Community Perception Related to Flood Mitigation in Kalodran Village, Walantaka District, Serang City, Banten

Nur Purwati Handayani
nurpurwati.nuyy23@gmail.com
Geography Education, Faculty of Teacher Training and Education
University of Muhammadiyah Prof. DR. HAMKA

Alwin
alwin@uhamka.ac.id
Geography Education, Faculty of Teacher Training and Education
University of Muhammadiyah Prof. DR. HAMKA

Abstract
The aim of this research is to find out what the community’s perception is regarding flood mitigation (pre-disaster) in Kalodran Village, Walantaka District, Serang City, Banten Province. The research uses descriptive methods with a quantitative approach. The population in this study was 74 communities based on the number of families in areas affected by flooding in Kalodran Village, Walantaka District. Data collection techniques in this research used field observation, distributing questionnaires and documentation. The data analysis used in this research is quantitative descriptive based on percentage results. The results of the research show that the public's perception regarding flood mitigation (pre-disaster) in Kalodran Village, Walantaka District, Serang City, Banten is included in the medium category with a percentage of 62.4% answering that they disagree and do not know the steps that must be taken before a flood disaster occurs. Due to the lack of public understanding and knowledge regarding pre-flood disaster mitigation and the absence of socialization or training activities organized by authorized institutions, but from the support of the community who choose to agree, this means that if socialization activities related to disaster mitigation are carried out in Kalodran Village, the community will support these activities.

Keywords: Perception; Pre-Disaster Mitigation; Flood; Community.
PRELIMINARY

Climatologically, Indonesia is located in a tropical climate with two seasons, namely hot and rainy with the characteristics of changes in weather, temperature and wind direction that are quite extreme. These climatic conditions combined with relatively diverse surface and rock topography, both physically and chemically, result in fertile soil conditions. Conversely, these conditions can cause some adverse consequences for humans such as the occurrence of hydrometeorological disasters such as floods, landslides, forest fires and droughts. Along with the development of time and increasing human activities, environmental damage tends to get worse and trigger an increase in the number of events and intensity of hydrometeorological disasters (Anies, 2018).

Areas such as Serang City are very vulnerable to various disasters, including floods, earthquakes, tsunamis, and others. Flooding is the main threat, especially in Kalodran Village (Abbas, 2020; Mutiani & Faisal, 2019). According to IRBI 2021, Serang City has a high disaster risk index. In various historical experiences of disasters in Serang City provide awareness of the local government of Serang City to develop systematic policies related to disaster management. Serang City during 2020 experienced several types of disasters. Such as floods 42 times and fires occurred 116 times. The incident spread across various sub-districts in the Serang City area (Serang City in numbers, 2021), The disaster event had a considerable impact on the community, especially in terms of health, availability of clean water and agricultural management needs (BPBD Kota Serang, 2023).

Disaster management activities based on Standard Operating Procedures in natural disaster management can be divided into three main activities, namely: first, pre-disaster activities which include prevention, mitigation, preparedness, and early warning activities; Both activities during disasters that include emergency response activities to relieve temporary suffering (Hasanah, 2022). However, in the pre-disaster stage activities so far, many have been forgotten in dealing with disasters, carrying out post-disaster activities (post event) in the form of emergency response and recovery rather than pre-disaster activities in the form of disaster reduction or mitigation and disaster preparedness. Activities before a disaster can reduce potential hazards or losses that may arise during a disaster. Activities that can be carried out before a disaster can be in the form of disaster awareness raising education, disaster drill drills, preparing disaster-proof technology, building social systems that respond to disasters, and formulating disaster management policies (Kadir & Usman, 2019).

One of the areas that is often affected by floods in Serang City is Kalodran Village. Kalodran Village is a village in Walantaka District, Serang City. This village has an area of
210,515 Ha and is divided into 7 Neighborhood Pillars (RW) and 21 Neighborhood Pillars (RT). Kalodran Village is located in a lowland that has an altitude of less than 500 meters above sea level and has a slope ranging from 0-40%, has a tropical climate with fairly high rainfall. This causes the Kalodran Village area to be prone to flooding. In table 1.1 below:

**Tabel 1. Flood Disaster Event in Kalodran Village**

<table>
<thead>
<tr>
<th>NO</th>
<th>TAHUN</th>
<th>KETINGGIAN</th>
<th>RW/RT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2004</td>
<td>3 meter</td>
<td>RW 001 (RT 001, 002), RW 007 (RT 021)</td>
</tr>
<tr>
<td>2</td>
<td>2006</td>
<td>30 cm</td>
<td>RW 007 (RT 021)</td>
</tr>
<tr>
<td>3</td>
<td>2020</td>
<td>70 cm</td>
<td>RW 002 (RT 004, 005)</td>
</tr>
<tr>
<td>4</td>
<td>2021</td>
<td>1,5 meter</td>
<td>RW 001 (RT 002), RW 002 (RT 004, 005)</td>
</tr>
<tr>
<td>5</td>
<td>2022</td>
<td>1 meter</td>
<td>RW 007 (RT 021)</td>
</tr>
</tbody>
</table>

Source : Kalodran Village Office

Based on pre-research conducted by previous researchers on one of the residents (K) who lives in a flood-affected area in Kalodran Village, stated that the community did not know about pre-flood mitigation, besides that the community considered that floods were common and resulted in losses in the Kalodran Village area and the initial efforts made by the community to mitigate this pre-disaster flood only came from previous flood experiences in the Kalodran Village area such as saving valuable objects after getting information that there will be an increase in water discharge in the Kalodran Village area where the community does not know for sure and does not consider that what was done at the beginning before the flood was a pre-disaster mitigation step. In addition, the community does not know the pre-flood mitigation measures because there has been no socialization or training related to pre-flood mitigation which is a natural disaster that is likely to occur in the Kalodran Village area.

Natural disasters in a region have direct implications for the people of the region. Community participation to reduce and avoid disaster risks is important by increasing community awareness and capacity (Suryanti et al, 2010: 32). Communities are part of those affected by direct experience of disasters, so their understanding plays an important role in reducing the risk of flooding. Community response generated through understanding the flood disaster that occurred. Community understanding in the form of perception knowledge that is actualized in attitudes and / or actions in dealing with flood disasters. However, many people still do not understand the disaster. This is due to the lack of disaster mitigation in disaster preparedness. The cultural early warning system has not reached all communities, including government officials. The lack of disaster prevention is shown by the government that does not make efforts to reduce disaster risk, both in physical development and public awareness through continuous and continuous disaster socialization, resulting in a lack of information
about disasters and disaster preparedness efforts that cannot be tolerated because Indonesia has the potential to experience various natural disasters that can cost lives (Indawati, 2015).

Based on 3 stages in disaster mitigation, the most important stage is pre-disaster but at this stage it is rarely done by the community due to lack of socialization and information about disaster mitigation programs carried out by the government to the community. Actions taken in the pre-disaster stage are very important because these actions as preventive measures at this stage are useful for disaster management and post-disaster. This is due to the lack of disaster preparedness because the government fails to reduce disaster risk through physical development and public awareness through disaster socialization which continuously causes a lack of disaster information because Indonesia has the potential for various natural disasters (Prihatmaji et al., 2013).

Therefore, there needs to be a role of a planner who is able to plan, evaluate and think about various problems owned by Kalodran Village. Related to natural aspects, namely natural disasters that are often a problem in regional and urban planning. As a result, public information about flooding and efforts to reduce flood risk is critical. Therefore, a perception of natural disasters is carried out to see how the community judges the natural disasters that befall them and chooses how to save their lives in emergency situations and efforts to mitigate disasters. An understanding of community disaster risk assessments is important to build for effective risk communication (Nazarina Olii, 2020). This study was conducted to see how public perceptions related to pre-disaster flood mitigation in Kalodran Village. This study aims to determine how public perception is related to pre-disaster flood mitigation in Kalodran Village.

**METHOD**

In this study, the method to be used is a quantitative method with a descriptive approach. The research was conducted in Kalodran Village, Walantaka District, Serang City, Banten. The location of this study consists of 3 Neighborhood Pillars Rw 001 (Rt 001, Rt 002) Rw 002 (Rt 004, Rt 005), and Rw 007 (Rt 021) Kalodran Village is one of the villages located in Walantaka District where geographically the Walantaka District area is in the eastern area of Serang City. The north is bordered by Kasemen District, the south is bordered by Petir District, Serang Regency, the west is bordered by Cipocok Jaya District and the east is bordered by Kragilan District, Serang Regency. The map of the research location can be seen in figure 1.
The population in this study is people affected by flooding in Kalodran Village which is located in 3 Rukun Masyarakat Rw 001 (Rt 001, Rt 002), Rw 002 (Rt 004, Rt 005), and Rw 007 (Rt 021) totaling 290 households. The study sample used purposive sampling techniques, according to (Arikunto, 2010), Purposive sampling is a sample selection technique in research carried out by deliberately selecting subjects who have certain characteristics or properties that are considered relevant to the research conducted. Sample selection is carried out based on the number of KK areas affected by flooding, so that the selected subjects are expected to provide relevant and significant data for research. The number of samples in this study was determined using the Slovin formula method, a formula used to determine the sample size. So, the Slovin formula is as follows:

\[
n = \frac{N}{1 + Ne^2}
\]

\[
n = \frac{290}{1 + 290(0.1)^2} = 74.3
\]

\[= 74 \text{ KK yang terdampak banjir}\]

Keterangan :

\[n = \text{Sample Size}\]

\[N = \text{Population Size}\]

\[E = \text{The percentage of unattachment allowance due to sampling errors is still desired.}\]
The sample was calculated with an error of 10%, then the sample determined amounted to 74 samples based on the KK of the area affected by the flood. Random sampling is a technique or method of sampling originating from members of the population. The process is carried out randomly regardless of the strata contained in the population. In this study, the criteria for determining samples are based on the number of families in areas affected by floods along the river, namely:

**Tabel 2. Research Sample**

<table>
<thead>
<tr>
<th>NO</th>
<th>RW 001</th>
<th>RT 001</th>
<th>15 Responden</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Rw 002</td>
<td>Rt 002</td>
<td>15 Responden</td>
</tr>
<tr>
<td></td>
<td>Rt 004</td>
<td>15 Responden</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rt 005</td>
<td>14 Responden</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rt 021</td>
<td>15 Responden</td>
<td></td>
</tr>
<tr>
<td>SUM</td>
<td></td>
<td></td>
<td>74 Responden</td>
</tr>
</tbody>
</table>

Data collection techniques that will be carried out by researchers are by collecting primary data in the form of observations, questionnaires, documentation and secondary data (monographs of Kalodran Village, administrative maps, flood event data from the Kalodran Village office).

**RESULTS AND DISCUSSION**

In this study, the author obtained secondary data in the form of documents in Kalodran Village, Serang City, which is often hit by floods, such as what happened in Kalodran Village, Walantaka District. This is due to the kalodran area located in the lowlands, the lack of functioning of the drainage system so that water disposal becomes hampered, lack of coordination between relevant agencies in handling activities, the lack of even assistance provided to flood-affected areas. Flood disasters cause losses and losses will increase if the community is not familiar with disaster mitigation. Floods are caused by 2 factors, namely natural factors and man-made factors. Floods caused by natural factors are influenced by high rainfall, tides, sedimentation, river capacity that has exceeded. While floods caused by human activities are influenced by environmental changes, namely changes in river flow conditions, littering, lack of attention to land drainage, and damaging forests such as cutting down trees carelessly (Wurin Marselinus & Wardhono, 2022). Flood disaster mitigation is an effort to prevent or reduce the risk due to flood disasters. Flooding is generally caused by river water or drainage that overflows into the surrounding environment due to high rainfall. Perception is an
experience of the object of events seen and felt by an individual or group in their observation and makes the object of perceived observation a view of its own. Therefore, perceptions can differ from one individual to another or a group to another (Jumaylinda Br Gultom & Wibowo Caesariadi, 2018).

The questionnaire refers to the Regulation of the Head of BNPB No. 03 of 2012 which is a derivative of Law Number 24 of 2007 pages 17-21 which is used as a reference for making questionnaires. To find out how public perception related to flood mitigation (pre-disaster) in Kalodran Village, Walantaka District is explained in 4 indicators and analyzed based on the results of questionnaire distribution, the explanation is in accordance with the 4 indicators, namely:

a. Understanding of Flood Mitigation (Pre-Disaster)

According to Ahmad Susanto (Sellina, n.d, 2023) Understanding is the ability to explain and interpret something, which means that someone who has understood an object or has gained understanding will be able to explain or explain back what has been received, they have understood will be able to give interpretation or interpret broadly according to the circumstances that have been experienced and that are around them and are able to connect with conditions that exist at the present and the future. Understanding is formed from the existence of a belief in conditions that can be seen or experienced. Based on what has been seen then form an idea and idea about the nature and general characteristics of an object (Khairunisa & Alwin, 2022). A person can be said to understand an object if he can provide a brief or detailed explanation or description of the things learned and recognized using his own language, can give examples of something learned then it will be better. Based on the results of data analysis, understanding of flood mitigation (pre-disaster) can be seen in the following figure:

**Figure 2. Community Perception Based on Indicators of Understanding of Flood Mitigation (Pre-Disaster)**
From the results of the graph in figure 2, it states that some respondents out of 74 respondents consider that pre-flood mitigation is not something that needs to be done before the disaster. This can be seen from the graphic results of 21% expressing disapproval of pre-flood mitigation which is an activity carried out before the flood disaster. More respondents chose to disagree with a percentage of 34%, most of whom did not know about pre-flood mitigation. Most respondents already know about pre-flood mitigation, judging from the statement that pre-flood mitigation needs to be done and they expect socialization and education, this can be seen from the graph with a percentage of 24% of respondents who voted in agreement. Most people stated that maintaining the cleanliness of the environment is important to pay attention to and do so as not to cause which the environment is one of the steps in pre-disaster, this can be seen from the percentage of 21% of respondents who chose to strongly agree in maintaining the cleanliness of the environment. So it can be concluded that people in general do not know about disaster mitigation but there are some people who understand the importance of protecting the environment so that flooding does not occur.

Based on the results of data tabulation, respondents who answered less agreed were dominated by respondents with secondary education levels (junior high and high school). Lack of public understanding and knowledge about disaster mitigation can be influenced by the lack of information or media that disseminates information about disaster mitigation. Although the community's understanding of pre-flood mitigation is still limited, the community in Kalodran Village still upholds family values such as providing mutual assistance which is carried out at least 1 time every month. The community has their own understanding of the floods they have experienced for years, from the experience of flood events can make people take flood prevention actions based on community knowledge of the floods they experience (Nurrahmah, 2015).

b. Flood Mitigation Planning (Pre-Disaster)

Planning is the process of formulating organizational goals to determining alternative activities to achieve them without a planning function, the activities to be carried out do not have clarity to achieve their goals (Mirahesti, 2016). Mitigation is the process of planning measures to reduce the impact of a disaster. In mitigation planning activities involving the community, it will facilitate the mitigation process. Based on the results of data analysis regarding flood mitigation (pre-disaster) planning can be seen in the following figure:
From the results of figure 3, it states that some respondents out of 74 respondents consider that pre-flood mitigation is not something that needs to be done before the disaster. This can be seen from the graph results of 22% stating that respondents chose not to agree with planning related to measures to reduce the impact of flood disasters. More respondents chose to disagree with the percentage of 32%, which is the majority of respondents means that they do not know the steps to reduce the impact of flooding and do not know the areas in Kalodran Village that are prone to flooding, so the community does not know how to act to cope before the flood occurs. However, most respondents know that mitigation planning is the process of planning steps to reduce the impact of disasters, such as planting trees in the home environment, doing mutual assistance to clean the surrounding environment, and warnings from the authorities when potential floods occur, and mitigation plans must be evaluated regularly updated to minimize the impact of flooding in Kalodran Village, this can be seen from graph with a percentage of 26% of respondents who voted agreed. Most people stated that trying to keep the environment clean is important so as not to cause flooding, this can be seen from the percentage of 21% of respondents who chose to strongly agree in maintaining the cleanliness of the environment.

So it can be concluded that people in general do not know about disaster mitigation, but there are some people who understand the importance of protecting the environment so that floods do not occur and can minimize the impact of floods. So it can be concluded that the community in general lacks understanding of mitigation planning seen from the fact that there are still many people who do not know the steps to reduce the impact of flooding.
c. Community Response to Flood Mitigation (Pre-Disaster)

According to (Sobur, 2003) in Noorhidayat's research (2012, 17) things that influence response are attitudes, perceptions, and participation. Based on the results of data analysis regarding community response to flood mitigation (pre-disaster) can be seen in the following figure:

**Figure 4. Community Perception based on indicators of Community Response to Flood Mitigation (Pre-Disaster)**

From the graphic results in figure 4, it states that some respondents out of 74 respondents responded that the community did not know the factors that caused flooding in Kalodran Village, this can be seen from the graph results of 23% stated that they did not agree to follow the directions and warnings from the authorities when a flood disaster would occur. More respondents chose to disagree with a percentage of 30%, most of the respondents if the cause of flooding occurs if during the rainy season alone, the community also disagrees if participating in tree planting can reduce the impact of flooding. Most respondents feel a positive change if not throwing garbage or objects into gutters or ditches can make the flow of water not blocked, this can be seen from the graph with a percentage of 24% of respondents who voted agree. Most people stated that they must often clean the sewers in front of the home environment so that there is no garbage that accumulates so that it can cause water flow to be blocked, the community chooses to strongly agree if there are socialization and education activities about pre-flood disaster mitigation so that it can help increase public awareness, this can be seen from the percentage of 23% of respondents who chose to strongly agree in maintaining the cleanliness of the environment.

So it can be concluded that the community in general does not know about disaster mitigation but there are some people understand the importance of protecting the environment so that floods do not occur and from the graphic results state that many people have or respond
less because there are still many people who do not know about pre-disaster flood mitigation so that it has an impact on community response in this pre-disaster mitigation activity both if there is flood disaster mitigation, however, there are some people who respond and support if socialization activities will be held in Kalodran Village.

d. Support for Mitigation Programs

Support for disaster mitigation programs is a form of support from the community for disaster mitigation programs consisting of 3 stages of pre-disaster, during, and post-disaster. This study focuses on pre-flood mitigation where at the stage of pre-flood disaster activities include prevention, mitigation, preparedness and early warning activities. Based on the results of data analysis regarding community support for flood mitigation (pre-disaster) can be seen in the following figure:

**Figure 5. Community Perception based on indicators of Support for Flood Mitigation Program (Pre-Disaster)**

From the graphic results in figure 5, it states that some respondents out of 74 respondents disagree that pre-flood mitigation efforts need to be improved to achieve maximum results, this can be seen from the graph results of 19% expressing disapproval of mitigation programs that can reduce the level of damage to goods and buildings during the rainy season. More respondents chose to disagree with a percentage of 27%, most of which did not agree if in improving the effectiveness of pre-flood disaster mitigation programs there must be active support from the community. However, most respondents have agreed believing that if the existence of a pre-flood mitigation program will provide long-term benefits for their environment, it can reduce the level of damage to goods and buildings, if the community actively participates in the pre-flood mitigation program is an important step to overcome the impact of flooding, this can be seen from the graph with a percentage of 34% of respondents.
who voted in agreement. Most people stated that pre-flood mitigation efforts must be improved and improved to reduce the impact of flooding, this can be seen from the percentage of 20% of respondents who chose to strongly agree and are willing to actively participate and support if there is a pre-flood mitigation socialization program and the community considers that flood disaster mitigation provides long-term benefits for the surrounding environment.

Based on the 4 indicator data previously described, it can be concluded that the community agrees and supports the holding of programs such as socialization on flood mitigation in Kalodran Village and is willing to actively participate if there are pre-flood disaster mitigation socialization activities in Kalodran Village.

CONCLUSION

Based on the results of research that has been carried out and the results of data analysis from the 4 indicators, it can be concluded that public perceptions related to flood mitigation (pre-disaster) in Kalodran Village, Walantaka District, Serang City, are included in the medium category with a percentage of 62.4% of the 4 indicators, it can be seen that the community Do not know about disaster mitigation, so from the lack of understanding about pre-flood mitigation related to mitigation planning, it can be seen from the fact that there are still many Kalodran people who do not know the steps to reduce the impact of flooding. So that there are still many people who have or respond less because there are still many people who do not know about pre-disaster flood mitigation so that it has an impact on community response in this pre-disaster mitigation activity both if there is flood disaster mitigation, but there are some people who respond and support if later socialization activities are held in Kalodran Village. However, community support related to the holding of community socialization programs will agree and support if programs such as socialization on flood mitigation in Kalodran Village are held and are willing to actively participate if pre-flood disaster mitigation socialization activities are held in Kalodran Village, the community will support these activities. In conducting this study, researchers found obstacles that there are still many people who do not deign to be used as research respondents so that this can hamper the time previously scheduled by researchers. In addition, the community still lacks knowledge related to pre-disaster mitigation so that people do not want to fill out questionnaires that have been prepared by researchers.
BIBLIOGRAPHY


Wurin Marselinus, K., & Wardhono, H. Dr. (2022). *Evaluasi Implementasi Penanganan Bencana Banjir Di Desa Lamanela Kecamatan Ileboleng Nusa Tenggara Timur. Saar, 1(3).*