

FINAL REPORT

FOCUS GROUP DISCUSSION and SITE WATCHING EARLY WARNING SYSTEM FOR BANJIR BANDANG IN KABUPATEN JEMBER



UNDER COOPERATION

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(YPM)

with

JAPAN INTERNATIONAL COOPERATION AGENCY
(JICA)



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PREFACE

By delivering gratitude, Team of Yayasan Pengabdian Masyarakat (YPM) had finished the report of activity for *Focus Group Discussion* (FGD) and *Site Watching* smoothly and well.

This report contains of FGD activity in Village hall Desa Pakis Kecamatan Panti Kabupaten Jember, meanwhile *Site Watching* activity is in Afdeling Kahendran Plantation. Outcome of those activities are *Standard Operating Procedure* (SOP) Early Warning System.

In this opportunity, Team of YPM delivered gratitude to Japan International Cooperation Agency (JICA) for the trust to YPM for having cooperation, in this case is focused on early warning system for banjir bandang.

In order to improve the report, any recommendation or suggestion is welcome. Hopefully this report will be useful.

Jember, October 2011

Head of YPM

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1. INTRODUCTION

1.1 Background

From geological, geographical and morphology aspect, some areas in Kabupaten Jember is one of disaster hazard area, especially banjir bandang. Some disaster hazard areas are: Kecamatan Shilo, Mayang, Jenggawah, Kencong, Rambipuji, Gumukmas, and Panti.

One of important aspect for victim loss and material loss is lack of preparedness and also lack of authorized officers in flood disaster countermeasure. In regarding with this preparedness, each area needs to conduct real effort such as through policy, contingency plan and operation plan to face flood threat in the area.

One of necessities needed by the community in disaster hazard area is early warning system (EWS). This must be needed in order to create the community that ready, well-prepared, and quick in facing disaster. In flood hazard area like Pakis River of Desa Pakis Kecamatan Panti area is most important part in disaster countermeasure. Good and proper implementation will be able to protect the community from disaster. The community can do many efforts in saving life as well as properties. Early Warning (EWS) is a key of risk reducing. This will be more effective if it involves participation of all component of community, besides, this can be understood and this should cover all community that also must be followed by systematic Standard Operating Procedures (SOP). Therefore, Japan International Cooperation Agency (JICA) and Yayasan Pengabdian Masyarakat (YPM) Jember cooperate with Regional Government of Kabupaten Jember to held Focus Group Discussion (FGD) about early warning for banjir bandang disaster.

1.2 Objective

1. Sharing information about usual or current procedures of monitoring for anticipation of banjir bandang and also procedures of information delivery among stakeholder.
2. Clarification of the problem about people's early evacuation before banjir bandang occurrence, through usual or current procedures of monitoring and information delivery.
3. Creation of manual/SOP for Early Warning System

1.3 Form of Activity

In order to achieve the purpose it needs two activities, namely Focus Group Discussion and Site Watching.

1.4 Output

Product resulted is strategy for increasing effectiveness for the implementation of early warning system in the form of SOP.

II. METHOD OF ACTIVITY IMPLEMENTATION

2.1 Mechanism and Design

The purpose is to find a theme based on a group understanding. This technique is used to reveal the interpretation of one group based on focused discussion result on certain problem. FGD is also aimed to avoid wrong interpretation of researcher to the focused problem being researched.

Data and information gathering is conducted in two stages, namely:

First Stage: FGD by using (a) Fish Fin technique; and (2) Technique of LFA analysis (*Logical Framework Analysis*) in order to find the root of problem;

Second Stage : FGD by using Technique of LFA analysis (*Logical Framework Analysis*) in order to find the solution of problem root.

First Stage

Discussion stage is by involving various participants of FGD. Determination of participants are based on several considerations, namely: (a) practical experience and concern on the focused problem; (b)“personal involvement” in the focused problem; (c) authorized figure of the discussed case; (d) disaster victim community; (e) general community who doesnot know about the problem but also feel the real problem.

Scenario of Process to Explore Problems through FGD and LFA

1. Facilitator explain about what will be doing and what the purpose is, as well as informing about technical directory for the implementation method. For example by giving simple question that will be easily answered such as : ”What is the wish of FGD participants to the ideal condition that had been achieved? What had caused the desirable condition cannot be achieved? Or any other questions that relevant with the problem on each community typology.

2. Facilitator distributes some cards to each participant of FGD. Those participant of FGD is asked to write down problems on every distributed card. Give opportunity or several minutes to the participants of FGD to write down the problems related with topic.
3. Make sure that one card only consist of one solution. The writing is better if only writing the keyword answer by capital form so that it is easy to understand and can be read by other participant
4. Facilitator and co-facilitator accomodate all of problems metacard and cause of problem
5. Research team and participant of FGD discuss the relation among those problems and cause of problems by by using LFA on the carton paper

Stages of Problem Analysis

1. Each issue obtained from the resident is grouped so that it result main problems that really happen.
2. And then each group of problems is tried to be found logically the relationship among those problems. By arranging the relationship logically among those problems, then main root problem and focused issue can be determined that considered as important indicators of problem occurrence.
3. Number of exit arrow in the opinion box shows priority level of root problem. In the other words, opinion box that has **most number of exit directions** is the most priority **root problem**.
4. Meanwhile opinion box that has **most number of entry direction arrow** and small number of out direction arrow or zero number is the **main issue**.

Second Stage

Discussion session is by involving FGD participants based on the capacity and formal competency as well as mastery on the focused problem of FGD. Determination of participants is based on several considerations, namely: (a) expertise of person in the discussed case; (b) authorized figure to the case being

discussed; (c) technical team in the field; (d) stakeholder related with the policy for disaster countermeasure

Scenario of Process for Exploring Solution Through FGD and LFA

1. The facilitator explains about FGD result, namely the finding of main problem and issue of problem. Next, explaining about the first stage that will be conducted and the purpose, as well as giving technical directory about the mechanism of discussion, and giving questions to each participant as their own role and competence concerning with early warning system, such as by giving simple question that easy to be answered : "What is the policy, program and strategic measures for disaster?".
2. Fasilitator membagikan sejumlah kartu kepada masing-masing partisipan/peserta FGD. Partisipan/peserta FGD diminta untuk menulis solusi dalam setiap kartu yang dibagikan. Berikan kesempatan atau waktu beberapa menit kepada partisipan/peserta FGD untuk menuliskan solusi terkait akar masalah dan isue masalah.
3. Make sure that one card only consist of one solution. The writing is better if only writing the keyword answer by capital form so that it is easy to understand and can be read by other participant
4. Facilitator and co-facilitator accomodate all of solutions metacard
5. Research team and participant of FGD discuss the relation among those solutions by using LFA on the carton paper

Stages of Solution Analysis

1. Each solution obtained from participants is grouped, so that it result main real solution
2. And then each group of solutions is tried to be found logically the relationship among those solutions. By arranging the relationship logically among those solutions, then the actual main/strategic solutions and supporting solutions can be determined

3. Number of arrow with exit direction from the opinion box shows main/strategic solution. In the other words, solution opinion box that has **most number of exit direction** is the **main/strategic solution**.
4. Meanwhile, the opinion box that has **most number of entry direction arrow** and small number of out direction arrow or zero number is the **supporting solution**.

In the activity, FGD is aimed to identify the root problem of banjir bandang occurrence, not working of information system and not working of early warning system and also resulting various alternative effective solution to overcome the problem.

2.2 Participant

Participant of FGD in this activity are Local Leader, Camat, Head Desa, SATLAK

2,3 Location of Activity

The activity is located in Catchment Area of Kali Pakis River, especially in Desa Pakis Kecamatan Panti Kabupaten Jember.

2.4 Time Period

FGD activity and site watching was held on 17 September 2011.

III. RESULT OF ACTIVITY

3.1 Opening

The activity of Community Training for Early Warning System for Banjir Bandang Disaster by using method of Focus Group Discussion that held at Village Hall of Desa Pakis Kecamatan Panti started the participant registration at 08.00 until 08.30, and then continued with opening. Mrs. Rokhani as MC and represent Head of Yayasan Pengabdi Masyarakat (YPM) delivered regards and apologize from Mrs. Evita Soliha Hani (Head of YPM) who couldnot attend the activity because of still joining short course in Netherland. It was delivered gratitude to JICA that had put trust on YPM for implementing banjir bandang disaster activity in Kabupaten Jember. Gratitution was also delivered to Mr. Edy Budi Susilo (Head of Bakesbanglinmas) who always give assistance to YPM. The activity surely will not go smooth if there is no place facilities and participants. Therefore, YPM delivered gratitude to Head of Pakis for the facilities provided and also delivered gratitude for kind attendance of FGD participants. Hopefully the activity will results SOP of Early Warning System for Banjir Bandang smoothly and give benefit. Amin.

Mrs. Rokhani also informed that training activity of Early Warning System for Banjir Bandang will be held for two days, namely on Saturday (17 September 2011) and Sunday (18 September 2011). First day of FGD is to obtain problems faced by the community concerning with banjir bandang in Desa Pakis and to obtain more improved solution by Site Watching activity. Second day is to continue activity of FGD to obtain SOP of early warning system for banjir bandang at DAS Kali Pakis. Next is Table Top Exercise activity in the form of simulation for banjir bandang early warning system at various conditions. It is expected that all participants will attend in those both activities because their opinion is needed, especially for Desa Pakis and for Jember Community in general. Thank you.

Next session is speeches:

First speech is delivered by **Mr. Yoshida Keiji (from JICA):**

Firstly it is delivered gratitude to YPM who had helped JICA in applying the program of JICA concerning with disaster in Kabupaten Jember. Besides, it was also delivered gratitude to Government of kabupaten Jember that had facilitated JICA in conducting the program. To Satlak, Head Desa Pakis and participants it is delivered gratitude.

JICA had conducted investigation for recent 10 months in the activity of early countermeasure for banjir bandang. JICA expert came to the disaster site in February and March 2011 to give recommendations in the activity of early countermeasure for banjir bandang based on SOP that had been created



by community of Desa Pakis Kecamatan Panti as has been created in Kalijompo area. Desa Pakis area that included as banjir bandang hazard area that should have SOP of banjir bandang early countermeasure.

Second Speech by **Mr. Edy Budi Susilo (Satlak)**

Firstly Mr. Edy Budi Susilo delivered gratitude on behalf government of Kabupaten Jember Kabupaten Jember to JICA and YPM that had actively take role in banjir bandang countermeasure. Also to Satlak, Camat Panti, Head Desa Desa Pakis, and all attendees who participate in this activity. It need to be known that threat of natural disaster are continuously happened at Panti since banjir bandang hit on last 2006, then it occurred again in 2011 two rimes, namely in February 2011 and March 4 2011. There are 3 points of landslide hazard area when rainfall over the standard in the river flow line

On last March 4 2011 there was strange occurrence in Dusun Kahendran Desa Pakis Kecamatan Panti in which non river flow line area that was hit by banjir bandang. Therefore, YPM and JICA give training in the activity of Early Warning System for Banjir Bandang in Desa Pakis Kecamatan



Panti. The training is expected to be able to give solution in the countermeasure of banjir bandang concerning with what suppose to be conducted in before, during the occurrence and post of disaster occurrence especially for banjir bandang. There are 3 detection equipments such as rain gauge, water level gauge and climate monitoring equipments. There must be good cooperation between upstream and downstream. Japanese citizen had well understood to do action in order to face banjir bandang. For Desa Pakis community, they should also able to make follow up of today activity that later will result SOP for early warning system banjir bandang.

3.2 Activity

A. Material Lecture



Before entering session FGD activity, there was material as introduction of FGD activity. First is by Mr. M. Rondhi as representative from YPM that explained about Risk which is as most important thing in disaster, namely risk of life loss and properties loss. Therefore, most important actions to be conducted is by minimizing the risk.

Small risk will be resulted if we can face the vulnerability and danger of banjir bandang. The area condition of Kahendran danger threat is caused by several

existing hazard points of banjir bandang. Result of observation shows that those hazard areas is caused by human activity (illegal logging). Therefore, it is actually vulnerability/weakness is on each consciousness of human being.

The activity for these two days is aimed to increase the capability and awareness for action in during flood occurrence. The steps area:

1. Determining hazard area
2. Evacuation
3. Coordination of Upstream-Downstream

This similar activity had ever been done in Kalijompo. Mr. Agus (Manager of Kalijompo Plantation) is as early warning system observer for banjir bandang in upstream area of Kalijompo. Information is given by sms, HP/Tlp, or siren to:

- a. Surrounded community
- b. Kecamatan (personal/office)
- c. Koramil/Babinsa
- d. Sector Police
- e. Bakesbang

Next is introduction from Mr. Yoshida Keiji (JICA) to introduce the equipments from JICA that related with early warning system of banjir bandang. There are 3 important equipments that will be installed at DAS Kali Pakis, namely:

1. Weather observation equipment is to measure wind speed, and rainfall that connected with komputer
2. Water level sensor, there are 5 levels, in which each level has warning box that signed by lighting led and buzzing sound.



1. Rainfall gauge

This equipment is set per 30 mm, 60 mm, 90 mm, 120 mm, and 150 mm. The working procedure is similar with water level sensor. There is lamp and siren that will release sound if rainfall reaches 30 mm, and the light will be on as well as buzzing sound release on the next level.

The equipments is made special for Indonesia. The material is available in Indonesia, but it is important to be remembered that those equipments need electric power supply.

B. Focus Group Discussion

First step of activity for Focus Group Discussion (FGD) of early warning for banjir bandang disaster is delivery of aim and objective that want to be achieved, as well as explaining the mechanism of focused discussion. In order to complete beginning information about characteristic of community concerning with the understanding of perception about banjir bandang and form of activity for early warning, then the participants answered 5 (fives) open questions that presented in the form questionnaire.

Result of questionnaire answer is shown in Table 1. Result of evaluation to the questionnaire is:

- (1) There are about 50 percent of participants had not filled questionnaire yet, this is caused by some factors, namely: (a) participants has not understand yet about banjir bandang and early warning system; (b) the participants get difficulties in making communication by oral speech; and (c) limit of time in answering the questionnaire; and
- (2) From those 5 questions (in attached) can be concluded that (a) small part (60%) of participantns who can well explained about definition of early warning system of banjir bandang, but (b) all (100%) of participants can determine persons who responsible in early warning system of banjir bandang, and (c) most of (70%) participants knows about the importance of early warning system, understand about important equipments in early

warning system of banjir bandang and steps to be conducted in early warning system, although not yet well conceptualized.

Table 1. Answer of Questionnaire from Participants Knowledge of Early Warning System

No	Item	Jumlah Jawaban yang benar	Persentase (%)
1.	Knowledge of early warning system for banjir bandang.	6	0,60
2.	Importance of early warning system in the process of banjir bandang disaster.	7	0,70
3.	Person in charge for conducting early warning system for banjir bandang.	10	1,00
4.	Steps that had ever been conducted or heard in early warning system of banjir bandang.	7	0,70
5.	The existing equipments in flood hazard area that can support activity of early warning system for banjir bandang.	8	0,80

Note:

Number of participants who receive questionnaire were 25 orang, but those who returned the questionnaire were only 10 peoples

Next step is identifying the problem faced by the community concerning with banjir bandang occurrence in the area and local rule about early warning. Technique to gather the problem is conducted by several steps, namely (1) participant is given chance to write down the real problem being faced; (2) participant is only allowed to write 1 (one) problem on a sheet of paper (*note paper*); (3) facilitator will appoint 2 (two) participants to lead the discussion and also note writer; (4) participant try to groups (cluster) problems as focused problem participatively.

Result of problem cluster is as below:

Tabel 2. Problem Cluster

No.	PROBLEM	CLUSTER
1.	<ol style="list-style-type: none"> 1. We are not false, flood belongs to the God Will 2. This is God given 3. Because of God Greatness 	God Will
2.	<ol style="list-style-type: none"> 1. Less of socialization from the side who are able/know about natural disaster 2. Less of knowledge about the nature and surrounded area 3. Lack of knowledge of disaster 4. Unknown about disaster 	Lack of information
3.	<ol style="list-style-type: none"> 1. Barren area 2. Less of consciousness of all of us 3. Care level 4. Unpreparedness and unpredicted of disaster situation 5. Confuse/panic 6. Because of having many sins 7. No preparedness and signs of banjir bandang 8. Because the human has many sins of corruption 9. lack of people awareness about disaster potential 10. Our fault is being less of awareness (no prepared before) 	Lack of people awareness
4.	<ol style="list-style-type: none"> 1. The community is too much free in managing the forest 2. Environmental damage 3. Damage the forest, change the forest function that sloping 4. late in conducting reforestation 5. Change of land using arrangement, from forest as rainfall buffer area into productive forest (plantation or agriculture) 6. Erosion 7. Illegal logging by group/ some people for personal interest 8. Barren area of mountainous as the cause of illegal logging 9. Illegal logging 10. Illegal logging of forest 	Environmental damage
5.	<ol style="list-style-type: none"> 1. Heavy rain 2. Bad weather 3. Old earth 	Old age of earth

	4. Sudden flood 5. Natural factor that cannot be anticipated	
6.	1. Unknown that suddenly flood (signal limit) 2. Information of flood oftentimes come late (bad signal)	Weak of communication network
7.	1. lack of flood detection tool 2. Lack of equipments 3. Un proper infrastructure of bridge	Unsuitable bridge construction dimension

Next, participant conducted focused discussion by the purpose to find root problem among many problem faced by the community concerning with the implementation of early warning. Next is the step for the implementation of LFA (*Logical Framework Analysis*) method. In this method, the steps are: (a) each issue obtained from the community will be clustered so that it results main problems that really occurs; (b) next, the clustered problem will be looked for the inter-relation logic among those problems. By arranging the inter-relation logically among problems, then it can be determined which is as the main root problem and focused issues that considered to be important as indicators for problem existence; (c) arrows number that outflow from opinion box shows the level of root problem priority. In the other word, problem opinion box that **has most number of arrow** is the most priority **root problem**; (d) meanwhile opinion box that **has most frequency inflow arrows** and with the most few number or empty inflow arrows is **main issue/focused issue**; and (e) main issue or focused issue is last impact that felt by community under the problem condition. Form of inter relation among problems is as follow:

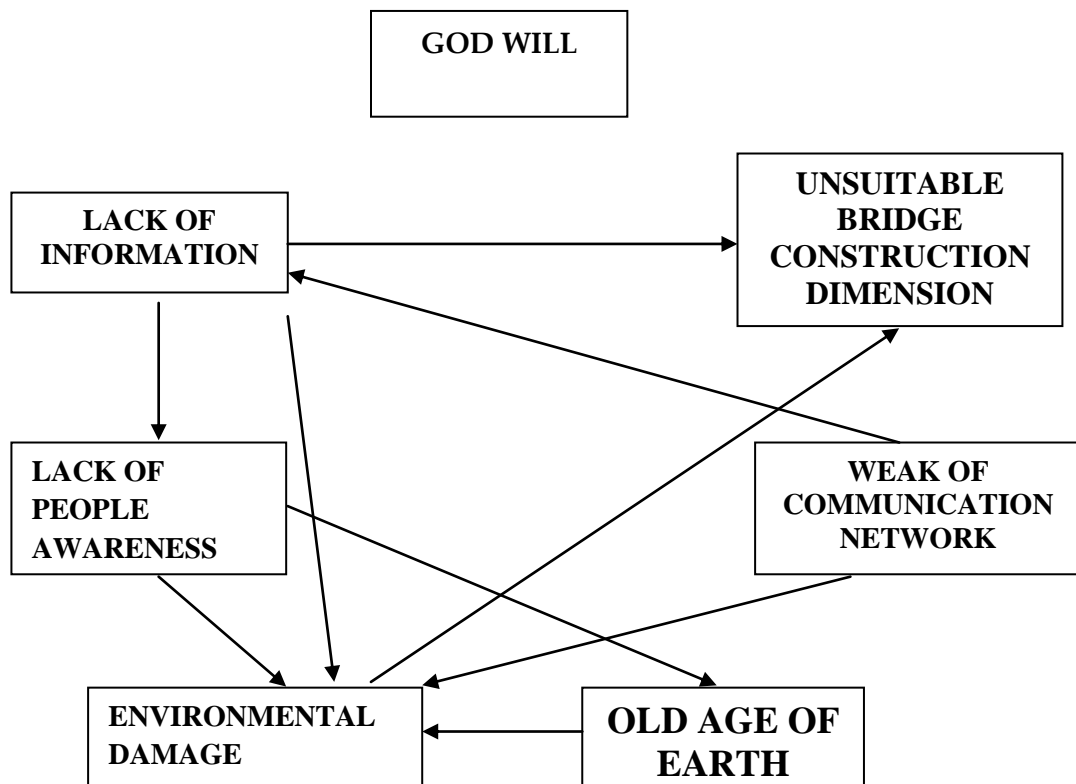


Image 1. Scheme of Interrelation among problems

Table 2. Number of Outflow and Inflow Direction Arrow Based on Cluster

<i>CLUSTER</i>	OUTFLOW ARROW NUMBER	INFLOW ARROW NUMBER
God will	0	0
Lack of information	3	1
Lack of people awareness	2	1
Environmental damage	1	4
Old age of earth	1	1
Weak of communication network	2	0
Unsuitable bridge construction dimension	0	2

Based on Table 3 , it can be seen that most number of outflow arrow direction (Root Problem) is “Lack of Information” meanwhile most number of inflow direction arrow (Focused Issue) is “Environmental Damage”.

Solution for the problems faced by the community is improvement of information system at the community level by keeping potential and local wisdom. Improvement of information system involves institutions that exist in the community, either in governmental level until community level.

In order to strengthen the information system for early warning, it needs agreement from all the participants so that it can result Standard operating Procedures (SOP) System of Early Warning System for banjir bandang in Desa Pakis Kecamatan Panti. SOP early warning sytem for banjir bandang in Desa Pakis is resulted in comprehensive as showed in Image 2, meanwhile partially based on Satlak, Upstream area, Middle stream area and Downstream area consecutively is shown in Image 3, 4, 5, and 6.

SOP BANJIR BANDANG DESA PAKIS KECAMATAN PANTI

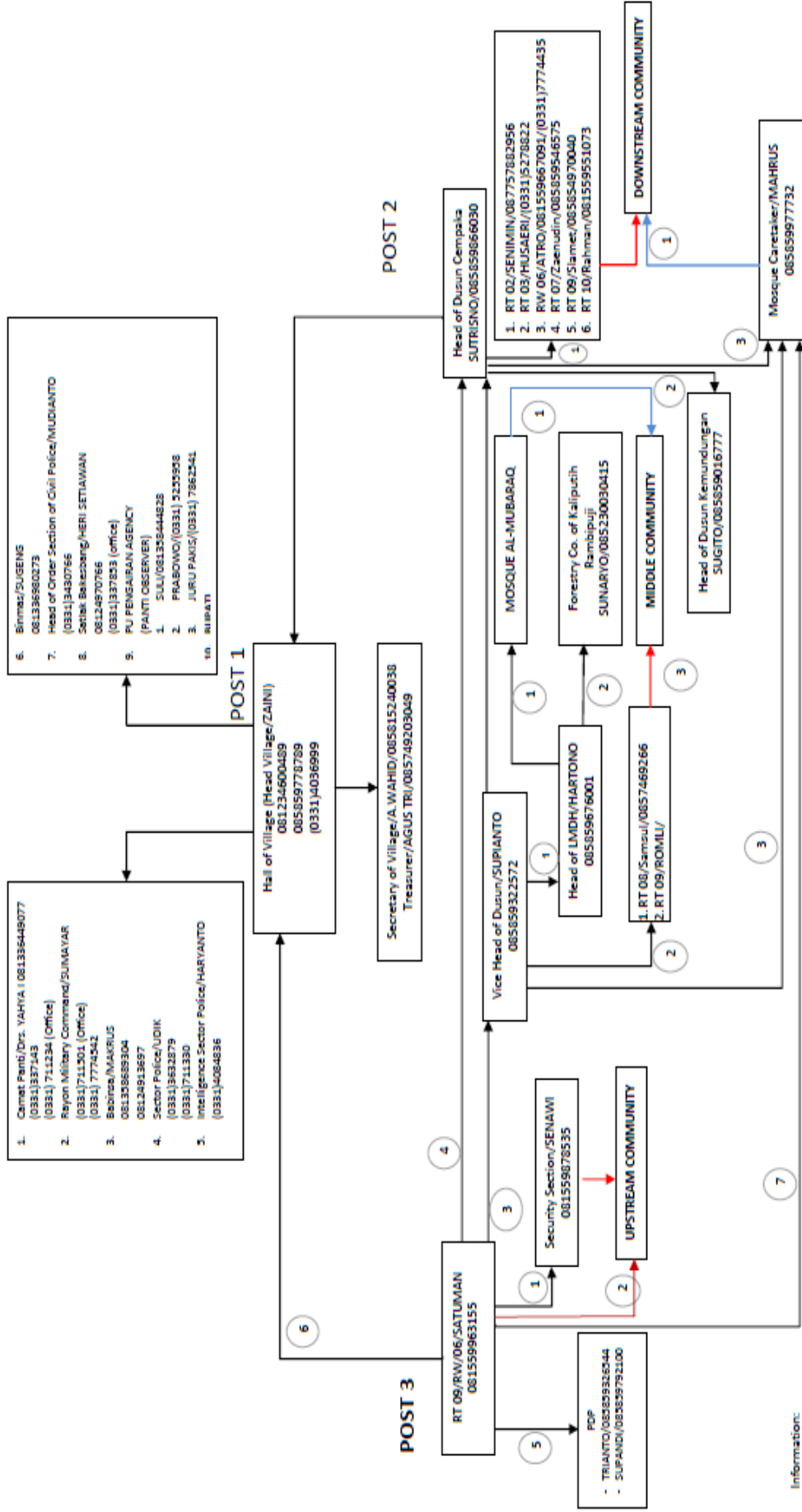
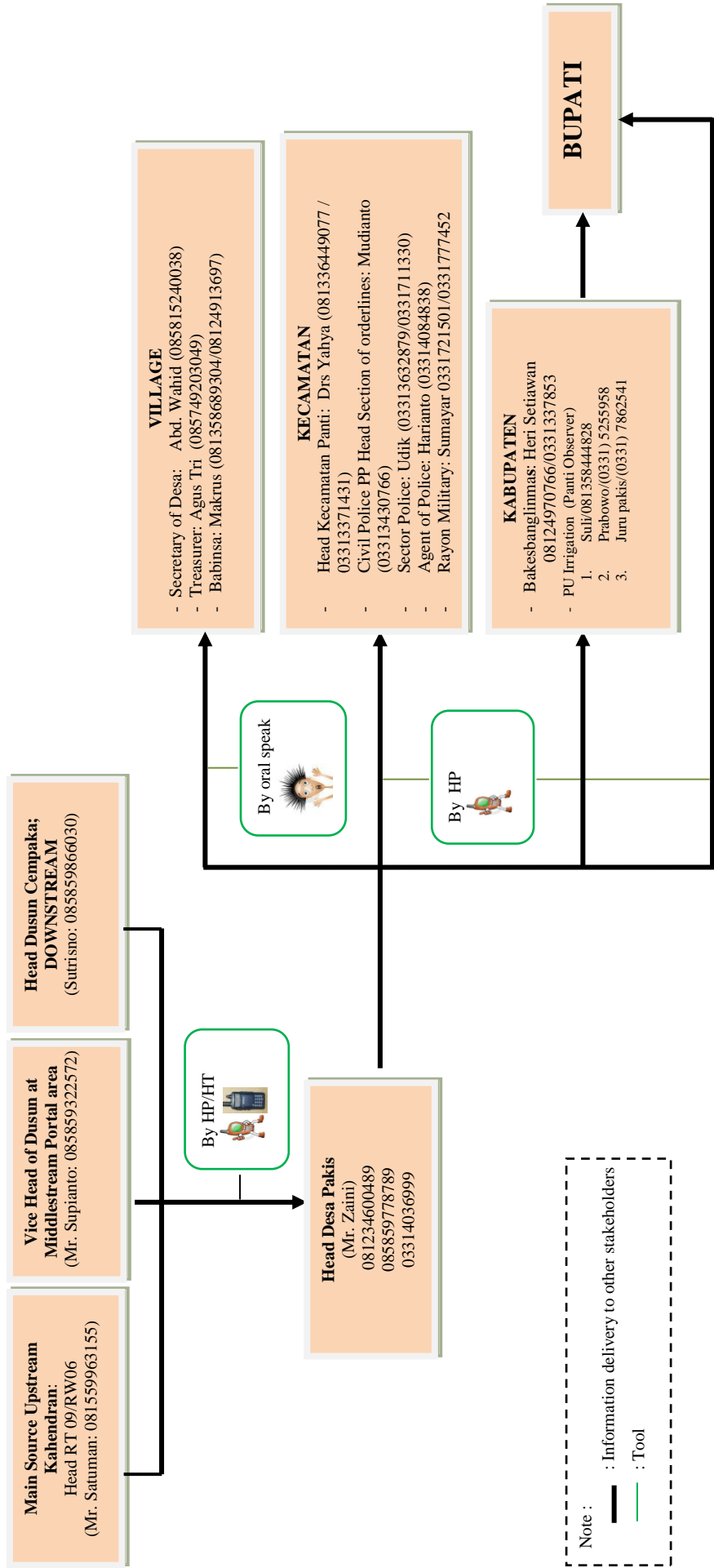


Image 2. SOP Early Warning System for Banjir Bandang at DAS Kali Pakis

Note :



Note :
 — : Information delivery to other stakeholders
 — : Tool

Image 3. SOP Early Warning System for Banjir Bandang DAS Kali Pakis – SATLAK

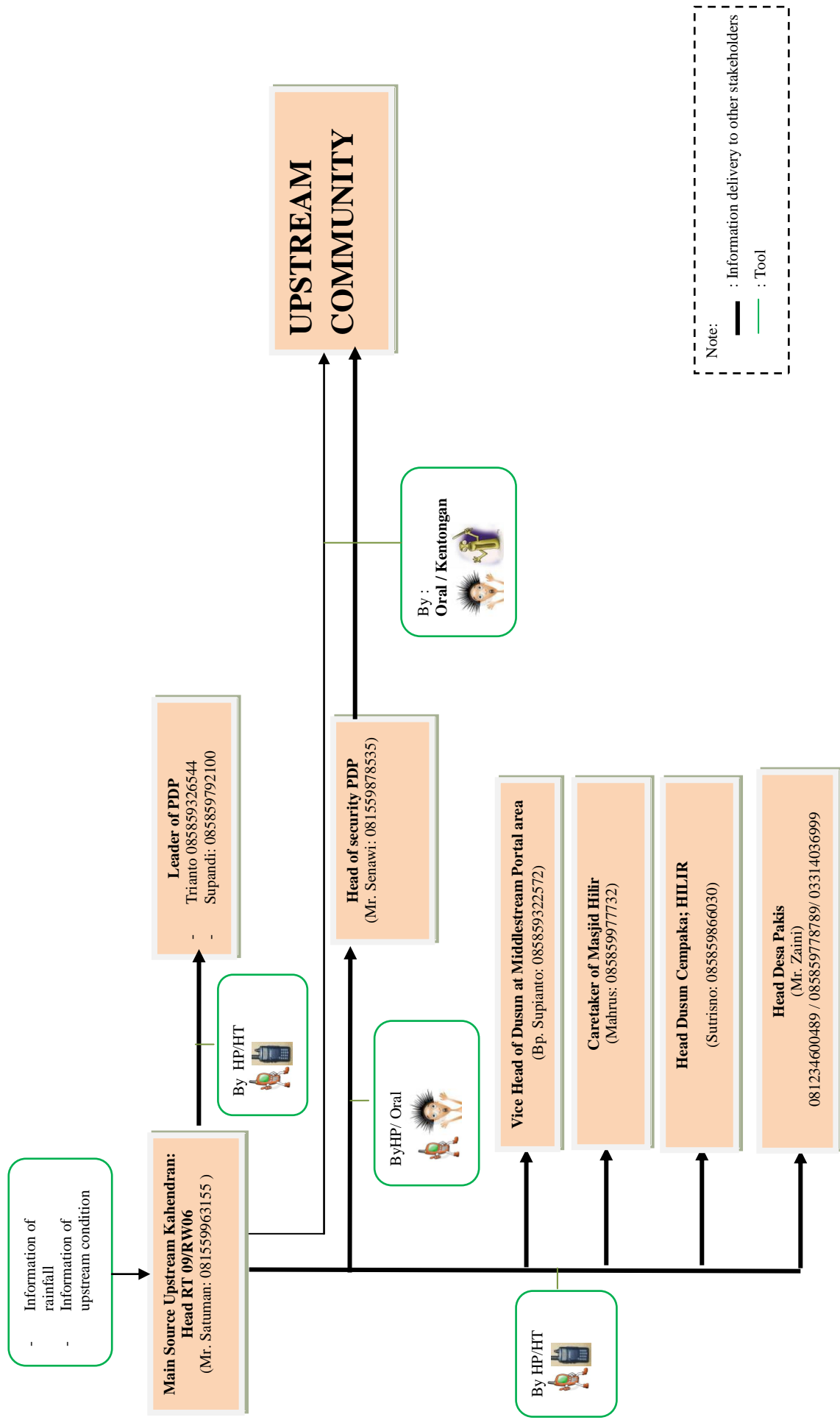


Image 4. SOP Early Warning System For Banjir Bandang at DAS Kali Pakis – UPSTREAM

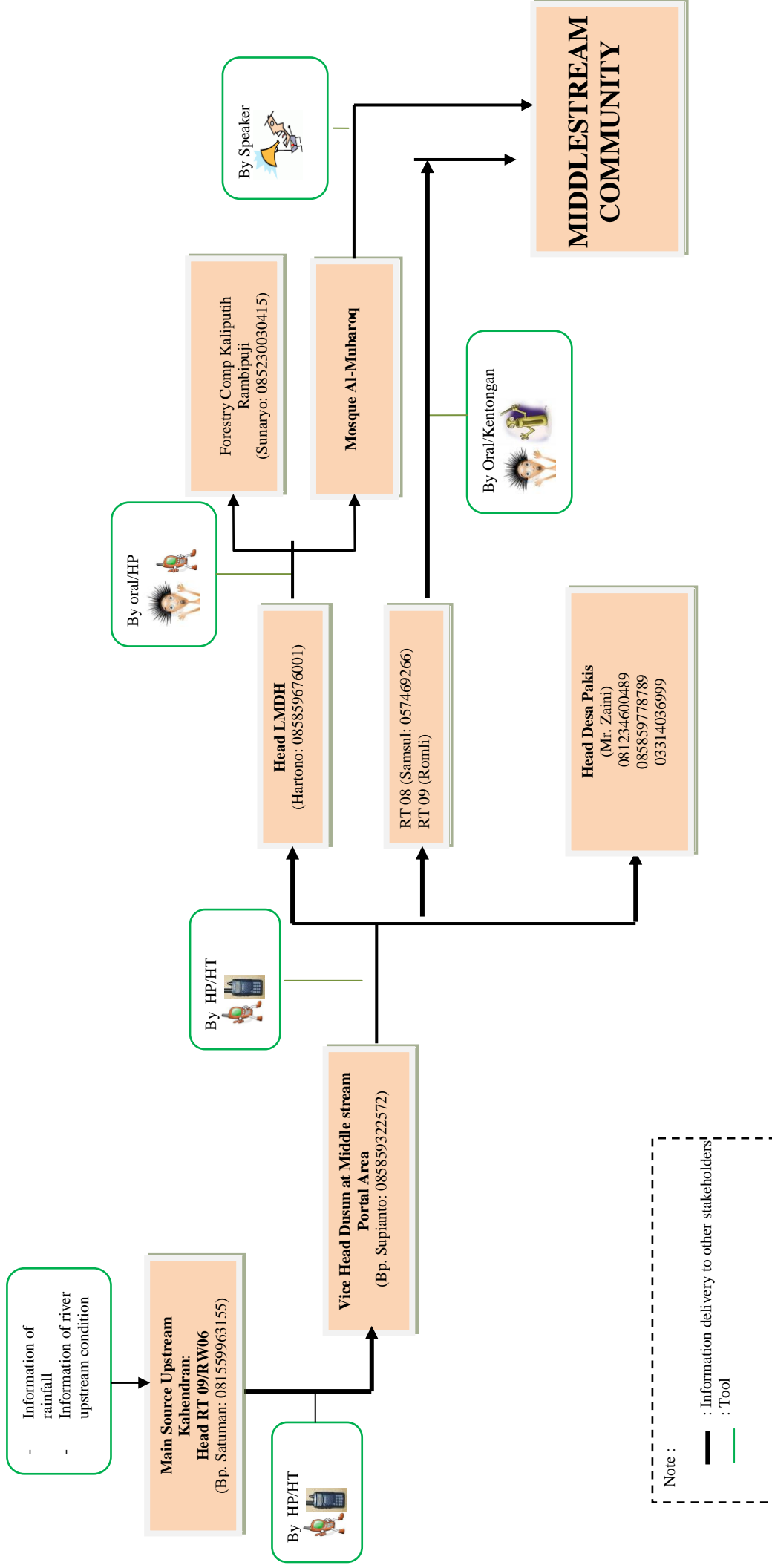


Image 5. SOP Early Warning System for Banjir Bandang at DAS Kali Pakis – MIDDLESTREAM

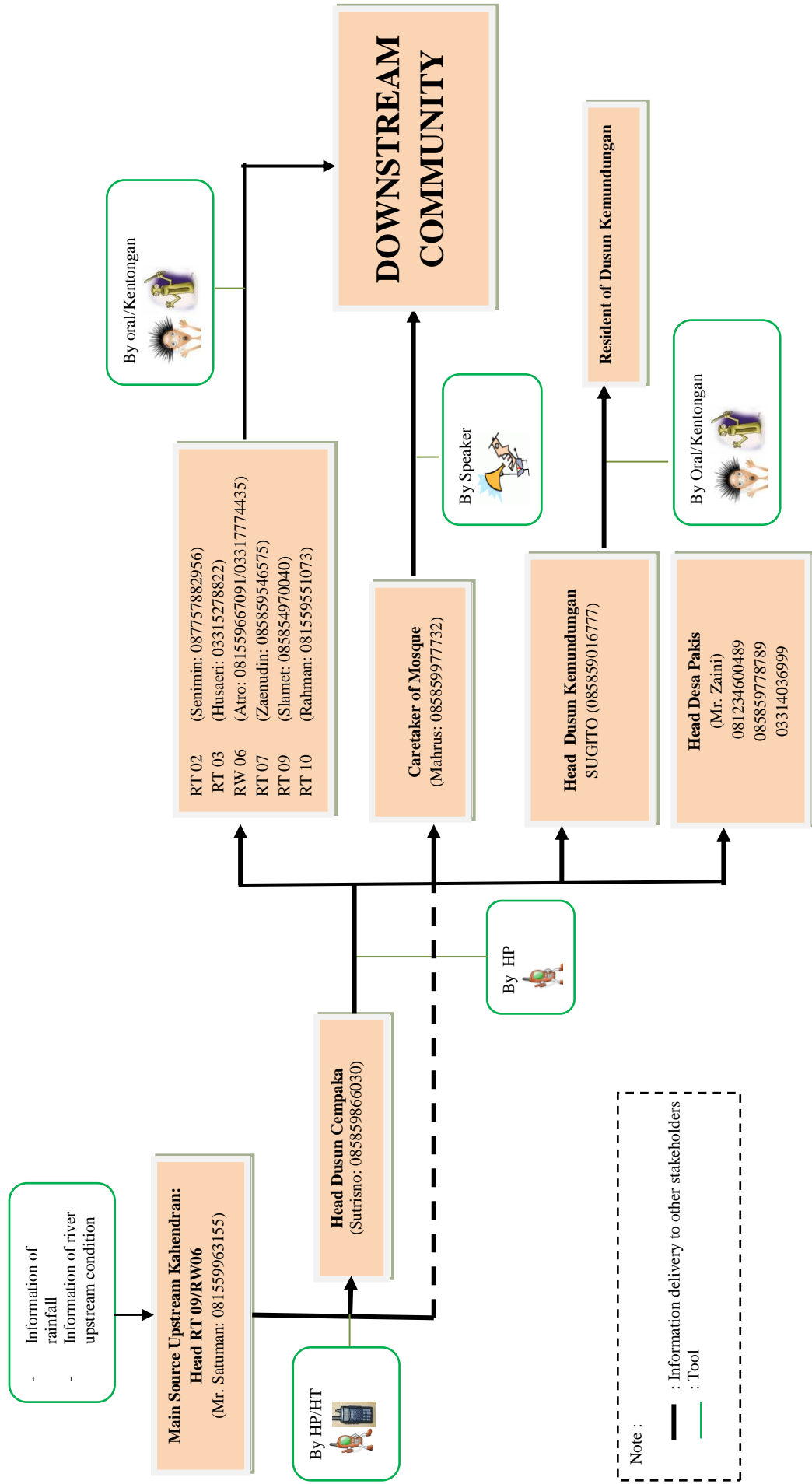


Image 6. SOP Early Warning System for Banjir Bandang at DAS Kali Pakis – DOWNSTREAM

Refer to Picture 2 can be seen that Standard Operating Procedure (SOP) for early warning system of banjir bandang consist of 2 (two) patterns, namely: (1) horizontal communication pattern and (2) vertical communication pattern. Key person to synergy those 2 (two) communication pattern is Head of Desa Pakis.

Standard operating Procedures (SOP) by horizontal communication for upstream, middle stream and downstream is as below:

SOP Upstream Area:

- Information source in upstream area is Head of RT 09/RW06 (Mr. Satuman) who act as coordinator whose also as informant, next is communicated by using hand phone or by oral to the security (Mr. Senawi). The information received from security will be informed into the community who live in upstream area by using kentongan and by oral, the time needed for the warning information is less than 10 minutes because houses of residents are close each other
- Head of RT 09/RW06 (Mr. Satuman) make coordination with administrator of PDP Kahendran (Mr. Trianto and Supandi) and then continue by using hand phone to Vice Head of Dusun in Portal area (Mr. Supianto), Head of Dusun Cempaka (Mr. Sutrisno) and Administrator of Mosque in downstream (Mr. Mahrus)
- Head of RT 09/RW06 (Mr. Satuman) who act as coordinator at Post 3 make coordination with Head Desa/Post 1 (Mr. Zaini).

SOP Middle Stream Area

- Vice Head of Dusun in Middle stream area /Portal (Mr. Supianto) who act as Head of Forest side Villagers (LMDH) (Mr. Hartono) by using hand phone as communication tool deliver information to head of RT 08 (Mr. Samsul) and Head of RT 09 (Mr. Romli),
- Vice Head of Dusun in Middle Stream area (at Portal) delivered information by using hand phone to Head of Dusun Cempaka (Mr. Sutrisno) and Mosque administrator in downstream (Mr. Mahrus) and head of desa Pakis (Mr. Zaini)
- Head of Forest side Villagers (LMDH) (Mr. Hartono) delivered information to the Middle Stream area by using loud speaker in the Mosque Al Mubaroq, and next is making coordination with forestry company of Kaliputih Rambipuji (Mr. Sunaryo)

- Head of RT 08 (Mr. Samsul) and Head of RT 09 (Mr. Romli) delivered information to the community in Middle Stream area by using kentongan and by oral.

SOP Downstream Area

- Head of Dusun Cempaka (Mr. Sutrisno) act as coordinator and deliver information by using hand phone to Head of RT 02 (Mr. Senimin), Head of RT 03 (Mr. Husaeri), Head of RW 06 (Mr. Atro), Head of RT 07 (Mr. Zaenuddin), Head of RT 09 (Mr. Slamet) and Head of RT 10 (Mr. Rahman). Each head of RT deliver information to downstream community by using kentongan and by oral.
- Head of Dusun Cempaka (Mr. Sutrisno) delivered information to Head of Dusun Kemundungan (Mr. Sugito) and administrator of Mosque in Downstream area (Mr. Mahrus)
- Administrator of Mosque in Downstream area (Mr. Mahrus) delivered information to the community in Downstream area by using loud speaker
- Head of Dusun Cempaka (Mr. Sutrisno) as coordinator for Post 3 make coordination with head of Desa/Post 1 (Bp. Zaini)

Standard Operating Procedur (SOP) by vertical communication path is as follow:

- Head of Desa/Post 1 (Mr. Zaini) that had conducted coordination with Post 2 and Post 3, deliver information by using hand phone to secretary and Treasurer of Desa Pakis government officer.
- Head of Desa/Post 1 (Bp. Zaini) that had conducted coordination with Post 2 and Post 3 deliver information by using hand phone to Head of Kecamatan Panti (Drs. Yahya), Rayon Military Command (Mr. Sumayar), Military at Desa Level/Babinsa (Mr. Makrus), Sector Police (Polsek) Panti (Mr. Udik), Agent of sector Police Panti (Mr. Harianto), Bimas (Bp Sugeng), Civil Police/Satpol PP Head section of orderliness (Mr. Mudianto)
- Head Desa/Post 1 (Bp. Zaini) deliver information by using hand phone to coordinator of Satlak in Kabupaten, Bakesbang Linmas Kabupaten Jember (Mr. Heri), and next is to Bupati of Kabupaten Jember

Next step is determining evacuation points for Upstream and Downstream area. Result of discussion and site watching agreed that location in upstream area is KD 4 that considered to be still having opportunity to be as hazard point if there is any heavy rain, however this

location is still as the most proper alternative site compared to other locations. The basic problem in residential area in upstream is geographically under 2 (two) slope of mountain. In the future solution it will need relocation of residential area that relatively safer in forestry company area.

For downstream area, evacuation site is determined at 2 (two) locations, namely location 1 is in residential area at the east part of Kali Pakis bridge ranged for about 500 meters, second location is residential area in south part of location 1 ranged about 1000 meters. Evacuation location is considered to be representative because: (a) the location is higher than Kali Pakis; (b) the location is opposite of Kali Pakis water flow direction; and (c) the location is relatively easy to be accessed from post 1 (Office Hall of Desa Pakis).

C. Site Watching

Desa Pakis is one of desa in Kecamatan Panti around 7 km northwest from Kecamatan office. The width area of Kecamatan Panti is approximately 450 hectares. 300 hectare of land is owned by desa and community and 150 hectares of land is owned by Forestry Company. There are six dusuns in Desa Pakis namely: Dusun Pertelon, Dusun Gluduk, Dusun Pakis Utara, Dusun Cempoko, Dusun Kemundungan and Dusun Tajek. One of dusun that become attention is Dusun Cempoko which is central area when banjir bandang disaster occurred in 2011.

Site watching is an activity to see the actual condition in the field. The purpose is to see the damage caused by banjir bandang, determine the exact evacuation place, and determine equipments from JICA that will be installed in Desa Pakis.

Upstream

Site-Watching in Afdeling Kahendran is followed by team from community (four people), YPM (M. Rondhi, Subhan Arif Budiman and Aryo Fajar), and JICA Expert (Keiji YOSHIDA) and short-term expert JICA (Taro UCHIDA).

In location of Site-watching Mr. Satuman informed the chronological of banjir bandang occurrence. In 2011 flood disaster occurred in Desa Pakis precisely in Dusun Cempoko. There were no life-victims in that banjir bandang occurrence, but it caused damages and physical loss as well as causing traumatic felling for community who experienced the occurrence.

Afdeling Kahendran is approximately six kilometer from Office of Desa Pakis to west north and it is an isolated location from several settlements in Desa Pakis. The width of

Afdeling Kahendran is 152 ha with total family as many as 48 Head of Families. While the lighting source in Afdeling Kahendran is turbines generator. There are two access roads to the location of the first access is shortcut road that can only be passed on foot and motorcycles and second access is normal road condition that can be passed by four wheels-vehicle and two wheels-vehicle. Based on the distance, shortcut road is closer than normal road. To reach Afdeling Kahendran by motorcycles takes time approximately 30 minutes, while by using car is needed times more than that because of greater distance and must rotate around the plantation. The condition in Afdeling area is shown as on Image 7.



Road Access into Afdeling Kahendran



Office of Afdeling Kahendran



Collpase area in Afdeling Kahendran



Kentongan and Mr. Satuman (Head of RT)

Image 7. Access Road, Afdeling Office, River Stream and Kentongan in Afdeling Kahendran

Historically, there had been three times of banjir bandang occurrences in Afdeling Kahendran in 1989, 2006 and latest in 2011. For 2011, flood source came from unpredicted direction (see white line in the figure below). Flood source also came from DK-13 direction (see Image 8).

Springs spots came derived from lands of Forestry Company and also PDP/Regional Plantation Co. (red spots). The evacuation site is located in spot DK-4 that has been mutually agreed by the community in afdeling. The location is the most probable location by considering Afdeling Kahendran is isolated from other settlement in Desa Pakis. Regarding with those conditions, the distance to evacuate resident to other settlement area needs time more than 30 minutes. Hereunder is Map of Desa Kahendran and Evacuation site when banjir bandang occurs.

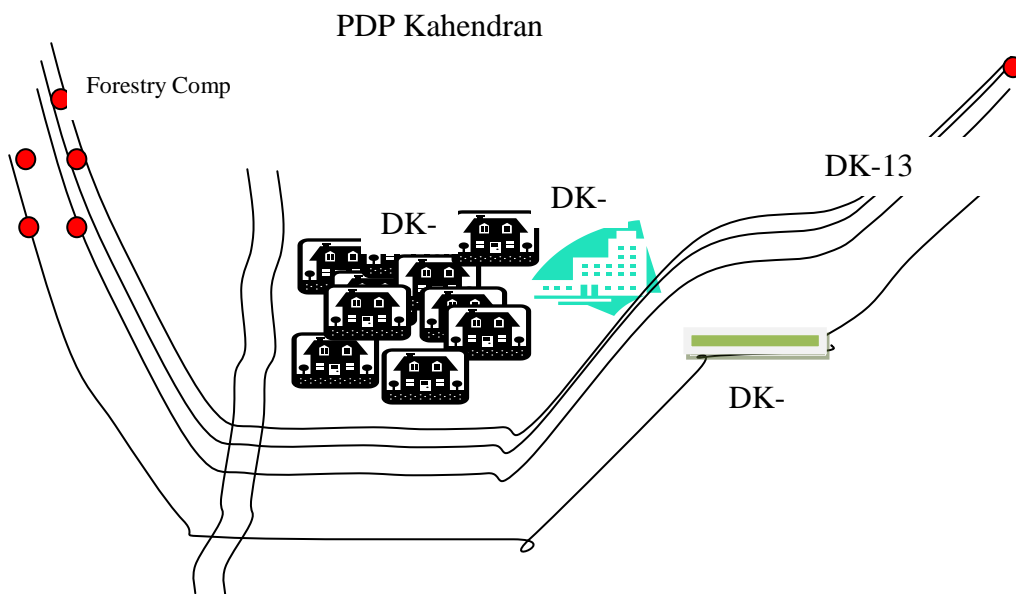


Image 8. Map of Desa Kahendran and Evacuation Site when Banjir Bandang Occurs

In regarding with the disaster, resident of Afdeling Kahendran already have simple early warning system. According to Mr.Satuman (Head of RT Afdeling Kahendran) when rainfall pours continuously, residents give information each other that the rain increase water discharge in the river. Next, if the river is considered to be over the limit, then by using kentongan from iron (see Image 7), Afdeling Kahendran give information to the residents to go for evacuation into north area of residential area (the location is higher than residential area of plantation community).

Regarding with equipments that taken during evacuation, resident has understood by using tarpaulin (equipment that used to shelter from the rain and heat made from strong nylon). Previously, resident also had evacuated their livestock (cow or goats) to safe location

and it was grouped by considering in normal conditions, the livestock located in particular condition that have been grouped.

Although residents already have an early warning, especially by seeing water level condition, however there is still no similar perception yet about proper time to do for evacuation. Therefore, it needs automatic rain gauge record that can detect rainfall and water discharge due to the rain. The equipments may help in the early warning system. However, things that need to be paid attention is the equipment that usually can be operated with a sufficient power supply, meanwhile power supply in that Afdeling is very poor and can not be used for power supply of those equipment.

Important contact persons to be contacted in case if there will be banjir bandang occurrence is:

- | | |
|--|------------------------------------|
| 1. Mr. Zaini (Head Village/Desa of Pakis). | No HP : 085859778789, 081234600489 |
| 2. Mr. Trianto (Opsinder Afdeling Kahendran) | No HP : 085859326544 |
| 3. Mr. Sutrisno (Head Dusun Cempoko) | No HP : 085859866030 |
| 4. Mr. Satuman (Head RT Kahendran) | No HP : 081559963155 |

Downstream

On site watching's activity that has been conducted, participants discussed about Cempaka Bridges construction. They assumed that bridge construction with three holes beneath of bridge is as trigger factor of the overflow of Katu River. Which mean; big-size wood logs that flows in the river in transverse position will restrain debris flow that finally water river overflows into land area.

Banjir bandang disaster on March 2011 had destroyed 5 Desa Pakis, Desa Glagahwero, Desa Kemuning, Desa Gugut Kec, Sukorambi, Desa Dukosia. Community of Cempaka evacuated to above area of West Cempaka (resident's house). According to Mr. Agus (Adm. Kalijompo) criteria for evacuation site are: far from river, access road into evacuation site, wide enough location. Evacuation is conducted when: Heavy rainfall, (2) High water level (as high as new dam), and (3) There is information from Upstream.

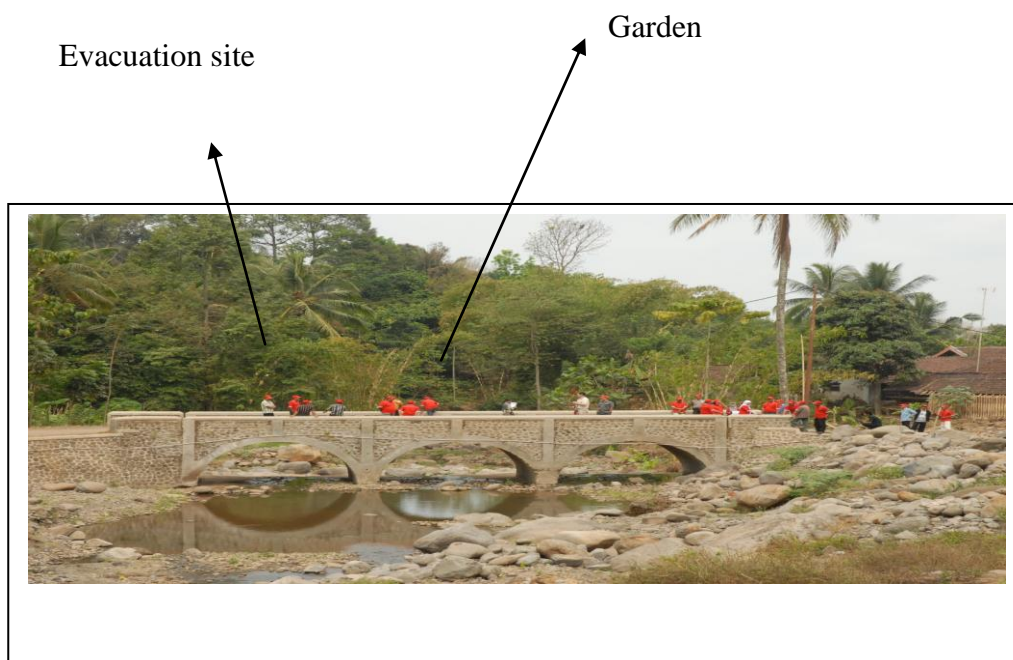


Image 9. Cempaka Bridge in Downstream

As the plan, Desa Pakis area will be installed (1) water level sensor near bridge Cempaka to give information to downstream people about water level high and (2) Rainfall gauge in downstream and upstream.

IV. CONCLUSION AND RECOMMENDATION

4.1 Conclusion

Conclusion for FGD and Site Watching, are:

- 1) Community has not able to well-explain about definition of early warning system for banjir bandang, but resident has their own way in conducting early warning although not yet in well-concepted.
- 2) Root problem faced by the community in the implementation of early warning system for banjir bandang is “lack of information”, namely lack of information for natural disaster and surrounded area, unacknowledgement about the disaster. The focused issue that oftentimes talked by the community but still unable to handle for banjir bandang countermeasure is “environmental damage”, namely illegal logging in forest area, damage the forest, change the function of sloping forest use, change on land use in forest area which is as rainfall buffer into productive forest
- 3) The informant are: Afdeling Kahendran employee; (SATLAK kabupaten), Disaster Pos Officers (Satlak, Satgas), Head Desa/Kelurahan, Public protection Unit (Satlinmas) at Desa/Kelurahan, Head of RW/RT, and Local Leader.
- 4) Media for information delivery is by using Handphone (SMS), Telephone, speaker, kentongan, or by oral speak.
- 5) SOP of an effective early warning should be able to be understood by all community so that it can enhance strong consciousness to use this as altogether needs. SOP being created together with community is a realistic thing that can be trusted because the community understand very well about their own characteristic of the area and the needs.
- 6) SOP of Early Warning System for Banjir Bandang at DAS Kali Pakis consist of SOP EWS in Downstream, Middle Stream, and Satlak as shown in Picture 3,4,5, dan 6.

1.2 Recommendation

- 1) In order to improve SOP of early warning system for banjir bandang at DAS Kali Pakis, it needs to be tested in the field by involving all stakeholders in the SOP.
- 2) In order to internalize the SOP to all in charge stakeholders for early warning system for banjir bandang at DAS Kali Pakis need to be disseminated.

- 3) In order to conduct SOP of early warning system for banjir bandang smoothly at DAS Kali Pakis, it will need good support from the government.

SCHEDULE

**SCHEDULE OF FGD
EARLY WARNINGS SYSTEM FOR BANJIR BANDANG
DESA PAKIS KECAMATAN PANTI
17 SEPTEMBER 2011**

DAY/DATE	TIME	AGENDA	VENUE	NOTE
Saturday, 17-09-2011	08.00-08.30	Registration	Village Office Hall of Pakis Kec. Panti	YPM
	08.30-09.30	Opening Speech: 1. Head of YPM represented by Rokhani, SP.,M.Si 2. JICA by Keiji Yoshida 3. Head of Desa Pakis by Mr.Zaini 4. Satlak PB by Drs.Eddy B Susilo M.Si	Village Office Hall of Pakis Kec. Panti	Explain about aims and objective of first and second day activity Representative from Satlak PB and open the activity
	09.30-10.00	Introduction of FGD 1. Early Warning System for Banjir Bandang 2. Introduction of equipments and facilities for Early Warning System		1. YPM : M Rondhi, SP.,MP 2. JICA : Keiji Yoshida
	10.00-12.00	<i>Focus Group Discussion</i> (FGD) By: Djoko Soejono, SP.,MP (YPM)	Village Office Hall of Pakis Kec. Panti	Objective of FGD: 1. Obtaining perception of participant concerning with EWS that they have 2. Comparing EWS perception of participant with EWS that had been made by Satlak 3. Looking for the root problem of difference on those perception and un work of EWS 4. Determining Criteria for evacuation site
	12.00-13.00	BREAK	Village Office Hall of Pakis Kec. Panti	Pray and Lunch
	13.00-16.30	<i>Site Watching</i>	1. Kahendran Plantation (Upstream) 2. Dusun Cempoko (Downstream)	Go to the site that divided into 2 groups: upstream and downstream Facilitator for Upstream Group: M.Rondhi, SP.,MP; Ebban Bagus Kuntadi, SP and Aryo Fajar S SP.,M.Si Facilitator for downstream group: Rokhani, SP.,M.Si and Subhan Arif Budiman, SP.,MP

ATTENDANCE LIST



ATTENDANCE LIST
FOCUS GROUP DISCUSSION AND TABLE TOP EXERCISE
LY WARNING SYSTEM FOR BANJIR BANDANG OF DESA PAKIS KECAMATAN PAN
THE YEAR OF 2011



Purpose : Focus Group Discussion and Site Watching

Day/date : Saturday, 17 September 2011

Time : 08.00 – 16.30 WIB

Place : Village hall of Desa Pakis Kecamatan Panti Kabupaten Jember

No.	Nama	Jabatan	Instansi / Alamat
1.	Abdul Haris	BPD	Cempaka
2.	Hartono	LMDH	Pakis
3.	Makrus	Babinsa	Pakis
4.	Satuman	Employee	Kahendran Pakis
5.	Senawi	Employee	Kahendran Pakis
6.	Zaini	Head Desa	Pakis
7.	Sugito	Head Dusun	Kemundungan
8.	Iwan	Head Dusun	Pakis Utara
9.	Supardi	Employee	Kahendran Pakis
10.	Sutrisno	Head Dusun	Cempaka
11.	Sujarwo	Resident	Pertelon Pakis
12.	P. Fitriya	Local leader	Cempaka
13.	Umar	Head of public welfare affair	Tajak
14.	Supianto	Head Dusun	Pakis Utara
15.	Abdul Wahid	Secretary of Desa	Pakis
16.	Selamet	RT	Kemundungan
17.	P. Romi	RT	Pakis Utara
18.	Husairi	RT	Cempaka
19.	P. Sarapah	Head of farmer group	Cempaka
20.	P. Imam Wahyudi	RT	Cempaka

21.	P. Mahrus	Resident	Cempaka
22.	Gunawan	Operation Section	Polres Jember
23.	Haris	Head of village water irrigation distribution (Ulu-Ulu)	Pertelon Pakis
24.	Musawir	Village officers	Pakis Utara
25.	M. Rondhi	YPM Expert	YPM
26.	Djoko Soejono	YPM Expert	YPM
27.	Rokhani	YPM Expert	YPM
28.	Ebban	YPM Expert	YPM
29.	Subhan	YPM Expert	YPM
30.	Aryo	YPM Supportig	YPM
31	Alung	YPM Supporting	YPM
32	Diah Puspa	Minute Person	YPM
33	Ibana	Minute Person	YPM
34	Edy Budi Susilo	Head of Agency Kepala Dinas/Secretary of Satlak	Bakesbanglinmas
35	Heri Setiawan	Staff	Bakesbanglinmas
36	Yoshida Keiji	JICA Expert	JICA
37	Taro Uchida	JICA Short Term Expert	JICA
38	Atsuhiko Kinoshita	JICA Short Term Expert	JICA
39	Dwi Ratna Hidayati	JICA Representative	JICA
40	Aditya Pasha	Assistant	JICA

QUESTIONNAIRE ANSWER

QUESTIONNAIRE OF EARLY WARNING SYSTEM

Name :
Address :
Institution :

Please answer below questions as your understanding

1. What do you know about early warning?
2. Why early warning is important in the process of banjir bandang disaster?
3. Who should be responsible to conduct early warning?
4. How the steps that you have ever done or ever heard of doing an early warning of banjir bandang?
5. What are existing equipments in flood hazard areas that can support early warning activities?

**RECAPITULATION OF QUESTIONNAIRE ANSWER
FOR ACTIVITY OF FGD EWS BANJIR BANDANG
2011**

No.	Item	Correct answer	%
1	What do you know about early warning?	6	0,60
2	Why early warning is important in the process of banjir bandang disaster ?	7	0,70
3	Who should be responsible to conduct early warning?	10	1,00
4	How the steps that you have ever done or ever heard of doing an early warning of banjir bandang?	7	0,70
5	What are existing equipments in flood hazard areas that can support early warning activities?	8	0,80

Note:

Number of participants who receive questionnaire were 25 orang, but those who returned the questionnaire were only 10 peoples

QUESTIONNAIRE OF EARLY WARNING SYSTEM

Name : Romi
Address : Dusun North Pakis - Desa Pakis
Institution : Local leader

Please Answer the Questions Below As Your Understanding

1. What do you know about early warning?

Answer: Condition of not rain so that resident of Desa Pakis is very difficult

2. Why early warning is important in the process of banjir bandang disaster?

Answer:

3. Who should be responsible to conduct early warning?

Answer: The government that has a role and the community

4. How the steps that you have ever done or ever heard of doing an early warning of banjir bandang?

Answer: Community must maintain existing trees and must increase the planting of trees

5. What are existing equipments in flood prone areas that can support early warning activities?

Answer: Cellular phone or telephone device

QUESTIONNAIRE OF EARLY WARNING SYSTEM

Name : Husairi
Address : Dusun Cempaka-Desa Pakis
Institution : -

Please Answer the Questions Below As Your Understanding

1. What do you know about early warning?
Answer: Anticipation the occurrence of danger and flood
2. Why early warning is important in the process of banjir bandang disaster?
Answer: For our safety
3. Who should be responsible to conduct early warning?
Answer: Community and the government
4. How the steps that you have ever done or ever heard of doing an early warning of banjir bandang?
Answer: Evacuate to safe location
5. What are existing equipments in flood prone areas that can support early warning activities?
Answer: rainfall sensor, water level sensor, extensometer.

QUESTIONNAIRE OF EARLY WARNING SYSTEM

Name : Hartono
Address : Desa Pakis Kecamatan Panti, Jember
Institution : Head of Forest side Villagers Organization (LMDH Rengganis) Desa Pakis

Please Answer the Questions Below As Your Understanding

1. What do you know about early warning?
Answer: Roaring sound and water is increasingly high. Rainfall gauge
2. Why early warning is important in the process of banjir bandang disaster?
Answer: For reducing life-victim (warning system) can be done before flood occurrence.
3. Who should be responsible to conduct early warning?
Answer: The government and local leaders
4. How the steps that you have ever done or ever heard of doing an early warning of banjir bandang?
Answer: Seeking immediately for higher and safer location. Avoid unstable soil.
5. What are the existing equipments in flood prone areas that can support early warning activities?
Answer: Loudspeaker, cellular phone.

QUESTIONNAIRE OF EARLY WARNING SYSTEM

Name : Saropa/Attro
Address : Desa Pakis
Institution : Local leaders

Please Answer the Questions Below As Your Understanding

1. What do you know about early warning?
Answer: Deliver information, coordination and conduct steps action to save life .
2. Why early warning is important in the process of banjir bandang disaster?
Answer: It can threaten someone life
3. Who should be responsible to conduct early warning?
Answer: Individual, community, or related government institution.
4. How the steps that you have ever done or ever heard of doing an early warning of banjir bandang?
Answer: Inform the community to evacuate into higher location.
5. What are existing equipments in flood prone areas that can support early warning activities?
Answer: Loudspeaker/telephone.

QUESTIONNAIRE OF EARLY WARNING SYSTEM

Name : Satuman
Address : Kahendran Plantation- Pakis
Institution : Employee

Please Answer the Questions Below As Your Understanding

1. What do you know about early warning?
Answer: Anticipate the community in order to recognize the existence of flood hazard
2. Why early warning is important in the process of banjir bandang disaster?
Answer: So there is no longer life-victim in the occurrence of banjir bandang disaster
3. Who should be responsible to conduct early warning?
Answer: All community who recognizes and understands about rainfall in landslide hazard area
4. How the steps that you have ever done or ever heard of doing an early warning of banjir bandang?
Answer: Give motivation to all community so that community be aware before disaster occurrence
5. What are existing equipments in flood prone areas that can support early warning activities?
Answer: Tents, blanket, emergency kitchen, rainfall sensor, Bell, cellular phone/handy talkie to contact people in beneath area that also include in landslide hazard area.

QUESTIONNAIRE OF EARLY WARNING SYSTEM

Name : Haris
Address : Dusun Partelon-Desa Pakis
Institution : -

Please Answer the Questions Below As Your Understanding

1. What do you know about early warning?
Answer: The greening/reforestation on barren forest
2. Why early warning is important in the process of banjir bandang disaster?
Answer: To Prevent erosion, the barren of mountain and forest in order to prevent banjir bandang occurrence.
3. Who should be responsible to conduct early warning?
Answer: Officer and also local community
4. How the steps that you have ever done or ever heard of doing an early warning of banjir bandang?
Answer: Greening/reforestation the barren forest and also not randomly cutting the trees
5. What are existing equipments in flood prone areas that can support early warning activities?
Answer: Installed disaster hazard map with evacuation path so that the community know it that it will make easier the handling when disaster occurs

QUESTIONNAIRE OF EARLY WARNING SYSTEM

Name : Supianto
Address : Dusun Pakis Utara- Desa Pakis
Institution : Vice Head of Dusun

Please Answer the Questions Below As Your Understanding

1. What do you know about early warning?
Answer: The signs or code for rescuing or to solve flood occurrence, Threat from rainfall that very heavy and continuously
2. Why early warning is important in the process of banjir bandang disaster?
Answer: Dam is chaos if there is no warning of disaster. Maybe there is no preparation or there is no attention from government.
3. Who should be responsible to conduct early warning?
Answer: All community is as priority, *Banser* (voluntary force unit) or community group that had received assignment letter from Kecamatan
4. How the steps that you have ever done or ever heard of doing an early warning of banjir bandang?
Answer: We must save children and wife firstly
5. What are existing equipments in flood prone areas that can support early warning activities?
Answer: Firstly we are searching the provided location in Mosque because there is warning information in mosque.

QUESTIONNAIRE OF EARLY WARNING SYSTEM

Name : Mulyadi
Address : Desa Pakis
Institution : Village Officers of Desa Pakis

Please Answer the Questions Below As Your Understanding

1. What do you know about early warning?
Answer: The delivery of signs to community that there will be occurrence of banjir bandang
2. Why early warning is important in the process of banjir bandang disaster?
Answer: To prevent life-victims caused by banjir bandang disaster
3. Who should be responsible to conduct early warning?
Answer: Community and volunteers/together.
4. How the steps that you have ever done or ever heard of doing an early warning of banjir bandang?
Answer: Gives signs of disaster occurrence by using kentongan or other sounds that known in that area such as loud speaker
5. What are existing equipments in flood prone areas that can support early warning activities?
Answer: rainfall gauge, water level sensor, extensometer

QUESTIONNAIRE OF EARLY WARNING SYSTEM

Name : Sugito
Address : Dusun Kemundungan-Desa Pakis
Institution : Head of Dusun

Please Answer the Questions Below As Your Understanding

1. What do you know about early warning?
Answer: Deliver Signs to community
2. Why early warning is important in the process of banjir bandang disaster?
Answer:
3. Who should be responsible to conduct early warning?
Answer: Together in taking responsibility with community
4. How the steps that you have ever done or ever heard of doing an early warning of banjir bandang?
Answer:
5. What are existing equipments in flood prone areas that can support early warning activities?
Answer:

QUESTIONNAIRE OF EARLY WARNING SYSTEM

Name : Mistiyono
Address : Desa Pakis- Dusun Partelon
Institution : Village Officers

Please Answer the Questions Below As Your Understanding

1. What do you know about early warning?

Answer: Signs or code from community who recognize about the occurrence of banjir bandang disaster

2. Why early warning is important in the process of banjir bandang disaster?

Answer: Yes, because early warning system is very needed to anticipate so that there is no banjir bandang victim

3. Who should be responsible to conduct early warning?

Answer: all community particularly for institution or local apparatus who is in charge to take care the community

4. How the steps that you have ever done or ever heard of doing an early warning of banjir bandang?

Answer: Firstly we do not be panic. Secondly we must flee into safe and higher location particularly for community who lives alongside river so that they immediately evacuate to safer location.

5. What are existing equipments in flood prone areas that can support early warning activities?

Answer: kentongan, loudspeaker or tools that can direct community to immediately move into safe location.

MINUTE

**MINUTE OF
FGD and SITE WATCHING
FOR THE CREATION OF SOP EWS BANJIR BANDANG
DAS KALIPAKIS**

Day /Date : Saturday, 17 September 2011
Venue : Balai Desa Pakis Kecamatan Sukorambi
Kabupaten Jember

Registration of Participants at 08.00 - 08.30.

Opening at 08.30 the activity was started and guided by Mrs. Rokhani as MC

Assalamualaikum wr.wb.

Good morning and best wishes for all us.

I am as MC also representing Yayasan Pengabdian Masyarakat (YPM) deliver apologize from Mrs. Evita Soliha Hani (head of YPM) who could not attend among all of us because of now is in Netherland to join short course for 3 (three) weeks, from 13 September 2011 until 3 October 2011.

Firstly I would like to deliver gratitude to JICA that had put trusted on YPM to do activities concerning with banjir bandang in Kabupaten Jember.

It is delivered gratitude to Head Kades Pakis who had provided facilities for this activity.

It is also delivered gratitude to Mr. Edy Budi Susilo as well as participants of FGD for the kind attendance.

Hopefully today activity can result SOP of Early Warning System for Banjir Bandang Disaster can work smoothly and useful. Amin.

Training activity of Banjir Bandang Disaster that hold in Desa Pakis Kecamatan Panti will be for 2 days, namely 17 September 2011 dan 18 September 2011. First day of FGD is to gather problem being faced by community concerning with banjir bandang disaster in Desa Pakis and in order to obtain more perfect solution then there will be Site Watching.

Second day is to continue FGD activity in order to obtain SOP of early warning system for banjir bandang in DAS Kali Pakis. Next is Table Top Exercise activity in the form of simulation early warning system for banjir bandang at various conditions. I expect that all participants will attend on those both activities because opinion is needed, especially for Desa Pakis and for Jember Community in general. Thank you.

Speeches:

Speech 1: Mr. Yoshida Keiji (JICA)

Good Morning

Firstly it is delivered gratitude to YPM who had helped JICA in applying the program of JICA concerning with disaster in Kabupaten Jember. Besides, it was also delivered gratitude to Government of kabupaten Jember that had facilitated JICA in conducting the program. To Satlak, Head Desa Pakis and participants it is delivered gratitude. JICA had conducted investigation for recent 10 months in the activity of early countermeasure for banjir bandang. JICA expert came to the disaster site in February and March 2011 to give recommendations in the activity of early countermeasure for banjir bandang based on SOP that will be created by community of Desa Pakis Kecamatan Panti as has been created in Kalijompo area. Desa Pakis area that included as banjir bandang hazard area that should have SOP of banjir bandang early countermeasure.

Thank you.

Speech 2: **Mr. Edy Budi Susilo (Satlak)**

The Honorable Mr. Yoshida

The Honorable Team of YPM

The Honorable Head of Desa Pakis

The Honorable of attendees

Assalamualaikum wr.wb.

Good morning and best wishes for all of us.

By saying Alhamdulillah then it is delivered gratitude on behalf government of Kabupaten Jember to JICA and YPM that had actively take role in banjir bandang countermeasure. Also to Satlak, Camat Panti, Head Desa Desa Pakis, and all attendees who participate in this activity. It need to be known that threat of natural disaster are continuously happened at Panti since banjir bandang hit on last 2006, then it occurred again in 2011 two times, namely in February 2011 and March 4 2011. There are 3 points of landslide hazard area when rainfall over the standard in the river flow line. On last March 4 2011 there was strange occurrence in Dusun Kahendran Desa Pakis Kecamatan Panti in which non river flow line area was hit by banjir bandang.

Therefore, YPM and JICA give training in the activity of Early Warning System for Banjir Bandang in Desa Pakis Kecamatan Panti. The training is expected to be able to give solution in the countermeasure of banjir bandang concerning with what suppose to be conducted in before, during the occurrence and post of disaster occurrence especially for banjir bandang. There are 3 detection equipments such as rain gauge, water level gauge and climate monitoring equipments. There must be good cooperation between upstream and downstream. Japanese citizen had well understood to do action in order to face banjir bandang. For Desa Pakis community, they should also able to make follow up of today activity that later will result SOP for early warning system banjir bandang.

Activity

A. Material Lecture

- **Mr. M. Rondhi** (YPM) explained that risk of life loss and properties loss is most important in disaster. Therefore, most important action that should be done is to minimize risk.

The risk will be small if we can face banjir bandang vulnerability. Afdeling Kahendran area is danger because there are several hazard points caused by human activity, namely illegal logging.

Thereby, vulnerability/weakness is actually on the consciousness of peoples.

The activity for these two days is aimed to increase the capability and awareness for action in during flood occurrence. The steps are:

1. Determining hazard area
2. Evacuation
3. Coordination of Upstream-Downstream

This similar activity had ever been done in Kalijompo. Mr. Agus (Manager of Kalijompo Plantation) is as early warning system observer for banjir bandang in upstream area of Kalijompo. Information is given by sms, HP/Tlp, or siren to:

Surrounded community
Kecamatan (personal/office)
Koramil/Bapinsa
Sector Police
Bakesbang

- **Mr. Yoshida Keiji** (JICA) introduce the equipments from JICA that related with early warning system of banjir bandang. There are 3 important equipments that will be installed at DAS Kali Pakis, namely:

1. Weather observation equipment is to measure wind speed, and rainfall that connected with komputer
2. Water level sensor, there are 5 levels, in which each level has warning box that signed by lighting led and buzzing sound.
3. Rainfall gauge
This equipment is set per 30 mm, 60 mm, 90 mm, 120 mm, and 150 mm. The working procedure is similar with water level sensor. There is lamp and siren that will release sound if rainfall reaches 30 mm, and the light will be on as well as buzzing sound release on the next level.

The equipments is made special for Indonesia. The material is available in Indonesia, but it is important to be remembered that those equipments need electric power supply

B. Focus Group Discussion (FGD) : Mr. Joko Soejono (YPM)

The honorable Mr.Edy Budi Susilo

The honorable Mr. Yoshida

The honorable head Desa Pakis

The honorable attendees

Assalamualaikum wr.wb.

Good morning and best wishes for all of us.

Alhamdulillah let us delivered gratitude to Allah for the blessing that we can gather here on health condition.

FGD activity is to result SOP of early warning system for banjir bandang DAS Kalipakis. It is expected that by the establishment of SOP will be utilized as our preparedness in facing banjir bandang disaster.

Mechanism of SOP creation is firstly YPM will distribute paper that contain of questionas. Please to be filled by all participants. Next is conducting focused discussion. It is expected that all participant will actively give opinion and suggestion.

Next step is by identifying problems that faced by by community concerning with banjir bandang occurrence that had ever been occurred in the area as well as local rule about early warning. Technique to gather problem is conducted by several steps namely, (1) participant is given opportunity to write down the problem being faced; (2) participant is allowed to write down 1 (one) problem on a sheet of paper (*note paper*); (3) facilitator appoint 2 (two) participant to lead discussion and as minute; (4) participant tried to cluster problems into focused problem participatively.

Result of problem cluster is as follow:

Table 1. Problem Cluster

No.	PROBLEM	CLUSTER
1.	1. We are not false, flood belongs to the God Will 2. This is God given 3. Because of God Greatness	God Will
2.	1. Less of socialization from the side who are able/know about natural disaster 2. Less of knowledge about the nature and surrounded area 3. Lack of knowledge of disaster 4. Unknown about disaster	Lack of information
3.	1. Barren area 2. Less of consciousness of all of us 3. Care level 4. Unpreparedness and unpredicted of disaster situation 5. Confuse/panic 6. Because of having many sins 7. No preparedness and signs of banjir bandang 8. Because the human has many sins of corruption 9. lack of people awareness about disaster potential 10. Our fault is being less of awareness (no prepared before)	Lack of people awareness
4.	1. The community is too much free in managing the forest 2. Environmental damage	Environmental damage

	<ol style="list-style-type: none"> 3. Damage the forest, change the forest function that sloping 4. late in conducting reforestation 5. Change of land using arrangement, from forest as rainfall buffer area into productive forest (plantation or agriculture) 6. Erosion 7. Illegal logging by group/ some people for personal interest 8. Barren area of mountainous as the cause of illegal logging 9. Illegal logging 10. Illegal logging of forest 	
5.	<ol style="list-style-type: none"> 1. Heavy rain 2. Bad weather 3. Old earth 4. Sudden flood 5. Natural factor that cannot be anticipated 	Old age of earth
6.	<ol style="list-style-type: none"> 1. Unknown that suddenly flood (signal limit) 2. Information of flood oftentimes come late (bad signal) 	Weak of communication network
7.	<ol style="list-style-type: none"> 1. 1. lack of flood detection tool 2. Lack of equipments 3. Un proper infrastructure of bridge 	Unsuitable bridge construction dimension

Next, participant conducted focused discussion by the purpose to find root problem among many problem faced by the community concerning with the implementation of early warning. Next is the step for the implementation of LFA (*Logical Framework Analysis*) method. In this method, the steps are: (a) each issue obtained from the community will be clustered so that it results main problems that really occurs; (b) next, the clustered problem will be looked for the inter-relation logic among those problems. By arranging the inter-relation logically among problems, then it can be determined which is as the main root problem and focused issues that considered to be important as indicators for problem existence; (c) arrows number that outflow from opinion box shows the level of root problem priority. In the other word, problem opinion box that **has most number of arrow** is the most priority **root problem**; (d) meanwhile opinion box that **has most frequency inflow arrows** and with the most few number or

empty inflow arrows is **main issue/focused issue**; and (e) main issue or focused issue is last impact that felt by community under the problem condition. Form of inter relation among problems is as follow:

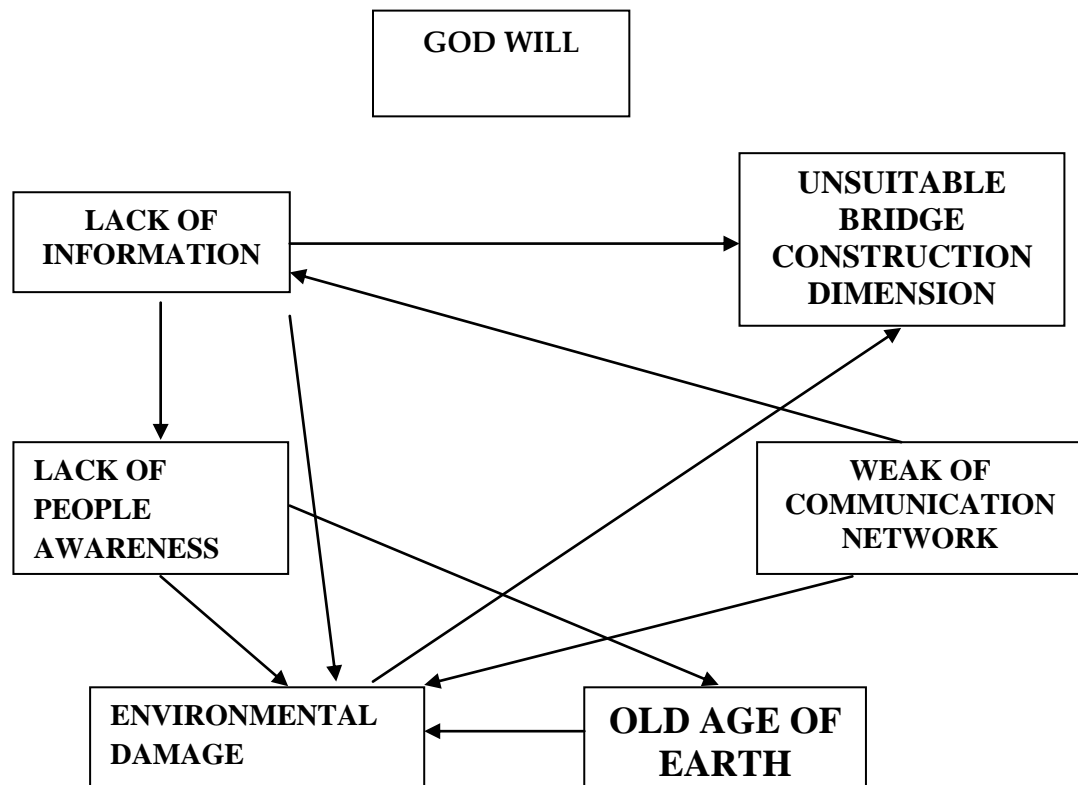


Image 1. Scheme of Interrelation among problems

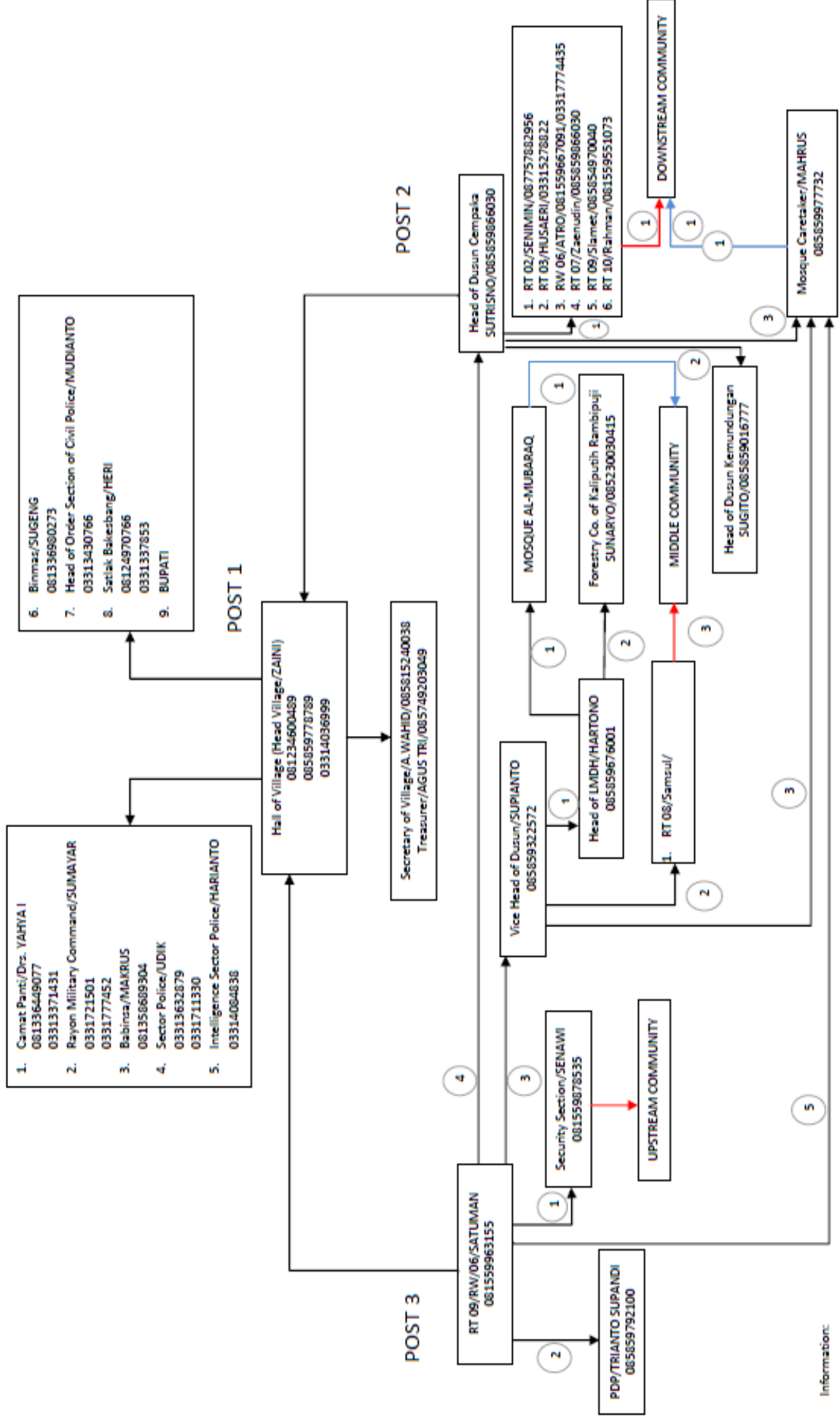
Table 2. Number of Outflow and Inflow Direction Arrow Based on Cluster

<i>CLUSTER</i>	OUTFLOW ARROW NUMBER	INFLOW ARROW NUMBER
God will	0	0
Lack of information	3	1
Lack of people awareness	2	1
Environmental damage	1	4
Old age of earth	1	1
Weak of communication network	2	0
Unsuitable bridge construction dimension	0	2

Based on above Table, it can be seen that most number of outflow arrow direction (Root Problem) is “Lack of Information” meanwhile most number of inflow direction arrow (Focused Issue) is “Environmental Damage”.

Solution for the problems faced by the community is improvement of information system at the community level by keeping potential and local wisdom. Improvement of information system involves institutions that exist in the community, either in governmental level until community level.

In order to strengthen the information system for early warning, it needs agreement from all the participants so that it can result Standard operating Procedures (SOP) System of Early Warning System for banjir bandang in Desa Pakis Kecamatan Panti. SOP early warning sytem for banjir bandang in Desa Pakis is resulted in comprehensive as showed in Image 2.



Standard Operating Procedure (SOP) for early warning system of banjir bandang consist of 2 (two) patterns, namely: (1) horizontal communication pattern and (2) vertical communication pattern. Key person to synergy those 2 (two) communication pattern is Head of Desa pakis. Standard operating Procedures (SOP) by horizontal communication for upstream, middle stream and downstream is as below:

SOP Upstream Area:

- Information source in upstream area is Head of RT 09/RW06 (Mr. Satuman) who act as coordinator, next is communicated by using hand phone or by oral to the security (Mr. Senawi). The information received from security will be informed into the community who live in upstream area by using kentongan and by oral, the time needed for the warning information is less than 10 minutes because houses of residents are close each other.
- Head of RT 09/RW06 (Mr. Satuman) make coordination with administrator of PDP Kahendran (Mr. Trianto and Supandi) and then continue by using hand phone to Vice Head of Dusun in Portal area (Mr. Supianto), Head of Dusun Cempaka (Mr. Sutrisno) and Administrator of Mosque in downstream (Mr. Mahrus)
- Head of RT 09/RW06 (Mr. Satuman) who act as coordinator at Post 3 make coordination with Head Desa/Post 1 (Mr. Zaini).

SOP Middle Stream Area

- Vice Head of Dusun in Middle stream area /Portal (Mr. Supianto) who act as Head of Forest side Villagers (LMDH) (Mr. Hartono) by using hand phone as communication tool deliver information to head of RT 08 (Mr. Samsul) and Head of RT 09 (Mr. Romli),
- Vice Head of Dusun in Middle Stream area (at Portal) delivered information by using hand phone to Head of Dusun Cempaka (Mr. Sutrisno) and Mosque administrator in downstream (Mr. Mahrus)
- Head of Forest side Villagers (LMDH) (Mr. Hartono) delivered information to the Middle Stream area by using loud speaker in the Mosque Al Mubaroq, and next is making coordination with forestry company of Kaliputih Rambipuji (Mr. Sunaryo)

- Head of RT 08 (Mr. Samsul) and Head of RT 09 (Mr. Romli) delivered information to the community in Middle Stream area by using kentongan and by oral.

SOP Downstream Area

- Head of Dusun Cempaka (Mr. Sutrisno) act as coordinator and deliver information by using hand phone to Head of RT 02 (Mr. Senimin), Head of RT 03 (Mr. Husaeri), Head of RW 06 (Mr. Atro), Head of RT 07 (Mr. Zaenuddin), Head of RT 09 (Mr. Slamet) and Head of RT 10 (Mr. Rahman). Each head of RT deliver information to downstream community by using kentongan and by oral.
- Head of Dusun Cempaka (Mr. Sutrisno) delivered information to Head of Dusun Kemundungan (Mr. Sugito) and administrator of Mosque in Downstream area (Mr. Mahrus)
- Administrator of Mosque in Downstream area (Mr. Mahrus) delivered information to the community in Downstream area by using loud speaker
- Head of Dusun Cempaka (Mr. Sutrisno) as coordinator for Post 3 make coordination with head of Desa/Post 1 (Bp. Zaini).

Standard Operating Procedure (SOP) by vertical communication path is as follows:

- Head of Desa/Post 1 (Mr. Zaini) that had conducted coordination with Post 2 and Post 3, deliver information by using hand phone to secretary and Treasurer of Desa Pakis government officer.
- Head of Desa/Post 1 (Bp. Zaini) that had conducted coordination with Post 2 and Post 3 deliver information by using hand phone to Head of Kecamatan Panti (Drs. Yahya), Rayon Military Command (Mr. Sumayar), Military at Desa Level/Babinsa (Mr. Makrus), Sector Police (Polsek) Panti (Mr. Udik), Agent of sector Police Panti (Mr. Harianto), Bimas (Bp Sugeng), Civil Police/Satpol PP Head section of orderliness (Mr. Mudianto)
- Head Desa/Post 1 (Bp. Zaini) deliver information by using hand phone to coordinator of Satlak in Kabupaten, Bakesbang Linmas Kabupaten Jember (Mr. Heri), and next is to Bupati of Kabupaten Jember

Next step is determining evacuation points for Upstream and Downstream area. Result of discussion and site watching agreed that location in upstream area is KD 4 that considered to be still having opportunity to be as hazard point if there is any heavy rain, however this location is still as the most proper alternative site compared to other locations. The basic problem in residential area in upstream is geographically under 2 (two) slope of mountain. In the future solution it will need relocation of residential area that relatively safer in forestry company area

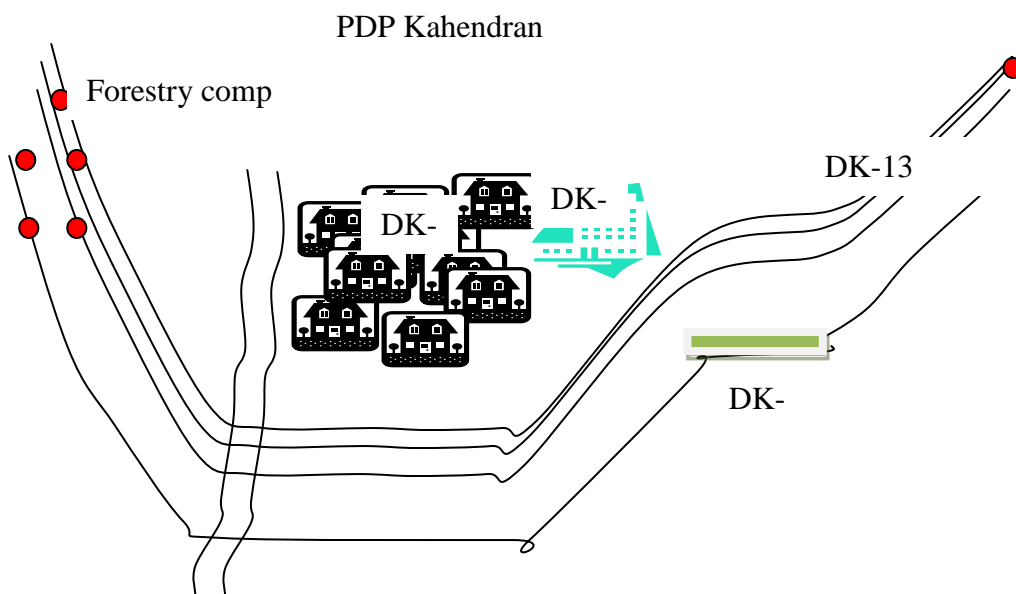
For downstream area, evacuation site is determined at 2 (two) locations, namely location 1 is in residential area at the east part of Kali Pakis bridge ranged for about 500 meters, second location is residential area in south part of location 1 ranged about 1000 meters. Evacuation location is considered to be representative because: (a) the location is higher than Kali Pakis; (b) the location is opposite of Kali Pakis water flow direction; and (c) the location is relatively easy to be accessed from post 1 (Office Hall of Desa Pakis)

SITE-WATCHING AFDELING KAHENDRAN

At the Site-watching location, Mr. Satuman told about chronological story of banjir bandang occurrence. In 2011, there was flood disaster in Desa Pakis, at Dusun Cempoko. There was no dead victim in banjir bandang occurrence, but it caused damage and loss physically as well as causing trauma on residents who experienced for this occurrence.

Afdeling Kahendran is located at about six kilometers from office of Desa Pakis into west north and an isolated area from several residential areas in Desa Pakis. Width of Afdeling Kahendran is 152 ha with 48 families. Meanwhile electric power source in Afdeling Kahendran is from turbine generator. There are two road accesses into the location, in which first access road can only be passed on foot or motorcycle meanwhile second road access is normal road access that can be passed by motorcycle or four wheel vehicle (car).

In regarding with the disaster, resident of Afdeling Kahendran has already a simple early warning system. According to Mr. Satuman (Head RT Afdeling Kahendran), when there is continuous rainfall, community give information each other that rain has increased water discharge in the river. Next, if the river is considered to be over the limit, then by using iron kentongan (see Image), Afdeling Kahendran give information to the residents to go for evacuation into north area of residential area (the location is higher than residential area of plantation community). Hereunder is Map of Desa Kahendran and Evacuation site when banjir bandang occurs.



Springs spots came derived from lands of Forestry Company and also PDP/Regional Plantation Co. (red spots). The evacuation site is located in spot DK-4 that has been mutually agreed by the community in afdeling. The location is the most probable location by considering Afdeling Kahendran is isolated from other settlement in Desa Pakis. Regarding with those conditions, the distance to evacuate resident to other settlement area needs time more than 30 minutes.

Regarding with equipments that taken during evacuation, resident has understood by using tarpaulin (equipment that used to shelter from the rain and heat made from strong nylon). Previously, resident also had evacuated their livestock (cow or goats) to safe location and its done grouping by considering in normal conditions, the livestock located in particular condition that have been grouped.

Although the residents already have an early warning, especially by seeing water level condition, however there is still no similar perception yet about the proper time to do for evacuation. Therefore, it needs automatic rain gauge record that can detect rainfall and water discharge due to the rain. The equipments may help in the early warning system. The equipments need power supply.

Name of important key persons are:

- | | |
|--|------------------------------------|
| 1. Mr. Zaini (Head Desa Pakis). | No HP : 085859778789, 081234600489 |
| 2. Mr. Trianto (Opsinder Afdeling Kahendran) | No HP : 085859326544 |
| 3. Mr. Sutrisno (Head Dusun Cempoko) | No HP : 085859866030 |
| 4. Mr. Satuman (Head RT Kahendran) | N0. HP: 081559963155 |

PICTURES OF
ACTIVITIES



MC Mrs. Rokhani delivered agenda of activity



Mr. Keiji Yoshida (JICA) give speech



Mr. Zaini – Head of Desa Pakis give speech



Mr. M. Rondhi (YPM) give material for introduction of FGD activity



Site Watching in downstream





Site Watching in upstream



Participants are actively on discussion



Activity of FGD



Thank you