Community Preparedness for Tsunami Hazard in Galur District, Kulon Progo Regency, Special Region of Yogyakarta

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Abstract. Kulon Progo Regency is a tsunami-prone area, including on the coast of the Galur District, because it coordinates with the Indian Ocean, the meeting point for two active tectonic plates. This study aims to see: (1) the level of community preparedness in facing the tsunami hazard in Galur District, and (2) the community's efforts to improve preparedness to face the tsunami hazard in Galur District. This research is a quantitative descriptive. The population in this study are all head of family in the three villages, which are Karang Sewu Village, Banaran Village, and Kranggan Village, totaling 4483 head of family. The sample in this study is calculated using the Slovin formula with an error rate of 10% resulting in a total sample of 98 head of family. The sampling technique used is proportional random sampling. Data collection is carried out by observation, interviews, and documentation. The collected data is then presented in a frequency distribution table. The data analysis used in this research is quantitative and qualitative descriptive. The results showed: (1) the level of community preparedness in Galur District to face a tsunami hazard was in the "ready" category (53.1%). Meanwhile, the category for the parameter of preparedness, namely parameter of disaster knowledge, was in the "ready" category (46.9%). The emergency response plan parameter was in the “full ready” category (40.8%). The early warning system parameter was in the “full ready” category (61.2%). The parameter of the ability to mobilize resources was in the "ready enough" category (34.7%). (2) Efforts that have been made by the community in Galur District in improving preparedness to face tsunami hazards, include: holding outreach and disaster simulations; establishment of the Forum of Disaster Risk Mitigation (FPRB); installation of Early Warning System (EWS) tower; installation of evacuation routes and determination of temporary and final gathering points.

1. Introduction
Indonesia is in a region that has high potential and varies greatly in terms of disaster types. This is because Indonesian region is located on three lines where the technical plates meet. The three plates are the Eurasian plate, the Indo-Australian plate, and the Pacific plate which is commonly called the Triple Junction. The movement of the three plates has a different direction of motion, due to the movement of the three plates causing the islands in Indonesia to event frequent earthquake vibrations, especially in areas where the Eurasian and Indo-Australian plates meet along with the islands of Sumatra, Southern Java, and Lesser Sunda Islands. Earthquakes that are caused by plate collisions are called tectonic earthquakes. As the result of plate collision, a subduction zone is formed [11]. Earthquake that occurs in subduction zones is one of the main causes of a local tsunami, a very short time that has the potential to large enough impact. According to BNPB, the cause of the tsunami in Indonesia was 90% due to
tectonic earthquakes, 9% due to volcanic activity, and 1% due to landslides that occurred in bodies of water (lakes or sea) or landslides from land that enters the body of water [3].

The Tsumani that has occurred in Indonesia, the Aceh tsunami on December 26, 2004. Based on data from National Geophysical Data Centre in 2005, it is stated that tsunami disaster on 2004 impacted Aceh and North Sumatra caused approximately 300,000 deaths and losses of up to trillions rupiah [9]. Tsunami in Pangandaran is one of the tsunamis that occurred in the southern coastal area of Java Island. The tsunami affected until Kebumen Regency. Based on the 2013-2017 Disaster Risk Assessment Documents for Kebumen Regency, the tsunami disaster that had occurred caused 10 people to die, 24 people were injured, 8 people were missing, 581 were displaced, and 18 houses were severely damaged. Meanwhile, the tsunami that occurred in Banten in 2018 caused 437 fatalities [8]. The lack of community preparedness and knowledge of tsunami disaster was a major factor in the large number of fatalities when the tsunami occurred.

The southern area of Java Island, which is in danger of being struck by a tsunami as a result of a Megathrust earthquake in southern Java, along with the number of people affected. The following areas were affected by the Southern Java tsunami [2]

### Table 1. Areas Affected by the Tsunami in Southern Java

| No. | District/City   | Province | Souls Affected |
|-----|----------------|----------|----------------|
| 1   | Cilacap         | Jateng   | 629891         |
| 2   | Kebumen         | Jateng   | 220822         |
| 3   | Purwokerto      | Jateng   | 91943          |
| 4   | Banyumas        | Jateng   | 689            |
| 5   | Wonogiri        | Jateng   | 52             |
| 6   | Kulon Progo     | D.I.Y    | 60607          |
| 7   | Bantul          | D.I.Y    | 31369          |
| 8   | Gunung Kidul    | D.I.Y    | 366            |
| 9   | Jember          | Jatim    | 134207         |
| 10  | Lumajang        | Jatim    | 27706          |
| 11  | Banyuwangi      | Jatim    | 17107          |
| 12  | Pacitan         | Jatim    | 13188          |
| 13  | Malang          | Jatim    | 2144           |
| 14  | Tulungagung     | Jatim    | 297            |
|     | **Total**       |          | **1230388**    |

Source: BNPB [2]

Based on table 1, one of the areas on the southern coast of Java Island with a possible tsunami is Kulon Progo Regency with 60,607 people affected. Kulon Progo Regency is a district located in the Special Region of Yogyakarta, which has a coastal area directly opposite the Indian Ocean. Kulon Progo Regency has 12 sub-districts, 4 of which are located in the southern part directly adjacent to the Indian Ocean. The Galur District is one of the four sub-districts.

German-Indonesian Cooperation for a Tsunami Early Warning System (GITEWS) is an Indonesia-Germany collaboration to support the development of a tsunami early warning system in the Indian Ocean. GITEWS has classified the tsunami hazard prone areas in Kulon Progo Regency through a tsunami hazard map as follows:
Based on Figure 1, the tsunami hazard zone is divided into 3, which are: the red and orange zone is the warning zone and the yellow zone is the watch zone. Galur is one of the districts included in the tsunami danger zone, which is marked by red, orange and yellow zone. Tsunami hazard zone with an estimated water level >3 meters (red zone) and <3 meters (orange and yellow zone).

Table 2. Potential Tsunami Hazard in Kulon Progo Regency 2016-2020

| Sub-district | Hazard Area Index (Ha) | Tsunami-Affected Population (soul) | Potential Loss (billion rupiah) |
|--------------|------------------------|-----------------------------------|---------------------------------|
| Temon        | 1020                   | 3762                              | 286.48                          |
| Wates        | 596                    | 3220                              | 147.33                          |
| Panjatan      | 959                    | 3683                              | 505.54                          |
| Galur        | 1682                   | 13257                             | 264.41                          |

Source: BPBD DIY 2018

Based on Table 2, Galur District has the highest potential hazard area index and tsunami-affected population compared to the other three districts which is 1682 hectares hazard area index and 13257 tsunami-affected population. It is also strengthened by the results of observations that have been carried out by researcher that the condition of land use in the coastal of Galur District is currently dominated by settlements and agricultural land in the form of rice fields and fishery ponds. Apart from land use in the form of settlements and agriculture, there is also very minimal vegetation in coastal areas. The lack of vegetation will increase the degree of damage because there are no barriers when the waves hit the coastal areas. In terms of morphogenesis, the relief of Galur District is located in an alluvial plain which extends from west to east of Kulon Progo Regency. This causes the topography in Galur District to be
relatively sloping, if a tidal wave occurs, the water will easily enter and reach the land relatively far makes the water overflow area is very wide [12]. In addition, the existence of the Progo River in the eastern part of Galur District will also increase the tsunami hazard. The water carried by the tsunami waves will easily enter through the downstreame and reach further and wider plains, thus it will cause quite high damage. The narrower the river, the higher the speed and condition of the water level would increase, and with the flow of the same mass of water as it enters the shore, it must disperse across the narrow gap of the river [10].

Villages/wards in the Galur District with a possible tsunami hazard can be found in the data of Tsunami Prone Village/Ward, Galur District, Kulon Progo Regency follows:

**Table 3. Tsunami-prone Villages/Wards, Galur District, Kulon Progo Regency**

| No. | Village/Sub-district | Hazard Class |
|-----|----------------------|--------------|
| 1   | Karang Sewu          | Medium       |
| 2   | Banaran              | Medium       |
| 3   | Kranggan             | Medium       |
| 4   | Nomporejo            | Medium       |
| 5   | Brosot               | Medium       |

Source: BNPB [4]

This situation means that the population needs a special strategy so that they can survive in places that are vulnerable to tsunami hazards. The community in the Galur District needs to know the preparedness and awareness of the measures or actions required quickly and precisely to address the tsunami danger that is part of the preparedness. Based on this report, the purpose of this research is to (1) evaluate the level of community preparedness in the Galur District to address the tsunami hazard and (2) the community's efforts to improve preparedness to address the tsunami hazard in the Galur District.

2. Research Methods

This research is quantitative descriptive. This study aims to explain the community's preparedness to deal with the tsunami hazard in the Galur District and to identify the community's efforts to enhance preparedness for this danger. This study was carried out for seven months, from December 2019 to June 2020. The location chosen for this study was the Galur District, Kulon Progo Regency, Special Region of Yogyakarta. It focuses on the research area of three villages which are Karang Sewu Village, Banaran Village and Kranggan Village.

The variables in this study are: (1) community preparedness in the case of a tsunami hazard, as seen from the indicators: (a) knowledge, (b) emergency response plan, (c) early warning systems, and (d) resource mobilization, and (2) efforts to improve preparedness, as seen from the following indicators: (a) planning and organization, (b) resources, (c) coordination, (d) readiness, (e) training and public awareness [7].

The population in this study are all heads of family in the three villages, namely Karang Sewu Village, Banaran Village, and Kranggan Village, totaling 4483 heads of family. The sample in this study is calculated using the Slovin formula with an error rate of 10% resulting in a total sample of 98 heads of family. The sampling technique used is proportional random sampling.

Data collection techniques in this study are: (1) observation, carried out by analyzing the conditions around the research location to gain an overview of the research location, (2) interviews, conducted with respondents (the community) using a questionnaire to obtain information about community preparedness seen from knowledge parameters, emergency response plans, early warning systems, and resource mobilization. Interviews with main informants, i.e. representative of Kulon Progo Regional Disaster Management Agency (BPBD), Forum of Disaster Risk Mitigation (FPRB), representatives of Galur District government using a questionnaire to gather information on the community's efforts to enhance preparedness in the face of tsunami hazards, and (3) documentation, carried out by taking data,
such as maps, population data, other data, and photos of activities in the field that can support the research activities.

The data analysis used in this research is quantitative and qualitative descriptive. A description of the preparedness of the community in Galur District in the face of tsunami hazard is obtained from the scoring of the preparedness parameters. Scoring is performed to turn the information that has been gathered into data in the form of numbers. "yes" answer to each research instrument will be given 2 score, the "no" answer will be given a score 1 score, and the "do not know" answer will be given 0 score. The result of the sum of all preparedness parameter scores will obtain the minimum score and the maximum score. Furthermore, the score was categorized based on the Mean Ideal (Mi) and Standard Deviation (SDi) values obtained by calculations using the following formula [1]:

\[
\text{Mean Ideal (Mi)} = \frac{1}{2} (\text{maximum score} + \text{minimum score})
\]
\[
\text{Standard Deviation (SDi)} = \frac{1}{6} (\text{maximum score} - \text{minimum score})
\]

The results of the Mi and SDi calculations are then inserted into the trend distribution formula to determine the level of preparedness category with the criteria "full ready", "ready", "ready enough", "less ready", and "not ready". The collected data is then presented in a frequency distribution table and analyzed descriptively.

**Tabel 4. Trend Distribution Formula**

| Criteria          | Formula                                           |
|-------------------|---------------------------------------------------|
| Full Ready        | \(X \geq \text{Mi} + 1.8 (\text{SDi})\)           |
| Ready             | \(\text{Mi} + 0.6 (\text{SDi}) \leq X < \text{Mi} + 1.8 (\text{SDi})\) |
| Ready Enough      | \(\text{Mi} - 0.6 (\text{SDi}) \leq X < \text{Mi} + 0.6 (\text{SDi})\) |
| Less Ready        | \(\text{Mi} - 1.8 (\text{SDi}) \leq X < -0.6 (\text{SDi})\) |
| Not Ready         | \(X < \text{Mi} - 1.8 (\text{SDi})\)              |

Source: Azwar [1]

The efforts made by the community in Galur District to improve preparedness for tsunami hazards were obtained from the results of qualitative data analysis based on information from main informants.

3. Results & Discussion

3.1. Study Area

Galur District is one of the Districts located in Kulon Progo Regency, Special Region of Yogyakarta. Astronomically Galur District is located 7°55'30" South Latitude - 7°58'30" South Latitude and 110°10'0" East Longitude – 110°15'0" East Longitude. The administrative boundaries of Galur District are as follows north boundary is Lendah District, south boundary is Indian Ocean, west boundary is Panjatan District, and east boundary is Bantul Regency. The area of Galur Sub-district is 3,291.24 ha. The land area of each village, namely: Karangsewu (9,2624 km²), Banaran (9,0725 km²), Kranggan (2,3875 km²), Nomporejo (1,9091 km²), Brosot (3,2254 km²), Pandowan (1,4036 km²) and Tirtorahayu (5,6519 km²). Galur district has a tropical climate with two seasons, namely the dry season and the rainy season. Rainfall is 120mm / year with 6 months of rainy months. Daily average temperature of 30° C.

3.2. Community Preparedness to Face Tsunami Hazards in the Galur District

The community preparedness study to resolve the tsunami hazard in Galur District used a framework developed by LIPI in collaboration with UNESCO / ISDR in 2006. The community preparedness study is based on 4 (four) parameters: (1) disasters knowledge, (2) emergency response plans, (3) early warning systems, and (4) resource mobilization. Data regarding community preparedness was obtained through questionnaires distributed to the community, particularly the heads of family spread across three
villages, which are Karangsewu Village, Banaran Village, and Kranggan Village. The number of samples used as respondents was 98 heads of family spread across three villages. The following is a table of the results of the level of community preparedness in facing the tsunami hazard in Galur District, Kulon Progo Regency, Special Region of Yogyakarta.

**Table 5.** Community Preparedness Level to Face Tsunami Hazard in Galur District, Kulon Progo Regency, Special Region of Yogyakarta

| No. | Indicator                              | Category (%) |
|-----|----------------------------------------|--------------|
| 1   | Knowledge                              | 24.5, 46.9, 22.4, 3.1, 3.1, 100 |
| 2   | Emergency response plan                | 40.8, 26.5, 19.4, 9.2, 4.1, 100 |
| 3   | Disaster warning system                | 61.2, 23.5, 11.2, 2.0, 2.0, 100 |
| 4   | Resources mobilization                 | 8.2, 24.5, 34.7, 26.5, 6.1, 100 |
| 5   | All indicators                         | 15.3, 53.1, 22.4, 8.2, 1.0, 100 |

Source: Primary Data, 2020

Based on table 5, it shows the percentage of all community preparedness parameters in the face of a tsunami hazard in Galur District. The results of the data analysis showed that the community's preparedness to face the tsunami hazard in Galur District was in the "ready" category with a percentage of 53.1%. The greatest influence in determining the level of community preparedness in facing tsunami hazards comes from the parameters of the emergency response plan and early warning system which are categorized as “full ready”. Moreover, it also supported by the parameters of knowledge on disasters which have the "ready" category. Meanwhile, the parameter of resource mobilization is in the "ready enough" category which will affect the level of community preparedness to face the tsunami hazard in Galur District.

3.2.1. Community Preparedness for Knowledge Parameters of Tsunami Disaster

Public knowledge of tsunami hazard is the community's understanding of natural disasters. The results of the data analysis show that the level of community preparedness for the knowledge parameter of the tsunami hazard in Galur District can be categorized as "ready" with a percentage of 46.9%. This data can be interpreted that the people in Galur District have a good understanding of the tsunami hazard. Knowledge is the main factor for community preparedness [7]. The knowledge possessed by a community will influence how actions need to be taken in the preparation of disasters. The importance of knowledge about disasters must be possessed by every individual who is in a disaster-prone area such as in Galur District, Kulon Progo Regency, Special Region of Yogyakarta.

Galur District's community stated that the definition of a natural disaster is a natural event that disturbs human life (92.9%), for example, tsunamis, earthquakes, floods, landslides, volcanic eruptions, and storms. While the cause of the tsunami was an underwater earthquake (93.9%) the community in Galur District agreed that not all earthquakes could cause a tsunami (55.1%). One of the signs of a tsunami disaster is the sudden receding of seawater (88.8%). The characteristics of tsunami resistant buildings/houses are buildings that have empty spaces for waterways (49.0%) based on this data, there are still many people who do not understand the knowledge of tsunami resistant buildings because socialization is more focused on knowledge of disasters, signs, and self-rescue in the event of a disaster, while the reconstruction effort was less emphasized during outreach. The majority of people in Galur District received information about the tsunami disaster from relatives, friends, and neighbours (80.6%).
In addition, the community received information about the tsunami disaster from socialization, seminars and meetings held by related parties (77.6%).

3.2.2. Preparedness Level for Emergency Response Plan Parameters

The emergency response plan for tsunami hazards in Galur District is a plan created by the community to anticipate hazards and understand what actions to take when a tsunami occurs. The results of the data analysis show that the level of community preparedness for the parameters of the emergency response plan against the tsunami hazard in Galur District can be categorized as "full ready" with a percentage of 40.8%. This means that the community in Galur District has the ability to have a good understanding of how to plan and act to deal with a tsunami disaster. The indicators contained in the parameters of the emergency response plan include the initial plan of what to do before a disaster occurs, the actions are taken when a disaster occurs, and a safe place for family in the event of a tsunami disaster.

The people of Galur District already have a plan to be alert to the possibility of a tsunami hazard, which is to prepare actions that must be taken by household members in the event of a tsunami (84.7%). Agree on evacuation place for family (86.7%) the community chooses a disaster tent/post which is provided as a place to save their families in the event of a tsunami disaster (94.9%). Prepare a first aid box (medicine box) (69.4%). Actions that must be taken in the event of the next tsunami disaster are to prepare important and valuable documents (91.8%) for important documents such as diplomas, birth certificates, family cards and other important documents that have been prepared in one bag, the aim is to make them easy to carry. At any time a tsunami disaster occurs so do not have to look for documents one by one, which of course will take a long time and endanger lives.

Another action is preparing alternative communication tools (Handy Talkie/ Radio/Phone) (83.7%). People choose cellphones as an alternative means of communication because the majority of family members communicate long distances using cellphones. Following evacuation drills/simulations (98.0%), in this case, the community is aware of the importance of evacuation drills/simulations against tsunami hazards. Evacuation drills/simulations are held to provide experience in the field to the community in the event of a tsunami disaster so that it will facilitate the evacuation process during an emergency and can minimize fatalities and property.

3.2.3. Community Preparedness for Disaster Warning system Parameters

The early warning system against tsunami hazards in Galur District is a warning sign and distributing information about a disaster. The results of data analysis show that the level of community preparedness for the parameters of the disaster warning system against the tsunami hazard in Galur District can be categorized as "full ready" with a percentage of 61.2%. This means that the people of Galur District already have a good awareness and understand what actions to take when they hear the warning sounds/signs of a tsunami disaster. Early warning is the main factor linking the stages of disaster preparedness and emergency response [6]. If the early warning system is sounded at the right time when the signs of a disaster are felt, the negative impact, both fatalities and property losses, can be minimized. Indicators contained in the parameters of a disaster warning system include the presence of a tsunami warning sign/method, and actions that must be taken when hearing a tsunami disaster warning.

The people of Galur District already know about the signs of tsunami hazard warning, by using the traditional warning system in the form of kentongan (64.3%) and a technology-based tsunami warning system such as the Early Warning System (EWS) siren tower (85.7%). An early warning system by using kentongan is sounded with a long bead tone so that the community is alert and immediately evacuates to the agreed gathering point. People will stay away from the beach and run to high places/buildings (96.9%) in the event of a tsunami and also rush to rescue/evacuation place (98.0%). The chosen evacuation place or final gathering point is a place that is safe from the reach of the tsunami waves, wich is Banasara Elementary School and Cubung Jatirejo field, Lendah Sub-district.
3.2.4. Community Preparedness for Resource Mobilizing Parameters
The ability to mobilize resources is the ability of the community to reduce risks when a disaster occurs. The results of data analysis show that the level of community preparedness for resource mobilizing parameters against the tsunami hazard in Galur District can be categorized as "ready enough" with a percentage of 34.7%.

As many as 59.2% of family heads have attended training, seminars, or meetings related to tsunami hazard preparedness. However, apart from the family heads no one else has participated in tsunami hazard preparedness training. As a result, this is not maximized due to emergencies such as warning signs of a tsunami that can come at any time if the head of the family is not at home. It will greatly slow down the evacuation process because only the head of the family understands and know what kind of attitudes and actions should be taken when a tsunami warning occurs. Many factors influence this, such as the low level of community awareness to attend training. As many as (40.8%) of respondents stated that none of the household members had ever attended training, seminars, or meetings related to tsunami disaster preparedness. According to the respondent's statement, this can happen because people who take part in the training or seminar are representatives of several villages that make none can participate in these activities. As many as (86.7%) of respondents had relatives/friends who were ready to help in the event of a tsunami hazard.

The ability to mobilize resources also includes the financial readiness of the community to face emergencies when a tsunami occurs. A total of (52.0%) respondents have assets/investments in the form of savings that can be used for family awareness of the possibility of a tsunami disaster. Meanwhile, 66.3% of respondents do not have life insurance/wealth/property insurance and also do not own another houses/place that are relatively safe from disasters. Public awareness for supporting preparedness from a financial perspective is still quite low because the economic factor of the community is still classified as middle to lower class, this is in line with the work of the majority of Galur District people, which is farmers. Not all people in Galur District have prepared measures to deal with the tsunami hazard. As much as (79.6%) of respondents did not make buildings/houses from light materials (eg wood, bamboo, zinc). Not building temporary huts to evacuate in safe places/hilly areas/high places and far from the coast (71.4%). Not preparing sufficient food and clothing supplies (75.5%). Not preparing a reserve stock (money, capital, land) to be stored in a safe place to deal with possible job losses due to the tsunami (65.3%).

3.3. Efforts to Improve Community Preparedness
Preparedness efforts are needed by the community to face the dangers in the area. In the disaster management cycle, preparedness efforts are included in the risk reduction phase before a disaster occurs. Efforts from the government and the community to increase preparedness in facing the tsunami hazard in Galur District is something that must be done because Galur District is an area that is prone to tsunami hazards. The following are some of the efforts made by the community in Galur District to improve preparedness in the face of a tsunami hazard:

a. There is a policy that regulates tsunami hazard management activities, the existence of Regional Regulation Number 8 of 2015 concerning Disaster Management and also the Regent Regulation Number 67 of 2018 concerning the use of village funds for disaster management. The villages which are directly adjacent to the Indian Ocean and the Progo River is very prone to tsunami hazards so that a disaster-prone villages have emerged, so the Disaster Resilient Villages (DESTANA) were formed especially for tsunamis. There are 5 villages that were formed as Disaster Resilient Villages especially for the tsunami, namely Banaran, Karangsewu, Kranggan, Brosot, and Pandowan villages. With the formation of Destana, it is hoped that the community can increase awareness of the dangers of a tsunami and can increase preparedness independently.

b. Organizations are formed which are Forum of Disaster Risk Mitigation (FPRB) in each Destana. This organization is official and formed by BPBD Kulon Progo. The Forum of Disaster Risk Mitigation (FPRB) is a forum for elements of society or organizations in the field of disaster that are
formed to study, provide input, advice, and/or provide recommendations for consideration in the context of disaster management

c. Conduct socialization and simulations regarding disaster risks and the threat of tsunami hazards. Socialization and simulation activities regarding the tsunami hazard in each village of Galur District have been carried out, with 12 meetings, 9 meetings for socialization and counselling, while the 10th-12th meeting was conducted with simulations. Tsunami hazard simulation activities in Galur District have been held at the village level and usually take place in the village field or village meeting hall and also on the coastal of Trisik Beach. Participants are randomly chosen and the quota to carry out simulation activities is approximately 250 people per village. Earthquake simulation activities accompanied by a tsunami have been carried out 2 times in 2019 and 2018 with the theme Tsunami Disaster Response (The ability of the community to save themselves).

d. The availability of facilities and infrastructure to improve preparedness efforts in the form of an early warning system in the coastal of Galur District by establishing an Early Warning System (EWS) tower. The EWS tower is a siren that will sound as a warning sign of a tsunami hazard.

e. Availability of evacuation routes and final gathering points. The installation of signs for the evacuation route has been installed by the Regional Disaster Management Agency (BPBD) of Kulon Progo Regency since 2014. The final gathering point for the Galur District is at Banasara Elementary School, Lendah Sub-district and also at Cubung Field, Jatirejo, Lendah Sub-district, Kulon Progo Regency. Meanwhile, the temporary gathering point is at the Nomporejo Village Hall, Tirtorahayu Village Hall, Pandowan Village Hall. If the condition is too productive, they will immediately be directed to the final gathering point, which are Bonosoro Elementary School and Cubung Field.

4. Conclusion
a. The level of community preparedness in Galur Subdistrict to face tsunami hazard is in the “Ready” category (53.1%). Meanwhile, the level of preparedness for the knowledge parameter for disaster is in the "ready" category (46.9%). The emergency response plan parameter is in the “full ready” category (40.8%). The early warning system parameter is in the “full ready” category (61.2%). The parameter of the ability to mobilize resources is in the category of "ready enough" (34.7%).

b. Efforts to enhance tsunami hazard preparedness carried out by the government and the community include outreach, counselling and simulation by both the Kulon Progo Regency BPBD and the FPRB Village, the creation of the Forum of Disaster Risk Mitigation (FPRB) organization, the establishment of the Early Warning System (EWS) tower, located on Trisik Coastal of Galur District, as well as the installation of evacuation routes and determining the temporary and final gathering points.

5. Recommendation
a. For the Community
1) The public should understand of the importance of being aware of the dangers of a tsunami which can occur at any time by diligently participating in training and simulation activities held by the government and related organizations.
2) For people who have participated in training and simulations, it is better if they share the materials and skills obtained from these activities. So that other people can also understand how to evacuate themselves and their families in the case of a tsunami disaster.
3) The community should have prepared measures to deal with the possibility of a tsunami hazard.

b. For the Organization
There is a need for more structured and clear guidance for cadres who are prepared to assist in socializing and simulating the tsunami hazard.
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