



THE LEVEL OF PREPAREDNESS OF THE SANGAJI VILLAGE COMMUNITY TO OVERCOME THE THREAT OF ROB

AUTHORS INFO

Astajim Ando
Student at Department of Geography,
Khairun University

Ramdani Salam
Lecturer at Department of Geography,
Khairun University
ramdani.salam@unkhair.ac.id

Yuni Andriyani Safitri
Lecturer at Department of Geography,
Khairun University
yuniandriyani@unkhair.ac.id

ARTICLE INFO

ISSN: 2716-4837
Vol. 6, No. 2, December 2024
URL: <http://usnsj.id/index.php/geographica>

Suggestion for the Citation and Bibliography

Citation in Text:

Ando, et.al (2024)

Bibliography: Ando, A., Salam, R., & Yuni, A. S. (2024). Analysis of The Level of Preparedness of The Sangaji Village Community to Overcome The Threat of Rob. *Geographica: Science & Education Journal*, 6 (2, December), 44-50.

Abstract

Community preparedness in facing flood disasters is a multifaceted issue that involves understanding resilience, increasing knowledge, and implementing effective interventions. Various studies have highlighted the importance of systematic assessment and community involvement to improve the level of preparedness, including this study. This study was conducted with the aim of determining the level of preparedness of the coastal community of Sangaji Village in facing the threat of tidal flooding due to tidal waves. This study uses a quantitative descriptive approach or method. To limit the research area, only communities living in the coastal border area within a radius of 200 meters were used as samples in this study with a quota of 10% of the total number of families so that 40 families were obtained as respondents. Based on data analysis, it was found that the level of community preparedness at the research location was included in the very good category (82.02%). The preparedness parameters assessed if described from the largest to the smallest level are the early warning system (96%), Emergency Response Plan (80.5%), Knowledge (80.25%), Resource mobilization (78.25%) Attitude (72.5%). Using loudspeakers from prayer rooms and mosques or ringing electric poles with objects so that they produce sound as methods used in the early warning system which are considered effective. However, the community's attitude is sometimes indifferent in facing preparation, in the form of simulations, socialization related to disasters in general.

Keywords: Level of preparedness, Rob

A. Introduction

The climate in Indonesia is greatly influenced by its geographical characteristics. Indonesia has three basic climate patterns, namely monsoonal, equatorial and local climates which cause diverse rainfall patterns. This condition is increasingly complex due to the influence of global warming. The effects can be in the form of increasing temperatures and sea

surface water temperatures. This triggers various hydrometeorological disasters such as floods, extreme weather, drought, extreme waves, abrasion and forest fires and so on (BNPB, 2017).

A disaster is an event or series of events that endanger and disrupt people's lives and livelihoods. The causes can come from natural factors, non-natural factors, or human actions, which ultimately result in losses in the form of loss of human life, environmental damage, loss of property, and psychological impacts (in accordance with the provisions of Law No. 24 of 2007 concerning Disaster Management)

A tidal flood disaster refers to a condition where sea water rises suddenly and reaches a significant height, causing seawater to inundate coastal areas. Tidal floods can occur due to a combination of high tides, meteorological factors, and the topography of vulnerable areas. This phenomenon often occurs in coastal areas and can cause serious harm to communities, the environment, and the local economy.

Urban development often involves land reclamation projects in coastal areas. Reclamation can change the topography and structure of the coast, making the area more vulnerable to high tides and tidal flooding. The addition of artificial land often causes changes in water flow and tidal patterns, increasing the risk of seawater inundation inland. In addition, increasing population and infrastructure development in coastal areas can increase pressure on natural resources. The addition of settlements, highways, and other facilities can change water flow patterns and contribute to tidal flooding through changes in land use.

The conditions described above are the same as the development that occurred in the city of Ternate. As a coastal city that developed at the foot of Mount Gamalama, residential areas are densely populated to sloping areas in the coastal area. Along with the increase in population which has increased quite significantly, reclamation has been carried out massively for the development of supporting infrastructure. As a result, some areas have experienced severe abrasion and rising sea levels in other areas as a result of this reclamation activity.

It was recorded by the Ternate City BPBD as stated in various online media, that in the last two years there have been tidal floods in the Ternate city area. The Decree on the Determination of the Emergency Response Status for Tidal Floods in the Ternate City area based on the Mayor's Decree No. 131 / III.3 / KT / 2021, was set for 14 days starting December 4, 2021.

The Tidal Waves that hit some areas in the Sangaji Sub-district, especially the coastal areas, the high tide overflowed and inundated residential areas and roads, residents fled to safe areas, the Village Head along with a brief Chronology of the Incident that occurred on Saturday, December 4, 2021 in the Sangaji Sub-district. Local residents worked together to help residents affected by the overflow. There was damage to residents' houses, (4 houses were lightly and heavily damaged) 150 residents were displaced. (Ternate City BPBD 2021).

Regarding efforts to reduce the impact of flood disasters that can be done through socialization activities and simulations of flood natural disaster preparedness (Yeri & Latifa, 2017). Community preparedness in disaster management has a fairly important role, this is closely related to knowledge about a disaster itself. Preparedness is included in the disaster management process. An action related to efforts to mobilize the community in terms of reducing disaster risks in order to minimize losses incurred after a disaster occurs.

The impact of tidal flood disasters involves material and non-material losses, such as loss of human life, infrastructure damage, economic losses, and psychological impacts. Therefore, community preparedness involves a deep understanding of the causal factors, development of early warning systems, and active participation in education and training programs. Effective mitigation and response strategies need to be implemented to protect communities and coastal environments from the threat of tidal flood disasters.

Through active collaboration between stakeholders, the implementation of tidal flood prevention strategies can be more holistic, effective, and sustainable. The involvement and support of various parties at various levels will increase the resilience of communities and coastal environments to the threat of tidal floods. As an initial step, an analysis of the level of preparedness of coastal communities in facing the threat of tidal flooding is important.

B. Methodology

This study uses a quantitative descriptive approach or method. Quantitative research methods are research approaches that collect, analyze, and interpret data quantitatively to compile generalizations and identify patterns or relationships that may exist between certain variables. To limit the research area, only communities living in coastal areas within a radius of 200 meters were sampled in this study with a quota of 10% of the total number of families so

that 40 families were obtained as respondents. The instruments in this study used questionnaires and observation sheets. The observation sheet was used to observe the condition of the research environment while the questionnaire was used to obtain data on the preparedness of the Sangaji village (see figure 1.) community as seen from the parameters: 1) knowledge, 2) attitudes, 3) early warning systems, 4) emergency response plans, and 5) resource mobilization using a Likert scale of 1-5 (disagree-strongly agree). then analyzed and calculated using a scoring technique to determine the value interval. To determine the level of preparedness, the equation (LIPI-UNESCO, 2006) was used:

$$\text{Index} = \frac{\text{Rill Score}}{\text{maximum score}} \times 100$$

Table 1. Community Preparedness Index Value

No	Index	Classification
1	80-100%	Very Ready
2	65-79%	Ready
3	55-64%	Almost Ready
4	40-54%	Not Ready Enough
5	<40%	Not Ready

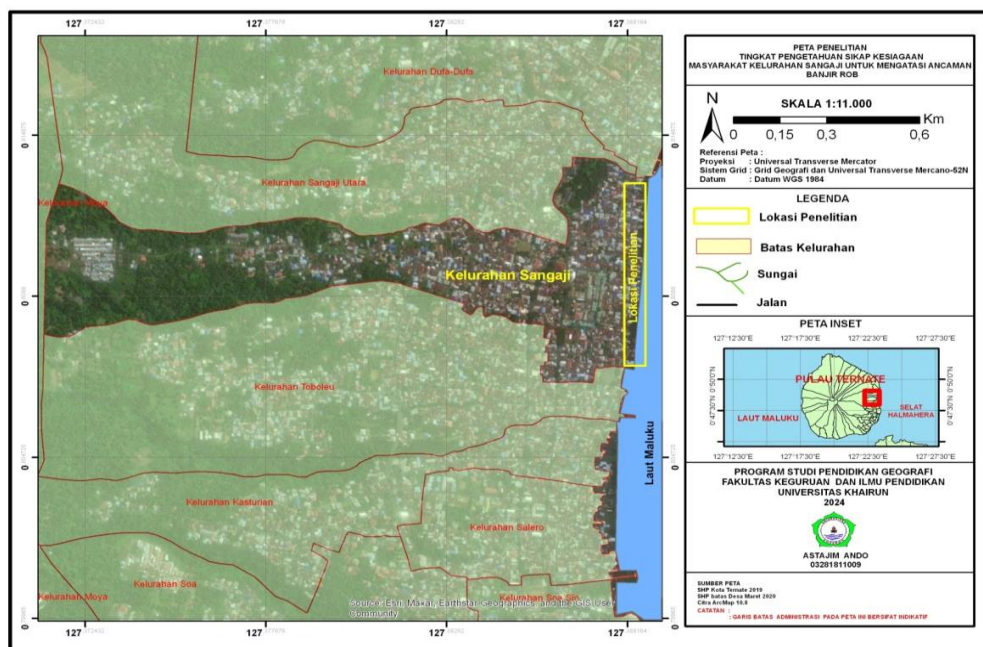


Figure 1. Research Location Map

C. Findings and Discussion

1. Findings

The Sangaji Village area based on topographic conditions is at an altitude of 0-400 meters above sea level with a slope gradient of between 2% -8% with a flat category. The research area is a village located on the coast of Ternate City so that the socio-economic conditions of the community depend on office activities, fishermen and entrepreneurs. The age of respondents is generally between 30-60 years with an average education level of junior high school

From the community preparedness data obtained using questionnaire data based on the parameters of knowledge, attitudes, emergency response plans, early warning systems and resource mobilization, which were tested on 40 respondents. consisting of 31 statements which were then categorized into 5 classes, namely. Very Ready, Ready, Almost Ready, Less Ready, and Not Ready from the cross-tabulation results.

Table 2. Level of Community Preparedness in Facing the Threat of Rob

No	Parameters	Total	Average	Persentation	Clasification
1	Knowledge	160,5	4,00	80,25	Very Ready
2	Attitude	153	3,82	72,5	Ready
3	Emergecy Response Plan	161	4,02	80,5	Very Ready
4	Early Warning System	192	4,8	96	Very Ready
5	Resource Mobilization	156,5	3,91	78,25	Ready
Total				82,02	Very Ready

Source: Data Processing Result, 2024.

Based on the table: above, it can be seen that respondents who have a parameter level of "knowledge" of 80.25, the parameter "attitude" 76.5 for "Emergency response plan of 80.5 "Early warning system 96" and "Resource Mobilization of 78.25 parameters. Then the value obtained from the community for the level of preparedness parameters with a total of 82.25 from 40 respondents and 31 statements, so with this, from 5 preparedness parameters are categorized as very ready. In addition to the questionnaire, this study uses an observation sheet to see the conditions of the research environment such as the condition of residential buildings, the distance of settlements from the sea, the availability of prevention efforts, and others.

Table 2. Observation Sheet

No	Statements	Yes	No	Adjevtives
1	The location of the Sangaji sub-district residents' settlements is in the lowlands.	✓		It is true that the settlements are very low/flat
2	The residents' settlements in Sangaji Sub-district are close to the beach or are on the coastal border	✓		Most of the houses are directly adjacent to the beach.
3	There is a coastal embankment for tidal flooding	✓		The settlements are built with wave-retaining embankments
4	Buildings with more than one	✓		There are several houses built by residents with more than 1 floor
5	There is a tool for an early warning system for tidal flooding		✓	There are no personal tools used in each RT/RW when the tidal flood comes. There are only general tools used by the community

Source: Observation Field Result, 2024

2. Discussion

Based on the results of the study that have been described previously about the level of community preparedness in dealing with the threat of tidal flooding in Sangaji Village is 82.02%, meaning that respondents are very prepared to face tidal flood disasters. In fact, this is in contrast to the findings of Saiful et al. (2024) in Martapura with the same indicators, who actually found that the community at the research location had a low preparedness index of 56%. From the results of the explanation above, it is known that the level of community preparedness in facing disasters is very important to know how prepared the community is in facing tidal flood disasters. Because preparedness can minimize the impact of disasters that occur, and also preparedness aims to ensure that the resources owned by the community can meet the needs when a disaster occurs. This is in line with the theory (Gissing, 2002) states that preparedness actions for flood disasters can be actions taken to reduce the impact of disasters, both direct and indirect impacts.

Preparedness efforts also aim to ensure that the resources needed to respond to disaster events can be used effectively during a disaster and know how to use them. Then in terms of preparedness according to Sutton and Tierney (2006), related to the International Strategy for Disaster Reduction, namely, Knowledge and Attitudes Towards Disasters Knowledge of disasters is the main reason for someone to carry out protection activities or

existing preparedness efforts. This is in line with the research findings obtained by Baiq, et al. (2024), that increasing the understanding of coastal communities regarding tidal floods significantly increases preparedness and better adaptation.

Emergency Response Plan An emergency response plan is a plan owned by individuals or communities in dealing with emergencies in an area due to natural disasters. A warning system is a system where you understand information, warning signs and know what to do Resources, which are needed by individuals or communities in an effort to recover or survive in disaster conditions or emergencies. Supporting resources come from internal and external sources from the disaster-affected area. This statement is also reinforced by the results of observations where the level of community knowledge that is very ready is formed because the community already understands and understands what a tidal flood disaster is. The community already understands what a disaster is because in this village not only experienced a flood disaster but also other disasters. In general, people are motivated to anticipate or maintain the security of their homes from flooding. This can be seen from the attitude of the head of the family who always reminds other family members to be responsible for moving valuables to a safer/higher place.

In general, people in Sangaji Village will only secure their valuables in their homes, which coincidentally, on average, their houses have more than one floor. On average, their houses have also been raised to minimize flood water entering. Overall, all people already have a view of where to evacuate if a disaster occurs. Most people in Sangaji Village do not prepare a special first aid kit, people only provide medicines for headaches, flu, or other minor illnesses. In fulfilling basic communication needs, people in Sangaji Village use smartphones to inform everything if a disaster occurs. From the results of the study, the early warning system used by the people of Sangaji Village is using loudspeakers from prayer rooms and mosques or ringing electric poles with objects so that they make a sound. If a disaster occurs in the Sangaji Village area, the local community uses loudspeakers to inform other residents. So far, loudspeakers have been effectively used as an early warning tool in the event of a disaster. This step has been considered effective so far but does not prepare the community to be more careful because it tends to be done immediately after a disaster occurs. According to Islami, et.al. 2023, individual characteristics are less significant in influencing the level of community preparedness, which is strongly correlated with intensity, frequency of media use, and openness of information.

Mobilization of community resources is needed as an effort to prepare the community in preparing themselves for disasters. Efforts to prepare themselves by having savings to prepare for a very emergency situation and requiring more funds. Some people already have future savings that can be used at any time if the situation is very urgent. The community also has relatives or family who are ready to help if the flood really can no longer be handled by the neighbors around them. Resource mobilization is critical to community flood preparedness, as evidenced by numerous studies. Effective resource mobilization includes human resources, funding and logistics (Pertiwi, et.al 2024), technical guidance (Mavhura, et.al 2020), social networks (Wilk, 2023), and community engagement (Amitsari, et.al 2024), which collectively increase community resilience to flood threats. While resource mobilization is critical to flood preparedness, it is also important to recognize that some communities may face barriers such as poverty and lack of awareness, which can hinder their ability to prepare effectively. Addressing these challenges is critical to increasing overall community resilience.

The community has a high level of concern for sharing information about flood disasters. All information obtained through RT, RW, and sub-district meetings they convey to neighbors who do not participate in the activity. The delivery of information is carried out casually through light chats in front of the house or through meetings of the fathers and mothers of each RT. Furthermore, the community also has a high level of environmental concern, this is manifested through mutual cooperation activities carried out by each RT, RW or sub-district. In line with this study, another study conducted in Jigawa Nigeria found that the community preparedness index was above the threshold value of 65% however, the recovery plan showed a lower level of preparedness. Therefore, what is needed is a better flood management strategy, including real-time forecasting and community assessment of flood risk zones (Zakaria, et.al. 2024)

D. Conclusion

Based on data analysis, it was found that the level of community preparedness at the research location was included in the very good category (82.02%). The preparedness parameters assessed if described from the largest to the smallest level are the early warning

system (96%), Emergency Response Plan (80.5%), Knowledge (80.25%), Resource mobilization (78.25%) Attitude (72.5%). Using loudspeakers from prayer rooms and mosques or ringing electric poles with objects so that they make noise as methods used in the early warning system which are considered effective. However, the community's attitude is sometimes indifferent in facing preparation, in the form of simulations, socialization related to disasters in general.

E. References

- Abdul, H., & Rizki. 2014. *Pengertian, Sifat, dan Macam-macam Gelombang*. Diakses dari <http://www.softilmu.com/2014/08/pengertian-dan-macam-macam-gelombang.html>.
- Abdullah. 2015. *Metodologi Penelitian Kuantitatif*. Yogyakarta: Aswaja Pressindo
- Adiwijaya, C. 2017. Pengaruh Pengetahuan Kebencanaan dan Sikap Masyarakat Terhadap Kesiapsiagaan Menghadapi Bencana Tanah Longsor (Studi di Kelurahan Lawanggintung, Kecamatan Bogor Selatan, Kota Bogor). *Jurnal Prodi Manajemen Bencana*, 3 (2), 81–101. Retrieved from <http://139.255.245.7/index.php/MB/article/download/107/90>
- Amitasari, N., Wahyu, Wahyu., Deasy, Arisanty., Herry, Porda, Nugroho, Putro., Mohamad, Zaenal, Arifin, Anis. 2024. Community Preparedness for Flood Disasters in Karang Intan District as a Social Sciences Learning Resource. doi: 10.20527/jpg.v11i1.18301
- Baiq, N, Apriani, Idris., Irwan, Hadi., Maelina, Ariyanti., Supriyadi, Supriyadi., Hapipah, Hapipah. 2024. 1. Peningkatan Ketaggapan Warga Pesisir Terhadap Bencana Banjir Rob : Warga Tangguh Bencana. *Jurnal Lentera*, doi: 10.57267/lentera.v4i2.397
- BNPB 2017. *Buku Saku Tanggap Tangkas Tangguh Menghadapi Bencana*. Jakarta: Pusat Data, Informasi dan Humas BNPB.
- Carter W. Nick. 1991 *Manajemen Penanggulangan Bencana*. Perpustakaan Nasional Data CIP (Manila. Philipina).
- Dodon. 2013. Indikator dan Perilaku Pesiapsiagaan Masyarakat di Permukiman Padat Penduduk dalam Antisipasi Berbagai Fase Bencana Banjir. *Jurnal Perencanaan Wilayah Dan Kota*, 24(2). (Agustus, 2013), hlm 125-126.
- Djauhari N. 2006. *Geologi Lingkungan*. Graha Ilmu. Yogyakarta Sriyono. (2014). *Geologi dan Geomorfologi Indonesia*. Ombak. Yogyakarta.
- Erlia, D., Kumalawati, R., & Aristin, N.F. 2017. Analisis Kesiapsiagaan Masyarakat Dan Pemerintah Menghadapi Bencana Banjir Di Kecamatan Martapura Barat Kabupaten Banjar. *Jurnal Pendidikan Geografi*, 4(6), 15-24.
- Islami, F., Fahrimal Y., Husna, A., & Maulina, P. 2023. Keterdedahan informasi bencana dan kesiapsiapagaan masyarakat menghadapi bencana banjir rob di kabupaten aceh barat. *Jurnal Media dan Komunikasi Indonesia*, doi: 10.22146/jmki.82761
- Fildza. 2022. Tingkat Kesiapsiagaan masyarakat dalam menghadapi Bencana banjir di Perumahan Lembah Griya indah Kelurahan Ragajaya.
- Gissing, A. 2002. *Bussines In The Macleay Commercial Flood Damage Kempsey 2001*. NSW: Floodplain Management Conference.
- Gregg, C. E., Houghton, B. F., Johnston, D. M., Paton, D., & Swanson, D. A. 2004. The Perception of Volcanic Risk in Kona Communities from Mauna Loa and Hualalai Volcanoes, Hawaiki. *Journal of Volcanology and Geothermal Research*, 130, 179-196.
- IDEP, Y. 2007. *penanggulangan Bencana Berbasis Masyarakat Ubud*: Yayasan IDEP.
- Ikhsyan, N. Catarina, M., & Rintayati, P. 2017. Analisis Sebaran Dampak dan Adaptasi Masyarakat Terhadap Banjir Robdi Kecamatan Semarang Timur dan Kecamatan Gayamsari Kota Semarang. *Jurnal Geo Eco*, 3(2), 145–156.
- Latifa, A., & Yerry, P. 2017. Survei Kesiapsiagaan Anak Usia Sekolah Terhadap Bencana Alam Banjir Bandang Di Desa Kemiri Kecamatan Panti Jember, *Nurseline Journal*, 2(1), 17-22.
- LIPI-UNESCO/ISDR, 20016. *Kajian Kesiapsiagaan Masyarakat Dalam Mengantisipasi Bencana Banjir*. Deputi Ilmu Pengetahuan Indonesia, Jakarta.
- Mavhura, E., Tawanda, Manyangadze., Chipo, Mudavanhu., Ezra, Pedzisai. 2020. An Assessment Of Riparian Communities' Preparedness To Flood Risk: The Case Of Mbire Communities In Zimbabwe. *GeoJournal*, doi: 10.1007/S10708-020-10329-7
- Peraturan Daerah Kota Ternate Nomor 6 Tahun 2010 tentang Organisasi dan Tata Kerja Badan Penanggulangan Bencana Daerah Kota Ternate
- Pertiwi, R., Ahyana., Aklima, Aklima. 2024. Mobilization of Community Resources as a Preparedness Effort for Disaster in Aceh, Indonesia. *Galore International Journal Of Health Science And Research*, doi: 10.52403/gijhsr.20240111
- Ramli, S. 2010. *Manajemen Bencana*, Cetakan Pertama, PT. Dian Rakyat

- S., M., Saifullah., Deasy, Arisanty., Parida, Angriani., Nefy, Farista., Akhmad, Munaya, Rahman. 2023. Community Preparedness in Facing Flood Disaster in Martapura Timur District, Banjar Regency. *The Innovation of Social Studies Journal*, doi: 10.20527/issj.v4i2.7769
- Supangat, A. 2007. *Statistika dalam Kajian Deskriptif, Inferensi dan Nonparametrik*. Edisi Pertama. Jakarta: Kencana Prenada Media Group.
- Sutton, J., & Tierney, K. 2006. *Disaster Preparedness: Concepts, Guidance, and Research*. Colorado: University of Colorado
- Surat Menteri Dalam Negeri Nomor: 360/7235/SJ tanggal: 1 November 2022 tentang Kesiapsiagaan Menghadapi Potensi Bencana Hidrometeorologi
- Surat Keputusan Wali Kota Ternate No.131/III.3/KT/2021, ditetapkan selama 14 hari mulai tanggal 04 Desember 2021
- Undang-Undang Nomor 24 Tahun 2007 tentang Penanggulangan Bencana (Lembaran Negara Republik Indonesia Tahun 2007 Nomor 66, Tambahan Lembaran Negara Republik Indonesia Nomor 4723);
- Wahyudi, I., & A.S. Wicaksono. 2007. *Analysis Of Corporate Social Responsibility And The Impact Of Fullfill Public Culture Social Economics Right. Proceeding Inter Conference On Industry and Organization PsychoLoty*. Yogyakarta, 9-11 Agustus 2007.
- Wilk, S. 2023. 4. Social Mobilization In The Event Of Floods In Poland And Assistance To War Refugees From Ukraine. Comparative Analysis Of The Provided Support. *Praca Socjalna*, doi: 10.5604/01.3001.0053.4211
- Zakaria, Aliyu., Ibrahim, Mukhtar., A, Muhammad., Sa'adatu, Abdulkadir. 2024. Assessment of the extent of community preparedness to flood risk in Jigawa State, Nigeria. *Dutse Journal of Pure and Applied Sciences*, doi: 10.4314/dujopas.v10i3c.11