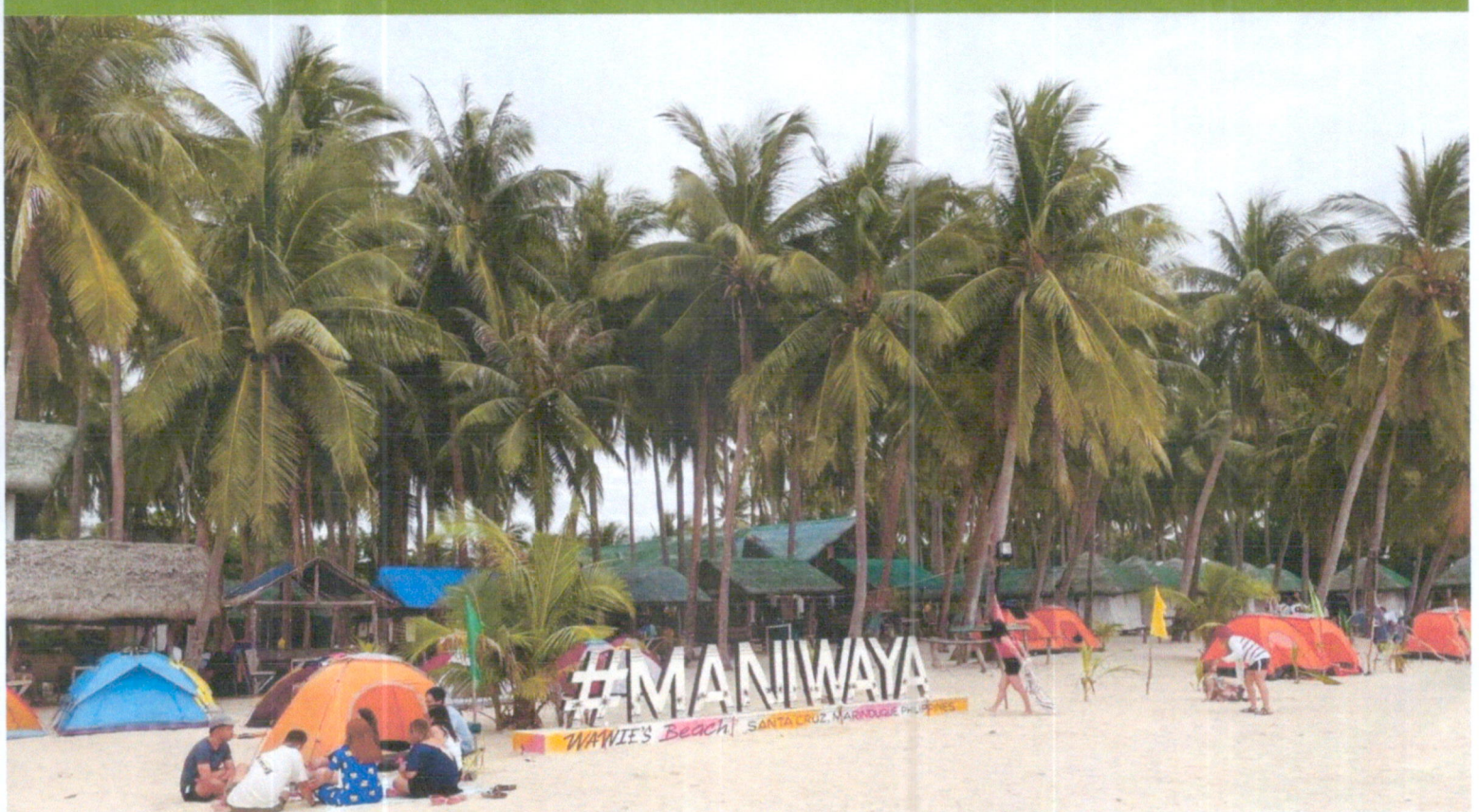


Volume 2: Land Use Plan

Municipality of Santa Cruz, Marinduque



FOREWORD

The Local Government Code of 1991 (Republic Act No. 7160) underscores the local government units responsibility for the development of their cities/municipalities. In compliance with this, the Comprehensive Land and Water Use Plan (CLWUP) of the Municipality of Santa Cruz for the year 2022-2042 was accomplished. This plan is crucial for the development path of the municipality through allocation of scarce resources such as land and balancing the competing land uses for the next 20 years.

The CLWUP is composed of three volumes, namely the (1) Ecological Profile, (2) Land Use Plan, and (3) Zoning Ordinance. Additionally, in response to the Climate Change Act of 2009 (RA 9729) and the Disaster Risk Reduction and Management Act (RA 10121) and the increasing need to mainstream climate change adaptation and disaster risk reduction and management to planning in the local level, a Climate and Disaster Risk Assessment (CDRA) was conducted. Through the assessment, the risks and impacts of disasters and climate change were determined. The results of this assessment have been successfully integrated in the plan.

Spatial techniques such as Geographic Information System (GIS), Global Positioning System (GPS), sectoral analysis matrix, and scalogram analysis were used in data gathering and analysis. Moreover, the ridge-to-reef approach and other thematic concerns related to ancestral domains, biodiversity, watershed management, and urban design were integrated. This is to ensure the sustainable management of resources and conserve environmental integrity. Higher development plans were also considered in the planning process.

These documents were formulated through the guidance of the CLWUP Guidelines Volume I to III and the Supplemental Guidelines on Mainstreaming Climate Change and Disaster Risks from the Housing and Land Use Regulatory Board (HLURB) and the Department of the Interior and Local Government (DILG). Data were acquired through primary and secondary data gathering from barangay visits, municipal, provincial, and national agencies. For projection purposes of the population, the Philippine Statistics Authority (PSA) 2020 census was used.

This document will be subject for review and updating every three (3) years to ensure that the development intent is still applicable. We highly appreciate the partnership between Department of Community and Environmental Resources-College of Human Ecology (DCERP-CHE) in UPLB, municipal Technical Working Group (TWG), members of the Sangguniang Bayan (SB), various national and provincial agencies, barangay officials, and the private sector.

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- (Municipal Vice Mayor)
- The Sangguniang Bayan Members
- Department of Community and Environmental Resource Planning, College of Human Ecology, University of the Philippines Los Baños (DCERP-CHE, UPLB)
- Barangay Captains
- Municipal Planning and Development Office
- Mayor's Office
- Municipal Engineering Office
- Municipal Budget Office
- Municipal Agriculture Office
- Municipal Assessor's Office
- Municipal Disaster Risk Reduction and Management Office
- Municipal Environment and Natural Resources Office
- Municipal Health Office
- Municipal Social Welfare and Development Office
- Municipal Treasurer's Office
- Business Permits and Licensing Office
- Municipal Police Station

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LIST OF ACRONYMS

AFF	Agriculture, Forestry, and Fisheries
AFMA	Agriculture and Fisheries Modernization Act
BFAR	Bureau of Fisheries and Aquatic Resources
CBMS	Community-Based Monitoring System
CDRA	Climate and Disaster Risk Assessment
CLUP	Comprehensive Land Use Plan
DA	Department of Agriculture
DHSUD	Department of Human Settlements and Urban Development
DENR	Department of Environment and Natural Resources
DHSUD	Department of Human Settlements and Urban Development
DPWH	Department of Public Works and Highways
DSWD	Department of Social Welfare and Development
HLURB	Housing and Land Use Regulatory Board
LGU	Local Government Unit
MAgO	Municipal Agriculture Office
MARELCO	Marinduque Electric Company
MDGs	Millennium Development Goals
MGB	Mines and Geosciences Bureau
MIMAROPA	Mindoro, Marinduque, Romblon, Palawan
MPA	Marine Protected Area
MWS	Marinduque Wildlife Sanctuary
NAMRIA	National Mapping and Resource Information Authority
PAMB	Protected Area Management Bureau
PDP	Philippine Development Plan
PDPFP	Provincial Development and Physical Framework Plan
PSA	Philippine Statistics Authority
PTB	Passenger Terminal Buildings
RDP	Regional Development Plan
SB	Sangguniang Bayan
SDGs	Sustainable Development Goals
STW	Shallow Tube Well
TWG	Technical Working Group
UN	United Nations
ZO	Zoning Ordinance

GLOSSARY OF TERMS

1. **Agricultural Lands (in forestlands)** –areas that are extensively used to produce agricultural crops. These lands are primarily intended for cultivation, livestock production and agroforestry. (DAO 1995-15)
2. **Alienable and Disposable (A and D) lands** –public domain lands that have been limited, classified and declared as such and available for disposition under Commonwealth Act No. 141, otherwise known as the Public Land Act. (DENR DAO 2000-83)
3. **Aquaculture** – fishery operations involving all forms of raising and culturing fish and other fishery species in fresh, brackish and marine water areas
4. **Cultural Heritage** –shall refer to the totality of cultural property preserved and developed through time and passed on to posterity
5. **Ecotourism** – a form of sustainable tourism within a natural and cultural heritage area where community participation, protection and management of natural resources, culture and indigenous knowledge and practices, environmental education and ethics, as well as economic benefits are fostered and pursued for the enrichment of host communities and the satisfaction of visitors.” (Tourism Act and DENR AO2 013-19 Guidelines on Ecotourism Planning and Management in Protected Areas
6. **Forest** – refers to either natural vegetation or plantation of crops mainly of trees, or both, occupying a definable, uninterrupted or contiguous area exceeding but not less than one hectare with tree crown covering at least ten percent (10%) of the areas, exclusive of the associated seedlings, saplings, palms, bamboos and other undercover vegetation. A natural forest is a stand dominated by trees whose structure, functions and dynamics have been largely the result of natural succession process. A natural forest is classified as either 1) primary or virgin forest which has not never been subjected to significant human disturbance or has not been significantly affected by the gathering of forest products such that its natural structure, functions and dynamics have not undergone any major ecological change; or 2) secondary or residual forest that maybe classified into either degraded or productive type (DENR DAO No. 99-53).
7. **Institutional Uses** – uses that pertain to the provision of government, social, religious, educational, cultural, police / military and other services such as, but not limited to, government offices, schools, hospitals / clinics, academic/research, convention centers and police stations.
8. **Poblacion** – refers to an area in the municipality comprising of barangays Bagong Silang, Banahaw, Lapu-lapu, Maharlika, and Pag-asa.

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9. **Mangroves or mangrove forests** – the communities of trees and associated shrubs that are restricted to tidal flats in coastal waters, extending inland along rivers where the water is tidal, saline or brackish; also defined as a community of intertidal plants including all species of trees, shrubs, vines and herbs found on coasts, swamps, or border of swamp
10. **Residential Uses** – uses that pertain to dwelling/housing purposes and their customary accessory facilities.
11. **Socialized Housing** – as defined in the UDHA, this refers to housing programs and projects covering houses and lots, or home lots only undertaken by the Government or the private sector for the underprivileged and homeless citizens.

SCOPE AND LIMITATIONS

According to the HLURB Guidelines, the minimum planning period for the Comprehensive Land and Water Use Plan (CLWUP) is nine (9) years, which coincides with the term of office of elected officials. For the municipality of Santa Cruz, however, the Technical Working Group agreed with the planning period of 20 years. This is in consideration to the doubling time of the municipality's population which is at 167 years. The doubling time was computed to determine the growth of the population to assess the projected needs of the municipality. It is considered a critical element for the municipal government to efficiently plan and address the needs of the community and allocate corresponding resources. The doubling time was calculated by getting the population growth rate from the census of the Philippine Statistics Authority for the year 2020.

The CLWUP was conducted in the Municipality of Santa Cruz using the HLURB Guidebook and the DILG Guidelines. Primary data were gathered through a series of workshops which was participated by the Technical Working Group (TWG), Provincial Land Use Committee, and barangay officials. Secondary data, including shapefiles used in maps, were gathered from various local and national agencies as well as local plans such as the MIMAROPA Regional Development Plan, Provincial Development and Physical Framework Plan (PDPFP), Forest and Land Use Plan (FLUP), Comprehensive Development Plan (CDP), and Ecological Profile.

The result of the Climate Disaster Risk Assessment (CDRA) was also integrated in the plan. The data and information from this were gathered from workshops, KIIs, ground survey, and FGDs with the participation of the LGU and barangay officials. Limitations of the data methods conducted include outdated data and insufficient information including history of past disasters which were updated and improved through validation during workshops.

EXECUTIVE SUMMARY

The Municipality of Santa Cruz, the premier town in the island-province of Marinduque, is situated in the Northeastern part of Marinduque, 13° 14' 15" North latitude and 122° 00' 00" East longitude. It is bounded on the North by Tayabas Bay; on the South by the Municipality of Torrijos; on the West by the Municipality of Boac and Mogpog; and on the East by Tayabas Bay. It is approximately 141 kilometers from Manila or 137 nautical miles. Santa Cruz is 30 kilometers from Boac, the capital town. (Ecological Profile of Santa Cruz, 2021).

Santa Cruz is a first-class municipality comprised of 55 barangays, five of which are in the Poblacion area (Barangays Bagong Silang, Banahaw, Lapu-lapu, Maharlika, and Pag-asal) and are the only urban barangays in the municipality while the rest are rural barangays. The municipality has three island Barangays, namely: Polo, Maniwaya and Mongpong. It also has seven (7) islets located in Barangay Botilao, four of which are inhabited, while the islet Sitio Salomague of Barangay Masaguisi is inhabited by more than 50 families.

Following the DENR Cadastral Survey, the total land area of the municipality is 27,069.00 has. The land area of five (5) urban barangays (Bagong Silang, Banahaw, Lapu-Lapu, Maharlika, and Pag-asa) sums to 283.04 hectares, which is equivalent to 1.08 percent of the total land area of the municipality. On the other hand, the land area of the rural barangays comprises 26,785.96 hectares or 98.95 percent of the total land area.

The development thrust of the municipality, according to its mission statement, focuses on tourism development. Santa Cruz is endowed with natural resources which are ideal for ecotourism development. From the coastline to the mountains, there are existing beaches, rock formations, and cultural sites, and other destinations potential for low-impact development to boost the ecotourism industry in the municipality. Key areas for this thrust include the implementation of Local Tourism Development Plan, protecting the natural resources, and building capacities of locals, and development of safe and inclusive infrastructure facilities.

The commerce and trade in the municipality are concentrated in the Poblacion area which includes five (5) barangays: Bagong Silang, Banahaw, Lapu-Lapu, Maharlika, and Pag-asa. This area is also identified as the primary growth center of the municipality wherein majority of the functions and services including basic utilities are located, and concentric development is evident.

The available land supply shows that the municipality has a total land area of **8,045.00** hectares suitable for development considering the compliance to laws and the

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physical constraints such as DENR AO 15-90 on the development and Management of Mangrove Resources, the Revised Forestry Code, Philippine Water Code, Agricultural Fishery and Modernization Act, AO 20 or the Interim Guidelines on Agricultural Land Use Conversion, Disaster Risk Reduction and Management, and the existing land use.

In the Structure Planning, the Poblacion area is determined to remain as an Urban Growth Center for the next 20 years. During the workshops with barangays and upon validation with the Technical Working Group (TWG), Barangays Baliis, Kilo-kilo, Landy, Lusok, Napo, and Tambangan were identified as secondary growth centers. Due to their proximity, most facilities and services found in the Poblacion area are also available in these Barangays and functions as alternative services as a support to the Poblacion area.

Based on the proposed land use allocation, Santa Cruz's agricultural area will remain dominant with 17,773.23 hectares or 68 percent of the total land area, a distant second is the mangrove areas of the municipality with 2,155.10 hectares (8.31%), followed by the protected areas with 1,714.82 hectares (6.61%). The proposed built-up area accounts for 5.00% of the total land area which is 1,297.34 hectares and will be in Barangays Pag-asa and Matalaba.

NATIONAL AND REGIONAL DEVELOPMENT FRAMEWORK

A. Sustainable Development Goals

Continuing the call for action that started from the Millennium Development Goals (MDGs), the participating country of the United Nations gathered to reaffirm their commitment in promoting prosperity while protecting the planet through the adoption of Sustainable Development Goals Sustainable Development Goals (SDGs). The SDGs, otherwise known as Global Goals, serves as the blueprint in addressing the global challenges -- by ending all forms of poverty, fighting inequalities, increasing country's productive capacity, increasing social inclusion, curbing climate change, and protecting the environment while ensuring that no one is left behind over the next fifteen years. With the aim to stimulate people-centered and planet-sensitive change, SDGs is composed of 17 goals and 169 targets which are integrated and indivisible, global in nature, universally applicable, taking into account different national realities, capacities and levels of development, and respecting national policies and priorities. The 17 targets are listed below.

- Goal 1: End poverty in all its forms everywhere.
- Goal 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture.
- Goal 3: Ensure healthy lives and promote well-being for all at all ages.
- Goal 4: Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.
- Goal 5: Achieve gender equality and empower all women and girls.
- Goal 6: Ensure availability and sustainable management of water and sanitation for all.
- Goal 7: Ensure access to affordable, reliable, sustainable, and modern energy for all.
- Goal 8: Promote sustained, inclusive, and sustainable economic growth, full and productive employment and decent work for all.
- Goal 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation.
- Goal 10: Reduce inequality within and among countries.
- Goal 11: Make cities and human settlements inclusive, safe, resilient, and sustainable.
- Goal 12: Ensure sustainable consumption and production patterns.
- Goal 13: Take urgent action to combat climate change and its impacts.
- Goal 14: Conserve and sustainably use the oceans, seas and marine resources for sustainable development.

- Goal 15: Protect, restore, and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.
- Goal 16: Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable, and inclusive institutions at all levels.
- Goal 17: Strengthen the means of implementation and revitalize the global partnership for sustainable development.

B. Philippine Development Plan

On June 17, 2017, President Rodrigo Duterte issued Executive Order 27 which directs "all departments, offices, and instrumentalities of the national government" to undertake efforts to contribute to the full implementation of the Philippine Development Plan (PDP) 2017-2022. The PDP 2017-2022 contains a 25-year long-term vision for development planning for the country. The document is divided into three major strategic outcomes or pillars (1) *Malasakit*: Enhancing the social fabric, (2) *Pagbabago*: Inequality-reducing transformation, and (3) *Patuloy na Pag-unlad*: Increasing growth potential.

1. *Malasakit*: Enhancing the social fabric

The first pillar focuses on Filipinos who are proud of their nationality and trust their government. This aims to build greater trust between the people and the government. Government institutions are aimed to be cleaner, more efficient, effective, and people-centered through reduced corruption, seamless service delivery, better administrative governance. Engaged and empowered citizenry and strengthened civil service. Moreover, fair and swift improvement in the justice sector is aimed. This is by enhanced justice systems and improved sector efficiency and accountability. Lastly, Filipino culture and values are targeted to be promoted greatly by valuing diverse cultures, infusing values for common good, developing creative excellence and strengthening culture-sensitive governance and development.

2. *Pagbabago*: Inequality-reducing transformation

Primarily, the second pillar aims for inclusive participation from marginalized sectors which can be achieved through different strategies. First, economic opportunities in the Agriculture, Forestry, and Fisheries (AFF) sectors will be expanded. Strategies include improving AFF productivity, increasing AFF-based enterprises, increasing stakeholders' access to value chains such as markets, increasing access to innovative financing and technology, and protecting access of farmers and fisherfolk to

land and water resources. Also, economic opportunities in industry and services are promoted through increasing local and foreign investments, increasing competitiveness and resilience of industries, improving market access, ensuring consumer safety, improving access to production networks, and improving the stakeholders through their access to finance and productivity, efficiency, and resilience. The third is the acceleration of human capital development through improving nutrition and health and ensuring that everyone has lifelong learning opportunities and employment opportunities. Fourth, because individuals are vulnerable to different situations, reducing their vulnerability when these shocks arise may greatly help them. This is done through mitigating risks faced especially by vulnerable groups, managing economic risks, dealing with natural hazards, addressing governance and political risks, and achieving universal social protection for the citizens. Lastly, safe and secure communities are targeted through expanding the people's access to well-planned settlements.

3. *Patuloy na Pag-unlad*: Increasing growth potential

Lastly, accelerated and sustained economic growth is one of the focus of the current administration. One of the strategies is ensuring that the workforce is employed and productive by monitoring the mortality rate and fertility rates, investing in service deliveries, and increasing the saving rates of the Filipinos. Also, Science, Technology, and Innovation are endorsed through increasing its utilization in different sectors, investing in concerned enterprises, enhancing the creative capacity, and strengthening the collaboration among involved people. Furthermore, the three pillars are supported by the formulation of an enabling and supportive economic environment, competitive and efficient Philippine market, solid foundation of peace and security, balanced and strategic infrastructure development, and ecological integrity. All these targets and strategies are accompanied by a proper monitoring and evaluation mechanism. The National Economic and Development Authority (NEDA) Secretariat is monitoring headline indicators from the local level to the national level.

4. Regional Development Plan

The MIMAROPA Regional Development Plan (RDP 2017-2022) is the first of the four medium-term Regional Development Plan anchored on the 0-10 Point Socioeconomic Agenda of the President, geared towards the national long-term vision – AmBisyon Natin 2040.

The region of MIMAROPA: The Destination of Choice, on the average, contributes two percent to the national economy which is among the 13 regions with a minimal contribution. However, with the improved economic activities on agriculture, processing of products, and tourism, the economy of the region hopes to increase. This

can be achieved by playing the roles of each province given its unique endowments.

In the case of Marinduque, its roles include the following: emerging as a tourism hub hosting historical, and cultural landmarks (Battle of Pulang Lupa marker, Battle of Paye marker, Marinduque National Museum, Luzon Datum origin (Balanacan Station) and become the butterfly capital of MIMAROPA.

5. Provincial Development and Physical Framework Plan

The Provincial Development and Physical Framework Plan (PDPFP) for Marinduque is a long-term planning document covering the years 2016 to 2025. By the year 2025, Marinduque visions to be "a God-centered, empowered, healthy and resilient citizenry, proud of their heritage and identity as globally competitive Marinduqueños, living peacefully in a safe environment and habitation, a self-sustaining tourism-oriented community with a vibrant local economy under a responsive, transparent and accountable government". The vision is aligned with MIMAROPA's Vision - "empowered citizens and communities, food security, environmental integrity, and unified and interdependent island provinces". In addition, the development framework of this plan focuses on accelerating poverty reduction through strategies of urbanization, agri-industrialization, environmental conservation, and eco-tourism development.

The direction of development in the Settlement Framework of Marinduque sees the advancement of the Municipality of Boac and Gasan from the Medium Town category of the hierarchy of Urban Center to Large Town category because of the new commercial and residential areas. Meanwhile the municipality of Santa Cruz remains in the Medium Town category. In the next few years the municipality is to be developed as 1) satellite growth center, 2) Seafood capital, and 3) Center for Environmental Study and Economic Zone particularly the Marcopper Mining Site. Also included in the proposed strip development or linear expansion of the province are Barangays Maharlika, Banahaw and Pag-asa of the municipality.

LOCAL GENERAL DEVELOPMENT FRAMEWORK

Municipal Vision

Last November 2021, a visioning workshop was conducted with the aim to update the municipality's existing vision. The workshop was participated by stakeholders from the social, economic, infrastructure, environmental, and institutional sectors. The previous vision crafted 2012 was updated to include representation for all sectors and formulate a more comprehensive statement. Stated below is the vision statement of Santa Cruz.

"The premiere tourist destination in the Province of Marinduque driven by a diversified economy led by transparent and resourceful government and God-loving, disciplined and united Santa Cruzins living in a clean, healthy and safe environment complemented by climate and disaster-resilient, well-balanced and planned structures."

Mission

Along the vision statement, the mission crafted in 2012 was retained.

"The Municipal Government of Santa Cruz, Marinduque shall ensure the effective and efficient delivery of basic services to its people through the able stewardship of its development-oriented leaders, and unqualified support and active participation of its law-abiding constituents in an environment of peace, harmony and unity"

Furthermore, specific descriptors and success indicators were subsequently formulated with the representatives from Barangays, CLUP-Technical Working Group, and Provincial Land Use Committee (PLUC) to quantify or measure the realization of the desired vision. The success indicators are presented in **Appendix A**.

A. Development Potentials and Constraints

This section summarizes the potentials and constraints identified by invited stakeholders from the sectors of economic, social, environment, institutional, and infrastructure. Development potentials are opportunities that can be optimized to achieve the set vision. On the other hand, development constraints are the needs and concerns to be addressed in the plan. Both of which affects the prioritization and sets forth the development of the municipality.

a. Development Potentials

Vast Agricultural land for production

The municipality of Santa Cruz has a relatively huge area of agricultural use dedicated for cultivation of various agricultural crops and aquaculture. In total, about 19,273 hectares or 74.28 percent of the municipal land area is utilized for agricultural crops such as rice, corn, vegetables, root crops (*i.e.*, potato, cassava, gabi, ube, and arrowroot). On the other hand, 297.49 hectares is classified as fishpond dedicated for culturing sugpo, bangus, tilapia, siganids and crabs. Based on the existing land use map, mixed agricultural areas have a total of 17,779.84 hectares or 68.53 percent while rain-fed rice land comprises 717.44 hectares or 2.77 percent. Overall, agriculture remains as one of the main economic drivers in the municipality.

Abundant Tourism Destinations

Similar to its neighboring municipalities, Santa Cruz has a rich man-made and natural environment ideal for tourism destinations and attractions. Tourists visit the municipality for its white beaches, rock formations, lagoons, sandbars and cultural and heritage sites. Beachgoers may opt to visit the coastal barangays of Kalangkang, Botilao, Ipil, Maniwaya, Biga, Alobo, Morales, Tagum, Masaguisi, as well as in the island-barangays of Polo and Mongpong and island-Sitio Salomague of Masaguisi. Some of these areas also offer outdoor activities such as island hopping, scuba and skin diving, snorkelling and hook-and-line, and spear fishing expeditions.

Among the tourism sites, the island barangay Maniwaya is most commonly visited not just by Santa Cruzins but also tourists from nearby towns and provinces. The island's coastline is adorned by white sand, scenic waters and picturesque view of sunrise and sunset. Due to its popularity, more establishments have opened in the barangay creating more economic opportunities in the island.

In some areas, several caves with wonderful stalactites, stalagmites and other natural rock formations can be viewed. Thousands of bats producing "guano" inhabit in Bagumbungan Cave, where splashing waterfalls and stone formations like rice terraces with cascading waters can be found, together with other endemic living creatures like shrimps, blue worms and snakes. Another cave is Bathala Cave, known for its enchanted pythons. Waterfalls can also be found in the municipality which may be reached through land transportation or through hiking.

Preserved traditional religious practices and customs

The Marinduqueños are known for their deep values for tradition and religion. Flores de Mayo, Ati-atihan, and Moriones Festival is annually celebrated in the province, while Ati-atihan is celebrated only in Santa Cruz. Of these, Moriones Festival is highly celebrated throughout the province during Lenten Season.

The festival is in commemoration of Jesus' passion and death through the reenactment of the story of a half-blind Roman soldier. Locals dress up in costumes and masks of Roman soldiers during Biblical times and are called Morions. They go around their locality and even go to nearby towns.

Moreover, traditional religious customs are still observed in the municipality of Santa Cruz. One of the cherished customs in the provinces is "Putong". Putong is performed as a thanksgiving at the same time a wish and prayer for long and blessed life for a celebrator (usually birthday celebrator) honored by a group of men and women who sing and dance at the same time. The celebrator is crowned and showered with flowers and money. It is also a tradition in welcoming guests or when someone is leaving for a very distant place.

Accessibility within the Municipality and nearby towns

There are three (3) existing ports to access the province particularly Balanacan Port of Mogpog, Cawit Port in Boac, and Buyabod Pier in Santa Cruz. The fastest route is through the Dalahican Port in Lucena City to Balacanan Port.

For island barangays within the municipality, Buyabod Pier is commonly used. Buyabod Pier, a national port managed and operated by the Philippine Ports Authority (PPA), serves as the berthing place for both passenger and cargo boats. There are also thirteen (13) functional ports where small pump- boats and fishing boats may be utilized for transportation for island and coastal barangays.

b. Development Constraints

Limited employment and business opportunities

Agriculture is the primary economic activity within the municipality since most of the citizens are involved in farming and fishing. The total agricultural land area of Santa Cruz is 19,273 hectares, which comprises 74.28 percent of the total land area of the municipality. With this, agriculture has been utilized to produce primary products intended both for livelihood and consumption purposes. The secondary sector of a local economy includes enterprises that are engaged in manufacturing and other industrial activities mainly composed of light industries. Further, looking into the number of business registrations from the data of Business Permits and License (2020) the municipality for commercial/industrial establishment, majority of these establishments are focused on food processing marketed locally. Evidently, this shows that employment from industries is very minimal.

Insufficient infrastructure support facility

Limited Facilities for Tourism

There are 52 tourism establishments in the municipality, of which 16 are found in Barangay Maniwaya. All of these are operating all-year round and accessible through regular or contracted boat service. However, the majority of these sites are yet to be equipped with ancillary facilities such as convenience stores, restrooms, waiting sheds, car parks, and restaurants and cafes. These facilities, while secondary, are necessary to support the amenities of the main attraction.

Irrigation facilities

Lack of irrigation facilities is one of the major problems in farming which poses a big threat to a large portion of irrigated rice lands. Occurrence of calamities also hampers agricultural production in the locality. Inadequacy of agricultural facilities affects the agricultural production, as well.

Irrigation is the most important production support infrastructure to agriculture. The existing irrigation systems in the municipality were able to irrigate a total of 815.64 hectares. With the presence of the irrigation system, farmers can plant rice twice a year except in cases of long dry season.

The biggest source of the irrigation system is the Pulong Parang Dam, a project funded by Japan International Cooperating Agency (JICA) and the Provincial Government of Marinduque in the late 1980 and early 1990. This irrigation system serves, more or less 384.64 hectares of ricelands at Barangays Napo, Taytay, Tamayo, Tagum, Angas, Morales, and part of Tawiran. Said area is considered as the rice bowl of Santa Cruz. Moreover, Tawiran has its own irrigation system.

High risk to hazards

Santa Cruz is susceptible to natural and man-made hazards such as flooding, landslide, and storm surge. From the CDRA assessment conducted, the risk scores were determined from workshop to identify the decision areas for the five exposure units – Population, Urban Use Areas, Natural Resource-Based Production areas, Critical Point Facilities, and Lifeline Utilities. Under this, an exposure database was developed for each exposure units in which their adaptive capacity and susceptibility assessed for three identified hazards: flood, landslide, and storm surge. This was done through secondary data gathering, workshops, and key informant interviews wherein the exposure units were assessed through risk scoring of every barangay

For population, households located near waterways and low-lying areas in Barangays Bagong Silang, Baliis, Biga, Botilao, Buyabod, and Tawiran are identified as decision areas for flood. As for landslide, decision areas are all sitios of barangays Bangcuangan, Banogbog, Dating Bayan, Haguimit, Jolo, Kaganhao,

Kamandugan, Kasily, Lapu-Lapu, Libjo, Makulapnit, San Antonio and Tamayo.

Finally, while all exposed barangays are at low risk, the decision areas were limited to three barangays with the highest population at risk for prioritization. These barangays are Lapu-lapu, Buyabod, and Ipil.

For urban use areas, the institutional areas in barangays Botilao and Napo, and tourism area in barangay Maniwaya are identified as decision areas for flooding. While for landslide, the decision areas are residential areas, infrastructure, institutional, parks and open spaces, and cemetery in barangays Aloba, Angas, Aturan, Bagong Silang, Baguidbirin, Baliis, Banogbog, Kasily, Napo, and Pulong Parang. Coastal residential areas, institutional areas, parks and open spaces and infrastructures located in barangay Buyabod are the decision areas for storm surge.

The municipality's vast area for agriculture use is also at risk. Results show that some irrigated riceland, rainfed riceland, mixed agriculture, and fishpond particularly located in Balis, Biga, Maniwaya, Matalaba, and Tagum are determined as decision areas for having high risk scores. For landslide, decision areas are mixed agricultural areas and rain-fed riceland in barangays Baguidbirin, Botilao, and Kamndungan. While for storm surge, the fishpond and rain-fed riceland of Barangay Buyabod was identified as the decision area.

Meanwhile, for lifeline utilities the only variable used is road network since its the only available data. The decision areas are the roads in Barangays Buyabod, Pag-Asa, Napo, Aturan, Bagong Silang, Tawiran, Matalaba and Baliis for flood. While, roads in Barangays Kilo-Kilo, Hupi, Baliis, Pulong Parang, Banogbog, and Marcopper road are prioritized for landslides.

Critical Point Facilities are infrastructures that provide socio-economic services which is essential to the growth and development of the population. In addition, these facilities can also be used as evacuation centers in times of disaster. The decision areas for flood include 15 facilities from Barangays Aturan, Balogo, Ipil, Kasily, and Maharlika. Four (4) of which are educational facilities, two (2) day care centers, two (2) government facilities, three (3) religious establishments, one (1) health center, one (1) recreational facility, and one (1) protective services facility. For landslide, the decision areas include 15 facilities from Barangays Ipil, Lamesa, Mongpong, Morales, Polo, Punong, San Antonio, and Tambangan. Seven (7) of which are educational facilities, two (2) health centers, two (2) day care centers, two (2) government facilities, one (1) protective

services facility, and one (1) religious establishment. Moreover, two (2) facilities from Barangay Polo are prioritized for storm surge.

Insufficient accessibility

Although all barangays are connected by an existing road network, some facilities and tourism areas are still inaccessible. Moreover, there are barangays in Santa Cruz located in upland areas and barangays that are surrounded by rivers making roads and bridges a vital part in the accessibility of goods and services, which also contributes to economic development. As previously mentioned, there are also roads with high risk in Santa Cruz, which are important during rescue operations and evacuations. Inaccessibility of roads affects the economic progress of the tourism sector since some other tourism sites have no definite trails for visitors.

B. Development Goals and Objectives

This section stipulates the identified developmental goals and objectives in the Municipality of Santa Cruz. The development goals and objectives underscore the key outputs that are needed to achieve the desired outcomes for the attainment of the municipality's vision.

SOCIAL SECTOR

Goal

A municipality with God-loving and healthy individuals working harmoniously towards one goal.

Development Agenda

- Development of Strategic Information, Education, Campaign (IEC) on local ordinances;
- Promotion of active sports;
- Enforcement of sanitation and waste management practices such as segregation of wastes; and
- Decreased complaints received at the barangay level.

ECONOMIC SECTOR

Goal

At least 95% of people in the barangay are employed or engaged in business and other sustainable livelihood programs by the year 2042.

Development Agenda

- Increase in registration of business and revenue collection;
- Improve One-stop-Shop System Registration;
- Increase of Tourism Establishments accredited by DOT;
- Promotion of sustainable livelihood programs;
- Develop the Tourism Master Plan; and,
- Provide skills-enhancement training and short courses for unskilled workers.

ENVIRONMENT SECTOR

Goal

To achieve higher understanding on waste management, ensure protection of marine ecosystems, and promote environmental protection and conservation of watershed areas.

Development Agenda

- Promote the formulation and update of local plans;
- Institute strict compliance to existing environmental laws and regulations;
- Establishment of Waste Management Facilities such as Materials Recovery Facilities (MRFs)
- Regular conduct of clean-up activities in rivers and waterways;
- Establishment of additional locally-managed Marine Protected Areas;
- Development of IEC campaigns for the preservation of mangroves and aquatic resources
- Increase the forest cover through conduct of Reforestation Programs; and,
- Continue close coordination with appropriate NGAs to increase the mangrove area.

INFRASTRUCTURE/BUILT ENVIRONMENT SECTOR

Goal

Ensuring an environment friendly infrastructure built with climate and disaster risk mitigation engineering designs

Development Agenda

- Ensuring that necessary permits, clearances, and other documents as required by law are secure prior construction of establishments
- Encourage public participation through conduct of consultations with stakeholders prior the project implementation; and
- Formulation of Infrastructure Plan.

INSTITUTIONAL SECTOR

Goal

An honest and accountable government able to satisfy the citizen's expectations through efficient provision of adequate services for the community

Development Agenda

- Encourage active participation from all sectors to ensure all needs are met in local programs and projects.
- Ensure projects and programs are accomplished within the time frame and are in line with the vision of the municipality; and
- Implementation of full disclosure policy.

C. Development Thrust and Strategies

In line with the Ambisyon Natin 2040, the Department of Tourism has published the National Tourism Development Plan 2016-2022. The plan's priority areas are focused on the following; human resource capacity and service standards, initiatives in embracing quality standards, environment and climate change adaptation, and cultural offerings. Aside from this plan, others are also available so as to align the tourism programs and projects in the country. The Tourism Act of 2009 or Republic Act No. 9593 aims to promote tourism as an "engine of investment, employment, growth and national development, and strengthening the Department of Tourism and its attached agencies to effectively and efficiently implement that policy, and appropriating funds". Also, it is stated in the Local Government Code or Republic Act 7160 that Local Government Units should provide basic services and facilities that are in line with tourism development and promotion programs, tourism facilities, and other tourist attractions.

Previously, tourism activities driven by the revenues it can give to a locality that other aspects such as cultural or environmental impacts are left unchecked. Some tourism destinations have exceeded its carrying capacity resulting in overcrowding and degradation and exploitation of the environment. With this, the Department of Environment and Natural Resources (DENR) initiated a step in promoting ecotourism in the country,

Ecotourism is a low-impact environmentally sound and community-participatory tourism activity in a given natural environment that enhances the conservation of bio-physical and cultural diversity, promotes environmental understanding and education, and yields socio-economic benefits to the concerned community (DENR, 1998). In

designating ecotourism spots in the municipality, the LGU community and visitors must ensure that the natural resources and culture of the locality is protected and properly managed. Also, environmental education and ethics are fostered both to the host community and the visitors. The primary focus of ecotourism are unspoiled natural areas and indigenous communities.

In support of the campaign on ecotourism, local laws which aim to protect and preserve the environment while promoting tourism in the country are passed. In 1998, Joint DENR-DOT Memorandum Circular No. 98-02 or the Guidelines for Ecotourism Development in the Philippines was published. It states that “sustainable use, development, management, protection, and conservation” of the natural resources and cultural heritage of the country should be ensured. Also, it promotes sustainable tourism which is designed to improve the quality of life of the people while maintaining the good quality of the environment. DENR AO No. 2013-19 or the Guidelines on Ecotourism Planning and Management in Protective Areas was published as a supporting policy specifically for Protected Areas. Lastly, guidelines for ecotourism development were also published in the Executive Order No. 111. Primarily, this established the National Ecotourism Development Council (NEDC) which is the policy-making body for ecotourism. Furthermore, the National Ecotourism Steering Committee (NESC) and Regional Ecotourism Committee (REC) are to implement the programs and activities approved by the Council.

Municipality's vision, available resources, multi-sectoral interests, and development potentials is aligned with its goal of being an eco-tourism destination. This goal can be achieved by Santa Cruz through inclusive and sustainable practices such as proper allocation of resources on the strategies that the municipality will be undertaking during the planning period. This can aid the municipality in avoiding the waste of resources, may it be financial, intellectual, human resources. The attainment of the goal will not be possible without balanced development, this implies that economic, environmental, and social goals of the community must also be taken into consideration.

The municipality of Santa Cruz is endowed with natural resources which are ideal for ecotourism development. From the coastline to the mountains, there are existing beaches, rock formations, and cultural sites, and other destinations potential for low-impact development to boost the ecotourism industry in the municipality. Key areas for this thrust include the implementation of Local Tourism Development Plan, protecting the natural resources, building capacities of local communities, and development of inclusive infrastructure facilities.

D. Eco-Tourism Development

ensure that the natural resources and culture of the locality is protected and properly managed. Also, environmental education and ethics are fostered both to the host community and the visitors. The primary focus of ecotourism is unspoiled natural areas

Eco-Tourism Development

Implementation of Local Tourism Development Plan

The Municipal Tourism Office has already crafted its Local Tourism Development Plan and is awaiting approval. The plan highlights the specific strategies and measures to encourage ecotourism and promote the cultural beliefs and tradition in the municipality and indigenous communities.

In support of the campaign on ecotourism, local laws which aim to protect and preserve the environment while promoting tourism in the country are passed. In 1998, Joint DENR-DOT Memorandum Circular No. 98-02 or the Guidelines for Ecotourism Development in the Philippines was published. It states that “sustainable use, development, management, protection, and conservation” of the natural resources and cultural heritage of the country should be ensured. Also, it promotes sustainable tourism which is designed to improve the quality of life of the people while maintaining the good quality of the environment. DENR AO No. 2013-19 or the Guidelines on Ecotourism Planning and Management in Protected Areas was also published as a supporting policy specifically for Protected Areas. Lastly, guidelines for ecotourism development were also published in the Executive Order No. 111. Primarily, this established the National Ecotourism Development Council (NEDC) which is the policy-making body for ecotourism. Furthermore, the National Ecotourism Steering Committee (NESC) and Regional Ecotourism Committees (REC) are to implement the programs and activities approved by the Council.

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The plan shall serve as the guidebook in ensuring the tourism development goals are achieved. In line with the implementation of the plan, promotions through websites and various social media platforms and other related media may be utilized to boost the popularity of its tourism destinations and enable the municipality to connect more with tourists. Development of tourism websites may also be explored to feature not just

the tourism sites but also the cultural beliefs and practices and local delicacies that are found within the municipality.

Understanding that tourism is one of the drivers of the local economy, enabling mechanisms such as creation of marketing and investment plans shall be provided to attract visitors and business owners in the area. Increasing the business activities in the areas can translate into employment opportunities and revenues not just for the tourism sector but small business owners engaged in cottage industries. This might positively increase the economic growth in the long run.

Further considering that the tourism sites are scattered in the municipality, it is vital to establish a system to monitor the implementation of the plan. Coordination with the barangay local government units must be strengthened as they act as the frontliners in the monitoring of the tourism activities in their jurisdiction. Designation of tourism officers in each destination is essential in the system. Relatively, regular monitoring of these officers must be reported to the Municipal Tourism Office. To further flourish the tourism industry, the Tourism Office shall maintain records of all potential and emerging tourism areas which may be developed in the future.'

Finally, the municipal government shall issue local ordinances to set policies and regulations to ensure that the activities allowed within tourism destinations are complied with by the visitors. Further, for maintenance and enhancement of the ecotourism facilities, the local policy shall include a provision imposing environmental user's fee and service fee.

E. Protecting the Natural Resources

The tourism industry of the municipality relies on the abundant and beautiful natural resources existing in the area. Thus, proper management and environment must be prioritized. Compliance to various environmental laws shall be achieved to fully develop ecotourism in the area. For sanitation, a sewerage system must be constructed to ensure that liquid wastes are properly treated prior to discharge to the bodies of water.

In terms of solid waste management, the solid waste management plan has been updated. The plan focuses on ensuring the recovery and proper disposal of solid waste to approved facilities. Establishment of additional materials recovery facility, increasing the coverage of collection, implementation of segregated collection, pushing for

segregation at source, and construction of a Sanitary Landfill are the general strategies listed in the plan.

Water-resource protection, restoration and development would be achieved through an establishment of community-based watershed management. Further this will help in identifying appropriate strategies to ensure the development and sustainability of resources found from ridge to reef.

F. Building capacities of locals

Public participation may be incited through increasing their awareness, establishing their sense of ownership, and encouraging their active involvement in the planned activities. Information, education, and communication (IEC) campaigns are one of the common strategies for the community to be made aware of the plans and programs of the municipality. The campaigns shall also be an avenue to reiterate the roles and responsibilities of everyone, whether local or visitors, relevant to the local ordinances and policies on environmental protection.

Sense of ownership helps build a link between the community and municipal government in achieving their shared goals. Through this, the community understands that the achievement of the goals is aligned to improving their quality of life. Building partnerships that would employ the residents locally and provide diversified employment opportunities to them can help establish the connection.

In addition to having awareness and a sense of ownership, the communities must be actively involved in the implementation. Building their capacities through training and seminars will encourage their commitments to work hand in hand with implementing bodies. Particularly for the tourism industry, training of locals as guides, cooks, and producers of souvenirs is highly urgent.

G. Development of an Inclusive Infrastructure Facilities

Along with promotion of ecotourism, infrastructure facilities of the municipality shall be developed and improved. These facilities shall be readily available and inclusive. Other than hazard resilient designs, the facilities shall be constructed with considerations of the needs of the vulnerable sectors (PWDs, Senior Citizens, Pregnant Women). Ancillary facilities (i.e., waiting sheds, restrooms) shall be enhanced and strategically situated.

Increasing the mobility of the people can be achieved by ensuring an efficient, safe, and convenient transport system. For this, roads and trails shall be designated especially those going to the tourism sites. Primarily, access roads and trails to the tourism sites are planned to be established considering the level of difficulty and safety of the tourists. All trails for the existing and potential tourism destinations are already planned for road improvement and enhancement. Locals, specifically barangay *kagawads*, serve as local

tourist guides for visitors. On the other hand, most of the roads in the municipality are concreted already with widening and rehabilitation projects by the DPWH.

Access to basic utilities and services are also vital in the promotion of tourism. Comfortability and convenience of the tourists should be considered to encourage them to return and give positive feedback to the municipality as well. Basic services such as power, water, and electricity should be available to attract and encourage investors in the municipality. Telecommunication services are also important especially as it is now the digital age. Promotion through social media by the tourists themselves can aid the tourism industry of the municipality. Tourism establishments should also be properly maintained through cleanliness and orderliness.

LAND USE PLAN

A. Urban Form and Land Use Pattern

Majority of the development in the municipality is concentrated in the Poblacion area which includes five (5) barangays: Bagong Silang, Banahaw, Lapu-Lapu, Maharlika, and Pagasa. This area is also identified as the primary growth center of the municipality wherein majority of the functions and services including basic utilities are located, and concentric development is evident. Moreover, traditional mixed commercial-residential uses inside the urban core are rampant while still preserving the old buildings with some multi-level structures.

A major transport node in the Poblacion area is found in the intersection of Reynoso Street and Regalia Street, where the municipal offices are within the vicinity. This node is surrounded by traditional mixed commercial-residential and institutional structures that vary from one-story to multi-level structures. It is noticeable that the commercial area in the municipality is clustered within the proximity of this transport node. Since the commerce and trade in the municipality are generally for basic needs, it is also notable that most of the business establishments are engaged in wholesale and retail of basic commodities.

Dwelling units in the Poblacion area are mostly bungalows scattered in both sides of the municipal roads which contributes to the increasing density of residential areas. Moreover, residents tend to flock near the Poblacion area since most of the commercial establishments and municipal institutions are located there and transportation is accessible.

B. Inventory of Existing Land Use

General Land Use

As per the approved Cadastral Survey of the municipality, Santa Cruz has a total land area of 27,069.00 hectares. The largest general land use of the municipality is agriculture use which is 74.28 percent or 19,273.42 hectares of the total land area (Table 1). Next is the protected areas of the municipality with 4,981.50 hectares of land area which is 19.20 percent of the total land area.

Table 1. Inventory Existing General Land Use

Land Use	Area (Ha)	Percentage (%)
Urban Use	767.5184	2.83
Residential	477.9357	1.77
Commercial	11.3670	0.04
Institutional	71.4844	0.26
Parks and Open Spaces	25.6482	0.09
Infrastructure	4.0537	0.01
Industrial	21.8909	0.08
Road	156.2951	0.58
Agricultural Use	19,273.4200	71.20
Agricultural Mixed	17,776.2960	65.67
Rainfed Riceland	717.4354	2.65
Irrigated Riceland	774.3110	2.86
Agri-Industrial	1.8289	0.001
Tourism	27.1515	0.10
Mining and Quarry	889.2623	3.29
Others	7.5143	0.03
Cemetery	7.0211	0.03
Dumpsite/MRF	0.4932	0.002
Protected Areas	4,981.5030	18.40
Mangrove	2,687.0300	9.93

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Lagoon	8.0726	0.03
Fishpond	297.4968	1.10
Marinduque Wildlife Sanctuary	639.3103	2.36
Rivers and Creeks	438.2612	1.62
Forestland	911.3321	3.37
Others	1,122.7330	4.15
TOTAL	27,069.00	100

Source: IRA Allocation (2021)

Note: The following values are derived using GIS applications

Urban Land Use

The urban land uses – residential, commercial, institutional, open spaces, road infrastructure, accounted for 2.95 percent equivalent to 768.6751 hectares of the total land use. Out of the total urban land area, 62.27 percent is classified as settlement or residential. Most of the settlements are located along the roads of the municipality, especially in the Poblacion area.

Table 2. Inventory of Urban Land Use

Urban Land Use	Area (Ha)	Percentage (%)
Residential	477.9357	62.27
Commercial	11.3670	1.48
Institutional	71.4845	9.31
Parks and Open Spaces	25.6482	3.34
Infrastructure	4.0537	0.53
Industrial	21.8909	2.85
Road	156.2951	20.36
Total	768.6751	100.00

Source: IRA Allocation (2021)

Note: The following values are derived using GIS applications

C. Demand and Supply Analysis

The municipality's population is projected to grow at an annual rate of 0.47%. At the end of the planning period, 2042, the population is estimated to reach 50,575. From 2022 to 2042, the population is projected to decrease by 3,408.

For the purpose of the CLWUP, which has a 20-year timeframe (2022-2042), the projected population for the year of 2042 which is at 50,575 will be used for estimating land demand for various future land using activities.

- a. Residential. In estimating the need for residential demand, projected additional households in the coming years, informal settlers and the number of households at risk to hazards were considered. An additional **109.92** hectares of residential area is needed.
- b. Commercial. An additional **11.00** hectares of built-up area is needed by 2042, assuming that commercial space is three (3) percent of total built-up area.
- c. Institutional. Based on assessment of the standard space requirement for elementary schools, an additional **8.01** hectares is needed for these educational facilities.
- d. Parks and Open spaces. With the standard ratio of 500 square meters per 1,000 population requirements for municipal parks, an additional area of **2.95** hectares should be allocated for this purpose.
- e. Sanitary Landfill. The area requirement for sanitary landfill is **4.89** hectares. This was computed using an average waste generation of 10,160,322.5 kilograms per year.

Available Supply

To satisfy the total demand for land by 2042, there is a need to explore supply management strategies. Through the CLWUP, suitable areas to meet future land demand for various uses were identified through digital map overlay analysis where constraints as well as areas of opportunities are delineated on a map. Opportunity areas are generally hazard-free or, at the very least, are low to moderately susceptible to various hazards present in the town. For recreational land use, location and distribution of parks and playgrounds across the town are important considerations in land use planning. Other considerations include catchment population, barangays still not yet served by basic services, physical constraints such as poor road condition, flooding, accessibility, land availability, and stakeholder aspirations. Table 3 shows the area in hectares suitable for future development by barangay.

Table 3. Areas Suitable for Future Development, 2021

Barangay	Area	Barangay	Area
Alobo	221.22	Landy	99.79
Angas	177.12	Lapu-Lapu	78.24

Barangay	Area	Barangay	Area
Aturan	144.18	Libjo	75.34
Bagong Silang	5.08	Lipa	236.49
Baguidbirin	53.16	Lusok	48.67
Baliis	89.67	Maharlika	5.68
Balogo	19.54	Maniwaya	132.39
Banahaw	18.28	Manlibunan	60.60
Bangcuangan	274.29	Masaguisi	498.01
Banogbog	237.98	Masalukot	154.41
Biga	113.13	Matalaba	96.30
Botilao	43.39	Mongpong	311.99
Buyabod	171.80	Morales	177.99
Dating Bayan	262.66	Napo	335.76
Dolores	286.79	Pag-Asa	1.91
Haguimit	307.01	Pantayin	166.41
Hupi	59.34	Polo	24.64
Ipil	206.64	Pulong Parang	461.84
Jolo	359.71	Punong	201.24
Kaganhao	18.63	San Antonio	200.40
Kalangkang	258.89	San Isidro	24.08
Kamandugan	101.58	Tagum	146.28
Kasily	158.41	Tamayo	123.83
Kilo-kilo	35.43	Tambangan	233.13
Kiñaman	86.10	Tawiran	73.43
Labo	11.33	Taytay	348.33
Lamesa	6.43	Total	8,045.00

Source: GIS-derived computations (2021)

Through overlay map analysis, the following areas were considered not suitable for development. This is in compliance with basic land use and land related laws and issuances applicable to the municipality. The result of overlay analysis showing available land supply for urban development is reflected in Appendix E.

DENR AO 15-90: Development and Management of Mangrove Resources – This states that all mangrove and mangrove resource must be protected and shall not be utilized for economic gain and/or any other purpose except for its natural purposed, windbreaker and coastal protection, fish habitat, and breeding ground and ecological balance. A total of 0.929 hectares are covered.

PD 705: The Revised Forestry Code – All areas having a slope of 18 percent and above shall be non-alienable and disposable land and shall not be subject to land titling and ownership. However, 50 percent and above were considered in the overlay process. The slope map provided by the MPDO shows that 50 percent and above slope covered 124.82 hectares.

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In addition, land classified as timberland was also considered not suitable for further development. This comprises an area of 3,156.64 hectares.

PD 1067: Philippine Water Code – All water bodies including rivers and lakes covering 51.72 hectares.

RA 8435: Agricultural Fishery and Modernization Act and AO 20 – Irrigable and irrigated areas should be protected and shall not be subject to land conversion. There are 80.35 hectares of irrigated areas covered by this law.

RA 10121: Disaster Risk Reduction Management – With the integration of disaster risk management in local plans and adoption of necessary measures to mitigate impact, susceptible areas are not considered for development. In the case of the municipality, only floods and landslides with high susceptibility were considered due to the availability of data. A total of 220.19 hectares for flood, 3,342.78 hectares for landslide, and 241.51 for storm surge.

Existing urban land use such as residential, commercial, and institutional areas covering 169.82 hectares and roads covering 54.10 hectares.

The result connotes higher development risk if to be located outside of the suitable area identified in this plan. The risks referred to in the aforementioned include physical risk, administrative risk, operational risk and other risk factors associated with the location of the development.

D. Structure Plan

The Structure Plan refers to the overall framework for the land use plan in which the direction of urban and satellite growth areas is designated. Using the centrality matrix accomplished from the information gathered during the development of Ecological Profile (EP) and Climate and Disaster Risk Assessment workshops, the structure planning was conducted with representatives from the barangays. In the next sections, the result of the workshop is further discussed. The graphical representation of the structure plan is presented in Appendix D.

a. Urban Growth Center – Poblacion and Matalaba

The Poblacion area and Barangay Matalaba are home to various major institutions such as central school, religious institutions, and the Rural Health Unit. These two barangays' role play significantly in being the commercial center where economic activities are more dynamic as compared to other barangays. Barangays Pag-asa and Matalaba are accessible by tricycles and jeepneys.

For the next 20 years, the Poblacion area will remain to be the Urban Growth Center where institutional and commercial areas will be developed.

b. Secondary Growth Center – Barangays Napo, Kilo-Kilo, and Landy (Lusok-Baliis area)

Based on the scalogram analysis, Barangays Napo, Kilo-Kilo, and Landy (Lusok-Baliis area) manifest as the secondary growth centers of the municipality. It is within the proximity of the Poblacion area and can cater to its neighboring barangays. Most facilities and services found in the Poblacion area are also available in these Barangays, however, these functions are considered alternative services as a support to the Poblacion area.

c. Major Tourism Areas

With the municipality's vision to be recognized as an agri-ecotourism destination, tourism establishments are planned to be improved and undergo rehabilitation. During the workshop, major tourism areas identified include Barangay Maniwaya, Barangays Mongpong, Ipil, and the Poblacion area for its cultural heritage. Table 4 shows the major tourism identified during the workshop series.

Table 4. Major Tourism Areas

Mongpong	Ipil	Poblacion	Maniwaya
<ul style="list-style-type: none"> • Ungab Rock Formations • Diving Site • Various Resorts and Beaches 	<ul style="list-style-type: none"> • Bathala Cave • Mangroves • Calancan Causeway • Lagoon 	<ul style="list-style-type: none"> • Baluarte (Brgy. Lapu-Lapu) • Holy Cross Parish Church (Brgy. Pag-asa) • Old Municipal Building (Brgy. Maharlika) • Busay Falls (Brgy. Pag-asa) • Lecaroz Ancestral House (Brgy. Maharlika) • Old Catholic Cemetery (Brgy. Bagong Silang-Lipa) 	<ul style="list-style-type: none"> • Maniwaya Island • Various Resorts and white sand Beaches • Palad Sun Bar • Diving site • Natural Scenic spots

E. Proposed Land Use

Based on the proposed land use allocation, Santa Cruz's agricultural area will remain dominant with 17,773.2287 hectares or 65.60 percent of the total land area, a distant second is the mangrove areas of the municipality with 2,155.1202 hectares (7.96%), followed by the protected areas with 1,714.82 hectares (6.61%). The proposed urban use area accounts for 3.55 percent of the total land area which is 1,297.3360 hectares. The various land uses classified under urban use areas are specified in the table below and is also shown in Appendix H.

Table 5. Inventory of Proposed Land Use

Land Use	Proposed Land Use	Percentage
Urban Use	1,297.3360	3.55
Residential	790.7813	2.92
Socialized Housing Unit	11.8960	0.04
Commercial	41.2702	0.15
Institutional	79.3332	0.29
Parks and Open Spaces	28.4028	0.10
Infrastructure and Other Utilities	10.3298	0.04
Industrial	21.4946	0.08
Agricultural Use	17,773.2287	65.60
Agri-Industrial	1.7625	0.007
Agricultural Mixed	16,360.0040	60.44
Rainfed Riceland	639.2692	2.36
Irrigated Riceland	757.4960	2.80
Protected	1,714.8188	6.33
Upland Forest	852.0998	3.15
Lagoon	8.0725	0.03
Marinduque Wildlife Sanctuary	605.3584	2.24
Fish Pond	249.2881	0.92
Tourism	62.1105	0.23
Mangrove	2,155.1202	7.96
Mining and Quarrying	867.8579	3.20
Mining Area	755.7062	2.79
Mining Pit	111.8032	0.41
Rivers & Creeks	437.3287	1.62
Other Uses	1,626.2466	11.42
Cemetery	10.5690	0.04
Protection Buffer	1,606.8393	5.94
Sanitary Landfill	10.5116	0.04
Roads	341.1539	1.26
Others	1,120.9985	4.14
TOTAL	27,069.0000	100.00

Source: CLUP TWG (2021)

Growth Areas and Built-Up Areas

a. Primary Urban Growth Center – Poblacion and Matalaba

Commercial areas in these barangays include public markets, general merchandise stores, grocery stores, retail stores, and restaurants. The commercial activities in these areas are continuously growing. Furthermore, institutions that cater to the basic services of the citizens in the urban core include the Municipal Hall, secondary and tertiary schools, Municipal Health Stations, and other institutional and social services facilities.

b. Secondary Growth Center – Napo, Kilo-Kilo, and Landy (Lusok-Baliis area)

The designated secondary growth centers, Napo, Kilo-Kilo, and Landy (Lusok Baliis area) are barangays near the primary urban growth area, Poblacion area and Matalaba. Most facilities services are also served in these barangays. These barangays are also within near proximity to the Poblacion area which indicates that the services can be easily transferred here and residents from far-flung barangays need not to go farther to receive basic services.

Agricultural Development

Agricultural development areas are areas that promote the use of agro technology and modern farming technologies to increase production all year round. With an improved irrigation system, presence of post-harvest facilities, ponds for fishery development, continuous improvement of livestock and poultry production, and introduction of crop protection programs.

Eco-Tourism Development

Low density development is being proposed since a considerable small pocket of population is already living in the tourism areas of the municipality. This proposal will provide support for the eco-tourism activities.

A community center can be established as a center for cultural heritage, arts and crafts, and other cultural promotion activities, exhibitions, and performances.

Mangrove Park Development

It is proposed to establish a Mangrove Ecological Park in Barangays Ipil and Angas. The municipality has a total mangrove area of 2,687.0300 hectares which are located along the coastal barangays of Santa Cruz providing various ecological functions in maintaining the stability of the environment. Such roles are biodiversity sanctuaries for

marine and land-based species, production support such as fishponds, navigational route and access for fisherfolks. The rise of ecotourism as an industry needs to be considered in the protection and production processes of the mangrove area. Tourism development for Santa Cruz should consider the big potential of mangrove areas as water recreational sites and activities such as kayaking and boating. Bird watching platforms can also be provided following the DENR guidelines on ecotourism.

Balogo Port – Maritime Gateway Development

It is necessary to transform the Marcopper industrial area into a port and its immediate environment into an active and vibrant community. The need to subject the area for urban renewal and land readjustment to accommodate on-site relocation, development of mixed-use commercial and residential developments and this is after delineating danger and “no build” zones. There can also be a promenade along its coasts that can provide the needed buffer.

The area is envisioned to also provide spaces for exhibition and showcase the products and produce primarily of Santa Cruz while a recreational center could be also established to cater to the increasing influx of tourists

New Government and Civic Center

The development of a new government center in Barangay Baliis provides the municipality of Santa Cruz an opportunity to decongest the población core of administrative and institutional functions, economic activities, and traffic to mention a few.

It is planned that the site can host municipal government buildings, line agencies' offices, transportation terminals, food terminal/trading post (*bagsakan*), disaster command control and communication center, convention center and complex grounds for multiple uses for parade, civic open spaces and meetings. A well-planned mixed-use institutional development to cater to the expanding role of Santa Cruz in the province.

Urban Development

This development aims for the redevelopment of the urban barangays of Santa Cruz – the town's core that needs to be revitalized; the urban sprawl that needs to be managed. Currently, the Poblacion hosts numerous institutional buildings and social infrastructures and serves as the center of economic activities. Public infrastructures need to be improved and upgraded to cater to the increasing population and anticipate the emerging growth of the municipality. An urban renewal of the Poblacion area is being proposed to hasten development, improve lagging areas, retrofit facilities, and introduce disaster and climate-proof facilities that need to be installed to mitigate and prevent the occurrence of disaster.

Enhance communication facilities including increasing bandwidth, laying the groundwork for an information technology-based development. Ensure energy sufficiency and up-grade utilities such as solid waste collection and disposal, water supply and sewerage system should also be taken into consideration. Low density mixed-use development will be encouraged in the Poblacion area, creating spaces for people to meet and interact such as plazas, forest parks, mini/pocket parks and linear parks.

Provision for public art facilities and furniture making experiences, connections, and linkages through the provision of pathways, walkways, and bicycle ways. Introduction of activities to make the communities vibrant and full of life, capitalizing on its culinary specialties, cultural assets, natural resources, products, and services being offered. Innovating to improve product offerings and service delivery. Safety and securing the town from disasters are two components that need to be assured to the public. Free from conflicts, hostilities, and petty crimes.

Other Proposed Land Uses

Aside from the common conventional land uses mentioned above, the municipality is also concerned with creating special connections between spaces, places and the people to maintain a sense of community under a healthy environment. Hence, the following land uses were proposed.

1. Cemetery. To satisfy the computed demand needed for burial grounds, the municipality will expand the existing burial grounds in Barangay Lapu-Lapu, Manlunan, Napo and Bagong Silang. This will occupy an existing agricultural area which is not susceptible to flood, landslide, and storm surge, making it suitable for development.
2. Cultural Heritage and Resources. Continuous preservation and conservation of the identified cultural heritage sites will contribute to the sense of identity and uniqueness of the municipality in line with Republic Act No. 10066 or the National Cultural Heritage Act of 2009. This states that the state shall foster the preservation, enrichment and dynamic evolution of a Filipino culture. Privileges for the identified cultural property includes priority government funding for protection, conservation and research and incentive for private support through the Commission. Moreover, the Cultural Property Incentives Program includes Tax Exemption on Donations, inclusion in the National Heritage Resource Assistance Program, and other Awards and Citations.
3. Sanitary Landfill. In the interest of public health and in compliance with Republic Act 9003 or Ecological Solid Waste Management Act of 2000, the development of a sanitary landfill is expected in the municipality. The potential sites for future local sanitary landfill are found in Barangay Napo and Manlibunan. The site suitability assessment by the MGB is still to be conducted. The facility is expected to be developed in the best suited area to be recommended by the MGB.

4. Grand Transport Terminal. As support to the proposed commercial areas, a transport terminal in Barangay Lapu-Lapu near the public market is proposed. The said proposal is a multi-modal terminal to accommodate passengers to and from Santa Cruz.

The estimated change in the distribution of land uses from 2022-2042 based on the existing and proposed land uses is presented in Table 6. This shows the existing land use, demand projection, proposed land use, and the proposed total areas per land use category. As expected, the traditional land uses composed of residential, commercial, institutional, parks and open spaces, and tourism will continuously grow at a manageable rate. Additional areas for infrastructure and industrial areas are allocated as well.

Table 6. Change in Land Use, 2022-2042

Land Use	Land Area		Increase/ Decrease
	Existing	Proposed	
Urban Use	590.4891	962.0133	371.52
Residential	477.9357	790.7813	312.85
Socialized Housing Unit	0.0000	11.896	11.90
Commercial	11.3670	41.2702	29.90
Institutional	71.4845	79.3332	7.85
Parks and Open Spaces	25.6482	28.4028	2.75
Infrastructure and Other Utilities	4.0537	10.3298	6.28
Industrial	21.8909	21.4946	-0.40
Agricultural Use	19,269.8713	17758.5317	-1,511.34
Agri-Industrial	1.8289	1.7625	-0.07
Agricultural Mixed	17,776.2960	16,360.00	-1,416.29
Rainfed Riceland	717.4354	639.2692	-78.17
Irrigated Riceland	774.3110	757.496	-16.82
Protected	1,856.2118	1,856.2118	0.00
Upland Forest	911.3321	911.3321	0.00
Lagoon	8.0726	8.0726	0.00

Marinduque Wildlife Sanctuary	639.3103	639.3103	0.00
Pond	297.4968	297.4968	0.00
Tourism	27.1515	62.1105	34.9590
Mangrove	2,687.0300	2,687.0300	0.0000
Mining and Quarrying	889.2623	867.5094	-21.7529
Mining Area	889.2623	755.7062	-133.5561
Mining Pit	0.0000	111.8032	111.8032
Rivers & Creeks	438.2612	438.2612	0.0000
Other Uses	1,288.8319	3,090.0727	1,801.2408
Cemetery	7.0211	10.5690	3.5579
Protection Buffer	0.0000	2,297.8895	2,297.8895
Sanitary Landfill	0.4932	10.5116	10.0184
Roads	156.2951	341.1539	184.8588
Others	1,125.0225	1,120.9989	-4.0236
TOTAL	27,069.0000	27,069.0000	498.28

F. Proposed Land and Water Use Policies

A land-use policy is essentially an expression of the government's perception of the direction to be taken on major issues related to land and water use and the proposed allocation of land and water resources over a planning period (2022-2042). It has a production and a conservation component. A sound land-use policy is effectively part of the enabling policy environment and covers all uses of land. To implement the CLUP, the following measures shall be enforced by the municipal government of Santa Cruz to promote sustainable development. Generated by the community through a participatory, integrative and iterative planning process, these policies cover all the land uses desired by the community:

Overall Land and Water Use Policies

Policies that cut-across all policy areas and the identification of such would create a unifying and over-arching theme and systematic mainstreaming of crucial policies and procedures.

1. Disaster Risk Reduction and Climate Change Resiliency

Mainstreaming of DRR and CCA into the local development processes of the municipality down to the barangays and households until embodied by each and individual Santa Cruzins. This cross-cutting policy, aims to prevent and mitigate possible impact of hazards, minimizing risk and exposures, decreasing vulnerability while increasing the coping capacities of the community, family, and individuals. This policy is discussed in the Mainstreaming of DRR and CCA Section of this Plan.

2. Sustainable Development and Ecological Balance

Preservation and conservation of natural resources through sustainable practices in agriculture, water management, solid waste management, land use development, infrastructure development and economic activities.

3. Connectivity and Spatial Mobility

Development of road networks such as primary, secondary and tertiary roads including diversion roads will be promoted. Scenic drives will be considered in the prioritization as part of promoting the ecotourism of the municipality. Rationalization of the circulation network of the Poblacion area as a primary concern in improving the urban design of the proposed expansion and urban renewal of the urban core.

The use of non-motorized and non-pollutive vehicles as part of the transportation system, and the development of pedestrian-friendly sidewalks and pathways as an integral part of the mobility system in Santa Cruz shall be supported by policies and fiscal support.

4. Incentive System

Establishment of incentive systems to be articulated through the zoning ordinance, such as intensification, densification, increase in height, the use of performance standards in improving the urban design and public infrastructure of Santa Cruz.

Disaster Risk Reduction and Management and Climate Change Adaptation Support

Measures in Mainstreaming DRR-CCA

Santa Cruz in its effort to mitigate and prevent possible impact of disaster the following spatial strategy options and its variances will be utilized.

1. Risk Avoidance or Elimination

This strategy specifically focuses on the elimination of possible exposure to hazards such as danger zones, buffer zones and areas susceptible to medium to high impact such as floods and storm surges, protection of environmentally critical areas, proper siting of lifelines and social infrastructures.

2. Risk Mitigation

This strategy is implemented by reducing vulnerabilities and potential risk through the introduction of measures and interventions to lessen or to ease the impact of disaster such as by changing uses, characteristics, design, scale, and systems.

3. Risk sharing or risk transfer

Involving financial and economic measures by transferring possible losses through insurance or other financial instruments. Government structures are expected to be insured and protected under this provision.

4. Risk Retention or Acceptance

This strategy accepts the Do-nothing scenario, the acceptance of the impact of disaster, fully aware of financial and economic losses

Risk-Sensitive Land Use Planning: Land Use Scheme and Land Use Policy Options

The land use policy options and strategies are further enhanced through the Vulnerability Reduction Strategy detailed under the Luzon Strategic Framework.

1. Production

a. Urban Areas

a-1. Minimize hazard exposure

- Encourage coastal area for recreation activities
- Construction of alternative roads
- No building zone for areas with high risk to hazard and further development can only be allowed with necessary mitigating measures
- Strengthening of the early warning system

a-2. Prioritizing residential areas to be situated in relatively safe areas

- Relocation of informal settlements
- Relocation of houses along the primary roads affected by its widening and expansion

a-3. Prioritizing safety over accessibility when it comes to location standards

- Further study for the Magsaysay low-density community development

a-4. bReduce vulnerabilities

- Relocation of informal settlements

- Regular updating of the Disaster Risk Reduction and Management Plan

b. Natural Resource Production Areas

b-1. Changing production practices to anticipate/adapt to potential changes in climate

- Encourage intercropping to promote biodiversity
- Training for alternative livelihood

b-2. Strategic location of climate proofed production support facilities

- Clustering of major production areas

b-3. Encourage agro-forestry production in upland or sloping areas

- Encourage Agro-Tourism in the coconut plantation
- Further encroachment and development of residential areas with critical slopes and within the landslide prone areas should be stopped

b-4. Resource within sustainable levels

- Carrying capacity implementation for ecotourism areas

b-5. Managing water resources

- Development of mini dams for water security and recreational activities
- Expansion of irrigation systems

b-6. Encouraging post disaster economic protection measures

- Strengthening of cooperatives, people's organization, and non-governmental organizations
- Promotion of the drafting of Business Continuity Plan for industries and businesses
- Application of building back better and smarter principle

2. Protection

a. Implement easement as an effective strategy in managing risks

a-1. Enforcement of easement for water bodies such as rivers and tributaries

b. Field demarcation/delineation of hazard prone areas

b-2. Establishment of evacuation areas and routes

b-3. Establishment and enforcement of ecological easements and buffer

zones

- c. Protection of forests
 - c-1. Preservation of forested areas
 - c-2. Protection of up-stream water resources
 - d. Protection of ecologically sensitive and critical habitats
 - d-1. Expansion of Mangrove Protection Area
 - e. Synergy and convergence of protection policies
 - e-1. Codification of Environmental Ordinances
3. Buffers
- a. Establish buffers to reduce exposure
 - a-1. Securing the coastal areas for beach recreational activities
 - a-2. Limiting and concentrating the development
 - a-3. No residential areas within the danger zones
 - b. Resource use within sustainable levels
 - b-1. Establishment of Community-based watershed management
 - b-2. Carrying capacity will be considered in the management of tourism sites
 - c. Encouraging buffers within urban areas
 - c-1. Enforcement of buffer zone for rivers and tributaries
 - c-2. Development and establishment of Green and Community Park
4. Infrastructure and utilities
- a. Strategic establishment of transportation access/routes as a means of redirecting settlement growth
 - a-1. Widening and expansion of inland and farm to market roads
 - a-2. Establishment of new roads
 - b. Strategic establishment/upgrading of utility distribution systems
 - b-1. Improvement of drainage system
 - b-2. Conversion of the industrial area in Balogo to a port area
 - c. Mitigation measures should be adjusted to account for the impact of climate change on the magnitude and severity of existing hazards

- d. Climate proofing/mitigation of key distribution and access systems
 - d-1. Improvement of the existing port
 - d-2. Construction of wave barriers
 - d-3. Construction of sea walls
- e. Establishing strategic redundant or back-up system
 - e-1. Construction of alternative roads parallel to the primary roads
 - e-2. Crafting of Disaster Contingency Plan

IMPLEMENTATION AND MONITORING SCHEME

The CLUP has an accompanying Zoning Ordinance that includes the CLUP's implementation and monitoring scheme in terms of land use regulations. Included in this instrument are the composition of all special committees that will be involved in the implementation, monitoring, and review of the CLUP and ZO. Also, the duties and responsibilities of the implementing officers and committees are stipulated in the ZO.

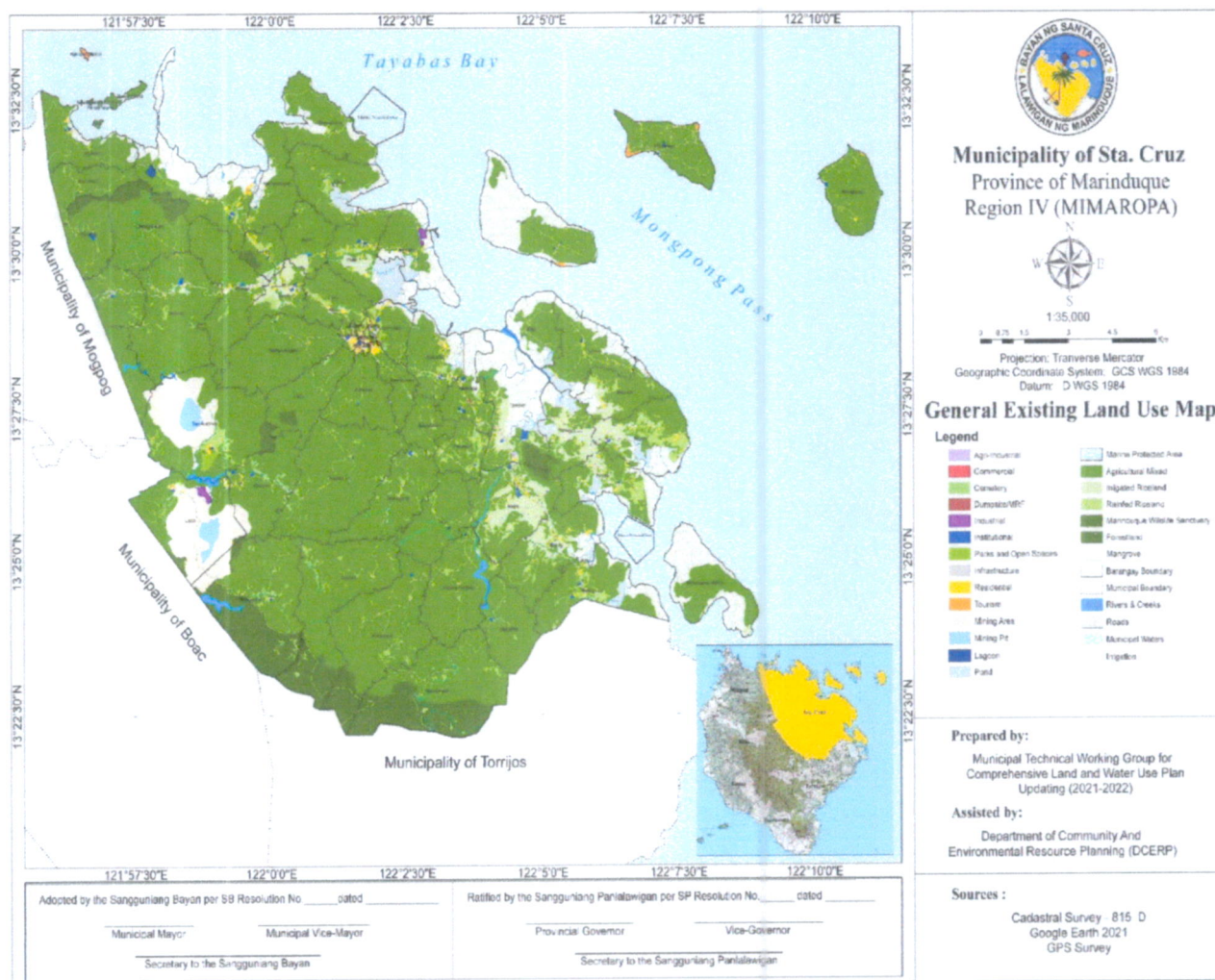
In general, the implementation, monitoring and review of the CLUP and ZO creates different duties and responsibilities to the people in charge in the municipal office. The Zoning Officer shall oversee these responsibilities together with the Local Zoning Board of Appeals. Also, to create a wider understanding of the CLUP and ZO to the locals, continuous education such as enforcement training and capacity building on familiarization and implementation of permits and licensing system shall be given to the concerned individuals. The participation of the barangay officials should also be ensured in this process. Lastly, proper coordination should be consistent with national agencies such as DHSUD, DENR, Bureau of Fisheries and Aquatic Resources, and the Mines and Geosciences Bureau.

The implementing and monitoring scheme of the CLUP may be referred to national and regional plans, as well as to local plans such as the Local Development Investment Plan (LDIP) and Executive Legislative Agenda (ELA) for prioritization of future developments.

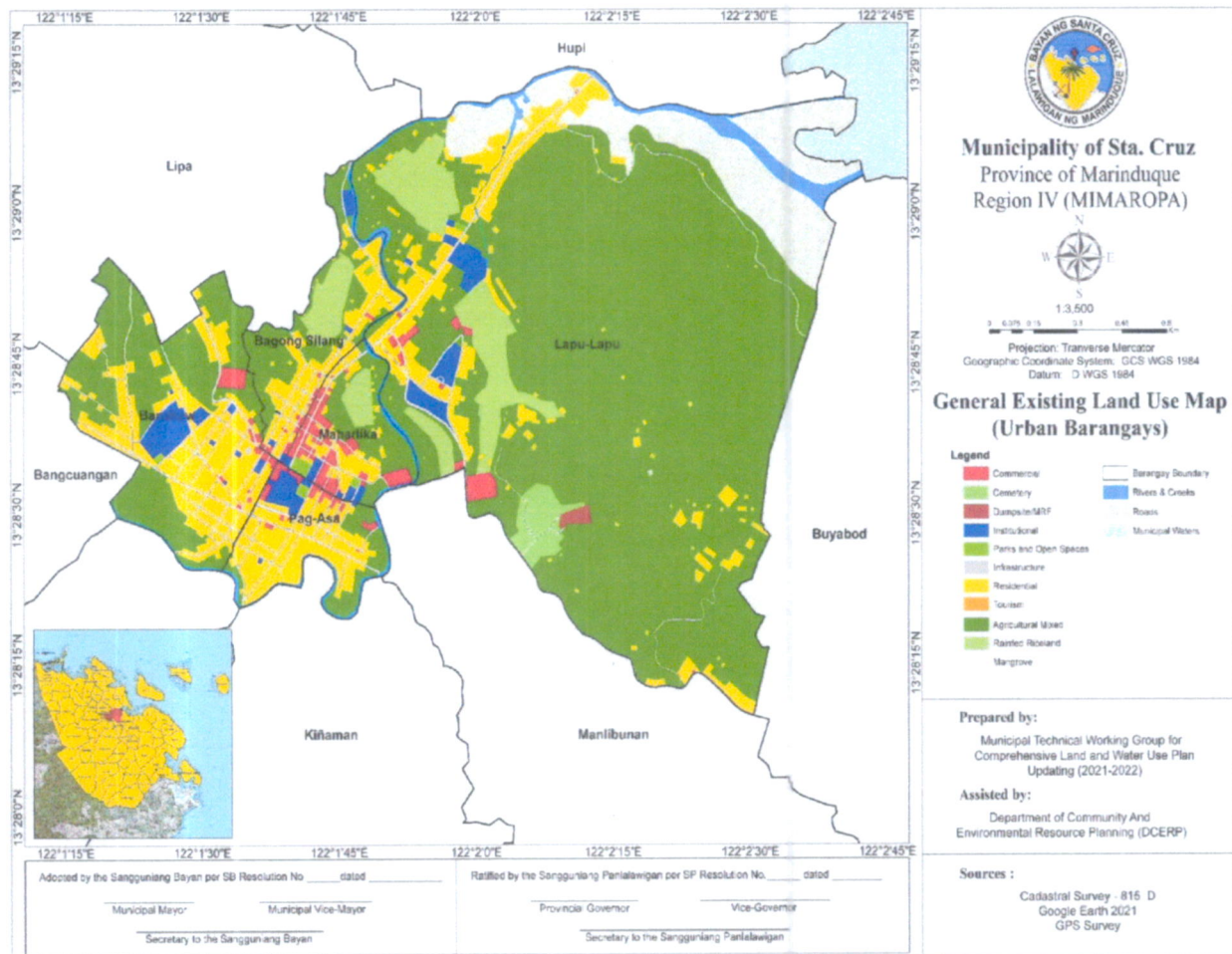
APPENDIX

A. Success Indicators

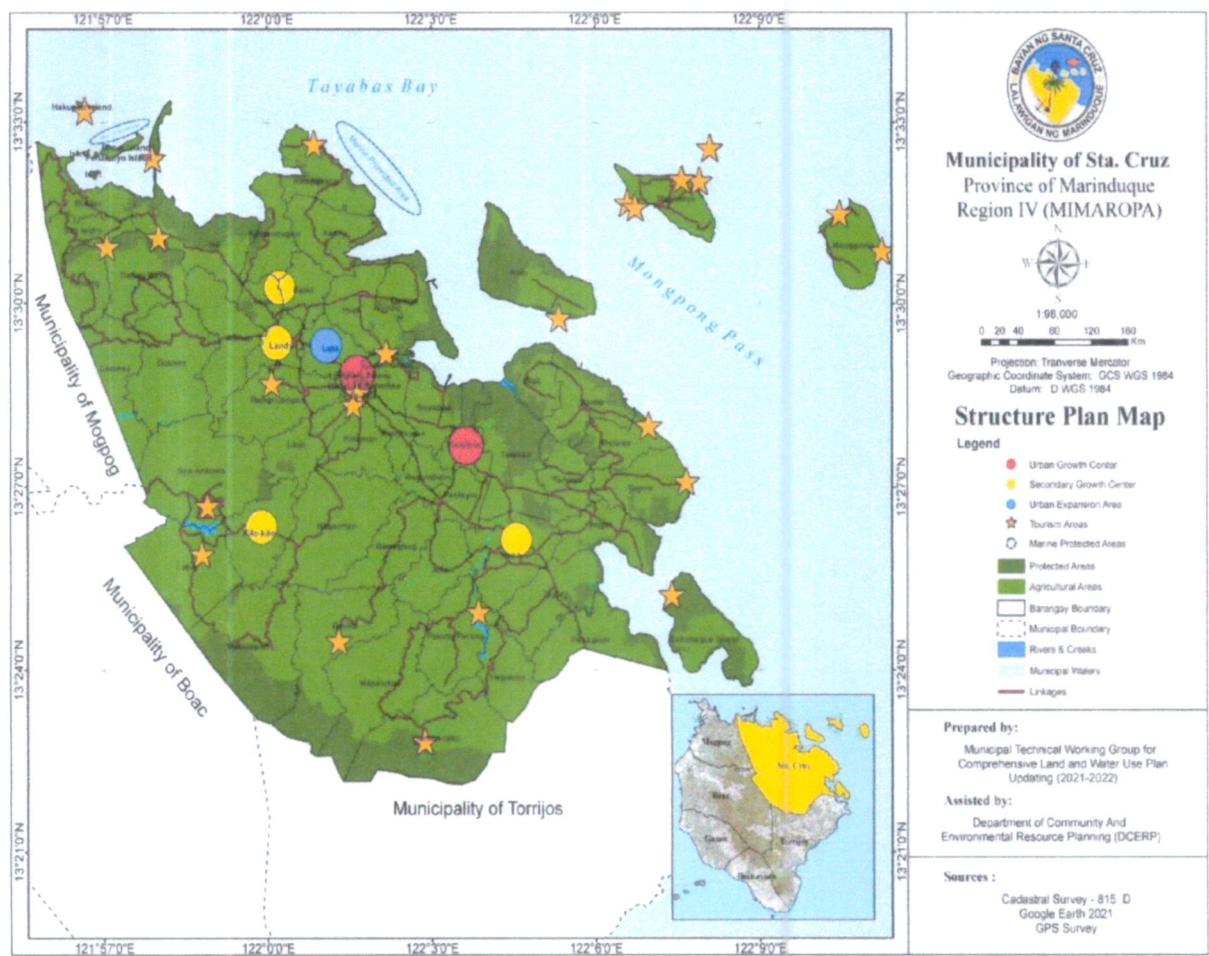
B. Existing General Land Use Map



C. Existing Urban Land Use Map



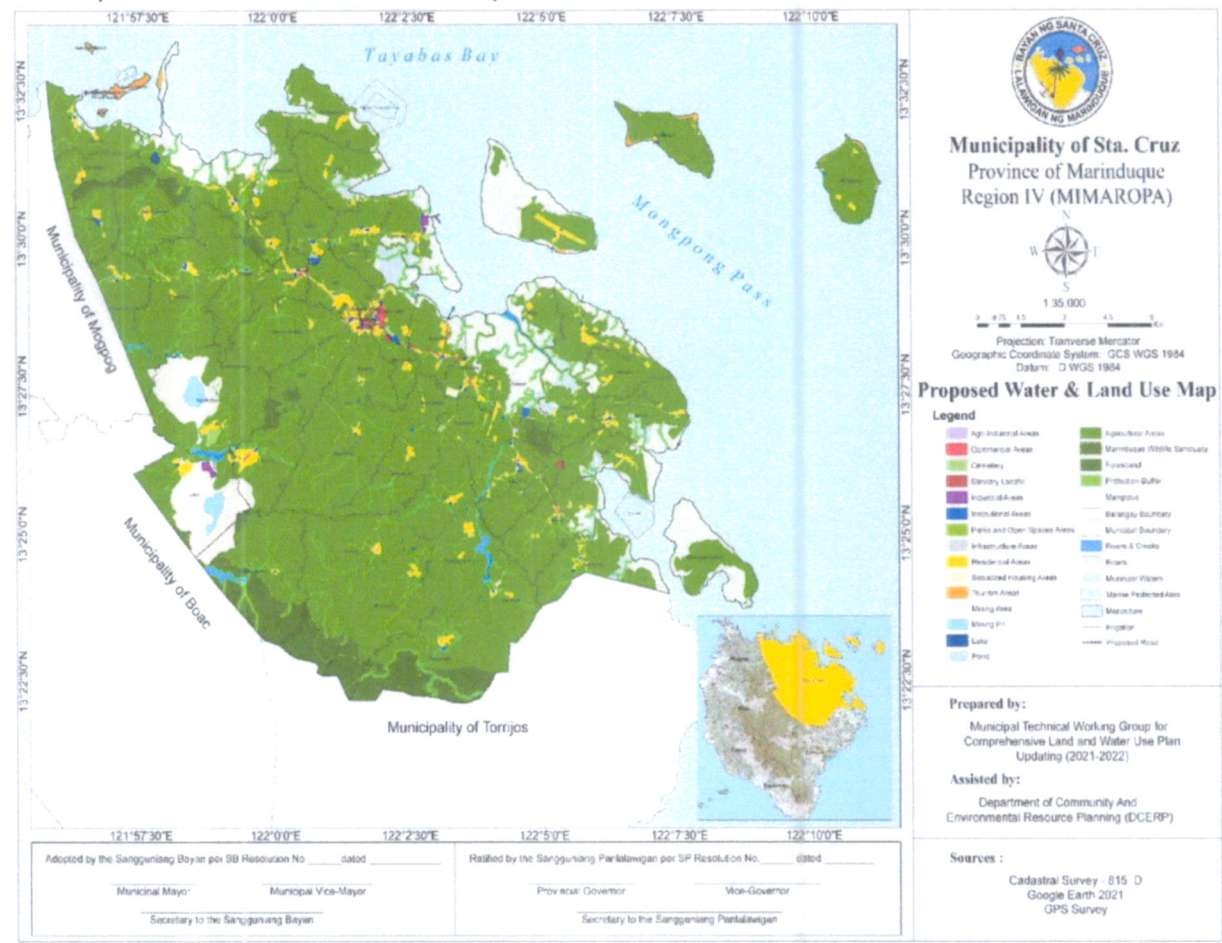
D. Structure Plan Map



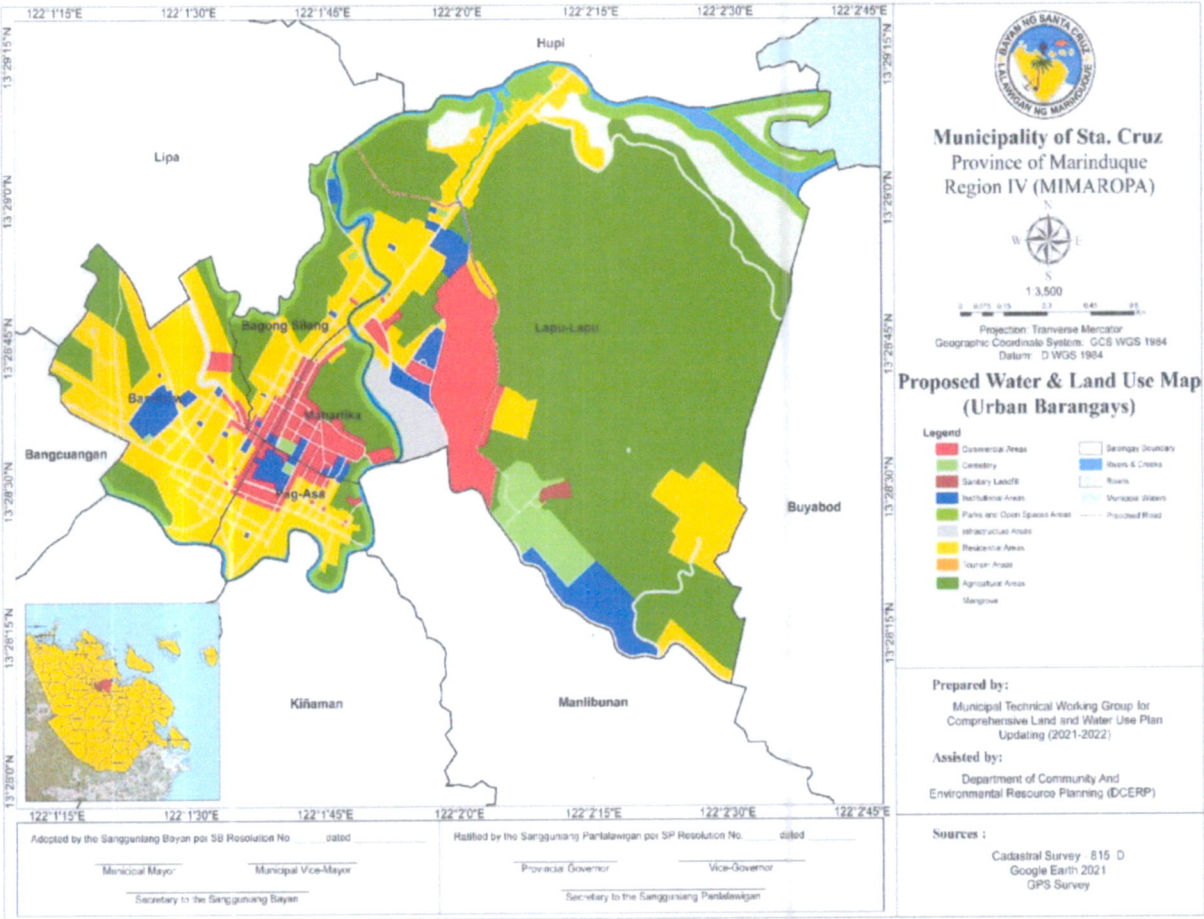
E. Available Land Supply for Development Map



F. Proposed General Land Use Map



G. Proposed Urban Land Use Map



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