

Preparing the Rural Poor *for* Disaster



Department of Agriculture
AGRICULTURAL TRAINING INSTITUTE

CONTENTS

EXECUTIVE SUMMARY	1
INTRODUCTION	
Background of the Study	3
Objectives of the Study	4
METHODOLOGY	
Selection of study sites	4
Selection of respondents	4
Data Collection	4
Data Analysis	4
RESULTS AND DISCUSSION	
Respondents socio-demographic characteristics	5
Hazards faced by community people	6
Respondents information needs about disaster and preferred information sources	8
Strategies in preparing for disaster	12
Levels of preparedness in dealing with disasters	12
Willingness to evacuate during disasters	16
Places identified by respondents as possible evacuation centers	17
Latest hazard experienced, actions done and the consequences	17
CONCLUSIONS	19
RECOMMENDATIONS	20
REFERENCES	21

EXECUTIVE SUMMARY



This report presents the results of the study entitled Preparing the Rural Poor for Disaster conducted in ten (10) pre-identified most vulnerable barangays of Baybay City. Data were gathered from 330 residents who served as respondents. The study aimed to: 1) identify the hazards faced by the community people; 2) find out the community people's information needs about disaster and their sources and preferred sources of information; 3) identify the strategies used by the community in dealing with disasters; and 4) determine the people's and the government's preparedness to deal with disasters.

A great majority of the respondents were female (75%) and married (79%). More than half (57%) earned their income from farming. A larger percentage of them (36%) attained the educational level between Grades I to VI.

The respondents cited various hazards that they encountered in their communities. Among these, typhoon was ranked number one and most often encountered by the respondents. This was followed by flood, landslide, earthquake, drought, insect infestation that destroys their crops, malnutrition and others. Nearly two-thirds (61.2%) of the respondents rated their communities as highly vulnerable to typhoon, more than half (57%) perceived that their communities are highly vulnerable to flood, nearly one-third (31.5%) considered their barangays as highly vulnerable to landslide, and nearly one-fourth (23.3%) perceived their communities as highly vulnerable to drought.

EXECUTIVE SUMMARY

According to the respondents, the people in their community experience several problems after a hazard event and during the conduct of recovery efforts. Among the problems, food and water supply shortage ranked first. Next to food and water shortage are problems on agricultural losses, flooding of the area, health threats, power interruption, environmental degradation which consequently caused landslides, inaccessible roads and highways, slow government support especially if the barangays are located in remote areas, displacement of people whose houses were destroyed, direct or indirect injuries, and loss of lives.

The local people have several information sources about disasters. Among the local sources of information, the Barangay DRRMO Officials were considered by the respondents as first in rank since they are the main sources of latest updates about hazardous events. They were followed by the City DRRM officials, DepEd officials, and the Chapel/Church officials. In addition to the local information sources, the respondents also identified some national agencies as among their sources of information about incoming disasters. Among these information sources, PAGASA ranked first. It was followed by the Department of Social Welfare and Development (DSWD), PHIVOLCS, National Disaster Risk Reduction Management Center (NDRRMC), Department of Transportation and Communication (DOTC), Philippine Information Agency (PIA) and CAAP.

Nearly half of the respondents (46%) believed that they are prepared to deal with disasters. More than a tenth (13%) said they are highly prepared, while nearly one-third (32%) believed they are moderately prepared. When

asked how prepared was the government in dealing with the past disasters, more than half (54%) of the respondents answered it was prepared, nearly one-fourth (22%) said it was moderately prepared, and 11% said it was excellently prepared.

Almost all of the respondents (96.4%) revealed that they prepare for disasters by storing food, medicine, water and other basic needs. A very high percentage of respondents (94.8%) also revealed that they wrap their belongings with water-proof materials to keep them from getting wet. Nine out of ten respondents (90.3%) said they go to evacuation centers, while nearly two-thirds (61%) tied their houses with rope or put a car tire on the roof before the disaster. More than 50% said they trim trees around their houses.

The respondents gave multiple responses when asked about places that can possibly be used as evacuation centers. The commonly identified places include concrete houses (70.61%), multi-purpose hall/convention hall (49.7%), churches (49.09%), public recreation centers (27%), private houses (16.06%) and public schools (13.64%).

Results of this study generally showed that the community residents with low income are more vulnerable to hazards because they are less able to cope effectively with the damages to their fragile livelihoods. They are more likely to experience larger and more prolonged impacts due to their limited physical and financial assets, as well as their limited social and political connections. Thus, the government and other concerned agencies should exert efforts to attend to the needs of this highly vulnerable group of people in hazard-prone communities.

BACKGROUND

The Philippines is one of the top disaster risk-prone countries in the world. Based on the World Risk Index developed and calculated by Prof. Birkmann and Dr. Welle from the University of Stuttgart, the Philippines ranks third in terms of disaster risk among the 171 countries covered by the World Risk Index 2015 (Birkman & Welle, 2016). The risks faced by vulnerable countries like the Philippines have great chances of worsening because according to Grasso (2012), the occurrence of natural calamities has become more frequent in the recent years because of climate change.

Eastern Visayas is one of the most vulnerable regions in the Philippines. It frequently experiences natural disasters due to its geographical location. The region faces the Pacific Ocean and is part of the Pacific Ring of Fire.

In November 2013, Eastern Visayas was severely affected by Typhoon Haiyan (locally known as typhoon Yolanda) which had been recorded to be one of the deadliest natural disasters in history with its 600 km diameter area of influence, maximum sustained winds reaching 315 kph, and gustiness of up to 379 kph (Aquila, 2013). With its very strong winds, Haiyan caused a powerful storm surge which resulted to massive destruction including 6,190 people dead, 1,785 missing, 28,626 injured, and billions worth of properties damaged (Lagmay, 2014).

The super typhoon took away the livelihood of people, and left multiple cities with homeless citizens.



It brought down quite a number of already poor provinces to a deeper economic recess, pushing the region to humongous poverty margin and increasing its susceptibility to incoming disasters.

Considering the lessons learned from the previous calamities, the Agricultural Training Institute conducted a study on “Preparing the Rural Poor for Disaster” in hazard-prone communities in Baybay City, Leyte. The study intended to gather baseline information that could serve as bases in crafting sets of recommendations for an effective disaster preparedness education for the vulnerable population in rural communities. It included a survey and focus group discussion to acquire both quantitative and qualitative data that are both crucial in determining the problems that hindered the effective implementation of the previous efforts to protect citizens from natural calamities.

OBJECTIVES

This study generally aimed to determine the rural poor's susceptibility to natural calamities, capacity to be resilient, and preparedness in times of disaster. Specifically, it aimed to:

- Identify hazards faced by community people;
- Find out the community people's information needs about disaster and their sources and preferred sources of information;
- Identify the strategies used by the community in dealing with disasters; and
- Determine the people's and the government's preparedness to deal with disasters.

METHODOLOGY

Selection of study sites

Ten (10) communities in Baybay City, Leyte that were considered hazard-prone were selected as the sites for this study. These communities include the barangays of Amguhan, Villa Mag-aso, Pomponan, Balao, Alta Vista, Villa Solidaridad, Kagumay, Ambacan, Sabang and Mailhi. The classification of these barangays as hazard-prone was based on the latest impact assessment of the *MGB Rapid Field Assessment of Landslide Prone Barangays of Leyte thru the Office of the Civil Defense*. These ten (10) barangays had high to moderate susceptibility ratings for landslide and flood.

Selection of respondents

A total of 330 residents of the 10 selected communities who were considered poor and most vulnerable to hazards were randomly chosen as respondents of the study. The number of

respondents was computed using the Sloven's formula.

Data collection

Data were collected through a survey with the 330 selected respondents. To supplement the information gathered from the survey, a Focus Group Discussions (FGD) with 10 participants was also conducted.

For the survey, a questionnaire was used to facilitate data gathering. This questionnaire had three parts: (1) Respondent's socio-demographic characteristics; (b) Respondents' knowledge about disaster risks, their responses to disaster risks and their level of preparedness to deal with disasters; and (c) winding up questions.

For the FGD, an FGD Guide was used to facilitate the discussion. The instrument was divided into themes which correspond to the sections in the questionnaire.

To make sure that all information covered in the discussion could be captured, the research staff sought permission from the FGD participants to record the discussion. The recorded discussion was later transcribed and encoded as a word document.

Data Analysis

Quantitative data from the survey were analysed using descriptive statistics including frequency counts, percentages and standard deviation. Spearman's rank order correlation was used to determine relationships among variables. On the other hand, data from the FGDs were subjected to thematic analysis and presented using narrative descriptions.

RESULTS AND DISCUSSION

Respondents' socio-demographic characteristics

Distribution of respondents by barangay

Of the 330 respondents, the highest percentage (18.2%) came from Brgy. Sabang where the pilot study was conducted (Fig. 1). The rest of the nine study sites had the same percentage (9.1%) of respondents.

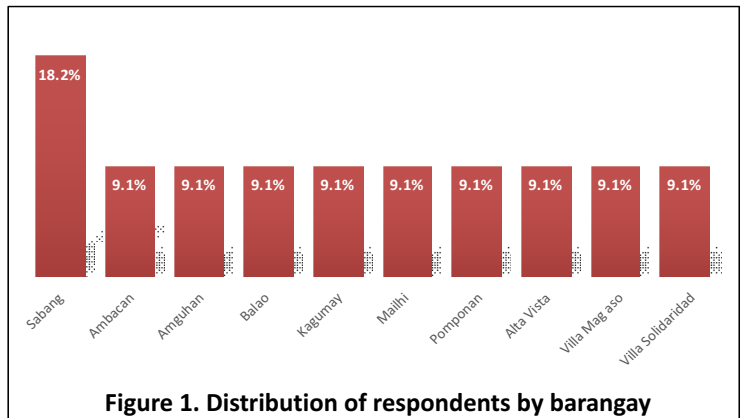


Figure 1. Distribution of respondents by barangay

Distribution of respondents by sex and civil status

Three-fourths (75%) of the respondents were female and the remaining (25%) were male (Fig. 2). A great majority (79%) were married and 10% were single (Fig. 3). The rest were widows/widowers (7.6%) and separated (2.7%).

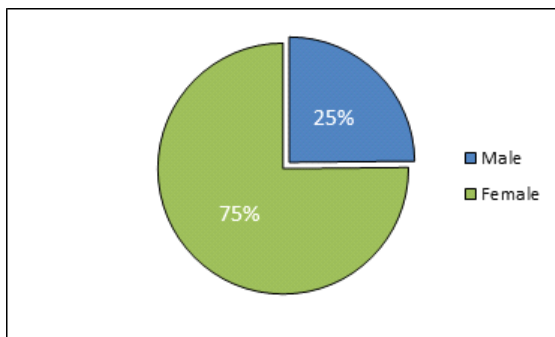


Figure 2. Distribution of respondents by sex

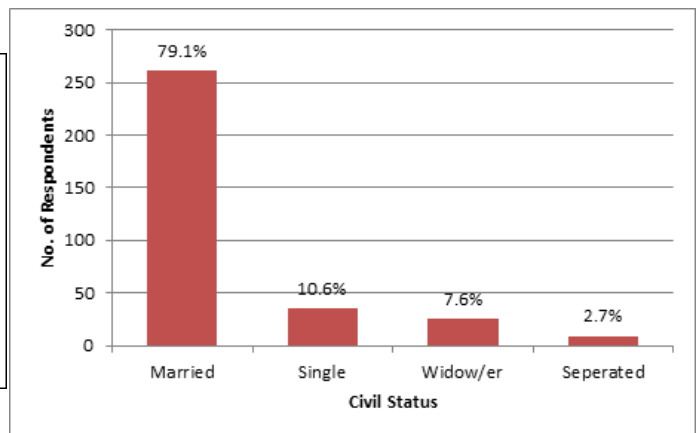


Figure 3. Distribution of respondents by civil status

Distribution of respondents by educational attainment

The highest percentage of the respondents (36.1%) had elementary level of education (Grades I – VI). About one-fifth (19.1%) were elementary graduates, nearly one-fifth (18.2%) were high school graduates, and 16.4% reached high school level (first to fourth year high school). There were very few respondents (3%) who were not able to attend formal education. There were also few who were able to finish a college degree (1.2%), reached college level, and pursued some vocational courses (Fig. 4).

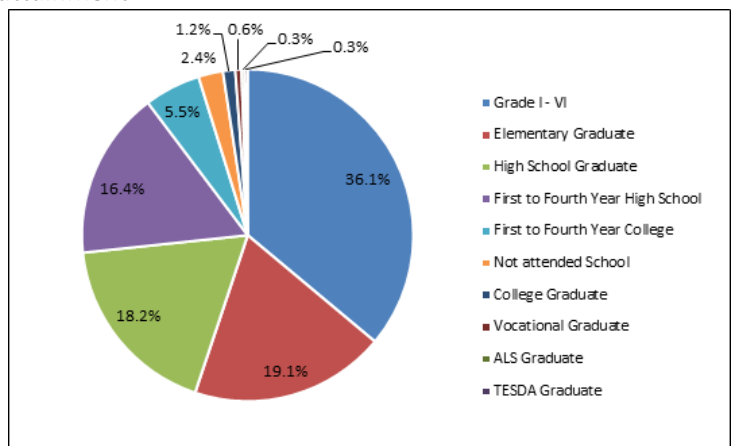


Figure 4. Distribution of respondents by highest educational attainment

Distribution of respondents by sources of income

More than half (57%) of the respondents earned their income from farming (Fig. 5). Some earned income from service jobs (15.5%), operating sari-sari stores (4.2%), vending (3.3%), serving as hired labor (1.5%), fishing (1.5%), and from other activities as shown in Figure 5. The average monthly income of the respondents at the time of the study was ₱3,800 and the average number of family members is 4.39, or 4 members in every family (Table 1).

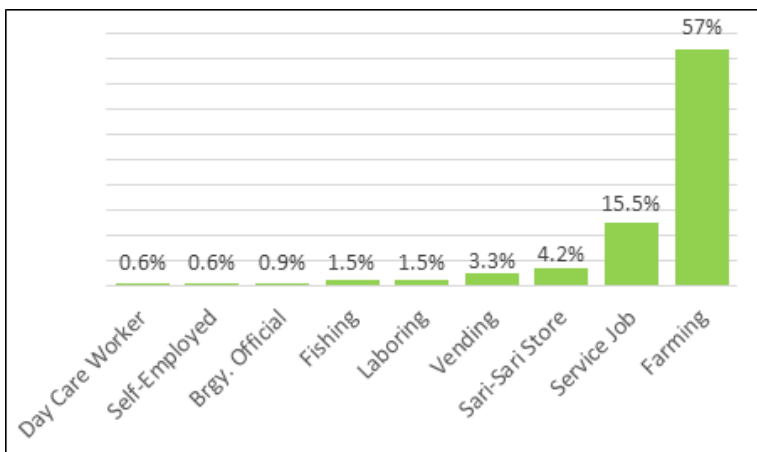


Figure 5 . Distribution of respondents by source of income

Table 1. Respondents' average monthly income and number of family members

Variable	Value
Average monthly income	₱3,800.00
Average number of family members	4.39

Hazards faced by community people

Hazards commonly encountered by the respondents

The respondents cited various hazards that they encountered in their communities (Table 2). Among these, typhoon was ranked number one and most often encountered by the respondents. This was followed by flood, landslide, earthquake, drought, insect infestation that destroys their crops, malnutrition and others. The complete list of the hazards identified by the respondents is shown in Table 2.

Table 2. Hazards experienced by the respondents in their communities

Hazard	Mean Rank	Final Rank
Typhoon	2.01	1
Flood	4.42	2
Landslide	5.39	3
Earthquake	6.00	4
Drought	6.47	5
Insect Infestation	9.21	6
Malnutrition	9.58	7
Dengue	9.70	8
Violence, War, & Conflict	9.66	9
Accidents	9.85	10
Fire	10.84	11
Volcanic Eruption	12.71	12
HIV/AIDS	12.94	13

Perceived vulnerability of the community to hazard events

The respondents' perception on the vulnerability of their barangays to various hazard events was measured using a three-point scale as follows: 3 = high, 2 = moderate and 1 = low. Results (Fig. 6) showed that nearly two-thirds (61.2%) of the respondents rated their communities as highly vulnerable to typhoon, more than half (57%) perceived that their communities are highly vulnerable to flood, nearly one-third (31.5%) considered their barangays as highly vulnerable to landslide, and nearly one-fourth (23.3%) perceived their communities as highly vulnerable to drought. More information about the respondents' perceptions of the vulnerability of their communities to the various forms of hazards are shown in Figure 6 and Table 3.

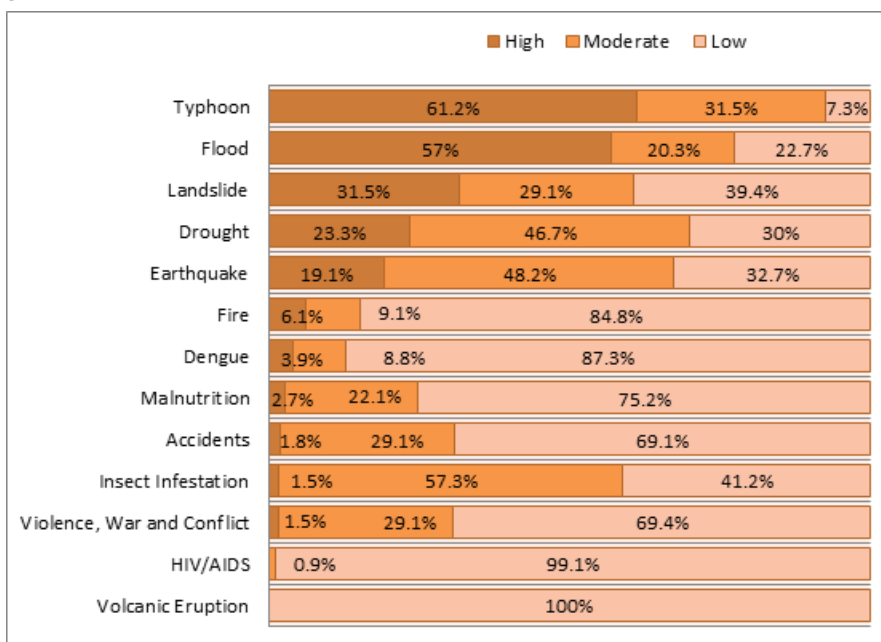


Figure 6. Percentage distribution of respondents according to their perceptions as to the degree of vulnerability of their communities to hazard events

Table 3. Respondents' perceptions on the degree of vulnerability of their communities to hazard events

HAZARDS	PERCEIVED VULNERABILITY TO HAZARDS						
	Mean Rank	High		Moderate		Low	
		Number	%	Number	%	Number	%
Typhoon	1.54	202	61.2	104	31.5	24	7.3
Flood	1.66	188	57.0	67	20.3	75	22.7
Landslide	1.98	104	31.5	96	29.1	130	39.4
Drought	2.07	77	23.3	154	46.7	99	30.0
Earthquake	2.14	63	19.1	159	48.2	108	32.7
Insect Infestation	2.40	5	1.5	189	57.3	136	41.2
Accidents	2.67	6	1.8	96	29.1	228	69.1
Violence, War and Conflict	2.68	5	1.5	96	29.1	229	69.4
Malnutrition	2.72	9	2.7	73	22.1	248	75.2
Fire	2.79	20	6.1	30	9.1	280	84.8
Dengue	2.83	13	3.9	29	8.8	288	87.3
HIV/AIDS	2.99	0	0	3	0.9	327	99.1
Volcanic Eruption	3.00	0	0	0	0	330	100

Problems experienced by the respondents after a hazard event

According to the respondents, the people in their community experience several problems after a hazard event and during the conduct of recovery efforts (Table 4). Among the problems, food and water supply shortage ranked first. As explained by some respondents, food shortage is experienced by families who do not have the means to buy food in volume. Also, in the barangays, most household store water in small containers, hence the shortage. Next to food and water shortage are problems on agricultural losses, flooding of the area, health threats, power interruption, environmental degradation which consequently caused landslides, inaccessible roads and highways, slow government support especially if the barangays are located in remote areas, displacement of people whose houses were destroyed, direct or indirect injuries, and loss of lives.

Table 4. Common problems experienced by the respondents after a hazard event and their ranks

Common Problems	Mean Rank	Final Rank
Food and water supply shortage	1.97	1
Agricultural losses	3.95	2
Flooding of the area	5.53	3
Health threats	6.40	4
Power Interruption	6.47	5
Environmental Degradation	7.24	6
Inaccessible road & highways	7.70	7
Slow government support	7.74	8
Displacement	8.02	9
Direct or indirect injuries	9.76	10
Loss of lives	10.73	11

Respondents' information needs about disaster and preferred information sources

Respondents were asked what they would have wanted to know about disasters. Results (Fig. 7) showed that a great majority of the respondents (91.82%) were interested to learn about the causes, effects, and the impacts of disasters. More than four-fifths of the respondents (89.7%) were also interested to know about disaster management, specifically about preparedness, response, recovery and mitigation measures. Likewise, more than four-fifths (88%) of the respondents wanted to understand about the nature of hazards, how vulnerable they are to these hazards, what are disasters and their risks, and what are the existing capacities of their communities to become resilient to disasters.

The above information about the respondents' information needs can be used by the Disaster Risk Reduction Management Office (DRRMO) of Baybay City to design communication programs that will enhance people's full understanding of the impacts of hazard events or disasters on the lives of the community people. The communication program can help community residents to be more prepared and resilient to the impacts of disasters.

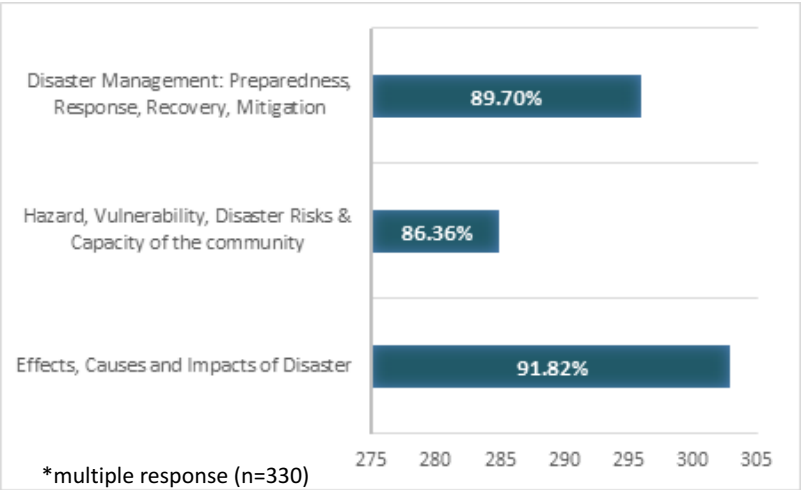


Figure 7. Respondents’ information needs about disaster

Sources of information about impending disasters

The key to reducing the negative impacts of natural disasters is educating the public about disaster risk mitigation measures. To determine the communication media that can be used to create public awareness about these measures, the respondents were asked about their common sources of information. Results showed that among the local sources of information about upcoming disasters, the Barangay DRRMO Officials were considered by the respondents as first in rank since they are the main sources of latest updates about hazardous events (Table 5). They were followed by the City DRRM officials, DepEd officials, and the Chapel/Church officials.

Table 5. Respondents’ local sources of information about impending disasters

Local Agencies	Mean Rank	Final Rank
Barangay DRRMO Officials	1.47	1
City DRRMO Officials	2.10	2
Department of Education (DepEd) Officials	3.43	3
Chapel/ Church Officials	3.56	4

In addition to the local information sources, the respondents also identified some national agencies as among their sources of information about incoming disasters (Table 6). Among these information sources, PAGASA ranked first. It was followed by the Department of Social Welfare and Development (DSWD), PHIVOLCS, National Disaster Risk Reduction Management Center (NDRRMC), Department of Transportation and Communication (DOTC), Philippine Information Agency (PIA) and CAAP.

Table 6. National agencies considered by the respondents as their sources of information about impending disasters

National	Mean Rank	Final Rank
PAGASA	1.72	1
DSWD	3.71	2
PHIVOLCS	4.31	3
NDRRMC	4.79	4
DOTC	5.80	5
PIA	6.75	6
CAAP	6.79	7

Respondents' preferred sources of information

Tables 7 and 8 show the respondents' preferred sources of information about disasters. Among the local sources, the Barangay DRRMO officials ranked first as the most preferred source of information. They were followed by the City DRRMO officials (1.95), DepEd officials (3.43), and chapel or church officials (3.54).

Table 7. Respondents' preferred local sources of information about incoming disasters

Local Agencies	Mean Rank	Rank
Barangay DRRMO Officials	1.49	1
City DRRMO Officials	1.95	2
DepEd Officials	3.43	3
Chapel/ Church Officials	3.54	4

For national agencies, Table 8 shows that PAGASA was the respondents' most preferred source of information about incoming disasters. It was followed by the Department of Social Welfare and Development (DSWD), PHIVOLCS, NDRRMC, DOTC, PIA and CAAP.

Table 8. National agencies considered by the respondents as their preferred sources of information about impending disasters

National Agencies	Mean Rank	Rank
PAGASA	1.33	1
DSWD	3.51	2
PHIVOLCS	4.30	3
NDRRMC	4.37	4
DOTC	5.43	5
PIA	6.75	6
CAAP	6.85	7

Mass media as sources of information about disasters

With the rise of technology, the mass media have become very important sources of public information about natural disasters and hazardous events. Among the mass media, television was rated by the highest percentage of respondents (48.2%) as their most common source of news about incoming disasters. It was followed by radio (42.6%), internet (4.7 %), and newspaper (4.5%).

Table 9. Mass media identified by the respondents as their sources of information about incoming disasters

Source of Information	% of Respondents	Mean Rank	Final Rank
Television	48.2	1.94	1
Radio	42.6	1.58	2
Internet	4.7	3.85	3
Newspaper	4.5	3.86	4
TOTAL	100		

Best ways to communicate about disasters as perceived by the respondents

Local means of communication have been considered as effective to disseminate information about impending disasters, ensure public safety, and minimize economic losses. A great majority of the respondents agreed that the use of *bandilyo* (93%), a system of information dissemination done by the barangay officials using a megaphone, and barangay assembly (92.4%) were the best ways to notify the barangay people about impending disasters (Fig. 8). The other respondents also considered announcements in the chapel/church (72.7%) and letters (55.8%) as effective in creating local people's awareness about incoming calamities.

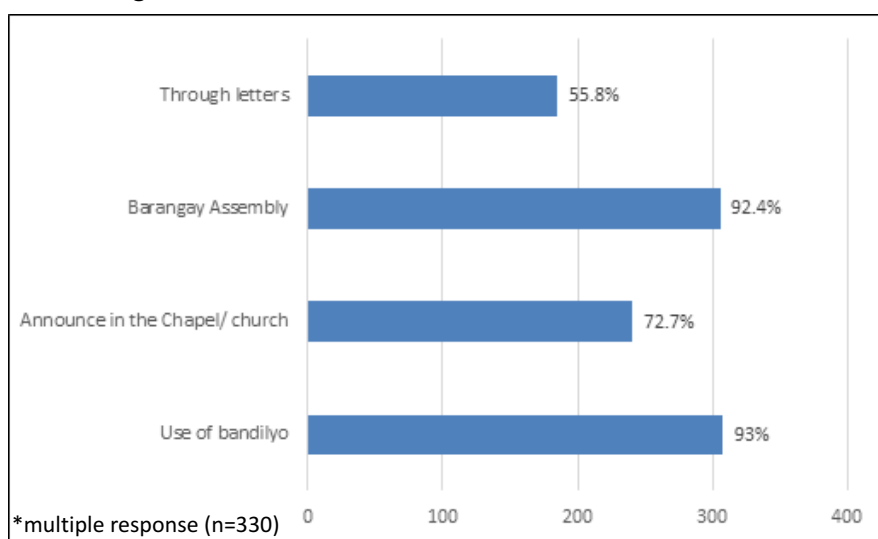


Figure 8. Local means of communication considered by the respondents as the best ways to inform barangay people about incoming disasters

Strategies in preparing for disasters

Almost all of the respondents (96.4%) revealed that they prepare for disasters by storing food, medicine, water and other basic needs. A very high percentage of respondents (94.8%) also revealed that they wrap their belongings with water-proof materials to keep them from getting wet. Nine out of ten respondents (90.3%) said they go to evacuation centers, while nearly two-thirds (61%) tied their houses with rope or put a car tire on the roof before the disaster. More than 50% said they trim trees around their houses.

Table 10. Respondents' strategies in preparing for disasters

Strategies	Frequency	Percent
Store food, medicines, water, etc. (basic needs)	318	96.4
Keep the household belongings from being wet	313	94.8
Go to the evacuation center	298	90.3
Tie the house with a rope or putting a tire on the roof	201	60.9
Trim trees	186	56.4

Level of preparedness in dealing with disasters

Community people's level of preparedness in dealing with disasters

Nearly half of the respondents (46%) believed that they are prepared to deal with disasters. More than a tenth (13%) said they are highly prepared, while nearly one-third (32%) believed they are moderately prepared (Fig. 9). Only very few respondents said they feel unprepared (6%) and totally unprepared (3%) to deal with disasters.

Nearly half (47%) of the respondents who said they are prepared in dealing with disasters explained that when they receive information about incoming calamities, they immediately keep their things safe, store food, and go to a safer place (Table 11). On the other hand, those who claimed to be unprepared said it is because they have financial problems (6.06%) and they are unable to receive news and information regarding disasters (5.45%).

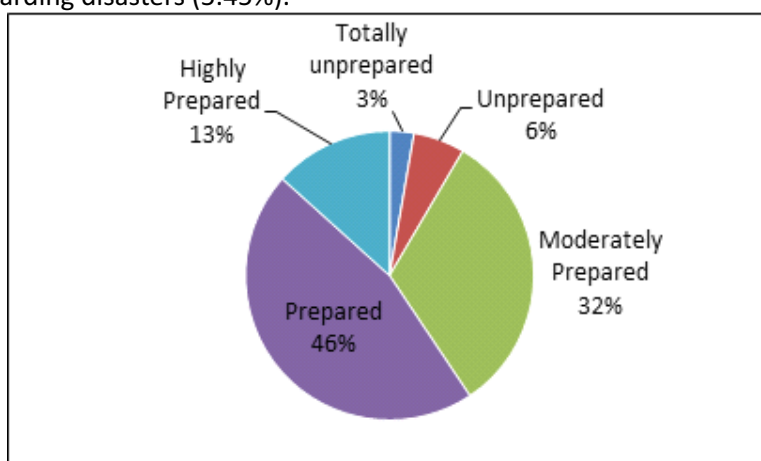


Figure 9. Percentage distribution of respondents according to their perceived level of preparedness in dealing with disasters

Table 11. Respondents' reasons behind their perceived level of preparedness

Reasons	Frequency	Percent
A. Reasons for feeling prepared		
When we hear news about incoming disaster, we immediately keep the things safe, store food and evacuate to a safer place	155	47.0
I am prepared because I am informed through the local barangay and news on TV or radio	37	11.2
Pray to God always for our safety. I have faith and trust in God because He is the only one who knows what will happen in the future	33	10.0
We always prepare to avoid greater impact/effect of the hazards and disaster	20	6.1
We evacuate immediately or before the onset of a hazard and disaster	12	3.6
I already learned from the previous super typhoon Yolanda so I am preparing	4	1.2
I want to ensure that my family will be safe	4	1.2
B. Reasons for feeling unprepared		
Unprepared due to financial problems	20	6.1
I am not prepared because of the inability to receive news and information regarding disaster	18	5.5
We cannot predict if the typhoon or any upcoming disaster is strong or not	12	3.6
I am not informed if there is an upcoming hazard and disaster	6	1.8
We will only evacuate if needed or during the onset of hazard and disaster	3	.9
I am ill and not capable to prepare if disasters will occur	3	.9
Not totally prepared because disasters happen anytime	3	.9
TOTAL	330	100

Government's level of preparedness in dealing with disasters

When asked how prepared was the government in dealing with the past disasters, more than half (54%) of the respondents answered it was prepared, nearly one-fourth (22%) said it was moderately prepared, and 11% said it was excellently prepared (Fig. 10). There were few respondents, however, who indicated that in the past disasters that happened, the government was unprepared (12%) and totally unprepared (1%).

The respondents who indicated that the government was prepared most of the time reasoned out that there was immediate support in times of calamities (57%) (Table 12). Those who have indicated that the government was not prepared, figured that the government does not give support and information when there are hazards and disasters (4.8%). Some respondents (14.2%) explained that while some said that the national government provides food assistance and relief aid to the victims of a disaster, some of the local officials impede the support, they disperse it late and distribute it only to their political members.

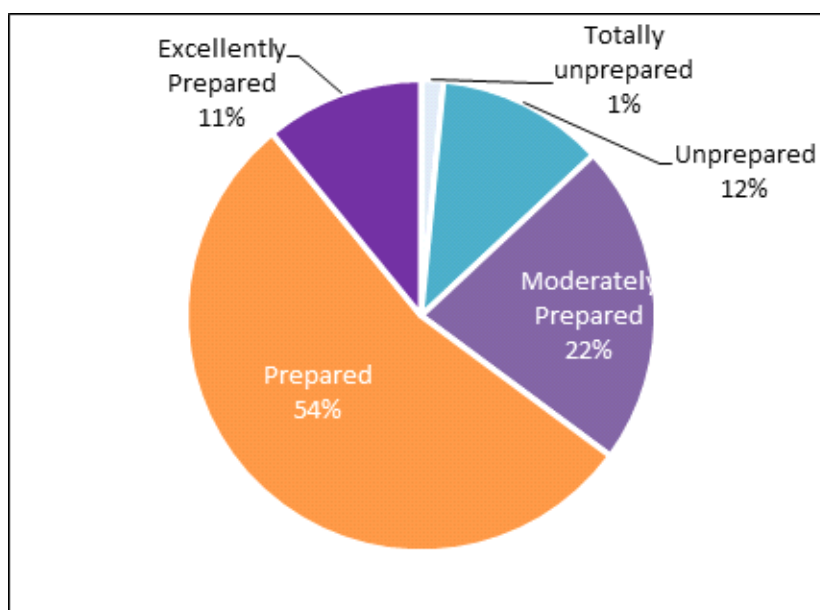


Figure 10. Percentage distribution of respondents according to their perceptions of the government's level of preparedness in dealing with disasters

Table 12. Respondents' reasons behind their perceptions on their government's level of preparedness in dealing with disasters

Reasons	Frequency	Percent
A. Reasons for saying the government is prepared		
The government is ready to give immediate support in terms of calamities.	188	57.0
The national government provides food assistance and relief aid to the victims of a disaster but some of the local officials impede the support, they disperse it late and distribute to their political members	47	14.2
The government will give information and response when there are hazards and disasters to occur.	38	11.5
The government foresees the hazards and vulnerability of every barangay but has lesser implemented disaster management plan and program interventions in our locality like road projects, bridge establishment, resilient evacuation center etc.	5	1.5
It is the government's responsibility to give support when hazards and disasters occur.	3	.9
The government will give immediate support to those who are victims of hazards and disaster. However, it cannot be immediately received by the victims in our place due to inaccessible roads and highways towards our place and river flooding.	3	.9
B. Reasons for saying the government is not prepared		
The government support is not enough	26	7.9
The government will not give their support and information when there are hazards and disaster to occur.	16	4.8
I don't know if they are ready to give support or not	2	0.6
The government are having difficulties also	1	0.3
The government only responds after the calamity	1	0.3
TOTAL	330	100.0

Willingness to evacuate during disasters

When respondents were asked whether or not they will evacuate in times of disaster, almost all (95%) said Yes and only five percent responded No (Fig. 11). The reasons for their willingness to evacuate include: for family's safety and personal protection (72.4%), to get away from the destruction of the impending disaster (9.1%), fear of the possible events that will happen due to hazards and disaster (4.8), and their place is prone to hazards such as flood and landslide (3.3%) (Table 13).

The few respondents who said they will not evacuate reasoned that their house is concrete (1.8%) and the evacuation center may not be safe (0.6%).

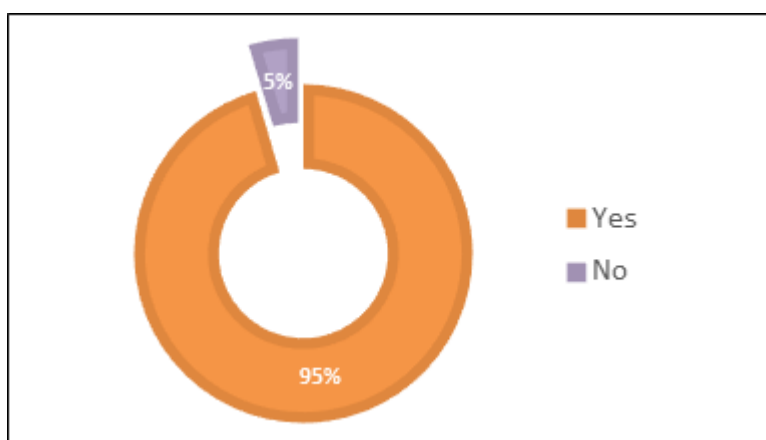


Figure 11. Percentage of respondents who will evacuate during disasters

Table 13. Reasons for evacuating

Reasons	Frequency	Percent
A. Reasons for saying they will evacuate		
For family's safety and personal protection	239	72.4
To get away from the destruction of impending disaster	30	9.1
Fear of the possible bad things that will happen due to hazards and disaster	16	4.8
Because our place is prone to hazards and disaster such as flood and landslide	11	3.3
If the evacuation center is safe to stay	9	2.7
If it is advice to evacuate then we will follow	7	2.1
Our house is not safe to stay	6	1.8
B. Reasons for saying they will not evacuate		
Our house is safe to stay because it is concrete	6	1.8
We will evacuate with considerations: wind speed and stream flow condition	4	1.2
We don't know if the evacuation center is safe	2	0.6
TOTAL	330	100.0

Places identified by respondents as possible evacuation centers

The respondents gave multiple responses when asked about places that can possibly be used as evacuation centers (Fig. 12). The commonly identified places include concrete houses (70.61%), multi-purpose hall/convention hall (49.7 %), churches (49.09%), public recreation centers (27%), private houses (16.06%) and public schools (13.64%). Other evacuation sites identified by few respondents include neighbor's house (1.52%), mountainous areas (1.2%) and disaster resilient evacuation centers (0.61%).

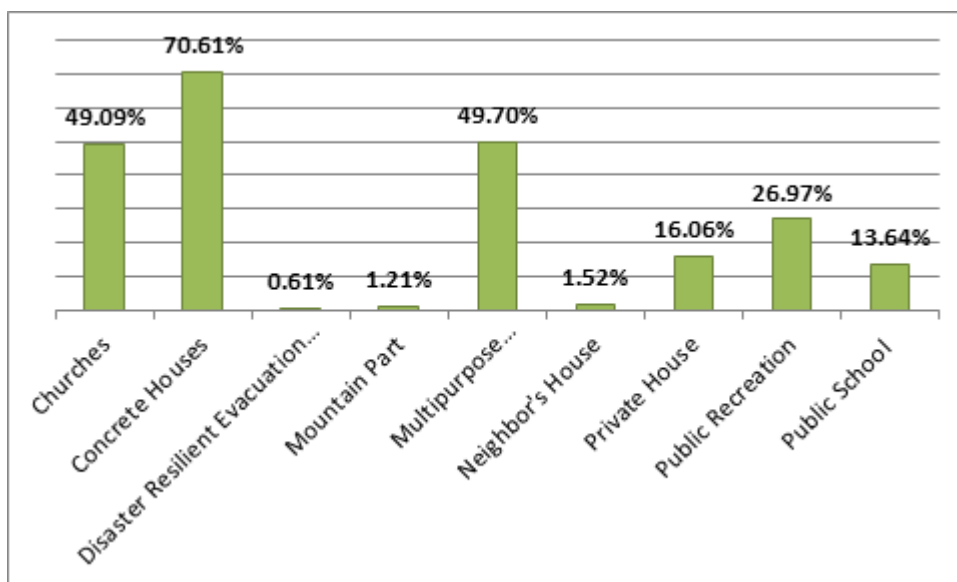


Figure 12. Possible evacuation centers identified by the respondents

Latest hazard experienced, actions done and the consequences

When asked what was the latest hazard that they had experienced, almost all of the respondents (99.1%) answered typhoon. Only very few answered earthquake (0.6%) and flood (0.3%) (Table 14).

Table 14. Last hazard event experienced

Hazard	Frequency	Percent
Typhoon	327	99.1
Typhoon and Earthquake	2	0.6
Typhoon and Flood	1	0.3
TOTAL	330	100.0

When asked what they did during calamities, nearly three-fourths of the respondents (74.8%) said they evacuated to a safer place, prepared clothes and other needed things for the protection and safety of their families, and to avoid the great danger brought by hazard and disaster. On the other hand, 13% said they stayed in the house, hid to protect them from falling debris, then after the havoc, they were able to remain safe and were able to receive food assistance (Table 15). The actions taken by the other respondents are presented in Table 15.

Table 15. Actions done during the latest hazard event experienced

Actions	Frequency	Percent
Evacuated to a safer place, prepared clothes and other needed things for the following reasons: protection and safety of family, to avoid great danger brought by hazard and disaster, to be safe, because they were scared of fallen trees, damaged houses and flying GI sheets, etc.	247	74.8
We stayed in our house, hid to protect ourselves from falling debris, after the havoc we were safe and received food assistance	43	13.0
We prayed that there will be no casualty and people will be safe	11	3.3
We were attentive and mindful on what was going around the surroundings.	5	1.5
We never prepared anything because it was the first time that the typhoon was very strong.	4	1.2
We were not prepared because it was sudden	3	0.9
We observed the flow of the river, prepared food, transferred our things to high places and immediately evacuated	3	0.9
Did not do anything because I was not in our barangay during the disaster	3	0.9

Some respondents reported that they experienced negative consequences because of the calamities. These consequences include devastation of agricultural crops, damaged houses and roads becoming inaccessible (Table 16).

Table 16. Consequences of the latest hazard event experienced

Consequences	Frequency	Percent
Our agricultural crops were devastated	7	2.1
Our house was destroyed, we stored food because the road going to city is inaccessible.	4	1.2

CONCLUSIONS:

Based on the results of this study, the following conclusions can be drawn:

- Community residents with low income are more vulnerable to hazards because they are less able to cope effectively with the damages to their fragile livelihoods. They are more likely to experience larger and more prolonged impacts due to their limited physical and financial assets, as well as their limited social and political connections.
- The rural communities included in this study are highly vulnerable to typhoon, flood and landslide. Thus, they are more likely to experience calamity-related issues and problems during and after the disasters. These issues/problems include food and water supply shortage, agricultural losses, flooding of the area, health threats and others.
- Local officials are the information sources preferred by the respondents to directly give warnings and information about incoming disasters. Preferred means of communication include *bandilyo*, barangay assembly, public announcement in churches, and letters to residents.
- The mass media play a crucial role in providing the community people with reliable and accurate information about incoming disasters. This study revealed that the barangay people receive news through television, radio, internet, cellular phones (through short messaging services) and newspapers. These are the media where national agencies disseminate reliable information to inform and educate people disasters. Among the mass media, television and radio were the respondents' most common sources of information. Among the national agencies, PAGASA is the respondents' most preferred source information about typhoon and other incoming disasters.
- Community people have strategies to prepare for disasters. These strategies include storing food, medicine, water, and other basic needs; keeping the household belongings from being wet; going to the evacuation center when needed, tying down the house with a rope or putting a car tire on the roof; and trimming trees. Moreover, the areas covered by the study, although these are highly vulnerable to disaster risks due to their small economic reserve, can protect their natural resources and their people by disseminating information and conducting disaster preparedness trainings. This study shows that there were barangays which indicated low level of disaster preparedness, but the local officials and the people could work on this and prevent further damages and disaster-related casualties.

RECOMMENDATIONS:

- There is a need to prepare a hazard map and a more effective warning system in the barangays covered in this study to provide people with concrete information about the risks associated with hazard events and disasters. Hazard maps can help the community people to be aware of the possible risks that they can encounter and the actions that they can do to minimize impacts of disasters. These maps can also become the driving force for the community to formulate plans to mitigate or control the devastating effects of impending disasters.
- It is also suggested that local DRRM officials should tap mass media including television, radio and cellular phones, as sources of information about disasters and risk mitigation measures. Mass media, particularly the new ICTs, are now easily accessible even among people in the far flung areas so these can provide barangays with reliable information that can lessen the possible damages brought about by natural calamities.
- The communities can also organize and train Community Emergency Response Team (CERT) to perform rescue operations during and after the disaster. The team should be provided with complete emergency tools, supplies and kits. Likewise, the government may also need to provide more disaster resilient evacuation centers for the barangay people.
- A widespread public awareness and education campaigns on disaster preparedness may be done by authorized government agencies to improve people's level of preparedness in dealing with disasters. They may conduct more disaster related trainings to discuss about the impacts of disasters, as well as to plan actions to achieve a more effective response to disasters. The national government should also give the LGUs more support to strengthen their capacity in dealing with disasters. Livelihood projects, especially for the poor, should also be included in the disaster risk reduction plans and actions to help communities cope with the negative impacts of disasters.

REFERENCES:

- Aquila, L. (2013). *Yolanda: Typhoon Haiyan records strongest ever landfall in world history*. Retrieved on January 16, 2015, from http://au.ibtimes.com/articles/520745/20131109/yolanda-haiyan.htm#.VLhqudLF_fl
- Birkmann, J. & Welle, T. (2016). The World Risk Index 2016: Reveals the necessity for regional cooperation in vulnerability reduction. *J Extreme Events*, 3 (1). DOI: 10.1142/S2345737616500056
- Grasso, V. (2012). *Early warning systems: State-of-art-analysis and future directions*. Retrieved November 19, 2014, from <http://www.gripweb.org/gripweb/?q=countries-risk-information/documents-publications/early-warning-systems-state-art-analysis-and>
- Lagmay, A. (2014). *Devastating storm surges of typhoon Yolanda*. Retrieved on January 15, 2015, from http://www.academia.edu/9656331/Devastating_storm_surges_of_Typhoon_Haiyan
- Mitchell, T. et al. (2008). *Rural Disaster Risk – Poverty Interface, Prepared for Global Assessment Report on Disaster Reduction*, Institute of Development Studies, September 2008: Accessed on 20 October 2016 <http://www.preventionweb.net/english/hyogo/gar/background-papers/documents/Chap4/IDS-Rural-Disaster-Risk-Poverty-Interface.doc>.

ACKNOWLEDGMENT:

The authors wish to extend their heartfelt gratitude to the following people who have contributed to the success of this study and the completion of this technical report:

- Dr. Romel Galenzoga of the Office of Municipal Disaster Risk Reduction Management of Baybay City
- BMIS of Baybay City
- Barangay Captains and barangay officials in the study sites
- Respondents from the different barangays, and
- Dr. Editha G. Cagasan and Ms. Lourence Mae B. Alkuino for editing and designing the layout of this report, respectively; and

AUTHORS:

Dr. Vilma M. Patindol

Director, Agricultural Training Institute Region 8

VSU, Visca, Baybay City, Leyte

Prof. Efren B. Saz

Director for Extension

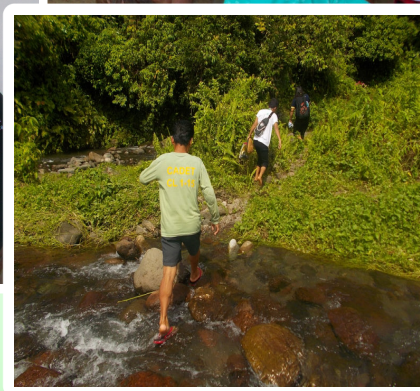
VSU, Visca, Baybay City, Leyte

Mr. Christian Keruel Laurente

Agricultural Training Institute Region 8

Ms. Virланie Añasco

Agricultural Training Institute Region 8



Republic of the Philippines
Department of Agriculture
AGRICULTURAL TRAINING INSTITUTE

ATI Building, Elliptical Road, Diliman, Quezon City, Metro Manila 1100

Tel. Nos. (63-2) 929-8541 to 49 & 928-7397 Fax No. (63-2) 920-9792

E-mail: ati_director@ati.gov.ph & ati_director@yahoo.com

URL: <http://www.ati.da.gov.ph>; www.e-extension.gov.ph;

www.eextension.multiply.com