



CHAPTER I INTRODUCTION

1.0 Introduction

The Island Province of Guimaras is blessed with rich natural resources and scenic spots suited for agri-tourism development. It is the home of the sweetest mango in the world.

It lies southeast of Panay Island and northwest of Negros Island and it lies between 10°25'00" and 10°46'09" north latitude, and 122°28'20.99" and 122°28'40.53" east longitude. The island is separated from Panay by the 1.5 nautical mile long Iloilo Strait and acts a natural breakwater for Iloilo. The six nautical miles Guimaras Strait likewise separates the province from Negros.

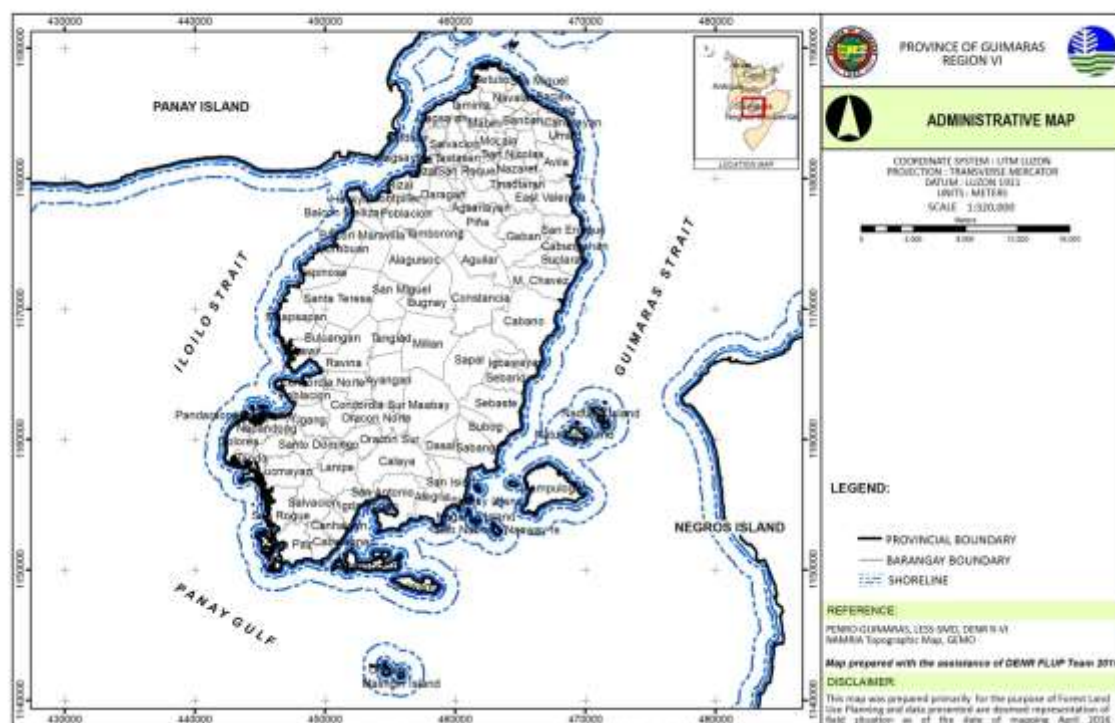


Figure 1. Map Showing the Administrative Location of the Province of Guimaras

The lone district of Guimaras is composed of five municipalities namely: Buenavista, Jordan, Nueva Valencia, San Lorenzo and Sibunag.

The Municipalities of San Lorenzo and Sibunag were created in 1995 by virtue of R.A. 7897 and R.A. 7896, respectively.



Guimaras has a total of 98 barangays as approved by the National Statistical Coordination Board (NSCB) Executive Board sometime in 2003 based on the July 19, 1999 decision of the Regional Trial Court, 6th Judicial Region, Branch 65, San Miguel, Jordan and DILG Legal Services recommendation.

It has a total land area of 60,052 hectares, more or less, based on DENR Land Classification. Forest and Forestlands (FFL) cover 5,459.40 hectares and Alienable and Disposable lands cover 54,593 hectares, more or less.

Guimaras has a total population of 165,536 based on 2010 data of National Statistics Office. The population per municipality were distributed as follows: Buenavista – 46,703, Jordan – 34,791, Nueva Valencia – 37,852, San Lorenzo – 24,032 and Sibunag – 22,158. The population density was 270 persons per square kilometer (sq.km.). With an annual population growth rate of 1.42%, it was projected that there were 172,397 people in Guimaras in 2014.

Agriculture, fishery and tourism have been identified as the major economic drivers in Guimaras. On the Agriculture sector, three (3) commodities are prioritized based on food sufficiency and economic contributions to the provincial economy, namely, rice, mango and cashew.

The Forest and Forestland of Guimaras covers a total area of 5,459.40 hectares located in fifty-three (53) barangays comprising of 1,414 households.

This plan primarily focuses on FFL categorized as: protection and production areas. The protection area covers 3,611 hectares associated with high biodiversity of forest and mangrove vegetation species, areas with aesthetic and natural landscape to develop as model site for community based-tourism, and unclassified forest lands (islands and islets) and riverbanks for eco-tourism due to its natural and scenic beauty that could provide recreational benefit and enjoyment for Guimarasnons and tourists. The production area covers 1,848.40 hectares mainly for production of fuel wood, agro-forestry using high valued crops and fishpond development.

1.1 Importance of Guimaras FLUP in the Context of:

This Chapter discusses the importance of the LGU's share of Forest and Forest Land (FFL) in the different contexts as to relate its vital contribution to the development of the community.



1.1.1 WATER PRODUCTION

The availability, quantity and quality of water are more and more threatened by overuse, misuse and pollution. The quality, volume and distribution of waste are strongly attributed to the presence of forests, or the lack of it.

This scenario is further aggravated by the phenomenon of climate change which has drastically altered the forest's role in regulating water distribution and availability of water resources. On this regard the relationship between forests and water is a crucial issue that must be accorded high priority.

Forested areas supply a high volume of water for domestic, agricultural, industrial and ecological needs from upstream to downstream areas. There is a need to balance the wide range of multi-sectoral forest benefits without detriment to water resources and ecosystem function, a challenge requiring urgent need for better understanding of the interactions between forests/trees and water, for raising awareness and building capacity in forest hydrology and equating these to implications on policies.

Partial and complete removal of forest cover may accelerate water discharge and increase flood risk during the rainy season and may reduce the volume of water discharge from the river or cause river beds to dry in the dry season.

It is in maintaining high water quality that forests make highly significant contribution to the characteristics of watersheds. This is attributed to the reduction of soil erosion on site, reduction of sediments and filtering of water pollutants.

The behavior of water is manifested on the following mechanisms, to wit:

- a. On sloping land, soil moves downhill mainly attributed to gravity. The removal of forest cover and replacement with other land use leads generally to higher and increased rate of erosion.
- b. Erosion is usually associated with a higher sediment concentration in run-off and with siltation of waterways. Good forest cover is more effective than any other kind of land cover in keeping the water as sediment free as possible as the surface cover, debris and tree roots trap sediments and stop their downward movement. The roots of trees stabilize slopes and help prevent shallow landslide.
- c. Various types of pollution also impair the quality of water. These pollutants could come in the form of excessive concentrations of organic matter and



agricultural or industrial chemicals. Forest is usually considered the appropriate ground cover for drinking water because forest activities generally use no fertilizer or pesticides and avoid pollution from domestic sewage or industrial processes.

- d. Locally, the residents of the upland barangays of the Province of Guimaras depend for their supply of water largely on sources such as open springs and communal water supply.
- e. The state of health of these watersheds has been determined and it was found out that corresponding course of action has to be taken to rehabilitate the areas.

1.1.2 FOOD PRODUCTION (AGRICULTURE AND FISHERIES)

Starting in the 20th century, unsustainable development has often threatened the ecology of watersheds in many parts of the world. Local population growth has played a primary role in the deterioration of watersheds. To support the lives of ever-increasing numbers of people, other than transforming forests into settlement areas, upland forests have been cleared and turned into agricultural or grazing lands contributing to watershed degradation.

On a ridge to reef scenario, agricultural and fishery areas are found on the low-lying areas of the landscape. Therefore, by application of the law of gravity an increasing degree of denudation in the uplands will significantly imperil the status of agriculture and fishery resources.

Among the most likely effects include, decreasing agricultural productivity, decreasing primary production and reduction in fish stocks, reduced ecosystem function and disturbance in the food web along the watershed drainage channel, deterioration and bleaching of coral reefs, disturbance in coastal and marine habitats, etc.

This plan will derive its prescription for production areas based on the derived map overlays from existing land use, overlaid on other thematic maps.



1.1.3 DISASTER RISK REDUCTION/CLIMATE CHANGE

Climate change will likely bring more and different disasters affecting all aspects of disaster management, ranging from an increase in relief operations to a need for more and better disaster risk reduction strategies.

In particular, national governments need to step up efforts to help communities address the rising risks, through community based risk reduction using tools such as vulnerability and capacity assessment. The local governments, on the other hand should be in the forefront of actual relief operations efforts once disasters are actually happening and rescue operations are ongoing.

Forests play a vital role in mitigating climate change. Its presence or absence significantly affects the global climate. Forests can store as much as 15 tons of carbon per hectare per year in their biomass and wood.

Forests when managed sustainably produce wood fuels as a carbon neutral alternative to fossil fuels. Forests absorb global carbon emissions into their biomass and soils and store them.

Increasing warming of the planet earth increases the vulnerability to disaster. As global temperature increases, global mean sea level rises. As a consequence it also relates to more precipitation in temperate regions and Southeast Asia, where the Philippines is situated, associated with higher probability of floods.

Generally, variables affecting forestry and their impacts include the following:

- a. Temperature, affecting photosynthetic processes of trees and other forest species, evaporation, etc.
- b. Rainfall, causing increasing occurrence of landslides, floods, droughts, fires, erosion, sedimentation.
- c. Rise causing storm surges, inundation of mangrove areas, increased irreversible salinity intrusion of low lying crop production areas and reducing crop yields;
- d. Occurrence of extreme events, causing heat waves, more intense rainfall events and stronger typhoons

Some climate change mitigation and adaptation option scenarios include aligning land uses, reforestation, soil conservation and erosion control, practice of agroforestry multi-cropping, forest land use management, climate proofing of



protected areas, alternative sustainable and climate-smart livelihood activities and capability building and awareness raising.

In addressing climate change, the following may be adopted:

- Maintain existing forests as carbon sinks
- Expand sinks in new plantations through reforestation and rainforestation
- Avoid deforestation and degradation
- Use of wood products as substitute to fossil fuel products
- Use of forest biomass for bio-energy, displacing fossil fuels
- Practice Sustainable Forest Management

Disaster management includes administrative decisions and operational activities that involve prevention, mitigation preparedness, early warning systems, response, recovery and rehabilitation.

1.1.4 PRODUCTION OF WOOD AND OTHER NON-WOOD RAW MATERIALS

The local demand for wood and wood products is very high even within the confines of forest land barangays. These wood products are mostly utilized for their household consumption with minimal cases for commercial purposes, as a result of intensive advocacy of the DENR with the concerned LGUs from barangay, municipal and provincial levels and to the island populace and enforcement of forestry laws, rules and regulations not to mention the fact that these wood products are at times harvested and sold to the local market. Many of wood harvests, however, were sourced out illegally from forest lands without the necessary tenurial instruments or authority from concerned authorities. This is a typical scenario among FFLs.

These forest products are considered as the natural resources assets in which the reduction or improvement of the values of FFL determines the performance of the local socio-economic conditions of the locality. As has been proven in the past, FFL is not just a scarce political and economic commodity but is highly considered as an asset that impacts economies. There are many municipalities in the Philippines which had turned into cities owing to the surge of income derived from timber harvesting and production of wood commodities. Notwithstanding, there are also market opportunities in producing food, fiber, water and ecotourism services.

Thus, there is an emerging need to balance, direct, appropriate and distribute the power of the state among different stakeholders with respect to the allocation, management, management, regulation and use of FFLs. It is on this respect that the powers vested with FFL must be clearly defined paving way to allocation of



lands for specific purposes. On the other hand, gaining commitments from all stakeholders are imperative.

The allocation of production and protection areas conceived in the FLUP through map overlays will address this scenario of allocating open access.

1.1.5 BIODIVERSITY CONSERVATION

Biodiversity or the variety of life on Earth and the natural patterns it forms is the fruit of centuries of evolution, shaped by natural processes, and increasingly by the influence of man. It forms the web of life of which man is an integral part of the system and upon which he so fully depends.

Lately, man has to realize that many ecosystems were rapidly being destroyed and this basic source of life itself was compromised and rapidly being eroded. In an effort to satisfy his wants man had put himself in a dilemma quagmire where he is trapped in a paradox where he has to strain the resource where he finds himself deeply attached in order to sustainably survive.

Being a habitat for the sustainable existence of plant and animal life, forest lands become the subject of scrutiny every time dwindling population of flora and fauna is noticed.

Preservation of the natural habitat of wildlife is the best way to address biodiversity conservation but it must be coupled with integrated management of land, water and living resources that promotes the conservation and sustainable use in an equitable manner.

1.1.6 ENSURING CULTURAL INTEGRITY

In applying integrated ecosystems management to watershed or protected areas there must be a balance between equally important and usually competing values and roles. The forests must be looked at as a whole while attempting to evaluate the functionality of the parts. In which case, the resource must be valued for its past, scrutinized for the present and planned for the future. There must be a scrutiny of those sectors which will benefit and those which will be marginalized. As a plan of action, it must integrate into itself the unintended consequences and emergent opportunities that may arise or result from such interventions or manifestations of actions.



Some activities which will be adopted in protecting and maintaining the integrity of the watershed are as follows:

1. Ensure that the carrying capacity of the ecosystems does not exceed in the course of development.
2. Rehabilitate degraded ecosystems with ecologically friendly approaches like rainforestation and assisted natural regeneration.
3. Provide adequate time, space and protection for ecological regenerative processes.
4. Avoid destructive practices such as depletion of biological and physical resources and dumping of solid wastes and toxic substances.
5. Promulgate and implement local and national laws/ordinances that promote harmonious coexistence between man and nature and responsible stewardship.
6. Involve local communities in the planning, implementation and monitoring of FLUP.
7. Develop and implement programs for improved management of natural resources to benefit society while respecting the integrity and sustainability of ecosystems.
8. Undertake vigorous information and education campaigns to promote understanding and appreciation of ecosystems and rally support for their conservation and protection.

1.2 The FLUP as a Tool to Align Land Uses and Ensure Effective On-Site Management of Guimaras Forest & Forest Land (FFL)

The Local Government Code of 1991 afforded a window of opportunity for local government units (LGUs), municipalities included, to have a hands-on role in the management of their environment and natural resources. These resources include forests and forestlands which are key natural resources within the administrative jurisdiction of every LGU. It is a realization that in many LGUs forestlands comprises a significant percentage share in the total land area and it is not a rarity that some LGUs



have more forestlands in proportion to alienable and disposable lands.

As prescribed in the Regalian doctrine, forestlands are owned by the state and it cannot be alienated and titled. The exploration, development and utilization are under the full control and supervision of the State. But the State can allocate the forests and forestlands for protection, development and management and the DENR is the primary agency responsible for the conservation, management, development and disposition of the nation's natural resources as well as the management of watersheds.

There are instruments, however, that "allocates" public forests and forestlands and these are facilitated mainly through the DENR, Congress of the Philippines, Office of the President of the Philippines and the National Commission on Indigenous Peoples (NCIP).

It was a common belief that LGUs have very minimal part in the management of forest lands even in its own political jurisdiction. Land allocation is basically a major concern for national government agencies. With the passing of the Local Government Code, however, the LGUs were given an impetus to realize the economic, political and environmental impacts of allocating forests and forestlands. LGUs had to practically evolve from being passive to become pro-active managers of the economic enterprise of forests and forestland allocation. The LGUs had to look more steps forward to realize that forests and forestlands could best serve the interest of their constituents.

Owing to its innate character, forests and forest lands, among other land forms could have a highest degree of influence to make or break the future of the LGU. Being situated in the higher slopes, the forests and forestlands form the watershed, food production areas, ecotourism and biodiversity sites and biological fences to many kinds of pests, diseases and natural disasters.

One disadvantage in the management of forest lands is the presence of forest occupants and/or claimants and that there are portions of the FFL that has limited resources accessible for regular visitation. If these areas are not properly allocated, these become "open access areas" without an organized People's Organizations responsible for the protection and management of the limited resources.

The overall concept of FLUP is to put "open access areas" into effective responsible "on-site" management by way of assigning holders of allocation instruments as enforcers of environmental advocacy.

FLUP will serve as a road map in the management of FFL of the five municipalities and the entire Province of Guimaras.



1.3 The FLUP in Support of the Provincial/Regional Development Plans

FLUP is governance oriented planning process and has the necessary ingredients for demonstrating good governance.

It calls for transparency in the allocation of forests and forest lands leading to issuance of resource use rights, equal access to information and informed decision making.

FLUP assigns accountability of holders of tenure and allocation instruments based on their commitments, agreements, plans in the management of tenured/allocated areas; accountability of DENR and LGU to support forest/upland development and for their resource allocation decisions.

FLUP also requires participation of stakeholders in the analysis, planning and land allocation process, participation of stakeholders in forest management and forest policy application.

The formulation of FLUP is in full support of the municipal/provincial and national development plans. Among others it has the following importance and significance with due regard to execution of development plans, to wit:

1. Localization of the national governance framework in managing forests and forestlands at the LGU and tenure levels;
2. Provides framework for rational use of forest lands and how it will complement the use of Alienable and Disposable Lands;
3. Sustains the supply of ecosystem services for irrigation, domestic water, energy, recreation and fisheries;
4. Provides guidelines for aligning land uses in the uplands, lowlands and coastal areas; and
5. Sets the framework for identifying sustainable forest management strategies and investment priorities.



CHAPTER II SCOPE AND LIMITATIONS

2.1 Physical Boundaries of the Province and the Component Municipalities

Guimaras has a total land area of 60,052 hectares, more or less of which 54,593 hectares or 90.91% is classified as alienable and disposable (A&D) while 5,459.40 hectares or 9.09% is considered Forest and Forestland (FFL). FFL is further categorized into upland, fishpond, mangrove and unclassified Islands and Islets. In terms of FFL area, Sibunag has the largest upland forestland, while Nueva Valencia has the largest fishpond and mangrove areas and Sibunag with largest unclassified forestland as shown in the Table below.

Table 1. Area of FFL Per Municipality

Municipality	FFL Classification (has)				Total
	FL (Upland)	FL (Fishpond)	FL (Mangrove)	Unclassified	
Buenavista	432.39	57.43	10.96	13.09	513.87
Jordan	1,090.46	15.29	36.22	12.73	1,154.70
Nueva Valencia	0.65	455.04	143.47	599.86	1,199.01
San Lorenzo	460.14	110.91	3.49	68.77	643.31
Sibunag	232.13	495.21	66.88	1,154.30	1948.51
Total	2,215.77	1,133.88	261.02	1,848.75	5,459.40

Source: Land Classification Map

The Municipality of Buenavista is located at the Northern tip of Guimaras Island and one of the five towns comprising the Province of Guimaras. The Northern and Northwestern parts of the town overlook the Panay Island and the North Eastern portion faces Negros Island. It is (2) two miles away from Iloilo City and can be reached by pump boat from Parola, Iloilo City.

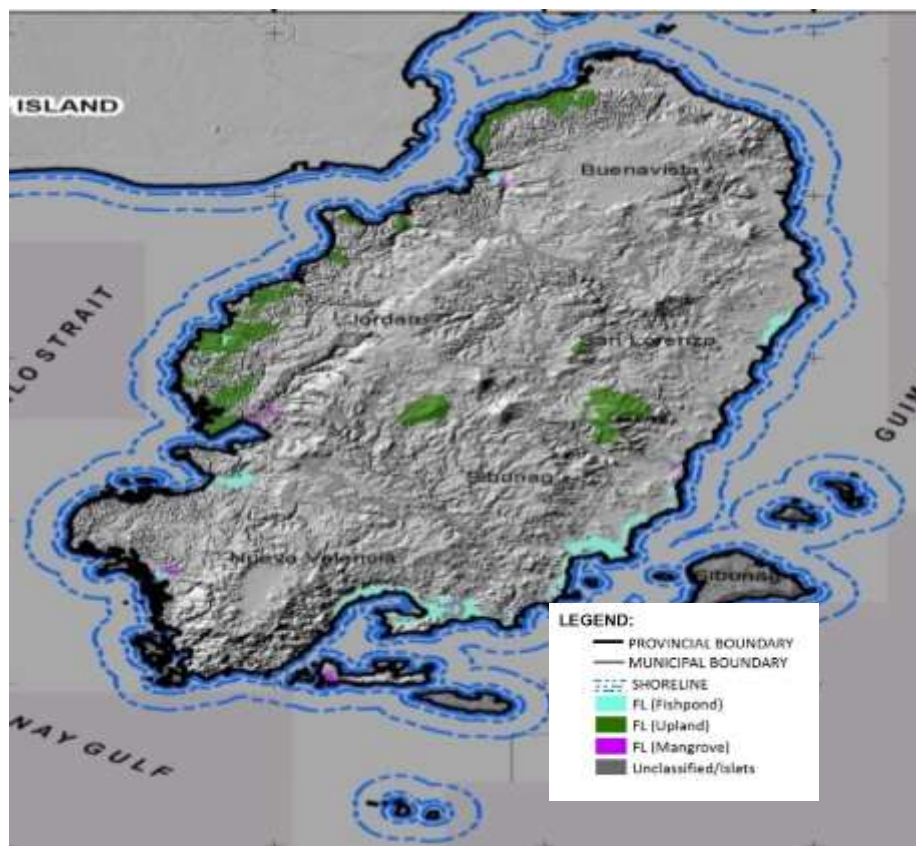
Jordan is located in the mid-west portion of the island of Guimaras. It is bounded by the Municipality of Buenavista in the northeast; the Iloilo strait in the northwest; Municipality of Sibunag in the southwest and southeast; and Municipality of San Lorenzo in the east. Approximate distance is 1.5 nautical miles from the mainland Iloilo. Travel time from Ortiz wharf, Iloilo City takes fifteen (15) minutes by pump boat. Jordan is considered as “gateway to Guimaras” because most people take this route from Iloilo City.



The Municipality of Nueva Valencia is located at the southern part of the Province of Guimaras. It is more or less 23 kilometers from Iloilo City. It lies between $10^{\circ}23'07''$ to $10^{\circ}31'48''$ latitude and $122^{\circ}27'06''$ to $122^{\circ}36'58''$ longitude. It is bounded on the North by the Municipality of Sibunag, on the Southeast by Guimaras Strait and on the West by Panay Gulf and Iloilo Strait.

The Municipality of San Lorenzo is located at the eastern rim of the Island Province of Guimaras. San Lorenzo was dubbed as the “rice granary of Guimaras” having the largest agricultural area and is the major rice supplier of the Island and the nearby Province of Negros Occidental.

Sibunag is a coastal municipality located at the south eastern side of Guimaras Island facing Negros Island. In astronomical terms, it is located approximately between $10^{\circ}26.5'$ and $10^{\circ}31.5'$ north latitude and between $122^{\circ}31.5'$ and $122^{\circ}36.5'$ east longitude. It is bounded on the north by the towns of Jordan and San Lorenzo, on the southwest by the municipality of Nueva Valencia, and on the southeast by the Guimaras Strait.



Map 1. Land Classification Map of the Province of Guimaras



2.2 Duration (10 Years)

The planning period of FLUP is ten (10) years. However, the Plan should be revisited and updated in terms of implementation and targets of the projects stipulated in the Work and Financial Plan.

2.3 Relation with the CLUP

FLUP defines how the forests and forest lands could best serve the communities at large. In "open access" forest lands, the issue is more of ALLOCATION - what allocation will result in the maximum services and productivity functions of the forest lands. In which case, a forest land is said to be allocated if and only if an area is covered by certain proclamation, agreement, permit or declaration either administratively or legislatively. After allocation, the issue becomes management and sustainable use of allocated forest lands.

In Alienable and Disposable (A&D) Lands, the issue is particularly of zoning and titling to maintain ecological, economic and physical balance of each LGU unit. The A&D lands are generally the service areas of forest lands. In which case titling becomes a major issue especially if there is a need to broaden or increase the revenue base of the municipality or province.

In integrating FLUP to the Comprehensive Land Use Plan (CLUP) the following are taken into account, namely:

- LGUs must realize that FFLs are part of their assets and the way these are utilized will have impacts on their constituents.
- LGUs must take the lead in FLUP formulation with DENR providing the necessary technical guidance and assistance.
- FLUPs must be integrated into the LGUs CLUP/CDP to ensure that it will be implemented and will remain part of the LGUs development agenda as it addresses the needs and interest of the municipality.
- There are forest lands in the ridges, there are forest lands in the reefs and there are communities and people in between.
- The Residents in the Coastal Areas, estimated at 60-70% of the LGU population are the final recipients of the ridge to reef landscape.



- Coastal waters and their marine habitats are at the end of the ridge to reef landscape serving as the sink where the silt and hazardous wastes settle, impairing water quality and damaging coral reefs and mangrove that serve as homes to fish and marine lives.
- The ridge to reef landscape is governed by the “law of nature,” that is, the rate of flow and volume of water drained through the river systems will determine the health of such watershed and issues on vulnerability.

On the basis of functionality the following should be included as an integral component of the legislative agenda defining the formulation of FLUP. These are as follows, to wit:

- Significant portions of the political jurisdiction of LGUs include forests and forestlands.
- The area of forestlands is included in the municipality's share from the Internal Revenue Allotment (IRA) where budgetary allocation of the municipality is computed.
- There is a need to sustain water supply for agriculture which source are the headwaters in the mountains or forestlands.
- The need to source out the material requirements of industries usually derived from forests as major or minor forest products.
- To reduce disaster risk usually as a result of deteriorating situation of forest lands or mountainous areas.
- To conserve biodiversity for tourism as support to fisheries and other ecosystem services.

The primary legal basis for incorporating FLUP to the CLUP is prescribed in Executive Order No. 318 particularly Sec. 2.6.6 which stipulates that Forest Lands Use Plans (FLUP) shall be incorporated by LGUs in their comprehensive land use plans and national agencies should assist LGUs in this endeavor. Such requirement was further reiterated in Joint Memorandum Circular No 2003-01, Section 5 requiring the enactment of FLUP as an ordinance to become part of the comprehensive land-use plans to be jointly approved by the DENR and the LGU through a Memorandum of Agreement witnessed by the DILG. Finally, CLUPs must only be approved after the FLUPs are incorporated to the CLUP.



2.4 DATA LIMITATIONS

The statistical data gathered and collated in the FLUP preparation were gathered from available socio-economic data existing in the barangay or with the municipality complemented by spatial data. Some other pieces of information were gathered from community mapping and field validation conducted by DENR and GENRO.



CHAPTER III METHODOLOGY

Forest land use planning constitutes major steps with which each has a corresponding expected output. These steps or processes are undertaken in a participatory manner to build harmony to the preference of stakeholders with which resulted to the management and policy decisions regarding the best use of forest and forest lands. The processes are discussed in the preceding pages as to give clarity and purpose to the activity being conducted.

3.1 Memorandum of Agreement between DENR and LGU with Resolution from the Sangguniang Panlalawigan.

The Province of Guimaras has signified its intent to formulate the Island FLUP in partnership with the DENR, being the lead agency. The DENR and the Provincial Government entered into a Memorandum of Agreement (MOA) upon the approval of the Sangguniang Panlalawigan Resolution **No. 59** dated **March 31, 2016**, Resolution Authorizing **Gov. Samuel T. Gumarin, MD, MPH**, to sign for and in behalf of the Provincial Government of Guimaras, the Memorandum of Agreement (MOA) with the DENR for the Formulation of the Forest Land Use Plan (FLUP). Both parties lawfully agreed to share responsibilities in management of the FFL areas and have close coordination and collaboration for the drafting of the Forest Land Use Plan. The Technical Working Group (TWG) was created through Executive Order **No. 31, s. 2016** dated **August 12, 2016**. The TWG with the technical assistance of the Regional FLUP Coordinator of DENR, R-VI is responsible for the drafting of the Island Province FLUP before end of 2016.

3.2 Community Mapping and Profiling

The DENR-6 and PENRO Guimaras together with the LGU conducted community profiling and mapping of 53 FFL barangays. Community mapping is a venue where raw data are gathered and plotted on a map as a source of information on the occurrence, distribution of different biophysical and socio-cultural features. Such as demographic data, cultural landmarks, resources,





resource use and access, land ownership and domain, infrastructure and religious groupings. Data collection and mapping activities were done simultaneously. After data collection, raw data were processed and validated. Data and map collection are crucial in forest land use planning thus accuracy and correctness it is a must.

Maps were drawn to indicate the current scenario and trends in the FFL barangays. The watershed, forest cover, land classification, slope, erosion, geo-hazard settlement, vulnerability assessment maps were generated after a validation on the ground was conducted. This data is very crucial to the informed planning and decision-making.

3.3 Updating of Thematic Maps, Composite and Derived Maps

Based on data gathered on the field and available literatures of five (5) municipalities, thematic maps were generated that will be used and interpreted in making allocations and decisions of FFL resources. Composite and derived maps are created to establish the relationship of 2 or more parameters as a guide in making an informed decision.

After site validation, the GIS officers prepared the different thematic maps of the five (5) municipalities. The computer generated thematic maps were drawn as follows:



3.3.1 ADMINISTRATIVE MAP

The Administrative Map shows the entire municipal territorial jurisdiction and location of barangays.

3.3.2 LAND CLASSIFICATION MAP

This map presents the location of timberland, alienable and disposable areas of forest and forest land.

3.3.3 WATERSHED AND DRAINAGE MAP

Watershed and Drainage Map shows the watershed divide, and at the same time the drainage or river pattern. The map reflects the entire



watershed ecosystem perspective. This could be used as a basis for computing water discharge level.

3.3.4 SLOPE MAP

This maps shows the slope classification from <18% to 30, 30-50% and >50%. The map is very vital in determining the susceptibility if not risks of areas to landslide, erosion and flooding.

3.3.5 ELEVATION MAP

This type of map shows the classification of elevation measured in terms of meters above sea level (masl). The typical classification used are <500 masl, 500-1,000 masl, >1,000 masl.

3.3.6 VEGETATIVE MAP

The Vegetative Map covers data of open and closed canopy forests, plantation, agricultural areas, grasslands/brush lands, etc. The information is also important for determining the existing plantation and the proposed target for reforestation and rehabilitation.

3.3.7 FOREST PROJECT MAP

The map indicates location and distribution of projects and interventions or investment necessary to forest rehabilitation and development.

3.3.8 TENURE MAP

Tenure or Allocation Map shows the areas covered with legitimate tenure instrument.

3.3.9 TOURISM MAP

Tourism Map as the name implies shows the tourism sites and potential within the FFL.



3.3.10 SETTLEMENT MAP

The map presents the distribution of settlements by barangays and sitios. Cluster of population and household groupings may also be reflected in the map.

3.3.11 GEO-HAZARD MAP

The Map locates areas of natural or geologic hazards, highly erodible area, flood prone areas and those areas vulnerable to climate change.

3.3.12 BIODIVERSITY MAP

This map indicates proclaimed protected areas, key biodiversity areas, closed canopy forest areas, mangrove forests and identified habitats of threatened or protected wildlife species or critical habitat.

3.3.13 WATER RELATED INFRASTRUCTURE AND WATER SOURCE MAP

The infrastructure related to the water system in the FFL barangays are indicated in the map.

3.4 Situational Analysis



The data collected from the community profiling and mapping are raw data. They need to be collated, organized, summarized and analyzed that both the Provincial and Municipal LGU and DENR draw valid conclusions and made decisions in formulating for the management of FFL, watershed and non-negotiable zones. The questions where are we now? Where do we want to go and how do we get there, are the guiding principle that were observed in this activity. The result of situational analysis and thematic mapping activity is a critical input the decision making of the local leaders.



3.5 Zoning and Allocation of Open Access Forest and Forest Land

The ultimate goal of FLUP is the formulation and identification of management zones for production, and protection and coming up with a proposed land use. The formulation is done after thorough and critical analysis of facts and data tables plus the generated result from map overlay analysis.

3.6 Review and Formulation of the Vision, Goals, Objectives and Strategies

The vision and mission of the LGU was adopted in the FLUP. However, development goals were designed to address the issues in the FFL areas.

Actually, the meat of the FLUP is the formulation of management zones and identifying and specifying objectives and strategies that are converted into projects that would address the environmental issues.

3.7 Drafting of the FLUP

Armed with the necessary inputs provided for by the technical persons of the DENR the TWG embarked on the drafting of the FLUP.

3.8 Consultation and Validation of the Draft FLUP

Consultative meetings were conducted between the DENR and LGU TWG to validate data that are vital in FLUP formulation. A meeting with local chief executive was scheduled wherein the thematic maps were presented. The activity aims to solicit the recommendation/approval of the local leader as to the proposed management zones of the FFL.

3.9 Legitimization

(SB Ordinances/Resolutions & Endorsement from Civil Society Groups or POs, Endorsement and Approval of FLUP by the LCE & DENR).

The final draft of the FLUP will be presented to the PDC for its adoption and endorsement to the Sangguniang Panlalawigan. A public hearing will be conducted for



the purpose of the FLUP presentation to the stakeholders. Hopefully, the FLUP will be approved by the Sangguniang Panlalawigan of the province with the passage of a Provincial Ordinance approving the FLUP and integrating it to the CLUP of the five municipalities. Then the approved FLUP will be submitted to DENR R-6 for approval.

3.10 Preparation and Signing of the Joint FLUP Implementation MOA

The Memorandum of Agreement (MOA) between the DENR and the Provincial and Municipal Government will concretize the partnership in FLUP implementation.



CHAPTER IV KEY FINDINGS

4.1 LGU Profile

4.1.1 Biophysical Profile

❖ Total Area

Guimaras is composed of five (5) municipalities namely: Buenavista, Jordan, Nueva Valencia, San Lorenzo and Sibunag. The municipalities of San Lorenzo and Sibunag were created in 1995 by virtue of R.A. 7897 and R.A. 7896, respectively.

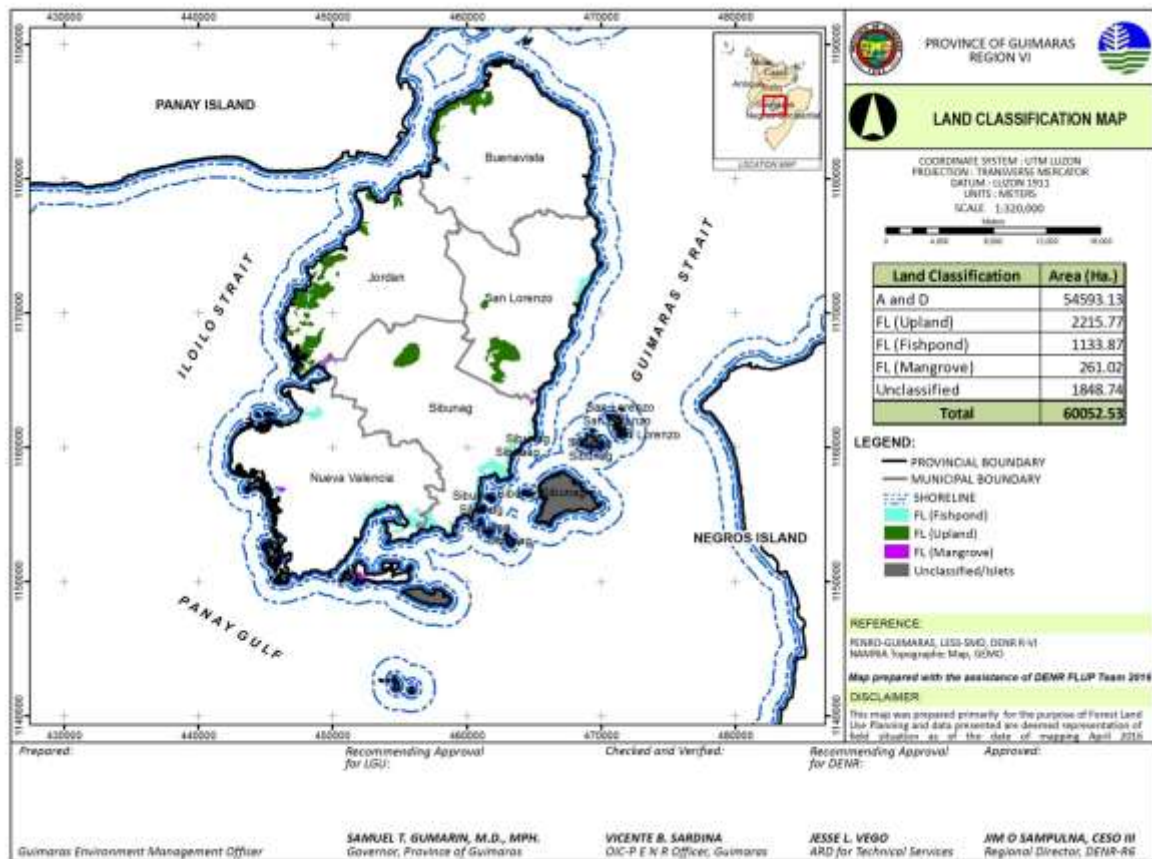
Table 2. Land Area of Municipalities, Province of Guimaras

Municipality	Area (Ha)	Percent Share of Land Area (%)
Nueva Valencia	13,410	22.3
Buenavista	11,598	19.3
Jordan	10,852	18.1
Sibunag	13,600	22.6
San Lorenzo	10,592	17.6
TOTAL	60,052	100.00

Source: DENR Region VI.

For the purpose of the FLUP, the area generated by digitizing the the NAMRIA Topographic Map and the Cadastral Map is 60,052 hectares, more or less. Comprising of 13,410 hectares more or less for Nueva Valencia; 11,598 hectares more or less for Buenavista; 10,852 hectares more or less for Jordan; 13,600 hectares more or less for Sibunag; and 10,592 hectares more or less for San Lorenzo.

Of the total land area of Guimaras, 54,593 hectares more or less are classified as A & D; 2,215.77 hectares for FL (Upland); 1,133.87 hectares for FL (Fishpond); 261.02 hectares (Mangrove); and 1,848.74 hectares are unclassified island and islets.



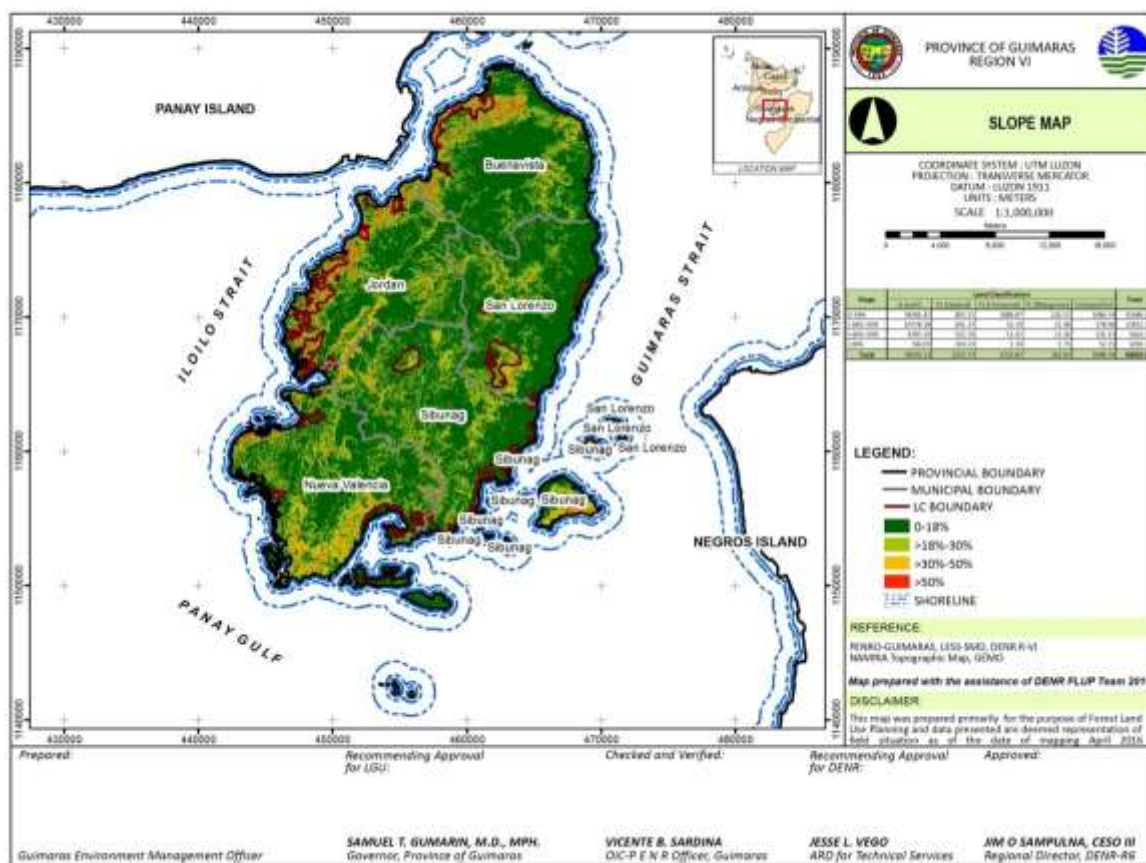
Map 2. Land Classification Map of the Province of Guimaras

❖ Topography and Slope

The topography of Guimaras Island varies from level to steeply sloping, with land elevation ranging from 0 to nearly 300 masl. Mt. Dinalman, located in Millan, Sibunag, has the highest elevation of 267 masl.

A simplified topographic contour map indicates that the great part of islands land area is above 100 masl. By comparing the topographic features from the 1956 topographic maps with the present situation, it could be concluded that the island topography has not been altered much by man-made activities.

The island's topography shows quite steep slopes on the western side of island with plateaus and peaks above 200 m in the central portion. A large part or 69% of the total land area is within the 0-18% slope, 19.73% is above 18-30% slope, 9.42% is above 30-50% slope and 1.74 percent is above 50% slope.



Map 3. Slope Map of the Province of Guimaras

❖ Climate

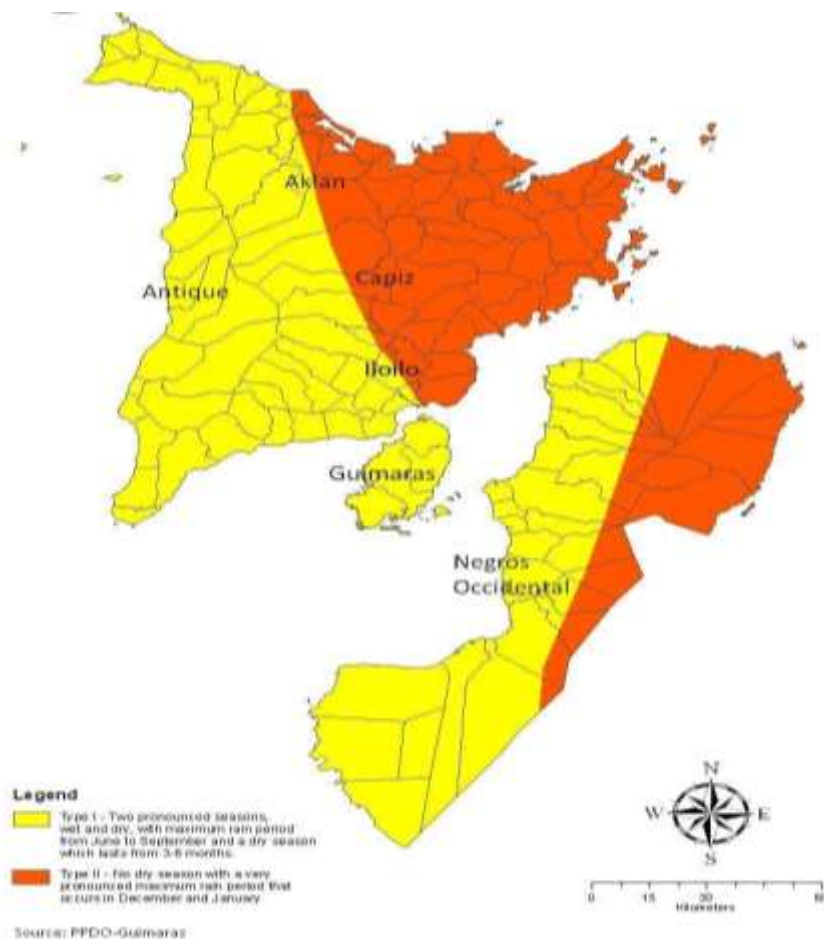
Guimaras is classified as Corona's Type 1 climate, characterized by two pronounced seasons: the dry season usually between the months of November and April, and the rainy or wet season, which occurs during the rest of the year.

Rainfall during the northeast monsoon would most probably be due to conventional thunderstorms, a result of intense heating causing rapid evaporation, or to a lesser extent, typhoons which can occur in the region during October-November. The probability of a typhoon hitting Guimaras is fortunately low. The island has a rare frequency passage of 0%-10% of the annual average of 19.8 typhoons.

The southwest monsoon (hanging habagat), which ushers in the wet season, starts in June and ends in September. It is characterized by moisture-laden maritime tropical (MT) winds prevailing from a southwesterly direction due to a high pressure system over the Australian Continent, from which diverging winds move towards a low pressure system over South and Southeast Asia including Mainland China.



Climate variations have been observed in Guimaras as manifested by conditions wherein it is raining in one area but just in another area it is dry. Micro-climatic conditions differ in areas of the island and require more detailed climatic measurements and advanced weather observation facilities. This is very significant considering that agriculture; fisheries and tourism are the primary drivers of the economy.



Map 4. Climatic Map of the Province of Guimaras



❖ Recent Vegetative Cover

The vegetative cover of the FFL area are classified and shown in Map 5 and Table 3. It could be noted that the mixed plantation occupies the biggest area (2,083.26 hectares) followed by fishpond areas (891.69 hectares), woody shrubs (628.27 hectares), mangrove forest (563.48), coconut plantation (394.16 hectares), brushland/grassland (361.49 hectares), , rice paddies (252.25 hectares), open cultivated (93.03 hectares), non-plantable area (87.99 hectares), built-up area (67.59 hectares), and the smallest area is water bodies (36.20 hectares).

Mixed plantations of forest and fruit trees are found in the CBFM and ISF/CSC areas particularly located in Brgys. Taminla and Dagsaan, Buenavista; Brgys. Sapal and Constanica, San Lorenzo and Brgy. Espinosa, Jordan; Brgy. Tacay, Buenavista, Brgys. Lawi and Hoskyn, Jordan, Guiwanon Island, Nueva Valencia and Brgys. Tanglad, Sabang and San Isidro, Sibunag.

Other types of vegetation are mixed perennials and agroforestry are spread in patches.

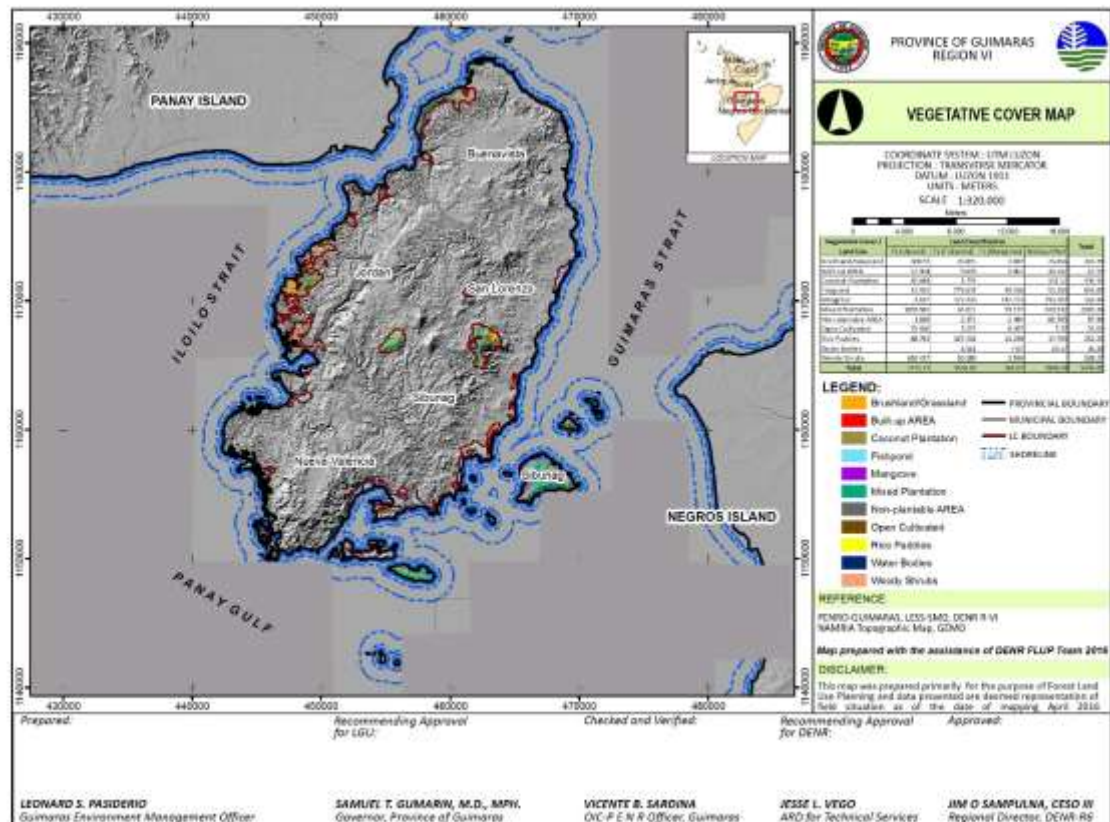




Table 3. Table showing the Vegetative Cover and Land Uses of FFL in the Province of Guimaras.

Vegetative Cover / Land Use	Land Classification				Total
	FL (Upland)	FL (Fishpond)	FL (Mangrove)	Unclassified	
Brushland/Grassland	308.92	20.82	4.89	26.86	361.49
Built-up AREA	21.96	9.42	1.47	34.74	67.59
Coconut Plantation	40.84	1.79		351.52	394.16
Fishpond	12.92	775.64	49.94	53.20	891.69
Mangrove	4.63	122.43	142.72	293.70	563.48
Mixed Plantation	1,039.56	64.01	39.17	940.51	2,083.26
Non-plantable AREA	1.83	2.17	2.48	81.51	87.99
Open Cultivated	79.93	5.27	0.46	7.37	93.03
Rice Paddies	88.76	117.46	11.26	34.77	252.25
Water Bodies		4.56	7.07	24.57	36.20
Woody Shrubs	616.42	10.29	1.57		628.27
Total	2,215.77	1,133.87	261.02	1,848.74	5,459.40

❖ Sub-watershed and Drainage

In the Eastern part of the province, there are 21 sub watersheds while in Western part there are 13 sub watersheds with a total of 34 sub watersheds. There are three major sub watersheds identified, the Sibunag River sub watershed with an area of 9,326.45 hectares; the Cabano River sub watershed with an area of 8,004.60 hectares and the Mantangingi River sub watershed with an area of 5,140.31 hectares. There are reports that these rivers, having comparatively large catchments areas, dry-up during prolonged dry season, indicating limited aquifer storage to support the base flow. Out of these three major sub watersheds, only Mantangingi has no forest and forestland area.

Map. 4. Map showing the Sub Watersheds of Guimaras





4.1.2 Socio-Economic and Cultural Profile

❖ Political Subdivisions

The island province of Guimaras lies southeast of Panay Island and northwest of Negros Island. It lies between 10°25'00" and 10°46'09" north latitude, and 122°28'20.99" and 122°28'40.53" east longitude. The island is separated from Panay by the 1.5 nautical mile long Iloilo Strait and acts a natural breakwater for Iloilo. The six nautical miles Guimaras Strait likewise separates the province from Negros.

The lone district of Guimaras is composed of five municipalities namely: Buenavista, Jordan, Nueva Valencia, San Lorenzo and Sibunag as shown in Table 4.

The municipalities of San Lorenzo and Sibunag were created in 1995 by virtue of R.A. 7897 and R.A. 7896 respectively.

Guimaras has a total of 98 barangays, as approved by the NSCB Executive Board sometime in 2003 based on the July 19, 1999 decision of the Regional Trial Court 6th Judicial Region, Branch 65, San Miguel, Jordan and DILG Legal Service3 recommendation.

Table 4 Number of Barangays by Municipality Province of Guimaras	
Buenavista	36
Jordan	14
Nueva Valencia	22
Sibunag	14
San Lorenzo	12
TOTAL	98



Figure 2 Map of the Province of Guimaras

❖ Demography

Guimaras, the smallest and newest province of Western Visayas, has grown in terms of population. From a total of only 73,014 persons in 1970, Guimaras' population grew to 126,470 in 1995, then it increased to 141,450 in 2000 and it little bit more than doubled its size to a total of 151,238 in 2007 and 162,943 in 2010. The latest population based on the 2015 from the Philippine Statistics Authority (PSA) is 174,613.

Since 1995 up to 2015 census, Guimaras has had the smallest population percentage share at an average of a little more than 2%. In contrast, Negros Occidental has had the biggest share.

As of December 2008, there are no available data yet from NSO on the 2007 population by sex and the number of households. But in 2000, 51.4% of the total 141,450 population or 72,649 are male, and 48.6% or 68,801 are female. The total number of households in 2000 was 27,465 reflecting an average 5.2 persons per household size.



Based on the 2010 data from the NSO, 51.5 percent were male and 48.5 percent were female of the total population of 162,734 and of the total household population of 35,462 reflecting an average of 4.6 persons per household size

In the censal years 1995, 2000, 2010 and 2015, Buenavista has had the largest population size comprising almost 29 to 30 percent of the total provincial population,. Sibunag has had the least population with a average of a little more than 12 percent.

Majority of the populace are Roman Catholic while the rest are composed of different religions such as Protestants, Baptists, Seventh Day Adventist, Christian Born-Again, Iglesia Filipina Independiente, etc. Among these many religious sectors, only Roman Catholic, Baptists, Seventh Day Adventists and Iglesia Filipina Independiente have churches of their own and only Roman Catholic has a cemetery.

❖ **Ethnic Composition**

The people of Guimaras are dominantly made up of local inhabitants that are an assimilation of those coming from the nearby provinces of Negros Occidental, Iloilo and Antique that gave rise to the peculiarity of the local dialect. There are indigenous people identified in the Municipality of Nueva Valencia and Sibunag, living in Sitio Ubog, Barangay Lanipe and Brgy. Maabay, Sibunag. They have an official accreditation on this claim or an ancestral domain that was established. The in-migration adds up to the variety of ethnic origins that are readily assimilated to the local people.

❖ **Major Livelihood Sources**

Farming and Fishing are the primary sources of livelihood of the residents. Aside from rice farming and fishing, people are engaged in livestock raising, fruit and vegetable production, tree plantation for lumber, fuelwood and charcoal production. As of the first semester of 2015, 19 out of 100 Guimarasnons families and almost 21 out of 100 Guimarasnons live below the poverty line. The poverty line or per capita poverty threshold in 2015 was Php11,401 per person for six months or Php1,900 per person per month, and Php9,500 per family of 5 members. Meanwhile, the per capita food threshold of Php7,961.00 is the minimum income required to meet the basic food needs and satisfy the nutritional requirements set forth by the Food and Nutrition Research Institute (FNRI) for economically necessary and socially desirable physical activities.



Table 5. Annual Income for the Last Five (5) Years

Year	Commercial Sand & Gravel Permit	Quarry Permit	Private Gratuitous Permit	Exclusive Sand and Gravel Permit	Government Gratuitous Permit	Penalty	Quarry Tax	Sand And Gravel Tax	Certifications Fee	ORE Transport Permit	TOTAL
2011	₱6,130.00	₱32,000.00	₱1,900.00	₱3,630.00	₱1,130.00	-	₱1,832.50	₱20,497.50	₱14,050.00	₱428,036.50	₱509,206.50
2012	₱8,210.00	₱1,000.00	-	₱3,600.00	₱1,200.00	₱15,000.00	₱2,296.00	₱33,322.00	₱13,500.00	₱496,874.20	₱575,002.20
2013	₱5,480.00	₱12,355.00	₱4,220.00	₱600.00	₱1,000.00	₱5,000.00	₱1,267.00	₱21,739.75	₱12,000.00	₱497,098.00	₱560,759.75
2014	₱23,100.00	₱51,740.00	-	₱1,200.00	₱5,440.00	₱30,000.00	₱612.00	₱178,307.88	₱11,700.00	₱442,142.80	₱744,242.68
2015	₱17,477.00	₱25,780.00	₱1,930.00	₱3,360.00	₱6,654.00	₱30,000.00	-	₱288,967.50	₱12,570.00	₱379,400.00	₱766,138.50



❖ Infrastructure Services

Basic services such as health, education, power, roads/bridges, water and sanitation facilities are provided by the LGU. Some barangays and feeder roads are unpassable during rainy days and need further improvement. Power generation is estimated to energize 95% of the municipality while the far flung barangays and islets/islands haven't been reached yet with electricity. The absence of some basic services remains as a challenge to the local officials and other government agencies on how to address the needs and aspirations of the residents.

The main purpose of infrastructure, utilities and facilities in the province is to provide an efficient transportation, reliable supplies of essential utilities such as power, water and communication and the provision of basic services to the constituents. These are in line with the development of an efficient, responsive, safe and ecologically friendly built environment. Better mobility means more improved integration. Adequate utilities and facilities will be translated to a more favorable environment for food production and tourism. Social infra services and facilities which are in place are the basic requirements of development.

However, infrastructure facilities still require further development and improvement. Thus, programs, projects and activities to enhance power, water transportation and communication facilities are being prioritized to achieve better strategic positioning of the infrastructure sector.

4.1.3 Institutional Profile

The FFL assets or a resource of the province is managed by DENR in partnership with the Provincial Government thru GENRO. The absence of a permanent Environment and Natural Resources Officer (ENRO) in five (5) municipalities is a major setback in the management system.

Together with the community leaders of the FFL area, the POs, NGOs, DENR has a major role in the sustainable management, conservation and protection of the forest and forest resources. The presence of various investments in the locality, like resorts, Forest Land Agreement for Tourism, is a catalyst that obliged the PLGU to get involved in their environmental responsibility that touches the FFL to some extent. The regular monitoring activities are also a venue for the LGU, DENR, CSOs and the private sector to formulate initiatives that leads to a better environment. Finally, the DENR, as the lead steward of the environment, is a consistent partner of the LGU in FFL management. An example of collaboration is the National Greening Program (NGP), Agroforestry, Riverbank Rehabilitation, Mangrove and Beach Forest Development Program (MBFDP) as priority projects of the Provincial Government.



4.1.4 Climate Change Hazard

Additional protection parameters may include the geologic hazard susceptibility. This is increasingly important parameter to consider when deciding and planning for land use in the light of disaster and risk hazard posed to population and public and private properties and investments. The extreme events that can be brought by climate change impacts with changing rainfall and temperature pattern increases exposure of these geologically hazard area. The impact of intense rainfall can increase erodibility and landslide. Intense temperature may affect area that are devoid of vegetative cover, alter overall watershed water production function and may reduce the productivity potential of some crops. Geologic hazard and climate change must be factored-in in the overall planning regime undertaken on protection of watersheds and forest and forestlands assets.

Deforestation causes surface soil exposure that easily dries up during summer. When rainy days come, flash flood occurs, bringing all sediments downstream and caused river/creek siltation, swallowing of water-ways and overflowing of water resulting to low land floods.

Based on the Geo-hazard Map generated by the DENR-Region VI, 40 households within FL (Upland), FL (Fishpond), FL (Mangrove) and unclassified (islands and islets) is very highly susceptible to flooding mostly found in the Municipalities of Jordan, Sibunag and Nueva Valencia. There are a total of 163, 212 and 41 Households which are highly, moderately and low susceptibility to flooding, respectively.

Three barangays of the Municipality of Jordan are very highly susceptible to landslide such as: FL (Upland) areas in Brgy. Espinosa and Lawi and FL (Fishpond) in Brgy. Rizal. Fortunately to note that there is no settlement in these areas.

There are 121 households within the FL (Upland) and 3 households in unclassified land (islands and islets) that are highly susceptible to landslide scattered in five (5) municipalities.



4.2 Conditions of Forest and Forestland Assets

❖ Land Resources

The Province of Guimaras has a total land area of 60,052 hectares, more or less. It has 53 out of 98 barangays classified as forest and forestland comprising an area of 5,459.4 hectares as previously discussed in Chapter III.

Land is a finite resource, while population is constantly increasing. This scenario triggers human intrusion or settlement in forests and results to its subsequent destruction. The possible utilization of mineral resources is also a threat to our FFL areas.

❖ Mangrove Forests

There are assorted species of mangroves in the province that serve as breeding ground of fishes, crustaceans and shell fishes.

There are about 88.091 hectares of existing mangroves were rehabilitated through the initiatives of the following institutions: European Union – Small Islands Agricultural Support Services Programme (SMISLE), DENR Calamity Fund, GENRO Province of Local Government of Nueva Valencia with the active participation of the Community.



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*A Portion of National Greening Program:
Mangrove Plantation located at Brgy. Lapaz*



The DENR-PENRO established a 40 hectare mangrove (2011-2013) rehabilitation project funded under National Greening Program (NGP). The Province of Guimaras through the DENR in coordination with the concerned MLGUs and BLGUs of the 5 municipalities implemented the Mangrove and Beach Forest Development Project (MBFDP) covering 350 hectares.



Mangroves provides significant role in our coastal ecosystem such as: served as nursery and feeding ground for different fishes, birds and other wildlife. It is also works as physical barrier for storm surges and strong winds during bad weather condition and other important factors that helps stabilize or sustain the coastal areas and fishery production.



The rehabilitation of Barangay Panobolon mangroves not only provides extra income to the association members during the project establishment but restore the lush mangrove vegetation before that supplies economic importance fishes, shells and crustaceans to the communities. This is why numerous resident of Barangay Panobolon continue planted/replanted mangroves in their area.

As to date, the twenty six (26) hectares mangrove plantation established in the area has a total average survival rate of 44.18 %. The average height of planted Bacauan Babae reached up to 3.010 meters while the Bungalon as one of the slow growing mangrove species reached up to 0.971 meters. The table below shows the status of five (5) species planted on the DBP mangrove rehabilitation project.

Table 6. No. of Propagules Planted and Survived

Species	No. of propagules/seedlings planted	No. of seedlings survived	Average		
			Height (m)	Diameter (cm)	Survival Rate
1. Bacauanbabae	68,268	28,915	3.010	4.790	42.35
2. Bacauanbangkau	111,786	28,565	1.960	3.830	25.55
3. Busain	200	75	2.031	5.032	37.50
4. Tungal	5,000	5,000	1.246	2.973	100.00
5. Bungalon	39,698	6,159	0.971	2.920	15.51



Aside from the status of the mangrove species planted, the communities already felt the impacts of the established plantation in their fishery production. Wildlife such as different migratory avian species and the country endemic Philippine Duck (*Anas luzonica*) frequently visible during the site visitation and monitoring. The presence of these wild species indicate that we are slowly acquired what we are aiming for.

❖ **Plantations**

The Province of Guimaras thru GENRO had developed and maintained 21 hectares Provincial Tree Park located at Sta. Teresa, Jordan planted with various trees of different species. A tree nursery was established in this area to grow seedlings in support to the tree planting activities of various groups and individuals. Moreover, the Provincial Government also provided fund to the five municipalities for their plant nursery operations.

The province thru GENRO sustainably initiating the conduct Tree Planting in support to locally legislated Arbor Day Celebration every month of June to address deforestation actively participated by the academe, NGOs, POs, NGAs and private sectors. Likewise, planting of nipa palm seedlings was done to stabilize and protect river embankment. This also provides the local residents with livelihood by making nipa shingles as an alternative source of income.

Furthermore to improve soil fertility, climatic condition and uplift the living condition of the farmer co-operators, an agroforestry was established and develop in 4 hectare-farm located in the Municipalities of Sibunag, Jordan, Nueva Valencia and San Lorenzo through planting forest and fruit trees and integrating livestock production, care and maintenance.

❖ **Grasslands/Brushlands**

Some areas of the forestlands that have been converted and used for agriculture was abandoned and unproductive. Some open grassland is being utilized as communal grazing area, free grazing is observed in grasslands of forestland. Livestock production or rearing of cattle, carabao and goat is one of the sources of income of the residents. Other areas were utilized for Agroforestry development.

❖ **Cultivated Lands**

Open cultivated areas of 93.03 hectares planted with cash crops such as sweet potato, corn, cassava and banana.



❖ **Water Bodies and Water Production Areas**

There are 2 principal watersheds in the island located in the eastern and western portion covering an area of 387 sq. km and 85.40 sq. km, respectively with surface water sources. The remaining 9 sq. km. of the province are small-inhabited islands. The main watershed boundary is displaced westward and runs NE-SW along the island's long axis, coinciding roughly with the contact between the volcanic rocks and sedimentary formations of Buenavista Limestone and Jordan Clastics.

In the Eastern watershed, there are 29 river basins. Cabano river in San Lorenzo, Mantangingi River in Buenavista and Sibunag River in Sibunag are considered perennial indicating that the base flow is supported by aquifer drainage. However, there are reports that even these rivers, having comparatively large catchments areas, dry-up during prolonged dry season, indicating limited aquifer storage to support the base flow.

❖ **Biodiversity Resources**

The province FFL areas that are being part of the TINMAR attests to the diversity of aquatic and terrestrial flora and fauna. It serves as the home range and breeding site of wildlife species. There are different endemic species of fauna that can be found inside the forest and forestland areas such as monkeys, jungle fowls monitor lizards, bats, hawks, wild ducks, snake and leopard cat or "singgarong". The flora species are wild orchids, ferns, "anahaw" and naturally grown hard wood species such as narra, lauan and molave. The area is also abundant in fish and aquatic species that provides for the source of foods of the people. The deterioration of the forest due to lack of awareness of the residents is a threat to its sustainability in providing the needed ecological services. The impact will also reverberate to the community when food availability will be scarce due to habitat loss both in coastal and terrestrial areas.

❖ **Nature-based Tourism Assets**

Guimaras ranks 4th getting 11% of the total tourist arrivals in the region. However, Guimaras has relatively varied tourism attractions and potentials like beaches/resorts/islets, festivals mostly community-based, religious sites/activities, nature, historical and agri/farm sites. The nature-based tourism assets in the FFL areas of Guimaras are mostly its islands and islets however some of these are still unclassified.



Tourism is a fast growing industry in the island province. The tourist arrivals have increasing trend from 2000 until 2005 with an average annual growth rate of 25%. However, with the Petron Oil Spill tragedy in August 11, 2006 the tourist arrivals decreased in the succeeding two years by an average of 7.3% annually. For the over-all trend from 2000-2007, the average annual growth rate of visitors arrivals is 16%. On the average, domestic visitors account for 97.4% of the total tourists arrivals while only 2.6% is foreign visitors. For the same period, the percentage of foreign tourists out of the total visitors arrivals has also increased by an average of 1% annually.

The 2005-2007 visitors arrivals totaling to 511,323 contributed an annual average of 10% to the total regional visitors arrivals and 0.54% to the regional tourist receipts. Locally, the visitors arrivals contributed an annual average of 170 million pesos tourist receipts to the Guimaras' economy.

Tourism has generated significant forward and backward economic activities and employment in the island. There are now 35 resorts/hotels/pension inns, 34 tourism related producers, 774 land transport and 79 pumpboat operators, and 19 tour guides, tour attendants and tour assistants.

Although the exact contributions of tourism cannot be accounted for, the results of the PPA/GDP of Guimaras has somehow reflected this as can be seen in the growth rates in the construction, and services sector particularly in transport, communication and storage, trade, finance and private services.

There are still many undeveloped/underdeveloped nature-base tourism attractions in the province including its unclassified islands and islets. There is a need to increase investments in tourism facilities and services as well as to improve the investment climate (power rates, investment incentives etc.).

❖ Mineral Resources

Metallic mineral deposits of Guimaras include lump iron ore at an estimated 1,800 metric tons (MT), primary copper ore at 4,019 MT and copper ore whose quantity is still yet to be determined. The lump iron ore as well as prospects of gold can be found in the municipality of Nueva Valencia.

According to the DENR, Region VI data for 1988, limestone ore is estimated at approximately 132 million MT, mainly in Buenavista and partly in Jordan. There are also clay prospects and reported occurrences of dolomite in Buenavista and Jordan as well as prospects of limestone and silica sand in Jordan and Nueva Valencia.



Refer to the following Table for the specific non-metallic and metallic resources and their location.

Table 7. Mineral Resources and Reserves Province of Guimaras

Mineral Resources	Locality	Type of Mineral Deposit	Average Grade/Chemical Analyses	Status
1. Non-Metallic Minerals				
Guano/phosphate	Tacay, Buenavista	Sedimentary (cave dep.)		Abandoned
Guano/phosphate	Taminla, Buenavista	-do-		-do-
Guano/phosphate	Zaldivar, Buenavista	-do-		-do-
Guano/phosphate	Sawang, Buenavista	-do-		-do-
Guano/phosphate	Salvacion, Buenavista	-do-		-do-
Guano/phosphate	Bakiyas, Jordan	-do-		-do-
Guano/phosphate	Espinosa, Jordan	-do-		-do-
Limestone/Dolomitic	BalconMaravilla, Jordan	Sedimentary (cave dep.)		Abandoned
Limestone/Dolomitic	Dagsa-an, Buenavista	sedimentary	CaO 37.4-48.15% MgO 7.37-17.55%	Operating
Limestone	Taminla, Buenavista	-do-	CaO 54.59% MgO 0.24%	Operating
Limestone	Tacay, Buenavista	-do-	CaO 52.6% MgO 1.35%	Operating
Limestone	Calingao, Buenavista	-do-	CaO 53.3-55.19% MgO 12.27%	Operating
Limestone	Buenavista	-do-		Operating
Limestone	Salvacion, Buenavista	sedimentary		Operating
Limestone	San Pedro, Buenavista	-do-		Operating
Limestone	New Poblacion, Buenavista	-do-		Operating
Limestone	Lutong, Jordan	-do-	CaO 55.45%	Operating
Limestone	Hoskyn, Jordan	-do-		Operating
Limestone	Morobuan, Jordan	-do-		Operating
Limestone	Rizal, Jordan	-do-		Operating



Mineral Resources	Locality	Type of Mineral Deposit	Average Grade/Chemical Analyses	Status
Limestone	Singcalang, Jordan	-do-		Explored
Silica Sand	Piña, Buenavista	Alluvial	SiO ₂ 91% (ave. of 91 samples of washed sand)	Explored
Silica Sand	Agsanayan, Buenavista	Alluvial		Explored
Silica Sand	San Roque, Buenavista	Alluvial		Explored
Silica Sand	San Isidro, Buenavista	Alluvial		Explored
Silica Sand	Alaguisoc, Jordan	Alluvial		Explored
2. Metallic Minerals				
Gold	Millan, Jordan	Epithermal vein	Au 0.38 g/t; Cu 2442 ppm	Explored
Gold + Copper	Calaya, Nueva Valencia	Epithermal vein	Au 0.02 pm Cu 1%	Explored
Gold + Copper	Salvacion, Nueva Valencia	-do-	Au 0.045 ppm Cu 240 ppb	Explored
Iron	Jordan	Contact metasomatic	Fe 46.56-49.33%	Abandoned
Iron	M Chavez, San Lorenzo	-do-	Fe 66.97-67.96%	Abandoned

Source: DENR Region VI, 1988.

4.3 Key Stakeholders

Groups or individuals have mandates and interests over forestland and with potential influence on how the forestlands and watersheds will be effectively managed, therefore, they should be considered in any development plans and proposals of the LGU and DENR.

Stakeholders were identified using the Stakeholders Analysis, a tool for identifying people, groups and organizations that have significant and legitimate interests in specific forest land area.

Understanding the roles and potential contribution of the different stakeholders is a prerequisite to a participatory forest governance process. It is done to ensure a balanced representation of the analysis that examines and identify stakeholders across a number of different dimensions.



Listed below are some of the stakeholders which composed groups or individuals who either occupy or have interest, roles, and mandates over public forestlands. These include:

❖ **Integrated Social Forestry (ISF) and CSC Holder/CBFMA Holders**

Either individual or in group, holders of Certificate of Stewardship Contract are recognized and given the right and privileges by the DENR to participate in the management of the forest and forestlands and develop the land consistent with soil and water conservation. The CSC Holders are devolved to the provincial government. Both tenure holders implemented various reforestation and agro-forestry development with the assistance of the DENR and Provincial Local Government Unit (PLGU). Collective action to further forest protection and development remains a challenge.

❖ **Upland Farmers**

Upland farmers are entirely dependent on farming for their source of income. They are considered as one of the on-site stakeholders. In other words, they are people who are residing and cultivating within the FFL for economic purposes as their interest.

Charcoal making is an alternative means of livelihood of the upland farmers. Charcoal is being supplied locally and also to Iloilo City and Negros Occidental. Survey showed that the demand for charcoal increases simultaneously with the number of people engaged in charcoal making which is considered as one of their major livelihoods. It is encouraged that land owners should plant “Sibukaw”, Madre de Cacao and other legumes in open areas as a source of nitrogen for nutrient cycling as well as increase forest cover.

The upland farmer as stakeholders have vital role in the management, restoration, rehabilitation and sustainable use of FFL. They will be the instrument and partner for the conservation and protection of the FFL or can be a cause for further destruction. They are one of the potential instruments in improving the health of the FFL. Their cooperation, participation and commitment in the implementation of forest land use management prescriptions are very crucial.

❖ **Settlers of Unclassified Islands, Islets and Shoreline Easement**

These are either migrants or native of the place who are engaged in any economic activities such as grazing, farming and forest product collection. They are dependent on these resources to sustain a living. Majority of these settlers are below poverty



threshold level, directly engaged in illegal cutting of trees for house construction, pump boat, fuelwood and charcoal making activities that contribute to denudation of forest.

❖ **Fisherfolks and Coastal Communities**

They are the stakeholders that will be greatly affected by the adverse effects of water-related issues like flooding, water pollution, coastal degradation, and others. Currently, some of them are involved in mangrove protection and rehabilitation but not in upland forest rehabilitation.

❖ **Lowland Community Residents**

Residents in the lowlands are considered as off-site stakeholders. Their contribution to the degradation of the FFL may be minimal but they are the potential subject of the effects of forest destruction.

❖ **Water Users (Domestic Use, Agriculture)**

Development in any sense relies on the availability and accessibility of resources, and one of the most valuable resources is water.

People in general are dependent on water for existence and sustenance. On the other hand, agriculture activities need water for domestic use, irrigation and recreation.

Water user is not limited to the users at source but it means that the entire community is the end user, thus making the residents in and outside the FFL as stakeholders.

❖ **Provincial Local Government Unit (PLGU)**

Mandated to provide overall supervision on ISF devolved area, the provincial government also finance forest and coastal development and management projects through the Guimaras Environment and Natural Resources Office.

❖ **Municipal Local Government Units (MLGUs)**

The MLGUs of Guimaras have been involved in natural resources management related projects, such as in fisheries and coastal protection and various gender-related environmental interventions. They have also initiated the formation of coastal and forest protection teams who are tasked to protect and apprehend violators. However, the MLGUs have no institutionalized office, Municipal Environment and



Natural Resources Office) (MENRO) with structure and regular allocated resources to respond to various MLGU environmental concerns. At present, the MLGUs are dependent on designate merely working as representative from the office of the Municipal Agriculturists.

❖ **Department of Environment and Natural Resources (DENR)**

The DENR provides technical and financial support to LGUs, People's Organizations (POs) and communities in the management and protection of the FFL through the National Greening Program (NGP) and other Environment and Natural Resources (ENR) services.

❖ **Bantay-Dagat**

Organized to help in forest protection and enforcement by the P/MLGUs. BantayDagat is tasked to administer protection and enforcement of laws and regulations on mangroves, coastal, and fisheries. So far effective in their protection and enforcement activities, these groups merely work as volunteers with meager operational cost and honoraria. Their operation still need to be enhanced and logistical support must be provided to further their effectiveness.

❖ **Non-Government Organizations (NGOs)**

The NGOs are potential partners in the implementation of Forest Land Protection and Management.

❖ **People's Organizations**

Organized groups for a specific purpose. They are mostly organized by the assisting government agencies and non-government organizations.

❖ **Civil Society**

They ensure justice for the poor and social equity as part of its outreach program. Extension services are provided by this group to upland farmers that land owners should plant "Sibukaw", Madre de Cacao and other legumes in open areas as a source of Nitrogen for nutrient cycling as well as increase forest cover.

The upland farmer as stakeholders have vital role in the management, restoration, rehabilitation and sustainable use of FFL. They will be the instrument and partner for the conservation and protection of the FFL or can be a cause for further destruction. They are one of the potential instruments in improving the health of the FFL. Their



cooperation, participation and commitment in the FLUP implementation are very crucial.

4.4 Institutional Assessment

The DENR having the mandate in the management of forests and forest lands have the capability in providing technical assistance, technology transfer through training and the linkage to fund and funding institutions.

On the other hand, LGUs has the capacity in terms of personnel complement and access to local fund. Though the LGU has yet to create the Municipal Environment and Natural Resources Office and at the same time creation of the position and appointment of MENR officer. This will ensure the sustainable implementation of FLUP and the mandated environment related PPAs.



Table 8. Institutional Assessment Matrix

Institutions/ Stakeholders	Mandates/ Interests	FFM Units/ Staff	Annual Budget	FFM Skills	Past/ Current Projects	Policies/ Plans on FFM	Remarks
DENR	E.O 192 DENR has Jurisdiction over FFL	PENRO w/ forestry unit with focal person for FLUP	Has NGP Budget	GIS, nursery & plantation establishment, surveying, community mapping, community organizing FLUP	NGP	Tenure Issuance	With proper coordination with PLGU/MLGU in projects
PLGU	RA 7160	GENRO Responsible for forestry concern with ____ staff	Has budget for FFL Projects	GIS, nursery & plantation establishment, surveying, community mapping, community organizing FLUP	BUB	Provincial Environmental Code	With close coordination with DENR, MLGU, NGOs, NGAs and POs
MLGU	RA 7160	Designated MENRO	Has budget for FFL related activities	Planning, data gathering, community organizing, nursery & plantation establishment	Tree Planting/ Mangrove Planting in collaboration with DENR, private sectors, schools, NGAs, NGOs & POs	Local Ordinance for environmental protection	Strengthen coordination with DENR & other agencies, NGOs, POs and other stakeholders
PAMB	Presidential Proclamation No. _____	Assigned PASu, PAMB with ____ members	Operations budget from DENR	Policy formulation, community organizing, preparation of W &F Plan & forest management	Construction of _____ and formulation of IPAF?	PA management policy formulation on the regulation of various activities within the PA	Active



4.5 Summary of Key Issues, Conflicts, Problems, Needs, Investment/Socio-economic Opportunities

4.5.1 Problems, Issues and Needs

Man-made threats and pressures from the population may further destroy the remaining forest cover, watershed, and mangrove ecosystems and therefore must be stopped. It should be recognized that allowing these threats to prevail will result to various adverse environmental impacts that can affect the economy and lives of people of Guimaras and five municipalities in general. These issues are the following;

4.5.1.1 EXPANDING AGRICULTURE IN FORESTLANDS

One of the glaring issues as far as the FFL is concerned is the expanding agricultural and illegal activities and conflicting land uses.

4.5.1.2 VETATIVE CONVERSION

Evident to the expanding agriculture in the FFL is the vegetative conversion wherein forest trees are cut for unsustainable upland farming like camote production that heightens soil erosion, the use of pesticides and herbicides on rice production.

4.5.1.3 DECLINING NATURAL FORESTS

Human intrusion and encroachment has been the major cause of the declining forest cover.

4.5.1.4 LOSS OF BIODIVERSITY

Another effect of human activities in the FFL is the declining biodiversity in the natural forest. The threat that the endangered species might be lost is disheartening and at the same time alarming. It is said that today's natural assets are borrowed from the next generation. That makes us responsible stewards of mother earth for posterity.

4.5.1.5 ILLEGAL ACTIVITIES IN FFL AREAS

There are reported cases of illegal activities in the FFL areas. These activities include cutting of tree, poaching, charcoal and fuel wood making and slash and burn practices.



4.5.1.6 GRASS FIRES

Grass fires are considered as one of the threats to the FFL. Visibility of Bantay Gubat has to be strengthened to reduce the risk of forest fires.

4.5.1.7 HIGHER RISKS TO DISASTERS

There are FFL areas that are very highly susceptible to flooding and are very highly susceptible to landslide. These should be seriously considered.

4.5.1.8 LACK OF INSTITUTIONAL COLLABORATION

The lack of collaboration between and among NGAs, LGUs and line agencies create laxity in enforcement of environmental laws.

4.5.1.9 DEGRADATION OF WATER RESOURCES

The diminishing vegetative cover in the watersheds will ultimately result to the scarcity of water for irrigation and domestic use.

4.5.1.10 BOUNDARY CONFLICT WITH MUNICIPALITIES/ BARANGAYS

The boundary conflict between the municipalities and barangays is an irritant not only to political leaders but also to the residents that are directly affected by the conflict.

The lack of demarcation of the boundary among the municipalities and barangays has been an issue that has yet to be addressed by the LGU.

The lack of boundary among the barangays creates confusion and disagreement not only among officials but also among the residents.

4.6 Opportunities

While there are loads of natural resources management issues in the Province of Guimaras, however, has also opportunities that can tapped and optimally used for its environmental and economic advancement, that includes;



1. Large area of territorial waters and abundant marine resources of with strong demand locally and abroad;
2. Plenty of natural landscapes and seascapes with recreational/aesthetics value that can be further developed for both nature-based and mass tourism;
3. Large interest among academic and research institutions to help in biodiversity research and conservation and conduct some anthropogenic studies;
4. Availability of some grasslands and brush lands potential for productive development.



CHAPTER V

LGU's VISION, GOALS AND OBJECTIVES

5.0 Vision

We envision Guimaras as a productive, healthy and sound environment with empowered, self-reliant and resilient community enjoying a progressive economy anchored on the principles of sustainable development.

5.1 Goals

5.1.1 To conserve, preserve and protect FFL assets by: adopting management zones and prescriptions

- 5.1.1.1 Protecting and preserving biodiversity areas
- 5.1.1.2 Establishment of buffer strips along rivers
- 5.1.1.3 Promotion of agri-tourism

5.1.2 Stakeholders

- 5.1.2.1 To establish close collaboration with NGAs.
- 5.1.2.2 To ensure participation and commitment of upland farmers; lowland communities; water users; LGU; academe; religious, CSOs, private sector and NGOs

5.1.3 Institutions

- 5.1.3.1 To establish linkage with local and foreign funding institutions

5.2 Objectives

1. Guide the allocation and management of forest lands per watershed.
2. Determine priority watersheds for planning and investing public and private resources.
3. Facilitate conflict resolutions.



4. Provide a framework for directing public and private investments.
5. Provide a baseline to monitor and evaluate key criteria and indicators of sustainable environmental and forest land management.
6. Enact local legislations in support of national environmental laws.
7. Allocate open access areas for tenures/co-management ventures.
8. Increase forest cover to improve the quality of natural resources.
9. Improve local production of crops and other forest products.
10. Attract investors for better agri-tourism and forest production.
11. Increase profitability and productivity of FFL barangays.
12. Increase level of awareness of communities on hazards and its causes that will lead to active participation in the conservation of the FFL.
13. Capacitate the LGU in the effective management of FFL.
14. Strengthen coordination and collaboration with concerned NGA's and NGO's on FFL programs, projects and activities.



CHAPTER VI RECOMMENDED STRATEGIES

6.1 General Strategies

The implementation of FLUP will promote active collaboration and partnership between the DENR, LGU of Guimaras, and other stakeholders for the effective management of the upland forest and mangroves, as well as for the rehabilitation and protection of riverbanks and riparian areas. Likewise, FLUP implementation complements with other existing forest management initiatives by the LGU and DENR and shall be used to leverage investments for forest development and restoration. FLUP shall serve as Guimaras contribution to sustainable management and development agenda of the national government advocated in the Republic Act 7160, otherwise known as Local Government Code of 1991.

The recommendations and strategies provided below sets the long-term program of the province of Guimaras to manage the forest and forestlands in a sustainable basis. Guimaras shall manage its forest and other natural resource assets through strong collaboration and involvement with local communities and various stakeholders.

For the Upland Forest – Upland forest shall be further improved and developed to increase economic production, restore trees for the overall improvement of watershed (soil and water conservation) and to contribute to climate mitigation. Protection, development, and management of the forest will be done through active participation of local communities and stakeholders.

Mangrove Forest – An institutional mechanism shall be established to regulate entry and use of forest and marine resources within and around Guimaras Island. The overall protection and management shall be administered jointly by the 5 municipalities in collaboration with coastal and fisheries organizations. A regular program of cleaning and re-greening (tree planting) will be done in the island.

6.2. Specific Strategies

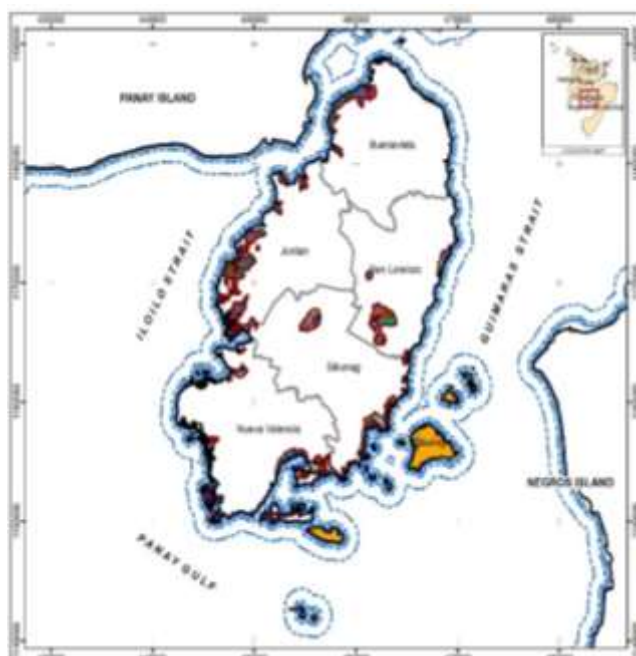
Guimaras will take the following strategies for sustainable use and management of its forest and forestland areas:



A. ZONING OF THE FOREST LAND

Forest management zone serves as the overall framework for use, development, and management of the forest and forestlands. The areas categorized for protection and production zones shall form part of the Province Forest Management and Protection Program. Areas allocated under the Protection zone, are those with 50% and up slope, 1000masl elevation, high susceptibility to hazards, existence of endangered flora and fauna, presence of endemic species of trees, water source and 40 meters both sides of the river.

The delineation of protection and production zones is needed in order to establish the actual sites on the ground. The protection area identified have an area of 3,611.00 or equivalent to 66,14 % of the forest and forest land. To somehow achieve the balance in use, some productive uses or activities will be allowed in protection zone, where areas under occupation or being claimed by the upland settlers and presently use the area for farming, will be developed to multi-storey agroforestry so that even they cannot harvest the trees but they can harvest high valued fruit trees. The remaining area which is 1,848.41 or equivalent to 33.86% of the forest and forestland is allocated to production forest. The method of delineation was done using map overlaying of the different thematic maps.



Proposed Land Use	Proposed Management Zone		Total
	Production	Protection	
AGF	319.43		319.43
Aqua-silviculture	8.19	99.11	107.30
Built up Area	17.04	11.77	28.82
Critical Marine Habitat Area/eco-tourism		213.14	213.14
Eco-tourism Area		1597.12	1597.12
Fishpond Development	219.38	483.16	702.54
Multi-storey AGF		563.17	563.17
Non-plantable Area		6.43	6.43
Staple Food	128.01	70.48	198.48
Water Bodies		10.14	10.14
Wood and Fire/Fuelwood	1156.36		1156.36
Riverbank Stabilization		309.28	309.28
Water Production Area		31.51	31.51
Marine Protected Area		155.683	155.68
Total	1848.41	3611.00	5459.41

Map 7. Proposed Land Use Map of Guimaras



Each primary zone will be further classified into subzones or sub-uses responsive to the development goals of the LGU. Protection zone covers areas set aside for ecotourism, marine habitat, multi-storey agro, water production and riverbank stabilization while production zone shall be developed for purposes of increasing food production, including wood and other raw materials. All brushlands and grasslands that fall within the protection zone shall also be developed into close canopy or multi-storey agro-forestry consistent with objective of soil and water conservation.

Table 8. Management Zone and Proposed Land Uses

Management Zone	Existing Use	Proposed Land Use	Management Prescription
Protection	Open Cultivated; Brushland/ Grassland Woody shrubs Coconut Plantation Mixed perennial	Multi-storey Agroforestry Watershed Rehabilitation & Protection	Open and close agroforestry development with strong adherence to SWC measures; intercrop perennials in multi-storey agroforestry; Intercropping of high valued fruit trees. Planting of indigenous species of trees intercrop with bamboo.
	Built-up Area	Built-up Area	Information dissemination, identification of relocation site and provision of livelihood
	Rice Paddies	Staple Food	No further expansion; introduction of new technology to increase production
	Riverbanks	Riverbank Stabilization	Planting of perennial crops; Enforcement of river easements; national regulation prohibiting conversion to open cultivation.
	Mangrove Forest	Critical Marine Habitat/Eco- tourism	No cutting of mangroves; strengthen IEC on mangrove protection and preservation; introduction of artificial wave breaker (jackstone type); maintain & protect the existing vegetation and conduct enrichment planting on available coastal/mangrove areas.
	Fishpond	Mangrove Development	All abandoned, unproductive and unutilized Fishpond Lease Agreement (FLA)-covered areas shall be cancelled for future mangrove rehabilitation
	Non-Plantable Area	Eco-tourism (Unclassified island & islets)	Issuance of Forest Land Agreement for Tourism (FLAgT) to qualified applicants;



Production	Open Cultivated; Coconut Plantation; Mixed Plantation	Agroforestry	Open and close agroforestry development with strong adherence to SWC measures; intercrop perennials in multi-storey agroforestry; Intercropping of high valued fruit trees.
	Brushland/ Grassland Woody shrubs	Wood and fuelwood	Planting/broadcasting of indigenous tree species like sibucan, ipil-ipil intercrop with high valued crops like Coffee, Cacao and other suitable fruit trees.
	Rice paddies	Staple food	For Network of Protected Area for Agricultural Development (NPAAD). No further expansion and conversion
	Built-up Area	Built-up Area	Information dissemination, identification of relocation site and provide of livelihood; No further expansion.
	Fishpond	Fish food production	Introduction of modified fish culture
	Mangrove	Aqua-silviculture	Enhancement of mangrove vegetation; Introduction of aqua silvi-culture farming

Table 9. Distribution of Area of Proposed Uses of the Forest and Forestland for Each Primary Zone.

Proposed Land Use	Proposed Management Zone		Total
	Production	Protection	
AGF	319.43		319.43
Aqua-silviculture	8.19	99.11	107.30
Built-up Area	17.04	11.77	28.82
Critical Marine Habitat Area/Eco-tourism		213.14	213.14
Eco-tourism Area		1,597.12	1,597.12
Fishpond Development	219.38	483.16	702.54
Multi-storey AGF		563.17	563.17
Non-plantable Area		6.45	6.45
Staple Food	128.01	70.48	198.48
Water Bodies		10.14	10.14
Wood and Fire/Fuelwood	1,156.36		1,156.36
Riverbank Stabilization		369.28	369.28
Watershed Rehabilitation		31.51	31.51
Marine Protected Area		155.683	155.68
Total	1,848.41	3,611.00	5,459.40



In support of the enforcement of management zones, the following shall be undertaken;

- a. **Issuance & Enforcement of Support Ordinance.** To make it more enforceable, forest management zones will be integrated in the Provincial Development Physical Framework Plan (PDPFP) of the Province of Guimaras.
- b. **Ground Demarcation of Management Zones.** The proposed forest management zone will be delineated using low cost means possible and to be adopted by all municipalities through an Ordinance. Maps shall be prepared for each municipalities which shall be displayed in Municipal Halls or in conspicuous places for information.
- c. **Integration of the Forest Management Strategies in the Comprehensive Land Use Plan (CLUP)** of the five (5) municipalities to ensure enforceability of the forest management zone through an Ordinance.
- d. **Creation of Database/Registry of Land Uses.** There is a need to collate/inventory all existing and proposed farm level uses for each municipality to ensure its consistency with the proposed land uses. If resources are available, detailed mapping can also be administered for each municipality to be done alongside with inventory of land claims, including area of farmer's occupation. In the long-term, LGU may also opt to establish some registry system where all uses shall be issued with permit to regulate use and ensure its consistency with the management zone. Database and registry will also be relevant in monitoring and evaluation by the DENR and LGU.
- e. **IEC on Management Zones.** The IEC strategy is to make people aware of the land use Ordinance and the existence of management zones in each municipality. Installations of billboards on conspicuous place that presents prohibitive activities in each zone will help deter encroachment and illegal practices.

B. Closure of Open Access Forestland and Mangroves

Allocation or putting onsite manager is considered the first step in the sustainable management of the forestlands .It legitimizes and allow secured stewardship rights that puts incentives to tenure holders to make management possible.



There are about 4,356.90 hectares or 80% of the total public forest in Guimaras that are under open access situation. It is recommended that this area will be allocated with applicable tenure.

Under this strategy, there are three approaches that will be done:

1. Issuance of tenure. Open access situation are in many ways disadvantageous. The lack of onsite management invites more unsustainable practices as no legitimate accountable group is tasked to protect and develop the forestlands. In like manner, it presents foregone benefits both for the communities and Local Government Units because available opportunities to optimize the use of forest land resources cannot be tapped with the absence of legal instrument to do it.
2. Delineation of Area for Tenure Issuance. Survey and demarcation is important to determine the actual limit and coverage of the area for tenure issuance for the effective exercise of LGU and DENR responsibility during the implementation of forest management activities. Delineation and demarcation will also avoid future conflicts caused by overlapping claims. Conventional surveying usually entails huge cost. An alternative would be for DENR and LGU to use a low-cost boundary demarcation with community participation. Boundary sketch map prepared by the local communities and certified by the concerned barangay councils for authenticity and correctness can also help.
3. Assistance to tenure holders in improving forest management capacity and capability. Tenure holders will be able to implement effective forest management if they are organizationally mature, financially stable, and technically-equipped. Assistance of LGUs and DENR will focus on their weak areas identified during tenure holders' assessment conducted by Technical Working Group. Assistance that can be provided include, among others, the following;
 - Link tenure holders to resource institutions to access trainings and/or financial assistance in forest rehabilitations.
 - Facilitate the preparation and approval of the management plan.
 - Provide or facilitate access to training.
 - Facilitate formulation of tenure holder policies and conflict resolutions mechanisms



C. Rehabilitation and Increase of Productivity of Grasslands, Brush Lands, Cultivated Forestlands and Degraded Mangrove Areas

In support of increasing land productivity while conserving soil and water and increasing forest cover, grasslands in the forest zone will be developed into agroforestry and wood and fire/fuelwood production area. Some of these areas are under claims by both forest occupants and absentee claimants and being used for farming/agriculture, while some are abandoned and unproductive widen farms. In any case, tenure will be issued to give incentive and promote strong participation in the productive development of these areas.

The adoption of sustainable upland farming system (agro-forestry) shall be used as the primary strategy for promoting on-farm productivity and soil and water conservation in response to the proliferation of the open cultivation practices in the upland that destroys the forest cover and degrade the watershed. In line with this strategy, the following set of actions will also be undertaken:

1. Establish strong linkage with donors and collaboration between local communities and other organizations. Linkage and networking with financial institutions shall be done to acquire financial and technical support grassland rehabilitation. Investment forum and preparation and submission of project proposal to funding agencies shall also be made.
2. Provision of incentives for individual for forestland development initiatives. The LGU and DENR will foster strong community initiatives in productive development of grasslands and brushlands. Incentives will be provided to tenure holders for the development of their farmland. Some example of incentive mechanisms that may be adopted, include; exemption from taxes, cash reward, and farm implements assistance, among others.
3. Establishment of wood and fuelwood production area for each municipality. Fuelwood gathering is one of the often overlooked factors of forest denudation. Anticipating the problem in view of the growing population and increasing demand for wood and fuelwood and also as one of the sources of income of the people of Guimaras wherein they supply charcoal and fuelwood to Iloilo and Negros, each municipality shall designate area in the forest zone to be used solely for fuelwood production. Development of this area will be through local community initiatives using local tree species following least cost approaches. A system of gathering shall also be established through local ordinance, with the barangay/municipal council doing the monitoring and enforcement.



4. Foster local community initiatives in forest rehabilitation. There are other means to implement forest rehabilitation initiatives that require least cost, especially for mangroves. The LGU may launch some programs that will involve local community and students in forest rehabilitation like; a) annual tree planting activities during barangay or town fiesta celebrations, b) re-greening program by schools, government institutions and other groups, c) mangrove rehabilitation by barangay, among others.

D. Protection and Rehabilitation of Riparian Areas and Riverbanks

Flooding in downstream areas is caused by the degradation of riverbanks and loss of vegetative buffer that aggravate siltation. Siltation not only exacerbates flooding but it also destroys mangroves, seagrasses, and corals that serve as the breeding ground and habitat for marine resources. These strategies will focus on the protection of remaining vegetative buffer, and rehabilitation of riverbanks that are devoid of it. Priority will be given to areas identified as risk and hazard prone.

Below are the initial key actions agenda that will be undertaken by the LGU. A plan that details riparian and riverbanks management that highlights complementation between engineering structures and vegetative buffering approaches should also be made.

1. Issuance and Enforcement of Local Ordinance. Protection and development of riparian areas should also be incorporated with the zoning ordinance along with the forest land use zones proposed in this APP. Based on existing regulation, 40 meters along river and streams should be protected and must be kept preserved to avoid erosion and siltation on various water bodies.
2. Protection of remaining vegetative buffer and rehabilitation of degraded riparian and riverbanks. A long term goal is to rehabilitate the main tributary of Sibunag river and other major streams that were identified as risk or hazard prone. An inventory may be necessary to determine these areas as well as other areas that are important to be protected. Areas devoid of vegetative buffer will be recommended and prioritized for rehabilitation and areas with existing vegetation will be enhanced and protected.
3. Collaboration with Land Owners and Local Communities. Promoting local action for riparian protection and rehabilitation involve working with landowners on voluntary actions to conserve and develop the riverbanks and other areas with habitat values in the future. Owners of land along river banks will be encouraged to plant buffer trees or develop the area into agroforestry



that will contribute to soil and water conservation. Provision of incentive approaches may also be tried by the LGU to encourage more land owners participation, say, significant tax reductions and other incentives that may soon be defined.

E. Protection and Rehabilitation of Critical Marine Habitat /Eco- tourism in Forestlands

All remaining forest (mangroves) will be protected and enhanced to serve as critical marine habitat area and ecotourism. This initiative will be included in the Provincial Tourism Plan to be developed for this purpose. The major attraction that can be considered may include river cruising, fishing, restaurant and picnicking in the eminent Sibunag River, Island Hopping, swimming and snorkeling in the unclassified islets and island of the province. Enhancement may be done through natural regeneration and/or reforestation. Among the activities include;

1. Assessment and Mapping of marine habitat area and ecotourism in collaboration with research institutions.
2. Enhancement and preservation of remaining forest both in upland and coastal areas.
3. Linkage with research group for the assessment of critical marine habitat and eco-tourism area.
4. Community outreach and extension on forest conservation.

F. Forest Protection and Enforcement

Unsustainable forest practices cause forest degradation and this happens because of insufficient or the lack thereof of enforcement mechanism to apprehend and penalize perpetrators. It complements forest renewal and ensures that remaining forest will not be destroyed. Following community-based approach, the LGU shall enjoin all stakeholders with recognition that forest degradation impacts each one and therefore must contribute toward this end. It will have the following focus and responsibilities:

1. Regulating forest resource extraction (e.g., fuelwood) and forest conversion (swidden farming with application of slash and burn).
2. Protect the remaining natural forest tree species and mangroves from illegal extraction.



3. Enforce zoning (including management restriction for each management zone).
4. IEC on forest regulation.
5. Others

Forest Protection and Enforcement will be implemented at two levels;

Creation of Provincial Forest Protection Committee. To work under the Steering Committee, this group shall serve as the overseer of provincial-wide forest protection and enforcement with responsibility to monitor activities and recommend measures to improve them. It will be composed of DENR personnel, civil organizations, police and military, municipal representatives, barangay captains, and other concerned citizens. The group will also help in the awareness campaign against forest violations and inappropriate forest practices.

Creation/Mobilization/Strengthening of BantayDagat (Coastal) and BantayGubat (Upland). Forest protection will be created in each municipality to be headed by their enforcement unit or by the Municipal/Barangay Council Chairperson on Environment. This team will work closely with tenure holders in forest protection and enforcement and in conducting awareness campaign on forest laws and regulations. The team will give regular report on the status of forest protection and enforcement activities to the Steering Committee.

G. Enforce LGU Protocol on Mining Applications and Approved Permit

All exploration activities will be monitored by the LGU. While the Mining Law does not provide to confer the LGU on exploration, the LGU invokes its right under the Local Government Code to at least be consulted on matters and activities within their territorial jurisdiction. All applicants are encouraged to present their applications to the LGU and forge an agreement with regards to their exploration activities. Areas that have been set aside by the LGU for rehabilitation and forest productive development shall be exempted from any mining interventions. The LGU shall pursue developments of areas that have been planned. For areas that have been covered with MPSA, an agreement shall be forged on monitoring mitigations or site rehabilitation measures to be applied by the holders. Enforcement of the EIA's Environmental Compliance Certificate shall be diligently observed by the LGU.



H. Climate Change Adaptation Strategies

Climate change is becoming more evident and there is a need for immediate action to mitigate its impact and cushion its effects to plant, animal and human lives. This poses a great challenge and calls for concrete action from the PLGU/MLGU and the barangay and its people, to jointly act in reversing this pattern of forest degradation and ably respond to hazards.

Findings on vulnerability assessment show that some areas in the province are indeed in high vulnerability to flooding. Anticipating climate change and consistent with RA 10121 or the Disaster Risk Reduction Management Act, the following recommendation will be adopted by the LGU:

Designate and Develop Areas for Resettlement. The best means possible to respond to the threats of flooding to the population is resettlement. An adaptation mechanism of prevention, LGU shall set aside and develop area for resettlement for communities or households that are in areas with high flooding vulnerability. These resettlement sites have been mapped and selected far-off from areas with high vulnerability.

1. **Develop Disaster Preparedness Program.** Building on the recommendation provided in the Philippine Disaster Risk Reduction Management (PDRRM) Act of 2010, each municipality will create and strengthen its Disaster Response Team, and prepare a DRRM Plan based with detailed mapping of the vulnerability areas and action plan for mitigation and/or adaptation.
2. Maintenance and protection of existing mangroves and conduct enrichment planting in suitable areas.



Chapter VII

ORGANIZATIONAL/INSTITUTIONAL STRUCTURE AND OPERATIONS IN SUPPORT OFFOREST LAND USE PLAN IMPLEMENTATION

7.1 Strengthening of GENRO

Setting up accountability and responsibility center in FLUP implementation is a necessary element of good environmental governance and in line with the participatory principles of a development agenda for the province. FLUP implementation shall adhere to this principle with the end view of strengthening local institutional capacity for forest management and allowing strong collaboration and partnership between and among stakeholders

The Province of Guimaras has an existing Guimaras Environment and Natural Office (GENRO) with personnel and its structure strengthened in order to effectively perform and more responsive to the duties and tasks as mandated under R.A 7160, among others.

With GENRO, several sections had been created such as: Forest Resource Management Section, Environmental Management Section, Mineral Resource Management Section and Coastal Resource Management Section to address environmental issues and concerns.

Section 6 of R.A 7160 and provisions stated in the Environment Code, all provincial and municipal governments, DENR and other national and local government agencies/officers shall share and coordinate all efforts for the effective protection, development, management, rehabilitation and conservation of environment and natural resources in the province, the regulation and supervision of the operation of licenses and permit holders for the taking or use of mineral resources, implementation of local-driven coastal, forest, mineral, pollution control including waste management and the enforcement of environment and natural resources laws, rules and regulations and perform such other functions as prescribed in the ordinance.



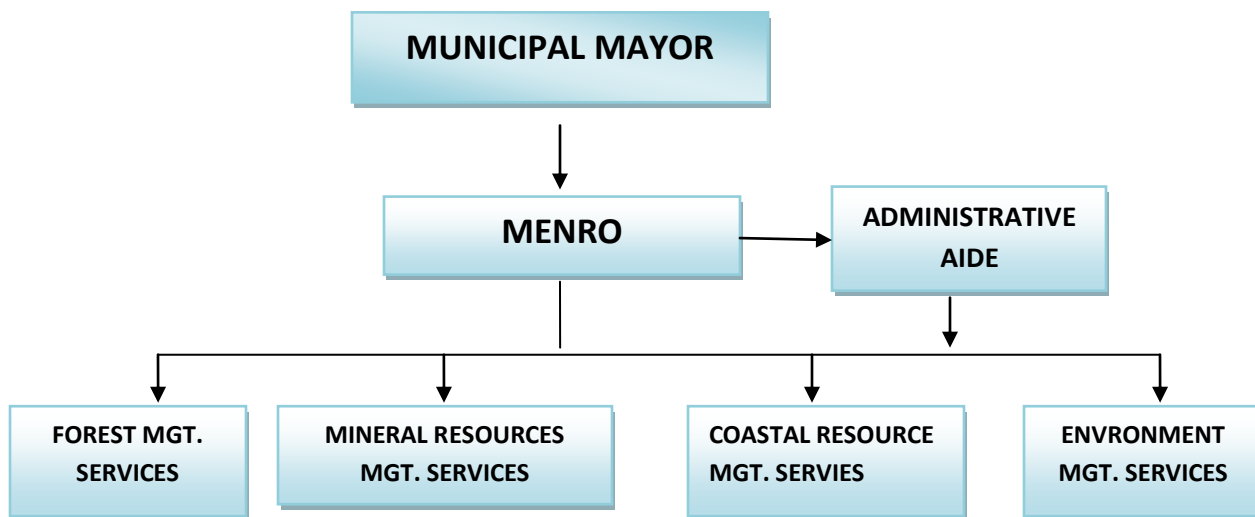
7.2 Creation or Designations of MENROs

The five municipalities deemed it appropriate to create a MENR Office and or designate personnel considering of the many challenges it faces in the environment sectors.

The Local Government Code of 1991 stipulates that the creation of MENRO at the municipal government is optional, at the discretion of the local government unit. With the formulation of FLUP, however the needs to create the office become a necessity. Further, in Region 6, there are existing regional legislations prescribing the mandatory creation of a MENR Office pursuant to Regional Development Council (RDC) Resolution No. 2009-27 and creation of a MENR Officer pursuant to RDC Resolution No. 2009-69.

One of the major leaps for the LGU to handle toward FLUP implementation is to comply with the above mandates. Initially, the MENRO shall assume as an ad hoc office and may operate with personnel complement designating or detailing personnel from other existing units in the LGU to compose the staffing pattern. As an operational unit, the department will have its corresponding budgetary requirement to be considered in the Municipal Annual Budget.

Generally, the MENRO shall be the LGU executing unit in the implementation of FLUP and other programs and projects formulated out of this Plan. Presented below is the proposed MENRO Structure.



Due to current resources limitation, hiring of permanent MENR Officer and staff will be done when the LGU has enough funds to do so. For the meantime, the implementation of the programs and projects shall be manned by the Acting MENRO and will be



assisted by MPDO staff and other staff coming from different departments. In the long-term, the MENR office is envisioned to be “self-liquidating” once the LGU realized some income derived from taxes, fees and revenues generated from environmental resource utilization. Nevertheless, capacity building and provision of equipment in support of MENRO operation shall be done to make the office responsive in the delivery of ENR services.

As provided by Section 484 of RA No.7160 otherwise known as the Local Government Code of 1991, the MENR Office through its designated or appointed Officer shall have the following duties, functions and responsibilities:

The environment and natural resources management officer shall take charge of the office on environment and natural resources and shall:

- a) Formulate measures to ensure the delivery of basic services and provision of adequate facilities relative to environment and natural resources services as provided for under Section 17 of the LGC;
- b) Develop and implement plans and strategies on environment and natural resources management;
- c) Collaborate with other government agencies, non- governmental organizations, Peoples Organizations, and other stakeholders for the implementation of ENRM programs and projects;
- d) Advise the Local Chief Executive (LCE) on all matters relative to the protection, conservation, maximum utilization, application of appropriate technology and other matters related to the environment and natural resources; and
- e) Exercise such other powers and perform such other duties and functions as may be prescribed by law or ordinance or as may be delegated by the local chief executive.



7.2. Forging Partnership Agreement or Arrangement (Steering Committee/ENR Council)

In line with participatory nature of FLUP implementation and for check-and-balance, a multi-sectoral oversight body in the form of Municipal Steering Committee of Municipal Environmental Council shall be formed that will be composed of representatives from various sectors/stakeholders and agencies. This body shall provide overall policy recommendations, resolve forest management issues, help enforce forest regulations, and discuss possibility of issuing management agreements to secure tenure right for forestland development. Its multi-sectoral nature will provide for broad-based participation in decision making and provide a venue to discuss and resolve issues. Sub-committees may be formed to act on sector-specific concerns of FLUP implementation. This committee will help align all the programs and projects in the forest and forestland.

The proposed members of the Steering Committee are the key stakeholders and resources users or those who have interests to use and sustain the resources. They are the following:

- The Governor as Chair
- SP for Environment
- Ex-Officio Member/LIGA
- GENRO
- DENR-PENRO
- PPDO
- POAS
- Provincial Tourism Office
- PARO
- PNP
- DepED
- PEDO
- CBFM Holders
- NCIP
- Others

The proposed roles and responsibilities of the Steering Committee are the following. Other functions as may be defined during the preparation of the manual of operation.

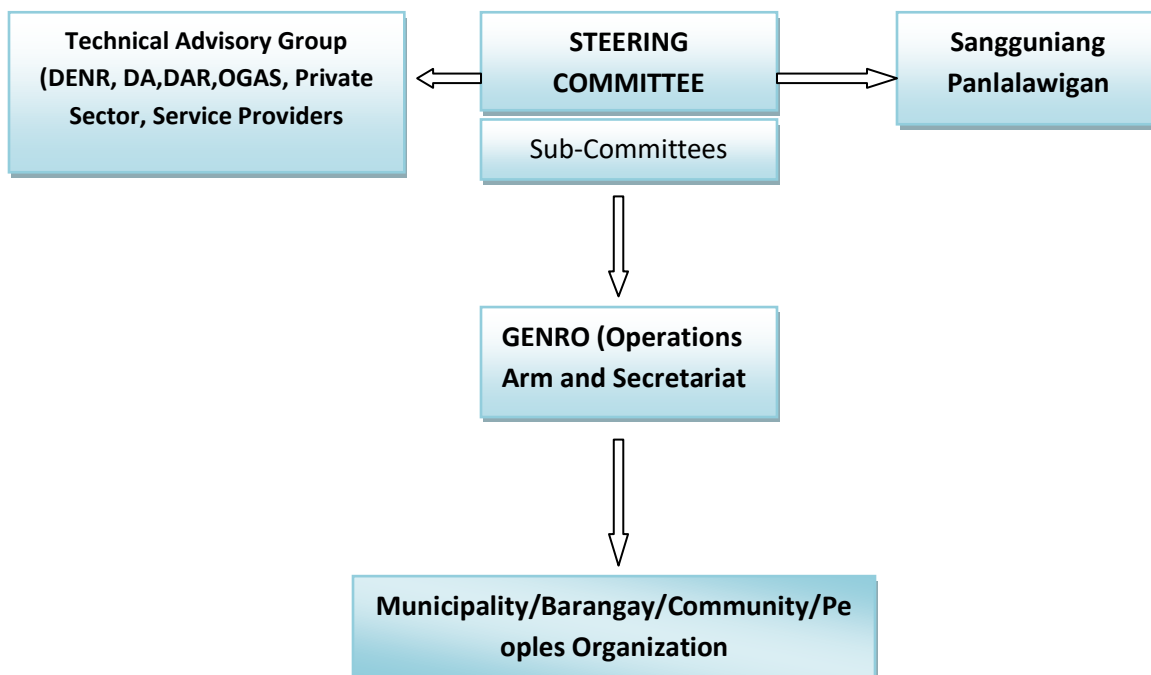
- Formulate and recommend to the PDC for adoptions policies that will sustain forest development;
- Recommend policy in the form of resolution and local ordinance for approval of the Sangguniang Panlalawigan;
- Review and endorse for DENR approval application for tenure and or sub-agreement (if feasible);



- Review and endorse resource utilization permits as prescribed in the resource management plan and upon joint validation by the DENR and LGU;
- Serve as a venue for discussion and resolution of issues pertaining Environment and Natural Resources Management;
- Conduct in-house monitoring to update the status of implementation;
- Provide enforcement directions;
- Prepare an Operation Manual for the Council.

In line with the functions, sub-committees may also be created to be the overseer of specific concerns on FLUP implementation. Examples of sub-committees are the following:

- Project Development Sub-Committee – in charge of the identification, designing and formulation, including the preparation of project proposals;
- Law-Enforcement Sub-Committee – coordinate efforts and establish system for the effective and efficient implementation of environmental laws;
- Forest Rehabilitation and Development Sub-Committee – in charge of overall project implementation leading to the rehabilitation and development of the forestlands;
- Conflict Resolution Sub-committee;
- Others, as



7.3. Strengthening and Mobilization of Provincial Law Enforcement and Public Safety Task Force

This is an existing law which regulate wildlife collection and hunting. Republic Act No. 9147 prescribes the designation of Wildlife Enforcement Officer from law enforcement agencies. Section 30; RA 91477 and deputation of Wildlife Enforcement Officers from among NGOs, POs and volunteers as implemented by DENR AO 2008-22.

The PLEPSTF shall be mobilized and strengthen to conduct frontline surveillance on forest laws violation in partnership with enforcement team from DENR and PNP.

7.4. Organization and Strengthening of People's Organization

Community will be organized as people's organizations to be mobilized on various forest development and management projects. The objective is to increase their awareness, know their needs and how they can be mobilized as partners in forest management. A close tie-up with LGUs and some NGOs, NGAs and DENR will be done for the provision of extension services and support to these communities. These groups will be issued with forest management agreement/tenure instruments to help LGU implement development projects as well as in the overall management of the forestlands and watersheds.



7.5. Collaboration and Linkage with NGOs and other government agencies, research institutions, academe and other service providers to tap technical and financial support to implement the technical strategies.



Chapter VIII

ESTIMATED FINANCIAL REQUIREMENTS FOR IMPLEMENTING THE FLUP AND SOURCES OF FUNDS

Based on major development priorities and forest management interventions of province including the strengthening of its institutional capacity in forest management and other Environment and Natural Resource (ENR) related functions, the estimated total budget required is PhP19, 538,082.00 in five (5) year period.

Technical strategies get the huge sum to ameliorate and renew the forests and also establish forest-based livelihood through agroforestry and wood and fuelwood production. Overall, management of the forest and forestland gets 52.93% of the total estimated budget.



8.1 Summary of Work and Financial Plan

Cost Items	Y1	Y2	Y3	Y4	Y5	TOTAL
Technical Strategies	3345.81	2,723.81	1,423.81	1,423.81	1,423.81	10,341.05
Socioeconomic Strategies	350.00	0	0	0	0	350.00
Crosscutting Strategies	301.00	0	0	0	0	300.00
Institutional Strategies	2848.304	1,424.752	1,424.57	1,424.572	1,424.572	8,546.77
TOTAL	6,845.114	4,148.56	2,848.38	2,848.38	2,848.38	19,538.82

Source: Work and Financial Plan



8.2 Source of Funds

The Province shall have to allocate annually for the financial requirement of the target activities as reflected in the Work and Financial Plan for 2017-2026. Sources of local funds are the 20% Development Fund, Disaster Risk Reduction and Management (DRRM) Fund, People Survival Fund (PSF) and Trans-Asia Renewable Energy Corporation (TAREC). Possible funding from the Office of the Congresswoman shall also be tapped to augment locally available financial resources. The DENR, through the National Greening Program (NGP) has target areas within the FFL that is complementary to the FLUP's objectives. There are also long existing NGOs, CSOs and POs, they are stakeholders themselves, on-site or off-site that can be tapped for the project implementation of the FLUP.

8.3 First Year of Financial Plan

The total funding requirement for the implementation of the technical, socioeconomic, cross cutting and institutional aspect of FLUP is amounting to **6,845.114**. This amount is intended for management of FFL, hiring of personnel to implement the plan, IEC campaign and trainings.

STRATEGIES	Year 1- BUDGET ('000)
TECHNICAL STRATEGIES	AMOUNT
1. Zoning	1,734
2. Closure of Open Access Forestland and Mangroves	200
3. Rehabilitation and Increase of Productivity of grasslands, Brushland, Cultivated Forestlands and Degraded Mangrove Areas	1,394.06
4. Protection and Rehabilitation of Riparian Areas and Riverbanks	151.75
5. Protection and rehabilitation of Critical Marine Habitat/ Ecotourism in Forestlands	66
Sub-total	334.581
SOCIOECONOMIC STRATEGIES	
1. Livelihood Development	350
Sub-total	350
CROSSCUTTING STRATEGIES	
1. IEC	300
2. Implementation of FLUP Ordinances	1.00
Sub-total	301.00



**Forest Land Use Plan
Province of Guimaras**

FLUP 2017-2026



INSTITUTIONAL STRATEGIES	
1. Strengthening of GENRO	20
2. Creation of MENR Office	2,692.304
3. Organization/ Strengthening of Multi-Sectoral Steering Committee	36
4. Strengthening and Mobilization of Provincial Law Enforcement and Public Safety Task Force	75
5. Collaboration and Linkage with NGOs	25
Sub-Total	2,848.304
CLIMATE CHANGE ADAPTATION STRATEGIES	
1. Designate and Develop Areas for Resettlement	0
2. Develop Disaster Preparedness Program	0
Sub-Total	0
GRAND TOTAL	6,845.114



Chapter IX PERIODIC MONITORING AND EVALUATION OF FLUP IMPLEMENTATION

9.1 Baselines and Indicators of Performance

Information provided for by the thematic and derived maps shall serve as the indicators in FLUP implementation for a period of ten (10) years.

Annual targets are indicated in the work and financial plan hence on a yearly basis these will serve as a gauge in measuring accomplishments of FLUP implementation. It is the responsibility of the MENRO to maintain baseline information such as reports and documentation of the progress of project implementation as targeted.

A regular meeting will be conducted by the oversight committee wherein issues shall have to be taken and addressed.

9.2 Multi-Sectoral and Interagency Periodic Assessment, Analysis and Reporting in Support of the FLUP

Periodic assessment and evaluation shall have to be scheduled regularly by the MENRO with the multi-sectoral committee. This is the venue wherein reports on accomplishment shall be mapped and issues addressed collectively.

9.3 Periodic Assessment of Key FLUP Indicators

There is a need to conduct assessment and evaluation as to FLUP implementation and accomplishment vis-à-vis its goals, objectives, strategies and the corresponding PPAs.

Such evaluation and assessment activity will serve as a guide in the identification of priority areas and bottlenecks of FLUP implementation.

9.4 Annual Tenure Holders' Assessment

An annual assessment of the tenure holders shall have to be conducted anchored on the status of their respective farm lots in terms of production and plantation.

It is during this assessment that the tenurial rights of the CSC holders shall be evaluated for cancellation or renewal. The conduct of regular assessment of the tenure holders will



strengthen the collaboration between and among the DENR, LGU and the local communities.