

JICA STUDY ON COMPREHENSIVE DISASTER PREVENTION  
AROUND MAYON VOLCANO

IMPLEMENTATION OF PILOT PROJECT IN  
FORECASTING, WARNING AND EVACUATION  
(November 27, 1999)

Introduction

The Japan International Cooperation Agency (JICA) is undertaking a Study on Comprehensive Disaster Prevention Around Mayon Volcano in accordance with the request made by the Government of Philippines (GOP). The objectives of this study are as follow: (a) formulation of a Master Plan for disaster prevention; (b) feasibility study on the priority projects selected in the Master Plan; and (c) technology transfer to the staff of the GOP.

The Master Plan focused on the following plans as effective measures to disaster: (a) structural mitigation plan; (b) resettlement plan; and (c) forecasting, warning and evacuation plan. The Steering Committee and Working Group organized by the GOP to provide direction and coordinate the works of the JICA Study Team accepted the proposed Master Plan at the meeting held in August, 1999 in Manila.

One of the highlights of the study is the conduct of the Pilot a project on forecasting, warning and evacuation in a selected barangay in the Study Area. The Pilot Project's main objectives is to examine the forecasting, warning and evacuation methods proposed in the Master Plan for their effectiveness. The identified issues are to be reflected in the final forecasting, warning and evacuation plan. To undertake the Pilot Project, the following factors were considered: the hazard will be the mud and debris flow and the pilot barangay will be Barangay Mabinit in Legazpi City, an area which is most vulnerable to this type of hazard based on the assessment of the JICA Study Team.

The Pilot Project was implemented on 27 November 1999 with the assistance of the Bicol Small Business Institute Foundation, Inc. (BSBIF), a non-government organization based in Legazpi City. The following agencies played the key roles in the implementation of the Pilot Project: the Albay Provincial Disaster Management Office (PDMO), the Legazpi City Disaster Coordinating Council (CDCC), the Barangay Disaster Coordinating Council

(BDCC), the Office of Civil Defense (OCD), the Department of Education, Culture and Sports (DECS), the Department of Public Works and Highways (DPWH), the City Social Welfare Development Office (CSWDO), the City Health Office (CHO) and the Philippine National Red Cross (PNRC).

One of the outputs of the Pilot Project is the motion-time study that is meant to improve the forecasting, warning and evacuation methods particularly on mud and debris flow. The Pilot Project has also resulted to the preparation of the following documents that will enhance the capability of the concerned agencies and the local people on disaster preparedness: the Barangay Disaster Management Manual, the OCD Mud and Debris Flow Forecasting and Warning System and the comics on Mud and Debris Flow Disaster Response. The latter is an information material designed for easy understanding of the community residents usually affected by this type of hazard.

It is envisioned that through the implementation of the Pilot Project, an effective forecasting, warning and evacuation methods on mud and debris flow will be formulated that will help in protecting human lives from this hazard.

### **III - SUMMARY OF OBSERVATIONS AND ASSESSMENT**

#### **2.1 OBSERVATION REGARDING PRESENT SITUATION OF FORECASTING, WARNING AND EVACUATION**

##### **FORECASTING AND WARNING**

1. Weather forecasting using PAGASA facilities & forecasting equipment is reliable in terms of typhoon, and even just the probability of rainfall.
2. Flood forecasting cannot be done due to the absence of appropriate equipment to use or if available, the equipment is either under repair or non-functional.
3. The present Flood forecasting equipment of OCD is not reliable based from the past experiences, where the Provincial Disaster Management Office (PDMO) had not received any warning information prior to the time of previous floodings. However, if this can be rehabilitated, somehow, it can help forecast floods.
4. The most appropriate and effective agencies to issue warning and forecasting with regards to volcanic eruption is PHIVOLCS, while for typhoon it is PAGASA because:
  - a. They are mandated and authorized to do these functions by virtue of National Policy.
  - b. These agencies have competent personnel who are available 24 hours on a 24-hour shift basis daily, regardless of holidays and non-working days.
  - c. Staff orientation of being service-oriented personnel had been proven
5. No organization is mandated to forecast or warn on hazards from mud and debris flow. Mud and debris flow is hydraulic phenomena which can be handled by a Civil Engineer.
6. Lack of communication facilities to support transmittal of warning informations.

##### **OBSERVATION ON EVACUATION:**

- Evacuation Center using school buildings and other government facilities are available but not enough to support the vulnerable population estimated to be about 30% of the total Provincial Population.
- Evacuation procedures had been established in all municipalities including the City of Legazpi
- Not all utilized school buildings for evacuation are safe from typhoons that carry a maximum strength of at least 250 kilometer/hour.

- Evacuation routes are established, however, these need to be formally documented for inclusion in the local evacuation plan. Some of the roads are unsafe during flooding and mud flows around Mayon Volcano.
- People's attitude towards timely evacuations need reorientation and conscientization. Some do not follow evacuation warning but rather execute their own plan according to their personal judgement of the danger.
- Health and Sanitation facilities at the evacuation centers are not enough to support long-term evacuation.
- School classes are hampered by evacuation activities.
- School authorities do not have enough alternative facilities to use as temporary classrooms, except when tents are made available through donations.

## **2.2 ASSESSMENT OF THE PILOT PROJECT**

The Pilot Project opened the eyes of the agencies involved in forecasting, warning and evacuation, and made them aware that there are still a lot that they can improve from their present practice. The Pilot Project also systematized the warning signals that come from different concerned agencies. They also found out that the telephone is the least effective warning device because bad weather can also render inoperable this equipment. It appears that VHF radios are the most effective means of communication between responding agencies in case of disaster/calamity.

The Pilot Project also strengthened the working relationships between and among concerned agencies. Roles were clarified and delineated during briefings. Responses were well-coordinated and synchronized. The cooperation and collaboration among the responding agencies vastly improved, which fact was acknowledged during the assessment.

The Barangay Captain became aware of the need to listen to early warnings, and to call for a BDCC meeting upon warning of an impending lahar and debris flow. He believed that the Pilot Project helped his constituents realize the need to know what to do in order to act systematically in case the order to evacuate is given. They also realized that the roads they expect to use as exit routes can be impassable, so a request was made to DPWH to improve the road so that they won't be trapped in their barangay.

They also realized that the bells in the Chapel and the school were not enough to warn the residents of Puroks that have farther distances from these buildings. They had to do a house-to-house warning in order to notify all the residents. This allowed them to realize that each purok should have a bell for better warning announcement.

The exercise also showed some weaknesses in the way some workers treated the evacuees. This was pointed out and hopefully the authorities concerned should advice their workers to be more cordial and service-oriented to the victims of calamities so that they don't add to the trauma or anxiety of the unfortunate evacuees.

### **2.3 OPINION ON THE PROPOSED FORECASTING, WARNING AND EVACUATION**

The proposed forecasting, warning and evacuation is commendable, however, using the DPWH as also a source of official warning information which is being proposed as the venue of warning equipment, may have some difficulties. The DPWH is more structure-oriented while the other members of the Disaster Coordinating Councils are people oriented.

It must be noted that the DPWH has no personnel working during the night, holidays and non-working days. If this proposal will be adopted, then DPWH would require at least eight full time personnel to do the warning and monitoring work who should be work and service-oriented. These people will also need technical trainings for the maintenance, effective warning and forecasting system and other related jobs.

Past experiences showed the unpopularity of DPWH in servicing the needs of the evacuees. The toilets and water pumps that were constructed in the evacuation centers were criticized in the local radios. In fact, the anxiety of DECS personnel whenever evacuation is imminent is the lack of toilets and source of potable water. These are perceived to be the responsibility of this agency. There is a call for DPWH to be more pro-active in helping the victims by attending to the infrastructure needs even if there are no calamities so that when disaster strikes, the roads are passable, the evacuation centers have ready toilets and potable water, and a kitchen area is available. Because of the civil engineering technology, DPWH can be a strong partner in monitoring the mud and debris flow.

The proposed technical procedures are similar to the present practices, however, there are new systems that maybe introduced by the proposed project which the local Disaster Coordinating Council need to adjust to. One example is the principle of teamwork where every agency has to contribute its part. The proposed project is expected to strengthen the technical capabilities of local Disaster Coordinating Councils (DCC) especially in terms of Evacuation Management System and Strategy.

### **III - IMPLEMENTATION OF PILOT PROJECT ON FORECASTING, WARNING AND EVACUATION**

#### **3.1 BACKGROUND OF THE PILOT PROJECT**

On November 27, 1999, the residents of Barangay Mabinit underwent the experience of the Pilot Project Implementation. The pilot project focused on the hazards coming from mud and debris flow along the slope of Mayon Volcano.

The purpose of the pilot project was to put into drill the emergency evacuation capability of the Barangay Disaster Coordinating Council (BDCC) and to determine how fast they can mobilize to perform their respective functions when this type of hazard strikes. From the results of this exercise, a better of improved plan for evacuation was drawn.

**Why mud and Debris Flow exercises?** The barangay is prone to flood and lahar and they have not yet undergone a thorough simulation exercise on this type of emergency management although they had undergone actual evacuation. Records show that from time to time, this barangay due to its geographical location, has been experiencing flood and mudflows that continuously threaten the residents.

#### **3.2 BACKGROUND OF MABINIT**

Mabinit is located at the southeastern slope of Mayon Volcano in Legazpi City. The residents in this barangay have been evacuated every time there is mudflow due to heavy rainfall and in times of actual volcanic eruption of Mayon. During the February 2, 1993 Mayon Volcano eruption, several farmers from this barangay died due to pyroclastic flow. No one was hurt though due to mudflow, however, residential houses could be affected which could be the reason for major casualties of residents once they will be caught unaware and unprepared.

#### **3.3 OBJECTIVES OF THE PILOT PROJECT**

The JICA Study Team on the Comprehensive Disaster Prevention Around Mayon Volcano in cooperation with the Bicol Small Business Institute Foundation, Inc. (BSBIFI) conceptualized Pilot Project for implementation in Barangay Mabinit, Legazpi City. The Pilot Project was undertaken to test the forecasting and warning system of the OCD on mud and debris flow. It was also meant to guide the participants on Mud and Debris Flow Evacuation Strategy that they might confront at the slope of Mayon Volcano due to the barangay's geographical location.

The participants were informed of very general objectives and scenario for them to be focused on Mud and Debris Flow Evacuation Strategy. Another purpose of the Pilot Project was also to put into drill the capability of the City Disaster Coordinating Council (CDCC) and Barangay Disaster Coordinating Council (BDCC) concerned in responding to emergency evacuation using their existing local resources in terms of manpower, support equipment and time management.

An evaluation and debriefing among the participating agencies, the barangay officials and the JICA Study Team was conducted right after the activity. An additional assessment was done five days after the simulation exercise.

### **3.4 ORGANIZING THE SIMULATION PILOT PROJECT**

The Pilot project was planned as part of the JICA Study around Mayon Volcano. The duration of the Pilot Project including the debriefing was set for one (1) day. The JICA study team through the BSBI team helped facilitate the activity.

### **3.5 PARTICIPANTS TO THE PILOT PROJECT**

- Members of the CDCC-Legazpi, approximately 30 persons including the medical and dental team.
- Members of the BDCC and residents of Barangay Mabinit, approximately 507 persons.
- Support staffs from the Provincial Disaster Coordinating Council (PDCC), Philippine Atmospheric Geophysical Astronomical Services Administration (PAGASA), Philippine National Red Cross (PNRC), JICA Study Team and BSBI Foundation, Inc.
- Media
- VIPs invited by CDCC, JICA and BSBI, 10 persons.
- Invited observers from selected agencies and other local government units.

### **3.6 ROLES AND RESPONSIBILITIES**

Before the simulation drill, the BSBI team prepared the evacuation requirements with the help of concerned government and non-government personnel. Roles and responsibilities were defined. A number of meetings and informal discussions were held with the experts on disaster response and relief operations. The number of personnel chosen to join the simulation exercise were:

1. Script (Scenario) –
  - a. Roles and Responsibilities – provided by JICA, BSBI, PDCC, CDCC and BDCC
  - b. Time Management
  - c. Equipments Needed
2. Exercise Execution Team (wearing CDCC vest)

- CDCC	- Roleo Battung/Col. Robinson Ortega
- BDCC	- Brgy. Captain Daniel Nuñez
- Relief Team	- Mrs. Marlene Manaya and the CSWDO
- Security Team	- Col. Augusto Marquez
- Warning Team	- OCD/PHIVOLCS/PDCC/PAGASA
- Communication Team	- Cedric Daep
- Medical/Dental Team	- Dr. Modesto Kapuno/Dr. Ma. Criselda Paulino
- Information and Media	- Darlito Perez, Jr.
- Evacuation Camp Team	- Mrs. Nerrisa Cantuba
- Transportation Team	- Engr. Joey Nuñez

3. Exercise Directing Team
  - a. CDCC Command Post
    - Communication and Warning - Cedric Daep, Col. Robinson Ortega, Mr. Roleo Battung, Mr. Rey Añonuevo, Engr. Joey Nuñez and some PNP Officials
  - b. Relief Medical and Evacuation Camp - Dr. Ofelia S. Vega and the BSBIF Staff
  - c. Security and Info/Media/Transportation - BDCC

Other requirements:

- Color-coded ID
- Index Card
- Relief Distribution Card (Optional)
- Transpo (2 vehicles); private jeepney
- Evacuation Centers (school bodg./classrooms)
- Meals for evacuees and actors
- Others (medical, dental, eye and other services)
- VHF Radio Set
- Certificate of Participation

Other tasks:

- Site visits
- Barangay
- Evacuation Center

Evacuation Center : Gogon Elementary School  
 Release : City truck  
 Manual : Barangay–barangay Disaster Management Manual (Evacuation)  
 ROCD – Emergency Response Manual  
 DPWH – Emergency Response manual

Observation and Analysis

Motion-Time Study : Forecasting warning, evacuation, inspection and emergency response

Analysis : Assessment of the proposed forecasting system, warning system, evacuation procedure, accommodation of evacuation center, the procedure of the organization of Disaster Mitigation Team, the procedure to inspect site, the procedure to implement the emergency response and manuals.

### 3.7 TIME TABLE OF THE SCENARIO

ACTIVITY	EXPECTED OUTPUT	TIME	OPR
<b>WARNING LEVEL 1</b>			
<b>Situation: The Buyuan and Mabinit rainfall gauging stations detect a heavy rainfall</b>			
a) Issuance of information on the possibility of heavy rainfall in the area	- PDCC activated	5 minutes	PAGASA
a) Issuance of 1st warning level to CDCC and PDCC	- CDCC and BDCC activated	5 minutes	ROCD
b) Dissemination of the warning to BDCC through VHF radio	- BDCC on stand-by	5 minutes	CDCC
c) Close monitoring of the rainfall fluctuations	- Issuance of appropriate notice determined	60 minutes	ROCD and DPWH
<b>WARNING LEVEL 2</b>			
<b>Situation: Monitoring systems both at the ROCD and the DPWH Region V detect that rainfall reached the critical level</b>			
a) Issuance of 2nd warning level to CDCC and PDCC	- Notice for preparation to evacuate transmitted	5 minutes	ROCD
b) Dissemination of the warning to BDCC	- Required manpower and logistics mobilized to disseminate notice to residents	5 minutes	CDCC
c) Dissemination of the warning to the people by siren blast or church bells radio announcement	- Residents informed of the preparation to evacuate	5 minutes	BDCC PIA
c) Preparation of evacuation kits	- Residents prepared to go to the designated pick-up points	15 minutes	Residents
d) Preparation of the evacuation center to receive evacuees	- Required manpower, rooms and facilities in place	60 minutes	Gogon Elementary School DPWH
e) Sending of warning to the District Engineer	- Disaster Mitigation Team activated to undertake repairs	5 minutes	
f) Investigation of the Pawa-Burabod river at strategic points	- Need for any type of emergency maintenance determined	60 minutes	DPWH
g) Planning of the emergency maintenance of the channel	- Damage control plan formulated	30 minutes	DPWH

ACTIVITY	EXPECTED OUTPUT	TIME	OPR
<b>WARNING LEVEL 3</b>			
<b>Situation: Residents will have to be evacuated to Gogon Elementary School</b>			
a) Issuance of the 3rd and final warning to CDCC and PDCC	- Notice for immediate evacuation transmitted	5 minutes	ROCD
b) Dissemination of the final warning to BDCC	- Required manpower and logistics mobilized to disseminate notice to residents	5 minutes	CDCC
c) Dissemination of the notice to evacuate to the residents through siren blast or church bells and radio announcement	- Residents prepared to go to the pick-up points	5 minutes	BDCC PIA
d) Movement from residences to pick-up points	- Residents informed of assigned vehicles	15 minutes	Residents, BDCC
e) Mobilization of manpower and vehicles	- Required number of manpower and vehicles dispatched to pick-up points	15 minutes	CDCC
f) Organization of medical teams in Barangay Mabinit and in the evacuation center	- Required medical personnel and medical supplies dispatched to the barangay for first aid and emergency treatment on site and at the evacuation center	60 minutes	CHO
g) Transport of evacuees to Gogon Elementary School	- All evacuees brought to the evacuation center according to the prioritization	50 minutes	CDCC BDCC
h) Barangay Mabinit secured	- Security in the area maintained	180 minutes	PNP, BDCC
i) Designation of the evacuees to respective rooms	- All evacuees were registered and given room assignments at the evacuation center	120 minutes	DECS, CSWDO
j) Conduct of session with the evacuees	- Evacuees provided information on disaster management	60 minutes	CSWDO
k) preparation and distribution of the food to the evacuees	- Evacuees given their meals at the evacuation center		CSWDO BSBI
l) Provision of water supply at the evacuation center	- Adequate water supply assured	60 minutes	BFP
m) Maintenance of peace and order at the evacuation center	- Evacuation center secured	240 minutes	PNP

ACTIVITY	EXPECTED OUTPUT	TIME	OPR
n) Dispatch of the emergency response team to the site	- Damage control plan implemented	40 minutes	DPWH
o) Transport of the medical team from Barangay Mabinit to the city	- Medical team returned to normal duty	50 minutes	CHO
<b>NORMAL ACTIVITY</b>			
<b>Situation: The rainfall subsides</b>			
a) Issuance of notice to CDCC and PDCC that the danger is over	- Notice to return to the barangay recommended	5 minutes	ROCD
b) Announcement to the BDCC that the situation is back to normal and the evacuees can return home.	- Notice to return to the barangay is issued	5 minutes	CDCC
c) Dissemination of the information to return to the barangay to the residents	- Residents prepared to go home	5 minutes	BDCC PIA
d) Mobilization of manpower and transportation facilities	- Total number of manpower and vehicles dispatched	15 minutes	CDCC
e) Movement from the evacuation center to the vehicles	- Residents get into the assigned vehicle	15 minutes	CDCC, BDCC, Residents
f) Transport of residents to Barangay Mabinit	- All residents assisted in their return to the barangay	50 minutes	CDCC, BDCC
g) Transport of the medical team at the evacuation center back to the CHO	- Medical team resumed normal duty	10 minutes	CHO
h) Preparation of report on the emergency response	- Improvement plan recommended	15 minutes	DPWH

#### **IV - HIGHLIGHTS OF THE 1<sup>ST</sup> WORKSHOP**

The 1st Workshop was held on November 24, 1999, at the Brgy. Chapel in Barangay Mabinit, Legazpi City, with a view to inform the people in Barangay Mabinit about the mechanism of mud and debris disaster, and the evacuation system proposed in the JICA Master Plan. There were 126 Philippine participants from the following organizations:

- Government Agencies (7 Gas with 19 participants)
- Local Government Units (1 LGU with 100 participants)
- Non-Government Organizations (2 NGOs with 7 participants)

The major activities in this workshop included:

- The Presentation of Barangay Disaster Preparedness Plan
- The Presentation of Highlights of the Pilot Project
- The Identification of Roles and Responsibilities

#### **V - HIGHLIGHTS OF THE 2<sup>ND</sup> WORKSHOP**

The 2nd workshop was held on December 2, 1999 at the Conference Hall of Bicol Small Business Institute Foundation, Inc., Legazpi City, subsequent to the implementation of the Pilot Project on November 27, 1999. This workshop was intended to assess the results of the implemented Pilot Project and upgrade the disaster coping capacity of the community and its people. There were 15 Philippine participants from the following organizations:

- Government Agencies (7 Gas with 7 participants)
- Local Government Units (1 LGU with 4 participants)
- Non-Government Organizations (2 NGOs with 3 participants)

The main issues discussed were:

- Time and Motion and Study
- Community Experiences
- Problems and Constraints
- Suggestions and Recommendations

STUDY ON COMPREHENSIVE DISASTER PREVENTION  
AROUND MAYON VOLCANO

Pilot Project Implementation  
2nd Workshop (Part 2)  
December 2, 1999

The workshop was attended by 16 representatives coming from both the non-government and government organizations who participated in the evacuation drill of Barangay Mabinit which was conducted last November 27, 1999.

Observations, community experiences, problems/constraints and recommendations and suggestions were discussed in this meeting.

The following are the results of what were discussed:

*A. Time and Motion*

It was observed that the time spent for the evacuation drill was shortened. The drill was expected to last 4 hours but it only took less than 2 hours to complete it. It was attributed to the following reasons:

1. The number of participants who participated was approximately 507. Medical Team also attended to the sick in the barangay.
2. The sick and very old residents were discouraged from participating.
3. Adequate communication facilities (radio) was available from PDCC.
4. Both the residents and the members of the Barangay Disaster Coordinating Council (BDCC) cooperated and gave their full support.

*B. Community Experiences*

The Barangay Captain shared that from 6:00 A.M., he was already outside of his house together with the members of the BDCC. After a few minutes, residents had also started to come out from their houses to prepare for the evacuation. While giving instructions, the JICA Team arrived followed by the Medical Team. People who would like to seek medical help were sent to where the medical check-up was being conducted. When the warning was announced, somebody was sent to ring the bell to alert the people. Those living in the farthest area were informed, through house to house visit, by the members of the Barangay Tanod. Those who will be evacuated were at the pickup points, which were just along the roads, to wait for the arrival of the trucks. While waiting, people got wet because of the continuous pouring of rains. Some were accommodated in the chapel. In spite of this condition, the residents took the exercise seriously. They even brought their small children with them. Others brought drinking water.

The arrival of the first truck was considered by the Barangay Captain as the signal to evacuate. He ordered his constituents to board the truck. Old people had difficulty in boarding the truck because it was too high for them. Three trucks were utilized to transport the evacuees. The last group to leave the place was composed of

the Barangay Captain and the members of the Barangay Council and some members of BDCC. The other members accompanied the first group.

The Department of Public and Works and Highways sent a truck to the evacuation center. However, the driver did not know the way to Mabinit. Dr. Vega climbed into the truck. However, after passing through the overflowed Kilicao spillway, the truck became air-locked, so Dr. Vega became the first evacuation drill victim. She was rescued by a passing ambulance used by Mr. Cedric Daep of PDCC who was monitoring the entire proceedings. Ultimately the truck was repaired and able to participate in the drill.

On the way to the Evacuation Center, the trucks had difficulty in passing through the rough and one-lane narrow road. The Kilicao spillway was overflowed. There was a certain point wherein the road was very bad that caused the overloaded truck to almost lose its balance. But then, the passengers were all safe upon arrival at the Evacuation Center.

At the Evacuation Center, majority of the residents claimed that they were treated well. Family heads were requested to register. There was an assigned Social Worker for each purok to assist locate, from the master list, the names of those who were registering. Twice, the evacuees were asked to form a line to claim the food distributed (snacks and lunch). Distribution of food was done by puroks (Purok 1, Purok 2, and so on), and everyone listed was required to be present, otherwise no food was released. However, everybody was able to eat.

There were evacuees, however, who complained about the hard treatment of a social worker who was impatient and shouted at some evacuees. Because of this, the Barangay Captain asked for understanding of the kind of behavior that his constituents showed. He explained that since these people are in an abnormal situation, the workers should try not to lose their patience since they are the ones who are in normal condition.

When the order to return to the barangay was announced, the Barangay Council and the BDCC members directed their constituents to prepare to leave the area. The residents boarded the trucks and were on their way back to Mabinit. The Barangay Captain and some members of the Council were the last to leave the Evacuation Center. They carried with them the mats and water jugs that were donated for them. Since not all could be given, they raffled this off to lucky members when they went home.

To evaluate the result, the Barangay Captain said that everything had gone well. No serious problems were encountered and that to his assessment the exercise had also helped his constituents to know what to do at the time of disaster especially in evacuating. Although his heart broke, seeing his constituents go through the difficulties of participating in the drill, like getting wet under the rain and the discomfort of being transported packed in a dump truck and standing at that he believed that all these are not futile exercises because his residents will be benefited by the experience when the actual situation comes.

### *C. Problems and Constraintss*

The following problems/constraints were identified:

1. No communication facilities such as VHF radios in real scenario.
2. The trucks used were not fit for old people even if stairs were provided.
3. Trucks had no roof / not covered.
4. Vehicle from DPWH was not in good running condition.
5. Poor road condition (rough and narrow). In fact the exit road was washed out.
6. Trucks were overloaded. In actual situation, the evacuees would need more room for necessary personal possessions.
7. The DPWH drivers was not familiar of the route going to the barangay.
8. Aside from the chapel, there is no safe place or building where the residents can seek shelter while waiting for the trucks to arrive.
9. Very low sound of the bell used, so the distance covered by the signal was not adequate.
10. Delayed distribution of foods due to process that had to be undergone.
11. Not enough rooms in the Evacuation Center.
12. Lack of transpo support from the government.

### *D. Suggestions and Recommendations*

Based from the identified problems, the following were the suggestions and recommendations of the group:

1. Provide the Barangay Captain and the truck drivers with radios for a close monitoring of the situation,.
2. Provide strong ladder for the trucks.
3. Provide cover for the trucks.
4. Use 6x6 trucks (military).
5. Maintain standby auto mechanics, support vehicle with towing capability.
6. Improve road condition or if possible finish the concreting of the Kilicao and Mabinit road.
7. CDCC should provide timely/early warning to avoid overloading of trucks.
8. Assign drivers who are familiar of the area.
9. DPWH should conduct an inspection trip of roads and bridges to know the safest route to take.
10. BDCC should provide the CDCC a report on the situation of their barangay since they are the first to know of the abnormalities in the area.
11. Create a monitoring system through the Comprehensive Disaster Information System in the WEBB Saver.
12. Provide community based trainings on Disaster Management.
13. All Puroks should have their own bell.
14. Pass a legislation that requires 24 hours curfew after the evacuation activities.
15. Strengthen the BDCC.
16. Come up with an Economic Development Plan
17. Conduct Skills Inventory of the evacuees to recommend the appropriate livelihood activities.
18. Introduce livelihood activities in the Evacuation Center so that the evacuees will not depend on the relief assistance.

19. BDCC should develop a Comprehensive Barangay Disaster management Plan.
20. DECS should take charge in the listing of the names of the evacuees while at the evacuation center.
21. Give a training on work ethics to social workers who help the evacuees so that they will be more cordial to the victims.
22. Timely warning and Evacuation
23. Use barangay capabilities in the trainings for disaster preparedness and response.
24. Assign one (1) vehicle via Kilicao to avoid intervention by other barangays.
25. People orientation to DCC support agencies for well-organized operations.
26. Consider Plan A, B & C on evacuation route.