



t e c h n i c a l r e p o r t

**Participatory Climate Vulnerability and Risk Assessment (PCVRA)
for Adaptation Mitigation Initiatives in Agriculture (AMIA) Villages**



**NEGROS
OCCIDENTAL**

**AMIA Villages in the
Municipality of
Cauayan,
Province of
Negros Occidental**

JULY 2023



technical report

Participatory Climate Vulnerability and Risk Assessment (PCVRA)
for Adaptation Mitigation Initiatives in Agriculture (AMIA) Villages

AMIA Villages in the Municipality of Cauayan, Province of Negros Occidental

International Institute of Rural Reconstruction
Department of Agriculture - Adaptation Mitigation Initiatives in Agriculture
(DA-AMIA REGION 6)



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Cauayan, Negros Occidental

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A. Background

Climate change poses a serious threat to the Philippines, putting development at risk and further endangering poor communities. The country's agri-fishery sector is particularly vulnerable. To combat these dangers, the Department of Agriculture introduced the **Adaptation and Mitigation Initiative in Agriculture (AMIA)**. This program aims to empower local communities in the agri-fisheries sector and help them adopt sustainable livelihoods and effectively manage climate risks. Climate change has varying impacts depending on the location and context, making certain sectors more vulnerable than others.

Development efforts should prioritize those who are most at risk, including small-scale farmers who rely on the climate, marginalized groups, and individuals lacking resources and access to information.

The **Participatory Vulnerability and Climate Risk Assessment (PCVRA)** promotes community empowerment through the creation of an information base that enables planning and action.

PCVRA aims to provide a better understanding of climate change to the community and inform them of the conditions and factors affecting their vulnerability. It also identifies the levels of risks to the community's livelihood and their capacity to adapt to the manifestations of climate change.

The main objective of the PCVRA is to identify the effects of climate change within the local populace and determine the nature of these climate-induced dangers in order to gain greater insight into their potential consequences and their effects on the community's vulnerability.

The **International Institute of Rural Reconstruction (IIRR)** facilitated PCVRA to provide local decision makers with comprehensive knowledge about climate-related risks and vulnerabilities, empowering them to develop effective solutions for addressing its impacts across multiple levels, ranging from households and farms to ecosystems and landscapes.

The outcomes of the PCVRA don't directly solve issues faced by rural communities. Instead, it becomes a basis for developing community-based strategies for adaptation. It is also used in decision-making processes involving various stakeholders. Ultimately, these efforts aim to improve the well-being of underprivileged individuals who are greatly impacted by climate change.

B. Methodology

Various sectors, including barangay council members, the Sangguniang Kabataan Chairman, barangay health workers, daycare workers, church representatives, school staff, businessmen, farmers, and fisherfolk were present at the event. The activity commenced with a short introduction followed by a discussion of the significance of PCVRA and its associated tools and techniques.

The following PCVRA instruments were used for information gathering:

1. **Timeline.** The group discussed past occurrences of climate hazards and the methods they utilized to manage them. They also strategized techniques to boost their resilience and improve their overall livelihood.
2. **Spot Map.** The community conducted a Spot Map exercise that pinpointed areas deemed vulnerable to hazards and risks. They also identified livelihood areas that are most affected by these dangers. Resource units, including crops, livestock, households, and natural resources, were discussed thoroughly with an emphasis on utilizing them effectively to meet the community's needs.
3. **Seasonal Calendar.** Showcases changes in weather conditions that have occurred over the past 5, 15, and 30 years. It encompasses details related to temperature, weather, crops, and livelihood.
4. **Livelihood Matrix.** It is a comprehensive breakdown of income-generating ventures. The participants are prompted to reflect on their involvement in these ventures and distinguish

between gender-specific roles and decision-making responsibilities. The matrix is segmented into three primary age groups: Youth (aged 15-30), Middle Age (aged 31-59), and Senior Citizens (aged 60 and above).

5. **Resource Flow.** Identify the inflow (revenue earned from their means of livelihood) and outflow (costs incurred) of resources.
6. **Venn Diagram.** Utilized to depict the various institutions, associations, and individuals from the government and private sector that provide access to essential services. These categories are shown in proportions, with figures indicating the level or strength of each partnership with the community.

C. Provincial Profile

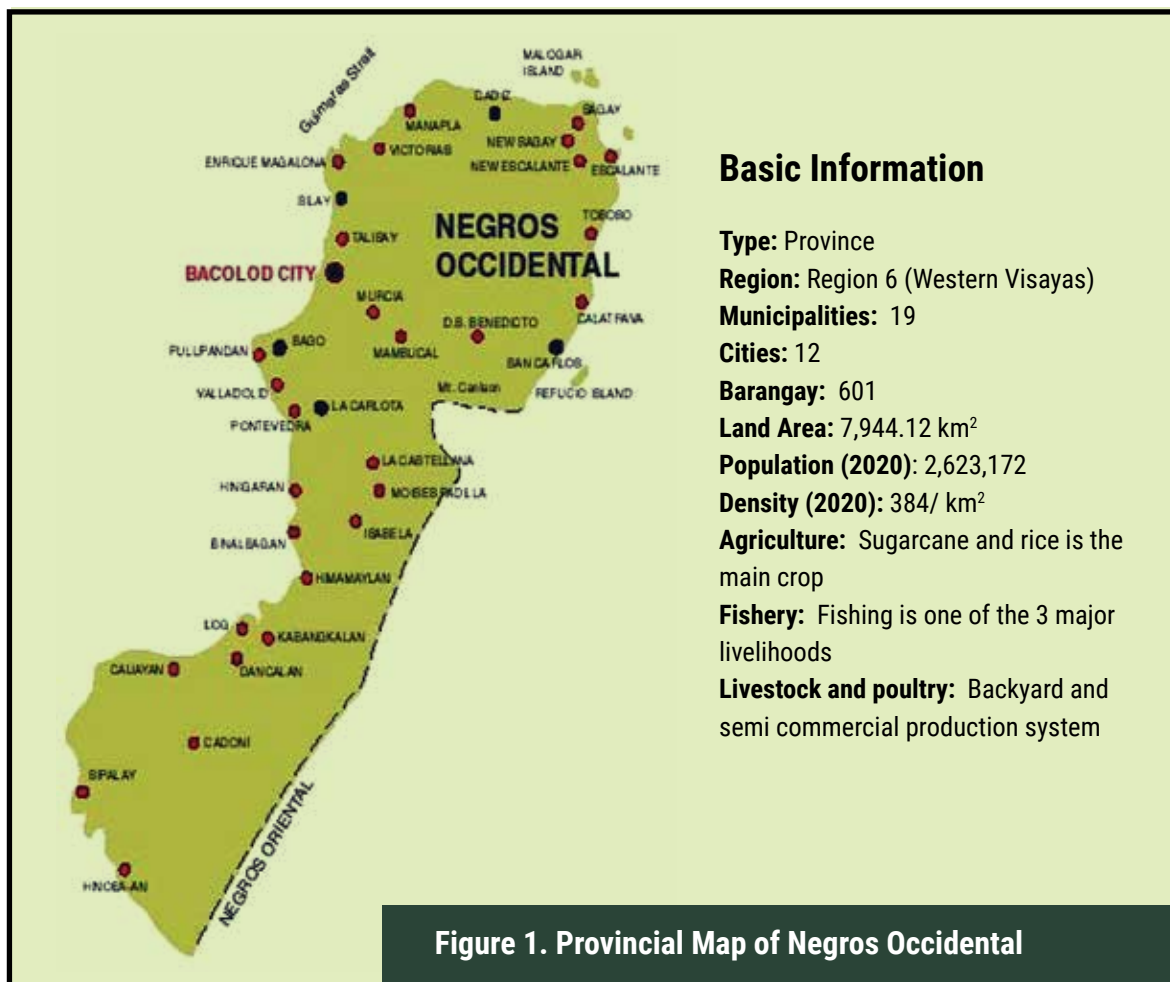


Figure 1. Provincial Map of Negros Occidental

Negros Occidental is renowned for its sugar industry, earning it the nickname “Sugarbowl of the Philippines” as it produces over half of the country’s sugar. The economy of the province relies heavily on this industry, with 15 sugar centrals located in the lowland areas spanning from the northwestern coast along the Visayan Sea and Guimaras Strait. The largest sugar mills include Victorias Mill, which is the biggest integrated sugar mill and refinery in the world, San Carlos, La Carlota, Bago, Binalbagan, Kabankalan, Sagay, Silay, and Murcia. Trucks transporting sugar utilize the national highway to move from the plantations to the refineries.

In addition, a thriving fishing industry is located in Cadiz, with fishponds spreaded throughout the province. Negros Occidental also has a cottage industry that produces handicrafts from indigenous materials. Bacolod, the capital, provides easy access to other major cities such as Manila and Cebu, being only a 50-minute flight from Manila and a 30-minute flight from Cebu.

Road Network

A large road and bridge network that crisscrosses the province for more than 1,500 km and offers seven additional picturesque routes to the neighboring province of Negros Oriental connects all cities and villages. With both air-conditioned and non-air-conditioned buses and metered taxis, traveling inside the province is also simple, comfortable, and even enjoyable. Additionally offered are car rental services. Nevertheless, the jeepney is still the most popular mode of transportation in towns and cities.

As of December 2016, the National Roads in Negros Occidental are:

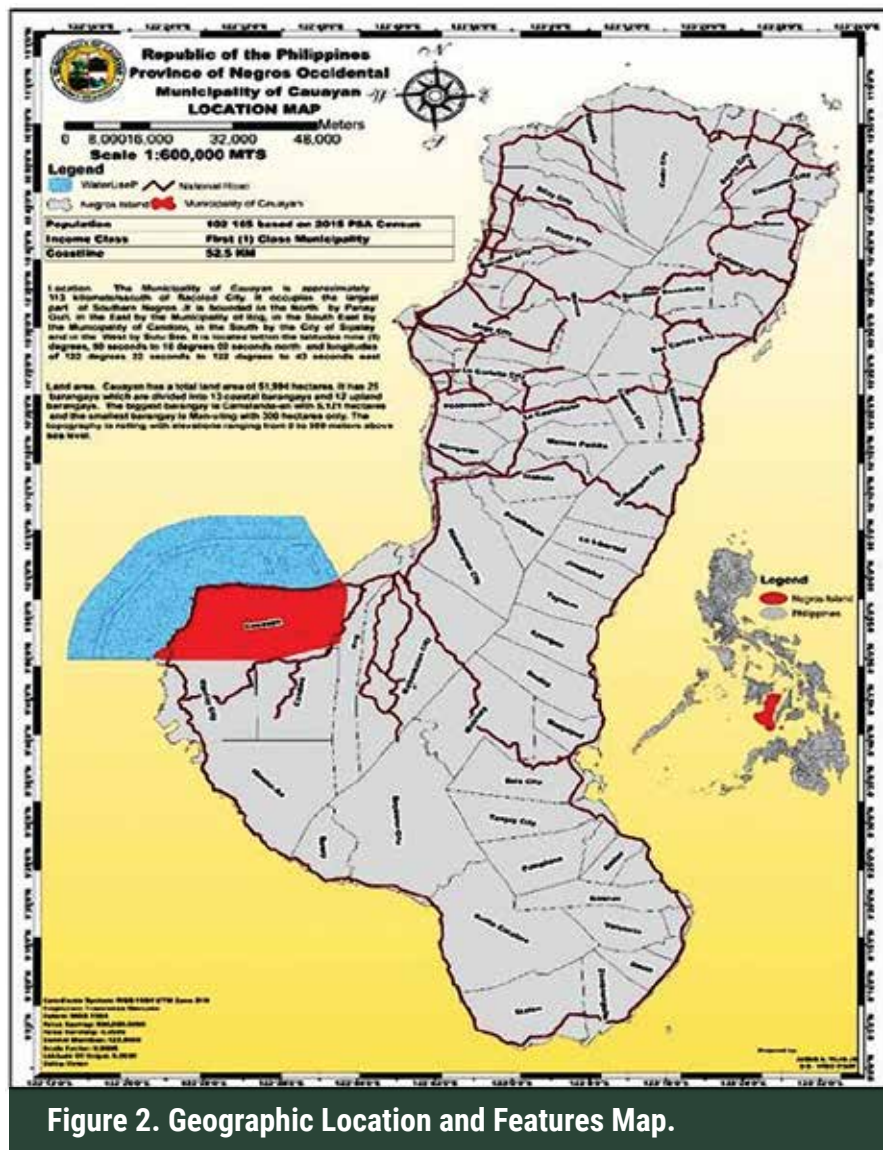
Secondary Road

- Central Road (San Miguel-Constancia-Cabano-Igcawayan)
- Guimaras Circumferential Road
- Rizal-Jordan Wharf Road



D. Municipal Profile

The most populous municipality in the Philippine province of Negros Occidental is Cauayan, a first-class municipality. It is located 113 km away from Bacolod City, the provincial capital. The total land area of Cauayan is 51,994 ha. It comprises of 25 barangays, of which 12 are in the uplands and 13 are on the coast. Along its borders are the Panay Gulf in the north, the Municipality of Ilog in the east, the Municipality of Candani in the south, the City of Sipalay in the south-east, and the Sulu Sea in the west.



Topography and Slope

The terrain of the municipality of Cauayan is rugged, with Mt. Malipantao serving as a natural barrier separating it from the neighboring towns of Candoni and Sipalay. The region is covered with dense forests that require preservation due to their importance to the region's watershed. The municipality also features vast areas of flat lands, which are ideal for agriculture and are primarily located in different barrios. The slopes in the area are mostly steep and mountainous, with a 30-50% gradient; however, the upper barangays have a rolling to gently sloping terrain, ranging from 18% to 50%. Meanwhile, the coastal barangays are gently sloping to almost flat, with a slope ranging from 0% to 18%. The mountain ranges of barangay Camalanda-an and Inayawan have the steepest slope of more than 50%, while the coastal areas of barangay Mambugsay, Guiljungan, Tiling, Poblacion, Man-uling, Isio, Tuyom, Masaling and Inayawan are almost flatlands that are well-suited for rice and sugarcane crops.

Climate and Rainfall

Negros Occidental generally has a type III climate under the Corona classification. It has no distinct rainy season and has a brief dry season lasting only one to three months. However, the rainy and dry seasons are clearly defined in Cauayan. The dry season typically begins in January and lasts until the middle of June, whereas the rainy season typically begins in June and concludes in the later half of December.

Population Size and Growth Rate

According to the results of the 2020 Census, Cauayan has 108,480 residents. The population increased by 100,306 individuals in the last century, growing from only 8,174 in 1903. Cauayan accounts for 4.14% of Negros Occidental's whole population. In the 2015 Census, there were 102,146 households in Cauayan, with 22,858 households having an average of 4.47 people.



AMIA Program

The Adaptation and Mitigation Initiative in Agriculture (AMIA) is a comprehensive and forward-thinking program designed to address the complex challenges and opportunities within the agricultural sector in the context of climate change and environmental sustainability. AMIA is primarily focused on promoting agricultural practices that are both adaptable to changing climatic conditions and mitigative of greenhouse gas emissions.

Climate change poses a significant threat to global food security and agricultural sustainability. Rising temperatures, altered precipitation patterns, and increased frequency of extreme weather events have the potential to disrupt crop yields, affect livestock production, and compromise the livelihoods of millions of farmers worldwide. Furthermore, agriculture is a notable contributor to greenhouse gas emissions through practices such as deforestation, soil degradation, and inefficient land use.

The AMIA emerged as a response to these pressing challenges. It was conceived with the understanding that the agricultural sector can be both a victim and a solution to climate change. AMIA aims to bridge the gap between agricultural adaptation and mitigation' efforts by integrating them into a holistic framework.

AMIA seeks to enhance the resilience of agriculture to climate change by implementing climate-smart practices. This includes using drought-resistant crop varieties, improving water management, and developing early warning systems for extreme weather events.

In addition to adapting to climate change, AMIA places a strong emphasis on mitigating the environmental impact of agriculture. It promotes sustainable farming practices that reduce greenhouse gas emissions, such as reduced tillage, agroforestry, and the use of renewable energy sources.

AMIA is rooted in a community-centric approach. It recognizes that the success of adaptation and mitigation strategies relies on the active involvement of local farmers, communities, and relevant stakeholders. The program engages with farmers to co-create and implement solutions that are tailored to their specific needs and contexts.

AMIA collaborates with various stakeholders, including government agencies, non-governmental organizations, research institutions, and the private sector. These partnerships facilitate knowledge sharing, capacity building, and resource mobilization to support the program's objectives.

Research and innovation are at the core of AMIA. The program actively encourages the development and dissemination of cutting-edge agricultural technologies, practices, and policies that can enhance adaptation and mitigation efforts.

AMIA acknowledges the need to scale up successful adaptation and mitigation strategies and replicate them across different regions and agricultural contexts. This approach enables the program to have a more extensive impact and contribute to global sustainability goals.

To ensure the effectiveness of its initiatives, AMIA maintains a robust monitoring and evaluation system. Regular assessments are conducted to measure the impact of adaptation and mitigation strategies on agricultural productivity, environmental sustainability, and the well-being of rural communities.

AMIA in Negros Occidental

The program started in Cauayan, Negros Occidental. Brgy. Masaling Cauayan has a total of fifty-five (55) farmer beneficiaries with a total area of 102.99 hectares.

The Cauayan AMIA Village Farmers and Fisherfolks Producers Cooperative was organized and registered. It has 3 farmers association, namely:

1. **Bushing-Tubig Diversified Farmers Association** (Male -22, Female - 12)
2. **Abu-abo Small Farmers Association** (Male -18, Female -24)
3. **Masaling Fisherfolks Association** (Male -18, Female -2)

Aside from organizing, AMIA facilitated the introduction of alternative livelihoods such as:

1. **Livestock Production**
 - a. Babuyang Walang Amoy Technology (BWAT) (20 heads of hybrid pigs 10 bags of feeds)
 - b. Pig Production (19 gilts)
 - c. Goat production worth Php 247,500.00
2. **Poultry production:** Establishment of communal production system for native chicken where association was provided with stocks (200 heads) and housing worth Php 536,043.16. An incubator with separate egg setters worth Php 49,000 was also provided. Quail production was also introduced and budgeted at Php 400,000.00
3. **Organic vegetable production** was supported with introduction of various methods of composting that included vermi-composting and concoction preparation.

Barangay Masaling

1. Introduction

1.1 Barangay Profile

The origin of Barangay Masaling's name can be traced back to the abundance of a bird called "Sal-ing" in the area. These birds have a distinct color combination of red, black, and white/gray and make their nests inside tree bark.

Barangay Masaling is surrounded by various types of trees and is situated near the sea. The primary sources of income for the people in the past were farming and fishing. During rice harvesting season, Sal-ing birds would flock to the fields and farmers enjoyed catching and watching them. As a result, the native people began referring to the barangay as Masaling.

Masaling covers a total land area of 2,436 ha, which is classified as both agricultural and coastal

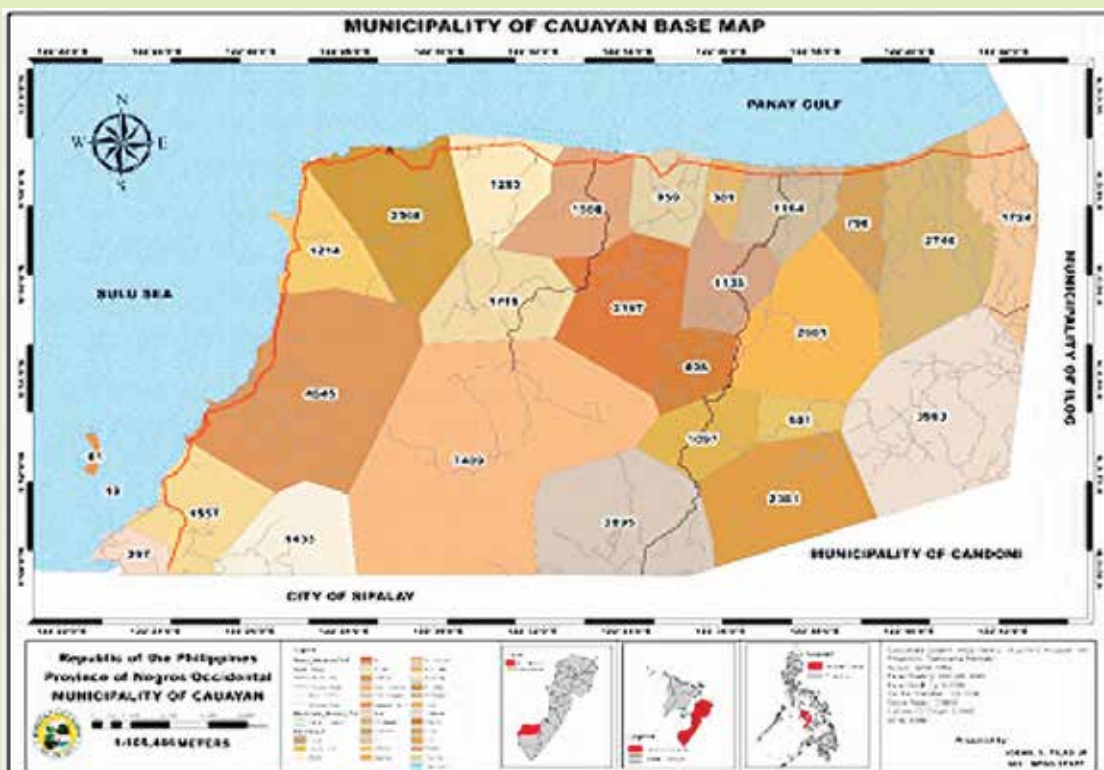


Figure 3. Municipality of Cauayan Base Map.

land. It is a rural area and is accessible by various modes of land transportation, including jeepneys, tricycles, motorcycles, buses, and other vehicles. The barangay is located 11 km away from the Municipal center. The potable water supply comes from springs and deep wells, while almost 90% of households have access to electricity via NOCECO. However, 224 households do not have safe drinking water, while 209 households lack access to sanitary toilet facilities.

Population

Barangay Masaling is in the Cauayan municipality in the Negros Occidental province. There are 4,266 people living there as of the 2020 Census. This accounts for 3.93% of Cauayan's whole population.

1.2 Household Classification

Barangay Masaling has a 60% indigent and a 40% lower middle class population. A total of 2763 households in Brgy. Masaling are experiencing food shortage. There are 357 households classified as informal settlers. A total of 157 households are living in makeshift shelters, 432 are below the poverty threshold, and 677 households have an income below the food threshold.

1.3 Livelihood Status

The main sources of economic and livelihood development in the given region are farming, fishing, and hog raising. This is primarily owing to the fact that the area is rural and is a mix of both agricultural lands and coastal areas. The region relies heavily on agricultural activities, like farming and hog raising, to generate income for households. Similarly, the coastal area provides a source of income through the fishing industry. These sectors are major contributors to the local economy and play a vital role in sustaining livelihoods in the region.

1.4 Sectoral Involvement in Livelihood

A. Farming

Roles in rice farming are divided between genders, such that men are primarily responsible for the physically demanding tasks while women participate in less strenuous activities like transplanting, weeding, and post-harvest activities. However, decision-making is more or less equal between men

and women. The age group with the highest level of engagement in these activities are those between 31 and 59 years old, while the youth and senior citizens have a lower participation rate. Sugarcane production follows a similar pattern, with men performing the heavy tasks and women more involved in preparing planting materials, weeding, applying fertilizer, and selling. Decision-making and participation in sectoral roles are also relatively equal but more prominent among those between 31 and 59 years of age. The levels of youth and senior citizen involvement are comparatively lower in this sector.



B. Fishing

Fishing is an activity that does not discriminate based on gender, and young people are equally involved in it. It highlights the fact that fishing is not solely the domain of one gender. Among the demographic of individuals ranging from 15 to 30 years old, a significant proportion of approximately 30% are helping in fishing. It is important to note that equality in fishing is not limited to young people. In all age groups, men and women participate equally in fishing activities. This indicates that fishing is a welcoming and inclusive activity that recognizes the abilities of all individuals, regardless of their gender.

C. Hog Raising

When it comes to raising livestock, both men and women are equally involved in purchasing piglets, feeding, cleaning and administering medication to the animals. They also have equal say in decision-making. The participation levels in these activities are highest among people aged between 31 and 59, according to sectoral data. This highlights the fact that age plays a significant role in determining involvement in these livelihood activities. This suggests that there is a level of gender equality in the livestock sector, which is encouraging for women empowerment and promoting gender equity in this space. Such findings also suggest that all age groups hold valuable insights and bring unique perspectives to rural livelihood activities.



2. Climate Change Perception

2.1 Climate Hazard

Two significant climate hazards that have greatly affected livelihoods in Brgy. Masaling have been identified by the residents. Typhoons Paeng and Odette resulted in flash floods. These events caused severe damage to their livelihoods and infrastructures. Access to farm-to-market roads and other essential infrastructure were destroyed, and their crops and animals were negatively impacted to the point of causing food shortages and significant debts.

The people have suffered greatly due to the destruction caused by these major climate hazards. Additionally, the farmers faced challenging situations due to the impact of El Niño. The El Niño is a natural phenomenon that results in extended periods of drought that can lead to the withering and dying of plants. Farmers experienced reduced crop yield and total crop failure and higher death rates among farm animals. El Niño presents an additional challenge to farmers on top of climate change adaptation.

2.2 Impact

The typhoon had a severe impact on the Barangay, with 100% of their crops devastated, particularly rice. The farm-to-market road also suffered damage, rendering it impassable. Power interruptions were also experienced, and many houses were completely destroyed. Upon assessment, it was revealed that the high water level affected 11 households near the coastal area. The typhoon also caused heavy rains and flash floods that heavily impacted the agricultural land, including most of the rice fields and sugarcane. Overall, the typhoon caused significant destruction to both the community's livelihood and infrastructure.

This adds to the barangay's challenges, as they faced drought issues in 2016, which heavily damaged their crops and farm animals.

2.3 Coping Mechanism

After a typhoon, the area affected underwent significant clean-up operations. Additionally, the bayanihan system, wherein members of the community come together to help those in need, was utilized to aid those affected by the disaster. The community recognized the various organizations, institutions, government agencies, and private individuals who provided support and services to

their community in the aftermath of calamities. The level of support and contribution of these groups was often determined by their size and proximity to the affected area, with larger organizations such as the LGU providing significant aid.

2.4 Capacity of the community

Key informant interviews revealed that there is a 100% registration in the Registry System for the Basic Sectors in Agriculture (RSBSA) and that the community is aware of the services of the Philippine Crop Insurance Corporation (PCIC). However, many farmers and fisherfolks have failed to take advantage of the registration and avail of insurance during the past calamities that affected their community.

In the same manner, although microfinance institutions (MFIs) are present and can offer loans and microcredit, the majority do not take out production loans from them.

Post-harvest equipment such as rice and corn mills, dryers, and storage are not available in the community. On the other hand, most of the fisherfolks have basic equipment and a majority of them have motorized boats.

Farmers and fisherfolks claim they have access to training from the local government and the Department of Agriculture (DA). Three (3) farmer associations were also identified, namely, Buhing Tubig Diversified Farmers Association (BUDFA), Abu-abu Small Farmers Association (ASFA), Masaling Farmers Association (MASFA), and Masaling 4H Club.

2.5 Initial Plan of the Barangay

Implications	Solution
<ul style="list-style-type: none"> Need of training on disaster preparedness, mitigation, and adaptation on climate-related hazards No Barangay Bantay Dagat 	<p>Training in disaster preparedness, mitigation, and adaptation on climate-related hazards</p>
<ul style="list-style-type: none"> No tools and equipment for rescue and clearing operation 	<ul style="list-style-type: none"> DRR Equipment Multipurpose dryer (shed house, 200 sq.meters) Repair of drainage canal (15-20 meters) Additional culvert and patrol/rescue boats
<ul style="list-style-type: none"> No early warning system in areas affected by flashflood 	<p>Put early warning device on the affected areas so that the people will be alerted</p>
<ul style="list-style-type: none"> No alternative livelihood 	<ul style="list-style-type: none"> Training on value adding Training on dried fish production and facility
<ul style="list-style-type: none"> No concrete roads Purok Abu-abo 	<ul style="list-style-type: none"> Propose farm to market road Concrete road in Purok 4 and 5.

3. Summary and Findings

In over the last thirty years, there has been a noticeable shift in the seasonal calendar that has had an impact on the way farmers plant their crops and manage their harvests. This change is driven by the changing climate patterns that influence the weather and environmental conditions that affect the farmers during each season. As these patterns shift, farmers have had to adapt their traditional practices to maximize crop yields and minimize the risks associated with climate variability.

Thirty years ago, the weather patterns were characterized by a persistent rainy season with a significant amount of rainfall. The temperature ranged from medium to low. During this time, the locals were primarily engaged in the cultivation of root crops and the production of copra from coconut.



Fifteen years afterwards, the choice to focus on corn cultivation was likely influenced by the crop's suitability to moderate temperature conditions, as well as its potential as a staple food source or valuable commodity.

Five years ago, the climate was characterized by a combination of rain and sunny weather, bringing about El Niño and fluctuating temperatures. The shift from corn to sugarcane farming was a result of these changes. Additionally, farmers have begun planting mung beans and different vegetables during extended dry spells when there is a scarcity of water in their paddy fields. These strategies are used to adapt to the variable climatic conditions that can impact crop yields.

The Barangay is exposed to two climate hazards – typhoons and El Niño. Both hazards have affected livelihoods in the barangay, but the trend reveals that farmers have the capacity to adjust and adapt with their farming practices and cropping patterns given the historical climate variability. The results also revealed that farmers missed to maximize the opportunities available to them. Although a majority of them are registered in the RSBSA, farmers have yet to maximize their services, such as access to crop insurance.

The presence of organized farmers groups (at least 3) indicates solidarity and social cohesion within the community. Strengthening these groups is an opportunity for improving resilience.

4. Recommendations

1. Build on the innate capacity of the farmers to adjust and adapt through provision of better services such as easy access to production loans that they can use to recover from disasters; provide access to production and post-harvest facilities for efficient production; provide support and guidance in accessing crop insurance.
2. Establish better warning systems and provide training on disaster preparedness at the Barangay level.
3. Explore suitable alternative livelihood programs to diversify the community's source of income.
4. Build on local initiatives on resource conservation (e.g. fisherfolks planting mangroves) and facilitate a more organized and structured program on resource conservation as a pathway to reduce vulnerability of the community.

Annex A. PCVRA Tools Used

1. Timeline

Typhoon Odette, Dec 2021			
Livelihood assets	Impacts on livelihood	Coping strategies implemented	Strategies in case of reoccurrence of the event
Natural			
Crops	100% of crops are affected/damaged	Raised crops again	Register their crop with the Philippine Crop Insurance
Physical			
Road	Damaged farm to market road	Clearing operation was done	Proper waste disposal
Fishing equipment	Fishing supplies, including boats, have been damage	They made some necessary repairs to their damage boats.	Securing pump boats in safe areas
Houses	138 houses are totally damaged	The bayanihan system has been implemented	Reporting of damages to the Barangay
Power supply	Power interruption	Some have generators at home and offer helps to neighbors	
Typhoon Paeng, Oct 2022			
Livelihood assets	Impacts on livelihood	Coping strategies implemented	Strategies in case of reoccurrence of the event
Natural			
Crops	Rice are damaged		Engage in other livelihood. Register crops to PCIC
Physical			
Road	Damaged farm to market road due to flashfloods		Planting more trees to avoid floods
El Niño, 2016			
Livelihood assets	Impacts on livelihood	Coping strategies implemented	Strategies in case of reoccurrence of the event
Natural			
Crops	Crops wilted	Look for alternative source of water	Needed a irrigation system to support farm irrigation
Financial			
Livestock	High mortality rate in livestock and poultry	Seek for financial capital	Registration of the livestock

2. Spot Map



3. Seasonal Calendar

5 Years Ago	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
CLIMATE PATTERN (Wet & Dry)												
TYPHOON										✓	✓	✓
TEMPERATURE	→	→	↑	↑	↓	↓	↓	↓	↓	↓	↓	↓
RAINFALL	Moderate	Moderate	Low	Low	Low	Moderate	Moderate	Moderate	Moderate	High	High	High
LIVELIHOODS:												
A. Farming	Rice	Mungbean, Squash, Okra, Watermelon			Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
B. Fishing	ALL YEAR ROUND											
C. Livestock/poultry	ALL YEAR ROUND											
D. Sugarcane	ALL YEAR ROUND											
E. Buy and sell	ALL YEAR ROUND											

LEGEND:

CLIMATE PATTERN	TEMPERATURE	RAINFALL
Wet	↑ High	
Dry	→ Average	
	↓ Low	

15 Years Ago	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
CLIMATE PATTERN (Wet & Dry)												
TYPHOON											✓	
TEMPERATURE	→	↓	↓	↓	→	↓	↓	↓	↓	↓	↓	↓
RAINFALL	Moderate	Low	Low	Low	Low	High	High	High	High	High	High	High
LIVELIHOODS:												
A. Farming	Rice	Rice	Mungbean, squash, okra, watermelon			Rice	Rice	Rice	Rice	Rice	Rice	Rice
B. Fishing	ALL YEAR ROUND											
C. Livestock/poultry	ALL YEAR ROUND											
D. Buy and sell	ALL YEAR ROUND											

30 Years Ago	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
CLIMATE PATTERN (Wet & Dry)												
TYPHOON						✓	✓	✓	✓	✓	✓	✓
TEMPERATURE	↓	↓	↓	→	→	↓	↓	↓	↓	↓	↓	↓
RAINFALL	Moderate	Moderate	Low	Low	Low	High	High	High	High	High	High	High
LIVELIHOODS:												
A. Farming	Mungbean, squash, okra, watermelon				Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
B. Fishing	ALL YEAR ROUND											
C. Livestock/poultry	ALL YEAR ROUND											
D. Root crops	Sweet potato and cassava											
E. Copra				✓				✓				✓

LEGEND:

CLIMATE PATTERN	TEMPERATURE	RAINFALL
Wet	↑ High	High
Dry	→ Average	Moderate
	↓ Low	Low
		No Rain

4. Livelihood Matrix

LIVELIHOOD: RICE FARMING	Roles		Decisions		Sectoral Role		
	Women	Men	Women	Men	Youth 15-30	31-59	Senior Citizen
Land preparation	0%	100%	50%	50%	10%	50%	40%
Seeds soaking	0%	100%	50%	50%	20%	70%	10%
Transplanting	0%	100%	50%	50%	10%	50%	40%
Direct	50%	50%	10%	90%	30%	60%	10%
1st Application of fertilizer	0%	100%	50%	50%	10%	50%	40%
Pesticide application	0%	100%	0%	100%	30%	60%	10%
Water Management	0%	100%	50%	50%	10%	50%	40%
Weeding	50%	50%	50%	50%	10%	50%	40%
2nd Application of pesticide and fertilizer	0%	100%	50%	50%	10%	50%	40%
Harvesting	50%	50%	50%	50%	40%	50%	10%
Thresher	50%	50%	50%	50%	50%	50%	0%
Drying	10%	90%	50%	50%	50%	50%	0%
Milling	10%	90%	50%	50%	40%	50%	10%

LIVELIHOOD: RICE FARMING	Roles		Decisions		Sectoral Role		
	Women	Men	Women	Men	Youth 15-30	31-59	Senior Citizen
Land preparation	0%	100%	50%	50%	10%	50%	40%
Seeds soaking	0%	100%	50%	50%	20%	70%	10%
Transplanting	0%	100%	50%	50%	10%	50%	40%
Direct	50%	50%	10%	90%	30%	60%	10%
1st Application of fertilizer	0%	100%	50%	50%	10%	50%	40%
Pesticide application	0%	100%		100%	30%	60%	10%
Water management	0%	100%	50%	50%	10%	50%	40%
Weeding	50%	50%	50%	50%	10%	50%	40%
2nd Application of pesticide and fertilizer	0%	100%	50%	50%	10%	50%	40%
Harvesting	50%	50%	50%	50%	40%	50%	10%
Thresher	50%	50%	50%	50%	50%	50%	0%
Drying	10%	90%	50%	50%	50%	50%	0%
Milling	10%	90%	50%	50%	40%	50%	10%
1st application of fertilizer	10%	90%	50%	50%	50%	50%	0%
Purchase fertilizer	80%	20%	50%	50%	10%	70%	20%
Salisi	0%	100%	50%	50%	50%	50%	0%
2nd application of fertilizer	100%	0%	50%	50%	50%	50%	0%
Purchase fertilizer	10%	90%	50%	50%	50%	50%	0%
Harvest	0%	100%	50%	50%	50%	50%	0%
Selling	50%	50%	50%	50%	10%	50%	40%

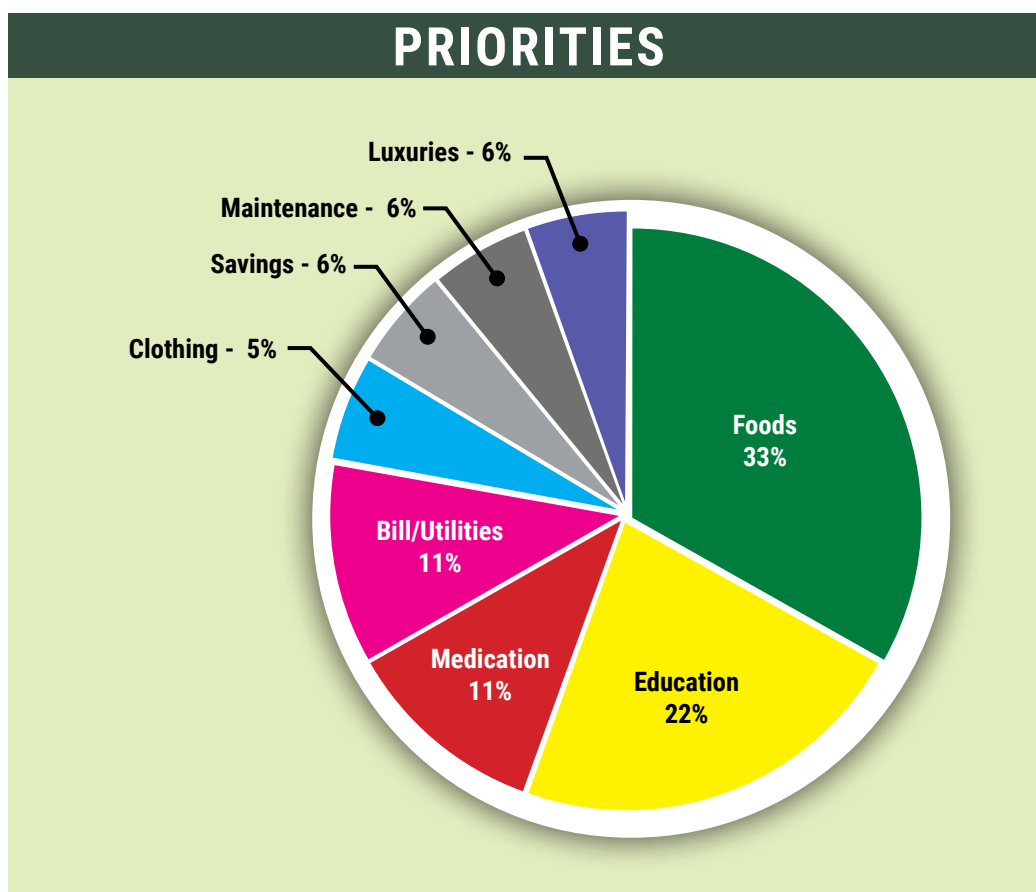
LIVELIHOOD: SUGARCANE	Roles		Decisions		Sectoral Role		
Activities	Women	Men	Women	Men	Youth 15-30	31-59	Senior Citizen
Land preparation	0%	100%	50%	50%	0%	100%	0%
Sugarcane cutting	50%	50%	50%	50%	50%	50%	0%
Transplanting	50%	50%	50%	50%	50%	50%	0%
Weeding	70%	30%	50%	50%	40%	50%	10%
Salisi	0%	100%	50%	50%	50%	50%	0%
1st application of fertilizer	10%	90%	50%	50%	50%	50%	0%
Purchase fertilizer	80%	20%	50%	50%	10%	70%	20%
Salisi	0%	100%	50%	50%	50%	50%	0%
2nd application of fertilizer	100%	0%	50%	50%	50%	50%	0%
Purchase fertilizer	10%	90%	50%	50%	50%	50%	0%
Harvest	0%	100%	50%	50%	50%	50%	0%
Selling	50%	50%	50%	50%	10%	50%	40%

LIVELIHOOD: LIVESTOCK	Roles		Decisions		Sectoral Role		
Activities	Women	Men	Women	Men	Youth 15-30	31-59	Senior Citizen
Construction of fence	0%	100%	0%	100%	20%	30%	50%
Purchase of pig	50%	50%	50%	50%	0%	100%	0%
Purchase of feeds	50%	50%	50%	50%	0%	90%	10%
Feeding	50%	50%	50%	50%	20%	80%	0%
Cleaning of fence	50%	50%	50%	50%	10%	90%	10%
Fattener: Selling/dispose	0%	100%	50%	50%	50%	50%	0%
Health activities:							
Vaccination	20%	80%	50%	50%	30%	60%	10%
Castration	20%	80%	50%	50%	30%	60%	10%
Provide vitamins	20%	80%	50%	50%	30%	60%	10%
Medication	20%	80%	50%	50%	30%	60%	10%
Insurance	50%	50%	50%	50%	30%	60%	10%

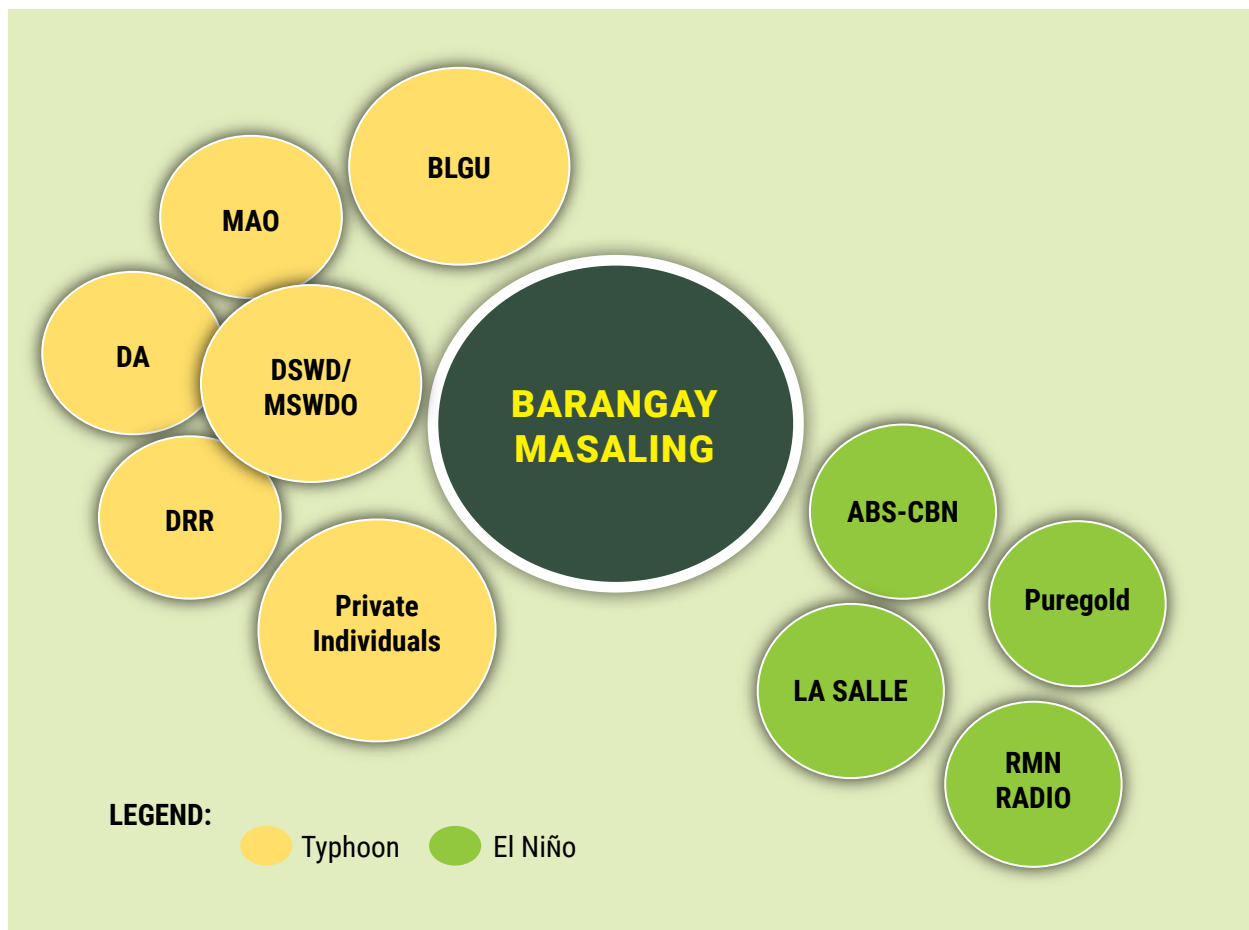
LIVELIHOOD: FISHING	Roles		Decisions		Sectoral Role		
Activities	Women	Men	Women	Men	Youth 15-30	31-59	Senior Citizen
Bintay	50%	100%	50%	50%	30%	50%	20%
Hook and line	50%	100%	50%	50%	30%	50%	20%
Palutaw	50%	100%	50%	50%	30%	50%	20%
Palundag	50%	100%	50%	50%	30%	50%	20%

5. Resource Flow

LIVELIHOODS	Outflow	Income
1. Rice farming (2 ha)	Farm inputs and labor: - PhP 70,000	Table consumption purposes
2. Sugarcane (1 ha)	Ratoon and new plant, labor, and hauling: - PhP 130,000	PhP 210,000 - PhP 130,000 Net Income: PhP 80,000.00
3. Livestock and poultry	Fattening: PhP 7,700 Breeder (Nayon): + PhP 5,500 PhP 13,200	PhP 27,825 - PhP 13,200 Net Income: PhP 14,625.00
4. Fishing	PhP 54,000	PhP 144,000 - PhP 54,000 Net Income: PhP 90,000.00



7. Venn Diagram



IIRR Staff

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Farah Gaud Urdelas
Sheela De Felipe
Royden Nicolas
Carlo Cargando
Jenalyn Lastima

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Jineveb S. Siva
Jenny B. Labanero
Jehann Q. Pitogo

Council Members and Volunteers

Brgy. Masaling

Local Government Unit

Municipality of Cauayan
Municipal Agriculture Office
MAO: Mr. Daniel Dayono

Farmers Association

Buhing Tubig Diversified Farmers Association
Masaling Farmers Association
Abu-abo Farmers Association



AMIA Villages in the
Municipality of Cauayan,
Province of Negros Occidental

