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



# AKLAN

AMIA Villages in the  
**Municipality of  
Numancia,**  
Province of Aklan

**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 Numancia, Province of Aklan

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



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## **Numancia, Aklan**

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## **Barangay Profiles**

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## A. Background

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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

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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.

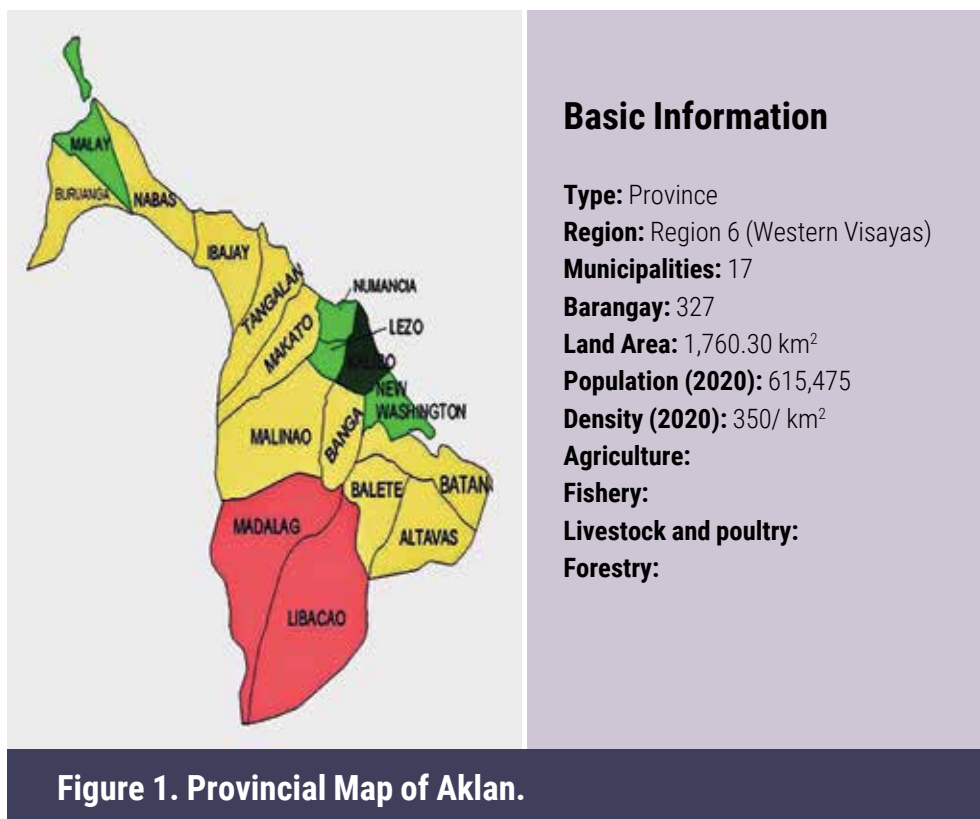
The following PCVRA instruments were used for information gathering:

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

Aklan has a land area of 1,760.30 km<sup>2</sup> (679.66 sq mi) and a population of 615,475 as of the 2020 Census. It occupies the northern portion of the island of Panay and is bordered by Iloilo, Capiz, and Antique, while facing the Sibuyan Sea to the north. The province is home to 17 municipalities and 327 barangays, with Boracay Island situated at its northwestern tip. The area's geography is diverse, encompassing beaches, mangroves, and hills.



Aklan is classified as a second class province, and its primary industries are farming and fishing in inland and coastal regions, respectively. Some poorer residents seek seasonal work in other parts of the country, such as Negros, particularly in plantations. Despite its thriving tourism and agriculture sectors, the province has a poverty rate exceeding 30% of the population, with many residents falling below the national poverty threshold. Boracay Island is renowned for its picturesque beaches and is one of the most popular destinations in the Philippines.

As of December 2016, the National Roads in Aklan are:

### Secondary Road

- Aklan East Road
- Aklan West Road (Kalibo-Nabas)
- Ibaday-Antique Boundary Road
- Jaime Cardinal Sin Avenue

### Tertiary Road

- Altavas-Jamindan Road





## D. Municipal Profile

Numancia is a fourth class municipality in the province of Aklan. It is located close to the Capital Town of Kalibo. Majority of its barangays are classified as urbanized, making it the second most densely populated municipality in the province. The population density is 1,200 inhabitants per square kilometer. The original name of Numancia is Majanos, a word of Malayan origin that could mean lowland. Numancia is the only town in Aklan that has no highland or even a small hill. From Numancia, one can see the majestic mountain of Majaas.

Numancia's tourist attractions includes beach resorts situated along coastline of barangays Navitas and Camanci Norte, the Century Old Trees in Albasan, the crispy native lechon manok and liempo, the vermi-composting facilities and the modern Ati Village in Aliputos.

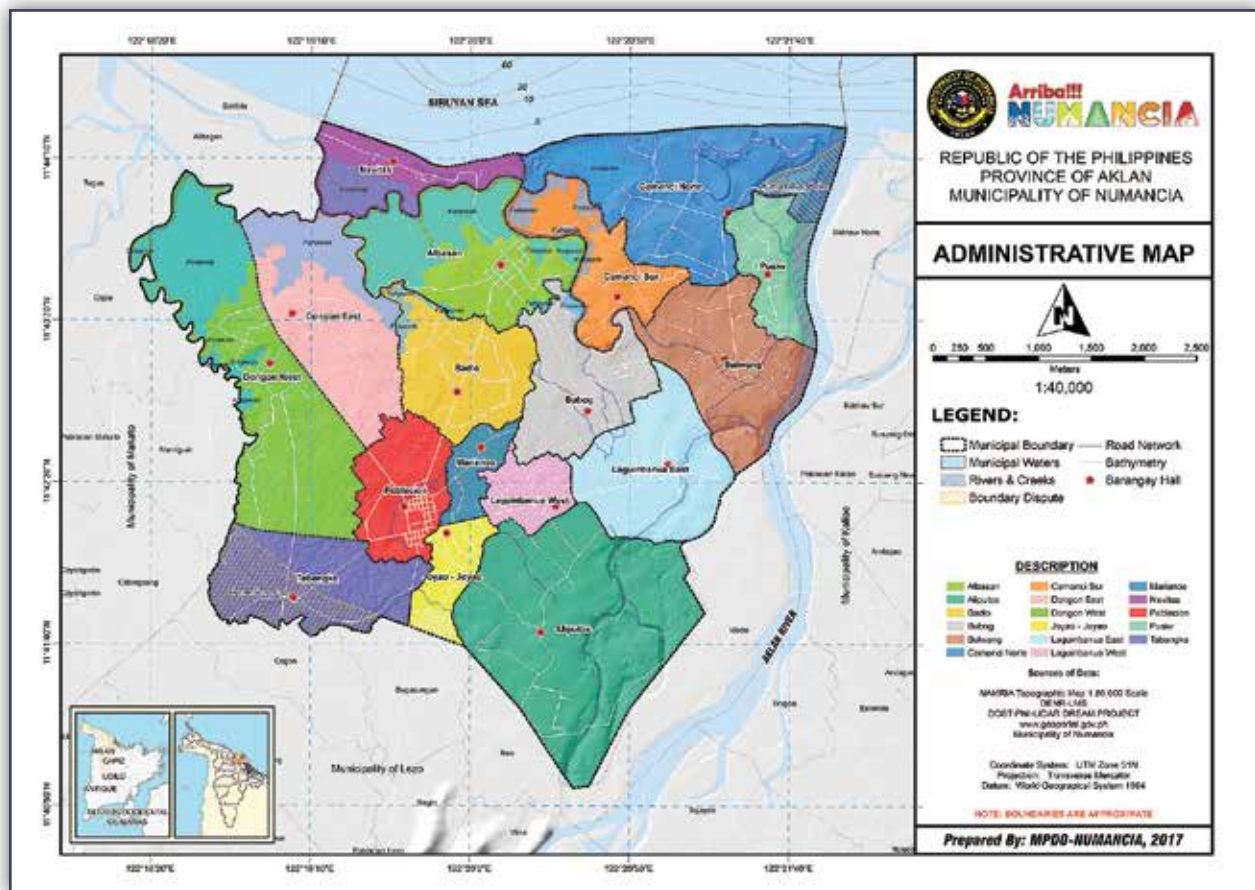


Figure 2. Municipal Map of Numancia.

## Topography and Slope

Numancia is a municipality located on the island of Panay, with an estimated elevation of 11.8 m above sea level. The closest cities to Numancia are Roxas City, Capiz, Passi, Iloilo, Iloilo City, Victorias, Silay, and Talisay. The nearest municipalities are Makato, Kalibo, Lezo, Malinao, Banga, and Tangalan. It has an estimated area of more or less 2,884 hectares and 100% fertile plain suited for the cultivation of agricultural crops.

## Climate and Rainfall

The municipality has two (2) pronounced climatic seasons, the dry season and wet season. The location has an attitude/elevation of 38 ft and experiences an annual high temperature of 29.01°C and low temperature of 26.71°C. The average annual precipitation is 83.47mm and the warmest month is May with a temperature of 30.74°C, while the coldest month is February with a temperature of 25.21°C. July is the wettest month with 146.03 mm of precipitation and April is the driest with 27.97 mm of precipitation. There are 164.7 days with rainfall ( $\geq 1.0$ mm) which makes up 45.12% of the year.

Numancia is well sheltered against the force of typhoons, though heavy rains affect the area but rarely by the destructive waves common to the storm ridden areas of Luzon and Eastern Visayas. However due to heavy rains, occurrence of floods is almost certain because of the overflow of water from the Aklina River.

## Population Size and Growth Rate

The population of the area in 2020 was 35,693 with a population density of 1,238/km<sup>2</sup>. The growth rate of the population was 2.37%, with an increase of 3,759 people from the previous population count of 31,934 in 2015.

## Tourism and Public Utilities

Numancia is a town with various tourist attractions including beach resorts such as the Doña Crispina Beach Resort and Hotel and others in Barangay Camanci Norte. The Nadal Castle in Laguinbanua West is also worth visiting. The town has basic facilities such as a municipal hall, health center, police station, and public schools. Numancia also has private schools and tertiary institutions. It has access to basic utilities like electricity, water, and internet connection.

## Economic Activity

- Agricultural
- Fishery
- Services

## E. Executive Summary

In Laguinbanua West, typhoons significantly affect the community, resulting in displacement of residents, destruction of homes and agricultural crops, and severe loss of livestock. The capacity of the community is limited, making them more vulnerable to the effects of a typhoon. In Aliputos, typhoons cause flooding, particularly in Zones 6 and 7, while drought affects vegetable farmers with

Barangay	Description of Hazards	Impacts	Capacity of the community
<b>LAGUINBANUA WEST</b>			
	Identified the typhoon as the climate hazard that significantly affecting them.	<p>The typhoon resulted in the displacement of local communities as their homes and agricultural crops were destroyed.</p> <p>The livestock in the area also suffered severely, as 80% of them perished as a result of the typhoon. This could have a significant impact on the livelihoods of those who rely on livestock for their income.</p>	The community has an active farmers associations who facilitated their access to various farm equipments and inputs from DA and PHiMEch
<b>ALIPUTOS</b>			
	Typhoon and drought as the major climate hazards.	<p>The typhoons cause flooding in various zones, with Zones 6 and 7 being particularly prone to stagnant water, which poses challenges and hazards for the residents.</p> <p>Drought is causing concerns for vegetable farmers as they lack sufficient water sources for their crops, leading to wilting and reduced yield.</p>	Purok 2 and Purok 3 have a better capacity to cope with climate hazards, while Purok 1, 4, 5, 6, and 7 have limited resources and capacity due to a higher percentage of indigent residents.
<b>BUBOG</b>			
	Communities mentioned that the two main climatic hazards in their area are typhoon and drought.	<p>Typhoons have caused significant damages to households, crops, and livestock.</p> <p>The lack of rainfall has resulted in reduced access to water resources, leading to crops withering and diminishing yields.</p> <p>Livestock and poultry have also suffered high mortality rates due to limited access to water for hydration.</p> <p>Ilaya West and Ilaya East have been among the most affected areas.</p>	<p>The purok of Balili South, Ilaya East, Balili North, Ilaya West, and Ilawod West are mainly lower middle-class and have resources.</p> <p>Communities with more indigent residents may face greater vulnerability to climate hazards due to limited resources and dependence on external aid.</p>

limited water sources, leading to wilting and reduced yield. Purok 2 and Purok 3 have better capacity to cope with climate hazards, while Purok 1, 4, 5, 6, and 7 have limited resources and capacity. In Bubog, typhoons and droughts cause significant damage to households, crops, and livestock, with access to water resources being a major issue. Ilaya West and East have been among the most affected areas, with some puroks having limited resources and high dependence on external aid, leading to greater vulnerability to climate hazards.

## 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 Aklan

The program started in Numancia, Aklan in 2022. To initiate the program, Numancia AMIA Village Farmers Association was organized, covering three (3) barangays, with a membership of 105 where 73 are male and 32 are female. They cover a total land area of 113.58ha. Under its umbrella are the 3 barangay-based associations, namely:

1. **Laguinbanua West Farmers Association** (7 female, 12male)
2. **Bubog Farmers Association** (13 female, 37 male)
3. **Aliputos Farmers Association** (12 female, 24 male)

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 (18 gilts)
2. **Poultry production:** Establishment of communal production system for native chicken where association was provided with stocks (150 heads)
3. **Organic vegetable production** was supported with 48 drums, 48 meters hose and garden tools, seeds and molasses.
4. **Vermi composting** was introduced with 20 kg of worms.
5. **Introduction of systems of rice intensification (SRI) concept** supported by trainings on fertilizer and concoction formulation, inputs such as vermi cast and concoctions, roraty weeder (3 units), carbonize (1 unit), and vermi tea brewer (1 unit)

Associations were also supported to be registered in Philippine Government Electronic Procurement System (PhilGEPS) Registered until 2024 for their native chicken production and a certification from Certified Participatory Guarantee System (PGS) until 2024 for their organic vegetable production and SRI.

## F. Recommendations

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It is important for the community to be prepared and resilient in the face of future climate events by implementing adaptation and mitigation measures. These include:

1. Improving infrastructures like evacuation centers
2. Constructing drainage systems
3. Following the early warning systems at the Barangay level to minimize the impacts of disasters
4. Developing a Barangay emergency response plan
5. Collaborating with multiple sectors to address the challenges of climate change and ensure the sustainable development of the area
6. Promoting sustainable agricultural practices including crop diversification and soil and water conservation and management



# Barangay Laguinbanua West

## 1. Introduction

### 1.1 Barangay Profile

Laguinbanua is a barangay in Aklan that holds great historical significance due to its association with Madjanos, which was the site of the first Bornean Settlement in Aklan. The old town is divided into two parts, namely Laguinbanua East and Laguinbanua West. Laguinbanua West is bordered by Laguinbanua East to the East and portions of Marianos and Joyao-Joyao to the West. Aliputos is situated to the South, while the total land area of Laguinbanua West is 50 ha. The soil in the area is characteristically sandy loam, and the land is entirely plain. The main agricultural crops produced in Laguinbanua West are palay, followed by coconuts and vegetables. There are two primary methods of farming used in the area, namely direct seeding and transplanting.

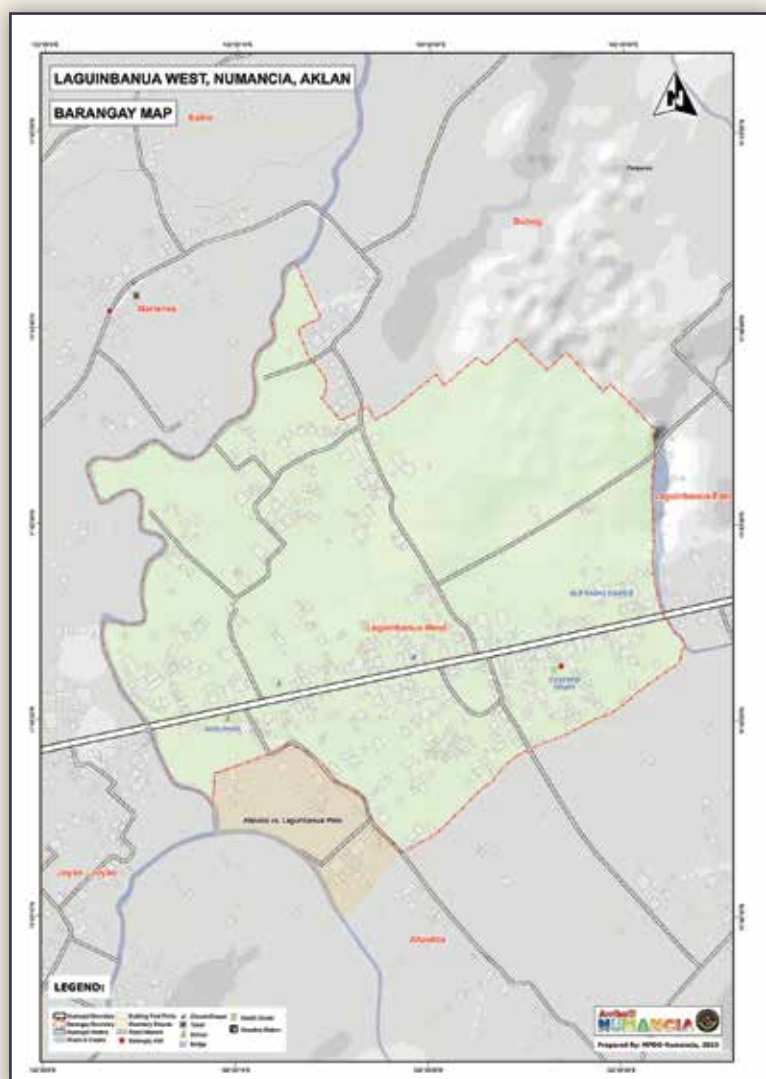


Figure 3. Map of Barangay Laguinbanua West

## Population

In the 2020 Census, Brgy. Barangay Laguinbanua was populated with 1,917 people. 25.55% of the population is made up of those aged 14 and below, which includes infants, children, and young adolescents/teenage dependents. The economically active population, consisting of individuals aged 15 up to 64 who are actual or potential members of the workforce, makes up 67.74% of the population. The remaining 6.71% is made up of the old dependent population, which consists of senior citizens aged 65 and over who may rely on support from others.

### 1.2 Household Classification

- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li>● <b>Purok 1</b> - 60% indigent<br/>- 40% lower middle class</li> <li>● <b>Purok 2</b> - 40% indigent<br/>- 60% lower middle class</li> <li>● <b>Purok 3</b> - 70% indigent<br/>- 30% lower middle class</li> <li>● <b>Purok 4</b> - 10% indigent<br/>- 90% lower middle class</li> <li>● <b>Purok 5</b> - 20% indigent<br/>- 80% lower middle class</li> </ul> | <ul style="list-style-type: none"> <li>● <b>Purok 6</b> - 40% indigent<br/>- 60% lower middle class</li> <li>● <b>Purok 7</b> - 60% indigent<br/>- 40% lower middle class</li> <li>● <b>Purok 8</b> - 60% indigent<br/>- 40% lower middle class</li> <li>● <b>Purok 9</b> - 80% indigent<br/>- 20% lower middle class</li> <li>● <b>Purok 10</b> - 40% indigent<br/>- 60% lower middle class</li> </ul> |
|--|---|

### 1.3 Livelihood Status

The livelihood status in this barangay is characterized by a diverse mixture of income-generating activities, with farming, game fowl raising, and running a convenience/sari-sari store being the most common.

Farming is a traditional livelihood activity in many rural areas, and this barangay is no exception. Rice farming provides a consistent source of staple food and additional income. The majority of rice farmers are tenants. On average, 121 sacks of rice are harvested per hectare in rice farming. During each cropping season, fifty percent of this harvest is shared between the landowner and the tenant. The other fifty percent is kept by the tenant, who can then use it for their own consumption or sell it to earn an income.

Raising game fowls is a popular pastime. Residents raise and train fighting cocks that compete in organized matches, with the prize money serving as a source of income.



Owning and managing a convenience store is another common source of income in this barangay. Many residents operate small, locally-owned convenience stores that sell a variety of goods, such as food, beverages, toiletries, and household necessities. These stores offer a convenient shopping option for locals who may not want to travel to larger towns or cities to purchase basic items.

## 1.4 Sectoral Involvement in Livelihood

### A. Farming

In rice farming, men aged 31-59 years old generally make decisions and handle most activities including land preparation, seed selection, seed soaking, drain, broadcasting, fertilizing, water management, application of pesticides, top dressing, monitoring, and harvesting. Women play a role in land preparation, transplanting, and marketing. Youth and senior citizens are involved in some activities, but to a lesser extent.



### B. Game fowl raising

Game fowl raising involves the construction of a cage, feeding and providing vitamins, collecting eggs, incubating for 0 to 21 days, hardening for 35 days, selling hens, and preparing the cocks for fighting. Men have a dominant role in decision-making and sectoral roles, while women and youth make up a smaller percentage of participants. Seniors also have limited involvement in the activity.



### C. Sari-sari store

In managing a convenient store, men primarily handle the construction and repair, while women take care of purchasing, listing, shopping, pricing of goods, displaying, selling, and inventory recording.

## 2. Climate Change Perception

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### 2.1 Climate Hazard

Typhoon Frank, the most destructive typhoon to hit Laguinbanua West's barangay, caused flash floods and damaged structures, crops, and livestock.

The climate pattern has been changing over time, with observed alterations in the timing and length of rainy and sunny seasons, as well as the occurrence of typhoons. There has also been a decrease in the percentage of farming dedicated to planting rice.

The climate pattern 30 years ago had a mix of rainy and sunny seasons from January to May, with a sunny season from June to October, and a rainy season in November and December in which typhoons occurred. 90% of farming was also dedicated to planting rice.

15 years ago, the climate pattern changed with a mix of rainy and sunny seasons in January, February, March, June, July, and August, a sunny season in April and May, and a rainy season in September, November, and December. Typhoons occurred from June to December and 70% of farming was dedicated to planting rice.

5 years ago, the climate pattern had a mix of rainy and sunny seasons from March, June, October, November, and December, a sunny season in April and May, and the rainy season in January, February, July, August, and September. Typhoons occurred from June to December and 50% of farming was dedicated to planting rice.

### 2.2 Impact

Laguinbanua West experienced one major climate event, namely Typhoon Frank, in 2008. This typhoon caused significant damage to properties, including building structures, crops, and livestock. Approximately 80% of the properties were partially damaged, while 30% were totally damaged. Crops were completely lost due to flash floods caused by the typhoon. Moreover, 80% of the livestock perished.

## 2.3 Coping Mechanism

To cope after the devastation, the community relied on the bayanihan system of mutual assistance and cooperation. They also sought financial assistance, and all barangay officials conducted house-to-house monitoring amidst clearing operations. The Philippine Red Cross provided shelter for the affected residents. The disaster affected livelihood capitals, particularly natural capital (crops and livestock) and physical capital (houses and infrastructure).

## 2.4 Capacity of the community

Results from the focused group discussions and key informant interviews revealed that farmers have access to key elements of production that can improve their capacity. They said that they are provided by the Philippine Center for Postharvest Development and Mechanization (PhilMech) and the Department of Agriculture (DA) with farm machines which can contribute to efficient production. DA also provides them with production support such as planting materials, and alternative sources of livelihood like small livestock. Furthermore, the presence of financial institutions such as MFIs, rural banks, and farmers' cooperative also gave them easy access to loans to improve their capacity. Farmers also revealed that all of them were registered with the RSBS and PCIC.

The farmers shared that many of them have no capacity to have their own savings as most of their income goes to everyday needs and support production. Given this, they have difficulty in recovering from disasters, especially after experiencing damage to their homes and sources of basic needs. They are dependent on LGUs for immediate support, and fortunately they have been consistent in giving assistance for the past disasters.

Farmer associations also have a strong presence in the community. Rice farmers are organized and all access to irrigation and farm machineries are facilitated by the group.

However, disaster risk reduction plans related to their livelihoods are not in place according to many key informant interviews.

## 2.5 Initial Plan of the Barangay

Implications	Solution
<ul style="list-style-type: none"> <li>Limited access to irrigation</li> </ul>	<ul style="list-style-type: none"> <li>Proposed irrigation system</li> </ul>
<ul style="list-style-type: none"> <li>Limited number of trainings provided to households</li> </ul>	<ul style="list-style-type: none"> <li>Preparedness training and DRRM plan to households and council</li> </ul>

### 3. Summary and Findings

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The timing and length of the rainy and sunny seasons, as well as the frequency of typhoons, have been changing over time, which is causing changes in the climatic pattern. The proportion of farming dedicated to planting rice has also decreased.

Three different time periods are drawn, with each one highlighting different aspects of the community's economy and demographics.

30 years ago, there was a reliance on coconut and banana farming as a source of income, likely due to the prevalence of such crops in the region. Rice farming was also common during this time, with farmers likely planting and harvesting the crop for two seasons each year. The mention of a drought suggests that the community may have faced challenges in sustaining these crops and their associated livelihoods.

15 years ago, there was a noticeable reduction in the number of farmers in the community due to land conversion for residential purposes. This points to a shift in the overall economy away from agriculture and towards urbanization. Additionally, the mention of game fowl being raised for cockfighting may suggest a new form of income generation for some farmers in the community.

5 years ago, the trend of land conversion continued, with many farmers leaving the vocation thereby decreasing their population. This time, the focus was on the prohibition of hybrid pigs, likely due to an unpleasant odor that may have been generated by these animals. Instead, the community relied on traditional native pigs for livestock.

The community has identified the typhoon as the most common climate hazard that they face. This is due to the fact that they have already experienced the devastating effects of such a disaster, as evidenced by their experience with Typhoon Frank in 2008. The typhoon caused massive flooding, destroyed homes, and disrupted the agriculture sector. Despite this, the community was able to bounce back from the destruction with the help of various organizations and institutions that provided them with assistance.

The community's ability to cope after the typhoon was due in large part to the different organizations and institutions that stepped in to provide help and support. These organizations included government agencies, non-governmental organizations, and humanitarian aid groups. These groups provided immediate relief, such as food, shelter, and medical aid, to those affected by the typhoon. They also helped the community members rebuild their homes and livelihoods, providing them with resources and tools to get back on their feet.

In areas with high percentages of indigent and lower middle-class populations, there may be inadequate resources and funding allocated for disaster preparedness and response.

## 4. Recommendations

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1. The community needs to have a disaster preparedness plan to help secure their livelihoods. The community contingency plan should include evacuation plans, emergency shelter, and adequate resources to assist those who may be in need, particularly the indigent individuals. This is essential to decrease damages. Improving their access to information relevant to disaster and emergency response is one way to increase their capacity to respond.

In addition, the community can also practice LEGS, or Livestock Emergency Guidelines and Standards, which are a set of international guidelines to assess, design and implement interventions for livestock during an emergency. This programming allows the community to manage and protect their livestock by preparing against hazards and disasters.

2. Since the community has access to other sources of income such as game fowl raising, and non-agricultural labor, the concept of community savings should be encouraged. It could be incorporated in current structures such as the farmer's groups. With a community savings group, the community can both increase social and institutional capital which members can access during disasters and even during personal emergencies.
3. Aside from identifying typhoons as major climate hazards, the community also identified the limited access to irrigation as one major issue. With the observed climate variability, the community recognized the threat this poses to their major crop, rice. Securing a good source of irrigation ensures better production timing compared to rain-fed farming.



## Annex A. PCVRA Tools Used

### 1. Timeline

Typhoon Frank, June 2008			
Livelihood assets	Impacts on livelihood	Coping strategies implemented	Strategies in case of recurrence of the event
<b>Natural</b>			
Crops	100% of bananas were damaged (Banana, corn, vegetables, coconuts)	Immediately conducted a clearing operations. The barangay officials conducted monitoring.	Have accessible seed bank where it will be easy to have access of planting materials.
<b>Physical</b>			
Houses	80% of the houses are partially damaged, 20% being totally destroyed	The Philippine Red Cross provided shelter to them. Food packs were distributed to affected families. The Barangay conducted a bayanihan system after the typhoon.	Organize a committee on disaster risk reduction.  A force evacuation should be done.
<b>Financial</b>			
Livelihoods	High mortality rate of livestock, chickens, goat, cows, and carabao.	They seek financial assistance.	A DRRM training should be in place to save farm animals during calamities.

### 2. Spot Map



### 3. Seasonal Calendar

5 Years Ago	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
<b>CLIMATE PATTERN</b> (Wet & Dry)												
<b>TYPHOON</b>						✓	✓	✓	✓	✓	✓	✓
<b>TEMPERATURE</b>	→	→	↑	↑	→	→	→	→	→	→	↓	↓
<b>RAINFALL</b>												
<b>LIVELIHOODS:</b>												
A. Farming	Rice	Rice	Rice	Mungbean / Vegetables			Rice	Rice	Rice	Rice	Rice	Rice
B. Livestocks	ALL YEAR ROUND											
C. Cock fighting	ALL YEAR ROUND											
D. Sari-sari store	ALL YEAR ROUND											
E. Vending	ALL YEAR ROUND											

15 Years Ago	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
<b>CLIMATE PATTERN</b> (Wet & Dry)												
<b>TYPHOON</b>						✓	✓	✓	✓	✓	✓	✓
<b>TEMPERATURE</b>	→	→	→	↑	↑	→	→	→	↓	→	↓	↓
<b>RAINFALL</b>												
<b>LIVELIHOODS:</b>												
A. Farming	Rice	Rice	Rice	Vegetables			Rice	Rice	Rice	Rice	Rice	Rice
B. Livestocks	ALL YEAR ROUND											
C. Cock fighting	ALL YEAR ROUND											
D. Sari-sari store	ALL YEAR ROUND											
E. Vending	ALL YEAR ROUND											

**LEGEND:**

<b>CLIMATE PATTERN</b>	<b>TEMPERATURE</b>	<b>RAINFALL</b>
Wet	↑ High	High
Dry	→ Average	Moderate
	↓ Low	Low
		No Rain

30 Years Ago	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
<b>CLIMATE PATTERN</b> (Wet & Dry)												
<b>TYPHOON</b>											✓	✓
<b>TEMPERATURE</b>	→	→	→	→	→	↑	↑	↑	↑	↑	↓	↓
<b>RAINFALL</b>	Moderate										High	High
<b>LIVELIHOODS:</b>												
A. Farming	Rice	Rice	Rice	Mungbean/ Vegetables	Coconut/Banana						Rice	Rice
B. Livestocks	ALL YEAR ROUND											
C. Poultry	ALL YEAR ROUND											
D. Sari-sari store	ALL YEAR ROUND											
E. Copra					✓				✓			

**LEGEND:**

<b>CLIMATE PATTERN</b>	<b>TEMPERATURE</b>	<b>RAINFALL</b>
Wet	↑ High	
Dry	→ Average	
	↓ Low	





## 4. Livelihood Matrix

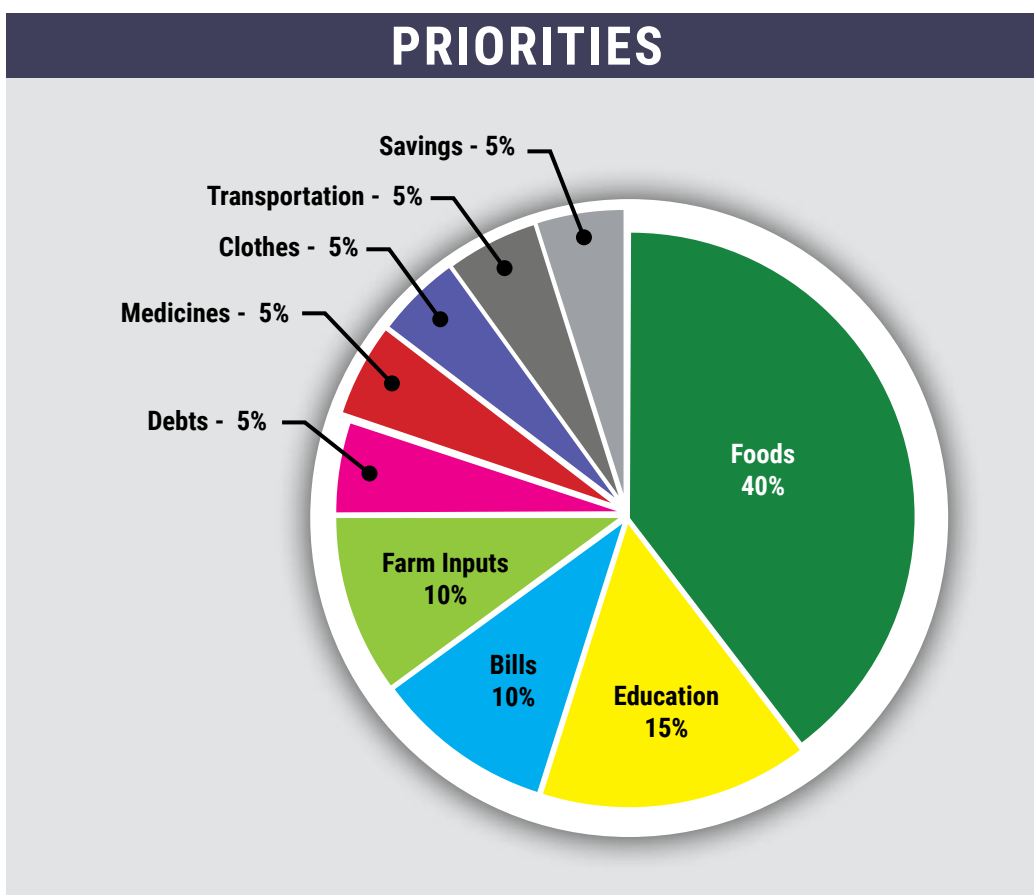
LIVELIHOOD: FARMING (RICE)	Roles		Decisions		Sectoral Role		
	Women	Men	Women	Men	Youth 15-30	31-59	Senior Citizen
Land preparation	0%	100%	30%	70%	0%	90%	10%
Seed selection	10%	90%	50%	50%	0%	90%	10%
Seed soaking/ Hag-um	0%	100%	0%	100%	0%	90%	10%
Drain	0%	100%	0%	100%	0%	90%	10%
After 3 days broadcasting	0%	100%	0%	100%	0%	90%	10%
After 7 days application of fertilizer	0%	100%	0%	100%	0%	90%	10%
Water management/ irrigation	0%	100%	0%	100%	0%	90%	10%
Transplanting	60%	40%	50%	50%	20%	70%	10%
After 14 days application of fertilizer	0%	100%	0%	100%	0%	90%	10%
After 35 days application of pesticides	0%	100%	0%	100%	0%	90%	10%
40-45 days top dressing	0%	100%	0%	100%	0%	90%	10%
Monitoring	50%	50%	50%	50%	0%	90%	10%
Harvesting	10%	90%	0%	70%	40%	60%	0%
Marketing	50%	50%	0%	50%	0%	90%	10%

COCKFIGHTING	Roles		Decisions		Sectoral Role		
	Women	Men	Women	Men	Youth 15-30	31-59	Senior Citizen
Construction of cage	0%	100%	0%	100%	30%	50%	20%
Feeding and providing vitamins	0%	100%	0%	100%	30%	50%	20%
Collecting eggs	0%	100%	0%	100%	30%	50%	20%
0-21 days incubation	0%	100%	0%	100%	30%	50%	20%
35 days hardening	10%	90%	0%	100%	30%	50%	20%
Selling hens		100%	0%	100%	30%	50%	20%
After 7 months ready for cock fighting	5%	95%	0%	100%	20%	60%	20%

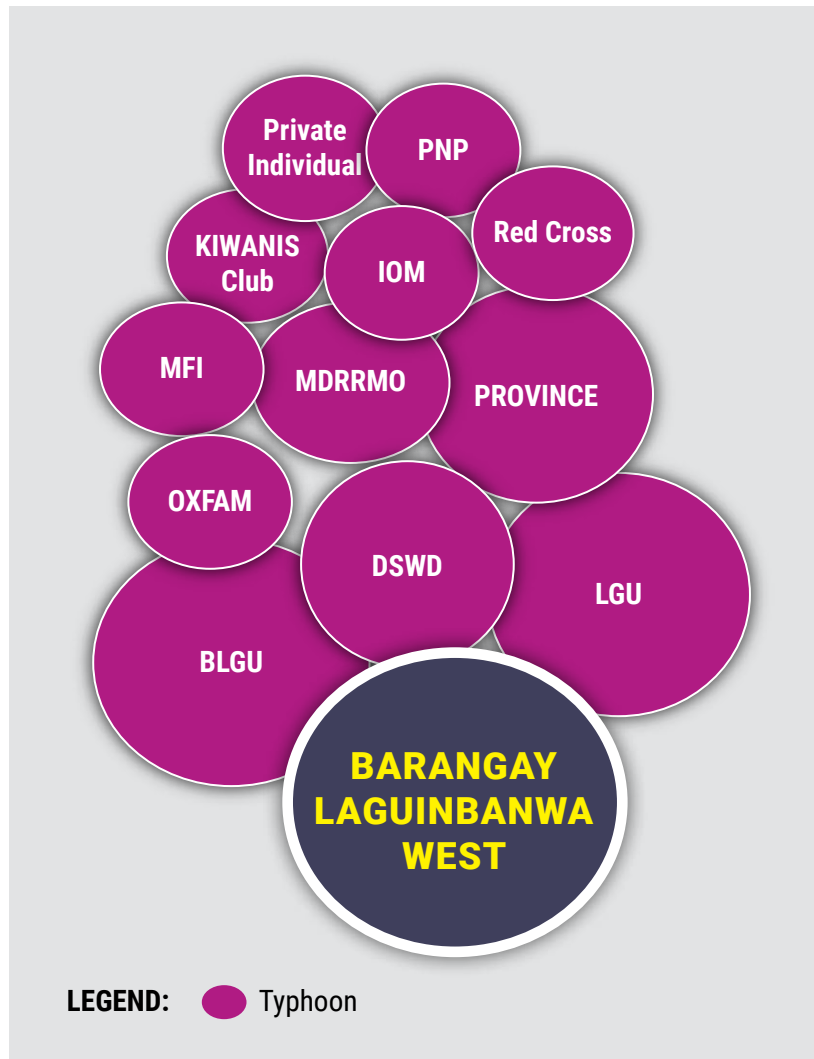
CONVENIENT STORE	Roles		Decisions		Sectoral Role		
	Women	Men	Women	Men	Youth 15-30	31-59	Senior Citizen
Construction/ repair of store	10%	90%	80%	20%	10%	70%	20%
Purchase of supplies and goods	90%	10%	80%	20%	10%	80%	10%
Listing of supplies and goods	50%	50%	50%	50%	10%	80%	10%
Shopping	70%	30%	80%	20%	20%	60%	20%
Pricing	80%	20%	50%	50%	20%	70%	10%
Display	80%	20%	50%	50%	40%	50%	10%
Selling	50%	50%	50%	50%	10%	80%	10%
Inventory and recording	70%	30%	80%	20%	10%	80%	10%

### 5. Resource Flow

LIVELIHOODS	Outflow	Income
<b>Farming (rice) Area: 1 ha./tenant</b>	PhP 41,080.00 (Labor, farm inputs and foods)	PhP 33,075.00 <b>Net income: Negative</b>
<b>Poultry (cock fighting) 20 heads 7 months</b>	PhP 49,700.00 (Feeds, vitamins and medicines)	PhP 70,000.00 <b>Net income: PhP 21,300.00</b>
<b>Sari-sari store (1 year)</b>	PhP 9,000.00 (Capital)	PhP 24,000.00 <b>Net income: PhP 15,000.00</b>



## 6. Venn Diagram



# Barangay Aliputos

## 1. Introduction

### 1.1 Barangay Profile

Barangay Aliputos has a significant history related to the establishment of the municipality of Numancia. The municipality was founded in 1866 and was named after a Spanish general. During the recognition of Numancia as an independent municipality, it was composed of several barangays, including Aliputos.

According to the story, while inspecting the surrounding barangays, a group of Spanish soldiers met a woman and asked for the name of her Barangay. The woman responded with “pinutos,” which means something wrapped. The Spaniards assumed that the woman provided them with the name of her Barangay, which they then called Aliputos after combining “Ali” with ‘Pinutos.’

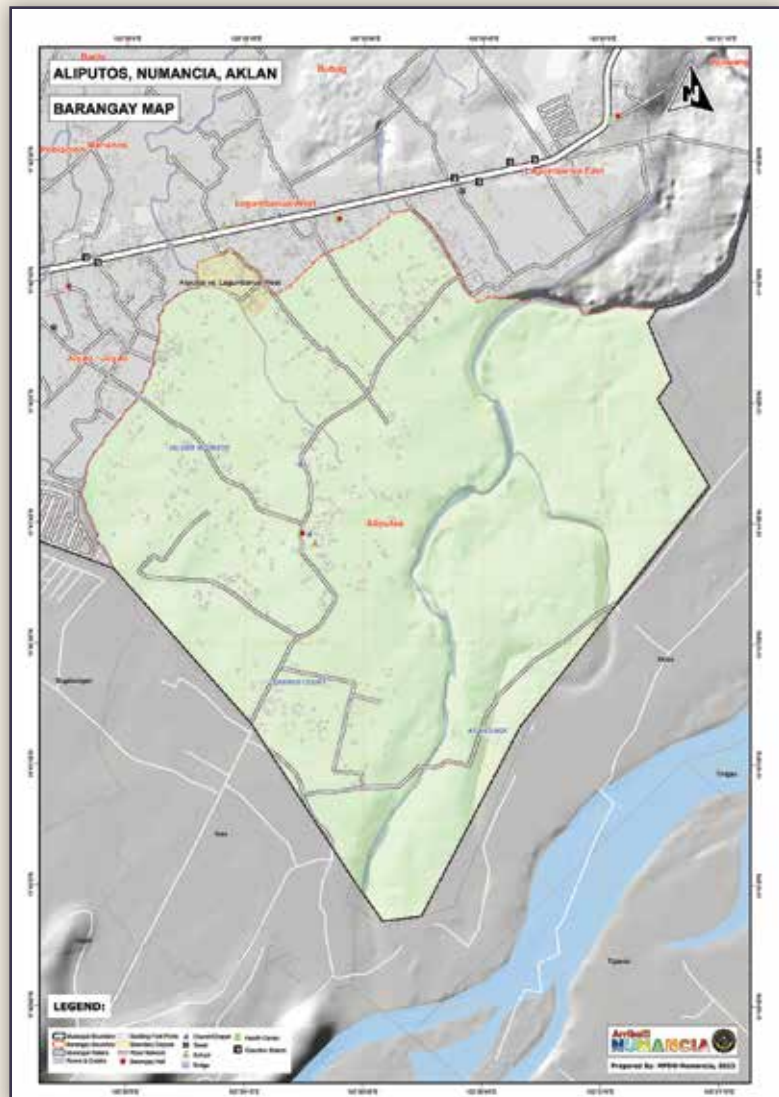


Figure 4. Map of Barangay Aliputos.

Over the years, Barangay Aliputos has undergone numerous changes and developments, but its history continues to be significant. Today, it is an important part of the Numancia municipality and is known for its rich culture and strong community spirit that has been shaped by its history.

## Population

Its population as determined by the 2020 Census was 2,564, with a median age of 26. This suggests that the population of Aliputos is young, with half of the population aged less than 26. This could have important implications for the community's social and economic development, as it suggests that there is a large population of young people who will soon be entering the workforce and contributing to the community's future growth and development.

### 1.2 Household Classification

- |                  |  |                  |  |
|------------------|--|------------------|--|
| ● <b>Purok 1</b> | - 70% indigent<br>- 30% lower middle class | ● <b>Purok 5</b> | - 50% indigent<br>- 50% lower middle class |
| ● <b>Purok 2</b> | - 40% indigent<br>- 60% lower middle class | ● <b>Purok 6</b> | - 60% indigent<br>- 40% lower middle class |
| ● <b>Purok 3</b> | - 50% indigent<br>- 50% lower middle class | ● <b>Purok 7</b> | - 80% indigent<br>- 20% lower middle class |
| ● <b>Purok 4</b> | - 80% indigent<br>- 20% lower middle class |                  |  |

### 1.3 Livelihood Status

Most of the population relies on farming and poultry for their income, with many residents growing rice, corn, and vegetables. In addition to agriculture and poultry, there are also some convenience store owners. Small businesses such as sari-sari stores/convenience stores provide additional sources of income.

The poultry industry appears to be profitable for the farmers, as the value of a rooster is high and they earn a consistent 3.5% every month. The sari-sari store, while a common source of income in many Philippine communities, may also be limited in its potential for growth and household success. Earning 5% every month from their capital may not provide enough income to drastically improve their standard of living or pursue other opportunities.

## 1.4 Sectoral Involvement in Livelihood

### A. Farming

The involvement of women, men, and youth in various farming activities for vegetables, corn, and rice is well spread. Women are more involved in seed selection, preparation of seed boxes/trays, and weeding. Men are more involved in land preparation, fertilization, transplanting, trellising, and harvesting. Youth are mainly involved in land preparation and some weeding. Senior citizens are mainly involved in fertilization and harvesting. Both men and women are involved in marketing/sorting.



### B. Game fowl raising and livestock

Women, men, and youth are involved in various activities related to livestock, including building the pig pen, purchasing piglets, feeding, cleaning, bringing in a boar for breeding, monitoring pig health, and disposing of piglets. Women are generally more involved in feeding, cleaning, and monitoring. Men are mainly involved in raising game fowl.



### C. Sari-sari store

In the construction/repair of a convenient store, women and men have an equal role. For the purchase of supplies and goods, women have a 70% role while men have a 30% role. Selling responsibilities are equally distributed, with both women and men having a 50% role. In terms of age demographics, the youth aged 15-30 have a 25% role in each activity, while individuals aged 31-50 have a 50% role, and senior citizens have a 25% role.

## 2. Climate Change Perception

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### 2.1 Climate Hazard

Typhoons bring to Barangay Aliputos strong winds and heavy rainfall, resulting in significant damage to their crops, homes, and infrastructure. In addition to typhoons, they also face droughts, particularly during the dry season when water sources become scarce and agricultural production is severely affected.

The climate pattern has changed over the past 30 years and has become less predictable. The farming industry has remained relatively stable with rice farming as the main crop.

30 years ago, the climate pattern had a clear distinction between sunny and rainy seasons, with typhoons occurring in November and December. Farming consisted mainly of rice, corn, and vegetables. 15 years ago, the climate pattern remained the same, with the main crop being rice farming. 5 years ago, the climate pattern changed with a combination of rainy and sunny seasons in January, June, and September, while the rest of the year had a clear distinction between them. Typhoons occurred from June to December, and rice farming continued to be the main crop.

### 2.2 Impact

During a typhoon, one of the common repercussions is flooding that occurs in various Purok/zones, typically ranging from Zone 1 to 7. However, the severity of flooding tends to vary across these zones, with Zone 1, 6, and 7 being particularly prone to stagnant water that takes typically 2 to 3 hours to drain away. Being situated near a creek means that these zones are already at a higher risk of flooding due to the increased amount of water flowing through the area. The high concentration of water in these zones poses various challenges and hazards for the residents.

Additionally, the presence of stagnant water hampers mobility and accessibility, making it difficult for individuals in these zones to reach their homes, and schools. The situation often leads to roads becoming impassable. This, in turn, affects the overall efficiency of emergency response systems, hindering the immediate assistance that is invaluable during such natural disasters.

One of the major issues currently being experienced is drought, which is causing problems for vegetable farmers as they lack sufficient water sources for some of their crops, leading to wilting and reduced yield. The farmers in these areas are heavily reliant on rainfall to water their crops. This can result in lower crop yields and even crop failure during periods of drought.

The irrigated area in Barangay Aliputos is only 30%, which means that most of the land is not being irrigated. Although there is irrigation available, it only covers the highways and proper areas, leaving other zones without access to water. This is a significant problem for farmers who require water for their crops to grow. Furthermore, Zones 2 to 7 do not have access to irrigation at all. The limited irrigation in Barangay Aliputos has a significant impact on the crops grown in the area, potentially limiting the variety of crops, decreasing yield and overall productivity, and leading to soil degradation and drought.

## 2.3 Coping Mechanism

After the typhoon, people coped by conducting clearing operations and regrowing crops. Local officials did the clearing operation while affected households received food packs and construction supplies from different agencies. The Barangay also gathered data for affected households and submitted it to the LGU for financial help. Despite these challenges, the community is grateful to their local government for constructing a seawall that has prevented flooding in Aliputos.

To cope during drought, they diversified their crops to minimize water usage. They also received crop insurance from PCIC.

## 2.4 Capacity of the community

Purok 2 and Purok 3 may have a slightly better capacity to cope with climate hazards due to their higher percentage of lower middle class residents. Purok 1, Purok 4, Purok 5, Purok 6, and Purok 7 have a higher percentage of indigent residents, suggesting limited resources and capacity to cope. Overall, the community's capacity to cope with climate hazards varies depending on the distribution of indigent and lower middle-class residents.

## 2.5 Initial Plan of the Barangay

Implications	Solution
<ul style="list-style-type: none"> <li>Lack of planting materials and seed source</li> </ul>	<ul style="list-style-type: none"> <li>Community seed banking</li> <li>Farmer's association to use and produce OPV seeds</li> </ul>
<ul style="list-style-type: none"> <li>Limited number of trainings provided to households</li> </ul>	<ul style="list-style-type: none"> <li>Propose DRRM training and planning at the barangay and household level</li> </ul>
<ul style="list-style-type: none"> <li>Limited capacity evacuations facility</li> </ul>	<ul style="list-style-type: none"> <li>Expansion of evacuation centers</li> </ul>



### 3. Summary and Findings

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The climate pattern, temperature, and rainfall have changed over the years in Brgy. Aliputos. 30 years ago, typhoons usually came in November and December. 15 years ago, 30% of farmers raised livestock, primarily native pigs, cows, and carabaos. 5 years ago, typhoons usually fell from June to December and 40% of people in Brgy. Aliputos were small business owners of sari-sari stores. Farming remained the main livelihood in the area, with rice, corn and vegetables being the primary crops.

The community faces challenges from typhoons and droughts. Typhoons cause flooding, with Zone 6 and 7 experiencing significant stagnant water that takes time to drain away. The high concentration of water poses hazards and hampers mobility and accessibility. Flooding also affects emergency response systems, hindering immediate assistance. Droughts affect vegetable farmers, leading to reduced water sources and wilting crops. The limited availability of irrigation worsens the situation in the area, impacting crop yields and productivity.

Their coping mechanisms include conducting clearing operations and regrowing crops during typhoons. Local officials provide assistance to affected households, including food packs and construction supplies. The community is grateful for the construction of a seawall that has prevented flooding.

To cope with droughts, the community diversifies their crops to minimize water usage and receives crop insurance. The community's capacity to cope with climate hazards varies based on the distribution of indigent and lower middle class residents. Purok 2 and Purok 3 have a higher percentage of lower middle class residents, suggesting that they have a slightly better capacity to cope. Purok 1, Purok 4, Purok 5, Purok 6, and Purok 7 have a higher percentage of indigent residents, indicating limited resources and lower capacity to cope.

### 4. Recommendations

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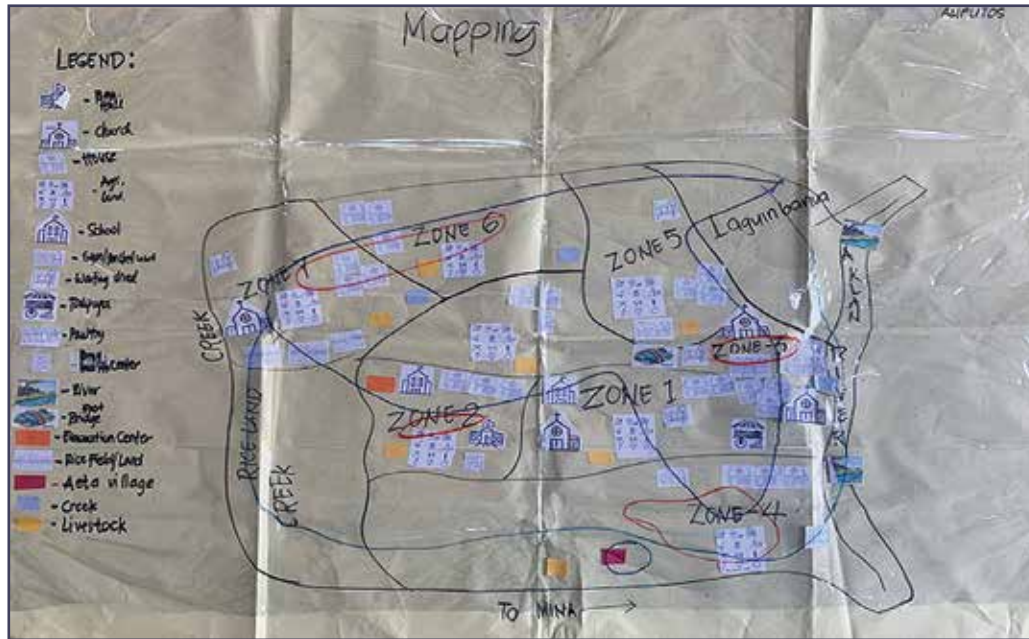
1. Local officials and stakeholders should explore and invest in sustainable climate adaptation measures. This can include projects such as the construction of rainwater harvesting systems, the establishment of community-managed irrigation systems, and the promotion of climate-resilient farming practices.
2. It is crucial to prioritize the protection and provision of resources and assistance to the most vulnerable communities, particularly those with higher concentrations of indigent residents.
3. Ongoing education and awareness campaigns on climate change and its impact on local communities can also be implemented to encourage participation and engagement from all members of Barangay Aliputos.

## Annex B. PCVRA Tools Used

### 1. Timeline

<b>Typhoon Frank, June 2008</b>			
<b>Livelihood assets</b>	<b>Impacts on livelihood</b>	<b>Coping strategies implemented</b>	<b>Strategies in case of reoccurrence of the event</b>
<b>Natural</b>			
Crops	100% of all crops were damaged.	Conducted clearing operations and replanted crops.	Damage should be reported to the barangay council for easy monitoring.
Soil	Flashflood and soil erosion occurred due to heavy rain.	Clearing operation was conducted by the local officials.	Listen to typhoon update.
<b>Physical</b>			
Houses	30% of the houses were completely destroyed, while 70% of the houses were partially damaged.	Affected households received food packs from the LGU. Other construction supplies were provided by different agencies that extended help.	Organize a committee on disaster risk reduction.
<b>Financial</b>			
Livelihoods	30% of the livestock died.	The Barangay gathered data on affected households and submitted it to the LGU.	Concerns or problems should be reported to the council promptly.
<b>Drought, 2009 to present</b>			
<b>Livelihood assets</b>	<b>Impacts on livelihood</b>	<b>Coping strategies implemented</b>	<b>Strategies in case of reoccurrence of the event</b>
<b>Natural</b>			
Crops	The wilting of plants. 90% of the vegetables are affected.	Developed an alternative deep well.  They received crop insurance from PCIC.	Construction of irrigation system to supply irrigation water to plants.

## 2. Spot Map



## 3. Seasonal Calendar

5 Years Ago	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	
<b>CLIMATE PATTERN</b> (Wet & Dry)													
<b>TYPHOON</b>						✓	✓	✓	✓	✓	✓	✓	
<b>TEMPERATURE</b>	↓	↓	↑	↑	↑	→	→	→	→	→	→	→	
<b>RAINFALL</b>	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Brown	Brown	Red	Red	Red	Red	
<b>LIVELIHOODS:</b>													
A. Farming	Corn, vegetables, sweet potato, yam, peanuts		Vegetables		Corn, veg., mung bean		Corn, rice, vegetables						
B. Livestocks	ALL YEAR ROUND												
C. Vending	ALL YEAR ROUND												
D. Weaving	ALL YEAR ROUND												
E. Sari-sari store	ALL YEAR ROUND												

15 Years Ago	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
<b>CLIMATE PATTERN</b> (Wet & Dry)												
<b>TYPHOON</b>											✓	✓
<b>TEMPERATURE</b>	↑	↑	↑	↑	↑	↑	→	→	→	→	→	→
<b>RAINFALL</b>	Moderate	Moderate	Moderate	Low	Low	Low	High	High	High	High	High	High
<b>LIVELIHOODS:</b>												
A. Farming	Corn, veg., sweet potato, yam, bean, peanuts	Vegetables		Corn, veg., mung bean	Corn, vegetables, mungbean, rice							
B. Livestocks	ALL YEAR ROUND											
C. Vending	ALL YEAR ROUND											
D. Weaving	ALL YEAR ROUND											
E. Sari-sari store	ALL YEAR ROUND											

30 Years Ago	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
<b>CLIMATE PATTERN</b> (Wet & Dry)												
<b>TYPHOON</b>											✓	✓
<b>TEMPERATURE</b>	↑	↑	↑	↑	↑	↑	→	→	→	→	→	→
<b>RAINFALL</b>	Moderate	Moderate	Moderate	Low	Low	Low	High	High	High	High	High	High
<b>LIVELIHOODS:</b>												
A. Farming	Corn, veg., sweet potato, yam, peanuts	Vegetables		Corn, veg., mung bean	Corn, vegetables, mungbean, rice							
B. Livestocks	ALL YEAR ROUND											
C. Vending	ALL YEAR ROUND											
D. Weaving	ALL YEAR ROUND											
E. Sari-sari store	ALL YEAR ROUND											

**LEGEND:**

<b>CLIMATE PATTERN</b>	<b>TEMPERATURE</b>	<b>RAINFALL</b>
Wet	↑ High	High
Dry	→ Average	Moderate
	↓ Low	Low
		No Rain

## 4. Livelihood Matrix

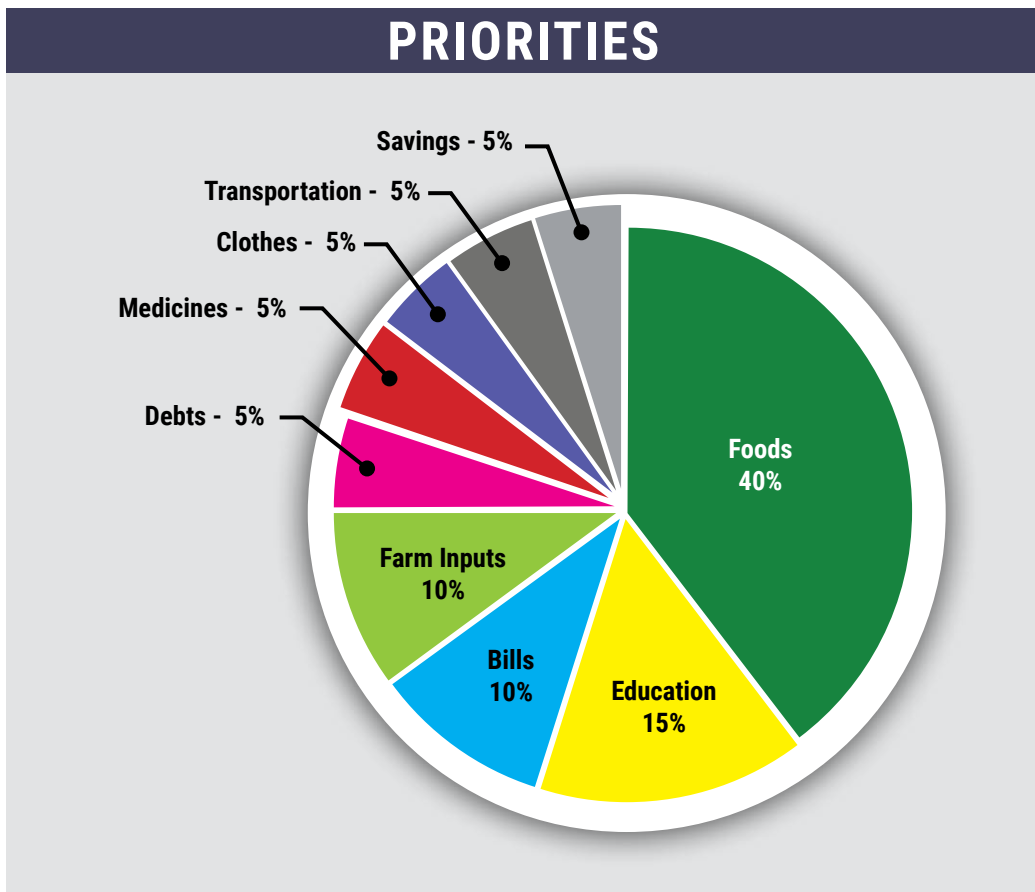
<b>FARMING: Vegetables, corn &amp; rice</b>	Roles		Decisions		Sectoral Role		
Activities	Women	Men	Women	Men	Youth 15-30	31-59	Senior Citizen
Land preparation (plowing, harrowing, plot gardening)	10%	90%	50%	50%	10%	70%	20%
Seed selection	50%	50%	40%	60%	0%	50%	50%
Preparation of seed box/seed tray	50%	50%	50%	50%	0%	50%	50%
Fertilizer (basal application)	30%	70%	30%	70%	0%	100%	0%
Transplanting	50%	50%	50%	50%	0%	70%	30%
Trellising	0%	100%	50%	50%	0%	80%	20%
Fertilizer (side dressing)	40%	60%	50%	50%	30%	60%	10%
Weeding (manual/spraying herbicide)	30%	70%	50%	50%	10%	70%	20%
Application of pesticides	0%	100%	50%	50%	10%	90%	0%
Harvesting	50%	50%	50%	50%	30%	60%	10%
Marketing/sorting	0%	0%	50%	50%	20%	60%	20%

<b>CONVENIENT STORE</b>	Roles		Decisions		Sectoral Role		
Activities	Women	Men	Women	Men	Youth 15-30	31-59	Senior Citizen
Construction of store	100%	0%	50%	50%	25%	50%	25%
Purchase of supplies and goods	70%	30%	50%	50%	20%	60%	20%
Pricing	0%	100%	50%	50%	20%	60%	20%
Selling	50%	50%	50%	50%	20%	60%	20%

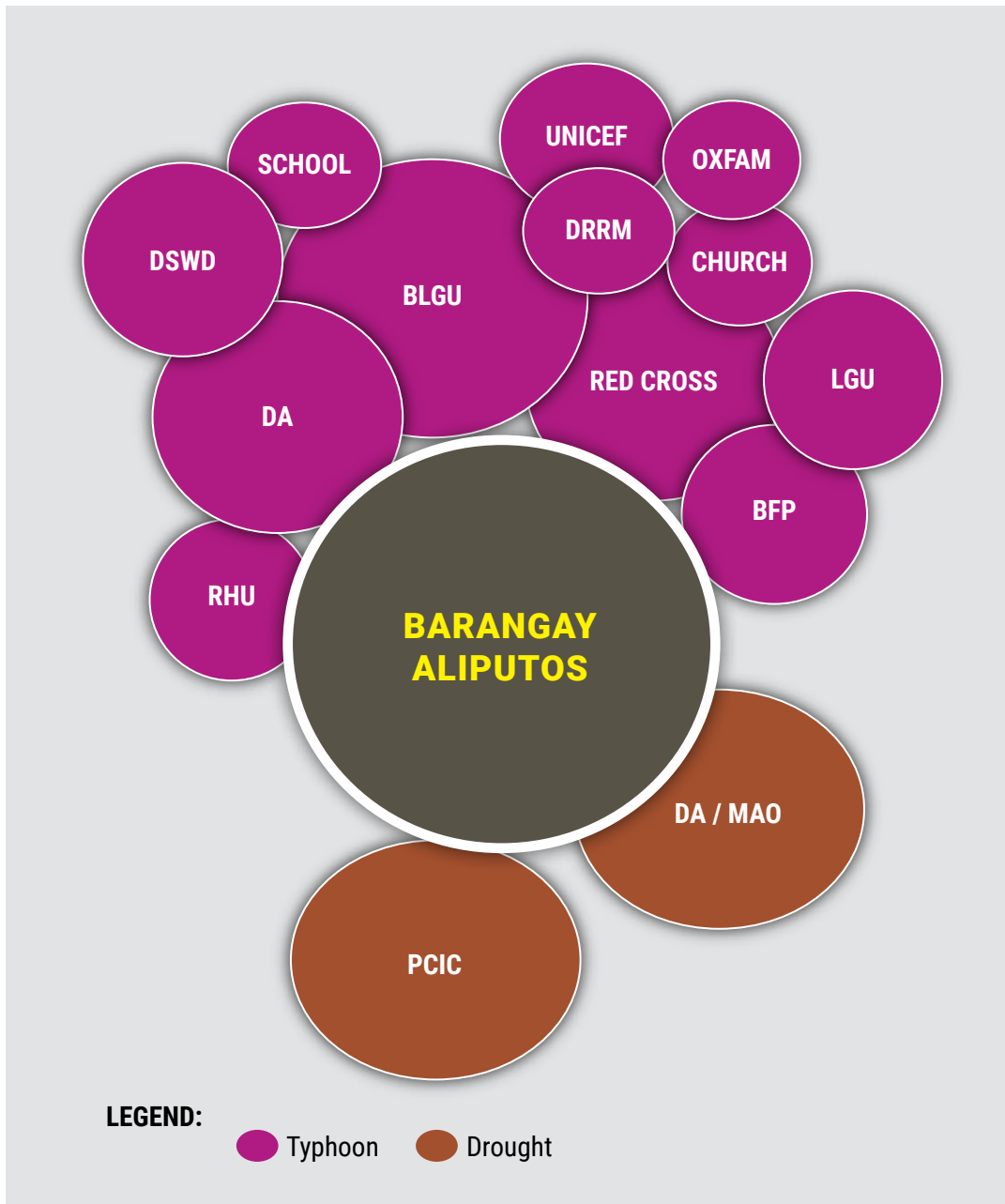
<b>LIVESTOCK</b>	Roles		Decisions		Sectoral Role		
Activities	Women	Men	Women	Men	Youth 15-30	31-59	Senior Citizen
Construction of pig pen		100%	50%	50%	25%	50%	25%
Purchase of piglets	50%	50%	50%	50%	0%	100%	0%
Purchase of feeds, vitamins, and deworming	30%	70%	50%	50%	0%	80%	20%
Feeding	50%	50%	50%	50%	25%	50%	25%
Cleaning	50%	50%	50%	50%	25%	50%	25%
Bringing the boar for breeding	30%	70%	50%	50%	0%	100%	0%
Vitamins	30%	70%	50%	50%	0%	100%	0%
114-120 days monitoring	50%	50%	50%	50%	0%	100%	0%
Iron in 3 days	30%	70%	50%	50%	0%	100%	0%
After 14 days castration and follow up iron	30%	70%	50%	50%	0%	100%	0%
30-45 days separate piglets to mother	50%	50%	50%	50%	0%	100%	0%
Disposal of piglets	50%	50%	50%	50%	25%	50%	25%

### 5. Resource Flow

LIVELIHOODS	Outflow	Income
<b>Farming (rice) Area: 1 ha./tenant</b>	Labor, farm inputs, and foods: PhP 41,080.00	PhP 33,075.00 <b>Net income: Negative</b>
<b>Poultry (cock fighting) 20 heads 7 months</b>	Feeds, vitamins, and medicines: PhP 49,700.00	PhP 70,000.00 <b>Net income: PhP 21,300.00</b>
<b>Sari-sari store (1 year)</b>	Capital: PhP 9,000.00	PhP 24,000.00 <b>Net income: PhP 15,000.00</b>



## 6. Venn Diagram



# Barangay Bubog

## 1. Introduction

### 1.1 Barangay Profile

#### Population

Barangay Bubog’s population as determined by the 2020 Census is 1,846. Based on the barangay’s Age Dependency Ratio (ADR), which indicates the age distribution of individuals in the population, there are 44 youth dependents for every 100 working age individuals in Bubog. Additionally, there are 12 aged/senior citizens for every 100 working individuals, which indicates that Bubog has a relatively young population. This means that the working age population in Bubog is responsible for supporting a relatively large number of dependents. The median age of 28 provides insight into the age distribution of the population.

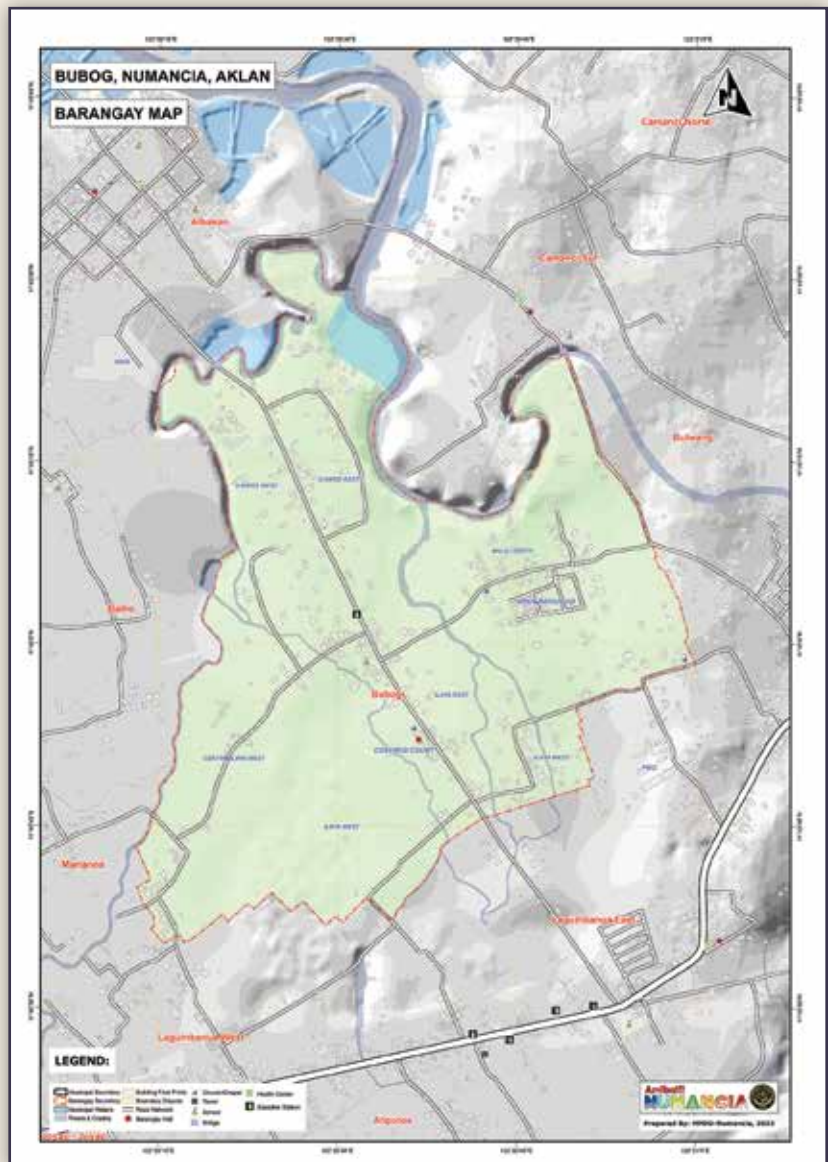


Figure 5. Map of Barangay Bubog.



## 1.2 Household Classification

- |  |  |
|--|--|
| <ul style="list-style-type: none"> <li>● <b>Balili South</b> - 60% indigent<br/>- 40% lower middle class</li> <li>● <b>Ilaya East</b> - 30% indigent<br/>- 70% lower middle class</li> <li>● <b>Balili North</b> - 30% indigent<br/>- 70% lower middle class</li> <li>● <b>Ilawod East/Looban</b> - 80% indigent<br/>- 20% middle class</li> </ul> | <ul style="list-style-type: none"> <li>● <b>Ilaya West</b> - 25% indigent<br/>- 75% lower middle class</li> <li>● <b>Ilawod West</b> - 10% indigent<br/>- 70% lower middle class</li> <li>● <b>Central Ilaya West</b> - 80% indigent<br/>- 20% lower middle class</li> </ul> |
|--|--|

## 1.3 Livelihood Status

Barangay Bubog is a small community that has a wide and diverse array of livelihood activities, mainly centered on agriculture, fishing and gleaning and animal husbandry.

The primary livelihood in Barangay Bubog includes vegetable, corn, and rice farming. Apart from farming, fishing is also a significant livelihood activity in Barangay Bubog. The barangay is strategically located near the coast, and its nearby resident venture out to coastline in search of seashells. Another source of livelihood in Barangay Bubog is livestock production. Farmers in the community raise pigs, which they sell to the local markets or within the barangay.

## 1.4 Sectoral Involvement in Livelihood

### Farming

Generally, men make up the majority of decision-makers and participants in farming activities. Women tend to be involved in activities such as seed selection, seed soaking, and harvesting, while men are more heavily involved in land preparation. Youth aged 15-30 are involved in many activities, while senior citizens tend to be less involved overall. Marketing is split equally between men and women.

### Fishing

In the fishing sector, women are mostly involved in purchasing and sewing/assembling fish nets, while men are predominantly engaged in assembling fishing gear and engaging in pre-fishing activities. When it comes to fishing/catching fish, men are mostly involved. Women are more likely

to be involved in sorting, sizing and selling of fish. The youth in the sector mostly helps in purchasing and sorting/sizing fish, while senior citizens mostly assist in selling fish.

## Livestock

The allocation of roles and decisions in livestock breeding and fattening reflects the sharing of responsibilities between women and men, with each having their own area of involvement and contribution. It also highlights the importance of involvement the youth and senior citizens in the sector. In the sectorial role, women have a higher contribution in feeding, particularly in the youth sector (15-30 years old). Men, on the other hand, have a higher contribution in the disposal/selling aspect.

## 2. Climate Change Perception

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### 2.1 Climate Hazard

The typhoons have a significant impact on the livelihood of people in affected areas. The damage to homes, crops, and livestock can result in long-term economic and social consequences.

The drought is causing dry and compacted soil and low water availability for both crops and livestock.

Over the past 30 years, there has been a shift in climate patterns, with changes in the timing and duration of the rainy and sunny seasons. Farming practices have also evolved, with a decrease in rice planting 15 years ago, followed by a significant increase 5 years ago. Despite these changes, the occurrence of typhoons has remained consistent from June to December.

### 2.2 Impact

The typhoons named Frank, Ursula, and Paeng affected various areas, resulting in significant damages to households, livestock, and crops. The majority of households experienced partial or slight damage, but some were entirely destroyed. Coconut trees were washed out, and crops such as banana and vegetables were severely damaged. Meanwhile, livestock such as pigs, cows, ducks, and chickens were also affected. Typhoon Yolanda caused the most significant damage to crops,

with 100% of them being damaged. In comparison, only 50% of livestock was affected. Typhoon Paeng, on the other hand, caused floods in several sitios and puroks, which subsided after two to three hours.

The lack of rainfall has diminished access to water resources, wilting the community's crops. As a consequence, there has been a significant reduction in crop yield due to the dry soil and insufficient moisture levels. Moreover, farmers who rely on livestock and poultry production have experienced high mortality rates among their animals. With limited access to water, it has been challenging to provide sufficient hydration for their livestock. Among the most affected purok is Ilaya West and Ilaya East.

## 2.3 Coping Mechanism

During the typhoon, the people coped by having clearing operations to remove debris. They also ventured into backyard gardening as an alternative source of income. The barangay assessed the damage and prioritized aid efforts. They used alternative power sources after the power interruption. Lastly they borrowed money to restart restoring their livelihood.

## 2.4 Capacity of the community

The majority of the communities, specifically Balili South, Ilaya East, Balili North, Ilaya West, and Ilawod West, are composed of lower middle-class residents. The capacity of the community to cope during climate hazards may be determined by their access to resources, such as food, water, and shelter, as well as their level of preparedness and resilience. The communities with higher indigent populations may be more vulnerable to climate hazards due to their limited resources and reliance on external aid. However, it is essential to note that the community's ability to cope during climate hazards is not solely determined by their socioeconomic status but also by their preparedness, cooperation, and coordination in responding to crises.

## 2.5 Initial Plan of the Barangay

Implications	Solution
<ul style="list-style-type: none"> <li>Lack of source of water</li> </ul>	<ul style="list-style-type: none"> <li>Additional water pumps</li> <li>Expansion of shallow tube well</li> </ul>
<ul style="list-style-type: none"> <li>Flooding caused by heavy rains and typhoons</li> </ul>	<ul style="list-style-type: none"> <li>Propose drainage system</li> <li>Expansion of evacuation centers</li> <li>Dredging activities</li> </ul>

### 3. Summary and Findings

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The gender plays a significant role in farming, fishing, and livestock activities. Youth participation is prominent in all three sectors, while senior citizens are less involved overall.

Climate hazards, such as typhoons and drought, have a significant impact on agricultural livelihoods. These events can cause damage to homes, crops, and livestock, leading to long-term economic and social consequences for affected communities. It highlights the impact of specific typhoons on households, livestock, and crops in various areas.

The lack of rainfall resulting in drought has also decreased water availability for crops and livestock, leading to reduced yields and high mortality rates among animals.

The capacity of the community to cope with climate hazards is influenced by their access to resources, level of preparedness, and resilience. Lower-middle-class communities may be more vulnerable to climate hazards due to limited resources and reliance on external aid, but the study emphasizes that community resilience and cooperation are also crucial factors in responding to crises.

### 4. Recommendations

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There is a need to prioritize gender-sensitive and youth-focused programs in farming, fishing, and livestock activities to promote increased participation and equitable access to resources. Additionally, implementing sustainable farming practices could help communities cope with the impact of climate hazards such as typhoons and drought. It would be beneficial to provide support and resources for lower-middle-class communities to enhance their resilience and preparedness in responding to crises. Collaboration and community-building efforts should also be encouraged to promote stronger resilience against future climate hazards.

## Annex C. PCVRA Tools Used

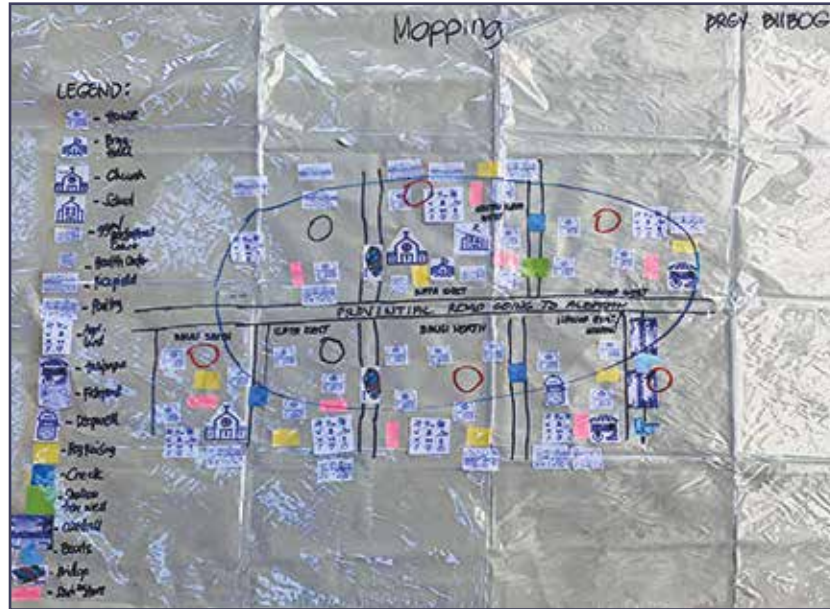
### 1. Timeline

<b>Typhoon Frank June 2008 &amp; Typhoon Yolanda Nov 13, 2013</b>			
<b>Livelihood assets</b>	<b>Impacts on livelihood</b>	<b>Coping strategies implemented</b>	<b>Strategies in case of reoccurrence of the event</b>
<b>Natural</b>			
Land	Flashfloods and soil erosion occurred due to typhoon.	Clearing operations was done.	A proper drainage system in the barangay should be constructed.
Crops	100% of the crops are affected specifically rice, banana and vegetables.	Venture in another source of income such as backyard gardening.	
<b>Physical</b>			
Houses	30% of the houses being totally destroyed and 70% partially damaged, the residents faced a difficult time rebuilding their homes.	Barangay assessed the extent of the damage and prioritize aid efforts.	Expansion of the evacuation center.
Power supply	Almost 2 months without electricity.	Use of alternative power source.	
<b>Financial</b>			
Livelihoods	High mortality rate of livestock. Almost 60% poultry, swine, cows and goat died.	Borrow money again to restart restoring their livelihood.	

<b>Drought, 2022</b>			
<b>Livelihood assets</b>	<b>Impacts on livelihood</b>	<b>Coping strategies implemented</b>	<b>Strategies in case of reoccurrence of the event</b>
<b>Natural</b>			
Crops	Wilting of their crops due to lack of water.	Engage in container gardening.	

## 2. Spot Map



## 3. Seasonal Calendar

5 Years Ago	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
<b>CLIMATE PATTERN</b> (Wet & Dry)												
<b>TYPHOON</b>						✓	✓	✓	✓	✓	✓	✓
<b>TEMPERATURE</b>	↓	→	↑	↑	↑	↓	↓	→	↓	↓	↓	↓
<b>RAINFALL</b>	High	Low	No Rain	No Rain	Low	High	High	Moderate	High	High	High	High
<b>LIVELIHOODS:</b>												
A. Farming	Rice		Mungbean, vegetables, corn, banana			Rice						
B. Fishing	ALL YEAR ROUND											
C. Livestocks	ALL YEAR ROUND											
D. Poultry	ALL YEAR ROUND											
E. Laborer	ALL YEAR ROUND											
F. Copra			✓			✓			✓			✓
G. Gleaning	ALL YEAR ROUND											
H. Sari-sari store	ALL YEAR ROUND											

**LEGEND:**

<b>CLIMATE PATTERN</b>	<b>TEMPERATURE</b>	<b>RAINFALL</b>
Wet	↑ High	High
Dry	→ Average	Moderate
	↓ Low	Low
		No Rain

15 Years Ago	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
<b>CLIMATE PATTERN</b> (Wet & Dry)												
<b>TYPHOON</b>						✓	✓	✓	✓	✓	✓	✓
<b>TEMPERATURE</b>	↓	↓	→	→	→	↓	↓	→	↓	↓	↓	↓
<b>RAINFALL</b>	Moderate	Moderate	Low	Low	Low	High	High	Low	High	High	High	High
<b>LIVELIHOODS:</b>												
A. Farming	Rice, banana		Mungbean, corn, banana			Rice						
B. Fishing	ALL YEAR ROUND											
C. Livestocks	ALL YEAR ROUND											
D. Poultry	ALL YEAR ROUND											
E. Laborer	ALL YEAR ROUND											
F. Copra			✓			✓			✓			✓
G. Gleaning	ALL YEAR ROUND											

30 Years Ago	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
<b>CLIMATE PATTERN</b> (Wet & Dry)												
<b>TYPHOON</b>						✓	✓	✓	✓	✓	✓	✓
<b>TEMPERATURE</b>	↓	↓	→	→	→	↓	↓	→	↓	↓	↓	↓
<b>RAINFALL</b>	Moderate	Moderate	Low	Low	Low	High	High	Low	High	High	High	High
<b>LIVELIHOODS:</b>												
A. Farming	Rice		Mungbean, corn			Rice						
B. Fishing	ALL YEAR ROUND											
C. Livestocks	ALL YEAR ROUND											
D. Poultry	ALL YEAR ROUND											
E. Laborer	ALL YEAR ROUND											
F. Copra			✓			✓			✓			✓
G. Gleaning	ALL YEAR ROUND											

**LEGEND:**

<b>CLIMATE PATTERN</b>	<b>TEMPERATURE</b>	<b>RAINFALL</b>
Wet	↑ High	High
Dry	→ Average	Moderate
	↓ Low	Low
		No Rain

## 4. Livelihood Matrix

LIVELIHOOD: FARMING	Roles		Decisions		Sectoral Role		
	Women	Men	Women	Men	Youth 15-30	31-59	Senior Citizen
Land preparation (plowing, harrowing, plot gardening)	5%	95%	0%	100%	25%	70%	5%
Seed selection	10%	90%	50%	0%		40%	60%
Seed soaking		100%	5%	95%	10%	80%	10%
Pesticide application (Golden snail)	5%	95%	5%	95%	30%	50%	20%
Broadcast (direct)	10%	90%	10%	90%	30%	50%	20%
Herbicide application	5%	95%	5%	95%	30%	50%	20%
Application of fertilizer (1st)	5%	95%	5%	95%	30%	50%	20%
Pesticide application (insect)	5%	95%	5%	95%	30%	50%	20%
Application of fertilizer (side dressing)	0%	100%	0%	100%	0%	70%	30%
Application of foliar fertilizer	0%	100%	0%	100%	10%	80%	10%
Harvesting	50%	50%	50%	50%	30%	60%	10%
Marketing	50%	50%	50%	50%	5%	90%	5%

FISHING	Roles		Decisions		Sectoral Role		
	Women	Men	Women	Men	Youth 15-30	31-59	Senior Citizen
1. Purchase of fish net	5%	95%	50%	50%	0%	95%	5%
2. Sewing/assembling fish net	10%	90%	50%	50%	0%	95%	5%
3. Assembling of fishing gear	0%	100%		100%	0%	95%	5%
4. Engage of ritual before fishing	0%	100%	50%	50%	0%	90%	10%
5. Fishing/catching fish	20%	80%	50%	50%	0%	70%	10%
6. Sorting/sizing	50%	50%	50%	50%		90%	10%
7. Selling	95%	5%	50%	50%	20%	70%	0%

CONVENIENCE STORE	Roles		Decisions		Sectoral Role		
	Women	Men	Women	Men	Youth 15-30	31-59	Senior Citizen
Allocation of capital	50%	50%	50%	50%	0%	95%	5%
Listing of supplies and goods	100%	0%	100%	0%	0%	50%	50%
Purchasing of goods	95%	5%	90%	10%	0%	100%	0%
Pricing	100%	0%	100%	0%	5%	95%	0%
Sorting/display	100%	0%	100%	0%	10%	85%	5%
Selling	50%	50%	50%	50%	10%	80%	10%

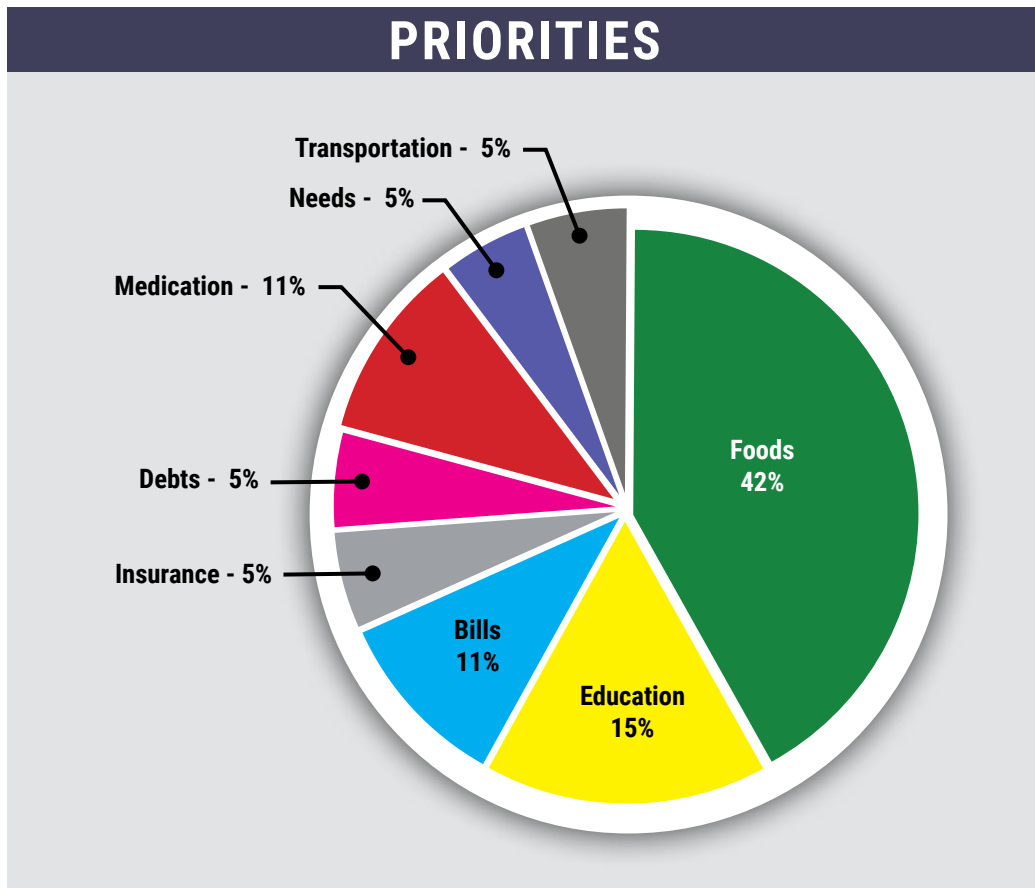


LIVESTOCK	Roles		Decisions		Sectoral Role		
	Women	Men	Women	Men	Youth 15-30	31-59	Senior Citizen
<b>BREED SELECTION</b>							
Construction of pig pen	50%	50%	50%	50%	0%	50%	50%
Bringing the boar	0%	100%	50%	50%	0%	70%	30%
Observation/monitoring	0%	100%	50%	50%	0%	70%	30%
Feeding	50%	50%	50%	50%	0%	70%	30%
Medication/giving vitamins	50%	50%	50%	50%	20%	70%	10%
After 114 days labor/farrowing	50%	50%	50%	50%	0%	70%	30%
Medication of piglets	50%	50%	50%	50%	0%	70%	30%
Weaning	50%	50%	50%	50%	0%	70%	30%
Selling	50%	50%	50%	50%	0%	70%	30%
<b>FATTENING</b>							
Breed selection	50%	50%	50%	50%	0%	70%	30%
Feeding	50%	50%	50%	50%	0%	70%	30%
After 3 weeks medication (vitamins)	50%	50%	50%	50%	20%	70%	10%
3 to 4 months disposal/selling	50%	50%	50%	50%	0%	70%	30%

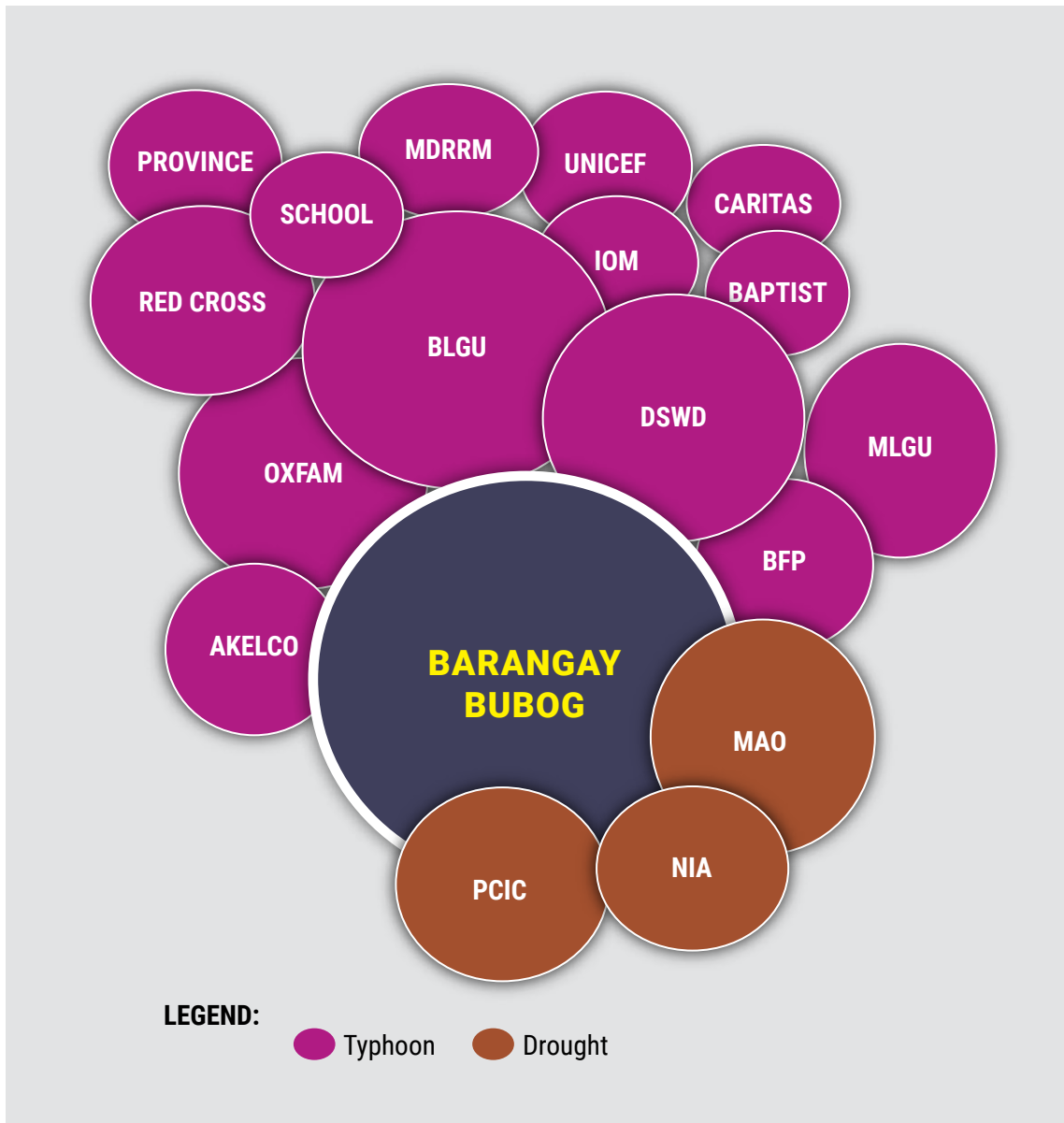
GLEANNING	Roles		Decisions		Sectoral Role		
	Women	Men	Women	Men	Youth 15-30	31-59	Senior Citizen
Preparation of materials and gears	50%	50%	50%	50%	30%	60%	10%
Purchase and preparation of food	50%	50%	50%	50%	30%	60%	10%
Picking of seashells	50%	50%	50%	50%	30%	60%	10%
Cleaning/sorting	50%	50%	50%	50%	30%	60%	10%
Selling	90%	10%	50%	50%	30%	60%	10%

### 5. Resource Flow

LIVELIHOODS	Outflow	Income
<b>1. Farming rice</b> Area: 0.5 ha/tenant	Labor, farm inputs, and foods: PhP 18,900.00	33 sacks – harvest (for consumption and selling purpose)
<b>2. Fishing - Fish net 1 year</b>	Capital, materials, and food allowance: PhP 15,950.00	PhP 16,000/month = PhP 192,000 – 15,950.00 <b>Net income:</b> = PhP 176,050.00/annual
<b>3. Gleaning</b>	Foods: PhP 200.00	PhP 300.00 <b>Net income:</b> = PhP 100/day
<b>4. Livestocks - Hog raising (fattening) 3 heads</b>	Piglets, feeds, and medication: PhP 32,498.00	PhP 37,800.00 – 32,498.00 <b>Net income:</b> = PhP 5,302.00
<b>5. Sari-sari store</b>	PhP 15,000.00	PhP 700.00/day PhP 21,000/monthly <b>Net income:</b> = PhP 6,000.00



## 6. Venn Diagram





### **IIRR Staff**

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### **Council Members and Volunteers**

Brgy. Aliputos Council  
Brgy. Laguinbanwa West Council  
Brgy. Bubog Council

### **Local Government Unit**

Municipality of Numancia  
Municipal Agriculture Office  
MAO: Ms. Judy Gonzales

### **Farmers Association**

Numancia AMIA Village Farmers Association  
Aliputos Farmers Association  
Laguinbanua West Farmers Association  
Bubog Farmers Association



AMIA Villages in the  
**Municipality of Numancia,**  
Province of Aklan

