

COMMUNITY VULNERABILITY TO FLOOD DISASTER PROBLEMS

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ABSTRACT. Flood is an event of flow or stagnation of water in an area that occurs due to the overflow of water from existing canals exceeding the capacity of water disposal caused by high rainfall and the topographical conditions of the area in the form of lowlands to basins, causing physical, social and economic losses. This type of research is qualitative research because the results of this research were obtained from various data collection techniques such as interviews, document analysis, observation and documentation. The population in this study were residents in Tanjung Rejo Village, Medan Sunggal District. The sample is part of the population that has a quality that can represent the entire population. The sampling process was carried out non-randomly (nonprobability sampling) with a purposive sampling technique, namely the method of taking samples based on certain withdrawals. The criteria referred to in this study are local residents who have been affected by floods.

Keywords: Floods, Disasters, Community Vulnerability

1. INTRODUCTION

Background Flood is an event of flow or stagnation of water in an area that occurs due to the overflow of water from existing canals exceeding the capacity of water disposal caused by high rainfall and the topographical conditions of the area in the form of lowlands to concave, causing physical, social and economic losses. Flood is the presence of water in a large area so that it covers the earth's surface in that area. Flood is a natural phenomenon that usually occurs in an area that is flowed by many rivers. Floods are the most common natural threat and cause the most harm, both in terms of humanity and the economy. The causes of flooding in a place can vary depending on the physical condition of the area. In this case, some experienced local floods, dispatched floods, and tidal floods. Floods can occur due to rising water levels due to above normal rainfall, temperature changes, broken levees/dams, rapid melting of snow, obstruction of water flow elsewhere.

Factors Causing Flood According to Siswoko (2002), there are several factors that cause flooding, including the following:

a. Rainfall In

The rainy season, high rainfall will result in flooding in the river and if it exceeds the river banks, there will be flooding or inundation.

b. Erosion and sedimentation

Erosion in the watershed affects the storage capacity of the river, because if the eroded soil in the watershed is carried by rainwater into the river it will settle and cause sedimentation. Sedimentation will reduce the capacity of the river and when there is a flow that exceeds the capacity of the river it can cause flooding.

c. River capacity

The reduction in flood flow capacity in rivers is caused by sedimentation originating from excessive erosion of the river bed and riverbanks due to the absence of vegetation cover.

d. The effect of the tide

The influence of the tides slows down the flow of rivers into the sea. When the flood coincides with high tide, the height of the inundation/flood will be higher due to backflow.

e. River siltation

Silting of rivers can occur because of silt carried from higher areas or because of piles of garbage. This clearly reduces the ability of the river to hold water, eventually the water from the river body overflows onto the land.

f. The drainage system is not functioning

Water drains such as gutters often don't work. Apart from being narrow, clogged with garbage, it is also experiencing siltation. As a result, when it rains, water will overflow.

- g. Loss of open land When a building is built on land, the existence of the building does not pay attention to the problem of how water is absorbed. So that when it rains the water cannot be absorbed because of the loss of areas for absorption and it just flows, especially to residential areas. h. Rubbish Disposal of waste that is carried out carelessly in river channels and drainage networks can raise the water level and block the flow of water, causing flooding and inundation. Flood Control According to Grigg (1996), flood control is an activity of planning, exploitation

and maintenance, regulating the use of floodplain areas and reducing or preventing any hazards/losses due to flooding.

There are four strategies in flood control, namely:

1. Modification of flood vulnerability and losses (zoning or land use regulation).
2. Modification of floods that occur (reduction) with the help of controllers (reservoirs) or river normalization.
3. Modification of the impact of floods by using mitigation techniques such as insurance, flood prevention (flood proofing).
4. Regulating the capacity building of nature to maintain its sustainability such as reforestation.

Flood control using the structural method is the creation of infrastructure to control floods, including the following:

1. Dam (dam). Dams are used to accommodate and manage the distribution of river flows. Control is directed at regulating river water discharge downstream of the dam.
2. Retention basin. The retention basin functions to temporarily store the volume of flood water so that the peak flood can be reduced and released again at low tide. The area used for holding ponds is usually in the lowlands.
3. Flood barrier. A flood barrier is a barrier designed to withstand flooding in a river bed to protect the surrounding area.
4. Channel By pass. Bay pass channel is a channel used to divert part or all of the flow of flood water in order to reduce flood discharge in protected areas. River dredging system/river normalization. The dredging system or canal dredging is aimed at increasing the capacity of the river and facilitating its flow. Normalization includes activities to widen the river, directing the river channel and deepening the river (dredging)

2. RESEARCH METHODE

3.1 Types and Research Design According to Sugiyono (2013), qualitative data is data in the form of words, not in the form of numbers. Qualitative data were obtained from various data collection techniques such as interviews, document analysis, and observations as outlined in field notes (transcripts). The form of qualitative data can also be in the form of photos or video recordings. This research will describe and understand the existence of events in society that are considered included in social deviations with a qualitative descriptive approach. This qualitative descriptive approach aims to examine and clarify the existence of a phenomenon that occurs in society. A phenomenon or reality in society that reveals if the existence of a qualitative descriptive method can be used as a procedure to solve the problem being studied. The problem being investigated is based on facts that exist and appear in society. Sugiyono (2009: 1-2) Objects in qualitative research are natural objects, which are what they are, not manipulated by the researcher so that the conditions when the researcher enters the object, after being in the object, and after leaving the object are relatively unchanged. In this qualitative research, researchers used a case study or field research approach according to Denzim (2002) in Muntofindah (2011) which is an in-depth study of a particular social unit and the results of this research provide a broad and in-depth picture of a particular social unit. The subjects studied were relatively limited, but the variables and focus studied were very broad in dimensions. Emzir (2010: 20) explains that a case study is a qualitative research that seeks to find meaning, investigate

3.2 Location and Time of Research The locations taken in this study were residents in Tanjung Rejo Village, Medan Sunggal District, North Sumatra Province. This research was conducted in May 2023.

3.3 Population and Research Sample The population and sample in this study were residents of Tanjung Rejo Village, Medan Sunggal District regarding Community Vulnerability to Flood Disaster Problems.

3.4 Sampling Techniques Data collection techniques are the most strategic steps in research, because the purpose of research is to get data. This study uses several ways to collect data, namely interviews. Stating that interviews are a way to find out more in-depth things about participants in interpreting situations and phenomena that occur, where this is not found through observation.

3.5 Research Variables The variable in this study is the incident regarding the Vulnerability of the Community to the Problems of Flood Disasters in Tanjung Rejo Village, Medan Sunggal District, North Sumatra Province.

3. RESULT AND ANALYSIS

Bordering pineapple or soursop plantation land belonging to the pondermolen airline, this agricultural land was named Sei Sikambing A which was fought for to become a In 1945 Tanjung Rejo Sub-District, Medan Sunggal Sub-District, was agricultural land place for residents to live and in 1947 this struggle was successful. This agricultural land was made into Sei Sikambing A Village, the head of the village was Mr. Beduk, In 1949 the head of the village changed from Mr. Beduk to Mr. Sastro Pawiro. The land area of Kampung Sei Sikambing A +/- 350 ha. In 1957 Kampung Tanjungrejo changed its name to Kampung Tanjung Rejo with the head of the village still being Mr. Sastro Pawiro. In 1959 the village head of Tanjung Rejo switched to Mr. Atmo Supardi alias Kliwon. In 1966 the village head changed again to Mr. Muhadi Gondo. As for the administrative boundaries of Medan Sunggal District, they are as follows:

Utara	Kecamatan Medan Helvetia dan Kecamatan Medan Petisah
Timur	Kecamatan Medan Petisah dan Kecamatan Medan Baru
Selatan	Kecamatan Medan Selayang
Barat	Kecamatan Sunggal, Deli Serdang

Description of the Residents of Medan Sunggal, Medan City, North Sumatra In 2020, Medan Sunggal sub-district has a population of 59,915 people and a population density of 6,650 people/km². Meanwhile in 2021, the population of this sub-district will be 135,406 people. The language used is generally Indonesian with a Medan accent, as well as regional languages including Malay, Batak and Mandarin. Based on data from the Ministry of Home Affairs for 2020, residents of the Medan Sunggal sub-district are very diverse in their religion. The percentage of the population of Medan Sunggal sub-district based on their religion is that 70.05% embrace Islam, then 18.65% Christian, 16.71% Protestant and 1.94% Catholic. Buddhists of Chinese descent are 9.84%, Hindus 1.40%

and Confucians 0.02% and others 0.04%. As for places of worship, there are 72 mosques, 28 churches and 20 monasteries. 4.2 Research Results Interviews were carried out using quantitative research methods with 10 informants who were conducted on Jl. Struggle, Mr. Cipto, Tanjung Rejo Village, Medan Sunggal District, Medan City, North Sumatra. Sources who were willing to take their time and were successfully interviewed were 7 women with a percentage of 70% and 3 men with a percentage of 30% with the initials NI, S, PO, DE, SM, M, SU, NI, SA, AM with an average age 30-71 years. All sources were interviewed on the same day, Saturday, May 27 2023. The last education of the informants was around 7 people or 70% of the informants with the last elementary school (SD), 2 people or 20% with the last junior high school (SMP) education and 1 person or 10% with the last senior high school (SMA) education. About 50% or as many as 5 of the interviewees chose not to work, 40% or 4 of the interviewees had permanent jobs with an average of almost all working as self-employed and 1 more person or 10% had non-permanent jobs. 80% or about 8 people have an average monthly income of less than 1,000,000 and another 20% or about 2 people have an average monthly income of 1,000,000 to 2,000. 000. 8 people or 80% of the informants had a type of permanent house with walls and concrete, while the remaining 2 people (20%) had a semi-permanent house with a mixture of wood, boards and walls. All informants used PAM Water / Pump Well Water / Dug Well Water / Protected Springs We asked several questions which we then summarized using the Google Form method to make it easier to draw conclusions through diagrams. The conclusion that we can draw from Community Vulnerability to Flood Disaster Problems on Jl. Struggle, Mr. Cipto, Tanjung Rejo Village, Medan Sunggal District, Medan City, North Sumatra are:

4.2.1 External Environmental Factors

Berapa sering banjir ditempat tinggal anda?
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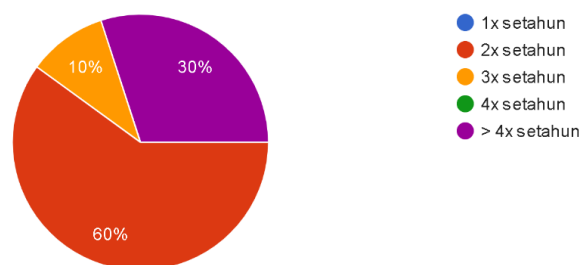
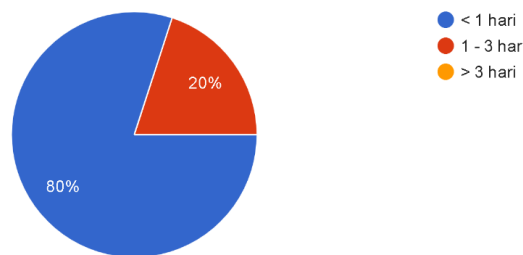


Figure 1. Flood Vulnerability Pie Chart Based

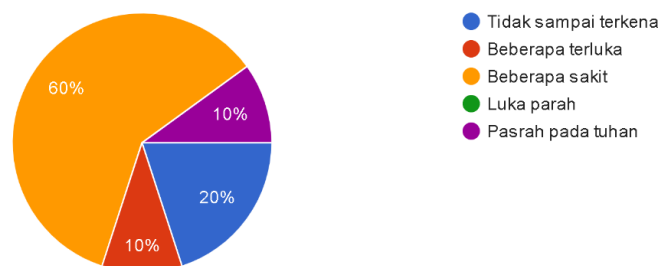
On the data above, it can be seen that in the Tj. Rejo, Kec. Medan Sunggal especially Jl. Struggle, Mr. Cipto has different flood vulnerabilities according to the location and conditions around the house, because there are several houses that are in the lowlands and some are in the highlands. As many as 6 people or 60% of the informants were exposed to flooding twice a year, 3 persons or 30% of the interviewees were affected even more than 4 times a year and the remaining 1 person with a percentage of 10% was exposed to flooding 3 times a year.

Berapa lama rata-rata frekuensi banjir?
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Based on the data above, around 8 people or 80% answered that flooding in their home environment only occurred for less than 1 day, usually if the flood occurred in the morning in the afternoon the flood had receded, however there were 2 people (20%) answered that flooding in their home environment can reach 1-3 days in length.

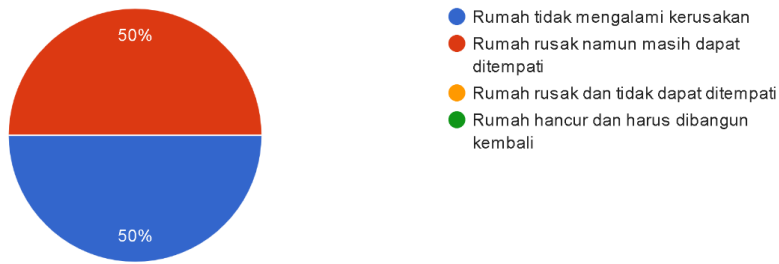
Dari segi kesehatan , apa yang dirasakan akibat banjir?
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Based on the data above, 6 informants (60%) were affected by several illnesses as a result of flooding, the diseases they often experienced were usually skin itching and not a few also had diarrhea. 2 people or 20% of the interviewees were not affected by anything caused by the flood, while for the injured and surrendered to God, each of them had a percentage of 10% or around 1 person.

Dari segi kerusakan harta benda, apa yang dirasakan akibat banjir?

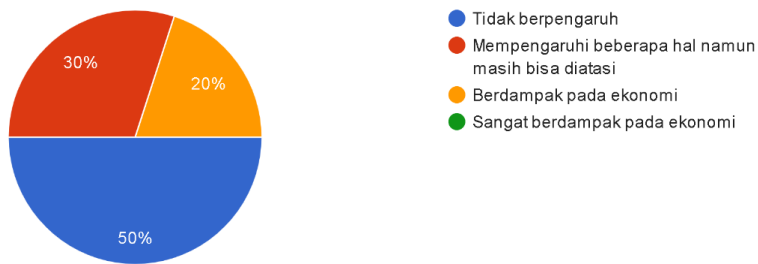
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Based on the data above, around 5 people (50%) had houses damaged by the floods but they could still be occupied and another 5 people (50%) had no damage at all.

Dari segi ekonomi, apa yang dirasakan akibat banjir?

10 jawaban



Based on the data above, it can be concluded that 5 people or around 50% of the flood informants had no effect on their economy at all, 3 people (30%) answered that after the flood affected several things from an economic perspective but they could still overcome it, while 20% or as much 2 people answered that the flood had an impact on their economy and was quite difficult for them to overcome but they could still overcome it.

4.2.2 Flood Risk Reduction Behavior

Mempunyai rencana penyelamatan keluarga apabila terjadi banjir

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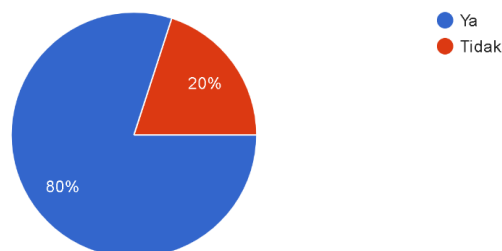
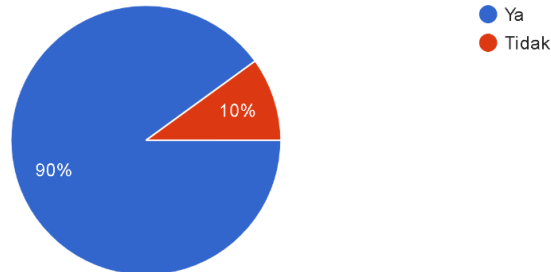


Figure 6. Rescue Plan Pie Chart As many as 8 people or 80% of the informants had a family rescue plan in the event of a flood, usually they would order their family members to

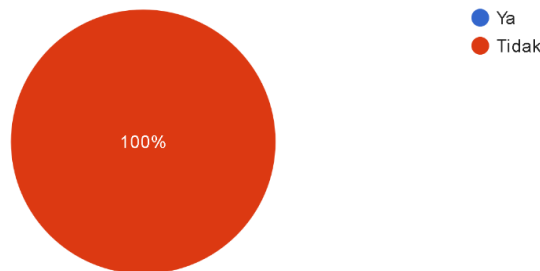
find a higher place or evacuate for a while until the flood recedes. Meanwhile, 2 people or 20% of the informants did not have any plans to save their families in the event of a flood.

Mengungsi keluarga saat banjir bertambah parah dan tidak mungkin untuk tetap tinggal
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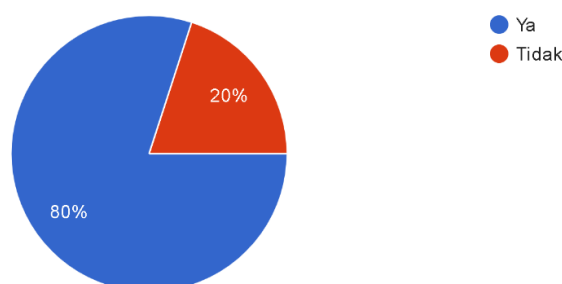
Almost all of the informants or about 90% with a total of 9 people will evacuate their families when the floods get worse, on average the informants will evacuate their families to mosques which happen to be in the highlands and close to their settlements. However, 10% or 1 informant chose not to evacuate their family because he lived alone in his house

Memiliki sendiri peralatan penyelamatan dari banjir seperti pelampung, rakit sederhana dll
10 jawaban



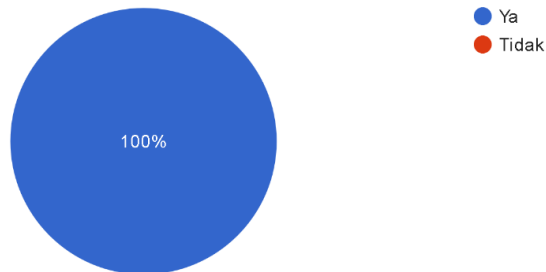
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Menyimpan stok air bersih dan air minum selama terjadi banjir
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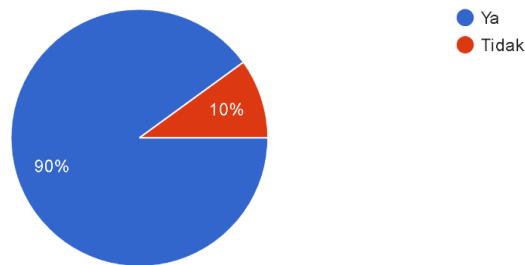
Based on the data above, 8 people or 80% of the informants kept clean water stocks during the floods, while 2 more people or 20% of the informants did not have clean water in stock and chose to use existing water sources whether they were clean or not.

Selama banjir tetap menggunakan air bersih untuk keperluan MCK (Mandi, Cuci, Kakus)
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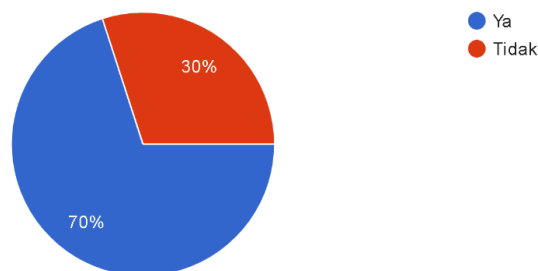
However, all informants (100%) will still try to use clean water for their bathing, washing and toilet needs.

Tetap menjaga kebersihan dan kesehatan tubuh, gosok gigi dan mandi secara teratur setiap hari saat bencana banjir
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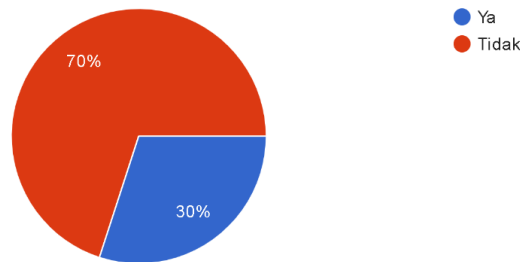
9 people or around 90% of the informants still maintain body hygiene and health by brushing their teeth regularly and bathing regularly when a flood occurs, but there is still 1 person (10%) who does not maintain body hygiene and health.

Telah menyiapkan pakaian secukupnya sebelum darurat banjir
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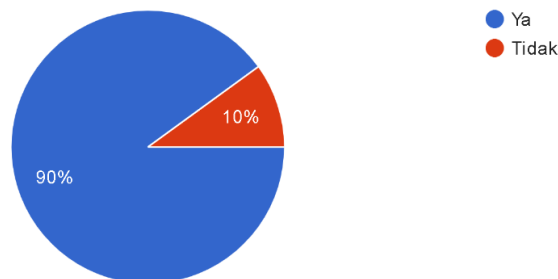
7 people or around 70% of the interviewees had prepared clothes before the flood occurred just in case if a flood suddenly occurred they could immediately evacuate without having to prepare or even not bring clothes at all. However, there were still 3 people or around 30% of the interviewees who did not prepare clothes before the flood occurred. Usually they would immediately flee without bringing clothes.

Membangun rumah tidak berdekatan dengan sungai
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Even though their settlement is close to the river, there were 70% or around 7 people who built a house close to the river and only 3 people or 30% of the interviewees chose not to build a house close to the river.

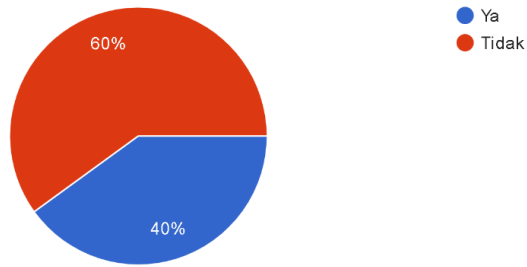
Tidak membuang sampah atau limbah di sekitar sungai
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Fortunately, frequent flooding around their environment has made their awareness of disposing of garbage in its place even higher, around 9 people or 90% of the interviewees chose not to throw garbage around the river but there is still 1 person or about 10% of the interviewees who sometimes still likes to throw garbage to the river because he has no place to dispose of or burn his garbage.

Telah menyiapkan tabungan atau asuransi untuk kewaspadaan terhadap kemungkinan terjadinya banjir besar

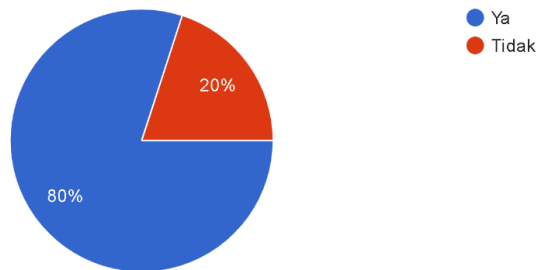
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Based on the data above, 6 people or around 60% of the interviewees did not have savings or life insurance because their income was categorized as insufficient, while there were still 4 people or 40% of the interviewees who had savings or life insurance as a precaution against the possibility of a major flood.

Mempunyai kerabat atau sanak saudara yang siap membantu saat banjir

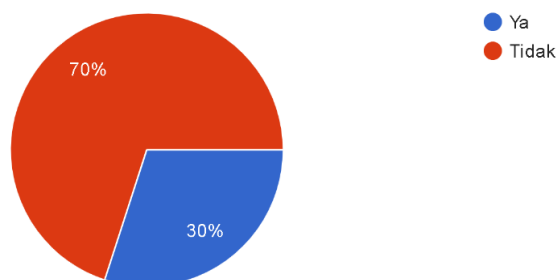
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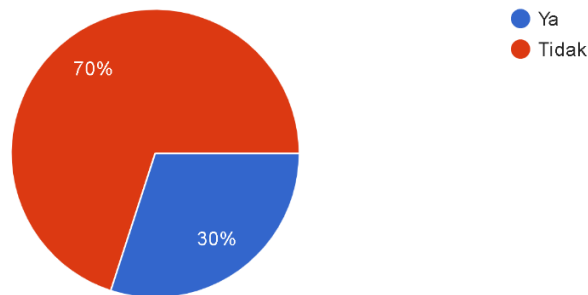
About 8 people or 80% of the informants had relatives who would come to help if a flood occurred, usually their relatives would help with food delivery, clean houses after the flood or even provide shelter. Meanwhile, 2 people or 20% of the informants did not have relatives or close relatives, so if a flood occurred they would do everything themselves.

Terlibat aktif dalam rapat-rapat untuk persiapan dan perencanaan pengurangan risiko bencana banjir

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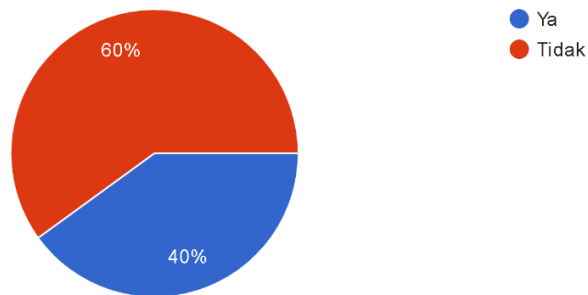


Terlibat aktif dalam pelatihan-pelatihan untuk persiapan dan perencanaan pengurangan risiko bencana banjir
10 jawaban



Actually there were no special flood meetings and training in the Tanjung Rejo area, Kec. Medan Sunggal especially Jl. Struggle, Mr. Cipto, but 3 people or 30% of the resource persons attended meetings or flood training outside of the local sub-district work system accompanied by searching for sources from the internet to add to their insights in reducing flood risk.

Adanya kegiatan gotong royong membersihkan lingkungan dalam rangka pengurangan risiko banjir
10 jawaban



Based on the data above, around 6 people or 60% of the interviewees answered that there was no post-flood mutual cooperation activities around their homes, the residents would be busy cleaning their homes respectively. Meanwhile, 4 more people or 40% of the interviewees answered that there is still mutual cooperation around their homes. Usually, residents will help each other in cleaning up their home environment after the flood.

CONCLUSION

This flood disaster is very prone and occurs in many areas of our country, such as Jakarta, Bandung and other cities that are not that big and take many victims.

In fact, the main cause of the flood is the result of human activity. For example, there is illegal logging in the forest, then there is a flood, then there is littering so that the flow of water is hampered because of it, then there is a flood.

The most effective way to prevent flooding is to adopt an attitude or behavior to keep our environment clean. And the most effective way to deal with flooding is to build a house near the flood.

SUGGESTION

The preparation advice is: "Take care of our environment to avoid flooding." It is our responsibility to keep the environment clean and avoid flooding which causes other disasters such as deaths from diseases that occur during floods.

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