

# FINAL REPORT

## BASIC RESEARCH AND PREPARATION FOR THE SUB PROJECT EARLY WARNING SYSTEM AND EARLY EVACUATION IN JEMBER

### ADVANCE INDICATIONS OF BANJIR BANDANG IN SILO AND PANTI



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(YPM)

*WITH*  
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## I. INTRODUCTION

As we know with that many disasters have occurred in Indonesia. These conditions require the public to be vigilant and ready at any time when natural disasters struck. The lack of knowledge of society to the introduction of signs of natural disasters and efforts to minimize the risk that encouraging Japan International Cooperation Agency (JICA), local government non-governmental organizations (NGOs) to provide supplies of knowledge to the community to natural disasters in disaster prone areas.

Some potential areas of natural disasters in Jember district, among others, district Panti, and Silo Sukorambi potentially disastrous floods and landslides. In response to the study of natural disaster management in Jember district conducted by the JICA team, then Yayasan Pengabdian Masyarakat (YPM) as non-governmental civil society organizations to play a role in these activities.

Yayasan Pengabdian Masyarakat as community service agencies has carried out many activities, including community empowerment in an effort to eradicate illiteracy, poverty reduction, training, surveys, and social activities and role in handling natural disasters in Jember regency.

In 2007, Yayasan Pengabdian Masyarakat in cooperation with JICA in the activities of the Study Team on Disaster doing various activities in an effort to provide knowledge to the public about the handling of natural disasters. These activities include training for Local Leaders (training to civil society), Community Workshop (Workshop to the public), and Evacuation Drill (Evacuation training). All activities are done in Panti Jember.

Yayasan Pengabdian Masyarakat in 2010 back to being a partner of JICA in Jember in the "Basic Research and Preparation for the Sub Project Early Warning System and Early Evacuation in Jember."

The purpose of this study is to identify how far the community in disaster prone areas to know about the signs before the occurrence of flood disasters in Panti and Silo. Forms of activities that will be implemented are the following survey:

- Develop a community profile in the studied region;
- Clarify the profile of disaster in the studied region.
- Knowing the community views about the flood disaster, the signs of banjir bandang.

## II. RESEARCH METHOD

The research method used was descriptive-quantitative. The sample in this basic research is 120 people with details of 100 people and 20 people village government officials. The sample breakdown is as follows.

Target Areas (Village)	Total Respondents (population)	Number of Respondents (Government Officials)
Panti	50	10
Silo	50	10
Total	100	20

Quantitative data collection was done by interviewing both people and village government officials. In addition it also conducted Focus Group Discussion (FGD). Furthermore, the data were tabulated, cleaned and analyzed with descriptive and cross tabulation method.

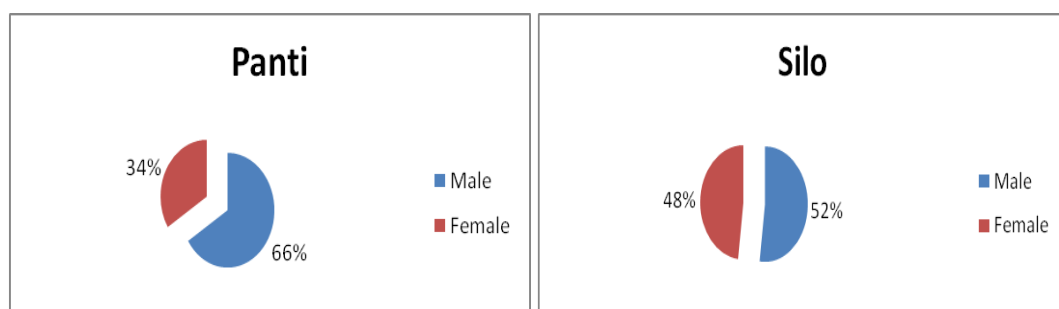
### III. ANALYSIS RESULTS AND DISCUSSION

A discussion of the signs (indications) early flood begins by explaining the demographic conditions of communities affected in the flood area. Discussion continued with the experience of community at the time of banjir bandang as well as about the signs of banjir bandangs and the things that made both before and after the flood. By coherent, discussion is conducted in both the public and officials as well as Silo and Panti.

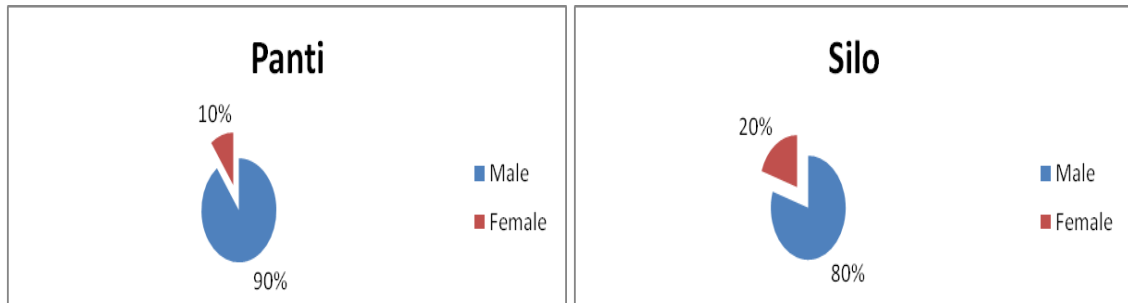
#### 3.1 Condition of Community Demographic in Banjir Bandang Area

Demographic conditions in the disaster is covered by respondent gender, education level, age of respondents, occupation of respondent, land ownership, home ownership, distance of residence to the disaster area, location of work with the disaster site, a distance of public facilities (village offices, places of worship, school) to disaster areas, slope, shelter, resources and water availability conditions. Here are described one by one.

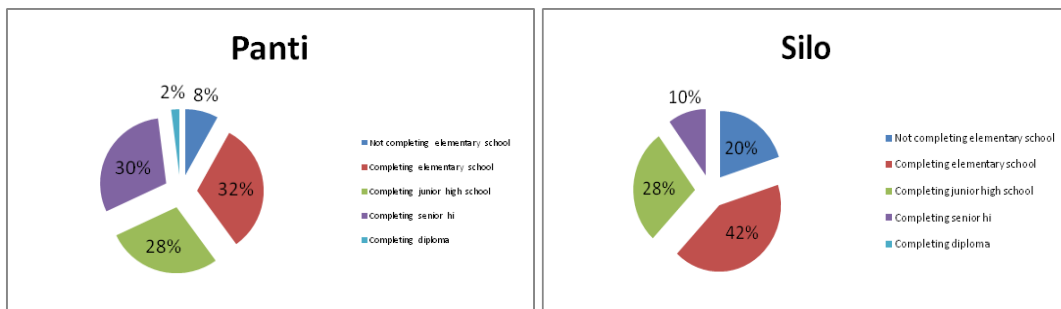
From Graph 3.1. and 3.2. seen that most of the community and village government officials who became respondents are male. In the area of research (Silo and Panti), the problem of disaster is still considered a male domain, so that when the survey was conducted, the researcher is more widely accepted by male respondents than female. In the area, the majority Muslims, it is taboo to receive male guests when their husbands are away. This implicates the respondent as samples drawn more men than women of village government officials, male sex more than women, so that the representativeness of the respondents more males than females.



Graph 3.1. Respondents' sex

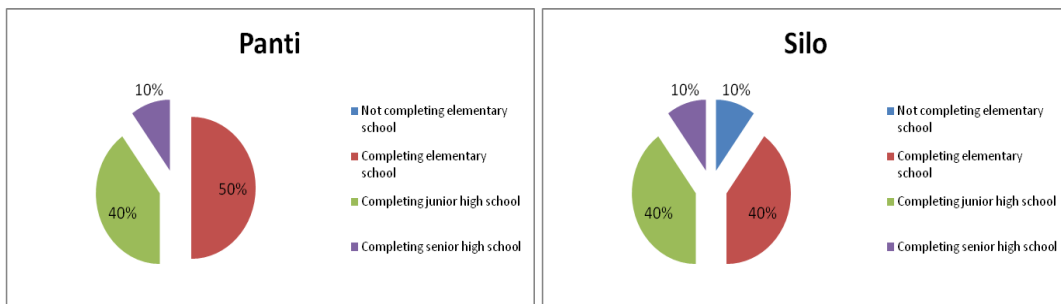


Graph 3.2. Respondents Apparatus' sex



Graph 3.3. Respondents Education Level

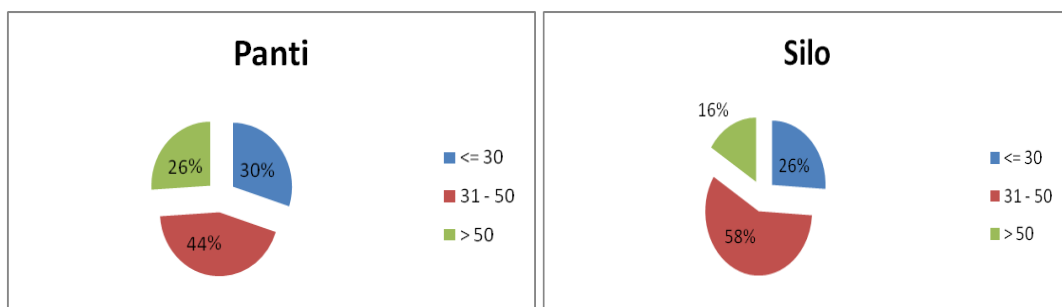
From Graph 3.3. seen that both in Silo and in the Panti, most respondents with lower education (elementary school graduation / SD). Percentage of respondents who had completed education up to junior high level both at Silo and at the center is only 28%. Respondents in the Panti (30%) who successfully completed his education up to senior high school level is higher than in Silo (10%), even in the Panti had no respondents who completed his education to higher education levels even though the percentage is only 2%.



Graph 3.4. Village Government officials' Education Level

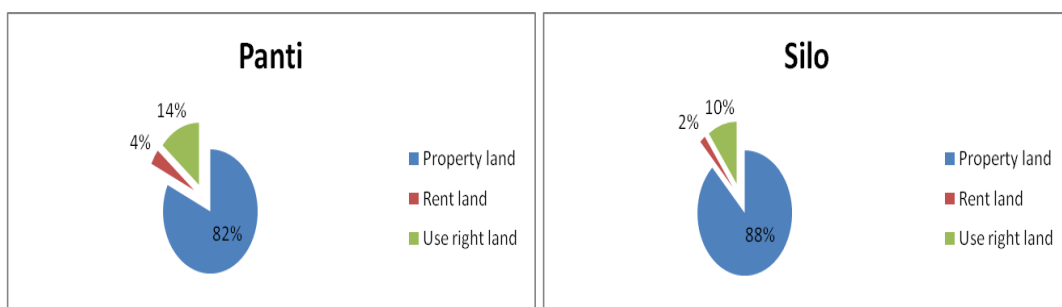


From Graph 3.4 shows that educational level government officials who become higher than the community respondents. Most government officials both at Silo and Panti successfully completed his education up to secondary school level (junior high). Even at 40% of government officials and villagers in Silo Panti successfully completed his education up to the level of high school (SMA), and 10% had successfully completed his education up to university level.



Graph 3.5. Age Categories of Respondents

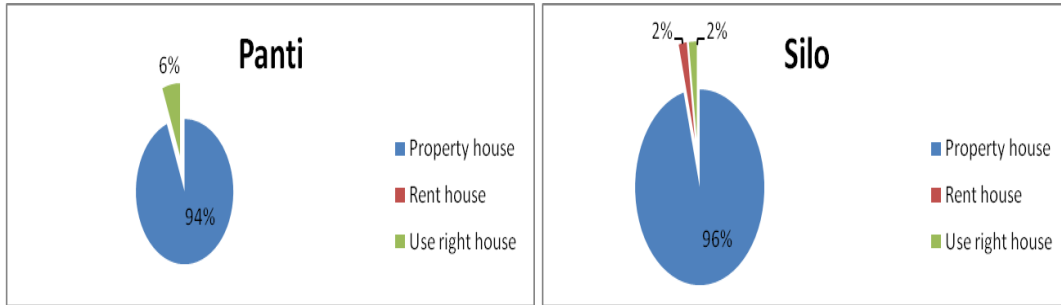
From Graph 3.5 shows that the majority of respondents aged between 30-50 years (categorized as productive age) with the status of work and have children aged under five. Viewed from the side of the demographics, age of the children included in the category of vulnerable groups, so that the parents should understand that babies are the first group to be rescued in case of disaster after the respondent had rescued him.



Graph 3.6. Respondents Land Ownership

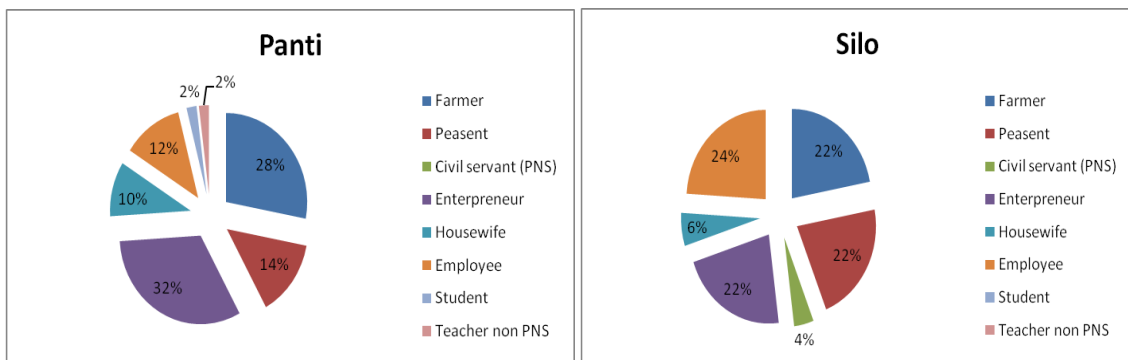
From Graph 3.6 shows that both Silo and Panti, most of the respondents owned their own land with the status obtained either by gift (grant), inheritance or purchase.

Type of land acquired through inheritance or purchase process of rice land, garden or yard. Only a small proportion of respondents who controls the land by a ride (use rights) on government land because they belong to landless villagers.



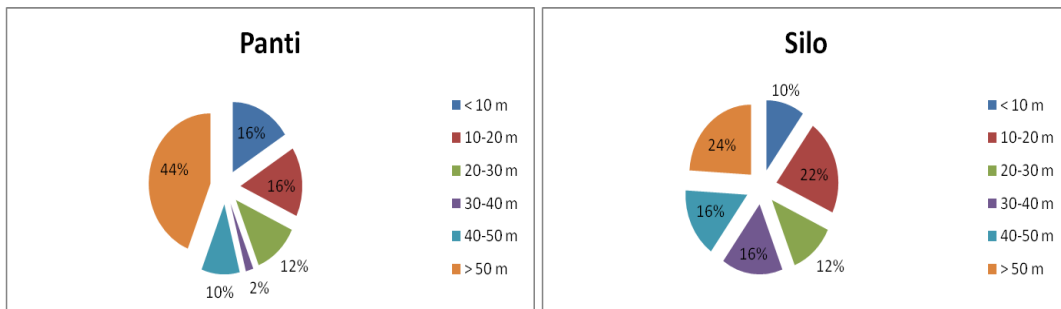
Graph 3.7. Respondent Housing

From Graph 3.7 shows that almost all respondents either at Silo and at elderly living in their own home, with the status of property rights. Only a small proportion of respondents who live at home with a status of use rights (in the Panti) and use rights and leases 2% respectively (at Silo).



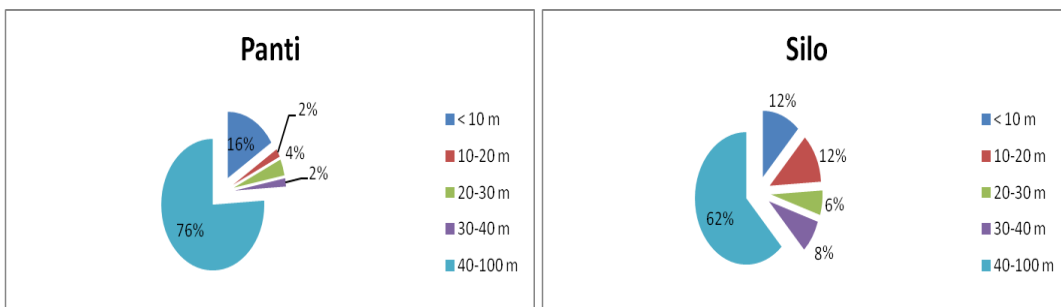
Graph 3.8. Respondent Occupation

From Graph 3.8. seen that most respondents (27%) are entrepreneur with the type of work: trade of food, grocery store, selling gasoline, opening service services electronic goods, and sewing workshops. The other main job is farming (25%), both as a farmer owners, tenants or the combination (owners and tenants). Farming has become a core culture for Panti and Silo.



Graph 3.9. Distance Houses by Banjir bandang location in Silo and Panti

From Graph 3.9. majority of respondents reside more than 50 meters from the location of banjir bandang. But there are also some of the respondents who houses so close to flood disaster areas (less than 10 meters), especially in Pace Silo located just below the foothills on the banks of streams and rivers.

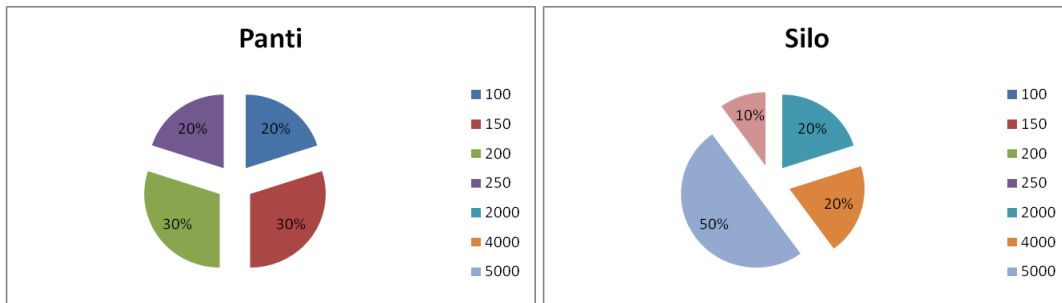


Graph 3.10. Work Distance with Banjir bandang Location

From Graph 3.10. seen that most respondents who worked as farmers, and entrepreneurship has a place of business (fields, shops, garages, where the sewing) which ranges from 40 to 100 meters from the disaster site. With a location relatively close to work, if happens disaster floods will affect the family economy because people temporarily unable to work.

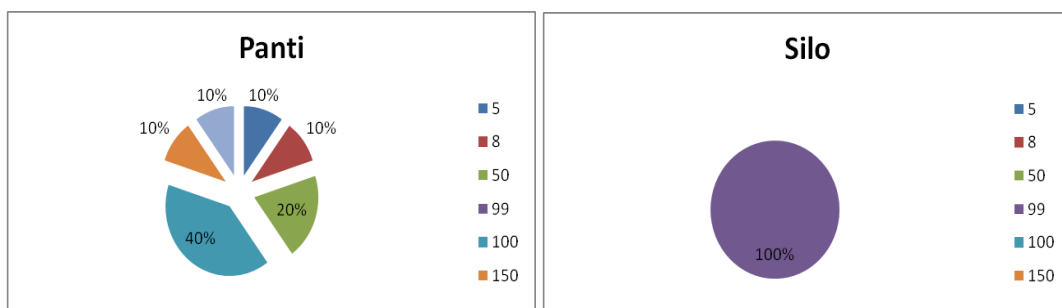
Distance of village office with the location of banjir bandang in Panti is closer than in Silo (Graph 3.11). Village office of Pace Silo is located in Dusun Sukmailang, while the location of banjir bandang situated in Dusun Curahwungkal its distance of 5,000 meters (0.5 km) from the village office of Pace. The position of the higher office of rural village office makes Pace made the evacuation site in case of disaster affected communities. As many as 30% of Panti has the perception that the distance between the

village office with the location of banjir bandangs only 150-200 meters, so that people around the village is panic when banjir bandang disasters.



Graph 3.11. Village office distance to location banjir bandang

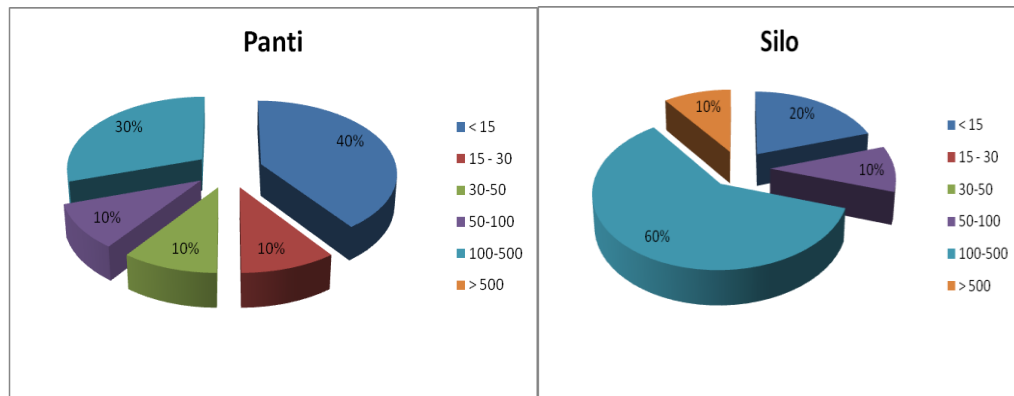
Other public facilities owned by the Panti is guard house. Meanwhile, Silo has no guard house. (Graph 3.12). Guard house serves as a place of duty to ensure public safety in residential locations. Every citizen doing night duty in turn at the guard post. Most communities Panti (40%) had a perception that the distance between the banjir bandang location of guard house only 100 meters. After flood, guard house has a vital function as citizens gathered media to keep other possessions abandoned by displaced residents.



Graph 3.12. Guard house distance to banjir bandang location

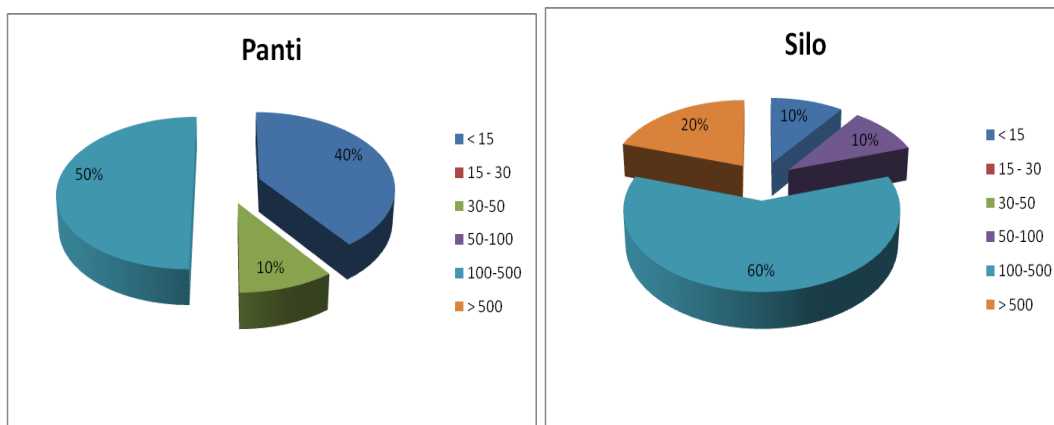
Public facilities that are important for the citizens is a place of worship. For Muslims in Silo and Panti, in addition to pilgrimage five daily prayers, the mosque also serves as a medium among people meeting for deliberation. At the time of the flood disaster, the mosque also serves as an evacuation site for flood victims. The number of mosques in every village in the research area of more than 1 unit. Most of the people in

Silo (60%) had a perception that the distance of the mosque with the location of banjir bandang between 100 to 500 meters. While most of the people at the center (40%) have the perception that the mosque is situated very close to the location of banjir bandangs (less than 15 meters). Given the vital functions of the mosque, the mosque became one of public facilities that need rehabilitation immediately when banjir bandang occurred.



Graph 3.13. Distance of worship to banjir bandang location

Apart from places of worship, public facilities that are important is the school. In addition to being a learning tool for school-age children, school is also a place of evacuation for flood victims when it occurred. Both at Silo and Panti, most people have the perception that the distance of the school with the location of banjir bandang around 100 to 500 meters, and this is a relatively close distance to village size. The negative impact of the schools that are relatively close to the location of banjir bandangs are banjir bandangs during the school age children are temporarily not able to get education, because his school under water.

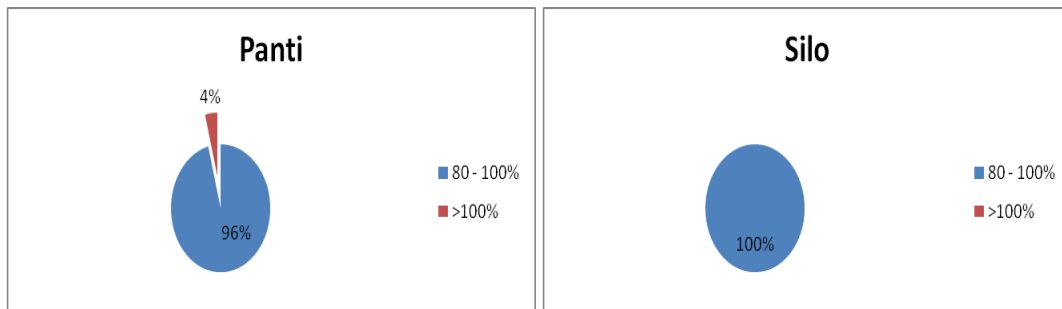


Graph 3.14. Distance of school to banjir bandang location

Table of Surely distance of public facilities to banjir bandang location in Silo and Panti

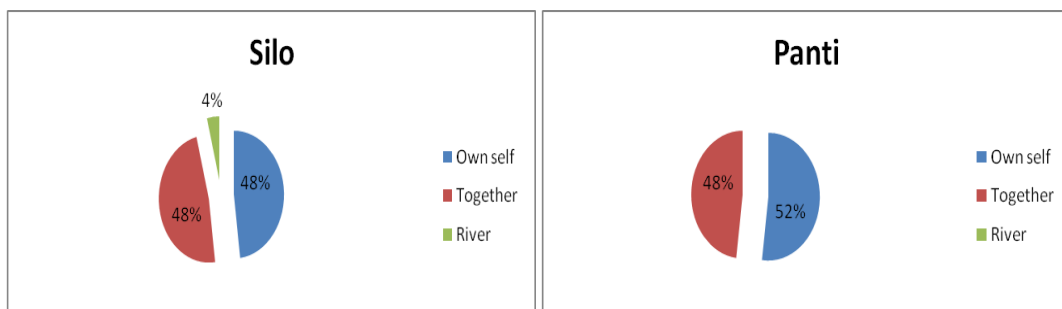
Type of Public Facilities	Sub District	Distance of public facility to disaster location (m)
Village Office	Silo	4.300
	Panti	175
Places of Worship	Silo	271
	Panti	83
Guard House	Silo	99
	Panti	96
School	Silo	401
	Panti	111

From Table above seen that in Desa Suci and Desa Kemiri Kecamatan Panti, public facilities are located close to the disaster site is a place of worship (mosques), the guard house, school and village office. While in the village of Silo District Pace, public facilities, which are located adjacent to the disaster areas are respectively guard house, places of worship (mosque), school and village office. These public facilities have a vital function to pray, to maintain village order (security), education and community service.



Graph 3.15. The slope of the respondents in Panti and Silo

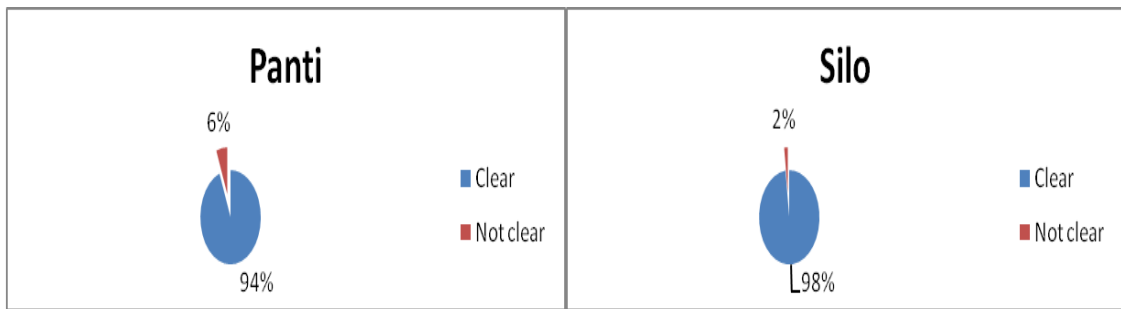
From Graph 3.15. seen that Desa Suci and Desa Kemiri Kecamatan Panti and in Desa Pace Kecamatan Silo, the slope of respondents residence with disaster sites ranged from 36 to 45 ° or 80 to 100% (relatively steep). With the level of extreme steepness, then the society becomes more alert to the danger of threatened flooding.



Graph 3.16. Water supply for Panti and Silo community

From Graph 3:16 shows that the supply of water for the community and Silo Panti is shared water resources (such as pumping wells or springs together) and own self (in the form of a personal pump wells). But there are a small portion (4%) in Silo which used the river as a source of clean water, so this group is most vulnerable to disaster. It caused by the custom of using water resources is dangerous if there is an indication of banjir bandang.

Both at Panti as well as Silo, the availability of clean water is enough with clear conditions (Graph 3.17). The condition of clear water became slightly turbid (yellow) when the flood came. The turbid of water conditions is one indication of the coming flood.



Graph 3.17. Availability of water quality in Panti and Silo

### 3.2 The Experience of Community and Government Officials about Banjir Bandang

Most people assume that banjir bandang both the Panti and at Silo, occurred only 1 time, at year 2006 in Panti and year 2009 in Silo. For the people who have the perception that Panti floods occurred 2 times, the first flood event and the second only 1 day ago, while at Silo occurred in December 2008 and January 2009. But because the duration (time) of a flood only days ago, so most respondents (68%) stated that the flood only happened 1 time (Graph 3.18).



Graph 3.18. Banjir bandang occurrence during the Last 10 Years by Panti and Silo Community

The process according to the occurrence of banjir bandangs in the Silo community is: starting with torrential rain for 3 hours and the shipment of water from the Mountain Kunitir and Curah Mas, so the PTP land and top soil carried to the river, and after 15 minutes of landslides, overflowing river water with the high speed, rumbling, water flow was increasingly accompanied by a large number of materials

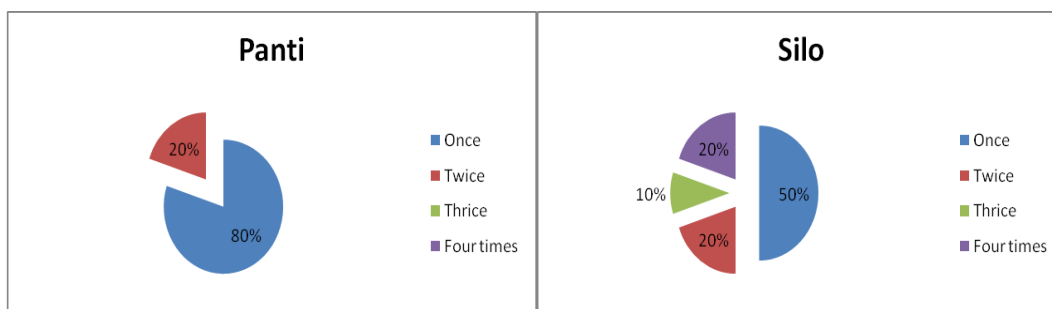


such as mud, rocks, and woody. Most of the people scattered (run) to the mosque. Although no victims, but the effect of the flood is 1 unit houses severely damaged and some minor damage by the brunt of water on the walls of houses, common facilities such as: street, supermarket, submerged, bridges break and the means of lighting outages. Owned land like rice fields and cattle swept away even a few cattle involved.

The process of banjir bandang occurrence according to Panti community are: beginning with the rain for 2 days 2 nights cause the water flow does not go through proper channels, the flow of mud as thick as 30 cm with a strong scent, the color of muddy water, river water rumbles in the collision between the stones accompanied by a timber, heavy rain began at 14:00 West Indonesia Time (Zone):WIB, and from 20:00 WIB there are some residents began to evacuate. At 22:30 WIB river water suddenly receded, exposing some of the refugees returned to their homes, but arrived at 23:30 WIB arrived there accompanied by banjir bandangs hit the debris directly to people's houses and dams bursting. Residents did not expect the coming of banjir bandang due to the receding river water flow at 22:30 WIB. After the banjir bandang at 23:30 WIB, the next day (at 07:30 WIB) occurred subsequent flooding that many bring damage and cost the lives of rice fields.

Although floods bring blessings to people who collect a small portion of timber that is carried by the flow of the river but a larger negative impact caused. In addition to victims (86 people), the floods also caused damage fields, public facilities such as: lights suddenly went out and 19 electric poles collapsed, the bridge is lost, damaged many homes. Residents who survived were those who fled the family home to a safe location (higher ground).

According to village officials of Desa Pace Kecamatan Silo, the flood disaster has become routine for them, because of the steep topography of the area. Although 20% Silo village government officials argue that the flood occurred 4 times, but called the new flood 1st time, the year 2009. Similarly, in the perception of Desa Suci dan Desa Kemiri officials Kecamatan Panti, banjir bandang only occurred 1 times in the year 2006 (Graph 3.19).



Graph 3:19. Banjir bandang occurrence by Silo and Panti government officials

The occurrence process of banjir bandang by government officials at Silo was initially heavy rains accompanied by winds occur, so that the flow of rushing river water / flooding, bringing the mud as thick as 50 cm, and caused damage to several public facilities, namely: the bridge collapse, damaged roads, 1 unit houses washed away, lighting outages, damaged agricultural land.

While banjir bandang process by Panti government officials started with heavy rain during the 3 days 3 nights. At 3 WIB in the afternoon rains accompanied by thunderous sound of the wind, at 17:00 WIB some residents fled to the mosque and terraced houses, at 19:00 WIB but the higher water discharge could shrink at 23:00 WIB, but suddenly at 23:30 WIB banjir bandang occur with a material such as mud, rocks and woody. Banjir bandang in Panti caused 86 victims, destruction of houses, destruction of 5 hectares of rice fields and public facilities such as: bridges that connect Dusun Krajan and Dusun Sodong that perforated so cut off road access.

### 3.3 Knowledge of Community and Government Officials about Banjir Bandang and Its Signs

According to community of Desa Pace Kecamatan Silo, there are several factors that cause banjir bandang there, among others: (1) heavy rain so the water does not flow through the proper channels, (2) a steep slope so that the soil conditions become unstable; (3) deforestation; (4) shipments from the upstream area, (5) no buffer zone, and (6) shallow river.

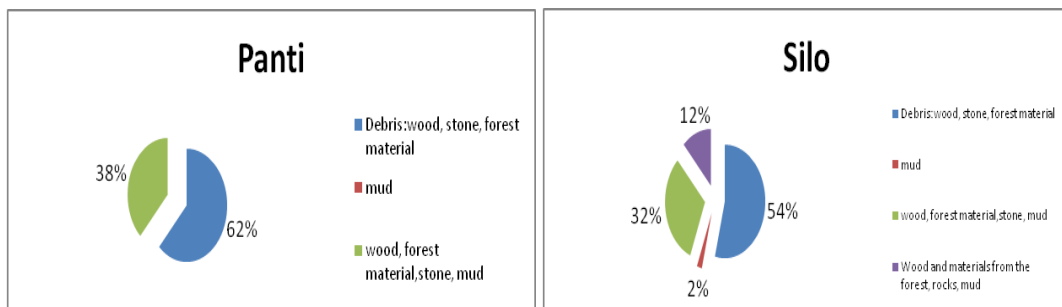
This public statement is not different with the statements of government officials, that the cause of banjir bandang in Desa Pace Kecamatan Silo are: (1) heavy rain so the river overflows, (2) deforestation (3) a steep slope and topography of the area which is

surrounded mountain; (4) the transformation of the forest; (5) structure of the unstable soil; and (6) the sedimentation of the river because the river is not dredged long.

According to community of Desa Suci and Desa Kemiri Kecamatan Panti, banjir bandang caused by several factors, among others: (1) heavy rain, (2) the river is obstructed by felled timber, (3) deforestation because of illegal logging has shifted some of the functions protection forest to production forest and plantation, (4) land so steep unstable land conditions, (5) steep slope so prone to landslides.

In line with public opinion, government officials of Desa Suci and Desa Kemiri Kecamatan Panti also argues that the banjir bandang in Panti caused by several factors, among others: (1) high rainfall so that the ground cover carried by the flow of water, (2) an extreme slope, so that prone to landslides, and (3) deforestation.

Most of the people both in Kecamatan Silo (54%) and Kecamatan Panti (62%) had the perception that the material carried by the flow of banjir bandang are: debris: wood, stone and forest materials (Graph 3.20). In a community discussion at Desa Kemiri, Kecamatan Panti revealed that the flood was followed by a rumbling sound as the rocks that collide with each other. Very large collision caused a strong vibration like an earthquake and causing rumbling sound.



Graph 3.20. The Following of banjir bandang flow by community in Silo and Panti

While Silo government officials Pace has carried on the perception that a banjir bandang in the debris flow: mud. Suci and Kemiri government officials has the perception that this type of flow that followed the floods in Panti is debris, mud and landslides (Graph 3.21)



Graph 3.21. The Following of banjir bandang flow by Silo and Panti government officials

According to community of Desa Pace, Kecamatan Silo, banjir bandang negatively affect people's lives. Some of these negative impacts include: (1) damage and loss of property: house and household furniture, livestock, rice fields (2) victims, (3) economics of household constrained (hard to meet need) because access roads closed; (4) living as a refugee, with not adequate health facilities (especially toilets); (5) psychologically traumatic (do not calm down / fear / anxiety) would be a similar disaster; (6) damaged public facilities: roads, power outages, disruption of communication networks.

Some of the negative impact of banjir bandang in Desa Suci and Desa Kemiri, Kecamatan Panti is: (1) loss of livelihood for a while, because the concentration of citizens to clean the mud and the ruins of the house, (2) losses of property as follows: 1 unit completely destroyed houses and some minor damage, dab damaged wells, stables and livestock swept away / washed, submerged paddy fields and gardens, (3) public facilities such as: bridge and the bridge is damaged, (4) trauma (fear, anxiety) if the floods come again.

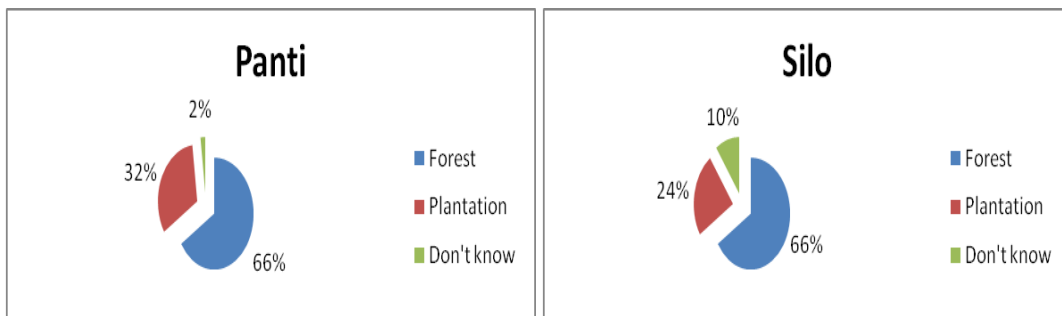
While according to Pace government officials, Kecamatan Silo, the negative impact of large floods: (1) damage and loss of homes due to carry the current, submerged rice fields so that the public revenue to decline; (2) damage to public facilities such as: bridge collapse, the electricity goes out, muddy roads.

According to Suci and Kemiri government officials, Kecamatan Panti, banjir bandangs have a negative impact on: (1) loss of livelihood for the time being, (2) destruction of public facilities such as: markets, schools, boarding schools, bridges and rural roads, as a result of access to Other villages become disconnected (villages

become isolated), (3) damage and loss of property in the form of: houses, inundated rice fields and livestock lost, (4) loss of life / soul; (5) trauma (feeling anxious and afraid) as well as discomfort because living in refugee camps with health facilities are minimal.

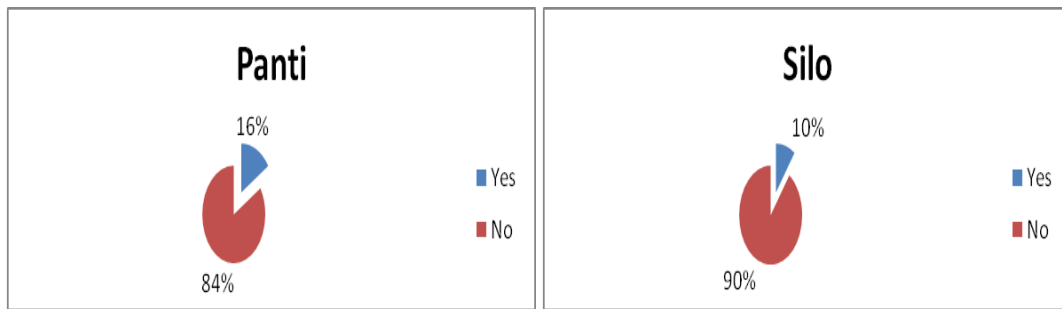
The negative impact of banjir bandang is reinforced by public opinion in community discussion that the destructive force of banjir bandang caused enormous. *"House of Mr. Um become seriously damaged due to banjir bandang,"* according to Mrs. Suwarni said. *"In addition to damaged homes, roads are also getting damaged and muddy muddy"* said Bu Mus, one participant in community discussion at Dusun Curah wungkal, Desa Pace, Kecamatan Silo.

Negative impact of banjir bandang also strengthened by one participant in community discussions at Desa Kemiri, Kecamatan Panti named Sanusi: *"Because of what happened between the flood water receded abruptly walked with a fast time, so that the public into a panic. Panicking because they do not have time to do any preparation. A society that considers river receded abruptly as a sign of a big flood will not come back to their homes. However, their estimate is wrong, turns out that the river water suddenly receded a sign that a big flood will come. As a result banjir bandangs in Panti cause a lot of victims. "*



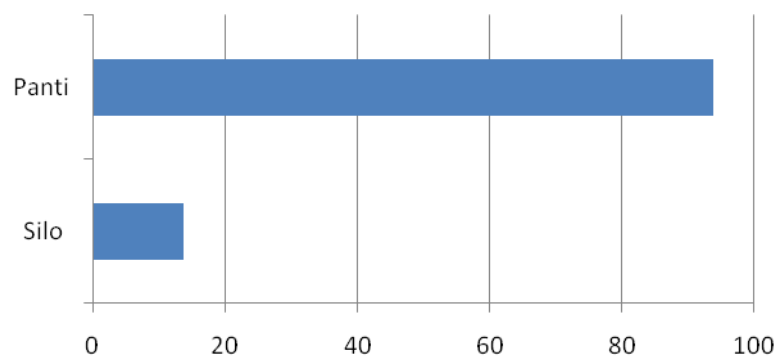
Graph 3.22. Source of debris flow

Viewed from the source of debris low, most of the Silo and Panti (66%) have the perception that the source of debris originating from the forest (Graph 3.22). Form of woody debris, stones and other materials from the forest. Especially when the forest is relatively steep topography, woods in the forest that aging is very easy to collapse, especially when heavy rains also eroded the top soil cover.



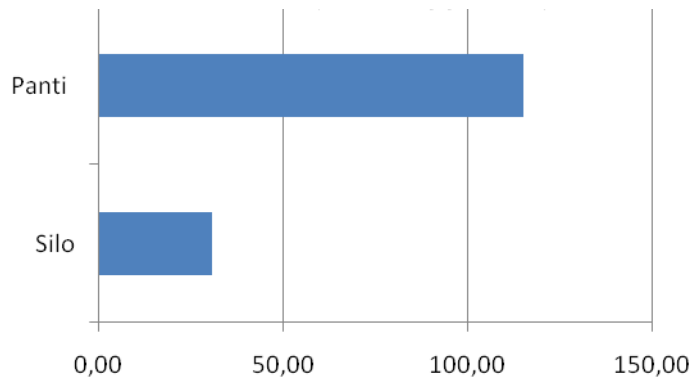
Graph 3.23. Public knowledge about the natural dam

Most of the good people at Silo (90%) and in Panti (84%) did not know that there are forests natural dam (Graph 3.23). Only a small portion Silo residents (10%) and Panti (16%) who know that the natural dam in forest. The lack of public knowledge about the natural dam in the forest causes them to perform less than optimal in anticipation of heavy flood.



Graph 3.24. Length of time from rain until banjir bandang according to Silo and Panti community

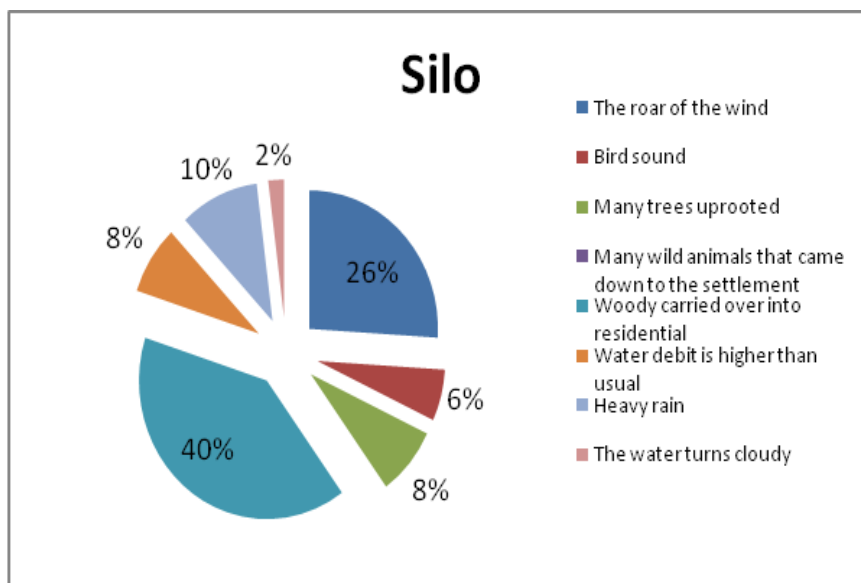
From Graph 3:24 shows that the distance from the rain until the flood according to Scripture and the community at Tamarind Village, Kecamatan Panti longer (93.9 hours) than in the village of Silo District Pace (13.8 hours). Similar expressed by government officials and the District of Silo Panti that the distance from the rain until the banjir bandangs in Panti longer (115 hours) than in the Silo (30.7 hours) (Graph 3.25). This is because at the center there is the natural dam that could hold back the flow of rain water. Also at the center of the river wider and larger, thus a greater water capacity and river flow more smoothly than at Silo.



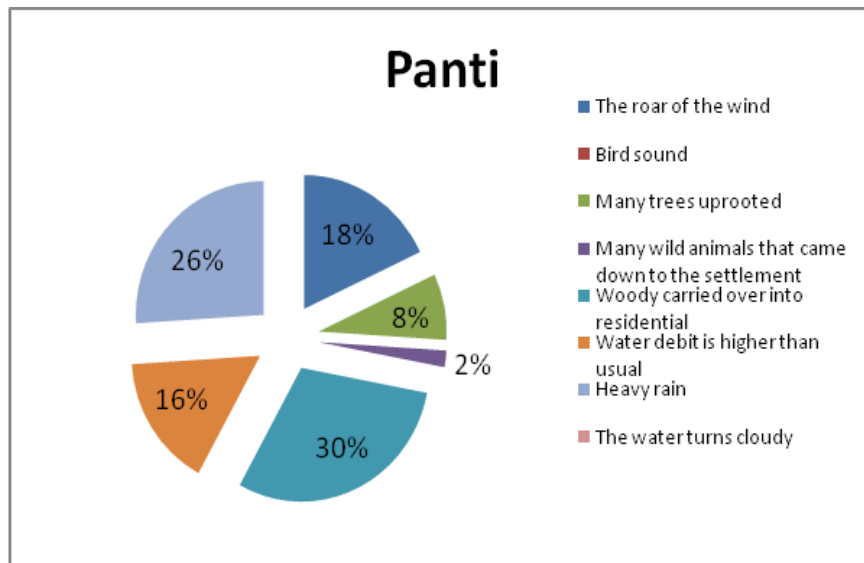
Graph 3:25. Length of time from rain until banjir bandang according to government officials of Silo and Panti

### 3.4 Perception of Public and Government officials about Banjir Bandang Signs

Signs of banjir bandang by Silo community was followed by water flow in the form of woody material (40%), the roar of the wind (26%), heavy rain (10%) and water debit is higher and more turbid water color than usual ( Graph 3.26). Similar is also expressed by the community in the Holy Village and Pecan District Panti Home, where the signs of banjir bandanging include: timber carried by the flow of water (30%), heavy rain (26%), the roar of the wind (18%), water debit is higher (16%) than normal (Graph 3:27).



Graph 3.26. Public perception of Silo about banjir bandang signs



Graph 3:27. Public perception of Panti about banjir bandang signs

Signs of banjir bandang by Pace government officials, Kecamatan Silo (Graph 3.28) are: woody who carried on the flow of water (60%), the roar of the wind (30%) and heavy rain (10%). While signs of banjir bandang according to Suci and Kemiri government officials, Kecamatan Panti is more varied, namely: timber carried by the flow of water (50%), the roar of the wind (20%), heavy rainfall (20%) and the sound of birds (10%). Rumbling sound caused by the sound of trees blowing collide because of strong winds accompanied by torrential rain. While the sound of birds is a sign of the movement of birds from the original habitat, because habitat changes (damage) by the wind and the trees that collapsed due to landslides. Bird species will move in a clustered (forming colonies), and move to a safer location from the disaster.



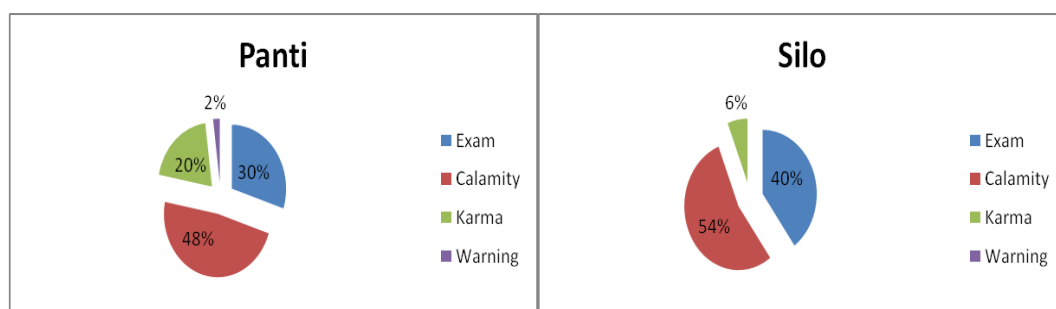
Graph 3.28. Perception of Silo and Panti government officials about banjir bandang signs



The signs of banjir bandang is in line with result of community discussion on Dusun Curah Wungkal, Desa Pace, Kecamatan Silo and on Desa Kemiri Kecamatan Panti. In a community discussion revealed that the signs of banjir bandang are: (1) heavy rain with a long duration (3 days 3 nights); (2) water overflowing the river until reach 2 meters so flush with the river mouth, (3) brownish water color because borne soil erosion, (4) the flow of water to bring other materials such as timber, rocks and mud that smells overpowering; (5) the rumble and wind noise audible sound of birds. The roar of the wind occurs because the collision between woods or crops; (6) the flow of water has ruined a great power both in terms of wealth and soul.

In a community discussion at Desa Kemiri, Kecamatan Panti is also revealed that before the floods the river water flow stopped abruptly because obstructed by fallen timber, voice so labile soil that originally had not hold water suddenly rises further, banjir bandang happen eventually.

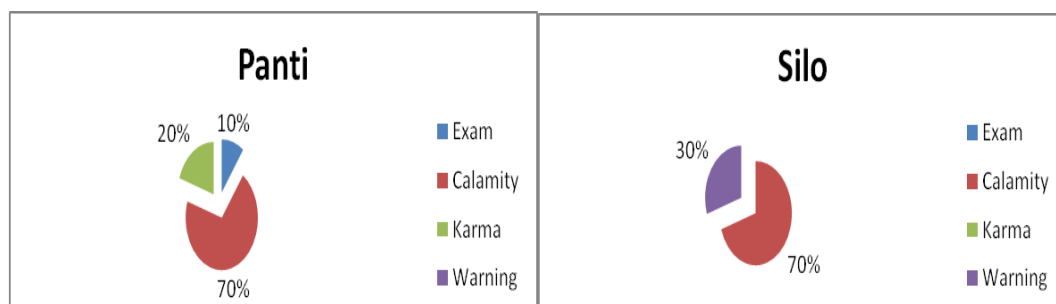
Most people of Desa Pace, Kecamatan Silo look banjir bandang as disaster (54%), exam (40%) and only a small proportion (6%) communities look it as karma (punishment from God) because they do not preserve nature. This views is also expressed by community of Desa Suci and Kemiri, Kecamatan Panti that banjir bandang as a disaster (48%), exam or test from God (30%), karma or punishment because humans do not preserve nature (20%) and only a small portion who consider it as a warning (Graph 3.29).



Graph 3.29 Views of Panti and Silo community about banjir bandang

Most Pace government officials considers that banjir bandang as a disaster (70%) and as a result of human activities that make deforestation (Graph 3.30). Unlike the Desa Suci and Kemiri government officials who consider banjir bandang as a

disaster (70%) and karma (a punishment from God) because human failed to maintain nature (20%).

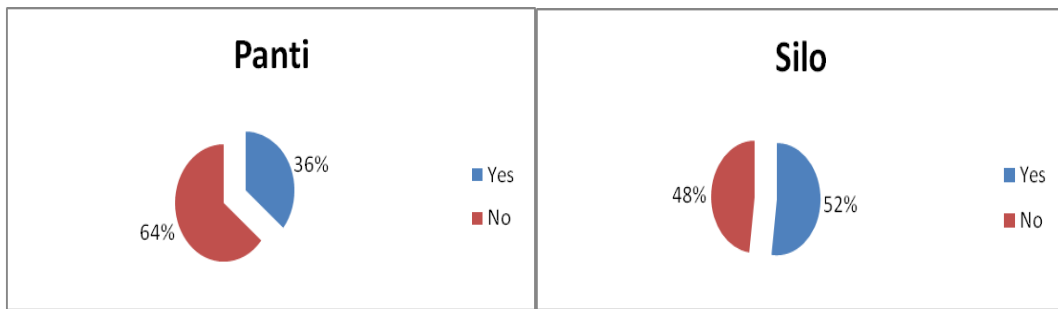


Graph 3.30. Government officials view of Silo and the Panti of Banjir bandang

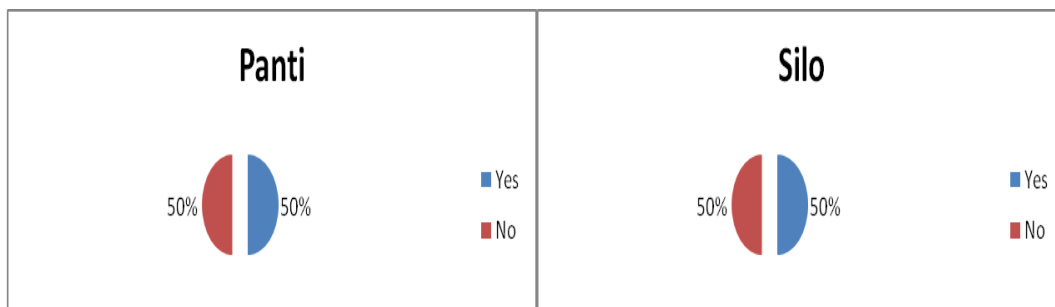
View of society and the government officials in Panti and Silo was strengthened by the community participants held discussions on Desa Suci, Kecamatan Panti on Sunday, 21 February 2010 and in Desa Pace, Kecamatan Silo on Monday, 22 February 2010. Participants of community discussion assumes that banjir bandang that occurred in Silo and Panti as a disaster and can not refused. As an implication, the public can only surrender / submission to God and pray for a big disaster does not come back. To prevent accidents do not come back, some residents have held a salvation (kendurian), but there are also some residents who held a prayer istiqosah headed by a cleric. Salvation was held as a form of gratitude for the most precious treasure (human life) can still be saved.

A small community discussion participants stated that banjir bandangs as a karma because humans do not preserve nature. Illegal logging at year 1997/1998 is rampant and has a negative impact. This means that due to human greed in taking wood from forest causes banjir bandang.

Even people in Kecamatan Silo and Panti understand the signs of flood, but only some people who know that the signs which he called banjir bandang. This can be seen in Graph 3.31 below that only 52% community of Silo and only 36% of Panti who knows about banjir bandang. This view is similar with Panti and Silo government officials knowledge ,only 50% of them who knew about banjir bandang though they may call signs banjir bandang (Graph 3:32).



Graph 3:31. Public knowledge about Silo and Panti Banjir bandang



Graph 3:32. Government officials knowledge about Silo and Panti Banjir bandang

### 3.5 Efforts Of Community and The Government Officials for Banjir Bandang Reduction

According to Silo and Panti community, both Silo and Panti government officials has conducted several flood mitigation measures. Some flood mitigation efforts by Silo government officials are: (1) determine the place of evacuation; (2) determine the point of gathering, (3) create a hazard map; (4) records the vulnerable groups and (5) collecting data from residents near the disaster site. While some flood mitigation efforts by Desa Suci and Kemiri government officials are: (1) collecting data from vulnerable groups, (2) determine the place of evacuation; (3) determine the point of gathering, (4) create a hazard map and (5) making command line procedures / warnings of disasters.

According to Silo and Panti government officials, both of them has 3 steps of flood disaster management, among others: (1) create a hazard map, (2) record the vulnerable groups and (3) determine the evacuation site.

### **3.6 Efforts Of Silo And Panti Sesidents And Government Officials After Banjir Bandang**

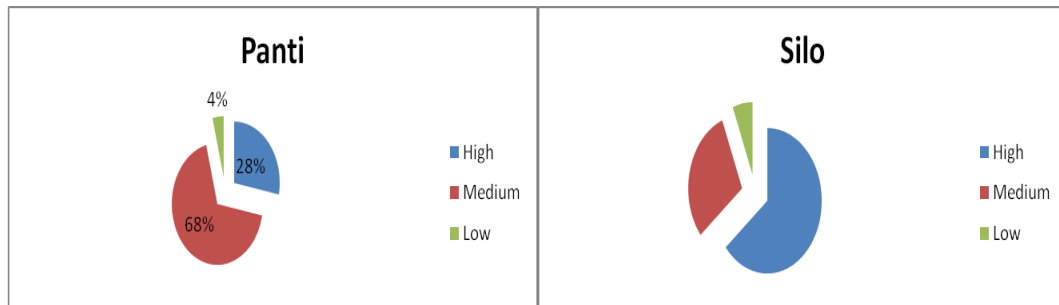
Some steps taken by community of Desa Pace, Kecamatan Silo after banjir bandang are: (1) increase the awareness will come flooding aftershocks, (2) provide the evacuation site, assisting with the evacuation at the same time preparing food and clothing for victims, (3) recording victims and carrying the injured to hospital; (4) cleaning the house from the rubble and mud; (5) work to clean devotion in public facilities such as: roads, (6) capital assistance to restore the productive economy of the family; (7) increasing community self-reliance; ( 8) dissemination of hazard map, alert and disaster simulations.

While some steps that performed by community of Desa Suci and Kemiri, Kecamatan Panti after banjir bandang are: (1) distributing donated food and clothing, (2) making the evacuation route, providing a safe evacuation, to provide soup kitchens and socialize; (3) provide refuge complete with health facilities, (4) securing an abandoned house fled with the night patrols; (5) collecting data from vulnerable groups (babies, pregnant women, and the elderly) who are victims; (6) help the injured and took him to hospital; (7) provide that restrictions for residents along the river tinggaldi; (8) improving housing and public facilities (bridges, roads) that is damaged, (9) construction of dams in anticipation of the coming flood; (10) construction of new bridges and roads to open access economics citizens; (11) dissemination of disaster prone areas and disaster-prone as well map (12) simulation of victims rescue.

Similar with community efforts, Panti and Silo government officials also take several steps after the occurrence of banjir bandang. Several steps taken by Panti and Silo government officials are: (1) Collecting data from vulnerable groups, (2) to evacuate the flood victims by providing food and clothing, (3) Cleaning These public such as: roads and bridges, (4) Prepare the location of evacuation; (5) Provide capital assistance to raise the productive economy suffering from the disaster. While some steps taken by government officials of Desa Suci and Kemiri, Kecamatan Panti are: (1) Collecting data and helping victims of the food and clothing, (2) Maintain security of the village during the evacuation, (3) Making the evacuation route and equipped with kitchens; ( 4) Work devotion in clean rivers and other public facilities; (5) To promote

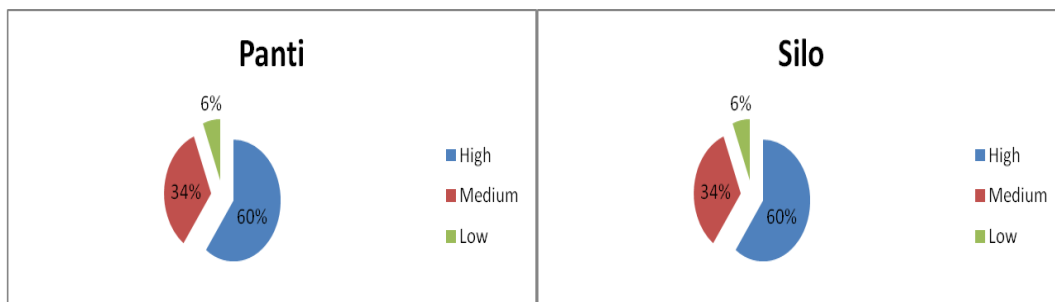
reforestation efforts in flood prevention, prohibition of felling trees, (6) Implementation of the simulation of banjir bandang.

Both before and after the disaster, the spirit of mutual help (altruism) between Silo residents is high (Graph 3:33 and 3:34). This is similar to the results of community discussions, where the famous village community with the spirit of mutual help. One community participant stated that mutual aid discussion among community Silo, especially Desa Pace was high both before and after the disaster. The indicator is when a disaster occurs, without being asked, residents who do not fall victim to voluntarily provide assistance to residents affected by the disaster. Mutual aid is not only a matter of food, but also help each other in cleaning mud from the disaster.



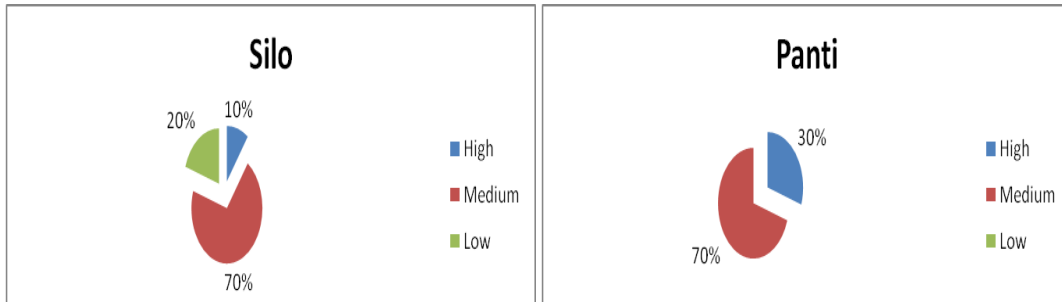
Graph 3.33. Spirit of mutual aid of Silo and Panti Community Before Banjir Bandang

Unlike people in Silo, which has a soul altruism remained high both before and after the disaster, the spirit of mutual help (altruism) between Panti residents are becoming increasingly high (comparison Graph 3.33. And 3:34.). That is, concerns the coming of a greater calamity, makes Panti citizens more compact in anticipation of the coming flood.

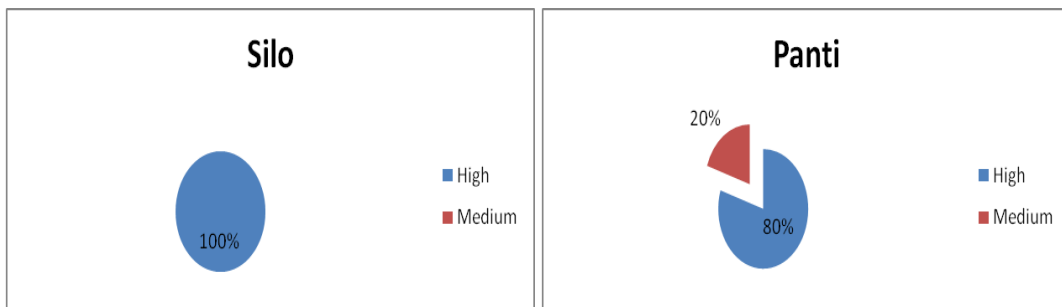


Graph 3:34. Spirit of mutual aid of Panti and Silo Community After Banjir Bandang

In line with the spirit of citizens mutual help (altruism), the spirit of mutual help (altruism) government officials both at Silo and Panti became high after the flood disaster (comparing Graph 3:35. And 3:36. ). That is, concerns the coming of a greater disaster, making Silo and Panti government officials more compact in anticipation of the coming flood.



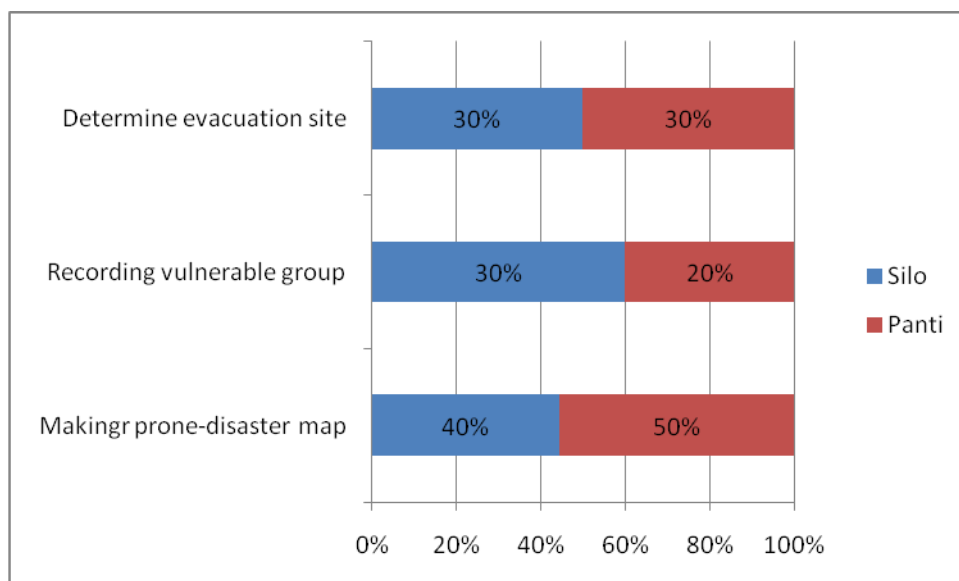
Graph 3:35. Spirit of mutual aid Silo and Panti government officials before banjir bandang



Graph 3:36. Spirit of mutual aid Silo and Panti government officials after banjir bandang

Graph 3.37 shows some of the effort done by Silo and Panti government officials after the occurrence of banjir bandang. Both government officials at Silo and Panti, making maps of disaster-prone is a top priority to minimize the negative impacts of flood disasters. These steps are considered urgent, because with the community hazard map, the public knows the disaster-prone spots. Hazard maps have been made should also be socialized to the public, so they can know the territory. Some effective steps that need to be taken to minimize the process of socialization is the process of hazard mapping conducted jointly between the parties with representatives of public authorities.

For government officials at the Silo, determine and record the evacuation of vulnerable groups can be carried out jointly (assumed to have the same priority). This is different from government officials at Panti which provides that the determination of the evacuation step further than the record priority vulnerable groups. Included in vulnerable groups are: infants, elderly, pregnant women, patients with congenital disease / derivatives and physical disabilities (blind, crippled, tuna proper etc.). That is, after an initial indication of large floods known to residents, and residents can save his own soul, the next priority is to this vulnerable group who must be saved.



Graph 3.37. Government officials efforts after banjir bandang

## IV. CLOSING

### 4.1 Conclusions

- a. Demographic conditions of the society is most people work as self-employed and farming with the location of residence and work location relatively close to the location of flood flows. With a slope of 36 to 45 ° or 80 to 100% (classified as steep), making people more wary of banjir bandang. A small community still used the river as a source of clean water, so that these groups become more vulnerable to disaster if there is an indication of banjir bandang.
- b. Flooding became seasonal disaster for the Silo and Panti community. However, large floods and have great destructive power occurs 1 times at each research location. At the Panti, banjir bandang in 2006 caused 86 victims, damaged fields, damaged public facilities such as: lights suddenly went out and 19 electric poles felled, broken bridges and roads damaged. At Silo flooding in 1 year 2009 damaged housing units severely damaged and a deep trauma for residents in the 2 study sites.
- c. Public both at Silo and Panti already know about the signs of flooding. Some of the signs or indications of the beginning of banjir bandangs are: (1) torrential rains, (2) the wind roar; (3) woody drifted up to the settlement; (4) rising river water discharge, (5) woody uprooted; (6) the sound of birds and (7) that turned into a turbid water. Although the public will understand the signs of flooding, but they did not know that the signs which he called an early indication of banjir bandang.

### 4.2 Recommendations

- a. Associated with the location of residence and work location adjacent to the flood flows and the steep topography, the community is expected to increase vigilance when a banjir bandang at any time to come.
- b. Socialization of banjir bandang have done to society, because even if people have to understand the signs or indications of the beginning of banjir bandang,



but they did not know that these signs are indicative of the beginning of banjir bandang.

- c. Flood risk reduction can be done by: (1) making hazard maps, (2) development of dams, (3) determination of the evacuation and socialize to the Silo and Panti community, (4) improve the capacity and reduce vulnerability. Thus, continued research is needed disaster risk reduction efforts by increasing capacity and reducing vulnerability.

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**Masyarakat**

**YAYASAN PENGABDI MASYARAKAT (YPM) DAN JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)**

## **INDIKASI AWAL BANJIR BANDANG DI PANTI DAN SILO**

Enumerator: Sampaikan secara ringkas dan jelas tujuan kegiatan penelitian ini.  
  
Kami adalah enumerator penelitian “Indikasi Awal Banjir Bandang di Kecamatan Panti dan Silo Kabupaten Jember. Pada kesempatan ini kami akan mengajukan beberapa pertanyaan yang berhubungan dengan indikasi awal banjir bandang yang Bapak/Ibu/Saudara ketahui. Jawaban yang Bapak/Ibu sampaikan kepada kami sepenuhnya hanya digunakan untuk kepentingan penelitian ini dan akan dijaga kerahasiannya.  
  
Kami tergabung dalam tim kajian kerjasama Yayasan Pengabdi Masyarakat (YPM) dan JICA melakukan kegiatan penelitian dengan mengumpulkan data dan akan digunakan untuk pengambilan keputusan dengan mengedepankan kepentingan kesejahteraan masyarakat untuk pembentukan system peringatan dini dan evakuasi untuk banjir bandang. .

Nama Enumerator : .....  
Tanggal wawancara : ...../...../.....  
Tanggal pengecekan supervisor : ...../...../.....

Nama & Tanda tangan enumerator:

Nama & Tanda tangan supervisor

(.....)

(.....)

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**I. Identitas Responden**

1. Nama responden : .....
2. Nomer responden : 

--	--	--	--
3. Alamat : (1) Dusun : .....RT/RW: ...../.....  
(2) Desa : .....  
(3) Kecamatan: .....
4. Umur : .....
5. Jenis kelamin : (1). Laki-laki (2) Perempuan
6. Pendidikan : (1) Tidak sekolah (2) Tamat SD  
(3) Tamat SMP (4) Tamat SMA  
(4) Tamat D1/D2/D3 (5) Tamat PT
7. Posisi dalam Masyarakat:
1. Pegawai desa
  2. Toko masyarakat (kyai, dijadikan panutan)
  3. Warga biasa

**II. Karakteristik Demografi-Ekonomi Responden**

1. Apakah Bapak/Ibu/Saudara sudah berkeluarga?
  1. Sudah
  2. Belum
2. Berapa jumlah tanggungan keluarga Anda (selain responden)  
.....orang
3. Apa jenis pekerjaan utama Bapak/ibu/saudara  
.....
4. Berapa pendapatan dari pekerjaan utama tersebut?  
Rp. ....../(bulan)
5. Apa jenis pekerjaan sampingan Bapak/ibu/saudara  
.....
6. Berapa pendapatan dari pekerjaan sampingan tersebut?  
Rp. ....../(bulan)
7. Jika Bapak/ibu/saudara bekerja, berapa jauh lokasi pekerjaan (bertani, toko, huller, dan lokasi usaha lainnya) dengan lokasi arus banjir bandang?
 

1. < 10 m	2. 10 – 20 m
3. 20 – 30 m	4. 30 – 40 m
5. 40 – 50 m	5. > 50 m
8. Jika Bapak/ibu/saudara bekerja, berapa kemiringan tempat pekerjaan tersebut?
 

1. < 10°	2. 10 - 20°
3. 20 – 30°	4. 30 – 40°
5. 40 – 50°	6. > 50°
9. Bagaimana kepemilikan tanah yang Bapak/Ibu/Saudara miliki ?

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1. Milik sendiri
  2. Sewa
  3. Gadai
  4. Lainnya:.....(sebutkan)
10. Bagaimana kepemilikan rumah yang Bapak/Ibu/Saudara tempati?
1. Milik sendiri
  2. Sewa
  3. lain-lain
11. Apa jenis lantai rumah yang Bapak/Ibu/Saudara tempati?
1. Tanah
  2. Semen
  3. Tegel
  4. Keramik
12. Apa jenis dinding rumah yang Bapak/Ibu/Saudara tempati?
1. Bambu
  2. Kombinasi Bambu-Tembok
  3. Tembok
  4. Lainnya: sebutkan.....
13. Apa jenis atap rumah yang Bapak/Ibu/Saudara tempati?
1. Rumbai
  2. Seng
  3. Asbes
  4. Genteng
14. Berapa jarak tempat tinggal Bapak/Ibu/Saudara tersebut dengan lokasi arus air banjir bandang?
1. < 10 m
  2. 10 – 20 m
  3. 20 – 30 m
  4. 30 – 40 m
  5. 40 – 50 m
  6. > 50 m
15. Berapa kemiringan tempat tinggal Bapak tersebut?
1. < 10°
  2. 10 - 20°
  3. 20 – 30°
  4. 30 – 40°
  5. 40 – 50°
  6. > 50°
16. Bagaimana pemenuhan kebutuhan air bersih di rumah/lingkungan Anda tinggal?
1. Sendiri (PDAM, sumur pompa)
  2. Bersama (sumur pompa, mata air bersama)
  3. Sungai
  4. Lain-lain.....(sebutkan)
17. Apakah ketersediaan air tersebut cukup untuk memenuhi kebutuhan keluarga
1. Cukup
  2. Tidak cukup
18. Jika tidak cukup, dari mana Bapak/Ibu/Saudara memenuhi kebutuhan air tersebut
- .....
- .....
19. Bagaimana kualitas ketersediaan air bersih tersebut?
1. Jernih
  2. Agak keruh
  3. Keruh
  - 2.

### III. Pandangan tentang Indikasi Banjir Bandang dan Bahan Aliran yang Terbawa

1. Dalam 10 tahun terakhir, berapa kali terjadi banjir bandang di desa Bapak/Ibu/Saudara? .....

--	--	--	--

2. Jika pernah banjir bandang, tahun berapa saja dan tipe aliran yang ada?
 

	1. Tahun .....	2. Tahun .....	4. Tahun .....	5. Tahun .....
a. Bulan	.....	.....	.....	.....
b. Tanggal	.....	.....	.....	.....
c. Jam	.....	.....	.....	.....
d. Tipe aliran				
Aliran debris	.....	.....	.....	.....
Aliran lumpur	.....	.....	.....	.....
Longsor	.....	.....	.....	.....
Aliran lainnya	.....	.....	.....	.....
3. Apakah Bapak/Ibu/Saudara berada di desa ini pada saat terjadi banjir bandang tersebut?
  1. Ya
  2. Tidak
4. Coba ceritakan proses kejadian banjir bandang terbesar pada saat itu.. (rumah rusak, sawah tergenangi, korban meninggal, dll)
 

.....

.....
5. Menurut Bapak/Ibu/saudara kenapa terjadi banjir bandang? (kondisi tanah, penutup tanah, hujan, angin, air terlalu banyak, kemiringan yang curam)
 

.....

.....
6. Coba ceritakan dampak dari banjir bandang pada saat itu!
 

.....

.....
9. Berapa lama hujan terjadi hingga banjir bandang terjadi ?
 

..... jam
10. Apakah hujan tersebut disertai dengan tanah longsor, kayu-kayuan, batu-batuan dan lain-lain?
  1. Ya
  2. Tidak

Jelaskan.....

.....

.....
11. Dari mana datangnya kayu-kayuan, longSORan tanah, batu-batuan tersebut
  1. Dari hutan
  2. Bendung alam
  3. Areal perkebunan
  4. Lainnya.....
12. Sudahkah Bapak/Ibu/Saudara tahu tanda-tanda sebelum terjadinya banjir bandang tersebut?
  1. Ya
  2. Tidak
13. Jika jawaban No 12 adalah 1 (tahu), sebutkan tanda-tanda adanya banjir bandang tersebut?
  - 1.....
  - 2.....
14. Berapa lama waktu dari tanda-tanda banjir hingga banjir bandang mengenai ke wilayah

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pemukiman penduduk?

..... menit

15. Apa tindakan warga jika ada tanda-tanda banjir bandang tersebut? (jawaban bisa lebih dari satu)
1. Menghubungi pihak tetangga terdekat dengan adanya tanda-tanda banjir bandang tersebut
  2. Mengungsi ke tempat keluarga
  3. Melapor ke aparat desa setempat
  4. Lainnya.....
16. Sudahkah Bapak/Ibu/Saudara tahu tentang bendung alam di dalam hutan sebagai penyebab banjir bandang?
1. Yes
  2. No
17. Jika jawaban No.16 adalah 1 (tahu), apa fungsi bendung alam menurut Bapak/Ibu/Saudara?
- .....
- .....

#### IV.ASPEK SOSIO BUDAYA (TERMASUK MITOS)

1. Bagaimana pandangan bapak /ibu terhadap banjir bandang?
  1. Ujian/cobaan
  2. Musibah
  3. Karma/hukuman karena tidak menjaga alam
  4. Lainnya: .....(sebutkan)
2. Dalam budaya setempat, Apa antisipasi yang dapat saudara lakukan untuk mencegah banjir bandang?
  1. Tidak melakukan apapun/pasrah
  2. Berdo'a/berserah diri
  3. Selamatan/kendurian
  4. Memohon petunjuk Kyai/Ustad
  5. Memohon petunjuk paranormal/dukun
  6. Lainnya.....(sebutkan)
3. Apa tanda-tanda alam yang menunjukkan bahwa banjir bandang akan datang?
  1. Suara gemuruh angin
  2. Suara burung
  3. Pohon banyak yang tumbang
  4. Hewan liar banyak ke pemukiman
  5. Kayu-kayuan terbawa ke pemukiman
  6. Lainnya.....(sebutkan)
4. Terkait dengan budaya setempat, apa yang dilakukan masyarakat apabila banjir bandang terjadi?
  1. Tidak melakukan apapun/pasrah
  2. Berdo'a/berserah diri
  3. Selamatan/kendurian
  4. Memohon petunjuk Kyai/Ustad
  5. Memohon petunjuk Paranormal/Dukun
  6. Lainnya.....(sebutkan)
5. Sebelum banjir terjadi, bagaimana semangat saling bantu diantara warga?
  1. Tinggi
  2. Sedang
  3. Rendah
6. Sebelum banjir terjadi, apa yang dilakukan aparat?
  1. Membuat peta rawan bencana
  2. Mendata kelompok rentan (ibu hamil, Lansia, Balita, penderita sakit menahun, dll)
  3. Menentukan titik kumpul
  4. Menentukan tempat evakuasi
  5. Membuat prosedur tentang garis komando/peringatan terjadinya bencana
  6. Lainnya(sebutkan).....

.....

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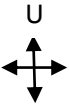
7. Setelah banjir bandang terjadi, bagaimana semangat saling bantu diantara warga?  
2. Tinggi                      2. Sedang                                      3. Rendah

8. Setelah banjir bandang terjadi, apa yang dilakukan aparat?

- 1. ....
- 2. ....
- 3. ....
- 4. ....

**V. Catatan Hasil Interview. Lebih detail dicatat tentang tanda-tanda (indikasi awal) sebelum terjadinya banjir bandang menurut pengalaman penduduk (korban banjir bandang) dan persepsi penduduk (bukan korban langsung banjir bandang). (ditulis di halaman belakang)**

**VI. Peta Lokasi Responden. Gambarkan lokasi Responden.**

LS :	
BT :	
Ketinggian :	

Respondent Number

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Initials of Enumerator: .....

**Government**

**YAYASAN PENGABDI MASYARAKAT (YPM) AND JAPAN  
INTERNATIONAL COOPERATION AGENCY (JICA)**

## **ADVANCE INDICATION OF BANJIR BANDANG AT PANTI AND SILO**

Enumerator: Please inform clearly and briefly about the purpose of this research.

We are an enumerator of research for “Advance Indication of Banjir Bandang in Kecamatan Panti and Silo Kabupaten Jember”. In this opportunity, we will deliver some questions concerning with the advance indication of banjir bandang that you/Mr/Mrs know. Your answer will be used only for the research need and the confidentiality will be kept fully.

We are incorporate in the study team under the cooperation between Yayasan Pengabdian Masyarakat (YPM) and JICA to conduct the research activity by gathering data that will be utilized to make the decision and put the priority on the public welfare needs for establishing early warning system and evacuation of banjir bandang.

Name of Enumerator : .....

Date of Interview : ...../...../.....

Date of supervisor checking : ...../...../.....

Name & Signature of enumerator:

Name & Signature of supervisor

(.....)

(.....)



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**I. Identity of Respondent**

1. Name of respondent : .....
2. Respondent Number 

--	--	--	--
3. Address : (1) Dusun : .....RT/RW: ...../.....  
(2) Desa : .....  
(3) Kecamatan: .....
4. Age : .....
5. Gender : (1). Male (2) Female
6. Education : (1) No Education (2) Elementary School/SD  
(3) Junior High School/SMP (4) Senior High School/  
SMA  
(4) D1/D2/D3 Graduate (5) College Graduate
7. Type of respondent : (1) governmental officer (kabupaten)  
(2) governmental officer (kecamatan)  
(3) governmental officer (desa)  
(4) governmental officer (dusun)  
(5)informal leader (local leader,religious Moslem leader/kyai, etc)
8. Main occupation : .....  
Position : .....
9. Side job: .....  
Position : .....
10. Position or role in the community: .....

**II. Characteristic of Desa and The Society**

1. How far the location between desa office and banjir bandang flow location?  
.....m
2. How is the slope of the desa office?  
.....°
3. How far the location of public facility is (religious place, patrol post, school, yard, facilities) with the location of banjir bandang?  

Name of Facilities	Distance	Altitude
a. religious place	.....	.....
b. patrol post	.....	.....
c. school	.....	.....
d. yard	.....	.....
e. ....		
4. How is the slope of those facilities?  
.....°
5. How is the fulfillment of clean water in your house/desa area?
  1. Independently (PDAM, pump well)
  2. Together (pump well, spring water together)
  3. River

Respondent Number

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Initials of Enumerator: .....

- 4. Others.....(mention)
- 6. Is the water availability enough to fulfill the peoples need
  - 1. enough
  - 2. Not enough
- 7. If it is not enough, from where do they fulfill their needs
 

.....

.....
- 8. How is the quality of the clean water available there?
  - 1. Clear
  - 2. A little bit turbid
  - 3. Turbid

**III. The View about Banjir Bandang Indication**

- 1. During this recent 10 years, how many times banjir occur in your village?
 

..... times
- 2. If it had ever been occurred, in what year are those occurrences
 

1. Year .....	2. Year .....	3. Year .....	4. Year .....
---------------	---------------	---------------	---------------

  - a. Month .....
  - b. Date .....
  - c. Time .....
  - d. Type of flow
    - Debris flow .....
    - Mud flow .....
    - Landslide/longsor .....
    - Other flow .....
- 3. Were you here at this village when the biggest banjir bandang occur?
  - 1. Yes
  - 2. No
- 4. Please tell us about the process of biggest banjir bandang occurrence at that time (damage house, soaked farming area, dead victims, etc)
 

.....

.....

.....
- 5. According to you, why banjir bandang occur? (condition of land cover, heavy rainfall wind, too much water, steep slope)
 

.....

.....

.....
- 6. Please tell us about the impact of biggest banjir bandang at that time!!
 

.....

.....

.....



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- nature
2. Disaster 4. Others: .....(mention)
2. In the local custom, what is being conducted by the peoples in order to prevent the banjir bandang?
1. Doing nothing/defenselessness 4. Asking guidance from Kyai/Islamic Local leader
2. Praying/Surrender to God 5. Asking guidance from paranormal/shaman
3. Ritual meal party 6. Others.....(mention)
3. What is the nature sign that showing banjir bandang will occur?
1. Thundering wind sound 2. Bird sound
3. Many collapsed tree 4. Many wild animal enter the residential area
5. Woods are swept into housing area 6. Others.....(mention)
- 4.a Regarding with the local culture/custom, what is expected to be (hendak dilakukan) conducted by the peoples if the banjir bandang occur?
1. Doing nothing/defenselessness 4. Asking guidance from Kyai/Islamic Local leader
2. Praying/Surrender to God 5. Asking guidance from paranormal/shaman
3. Ritual meal party 6. Others.....(mention)
- 4.b Regarding with the local culture/custom, what is conducted by government if banjir bandang occur?
4. Doing nothing/defenselessness 4. Asking guidance from Kyai/Islamic Local leader
5. Praying/Surrender to God 5. Asking guidance from paranormal/shaman
6. Ritual meal party 6. Others.....(mention)
- 5.a Before banjir bandang occur, how is the spirit of mutual assistance among the residents?
1. High 2. Medium 3. Low
- 5.b Before banjir bandang occur, how is the spirit of mutual assistance in the government in order to help the people?
1. High 2. Medium 3. Low
6. Before the banjir bandang occur, what is conducted by the local government officer (you belong to/institusi pemerintahan anda)?
1. Making hazard map
2. Listing vulnerable groups (pregnant woman, old peoples, babies, long time-ill peoples, etc)
3. Determining gathering points
4. Determining evacuation site
5. Making the procedures of command line/warning for disaster occurrence
6. Others(mention).....
- 7.a After banjir bandang occurrence, how is the spirit of mutual assistance among the residents?
2. High 2. Medium 3. Low

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7.b After banjir bandang occurrence, how is the spirit of mutual assistance on the government officer (you belong to/institusi pemerintahan anda)in helping the resident/dalam membantu masyarakat?

1. High                      2. Medium                      3. Low

8. After banjir bandang occurrence, what was conducted by the local government officer (you belong to/institusi pemerintahan anda)?

1. ....
2. ....
3. ....
4. ....

**V. Note of Interview. Record in detail about the symptoms (advance indication) before the flood occurrence based on the experience of residents (as victim of banjir bandang) and community perception (not the direct victim of banjir bandang)**

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.....

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
.....

.....

.....

.....

**VI. Location Map of Desa office, Public Facilities and Disaster Hazard area. Please draw the desa office, public facilities and disaster hazard area of banjir bandang in your village.**

Southern Latitude	:		
East Longitude	:		
Altitude	:	m above sea level	

Respondent Number

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Initials of Enumerator: .....

## Appendix 1. The Analysis Result of Indication of Banjir Bandang for Communities

### Crosstabs

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Age * Responden area	100	100.0%	0	.0%	100	100.0%
Sex * Responden area	100	100.0%	0	.0%	100	100.0%
Education level * Responden area	100	100.0%	0	.0%	100	100.0%
Position in Society * Responden area	100	100.0%	0	.0%	100	100.0%
Age category * Responden area	100	100.0%	0	.0%	100	100.0%
get merried * Responden area	100	100.0%	0	.0%	100	100.0%
Number family dependent * Responden area	100	100.0%	0	.0%	100	100.0%
Main * Responden area	100	100.0%	0	.0%	100	100.0%
The category of main job * Responden area	100	100.0%	0	.0%	100	100.0%
The salary of main job * Responden area	100	100.0%	0	.0%	100	100.0%
Side job * Responden area	100	100.0%	0	.0%	100	100.0%
The salary of side job * Responden area	100	100.0%	0	.0%	100	100.0%
the distance job location to banjir bandang loc * Responden area	100	100.0%	0	.0%	100	100.0%
land property * Responden area	100	100.0%	0	.0%	100	100.0%
home property * Responden area	100	100.0%	0	.0%	100	100.0%
the kind of floor * Responden area	100	100.0%	0	.0%	100	100.0%
the kind of wall * Responden area	100	100.0%	0	.0%	100	100.0%
The kind of siling * Responden area	100	100.0%	0	.0%	100	100.0%
The distance between house to banjir bandang loc * Responden area	100	100.0%	0	.0%	100	100.0%
slope of house * Responden area	100	100.0%	0	.0%	100	100.0%
the fulfilment the water source * Responden area	100	100.0%	0	.0%	100	100.0%
Adequate of water * Responden area	100	100.0%	0	.0%	100	100.0%
The water quality * Responden area	100	100.0%	0	.0%	100	100.0%
The number of banjir * Responden area	100	100.0%	0	.0%	100	100.0%
The flow that followed the banjir bandang 1 * Responden area	100	100.0%	0	.0%	100	100.0%
The flow that followed the banjir bandang 2 * Responden area	100	100.0%	0	.0%	100	100.0%
The present when banjir bandang * Responden area	100	100.0%	0	.0%	100	100.0%
The story of banjir bandang * Responden area	100	100.0%	0	.0%	100	100.0%
The cause banjir bandang * Responden area	100	100.0%	0	.0%	100	100.0%
The impact of banjir bandang * Responden area	100	100.0%	0	.0%	100	100.0%
the time long between rain to banjir bandang * Responden area	100	100.0%	0	.0%	100	100.0%
The followed rain * Responden area	100	100.0%	0	.0%	100	100.0%
The reason * Responden area	100	100.0%	0	.0%	100	100.0%
The source of debris * Responden area	100	100.0%	0	.0%	100	100.0%
Knowing the indication * Responden area	100	100.0%	0	.0%	100	100.0%
The kind of indication * Responden area	100	100.0%	0	.0%	100	100.0%
the time long between the indication to banjir bandang * Responden area	100	100.0%	0	.0%	100	100.0%
The action of society * Responden area	100	100.0%	0	.0%	100	100.0%
The knowing of bendung alam * Responden area	100	100.0%	0	.0%	100	100.0%
The function of natural dam * Responden area	100	100.0%	0	.0%	100	100.0%
The view of banjir bandang * Responden area	100	100.0%	0	.0%	100	100.0%
Anticipation of banjir bandang * Responden area	100	100.0%	0	.0%	100	100.0%
The indication of banjir bandang * Responden area	100	100.0%	0	.0%	100	100.0%
The thing that community done * Responden area	100	100.0%	0	.0%	100	100.0%
The spirit to help of community * Responden area	100	100.0%	0	.0%	100	100.0%
The that local government done * Responden area	100	100.0%	0	.0%	100	100.0%
The spirit of communities * Responden area	100	100.0%	0	.0%	100	100.0%
the thing that local government done post banjir bandang * Responden area	100	100.0%	0	.0%	100	100.0%
The slope category of house * Responden area	100	100.0%	0	.0%	100	100.0%

**Sex \* Responden area Crosstabulation**

Count

		Responden area		Total
		Silo	Panti	
Sex	Male	26	33	59
	Female	24	17	41
Total		50	50	100

**Education level \* Responden area Crosstabulation**

Count

		Responden area		Total
		Silo	Panti	
Education level	Not complete elemtery school	10	4	14
	Completed Elementary school	21	16	37
	Completed Yunior High School	14	14	28
	Compeleted senior High School	5	15	20
	completed D1/D2/D3	0	1	1
Total		50	50	100

**Position in Society \* Responden area Crosstabulation**

Count

		Responden area		Total
		Silo	Panti	
Position in Society	public figures	1	7	8
	ordinary people	49	43	92
Total		50	50	100

**Age category \* Responden area Crosstabulation**

Count

		Responden area		Total
		Silo	Panti	
Age category	<= 30	13	15	28
	31 - 50	29	22	51
	> 50	8	13	21
Total		50	50	100



**get merried \* Responden area Crosstabulation**

Count

		Responden area		Total
		Silo	Panti	
get merried	Get merried	48	43	91
	Not merried	2	7	9
Total		50	50	100

**lumber family dependent \* Responden area Crosstabulation**

Count

		Responden area		Total	
		Silo	Panti		
Number	.00	0	3	3	
family dependent	1.00	5	7	12	
	2.00	12	7	19	
	3.00	15	14	29	
	4.00	9	7	16	
	5.00	7	9	16	
	6.00	1	2	3	
	7.00	1	0	1	
	11.00	0	1	1	
	Total		50	50	100

**Main \* Respon den area Crosstabulation**

Count		Respon den area		Total
		Silo	Panti	
Main	Bag. TU. MTs.	1	0	1
	Building	0	1	1
	Contractor	0	1	1
	Coolie building	1	0	1
	cooperativ e employ ee	0	1	1
	Craftsman	0	1	1
	driver	1	0	1
	Driver	0	1	1
	Electrical Serv ice	1	0	1
	employ ees	3	0	3
	Employees Cooperative	0	2	2
	Employees PDP garden (her husb	1	0	1
	Employees rubber	2	0	2
	Employees Wotti Garden	1	0	1
	entrepreneur	1	5	6
	entrepreneurial	1	0	1
	Entrepreneurs	0	5	5
	entrepreneurs (artisans)	0	1	1
	entrepreneurs (garage)	0	1	1
	entrepreneurs (mason)	0	1	1
	factory workers	0	1	1
	farm	0	3	3
	farmers	9	4	13
	Farmers	2	6	8
	food traders / snacks	1	0	1
	Hodge	0	2	2
	housewife	3	4	7
	iburumah stairs	0	1	1
	mas bulk of plantation workers	2	0	2
	PDP employ ees	2	0	2
	peasant workers	0	1	1
	Perhutani	1	0	1
	plantation time employees mera	1	0	1
	plantation workers	1	0	1
	private employ ees	0	1	1
	Priv ate employ ees	0	1	1
	PTPN 12	0	1	1
	PTPN workers	2	0	2
	rubber tapper	3	0	3
	Rubber tapper	1	0	1
	shop	0	1	1
	Students	0	1	1
	swata (sewing)	0	1	1
	tapper	1	0	1
	teacher	1	0	1
	trade	3	0	3
	traders	1	1	2
	Traders ice and gasoline	1	0	1
	Volunteer teachers	0	1	1
	Warung	1	0	1
	Workshops (husband)	1	0	1
Total		50	50	100

**The category of main job \* Responden area Crosstabulation**

Count

		Responden area		Total
		Silo	Panti	
The category of main job	Farmer	11	14	25
	Farmer	11	7	18
	PNS	2	0	2
	entrepreneurship (trader, wprk own self i)	11	16	27
	Heose wife	3	5	8
	employee (PTP, PDP, JA wati, Coopeartion)	12	6	18
	student	0	1	1
	teacher non PNS	0	1	1
Total	50	50	100	

**Side job \* Responden area Crosstabulation**

Count

		Responden area		Total
		Silo	Panti	
Side job	99	40	36	76
	Badan usaha milik desa	0	1	1
	Bangunan	0	1	1
	Mebel (suaminy a)	1	0	1
	membuka toko	0	1	1
	nyewa orkes	1	0	1
	pedagang	0	1	1
	pembantu	0	1	1
	petani	5	2	7
	Peternak	0	1	1
	Pijat	0	1	1
	tani	0	2	2
	tukang	0	1	1
	tukang mebel	0	1	1
	Warung	2	0	2
	wiraswasta	1	1	2
Total		50	50	100

**The salary of side job \* Responden area Crosstabulation**

Count

		Responden area		Total
		Silo	Panti	
The salary of side job	99.00	40	36	76
	30000.00	0	1	1
	45000.00	0	1	1
	60000.00	1	0	1
	100000.00	0	2	2
	125000.00	0	1	1
	150000.00	1	0	1
	200000.00	1	3	4
	250000.00	1	0	1
	300000.00	2	1	3
	350000.00	1	1	2
	450000.00	1	0	1
	500000.00	1	1	2
	750000.00	0	1	1
	1000000.00	0	1	1
	3000000.00	0	1	1
	3500000.00	1	0	1
Total		50	50	100

**the distance job location to banjir bandang loc \* Responden area Crosstabulation**

Count

		Responden area		Total
		Silo	Panti	
the distance job location to banjir bandang loc	< 10 m	6	8	14
	10-20 m	6	1	7
	20-30 m	3	2	5
	30-40 m	4	1	5
	40-100 m	31	38	69
Total		50	50	100

**land property \* Responden area Crosstabulation**

Count

		Responden area		Total
		Silo	Panti	
land property	Own-self	44	41	85
	Rent	1	2	3
	land use rights	5	7	12
Total		50	50	100

**home property \* Responden area Crosstabulation**

Count

		Responden area		Total
		Silo	Panti	
home own-self		48	47	95
property rent		1	0	1
	land use right	1	3	4
Total		50	50	100

**the kind of floor \* Responden area Crosstabulation**

Count

		Responden area		Total
		Silo	Panti	
the kind land		6	1	7
of floor cement		33	26	59
	floor rude tiles	5	1	6
	floor tiles	6	22	28
Total		50	50	100

**the kind of wall \* Responden area Crosstabulation**

Count

		Responden area		Total
		Silo	Panti	
the kind Bamboo		5	3	8
of wall Combination		7	1	8
	Bamboo-permanent wall			
	Permanent wall	38	45	83
	Combination timber-tembok	0	1	1
Total		50	50	100

**The kind of siling \* Responden area Crosstabulation**

Count

		Responden area		Total
		Silo	Panti	
The kind Asbestos		0	5	5
of siling Genteng		50	45	95
Total		50	50	100

**The distance between house to banjir bandang loc \* Responden area Crosstabulation**

Count

		Responden area		Total
		Silo	Panti	
The distance between house to banjir bandang loc	< 10 m	5	8	13
	10-20 m	11	8	19
	20-30 m	6	6	12
	30-40 m	8	1	9
	40-50 m	8	5	13
	> 50 m	12	22	34
Total		50	50	100

**the fulfilment the water source \* Responden area Crosstabulation**

Count

		Responden area		Total
		Silo	Panti	
the fulfilment the water source	own-source	24	26	50
	together	24	24	48
	river source	2	0	2
Total		50	50	100

**Adequate of water \* Responden area Crosstabulation**

Count

		Responden area		Total
		Silo	Panti	
Adequate of water	Enough	49	48	97
	Not enough	1	2	3
Total		50	50	100

**The water quaity \* Responden area Crosstabulation**

Count

		Responden area		Total
		Silo	Panti	
The water quaity	clear	49	47	96
	slightly turbid	1	3	4
Total		50	50	100

**The number of banjir \* Responden area Crosstabulation**

Count

		Responden area		Total
		Silo	Panti	
The number of banjir	1.00	34	46	80
	2.00	16	4	20
Total		50	50	100

**The flow that followed the banjir bandang 1 \* Responden area Crosstabulation**

Count

		Responden area		Total
		Silo	Panti	
The flow that followed the banjir bandang 1	Debris:wood, rock, forest material	27	31	58
	mud	1	0	1
	debris and mud	16	19	35
	wood, forest material, rock, mud	6	0	6
Total		50	50	100

**The flow that followed the banjir bandang 2 \* Responden area Crosstabulation**

Count

		Responden area		Total
		Silo	Panti	
The flow that followed the banjir bandang 2	Debris:wood, rock, forest material	9	3	12
	rock	1	1	2
	debris and mud	4	0	4
	wood, forest ,material, rock, mud	1	0	1
	Nothing	35	46	81
Total		50	50	100

**The present when banjir bandang \* Responden area Crosstabulation**

Count

		Responden area		Total
		Silo	Panti	
The present when banjir bandang	present	50	45	95
	Not present	0	5	5
Total		50	50	100

The cause banjir bandang \* Responden area Crosstabulation

Count		Responden area		Total
		Silo	Panti	
The	a steep slope and barren forest	1	0	1
cause	avalanche	0	4	4
banjir	Avalanche in plantation	0	1	1
bandang	bare forest	9	8	17
	barren forests, heavy rains	1	0	1
	blind barren forest landslide	0	1	1
	continuous rain	0	1	1
	Deforestation	0	3	3
	environmental damage, no water buffer	1	0	1
	felled forest	3	0	3
	felling of trees in the forest 5 years before the flood	0	1	1
	Forest bare	0	2	2
	heavy rain and winds	1	0	1
	heavy rains and the slope of the land	2	0	2
	heavy rains, water overflows	1	0	1
	human activity	0	1	1
	human activity and heavy rainfall	0	1	1
	illegal logging	0	2	2
	illegal logging and heavy rain	0	1	1
	illegal logging and landslides	0	1	1
	illegal logging in the forest	0	2	2
	illegal Longing, heavy rainfall, unstable land conditions, water flow increases	0	1	1
	labile soil because the plants replaced smallholders	0	1	1
	land slope	1	0	1
	landslide, the rain is very heavy	1	0	1
	Landslides	0	1	1
	landslides and river flow there was no dam	0	1	1
	landslides from the garden	0	2	2
	less greening	1	0	1
	logging	1	2	3
	logging and human activity	0	3	3
	low land, heavy rainfall, water lots, steep slopes	2	0	2
	moldy soil, heavy rains	1	0	1
	over the function huta	0	1	1
	Over the function of forest	0	1	1
	overflow water, soil cracks, steep slope rain	1	0	1
	rain	2	1	3
	rain and disaster	1	0	1
	rain and soil conditions	1	0	1
	rain day and night	1	0	1
	rain forest and barren	1	0	1
	rain forest and the overtime	1	0	1
	rain, floods from the upstream	1	0	1
	rain, the water is too much	1	0	1
	rainy season	1	0	1
	shallow rivers and forests bare	1	0	1
	shallow rivers and heavy rains	2	0	2
	soil can not store water and rain	1	0	1
	soil conditions and heavy rain	0	1	1
	soil cracks, large water	1	0	1
	steep slopes, rotten soil conditions, heavy rain	1	0	1
	tebangi trees and landslides	0	1	1
	the forest bare and landslides	0	1	1
	The forest bare, continuous rain	0	1	1
	The forest bare, the water is too much	0	1	1
	very heavy rain	2	0	2
	very heavy rain, the forest bare	3	0	3
	water is too much	2	0	2
	Water is too much	0	1	1
	wood clog water fell in the forest	0	1	1
Total		50	50	100



The impact of banjir bandang \* Responden are a Crosstabulation

Count		Responden area		Total
		Silo	Pan í	
The impact of banjir bandang	1 house totally destroyed and livestock swept away	4	0	4
	1 house totally destroyed and some minor damage	3	0	3
	a broken house	0	1	1
	Access road closed	0	1	1
	agricultural damage	1	0	1
	agricultural land destroyed	0	1	1
	bridges and homes damaged	1	0	1
	casualties	0	3	3
	citizens property lost a lot of water washed	1	0	1
	communications and electricity off for about 1 month	0	1	1
	damage to rice field, den agn a very heavy flow	1	0	1
	damaged homes and washed away the property	1	0	1
	damaged homes, lost property	1	0	1
	Damaged house	0	1	1
	Damaged house, rice fields out	0	1	1
	damaged houses and flooded many	1	0	1
	damaged paddy fields covered with mud	0	1	1
	damaged public facilities and many residents who were traumatized	0	1	1
	damaging a neighbor's house	1	0	1
	damaging homes	1	0	1
	destroy gardens and homes	1	0	1
	destroying homes um pack	1	0	1
	displaced	0	1	1
	economic hard, moving house	0	1	1
	economic paralysis 4 months	0	1	1
	Family dies, house damaged, isolated village	0	1	1
	fear and anxiety	0	1	1
	fence damage but not to enter	1	0	1
	fields and houses damaged	0	5	5
	heavy rain, with a large water timber	1	0	1
	homes and damaged agricultural areas, and trauma Mas y pd	1	0	1
	homes damaged	11	0	11
	homes damaged wells Efort	1	0	1
	homes were destroyed at 9 pm hit by water and mud	1	0	1
	homes, fields, roads damaged	1	0	1
	Homes, possessions lost	0	1	1
	house and bam destroyed	1	0	1
	house so full of mud, cleaned hard	0	1	1
	houses collapsed, mud up to the kitchen	1	0	1
	houses damaged by the heavy flow	1	0	1
	houses destroyed	0	2	2
	Houses destroyed	0	1	1
	houses destroyed+ Rice	0	1	1

**the time long between rain to banjir bandang \*  
Responden area Crosstabulation**

Count

		Responden area		Total
		Silo	Panti	
the time	3.00	8	0	8
long	4.00	9	0	9
between	5.00	11	2	13
rain to	6.00	7	0	7
banjir	7.00	8	2	10
bandang	8.00	4	2	6
	9.00	1	0	1
	10.00	1	2	3
	12.00	1	2	3
	14.00	0	1	1
	18.00	0	1	1
	20.00	0	1	1
	24.00	0	14	14
	36.00	0	4	4
	48.00	0	9	9
	60.00	0	1	1
	72.00	0	6	6
	73.00	0	1	1
	96.00	0	1	1
	168.00	0	1	1
Total		50	50	100

**The follwed rain \* Responden area Crosstabulation**

Count

		Responden area		Total
		Silo	Panti	
The follwed	Yes	44	29	73
rain	No	6	21	27
Total		50	50	100

**The source of debris \* Responden area Crosstabulation**

Count

		Responden area		Total
		Silo	Panti	
The source of debris	Forest	33	33	66
	Planation area	12	16	28
	Not know	5	1	6
Total		50	50	100

**Knowing the indication \* Responden area Crosstabulation**

Count

		Responden area		Total
		Silo	Panti	
Knowing the indication	Know	26	18	44
	Not know	24	32	56
Total		50	50	100

The kind of indication \* Responden area Crosstabulation

Count		Responden area		Total
		Silo	Panti	
The kind of indication	a roar, a small stream	0	1	1
	a timber of water-borne	0	1	1
	big rain	1	0	1
	big water and heavy rain	2	0	2
	continuous rain, the smell of the river mud	0	1	1
	Continuous rain, the stinging smell of mud	0	1	1
	Cpat river rises	1	0	1
	dead river water for a moment and landslides	0	1	1
	Heavy rain for days, the thunder	0	1	1
	heavy rain, carrying a large timber	1	0	1
	heavy rains and rising water flow	0	1	1
	heavy rains, dirty water	1	0	1
	heavy rains, the river water suddenly ssurut	0	1	1
	heavy rains, water celot	1	0	1
	High rain all	1	0	1
	large water	1	0	1
	Large water suddenly receded, there was like an earthquake tremor	0	1	1
	large-added water, lots of wood drifting	0	1	1
	long rain	2	0	2
	Noise, continuous rain	0	1	1
	Noise; wood, stone and mud flood carried	0	1	1
	not know	23	31	54
	overcast and rain is not stopped visiting	1	0	1
	overflow water, stone and wood lots are overflowing	0	1	1
	rain	3	0	3
	rain began to night 14:30	1	0	1
	rain is not too heavy but not stop-stop	0	1	1
	rain, celot water	1	0	1
	river flood water	0	1	1
	Roar of the water	2	0	2
	small water timber so big and the water carried by the river	1	0	1
	sound of water and heavy rain	1	0	1
	thunder and heavy rain	1	0	1
	timber carried by the river, the color of dark brown river water	0	1	1
	Turbid river, the river suddenly subsided	0	1	1
	Turbid water, the noise	0	1	1
	turned into murky waters	1	0	1
	very heavy rain, the river overflowed	2	0	2
	water came slowly, plus heavy rain, a big plus current	1	0	1
	water into residents' houses, felled timber into the house	0	1	1
wind and rain	1	0	1	
<b>Total</b>	<b>50</b>	<b>50</b>	<b>100</b>	

**the time long between the indication to banjir bandang \*  
Responden area Crosstabulation**

Count

		Responden area		Total
		Silo	Panti	
the time	1.00	0	3	3
long	2.00	1	2	3
between	3.00	0	2	2
the	4.00	0	1	1
indication	5.00	0	15	15
to banjir	6.00	0	1	1
bandang	7.00	0	1	1
	8.00	0	1	1
	10.00	4	8	12
	15.00	8	3	11
	20.00	1	1	2
	30.00	8	6	14
	45.00	1	0	1
	60.00	10	2	12
	61.00	1	0	1
	90.00	1	0	1
	99.00	10	0	10
	120.00	3	0	3
	168.00	0	1	1
	180.00	2	0	2
	300.00	0	1	1
	360.00	0	2	2
Total		50	50	100

**Rhe action of society \* Responden area Crosstabulation**

Count

		Responden area		Total
		Silo	Panti	
Rhe	call third person	9	8	17
action	f led to family	32	21	53
of	report to local gov ernment	4	3	7
society	mengungsi ke masjid/musholla	4	5	9
	contact the neighbors, the family fled to	1	3	4
	contact the neighbors, to report to authorities	0	1	1
	Keep stay	0	1	1
	8.00	0	8	8
Total		50	50	100

**The knowing of bendung alam \* Responden area  
Crosstabulation**

Count

		Responden area		Total
		Silo	Panti	
The knowing of bendung alam	Yes	5	8	13
	No	45	42	87
Total		50	50	100

**The function af natural dam \* Responden area Crosstabulation**

Count

		Responden area		Total
		Silo	Panti	
The function of natural dam	absorb flood	1	0	1
	can hold water	1	0	1
	citizen said	0	1	1
	does not exist and do not know	45	30	75
	Hold water	0	1	1
	Hold water for the river, the river divided	0	14	14
	in the village kaliputih pecan to stem water	0	1	1
	protect	1	0	1
	rain stem	1	0	1
	Rainwater	0	1	1
	there is a small but approximately 4 meters to drink citizens	0	1	1
	water absorbent	1	0	1
	Yg basin formed naturally	0	1	1
	Total	50	50	100

**The view of banjir bandang \* Responden area Crosstabulation**

Count

		Responden area		Total
		Silo	Panti	
The view of banjir bandang	Exam calamy	20	15	35
	Karma/hukuman tidak menjaga alam	27	24	51
	occurred because of deforestation	3	10	13
		0	1	1
Total		50	50	100

**Anticipation of banjir bandang \* Responden area Crosstabulation**

Count

		Responden area		Total
		Silo	Panti	
Anticipation of banjir bandang	Resignedly	5	12	17
	Praying	35	21	56
	Salvation	8	13	21
	Pleading Instructions Ky ai / Ustad	1	2	3
	Others	1	1	2
	Banning logging	0	1	1
	Total	50	50	100

**The indication of banjir badang \* Responden area Crosstabulation**

Count

		Responden area		Total
		Silo	Panti	
The indication of banjir badang	wind noise	13	9	22
	bird sound	3	0	3
	Many trees uprooted	4	4	8
	Many wild animals that come down to the settlement	0	1	1
	Woods brought to the residential lots	20	15	35
	heavy rain	4	8	12
	The water extend the river mouth	5	13	18
	The water tt=urn cloudy	1	0	1
	Total	50	50	100

**The thing that community done \* Responden area Crosstabulation**

Count

		Responden area		Total
		Silo	Panti	
The thing that community done	Resignedly	5	6	11
	Praying	31	24	55
	Salvation	13	15	28
	Pleading Instructions Ky ai / Ustad	0	5	5
	Others	1	0	1
Total	50	50	100	

**The sprit to help of community \* Resonden area Crosstabulation**

Count

		Resonden area		Total
		Silo	Panti	
The sprit to help of community	High	32	14	46
	Medium	15	34	49
	low	3	2	5
Total		50	50	100

**The indcation of banjir badang \* Resonden area Crosstabulation**

Count

		Resonden area		Total
		Silo	Panti	
The indcation of banjir badang	wind noise	13	9	22
	bird sound	3	0	3
	Many trees uprooted	4	4	8
	Many wild animals that come down to the settlement	0	1	1
	Woods brought to the residential lots	20	15	35
	heavy rain	4	8	12
	The water extend the river mouth	5	13	18
	The water turn cloudy	1	0	1
	Total	50	50	100

**The spirit of communities \* Resonden area Crosstabulation**

Count

		Resonden area		Total
		Silo	Panti	
The spirit of communities	High	30	27	57
	Medium	17	21	38
	low	3	2	5
Total		50	50	100



**The slope category of house \* Responden area Crosstabulation**

Count

		Responden area		Total
		Silo	Panti	
The slope category of house	80 - 100%	50	48	98
	>100%	0	2	2
Total		50	50	100

Appendix 2. The Analysis Result of Indication of Banjir Bandang for Local Government

**Age \* Repondent Area Crosstabulation**

Count

		Repondent Area		Total
		Silo	Panti	
Age	28.00	0	1	1
	31.00	1	0	1
	32.00	1	0	1
	33.00	1	0	1
	34.00	0	1	1
	36.00	0	1	1
	37.00	1	0	1
	39.00	1	0	1
	40.00	2	2	4
	41.00	1	0	1
	42.00	0	1	1
	43.00	0	1	1
	48.00	1	0	1
	51.00	0	1	1
	52.00	1	1	2
58.00	0	1	1	
Total		10	10	20

**Sex \* Repondent Area Crosstabulation**

Count

		Repondent Area		Total
		Silo	Panti	
Sex	male	8	9	17
	female	2	1	3
Total		10	10	20

**Education level \* Repondent Area Crosstabulation**

Count

		Repondent Area		Total
		Silo	Panti	
Education level	Completed Elementary school	1	0	1
	Completed Yunior High School	4	5	9
	Compeleted senior High School	4	4	8
	completed D1/D2/D3	1	1	2
	<b>Total</b>	<b>10</b>	<b>10</b>	<b>20</b>

**Respondet Type \* Repondent Area Crosstabulation**

Count

		Repondent Area		Total
		Silo	Panti	
Respondet Type	ordinary people	6	9	15
	4.00	4	1	5
<b>Total</b>		<b>10</b>	<b>10</b>	<b>20</b>

**Main Job \* Repondent Area Crosstabulation**

Count

		Repondent Area		Total
		Silo	Panti	
Main Job	kasun glundengan	0	1	1
	kasun kantong	0	1	1
	kaur desa	0	2	2
	Kepala Dusun	0	2	2
	Menjaga keamanan warga	0	1	1
	Menjaga ketentruman warga	0	1	1
	pemerintahan	9	2	11
	Petani	1	0	1
	<b>Total</b>	<b>10</b>	<b>10</b>	<b>20</b>

**Position in main job \* Repondent Area Crosstabulation**

Count		Repondent Area		Total
		Silo	Panti	
Position in main job	Kasun	1	3	4
	Kasun ka	1	0	1
	Kasun Kr	1	0	1
	Kaur kes	1	0	1
	Kaur keu	1	0	1
	Kaur pem	1	0	1
	Kaur Pem	0	1	1
	kaur umu	0	1	1
	Kaur Umu	1	0	1
	Kepala d	1	1	2
	Kepala D	0	2	2
	Kepala k	0	1	1
	pembantu	0	1	1
	Pemilik	1	0	1
	Sekdes	1	0	1
	Total	10	10	20

**Side job \* Repondent Area Crosstabulation**

Count		Repondent Area		Total
		Silo	Panti	
Side job	Guru	0	3	3
	Membuka	5	0	5
	Pegawai	1	0	1
	Petani	0	1	1
	Petani	2	4	6
	Swasta	0	2	2
	tokoh ma	1	0	1
	wiraswas	1	0	1
Total	10	10	20	

**Position in Side Job \* Repondent Area Crosstabulation**

Count

		Repondent Area		Total
		Silo	Panti	
Posision		0	3	3
in Side	dagang	0	2	2
Job	Guru	5	0	5
	kemanana	0	1	1
	Ketua Po	0	1	1
	pemilik	2	3	5
	Pemilik	2	0	2
	RT 2 kar	1	0	1
Total		10	10	20

**The Distance of Village Office and Banjir Bandang Location \*  
Repondent Area Crosstabulation**

Count

		Repondent Area		Total
		Silo	Panti	
The Distance of	100.00	0	2	2
Village Of fice	150.00	0	3	3
and Banjir	200.00	0	3	3
Bandang	250.00	0	2	2
Location	2000.00	2	0	2
	4000.00	2	0	2
	5000.00	5	0	5
	6000.00	1	0	1
Total		10	10	20

**The slope Village office \* Repondent Area Crosstabulation**

Count

		Repondent Area		Total
		Silo	Panti	
The slope Village office	84.76	3	0	3
	85.89	1	1	2
	86.29	0	1	1
	86.47	0	3	3
	86.50	1	0	1
	86.58	0	1	1
	86.68	1	1	2
	87.25	1	0	1
	89.17	1	0	1
	89.67	0	1	1
	89.68	0	1	1
	89.82	0	1	1
	89.88	1	0	1
	89.95	1	0	1
Total		10	10	20

**The distance of Worship area to banjir bandang location \* Repondent Area Crosstabulation**

Count

		Repondent Area		Total
		Silo	Panti	
The distance of Worship area to banjir bandang location	8.00	1	0	1
	10.00	1	1	2
	15.00	0	3	3
	30.00	0	1	1
	50.00	0	1	1
	100.00	1	1	2
	200.00	1	3	4
	300.00	3	0	3
	400.00	1	0	1
	500.00	1	0	1
	600.00	1	0	1
Total		10	10	20

**he distance of ronda post to banjir bandang area \* Reponden  
Area Crosstabulation**

Count

		Repondent Area		Total
		Silo	Panti	
The distance of ronda post to banjir bandang area	5.00	0	1	1
	8.00	0	1	1
	50.00	0	2	2
	99.00	10	0	10
	100.00	0	4	4
	150.00	0	1	1
	300.00	0	1	1
Total		10	10	20

**The distance between school building to banjir bandang area  
\* Repondent Area Crosstabulation**

Count

		Repondent Area		Total
		Silo	Panti	
The distance between school building to banjir bandang area	.00	0	1	1
	5.00	0	3	3
	12.00	1	0	1
	50.00	0	1	1
	100.00	1	0	1
	150.00	0	1	1
	200.00	0	3	3
	300.00	1	1	2
	400.00	1	0	1
	500.00	4	0	4
	600.00	2	0	2
	Total		10	10

**The distance between field and banjir bandang area \*  
Repondent Area Crosstabulation**

Count

		Repondent Area		Total
		Silo	Panti	
The distance between field and banjir bandang area	.00	0	2	2
	3.00	0	1	1
	5.00	0	1	1
	10.00	0	1	1
	99.00	8	0	8
	150.00	0	2	2
	200.00	1	2	3
	300.00	0	1	1
	800.00	1	0	1
Total		10	10	20

**Fulfilling the needs of water sources \* Repondent Area Crosstabulation**

Count

		Repondent Area		Total
		Silo	Panti	
Fulfilling the needs of water sources	water own source	1	8	9
	water together source	9	2	11
Total		10	10	20

**The Adequacy of water \* Repondent Area Crosstabulation**

Count

		Repondent Area		Total
		Silo	Panti	
The Adequacy of water	Enough	10	8	18
	Not enough	0	2	2
Total		10	10	20

**The other resource of water \* Repondent Area Crosstabulation**

Count

		Repondent Area		Total
		Silo	Panti	
The other resource of water	99	10	9	19
	minta bantuan desa	0	1	1
Total		10	10	20



**The quality of water \* Repondent Area Crosstabulation**

Count

		Repondent Area		Total
		Silo	Panti	
The quality of water	clear	10	9	19
	turbid	0	1	1
Total		10	10	20

**The Banjir Bandang 10 last year \* Repondent Area Crosstabulation**

Count

		Repondent Area		Total
		Silo	Panti	
The Banjir Bandang 10 last year	1.00	5	8	13
	2.00	2	2	4
	3.00	1	0	1
	4.00	2	0	2
Total		10	10	20

**The kind of flow \* Repondent Area Crosstabulation**

Count

		Repondent Area		Total
		Silo	Panti	
The kind of flow	debris,lumpur	10	0	10
	debris,lumpur,longsor	0	10	10
Total		10	10	20

**The present of respondet when banjir badang come \* Repondent Area Crosstabulation**

Count

		Repondent Area		Total
		Silo	Panti	
The present of respondet when banjir badang come	attend	1	9	10
	Not ettend	9	1	10
Total		10	10	20

**The story of banjir bandang \* Repondent Area Crosstabulation**

Count		Repondent Area		Total
		Silo	Panti	
The story of banjir bandang	water flow high, heavy rains and long, and wind	1	0	1
	5 pm rain and growing flow of water, people whose houses were partially displaced by the river, narrowed 11 hours, then 12 hours a flash flood (loss of life, destroyed homes + Rice)	0	1	1
	agricultural field damage	1	0	1
	at 3 pm the rain and wind noise, hours of 5 pm residents fled in the mosque and the houses, at 7 tonight flow of water rising up into residents' houses and 12th-hour flash flood occurred the night	0	1	1
	damaged bridges and water inside to residents house	1	0	1
	damaged houses, fields tergenangi, the victim died	0	1	1
	damaged houses, fields tergenangi, the victim died	0	1	1
	damaged houses, roads a lot of mud, dead lights	1	0	1
	floods come suddenly, the water mixed with mud, stone and wood house near the river burst	0	1	1
	heavy rain before the flood waters and then die suddenly overflowing water and peak hours of 23:30	0	1	1
	It rained 3 days 3 nights, bringing a rush of mud and wood. Bridge connecting Sodong krajan and SHG broke off road access. The water was as high as ± 8m, residents contacted to alert	0	1	1
	little chance of water despite heavy rains disungai and 18:00 hours the water started to go into the house residents	0	1	1
	not know	3	0	3
	off lights, driving rain began to noon, 10 nights sekitarjam floods came up menghayutkan home	1	0	1
	only the bridge collapsed, high water in the river	1	0	1
	rain 3 days, increase the flow of water, 80 houses damaged householders, 5 ha paddy fields damaged.	0	1	1
	roads, collapsed bridges, washed away houses, mud-50cm	1	0	1
	The river overflowed due to continuous rains. Sounded like the roar of the waves, flash floods 23:00 o'clock came and residents immediately evacuated. Rocks collide and damage the house w	0	1	1
Total		10	10	20

**The cause of banjir bandang \* Repondent Area Crosstabulation**

Count		Repondent Area		Total
		Silo	Panti	
The cause of banjir bandang	Curah hujan tinggi, tanah longsor, hutan gundul.	0	1	1
	huan gundul	1	0	1
	hujan deras angin kencang, sungai meluap, adanya penggundulan hutan yang berlebihan, lumpur bercampur dengan air sungai	1	0	1
	hujan deras dan longsor pada tebing yang gundul	0	1	1
	hutan gundul	1	0	1
	hutan gundul dan tanah longsor	0	2	2
	hutan gundul, sungai merawan, lumpur, membuat tanah dasar sungai tambah tinggi	1	0	1
	lama-lama air naik ke sungai			
	hutan gundul, sungai tinggi airnya	1	0	1
	karena angin kemiringan dikelilingi gunung	1	0	1
	kiriman dari gunung	1	0	1
	kondisi tanah	0	1	1
	kondisi tanah, penutup tanah	0	1	1
	longsor yang membendung air dari gunung	0	1	1
	penebangan hutan secara liar	0	2	2
	penggunaan hutan, hujan deras dengan angin banyak gunung keliling, jadi pace seperti di tengah jurang	1	0	1
	penggundulan hutan	1	0	1
	Penggundulan hutan, hujan terus menerus	0	1	1
	struktur tanah, penggundulan hutan, sungai yang tidak di keruk	1	0	1
	<b>Total</b>	<b>10</b>	<b>10</b>	<b>20</b>

**The impact of banjir bandang \* Repondent Area Crosstabulation**

Count		Repondent Area		Total
		Silo	Panti	
The impact of banjir bandang	anxious and scared	0	1	1
	can not work, many houses destroyed	0	1	1
	citizen homes destroyed, damaged public facilities, isolated, people so traumatized	0	1	1
	Damaged bridges, damaged rice fields, villages isolated	0	1	1
	damaged rice fields, cattle are missing a lot	0	1	1
	deaths, destroyed homes + Rice fields and houses damaged	0	1	1
	heavy rain since the afternoon there was the roar of water, high water	1	0	1
	heavy rains and winds, high water, the lights went out, long rain floods	1	0	1
	home residents lost property damaged	3	0	3
	homes, possessions	1	0	1
	house served as refuge	0	1	1
	market up, bridges destroyed, the victim died, the house down	0	1	1
	menurunkan income for local rice field	1	0	1
	more houses flood and collapse, bridge collapse	1	0	1
	only bridge	1	0	1
	Property and destroyed homes, schools, boarding schools, bridges and roads damaged villages	0	1	1
the bridge collapsed, people lost homes, mud roads epnuh	1	0	1	
<b>Total</b>		<b>10</b>	<b>10</b>	<b>20</b>

**The long of rain \* Repondent Area Crosstabulation**

Count		Repondent Area		Total
		Silo	Panti	
The long of rain	3.00	1	0	1
	4.00	2	0	2
	5.00	6	0	6
	6.00	1	0	1
	7.00	0	1	1
	8.00	0	1	1
	9.00	0	1	1
	24.00	0	3	3
	72.00	0	3	3
	180.00	0	1	1
<b>Total</b>		<b>10</b>	<b>10</b>	<b>20</b>

**Follower material \* Repondent Area Crosstabulation**

Count

		Repondent Area		Total
		Silo	Panti	
Follower material	available	10	9	19
	Not available	0	1	1
Total		10	10	20

**The kind of follower material \* Repondent Area Crosstabulation**

Count

		Repondent Area		Total
		Silo	Panti	
The kind of follower material	ada batuan dan kayu-kayu dan banyak lumpur	1	0	1
	ada kayu besar dan batu-batuan banyak lumpur	1	0	1
	ada kayu-kayu besardan arus deras	1	0	1
	ada pohon besar dan banyak lumpur	1	0	1
	air deras membawa kayu-kayuan	1	0	1
	Banyak kayu-kayuan dari gunung	1	0	1
	dengan kayu-kayu dari gunung	1	0	1
	diketahui dari suara gemuruh air beserta batu dan kayu	0	1	1
	disertai longsor dan lumpur	1	0	1
	Hutan yang ditebang, kayu-kayunya terangkut bersama dengan longsornya ke perkebunan	0	1	1
	ikut dengan aliran sungai, dari perkebunan	0	1	1
	Kayu-kayu hasil penebangan banyak yg masih tertinggal di hutan, hujan turun terus menerus. Hutan tidak mampu lagi menahan air hujan hingga banjir membawa tanah longsor, kayu dan batu.	0	1	1
	longsor diutara Desa atau wilayah perkebunan	0	1	1
	sebelum maghrib air biasa setelah itu air masuk kerumah warga dengan ada suara gemuruh batu dan pohon yang mengalir dengan cepat	0	1	1
	sudah biasa banjir banyak pohon yang tumbang di sekitar sungai tp tidak menyangka banjir bandang.	0	1	1
	sungai mulai keruh	0	1	1
	sungai tinggi air campur lumpur dan kayu-kayu besar	1	0	1
	ya dengan kayu-kayu yang besar sehingga menghantam rumah, lumpur banyak	1	0	1
	yaitu di daerah utara (tepatnya desa manggis)	0	2	2
Total		10	10	20

**The source of debris \* Repondent Area Crosstabulation**

Count

	Repondent Area		Total
	Silo	Panti	
The source of debris forest plantation area	10	4	14
	0	6	6
Total	10	10	20

**he knowledge of banjir bandang \* Repondent Area Crosstabulation**

Count

	Repondent Area		Total
	Silo	Panti	
The knowledge of banjir bandang know	5	5	10
	5	5	10
Total	10	10	20

**The indication of banjir bandang \* Repondent Area Crosstabulation**

Count

	Repondent Area		Total
	Silo	Panti	
The indication of banjir bandang	1	0	1
99	4	0	4
days of rain, earthquakes	0	1	1
heavy rain, strong winds, high water	1	0	1
heavy rain, wind, mud	1	0	1
heavy rains and rising water flow	0	1	1
heavy rains, high water	1	0	1
heavy rains, high water, the roar	1	0	1
not know	0	4	4
rainy days	0	1	1
rumbling rocks collide, the timber of water transported	0	1	1
rushing river water, red-brown color	1	0	1
The flow of the river subsided, the smell of mud sting	0	1	1
turbid water, lots of drift wood, rocks big rocks come drifting	0	1	1
Total	10	10	20

**The time long between indication and banjir bandang \*  
Repondent Area Crosstabulation**

Count

		Repondent Area		Total
		Silo	Panti	
The time long between indication and banjir bandang	5.00	0	2	2
	10.00	1	3	4
	15.00	1	1	2
	20.00	5	0	5
	30.00	3	2	5
	90.00	0	1	1
	600.00	0	1	1
Total		10	10	20

**Your action and government action \* Repondent Area Crosstabulation**

Count

		Repondent Area		Total
		Silo	Panti	
Your action and government action	call third person fled to family	0	2	2
	report to local government	1	0	1
	mengungsi ke masjid/musholla	0	3	3
	contact the neighbors, the family fled to	2	3	5
	contact the neighbors, to report to authorities	6	1	7
		1	1	2
Total		10	10	20

**Knowledge of the causes of floods are the natural dam \* Repondent Area Crosstabulation**

Count

		Repondent Area		Total
		Silo	Panti	
Knowledge of the causes of floods are the natural dam	Know	0	1	1
	Not know	10	9	19
Total		10	10	20

**The function of natural dam \* Repondent Area  
Crosstabulation**

Count

		Repondent Area		Total
		Silo	Panti	
The function of natural dam	99.00	10	10	20
Total		10	10	20

**The View of Banjir Bandang \* Repondent Area Crosstabulation**

Count

		Repondent Area		Total
		Silo	Panti	
The View of Banjir Bandang	Exam calamy	0	1	1
	Karma/hukuman tidak menjaga alam	7	7	14
	occurred because of deforestation	0	2	2
		3	0	3
Total		10	10	20

**The Anticipation of Banjir Bandang \* Repondent Area Crosstabulation**

Count

		Repondent Area		Total
		Silo	Panti	
The Anticipation of Banjir Bandang	Resigned	0	3	3
	Get pray	6	4	10
	give something to god	1	2	3
	Hint pleaded Kyai / Ustad	3	0	3
	Learning: ref orestation and awareness	0	1	1
Total		10	10	20

**The indication of banjir bandang \* Repondent Area Crosstabulation**

Count

		Repondent Area		Total
		Silo	Panti	
The indication of banjir bandang	wind noise	3	2	5
	bird sound	0	1	1
	Woods brought to the residential lots	6	5	11
	heavy rain	1	2	3
Total		10	10	20



**Citizens committed \* Repondent Area Crosstabulation**

Count

		Repondent Area		Total
		Silo	Panti	
Citizens committed	resign	1	1	2
	Pray	3	6	9
	Give something to angel	1	3	4
	pleaded from kyiai	3	0	3
	Pray	2	0	2
Total		10	10	20

**The government has done \* Repondent Area Crosstabulation**

Count

		Repondent Area		Total
		Silo	Panti	
The government has done	Pray	9	7	16
	Give something to angel	0	3	3
	Pray	1	0	1
Total		10	10	20

**he spirit of community to help before banjir bandang \* Repondent Area Crosstabulation**

Count

		Repondent Area		Total
		Silo	Panti	
The spirit of community to help before banjir bandang	high	1	2	3
	medium	7	7	14
	Low	2	1	3
Total		10	10	20

**he spirit of government to help before banjir bandang \* Repondent Area Crosstabulation**

Count

		Repondent Area		Total
		Silo	Panti	
The spirit of government to help before banjir bandang	high	1	3	4
	medium	7	7	14
	Low	2	0	2
Total		10	10	20

**Yang dilakukan aparat \* Repondent Area Crosstabulation**

Count

		Repondent Area		Total
		Silo	Panti	
Yang dilakukan aparat	Creating a disaster-prone Map	4	5	9
	Vulnerable groups record	3	2	5
	Determining evacuation place	3	3	6
Total		10	10	20

**The spirit of community to help post banjir bandang \* Repondent Area Crosstabulation**

Count

		Repondent Area		Total
		Silo	Panti	
The spirit of community to help post banjir bandang	high	10	5	15
	medium	0	5	5
Total		10	10	20

**The spirit of local government to help post banjir bandang \* Repondent Area Crosstabulation**

Count

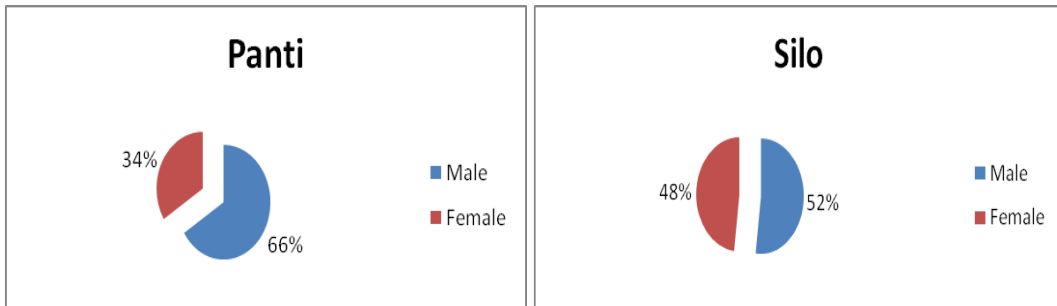
		Repondent Area		Total
		Silo	Panti	
The spirit of local government to help post banjir bandang	high	10	8	18
	medium	0	2	2
Total		10	10	20

The thing has done by government \* Repondent Area Crosstabulation

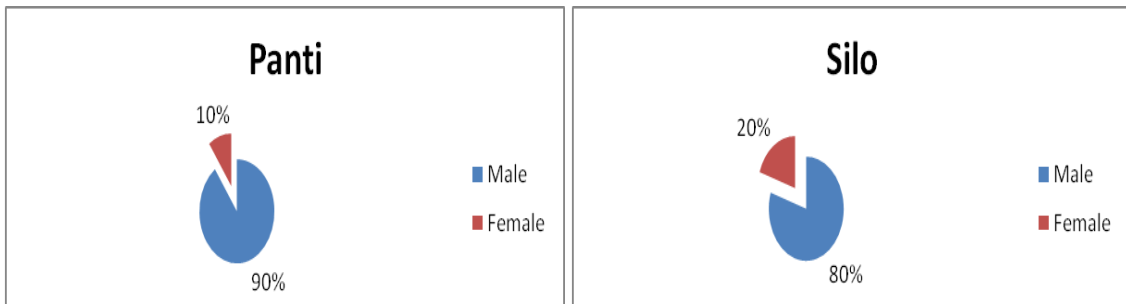
Count

		Repondent Area		Total
		Silo	Panti	
The thing has done by government	Controlling the location of ref ugees pengungsian, village cleaning service Works	0	1	1
	help clean up the street, providing food	1	0	1
	help victims, create an evacuation, public kitchen membauat	0	1	1
	helping people, register, provide food and bev erages	1	0	1
	I'll keep people saf e, keep the security of goods in the township for residents to evacuate, clean public facilities	0	1	1
	Kasun and communication with citizens	0	1	1
	population records and prepare evacuation location	2	0	2
	provide assistance	1	0	1
	providing food and bev erages to fix damaged bridges	1	0	1
	record the population, ev acuate, to contribute	1	0	1
	record the population, to help prov ide food and beverages	1	0	1
	record the victim lost	0	1	1
	record, providing food and drink	1	0	1
	records, helping people, giv ing little cost	1	0	1
	socialization lngkungan awareness, training simulations, ref orestation	0	1	1
	update the riv erside, maintain cleanliness of the riv er, asking for help at the distric government to help the citizens	0	1	1
	victim data collection, the search for the missing victims	0	1	1
	Warning not to cut down trees	0	1	1
	Watching ref ugees, registration of ref ugees	0	1	1
Total	10	10	20	

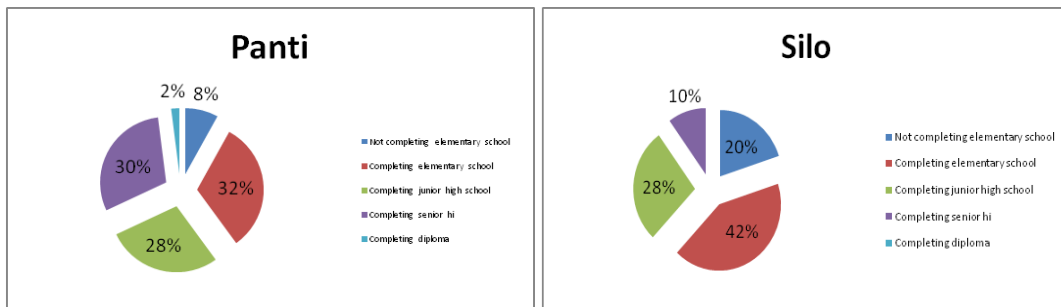
## GRAPHS



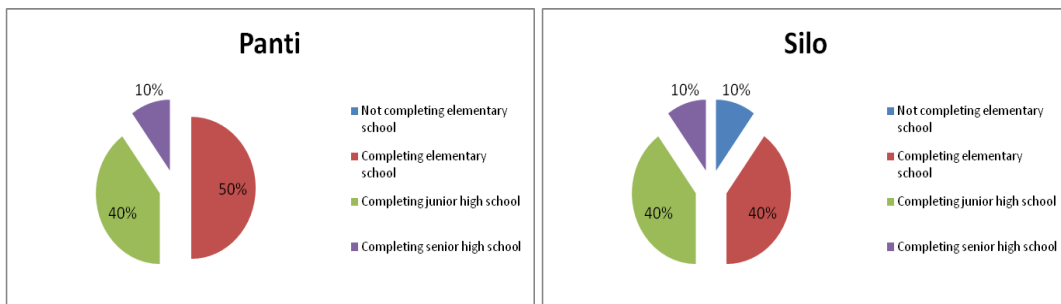
Graph 3.1. Respondents' sex



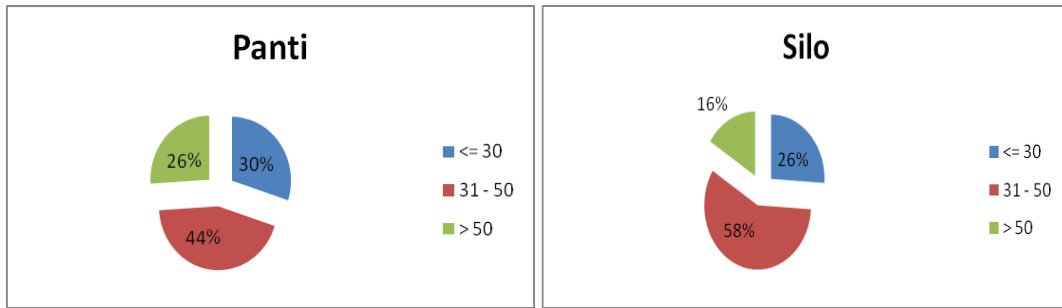
Graph 3.2. Respondents Apparatus' sex



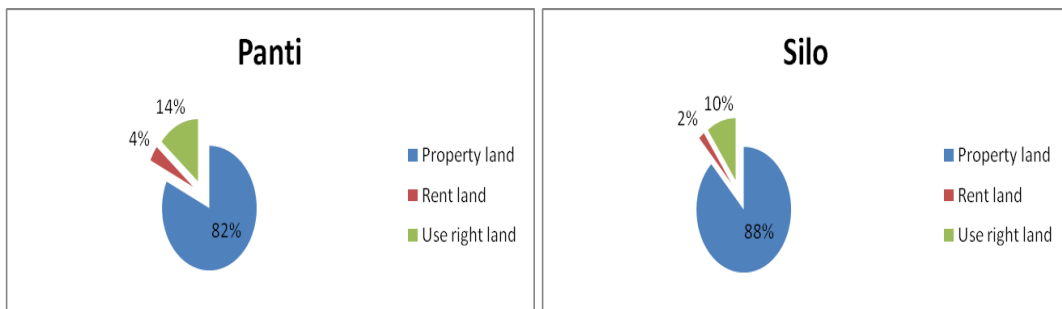
Graph 3.3. Respondents Education Level



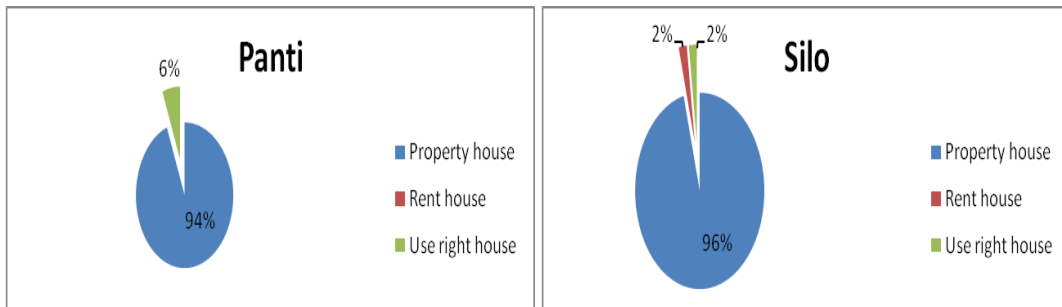
Graph 3.4. Village Government officials' Education Level



Graph 3.5. Age Categories of Respondents



Graph 3.6. Respondents Land Ownership



Graph 3.7. Respondent Housing