PROJECT DESCRIPTION

1.1. PROJECT FACT SHEET

1.1.1. Background of the Project

Project Name:	**Masbate International Tourism Enterprise and Special Economic Zone**
Nature of Project:	**Resort and Tourism**
Total Area:	**1,854 hectares**
Site Location:	**Barangays Magcaraguit, T.R. Yangco, Cadulan, Suba, Divisoria and Gaid, Municipality of Dimasalang, and Barangays Maravilla, Bontod, and Sta. Cruz, Municipalities of Palanas, Province of Masbate**

1.1.2. Profile of the Proponent

Name of Proponent:	**Empark Land Development, Inc.**
Office Address:	**Suite 2101 Tektite East Tower, Philippine Stock Exchange, Exchange Road III, Ortigas Center, Pasig City**
Contact Person:	**Benito G. Techico** Director
Tel No./Fax No.:	**+632 6879999 / +632 6870168**

1.2. PROJECT LOCATION AND AREA

1.2.1. Project Location and Area

The proposed Masbate International Tourism Island project will be situated in Barangays Magcaraguit, T.R. Yangco, Cadulan, Suba, Divisoria and Gaid, Municipality of Dimasalang, Barangays Maravilla, Bontod, and Sta. Cruz, Municipality of Palanas, Province of Masbate. These municipalities of Dimasalang and Palanas are surrounded by the Municipalities of Cataingan in the southeast; Placer in the south; Cawayan in the west; and Uson in the north.

Barangay Magcaraguit, which is a separate island located in the northern region of the Municipality of Dimasalang will be developed as a showcased islet incorporating residential and commercial facilities, and tourist trails.

Figures 1.2.1 and **1.2.2** present the location and vicinity maps of the proposed project, respectively. The site development plan is depicted as **Figure 1.2.3** showing the proposed facilities while **Figure 1.2.4** shows the point coordinates of the proposed project area.

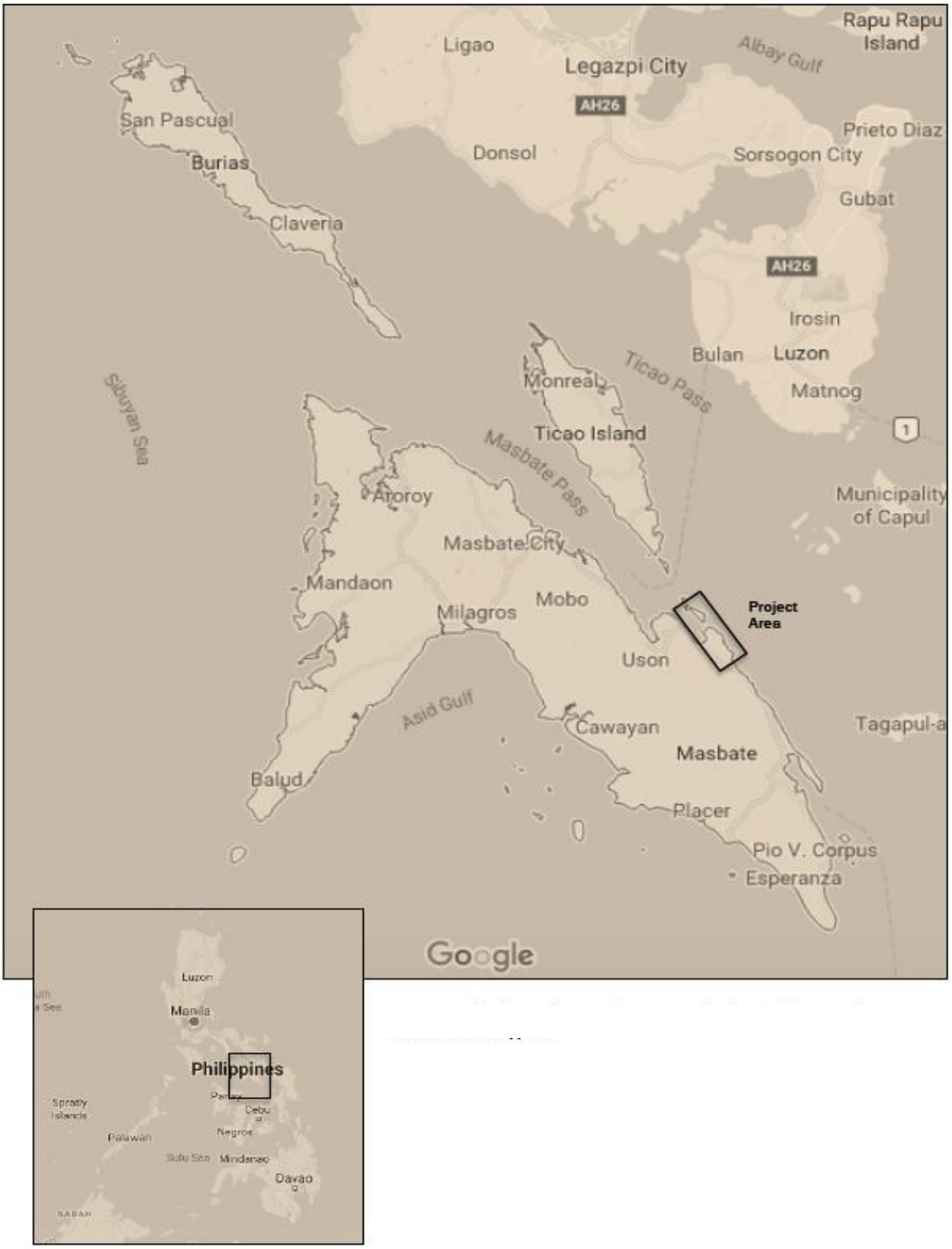

Figure 1.2.1. Location map of the proposed Masbate International Tourism Island Project

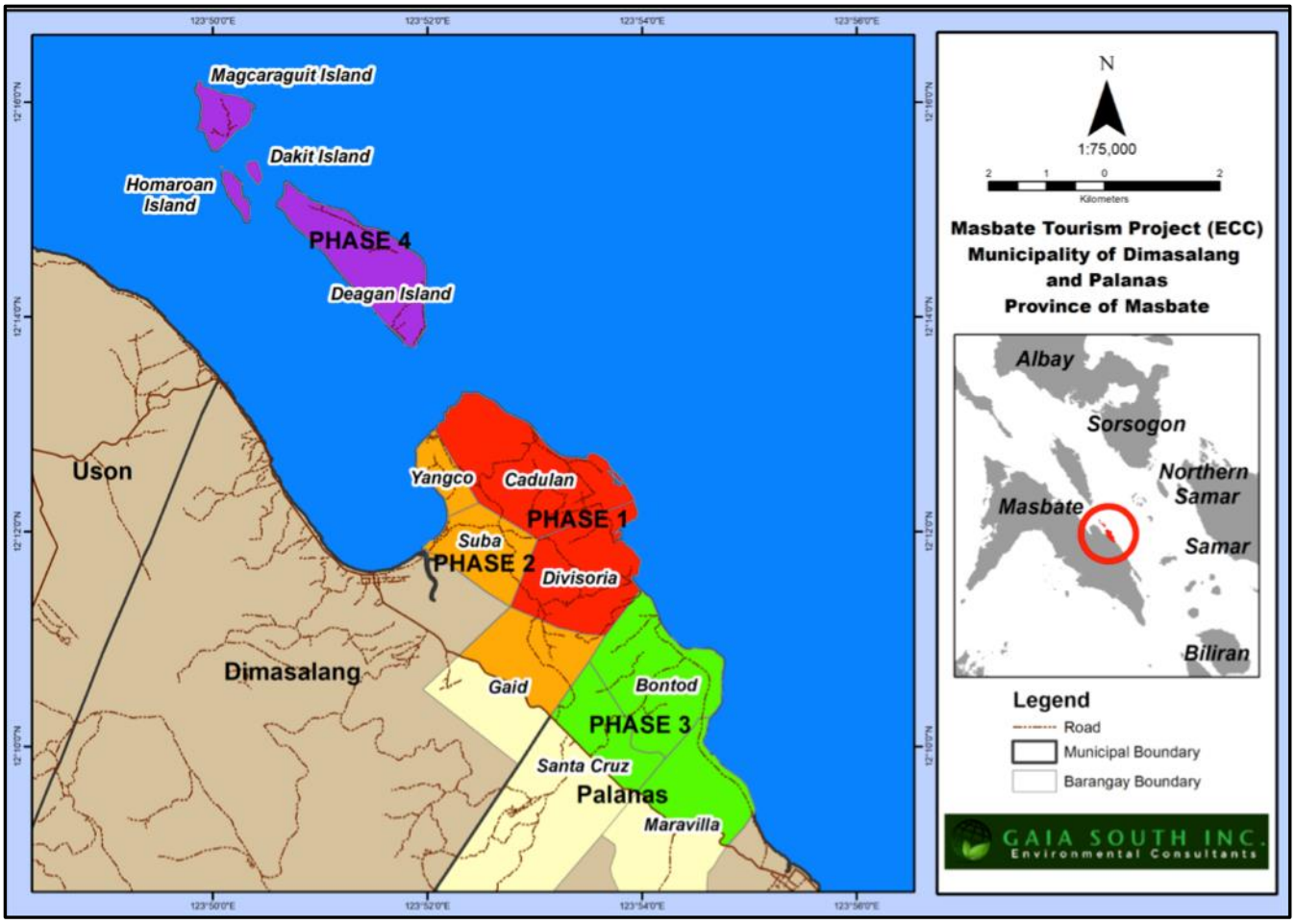

Figure 1.2.2. Vicinity map of the proposed project site

Figure 1.2.3. Site development plan

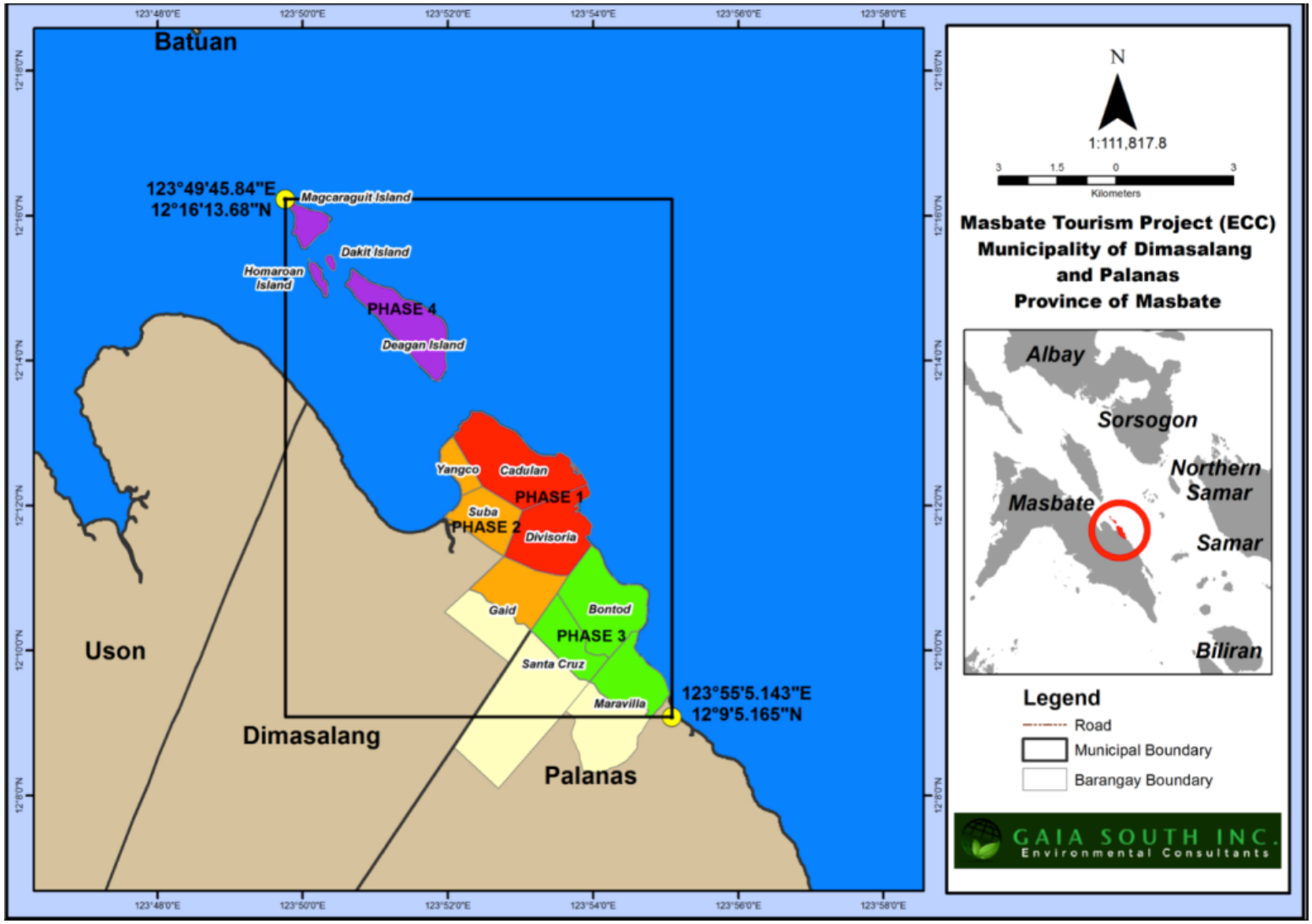

Figure 1.2.4. Point coordinates of the project site

1.2.2. Project Site Accessibility

From Manila, Masbate City can be accessed through commercial flights such as the Cebu Pacific and Philippine Airlines (PAL Express) although with limited schedule of one flight per carrier per day from Manila to Moises Espinosa Airport and vice versa. The Masbate airport is a Class 2 principal airport with 1.5 km long asphalt and concrete runway and a small domestic terminal. The Civil Aviation Authority of the Philippines (CAAP) manages the terminal. The flight takes about one (1) hour. From Masbate City, the proposed project site is accessible by land for about 1.5 hours via the Central Nautical Highway passing through the Municipalities of Tugbo, Mobo, and Uson. A bus company and utility jeepneys service the route from Masbate City.

Inter-island travel is also possible through ferries and pump boats. The entry points of incoming passenger boats are in Masbate City, Aroroy, Cataingan, Gumahang and Matalangtalanag Ports in Masbate Island, San Jacinto in Ticao Island, and San Pascual Port in Burias Island. Several boats in Sorsogon City (Sorsogon), Lucena City (Quezon) and Bogo City (Cebu) have daily trips going to Masbate.

Land travel within the island of Masbate is also convenient with paved highways connecting the major towns.

1.2.3. Delineation of Impact Areas

The identified direct impact areas include Barangays Magacaraguit, T.R. Yangco, Cadulan, Suba, Divisoria and Gaid, Municipality of Dimasalang, Barangays Maravilla, Bontod, and Sta. Cruz, Municipality of Palanas, where all the proposed tourism and leisure facilities will be located.

The secondary impact barangays, which are located at the peripheries of the proposed project site, include Barangays Pia-on in Dimasalang, and Barangay Poblacion in Palanas. The main access road going to the proposed site also traverses these barangays.

The Municipalities of Dimasalang and Palanas are considered as the Regional Impact Area (RIA) considering the potential social contributions that may be provided during the operation of the project.

The impact areas identified during the pre-EIA stage is shown in **Figure 1.2.5**.

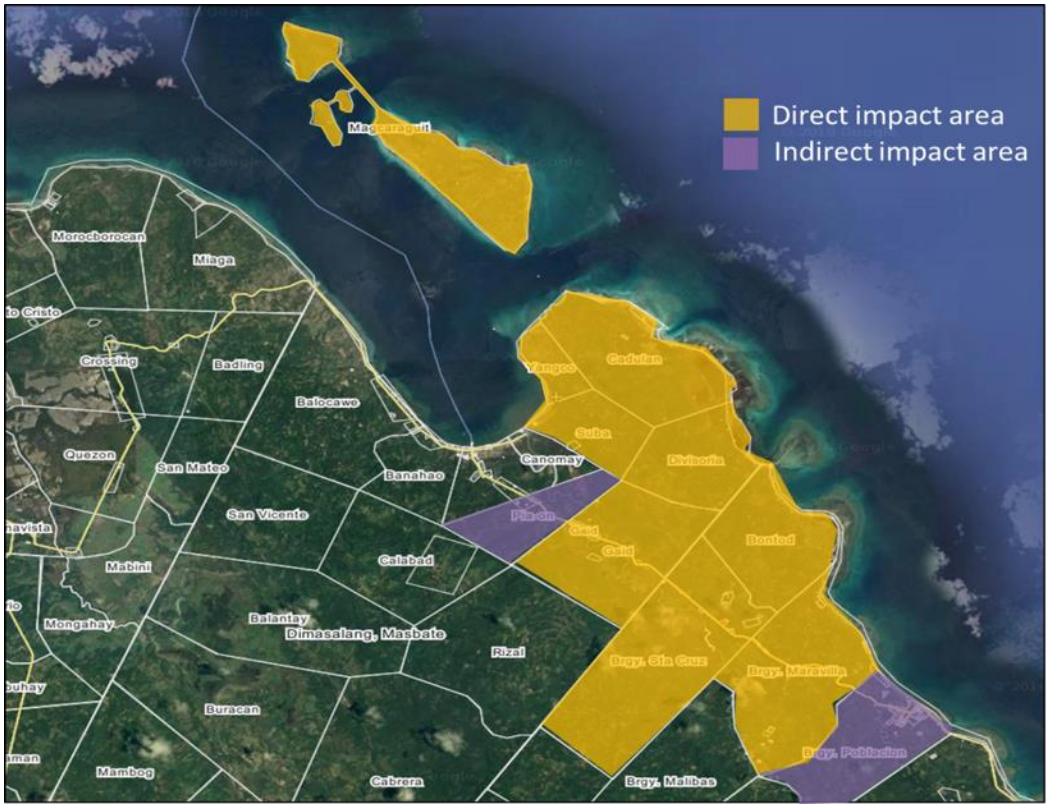

Figure 1.2.5. Pre-EIA impact areas

1.3. PROJECT RATIONALE

Tourism is now one of the fastest growing sectors in the world. It has been proven to be one of the resilient growing industries in the ASEAN region. The Philippine tourism industry is growing faster, which has higher tourism growth potential among the ASEAN Big 3, with 10.9% growth.

Travel and tourism has become one of the major economic drivers in the Philippines, in which the industry's contribution to the economy has risen for the past years.

In 2016, the total contribution of Travel and Tourism to the Gross Domestic Product (GDP) was PhP2,852.9 Billion and accounts for 8.8% of the GDP. This is expected to rise by 7.8% to PhP3,075 Billion in 2017 and 5.2% per annum amounting to PhP5,134.2 Billion or 5.3% of GDP by 2027 based on World Travel and Tourism Council (WTTC) forecast. This type of contribution are economic activities generated by hotels, airlines, restaurants, and the like that are directly supported by tourists.

Meanwhile, tourism generates direct and indirect employment within the industry. It has a multiplier effect that provides more opportunities to people and communities. It also provides opportunities to small-scale enterprises, which is mostly important to rural communities.

Travel and Tourism compose 5.6% of the total direct employment in the Philippines for 2016. Direct employment includes employment by hotels, travel agents, airlines, restaurants, and leisure industries directly supported by tourists. Based on forecast done by the WTTC, this industry will account for 2,963,000 jobs directly, an increase of 2.4% per annum over the next 10 years.

In terms of tourism receipts, the growth has been continuously increasing as Philippines continue to attract tourists. These are the payments made by international inbound visitors, including their payments to national carriers. The payments made to goods and services received in the destination are also considered. From 2014 to 2015, the growth rate is 10.7% amounting to over PhP3 Million, which continue to rise over time.

Variety of tourism product portfolio is very important in developing the destination. Each destination has its own unique tourism assets that may not be found in other sites. Culture and sun, beach and diving activities are on top of the island's distinctive characteristics aligned with the country's portfolio in strengthening the development of the tourism sector in Masbate.

Product Prospects

The proposed integrated resort development will have mixed-use town developments, residential zones, hotels and resorts development, entertainment and leisure complexes, amusement and theme parks, 54 hole golf course, education/school facilities, retirement village, as well as preserved natural space areas.

In terms of tourism portfolio, this development will take pride on different key products that is capable of delivering higher growth potential, higher length of stay, and wider spread benefits comprising of the following:

1. **Culture and Heritage Tourism**. Since Masbate is known for its annual Rodeo Festival, this tourism development intends to enhance this experience by offering a Dude Ranch where guests can experience living in a ranch including activities, rodeo ring, equestrian track, and ranch market and restaurant.

2. **Nature-based tourism**. Adventure parks and botanical garden will be established featuring various mangrove species.

3. **Sun and Beach Tourism**. Residences and tourist accommodations near the beach will be developed to experience luxury getaway among local and international tourists.

4. **Meetings, Incentives, Conventions, and Events (MICE) Tourism**. Ballroom and convention centers will be built targeting corporations and individual entities that are seeking an events place for mass gathering.

5. **Leisure and Entertainment, and Shopping Tourism**. The project will also target to build leisure and entertainment hotels that can be used for events, theater performances, and private concerts. These hotels will also have an array of casinos, and commercial districts in all eight (8) zones for shopping.

6. **Cruise Tourism**. The proposed project targets to accommodate luxury cruise lines and a pier will be developed for this purpose.

7. **Nautical Tourism**. There is intent to develop a marina/yacht club, in which there is an opportunity for tourists and residents to dock and sail in some specific zones. It also envisions developing villas where yacht owners can privately dock.

8. **Educational Tourism**. An educational complex will be established that will focus on hotel and restaurant, diving, and general education, at all levels.

Essentially, with the government's target of encouraging local and international tourists in the Philippines, this proposed project will set a promising standard in offering the best facilities for leisure an adventure. By taking advantage of the potentials of the Masbate Province in featuring its nature, a diversified plan that will incorporate the various types of tourism as well as enhance the island's prospective will generally offer a wide range of support in the tourism industry including manpower, socio-cultural, and economic benefits.

1.4. PROJECT ALTERNATIVES

The following matrix shows the various project alternatives and project considerations (**Table 1.4.1**).

Table 1.4.1. Project alternatives and considerations

Aspect	Standard Criteria	Options Considered	Assessment
Project location	• Location • Applicability	The proposed location caters the exact proposed zonation planned for the project such as holiday paradise, resort and recreation, health care and a livable town. The Deagan Island will have both residential and tourist communities and facilities, including a yacht club, botanical garden, ranch resort interconnected by landscaped trails. On the Masbate mainland, straddling the towns of Dimasalang and Palanas, the "Gold Coast". A seaside stretch of "resort and recreation" facilities can be sited. The coast of Palanas can be a livable town which targets various markets such as retirement, educational, health and wellness tourism markets. The hills overlooking the "Gold Coast" is suitable for a Golf Recreation Area" with hotels and villas nestled between the fairways. It is also suitable for equestrian and rodeo field that pays homage to the ranching culture of Masbate, and eco lodges in a forested area.	Proper zonation of the facilities should be properly considered to properly fir in the natural environment of both the island and mainland areas. The identification of the specific areas for each planned facility should carefully be planned while considering its long-term impact to the environment and people.
Power	• Source of power	During the construction phase, mobile generator sets will be installed. During the operations phase, power will be supported by both	

Aspect	Standard Criteria	Options Considered	Assessment
		MASELCO and generator sets. It is expected that, over the course of development, local power sources will be developed. At present, a power plant is being built by DMCI for the province of Masbate, which will foreseeably address short-term needs of the project. This project provides the scale of investment needed to ensure that DMCI will be willing to expand its operations in the province.	
Water	• Source of water • Projected water requirement	The water demand of the project will be addressed in three ways: 1) Tapping existing rivers near the project; 2) Collecting rainwater and recycling of wastewater; and 3) Establishment of a desalination plant. Sourcing from water wells is also an option that must be explored by Empark within and around the project vicinity.	The daily demand of the whole development is 75,879 m^3/day. This will be the total input resorts and hotels will be receiving. From the total, most of it will become greywater and blackwater. An additional chunk will be lost through leaks in the output system. Minor loss will also from consumption and evaporation. To ensure that adequate water will be supplied for the operation of the proposed project, desalination process will be adopted by Empark. Saltwater/seawater will be processed to produce water suitable for domestic use and other watering requirements of the project. In the long term, Empark must ensure that water competition will not happen in the area. Considering the high water demand due to the development of a golf course, desalination is only one of the options that Empark must look into. Sourcing water from wells in the area and nearby freshwater bodies must be properly studied.
Solid waste disposal	• Method of management	Among the most effective ways of maintaining the cleanliness within the resort include among others the following: adequate segregated waste bins throughout the project site will be strategically set up; strict segregation will be administered; no wastes/wastewater shall be directly thrown into the sea; a wastewater treatment facility (WTF) with adequate capacity shall be established; immediate recycling of wastes (to handicrafts, composting, etc.) and wastewater (for plants and road watering, etc.) shall be done in all resorts operation; all employees shall undergo proper orientation on waste minimization and will be tasked to strictly adhere	To be able to maintain the mission of the company to encourage and live up through a green living condition within the resort peripheries, strict compliance to proper waste segregation, recycling, treatment and collection shall be practiced by Empark, employees, and all guests. Since waste has been an issue for resorts/tourism sites, Empark should have clear guidelines on its management. A reliable Solid Waste Management Program aligned with the Municipal program should be administered. The success of implementing a Solid waste and wastewater management program depends on how it will be implemented and

Aspect	Standard Criteria	Options Considered	Assessment
		to the guidelines of the company on waste disposal; regular collection of wastes shall be strictly implemented; and all hazardous materials will be placed in a temporary holding area prior to collection by an accredited waste collector.	monitored. Therefore, the Pollution Control Officer/Environmental Staff should be tasked to give focus on the solid waste and wastewater management program to avoid any environmental problems and to ensure environmental protection.
Siting of facilities	• Themed zones	There will be four (4) zones for this project: Zone 1 – Superior Service Area (Holiday Paradise) in Deagan Island; 2) Resort and Recreation Area (Gold Coast) in the Mainland; 3) Health Care and Livable Town; and 4) Golf Recreation Area all in the Mainland).	The maximum potentials of each identified zone should be properly considered to avoid misfit on land use and ensure the siting of facilities are in its proper plan. The mangrove areas and forested zones should remain untouched. Plants in the coastal area should be retained and improve only the surrounding environment.
Access Road	• Location	The Central Nautical Highway will be the main access road to and from the project site and Moises Espinosa Airport. Access Road within the entire facility in the mainland Masbate (Dimasalang and Palanas) will also be established, as much as possible following the existing/natural contour of the land. From the Mainland, to Deagan Island, service boats will be provided for tourists and workers.	Traffic Impact Assessment will be very vital in securing that the area will have good traffic flow upon influx of people from various places. The Municipal Development Plans of both Dimasalang and Palanas must be studied and considered in finalizing the access routes.
Project capacity/ Volume of tourists	• Carrying capacity	The tourism zone, at full development, is expected to accommodate between 1.3 million to 1.7 million tourists. This translates, including residents, visitors and employees, in a daily population between 55,000 to 100,000 persons. This translates into a population density of 3,000 to 5,000 persons per sq. km. At these levels of density, the carrying capacity should be addressed by smart urban design - the provision of necessary infrastructure for power, water, sewage, waste, telecommunication, transport - and the preservation of open spaces to reduce the perception of crowding. In this regard, the vertical development footprint is not expected to exceed 15% of the total land area, with landscaped paths, parks and golf courses providing much of the open space, and a beachfront easement of 30-50 meters will be included in the design.	

No Project Option

The Masbate International Tourism Island Project is a proposed development that will help advance the target the Philippine Government in welcoming local and international tourists. The current market calls for a safe, top of the line service and facilities which could offer full relaxation and leisure at the same time. Thus, the "no project" scenario shall:

- Retain or diminish the volume of targeted tourists in the island due non-varied activities being offered;
- Non-enhancement of potential tourism areas in the Island of Masbate; and
- Economic and social benefits of the project including employment during construction and operations of the project, Corporate Social responsibility, Social Development Projects, and government revenues will not be provided.

1.5. PROJECT COMPONENTS

Table 1.5.1 and **1.5.2** shows the proposed components and facilities/structures of the Masbate International Tourism Island Project.

Table 1.5.1. Components of the proposed Masbate International Tourism Enterprise and Special Economic Zone Project

Project Features	Proposed
Project Area (hectare)	1,854.00
Total Built Gross Floor Area (hectare)	205.26
Area of open space (hectares)	1,648.74
No. of zones	4
Manpower	• During Construction: 20,000 to 25,000 (estimated annual jobs from Construction) • During Operation: 23,500 to 46,000 jobs
Water Requirement and Source	• Requirement during construction: 0.003 m^3/m^2/day • Requirement during operation: 75,879 m^3/day • Source: Potential surface water sources are: Danao Lake, Pinangapungan, Umawas and Palanas Rivers, desalination from Naro Bay, rainwater collection, and recycling. Golf course irrigation will be derived from STP effluent and other wastewater.
Power Requirement and Source	Construction: diesel generators at 5 MWh Operation: MASELCO, generator sets, 50 to 75 MWh, with peak at 100 MWh.
Port Facility	A pier for cruise ships and general transportation will be built at the southern end of the development. Three to five smaller piers will be built throughout the entire development.
Pollution Control Devices	Hazardous Waste Temporary

Project Features	Proposed
	Storage Facility Wastewater treatment plant Sewerage treatment plant Drainage facilities Air Pollution Control Facilities
Investment Cost (PhP)	190.19 Billion

Source: Empark Land Development, 2018

Among the facilities that will be established within the resort facility includes the following:

- Idyllic Residence
- Mountain Fruit Farm
- Marina Manor
- Club
- Yacht dock
- Botanical Garden
- Superior Hotel
- Holiday community
- Adventureland
- Commercial Street
- Water Tourist Center
- Tourist Trails
- Mall Trail
- Mountain Park
- Residence Golf
- Church on the Sea
- Banquet Hall
- Casino Hotel
- Gold Coast
- Green Villa
- Characteristic Pavilion
- Dream Children's Paradise
- Maritime Theatre
- International Shopping Center
- Cultural Entertainment City
- Mixed Block
- Wonderful Aquarium
- European Wedding Manor
- Amorous Food Street
- International Collection of Famous Brands
- International Convention and Exhibit
- Holiday House on the Water
- The Inn Boutique
- Eco Rainforest Park
- Golf Club
- Golf Practice Field
- The Ecological Characteristics of Legend
- Sea View Apartment
- Wedding Chapel

- Wedding Photography Base
- Tourism Real Estate
- Folk Culture Park
- Resettlement Area
- Super Star Hotel
- Mangrove Reserve
- Supporting Hospital
- Convalescent Center
- International Education School
- Diving Training School
- Pension Center
- Health Management Center
- Gourmet School
- Tourism Practitioners Training School
- Business Mansion
- Shopping Paradise
- Tourist Centre
- Yacht Club
- Riding Trails
- The Saddle Club
- Fisherman's Wharf

1.6. PROPOSED OPERATION

1.6.1. Zone 1 – Superior Service Area (Holiday Paradise)

On the Deagan Island, lying just off the coast of the Masbate mainland, the "Island Paradise" will be situated. A "superior service area and holiday paradise" catering to the ultra-luxury end of the tourist market, it will have both residential and tourist communities and facilities, including a yacht club, botanical garden, ranch resort ("pastoral home") interconnected by landscaped trails.

Zone 1 covers the entire Deagan Island, which is located in Barangay Magcaraguit, Dimasalang, Masbate.

Figure 1.6.1. Conceptual Plan of Zone 1

1.6.2. Zone 2 – Resort and Recreation Area (Gold Coast)

On the Masbate mainland, straddling the towns of Dimasalang and Palanas, “Gold Coast” will be situated. This will be a seaside stretch of “resort and recreation” facilities. Including gaming, entertainment and leisure hotels, amusement parks, boutique resorts, a convention center and shopping complex, the Gold Coast aims for the middle and upper market leisure tourist, spanning markets for mass tourism, meetings and conventions, and gaming. Zone 2 includes the barangays of Cadulan and Divisoria in Dimasalang, and Bontod and Maravilla in Palanas.

Figure 1.6.2. Conceptual Plan of Zone 2

1.6.3. Zone 3 – Health Care Area (Livable Town)

Also on the Masbate mainland, on the coast of Palanas, the “Livable Town” will be situated, which targets various markets, such as retirement, educational, health and wellness tourism markets, while providing the amenities of a township to ensure a comfortable stay. It spans the Barangays of Bontod, Sta. Cruz and Maravilla, in Palanas.

Figure 1.6.3. Conceptual Plan of Zone 3

1.6.4. Zone 4 – Golf Recreation Area

On the hills overlooking the Gold Coast, the “Golf Recreation Area”, consisting of a 54-hole golf course, with hotels and villas nestled between the fairways. It also includes an equestrian and rodeo field that pays homage to the ranching culture of Masbate, and eco-lodges in a reforested area. Zone 4 spans the barangays of TR Yangco, Cadulan, Divisoria, Suba and Gaid in Dimasalang, and Bontod in Palanas.

Figure 1.6.4. Conceptual Plan of Zone 4

1.6.4 Pollution Control and Waste Management Facilities

Solid and Hazardous Wastes Management

Storage

Segregation will be done at source. Waste receptacles will be provided and placed in various locations in the project area: green receptacles will be for biodegradables, red will be for residuals, blue will be for recyclables, and black for hazardous wastes.

Collection and transport

Sixty mini-Materials Recovery Facilities (MRF) will be built, one for each proposed building. Segregated wastes from the bins will be transferred to the mini-MRFs. The collected wastes from the mini-MRFs will be transported to five centralized MRFs located in each project zone. Large delivery trucks will be used to transfer the waste materials to their final disposal areas: biodegradable wastes and residual wastes will be transferred to the Integrated Solid Waste Management Facility about 7.5 km away from the site, recyclable materials will be sold or donated to the junk shops and other recycling facilities, while hazardous wastes will be turned over to an accredited TSD (Treatment, Storage, and Disposal) facility.

Hazardous Waste Temporary Storage Facility

Special receptacles will be provided for hazardous wastes. The collected wastes will be transferred to a temporary hazardous materials (HAZMAT) facility. An accredited TSD company will pick up the collected hazardous wastes every month or once the need arises.

Disposal of hazardous wastes, including infectious, pathological wastes, mercury and other heavy metals and radioactive wastes will be through a third party TSD facility accredited by DENR.

Sanitary Landfill

Company-hired trucks collect garbage on a daily basis and dispose to the 20-hectare-wide sanitary landfill inside the Integrated Solid Waste Management (ISWM) Facility about 7.5 km away from the Project site.

1.6.5. Other Pollution Control Measures

Installed in the resort are various pollution control equipment to ensure that all waste materials are treated and disposed of properly. These include the following:

- Sewerage treatment plant
- Drainage facilities
- Oil and grease separator
- Materials Recovery Facility
- Waste segregation bins

1.7. PROCESS/TECHNOLOGY

1.7.1. Construction Methods

Empark Land Development, Inc. will ensure that the design of the proposed buildings and facilities will adhere to the sustainability and environmental programs and policies of the c. Most importantly, the design should be compliant to local government code of standard.

The construction of the roads within the property as well as other infrastructure development shall follow the design and build scheme taking into consideration the safety, security and traffic during period of construction.

Other environmental mitigating measures for the suppression of dust, reduction of noise level and waste generation to be employed during the construction phase of each project shall be discussed in *Chapter 4*: Environmental Management Plan.

1.7.2. Power Source and Requirements

The power source of Masbate is primarily supplied by the Masbate Electric Cooperative (MASELCO). Due to the limited supply, however, the province continuously experiences rotational interruptions.

During the construction phase, diesel generators with a total capacity of 5MW will be used.

The total power demand for the resort at full operations is estimated to be 50 to 75 MWh with possible peaks up to 100 MWh. DMCI Masbate Power Corporation is currently constructing its coal power plant with target completion in 2021. The coal plant should be able to support the short-term operations of the project once it operates.

1.7.3. Water Source and Requirements

The daily water requirement for the resort complex is approximately 75,879 m^3. Four potential surface water sources were identified: Danao Lake, Pinangapungan, Umawas and Palanas River. Danao Lake and Umawas have existing water rights permits granting the extraction of 5,356 cum/d and 7,517 cum/d, respectively.

Given the environmental constraints in the area, desalination, intensive water recycling and rainwater collection are necessary to meet the daily operational needs of the project. Effluent from sewage treatment plants will be reused for lawn and green space irrigation.

The total area of the 54-hole golf course and the embedded villas in the Golf Recreation Area totals to 463.54 hectares or 4,635,400 m^2. From the total land area of the 54-hole golf course and the yearly water consumption of golf courses in the Pacific Region, total annual water use of the golf course is equivalent to 2,688,532 m^3. Total demand per day will be 7,365.84 m^3. Given the daily demand of the whole development at 75,879 m^3, the collection of wastewater and STP effluent should be more than sufficient to address the needs of the golf course.

1.7.4. Fire Protection System

The following equipment will be installed at strategic location within the island resort:

- Fire hydrant
- Fire extinguishers;
- Gas detectors;
- Smoke detectors;
- Fire alarm system; and
- Fire emergency generators.

1.8. PROJECT SIZE

The total project area will be situated in a 1,854-hectare property including areas in Dimasalang, Palanas and Deagan Island.

Table 1.8.1. Summary of Project Components

Component	Area	Total Project Area (ha)
Zone 1	Holiday Paradise	288
Zone 2	Gold Coast	568
Zone 3	Livable Town	455
Zone 4	Golf Recreation	543
	Total	**1,854**

1.9. DESCRIPTION OF PROJECT PHASES

The development of the project involves the horizontal development of 1,854 hectares of land and vertical development of 205.26 hectares of gross floor area. The construction will be done by phase. An initial project timeline is provided as **Figure 1.9.1** and the corresponding map is shown in **Figure 1.9.2**. The phasing strategy will be further refined during the execution of detailed construction plans and project management. The development is conservatively estimated to take between 18 to 26 years.

Phase	Area	GFA (ha)	2018	2019-2028	2029-2031	2032-0241	2042-2044
Pre-Construction							
Construction Phase 1	Northern Gold Coast and Northern Half of Golf Recreation and Development	78.17					
Construction Phase 2	Southern Gold Coast and Southern Half of Golf Recreation and Development	23.92					
Construction Phase 3	Livable Town Development	81.85					
Construction Phase 4	Holiday Paradise	21.32					
	Total	**205.26**					

Figure 1.9.1. Construction schedule of proposed Masbate International Tourism Island Project

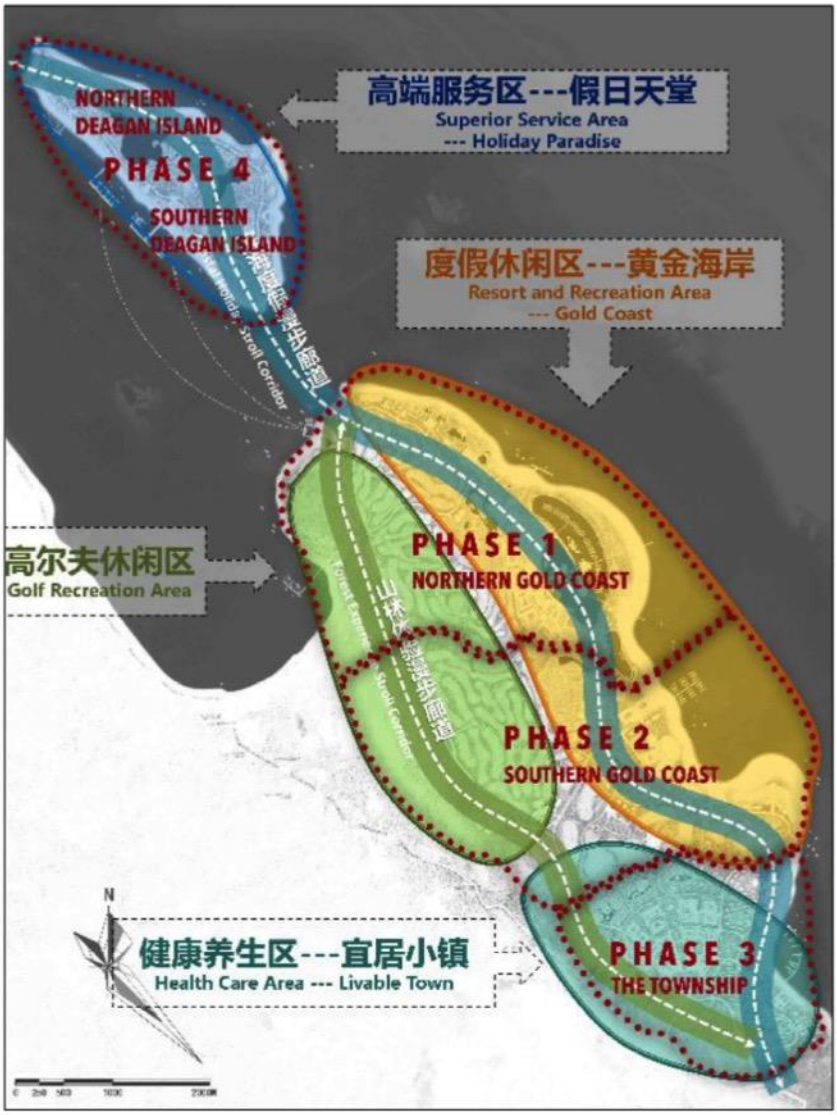

Figure 1.9.2. Development phases of the proposed project

1.9.1. Pre-construction Phase

In the pre-construction phase, significant activities that will be conducted are surveying and site assessment of the project site by the project developer as well as geotechnical soil investigation. There will be minimal site grading and clearing operation needed as the topography of the project site is generally flat. Other activities that will be done during the pre-construction phase are data gathering and documentation geological risk assessment, conversion from agricultural to commercial land use, tree cutting permit application, and Environmental Compliance Certificate (ECC) application. Assessment and documentation includes baseline condition evaluation, impact assessment and recommendation of mitigating measures.

1.9.2. Construction Phase

Generally, the construction phase will involve conventional earthworks including site clearing, installation of temporary facilities, construction of access roads, mobilization of heavy equipment, foundation investigation, etc.

Site Preparation and Excavation

The current land uses of the proposed project site are residential, agricultural, beach area, while some portions are mangrove.

Vegetation cover along the road right of way and construction area will be cut and grasses will be removed while topsoil will be stripped prior to laying-out of road network and building foundations. Site leveling and grading will commence once the site is stripped of vegetation and cleared of debris. The foundation structures will be made of isolated footings thus excavation will be minimal. Shotcretting and soil nailing will be adopted if necessary depending on the outcome of the Engineering Geological Monitoring during the excavation activities.

Earthworks, Road Lay-out and Concreting

Road construction will commence after the site grading and leveling. Road layout will be constructed as based on the site development plan of the proposed project. There will be road grubbing and filling prior to sub-grade and base preparation. Concreting of main pavement and feeder roadways will follow including the construction of concrete curbs, gutter and sidewalks. Curing of concrete will be done to promote optimum hydration after placement that will reduce permeability and ensure the roads durability and strength. Road testing will ascertain the road durability after which pavement markings and backfilling of planting strips will be done.

Utilities Lay-out

Sewer and stormwater drainage construction will be carried out simultaneously with the road construction. To prevent leakage and seepage, pipes that will be utilized will be enclosed by concrete or made of galvanized iron.

Individual tapping point for each residential unit will be provided either by dual or single series connection. Utilities will be evenly distributed to the residential units through individual connection, while a central system for monitoring of individual connections of utilities will be established at the basement level.

Prior to operation, each utility system will be tested to ensure efficiency and guarantee safety of future tenants.

Source, Handling and Transport of Construction Materials

Construction materials that will be utilized during the construction phase will be sourced, as much as possible from local suppliers. Filling materials such as topsoil, sand and gravel; and lumber and wood products will either be sourced locally or from adjoining provinces. Other construction materials may also be imported from other countries if the quality of locally available materials does not meet the expected standard or if any material is not locally available.

Construction materials that will most likely be sourced locally are the following:

- Filling materials (sand, gravel, etc.);
- Ready mix concrete;
- Rebars, purlins, and other steel items;
- Roofing materials;

- Hardware Items;
- Aluminum and glass; and
- Lumber and wood products.

Transport and handling of construction materials to and from the construction site will be carried by trucks while ready mix concrete will be transported by truck mixers. The proponent will ensure that necessary precautions will be properly implemented during the transport and delivery of materials to and from the project site.

Support Facilities

Temporary support facilities such as engineering office, storage facility and subcontractor's bunker, canteen and rebar/fabrication site will be constructed within the proposed project site. The engineering office will serve as temporary working area of the project architect, engineers and staff to ensure construction management efficiency. The storage facility will house the construction materials and small equipment. A separate facility for rebars lay-down, assembly and fabrication of steel reinforcements and other materials that need to be assembled on site will also be constructed. Portable toilets will be provided onsite for workers' use to ensure sanitation within the construction area. A canteen will also be constructed for the use of staff and laborers. Temporary support facilities will be located at strategic location within the development area.

Water and Power Requirements

Water requirement during construction is estimated at meters per day. The water supply will be tapped from the designated water provider in Dimasalang, Palanas and Deagan Island, de. The estimated water requirement will be utilized for construction purposes and laborers' domestic needs.

The project is estimated to have an average power requirement of 1 to 5 MWh based on the expected equipment, machineries and lighting that will be utilized during construction. This power requirement will be supplied by MASELCO with the support of modular generator sets.

Waste Generation and Management

Common construction wastes that will be generated are plastics, iron fillings and scraps, and wood wastes. Domestic wastes from staff and laborers will also be generated but waste segregation will be implemented to guarantee sanitation within the project site. Biodegradable waste will be disposed through a small pit that will be dug where leftover foods, fruit peelings and similar wastes can be disposed and buried to deter flies and eliminate foul odor. Only those non-biodegradable wastes will be collected by a contractor for proper disposal outside the project site, with options for recycling or re-use whenever possible.

Excavation spoils will be temporarily stored in area within the project site but it will later be used for backfilling.

Temporary toilet facilities with septic vaults will be put up onsite to be used by construction workers. Sewage waste disposal will be assigned to a private contractor. One septic vault

will be emptied and cleaned by a private contractor and will be backfilled eventually. Portalets will also be considered for use during construction.

Construction Equipment

Engineering equipment and materials that will be used during the construction phase ranges from tower crane, rammer compactor to cutters. There are several types of engineering equipment that will be used by the proponent for the construction of resort. Among the basic construction equipment that will be used during the construction include backhoe, dumptruck, cargo truck, generator (125 KVa), bar bender, bar cutter, welding machine, skid loader, road roller, pavement cutter, tower crane, service vehicle, concrete vibrator, and rammer compactor.

1.9.3. Operational Phase

Estimated Number of Occupants

The estimated maximum number of occupants once the resort commences its operation is approximately 55,000 to 100,000 persons per day. The estimated number of occupants is based on the number of rooms available and the possible number of occupants per unit type. It is assumed that the average hotel room and residential bedroom has two occupants. Rules of thumb regarding employees per hotel room or per square.

Power Requirements

The maximum estimated power demand load of the Masbate Island Tourism Project during the operation phase is 50-75 MWh with peak at 100 MWh. Note that full operation is targeted at 20 years from start of development, so it is expected that local power utilities and generation will grow to meet the demand of the development. MASELCO, which is the power provider within Dimasalang, Palanas and Deagan Island. In the interim, the developer will use generators to supply the needs during construction. Power supply will be distributed to each facility via individual connection from the facility's electrical distribution system that is directly connected to a pedestal connection from the power provider.

Water Requirements

The estimated maximum demand for water of the Masbate International Tourism Enterprise and Special Economic Zone Project is 75,879 m^3/day.

The water supply will be sourced from various sources such as the desalination plant, water wells, and local water provider and distributed to occupants/visitors through pre-established pipe network. Water supply is distributed using a booster pump from the roof deck of each building. Retention ponds and tanks will be built to store rainwater, and treated effluent for recycling purposes.

The total area of the 54-hole golf course and the embedded villas in the Golf Recreation Area totals to 463.54 hectares or 4,635,400 m^2. From the total land area of the 54-hole golf course and the yearly water consumption of golf courses in the Pacific Region, total annual water use of the golf course is equivalent to 2,688,532 m^3. It is expected that rainwater and treated effluent from the resort, residential and other facilities will be more than sufficient to address the irrigation needs of the golf course.

Waste Generation and Management

During the operation phase, it is estimated that the entire resort will be generating 190,290 kg daily of solid waste.

A waste treatment facility will be constructed in the westernmost portion of the condominium complex and all wastewaters generated from the units will be directed to the facility and will be subjected to treatment prior to disposal in public drain. Regular maintenance and clean-up of the facility will be undertaken by the condominium management to ensure its efficiency.

1.9.4. Abandonment Phase

Abandonment is not anticipated as the project site and most of the adjoining areas are already prime residential areas. Considering the prime location of the project and the steady increase in population, the demand for resort is foreseen.

In the event that the project will be stopped for an unexpected reason and abandonment is the only option, the proponent and the developer will see to it that it will be abandoned with considerations on possible impacts on the environmental and that appropriate mitigating measures will be implemented. Although there are no hazardous materials or structures in the project, mitigation measures will be properly implemented to ensure the safety of adjoining areas.

1.10. MANPOWER REQUIREMENT

The estimated maximum manpower requirement for the proposed project during the construction phase is 20,000 to 25,000. Manpower requirement ranges from project manager, foreman, engineer, heavy equipment operators, carpenters, masons, laborers and security guard.

During the operation phase, the estimated personnel and staff that will be hired for the entire development will range between 23,500 and 46,000**.** The staff will be employed for the different facilities in the zone, ranging from hotels, residential apartments and condominiums, restaurants, conventions facilities, offices, stores, and various commercial and other facilities. They will be working in administrative, operations, professional, technical and other staff and management positions in the different facilities.

1.11. PROJECT INVESTMENT COST

The proposed Masbate International Tourism Enterprise and Special Economic Zone Project has an estimated construction and development budget amounting to **One Hundred Ninety Billion (PhP 190.19 B)**.