOL AT JAMPEA ISLAND

Feri Padli¹, Ibrahim², Rusdi^{3*}

¹²³Universitas Negeri Makassar

*Corresponding author. Email: rusdi@unm.ac.id.

ABSTRACT

Flood is one of the conditions when overflowing water inundated the lower areas. The occurrence of floods always has both positive and negative impacts. If the flood occurs in residential areas, it will have a more negative impact. Therefore, people should have preparedness to prevent the effects of the flood. In 2022, a flood occurred in the Jampea Islands, Selayar Islands regency, and affected 90% of the population. It was caused by the high rainfall intensity that resulted in the higher river discharge and overflowing into settlements. It was unclear how much loss was caused by the flood, but this phenomenon has traumatized the community. This island has been occupied for hundreds of years. However, it has never been a flood that the water inundated 90% of the island's land. Since the flood is possible to occur when the high rainfall intensity happens. Hence, this research was conducted to find out how is community preparedness in disaster mitigation. The community was focused on students at the secondary school level (SMA and SMK). Students were selected by considering their readiness to be more proactive in disaster mitigation through learning practices and socialization in the family environment. The data were collected through an online questionnaire and observation, then analyzed with a diagram presentation system. The results found that the aspect of students' knowledge was still classified as low. While the institutional aspect is still relatively moderate. Therefore, the capacity of students still needs to be strengthened to prevent the magnitude of the risk of flooding.

Keywords: *vulnerability, flood disaster, secondary school*

1. BACKGROUND

Jampea Island is one of the islands parts of the Selayar Islands Regency, South Sulawesi Province. Located in the southern part of Sulawesi Island or precisely in the waters of the Flores Sea. It is the second largest island of the Selayar Islands group with a length of about 22 km, a width of 10 km, and the highest point is 521 meters above sea level (BirdLife International). Administratively, this island consists of 2 sub-districts, namely Pasimasunggu and East Pasimasunggu. The number of villages is 6 for a total of 12 villages. Inhabited by 8,072 people for the Pasimasunggu sub-district and 7,885 people for the East Pasimasunggu sub-district. So that a total of 15,957 people in 2021 with a variety of professions (Selayar Islands Regency Central Statistics Agency).

In addition to the earthquake that brought disaster to this island, it was also recorded that in 2022 it

experienced a flood[1]. Where 90 percent of the island's population is affected by flooding[4]. The high rainfall results in a large water discharge. One of the affected areas is the village of Massungke. The Dodak DAM overflowed so that the water filled the river flow, and irrigated the rice fields to residential areas. Rice fields and plantation land were inundated by river overflows which caused damage to paddy rice plants throughout the Massungke Village area. While people prefer to save items that are in the house. The floods in 2022 are the biggest ever on this island as well. The water level reaches the center of the adult (± 1 meter) for the lowest area[5]. Apart from causing material damage to the community, the flood also damaged some public facilities such as broken roads, collapsed bridges, and others. The situation was exacerbated by the occurrence of landslides due to flooding. (TvOne Team, Arsil Ihsan. 2022).

The phenomenon of flooding is a natural phenomenon that, if not taken seriously, will have the potential for a bigger disaster[6]. Extreme weather that causes high levels of rainfall in the western season has the potential to cause flooding to occur again. Community understanding and capacity in mitigation need to be strengthened[[7]. Therefore, the community needs basic knowledge in mitigation. To realize this, such as increasing the capacity of disaster-resilient communities, cross-sectoral coordination is needed in realizing various policies or technical guidelines in dealing with disasters [14].

Quoted from the 2017 edition of the book "Disaster Response Education", President Jokowi at the National Coordination Meeting on Disaster Management on 2 February 2019 in Surabaya City has given directions to provide disaster education to the public. More clearly delivered more specific education for disaster-prone areas through schools. However, there is no valid data yet to answer questions about whether the people on Jampea Island or school students are classified as resilient or vulnerable. To answer this, valid data is needed. How resilient or vulnerable is the community to flood disasters. Meanwhile, data from the Ministry of Education and Culture of the Republic of Indonesia recorded that 54,080 schools (24.59%) were located in Flood Prone areas. The Ministry of Education and Culture has also budgeted for a Disaster Safe Education Unit (SPAB)[2]. There needs to be an assurance that the resources in the education unit understand the concept and practice of this program. So this research is needed to be able to follow up on how resilient and understanding of flood disasters school students at the SMA/SMK level are.

2. METHOD

This research used descriptive quantitative method. The population was the people of Jampea Island and the samples were the students from Senior High School and Vocational High School. They were: SMA Negeri 4 Selayar and SMK Negeri 4 Selayar. They were selected by using purposive sampling technique by considering the age level and knowledge of the students.

Data collection techniques were carried out by using an online questionnaire and observation. The observation in question is the act of direct observation of the field to see and ensure that the data is valid. Observations were made before determining the research focus for the follow-up plan for problem-solving and after the research phase took place for the implementation of the research plan. The questionnaire was conducted to collect information related to student resilience to disasters. The questionnaire used the

instrument as a guide made by following the focus of the research target[8].

Data analysis techniques from the results of questionnaire used percentages which are described in the form of presentation diagrams with the following formula:

$$P = \frac{F}{n} \times 100\%$$

Information:

P = Percentage

F = Class Frequency

n = number of samples

3. RESULT AND DISCUSSION

3.1 Aspects of Social and Economic Knowledge

3.1.1 Community Participation

Actions to prevent flooding can be done by involving the community. For example, a community that has a vision of protecting the environment[9]. A community of nature lovers, a community of environmentalists or the like, and a community of citizens who are brought together and empowered by the government in protecting the natural and human environment[10]. However, in reality, from the results of data analysis, students did not find or know that there was community participation that could mobilize preventive measures against the potential for flooding in the Jampea Islands.

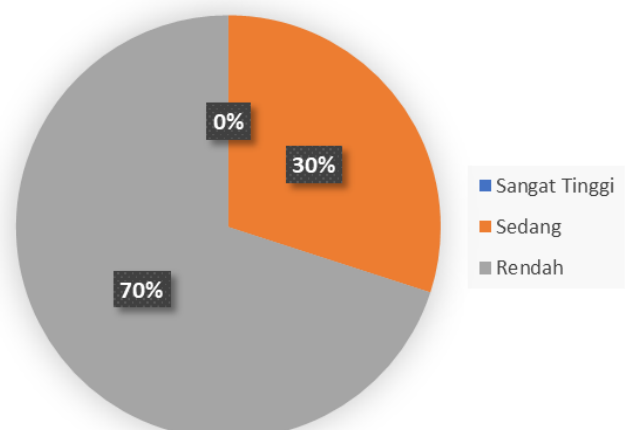


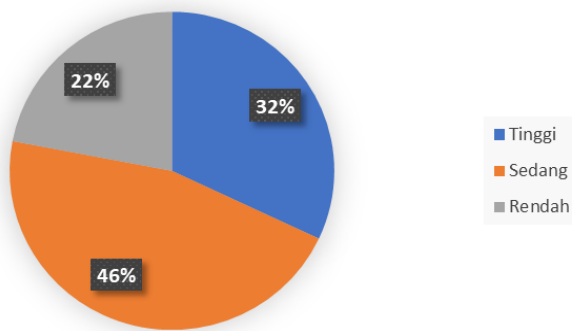
Figure 1. Community's Participation

It can be seen that community participation is very low at 70% and the remaining 30% is in the medium category. This means that community participation has not been maximized. The existence of a community that is active in actions to love the environment or

environmental restoration is still needed as a step in preventing the potential for flooding to occur again.

3.1.2 Knowledge of Flood Causes and Rescue Techniques

Knowledge becomes a variable to measure how much capacity students have in preventing floods. If students know the causes of flooding, they will naturally be able to take disaster prevention steps. Knowledge of the consequences that arise will reduce the risk of panic that might occur. So that it can calmly take rational action. Knowledge of rescue techniques will reduce the impact caused by a sudden disaster. Following are the results of data analysis related to the level of students' knowledge of the causes of flooding and rescue



techniques.

Figure 2. Knowledge level of flood causes and rescue techniques

Figure 2 shows the results of the analysis of knowledge about the causes of flooding in the moderate category with a total achievement of 46%. While the high category is 32% and 22% low. This indicates that students know enough about the causes of flooding and know the steps to save from a potential disaster that will occur.

3.1.3 Flood Risk Awareness

In general, flood conditions are known to have a negative impact. The resulting impact can be a small to fatal risk. So that awareness is needed in dealing with flood conditions. To break down the level of risk generated. Some of the most frequently reported risks are in the form of loss of property, physical, social, and even risks to the lives of the affected people.

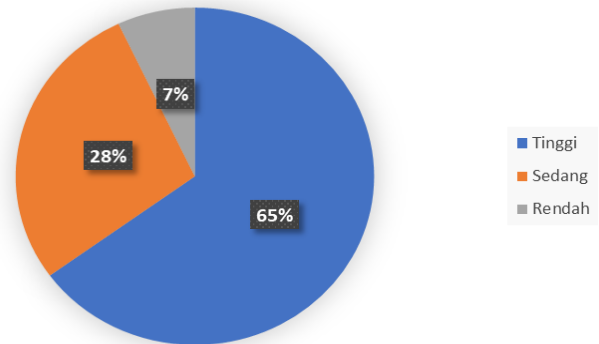


Figure 3. Frequency of awareness of flood risk

The level of awareness of the risks posed by floods is dominantly high with a frequency percentage of 65%. While there are 28% in the category of understanding flood risk and the remaining 7% in the low category. This awareness will strengthen awareness of the importance of disaster prevention and mitigation measures.

3.1.4 Disaster Preparedness

One of the variables in measuring social capacity against disasters is community preparedness. In the results of the research analysis, it was found that the level of disaster preparedness in students was still dominant in the low category with a large percentage of 30%. Can be seen in the following diagram:

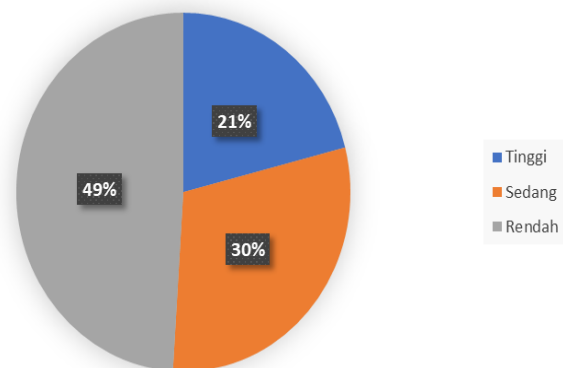


Figure 4. Frequency of students' readiness

This needs to be a concern that at any given time it is necessary to always be on standby to avoid panic when a flood comes. Preparedness is the most effective attitude in reducing disaster risk. Preparedness for disasters will reduce the chances of being affected. Several preparatory matters related to health, finance, safety knowledge, and others.

3.1.5 Culture and Heritage

Cultural indicators in this study mean character and social attitudes in protecting the environment to avoid

flood disasters. This culture is usually passed on to family or close relatives. So to ascertain whether there is a culture passed down by the former community in keeping the environment safe, an analysis is carried out regarding the culture of protecting the environment which has been passed down from generation to generation. The results of the analysis can be seen in the following diagram:

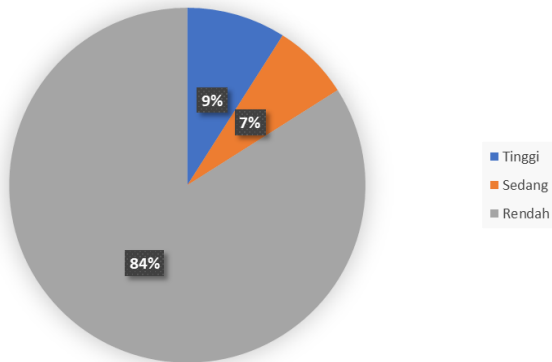


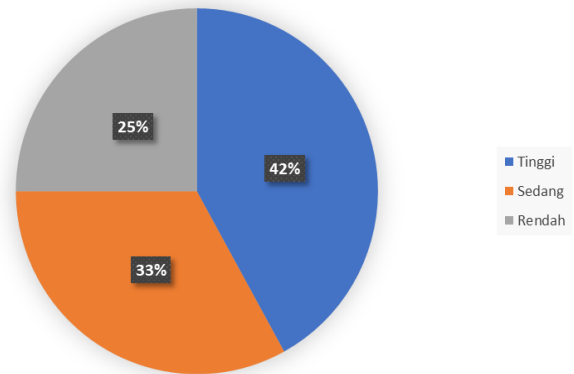
Figure 5. Culture indicator

It can be seen that culture and heritage cannot have a positive impact on the environment in preventing flood potential. The percentage of results shows a low culture in protecting the environment. 84% in the low category. This can cause the level of concern for the environment to continue to decrease if you do not cultivate a love for the environment. This indifference will be contagious and can be a bad legacy[13]. So it is necessary to cultivate a love for the environment to protect and avoid potential disasters.

A. Institutional Aspect

a.1. School activeness in the task of protecting the environment

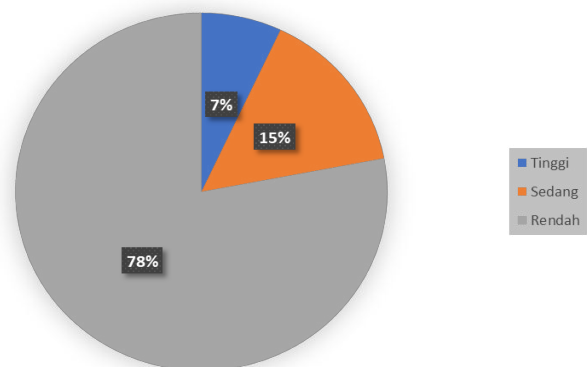
The activeness of schools in providing coaching to students to love the environment also affects disaster preparedness[12]. Students will gain knowledge, experience and be able to change their character for the better. Schools can maximize the educational function of students through extracurricular activities. Students can be facilitated in activities in the form of coaching to prevent potential disasters. To see the activeness of schools in involving students to protect the environment can be seen in the following budget:



Judging by the presentation of the school's activeness in protecting the environment, it is in the high category with a large percentage of 42%. The remaining 33% are in the medium category and 25% are in the low category. From this, it can be understood that all students feel that the school has not been optimally active in protecting the environment for disaster mitigation.

a.2. Student organizations in protecting the environment

Student institutions have an impact on changing students' daily behavior. Students will be more active with a forum such as a student organization or institution. So a survey was conducted to find out the existence of the institution and the involvement of students in protecting the environment as illustrated by the following data:

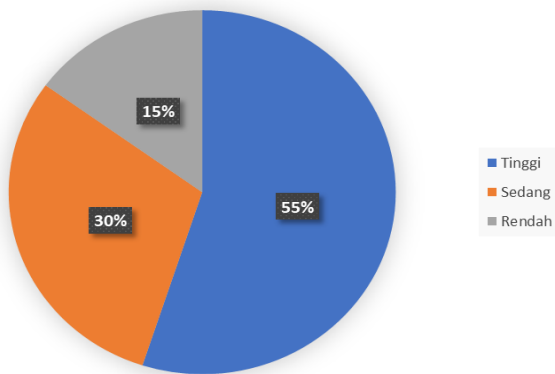


The results illustrate that the level of institutional participation in facilitating students to protect the environment is still very low. So that it can be said that student institutions do not have an impact on students' attitudes toward protecting the environment.

a.3. Learning disaster mitigation practices

The intended mitigation practice learning is a learning process that embeds disaster mitigation materials and practices[11]. In the school learning curriculum, it has been implied in geography subjects.

Students feel they know more about disaster mitigation from the results of learning in class.



From the survey results, it can be seen that learning disaster mitigation practices at school is in the high category, namely 55%. This shows that learning can support students' capacity in disaster mitigation.

1. Students' knowledge of floods is still relatively low to moderate with a value of 1.75 out of 4 variables assessed, namely knowledge of the causes of flooding and its resolution techniques, the frequency of risk awareness, self-preparedness for disasters as well as culture and heritage from their predecessors in responding to disasters.
2. The institutional aspect is in the moderate category with a value of 2.33. This means that institutionally students have not yet received an adequate forum for carrying out actions to save the environment and practice disaster mitigation.

Table 1. Institutional and Organizational Aspect

	CATEGORY	VALUE	MEAN SCORE
INSTITUTIONAL ASPECT			
Level of Knowledge of Reasons and Solution Techniques	Low	1	1,75 = 42,85%
Frequency Awareness of risk	Medium	2	
Disaster Preparedness	High	3	
Culture and Heritage	Low	1	
ORGANIZATIONAL ASPECT			
School Activeness Protects the Environment	High	3	2,33 = 57,14%
Student Organizations in protecting the environment	Low	1	
Mitigation Practices Learning	High	3	

4. CONCLUSION

The results of the questionnaire analysis can be concluded that high school students (SMA/SMK) in the Jampea Selayar Islands have various responses to the flood phenomenon. Focus on two main aspects that are considered the most influential. Namely aspects of knowledge about floods and institutions in the school environment as a place to learn and shape student character in responding to floods. Student responses from the knowledge and institutional aspects are:

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REFERENCES

- [1] Arsil Ihsan. (2022). Banjir Dan Longsor Putus Jalan Poros Penghubung 2 Kecamatan Di Pulau Jampea Selayar: <https://www.tvonenews.com/daerah/sulawesi/28671-banjir-dan-longsor-putus-jalan-poros-penghubung-2-kecamatan-di-pulau-jampea-selayar?page=all>. Diakses tanggal 21 Februari 2023
- [2] Dani, I., Mulia, R. R., Erfani, S., & Yogi, I. B. S. (2023). PENGGUNAAN SISTEM INFORMASI GEOGRAFIS UNTUK PEMETAAN KAWASAN RAWAN BENCANA BANJIR DI KABUPATEN LAMPUNG TIMUR. *Jurnal UVAYA Sains dan Teknologi*, 1(1), 54-69.
- [3] Indarto. 2013. *Sistem Informasi Geografis*. Graha Ilmu. Yogyakarta
- [4] Khambali. (2017). *Manajemen Penanggulangan Bencana*. Yogyakarta: ANDI. Hal. 4 Press.
- [5] Maantay, J., & Ziegler, J. (2006). *GIS for the Urban Environment*. Redlands, CA: Esri
- [6] Suhud, H. BANJIR DI LAMONGAN TAHUN 1966-1994: STUDI HISTORIS TENTANG SEBAB-SEBAB, DAMPAK DAN PENGENDALIANNYA.
- [7] Sebastian, L. (2008). Pendekatan pencegahan dan penanggulangan banjir.
- [8] Somantri, L. (2008). Pemanfaatan teknik penginderaan jauh untuk mengidentifikasi kerentanan dan risiko banjir. *Jurnal Geografi Gea*, 8(2).
- [9] Sugandi, D. (2014). Pembelajaran Sistem Informasi Geografis Bagi Guru Geografi di Kabupaten Bandung Dan Bandung Barat. *Edusentris*, 1(1), 1-12
- [10] Triana, Y. T., & Hidayah, Z. (2020). Kajian Potensi Daerah Rawan Banjir Rob Dan Adaptasi Masyarakat Di Wilayah Pesisir Utara Surabaya. *Juvenil: Jurnal Ilmiah Kelautan dan Perikanan*, 1(1), 141-150.
- [11] Padli, F., Jumardi, A., Busra, Z., & Asrun, B. (2017). Identifikasi Kemiringan Lereng di Kawasan Pemukiman Kecamatan Mungkajang Berbasis Geographic Information Sistem. *Prosiding SEMANTIK 2017*, 1(1), 7-17
- [12] Ulum, M. C. (2013). Governance dan capacity building dalam manajemen bencana banjir di Indonesia. *Jurnal Dialog Penanggulangan Bencana*, 4(2), 69-76.
- [13] "Tanah Jampea". Important Bird Areas factsheet. BirdLife International. 2014. Retrieved 2014-03-15.
- [14] Rusdi, R., Adeyemi, A. T., & Padli, F. (2023). Local Community Adaptation to Flood Disaster In Soppeng District. *JAMBURA GEO EDUCATION JOURNAL*, 4(1), 84-91.