SAMAL ISLAND MARICULTURE PARK



Environmental Impact Assessment Documents

A. Initial perception survey results at the minimum indicating the baseline knowledge about the project, concerns/questions about the description of the project alternatives and concerns about the environmental impacts of the project using accepted methodology.

The survey was conducted in the four Barangays purposely chosen since they are directly within the perimeter of the Samal City Mariculture Park Project. These barangays are Cawag, Brgy. Peñaplata, Brgy. San Miguel and Brgy. Catagman. This is to determine the initial perception of the community, their concern and question about the description of the project.

A total of 177 individuals fisherfolks were randomly interviewed with the help of assign enumerators. This survey revealed that 59% of the sample size has no knowledge about the project, while 18% is with little knowledge, 22% have fair knowledge and only 1% knowledgeable about the project operation.

Data revealed that Barangay Peñaplata and Barangay San Miguel are more knowledgeable of the existence to the project when compared to Barangay Cawag and Barangay Catagman. These two Barangays is a former recipients of fish cage and seaweeds project of LGU-Samal City, BFAR thru its Provincial Fishery Office and Provincial Government of Davao del Norte. Additionally, trainings and seminars related to fish cage operation and seaweeds farming were also conducted in Barangay Catagman.

Meanwhile, question on the benefits of the project showed that the majority of the respondents who have knowledge about the project expresses their positive perceptions. They believe that Samal Island Mariculture Park Project will create addition job opportunities especially to fisherfolks and local residents who has knowledge on the operation of the fish cage and seaweeds farming, thus boosting fisherfolks income and productivity. There are also respondents who perceived the project shall have positive impact to marine environment especially to coral reef and a number also perceived the mariculture park will increase fish stocks in the area.

Survey also shows that few respondents perceived negatively about the project because of the financial aspect in fish cages operation. Based on their observation and experience fish cages operation needs huge amount of money, and therefore marginal fisherfolks definitely cannot afford to invest.

Location of the Mariculture park project worries other respondents especially resident of Barangay Cawag for they expect the presence of fish cages and seaweeds farm in the area may reduce their fishing ground thus affecting their daily income from fishing.

There are also respondents who expressed that the project has no impact (either positive or negative) to their lives and to the environment, some were not in favour especially those who fish in the area.

The survey was also able to thresh out and document other concern from the community especially from the stakeholders fisherfolks. Among the issues are

- (a) when the project started?
- (b) Is their available job for them to get employed? And
- (c) If the project start operation, is fishing still allowed in the area?

Initial perception was also cull out from the minutes of the public hearing conducted by the Sangguniang Panglungsod, wherein some Barangay Officials asked tips on how to avoid or mitigate the impact of southeast monsoon (habagat) to fish cage and seaweeds farm since the site is prone and expose to habagat from June to October each year.

Some of the attendees concern is more on the technical aspect of the project operation *(e.i where to buy fingerlings of groupers and how much is the cost of investing one (1) unit fish cages)*. Some suggested to enact an ordinance that will regulate or ban the fishing / catching of juvenile Danggit and grouper for food to ensure availability of fingerlings whole year round. There are also barangay Official in attendance during the public hearing and they requested for seminars or trainings to enhance their capabilities on fish cage and seaweeds operations.

B. Project Description for Scoping (PDS) containing at the minimum, the following information

B1). Needs for the project:

The management of the fisheries and aquatic resources needs to be in a manner consistent with integrated coastal management concept.

Increasing population creates a domino effect- increasing demand of fish and other fishery product, agriculture produce, water and other social services like health, education among others. For the past 2 decades, the fishing pressure in the City has doubled, thus, fishers tends to improvised fishing gears and methodology (from single net to triple net) just to catch the remaining fish in the water.

The encroachment of commercial fishing inside the City's municipal waters, destructive fishing, unregulated fishing activities, agriculture chemical run off are only few contributory factors that destroy the natural life cycle of fish and other marine organism. The continuous improvement / development in the coastal areas to pave the way for eco-tourism industry also causes damage to our coastal habitat.

Thus, the promotion of fish culture thru mariculture farming is one way to increase the production of fish to cope up with the present demands and somehow helped alleviate the present status of some fisherfolks of the City, consequently safeguarding socio-economic stability of the fisherfolk communities.

Its goal:

The Samal City Mariculture Park Project main goals are to provide available and affordable food for Samaleños and neighboring municipalities and cities, provide job for local residence of the City. It also aims to shift the mode of living of our fisherfolks from fishing (capture) to culture to reduce the fishing pressure of our coastal resources.

Objectives:

- Promotion of viable livelihood project of fisherfolks (e.g marine fish cage), create job/ employment opportunities (fish cage caretaker, cage fabricator and many other).
- Partner with private sector in the sustainable utilization of the fishery resources under the basic concept that the grantee, license or permittee thereof shall not only be a privileged beneficiary of the City, but also an active participants and partners of the City Government in the management, development, conservation and protection of the fisheries and coastal resources

- Provide full support for the sustainable fisheries in the municipal water of the City through appropriate technology and research, adequate financial, production and marketing assistance and other services to the fishery sector primarily the small and marginal fisherfolk who rely on fisheries and aquatic resources for their livelihood.
- Limit and control access to the fisheries and aquatic resources of the City, in order to maintain the ecological balance and enhance the quality of the coastal environment.
- Manage the fisheries and aquatic resources in a manner consistent with integrated coastal management concept.

B2. Alternatives being considered

Among the alternatives being considered to increase/enhance productivity of our coastal and marine resources, the following were given utmost priority

- The continuous management of the coastal habitat (seagrasses, coral reef, tidal flats and other marine habitat) such as the declaration and management of Marine Protected Area (MPA).
- At present, the Local Government Unit of Island Garden City of Samal has declared a total of twenty three (23) Marine Protected Areas Islandwide. Also Mangrove planting and growing is also one of the on-going environmental strategies for this purpose.
- Development of potential in-land bodies of water e.g lakes, water impoundments and rivers for aqua-culture,
- Promotion of latest/advance technology on fish culture,
- Declaration of closed season for selected species of fish and other marine organism e.g siganids,
- Continues promotion of seaweeds culture,
- The continues monitoring, control and surveillance of our vast marine resources from illegal and other destructive fishing activities; and
- Promotion of organic farming in aqua-culture

b.3) Proposed location of project facilities/components and alternatives Peñaplata cove covering four barangay namely Barangay Catagman; Barangay San Miguel; Barangay Peñaplata; and Barangay Cawag.

b.4) A Map showing the project site and the proposed EIA study area:



b.5) Aerial photos of the project site and the proposed EIA study area







b.6) Project proponent:



HON. AL DAVID T. UY City Mayor

City Hall Compound, Maniog Street Barangay Penaplata, Samal District en andre state

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b. 7) The projected timeframe of the project phases:

PROJECT PHASES	PROJECTED TIME FRAME
PRE-INSTALLATION PHASE CAGE CONSTRUCTION /FABRICATION MOORING BLOCK CONSTRUCTION	September 2020
INSTALLATION PHASE MOORING & FISH CAGE INSTALLATION	October 2020
FISH CAGE OPERATION PHASE STOCKING FEEDING HARVESTING	December 2020
MAINTENANCE PHASE CAGE REPLACEMENT	Once per cropping period

b.8) Preliminary identified environmental aspects for such alternatives

- The possible introduction of diseases carried by fingerlings from unknown sources into marine environment, introduction of solid and liquid waste in the marine environment, habitat destruction and the possible impede current movements are the preliminary identified environmental aspects for such alternatives.
- The bad aquaculture practices in feeding will cause accumulation of feeds may contaminate the water and further change the acidity.
- Potential accidents and damages to marine ecosystems during transport and the installation of anchoring blocks for cages
- Threat to loss of important local species and habitat i.e seagrass, coral reef and mangrove trees

Public Scooping Documents

1. Proof of IEC

Series of information dissemination campaign, was done with the presence of different sector representative from the barangays (Brgy. Cawag, Brgy. Penaplata, Brgy. San Miguel, Brgy. Catagman) CFARMC Chairperson, City councilor and some department heads of the City Government of Samal. It was presented by the Former Director of the BFAR-National Mariculture Center, the late Andrew Ventura and Mr. Amado C. Asoy- the Division Head of the Fisheries Division.







Public Scooping Documents

2. Initial Perception survey result

To determine the initial perception of the community and the stakeholders, their concern and and question about the description of the project thus the initial perception survey was conducted last July to August 2020.

The survey was conducted in the four Barangays purposely chosen since they are directly within the perimeter of the Samal City Mariculture Park Project. These barangays are Cawag, Brgy. Peñaplata, Brgy. San Miguel and Brgy. Catagman.

A total of 177 individuals fisherfolks were randomly interviewed with the help of assign enumerators. This survey revealed that 59% of the sample size has no knowledge about the project, while 18% is with little knowledge, 22% have fair knowledge and only 1% knowledgeable about the project operation.

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3. Project Description

A. Basic information about the project location, size and component

Project Location

Samal Island Mariculture Park located in the cove of Barangay Penaplata which belong to three other Barangays namely Barangay Cawag, Barangay San Miguel, Barangay Catagman.

Project size

The total area declared as Mariculture Park (MP) covers a total of 701 hectares more or less within the municipal waters of the Island Garden City of Samal particularly in the coastal areas of Barangay Catagman, San Miguel, Peñaplata and Cawag.

Project component

Site development (Horizontal)

Involves the installation of mooring blocks for the marker bouy and for the establishment of cages. Design and construction of marine fish cage using HDPE frame, bamboo or anahaw frame (10mx10m), and net cage (10mx10mx4m) – Square Circular HDPE or Norweigian type cage (20.0 m diameter) should be located in deeper areas (> 20 mts) square Type;

Independent mooring system per investor (not gird type mooring connection) with adequate number of mooring blocks and reasonable size (e.g. 2-4 pieces concrete plastic drum size per corner or a total of 8-16 pieces depending on the water depth) to ensure greater stability and protection of marine fish cage against strong underwater current and big waves; Proper spacing and distance of marine fish cage to enhance good water circulation and dissolved oxygen (e.g. Per cage – 5 meters; Per cluster - 10-20 meters);

Production

Observe strictly the Good Aquaculture Practices in moderate stocking of fingerling (e.g. 10,000 – 15,000 pieces bangus garungan per cage for 10mx10mx4m, and 2,000 pieces danggit under polyculture method; and cost efficient feeding management (600 bags per 15,000 pieces bangus garungan/cage for 120 DOC); Regular fish sampling and monitoring of stocks to determine growth performance, health condition of stocks, and feed consumed or feed conversion ratio (FCR) at lowest level; Proper harvesting and handling techniques in cage using service boat or floating raft with chilling tanks, and adequate ice, and sorting stainless table at

Public scooping

the bagsakan center involving trained/skilled harvesters, sorters, and fish handlers; Practice proper hygiene and sanitation, and avoid smoking during fish handling operation in cage and at the bagsakan center in compliance to food safety standard;

Site conservation, protection and rehabilitation

To maintain the good condition of the habitat with in the declared Mariculture park and to ensure its productivity. A fish sanctuary was set to pave the way of its

Project Proponent

HON. AL DAVID T. UY City Mayor City Hall Compound, Maniog Street Barangay Penaplata, Samal District, Samal City

Project Preparer

ENGR. ANA LEA A. ZAPANTA, MPA City Agriculturist City Agriculture Office, Sitio Maag Barangay Penaplata, Samal District, Samal City

b. Project Type, Component, size, Technology and Resources utilization

Project type

A marine park declared thru ordinance intended for the culture of commercially important fin fishes favorable to the Philippine waters such as but not limited to Bangus, Pampano, Siganid, Tilapia, Grouper, lobster, oyster, seaweeds using floating cages established stationary in the marine waters located in the cove of Barangay Penaplata, Cawag, Catagman, and San Miguel for a period of not less than three (3) months.

The rationale behind the conceptualization of the project addresses the pressing issues of declining productivity and resource depletion from capture fisheries leading to displacement of fisherfolk and persistent poverty among coastal communities. The promotion of fish cage farming, sea ranching and other sustainable aquaculture technologies in the mariculture zone provide great option and opportunities as an alternative source of income for marginalized fishing communities and for different stakeholders engaged in fishing industry. This project envisions the social and economic transformation of marginal fisherfolk/ fishing communities into empowered and productive organizations. It is intended to promote local economic development through a thriving mariculture industry and the ancillary industries that accompany it ble aquaculture technologies in the mariculture zone provide great option and opportunities as an alternative source of income for marginalized fishing communities and for different stakeholders engaged in fishing industry.

Project size

The total area declared as mariculture park (MP) covers a total of 701 hectares more or less within the municipal waters of the Island Garden City of Samal particularly in the coastal areas of Barangay Catagman, San Miguel, Peñaplata and Cawag.

Processes and Technology

The use of any Chemicals is strictly prohibited within the Mariculture park to avoid any water contamination that may result to tremendous damage to the fish being cultured.

The following practices shall be complied with to provide effective management of water quality to ensure fish health. Focusing on disease prevention rather than treatment, eventually reducing the incidence of diseases and protecting the natural fisheries.

Sustainable farming practices shall be promoted through;

- a. Appropriate quarantine procedures, handling, transport and proper acclimatization of healthy fry and fingerlings prior to stocking shall be strictly observed;
- b. Good water quality shall be maintained by using appropriate stocking and feeding practices;
- c. For non-infectious diseases related pond condition, specific corrective management measures shall be carried out;
- d. For mild infectious diseases with potential to spread within the farm, the cage shall be quarantined and remedial measures shall be applied;
- e. For serious infectious diseases that may spread widely, the pond shall be isolated and the remaining fish shall be harvested by net and the pond shall be disinfected without discharging the water;
- f. Treatment shall be done only when necessary;
- g. Dead fish shall be properly disposed of to prevent the spread of disease;
- h.When disease occurs, transfer of fish, equipment and pond water shall be averted to

Map of the project location



prevent cross contamination;

- i. Fish farmers shall pro-actively participate in all BFAR's national programs on disease information, surveillance and reporting system; and
- j. Onsite disease monitoring shall be conducted in coordination with BFAR representative.

Resource utilization

The following practices shall be complied with to maintain good water quality exchange through moderate stocking densities and feeding rates using high quality feed and feeding.

The following practices and prohibitions shall be followed inside the Mariculture Park;

a) No person or entity shall bring or care of pets and animals within the Mariculture Park.

b) No person or entity shall establish, construct or use comfort rooms within the Mariculture Park, except in duly designated areas.

c) No person shall dispose or abandon used fishnets, nylons, twines, and other construction material into marine water

d) No person shall clean fishnets within marine waters.

Vision of President Rodrigo R. Duterte under Agriculture and Fisheries



"It is my moral obligation to provide available and affordable food for my people."

- PRES. RODRIGO DUTERTE

The need for Mariculture Parks



CONTRIBUTION OF MARICULTURE PARKS TO FOOD SECURITY PROGRAM OF PRESIDENT RODRIGO R. DUTERTE, AND IMPROVE THE LIVES OF POOR FISHERFOLK

Promotion of viable Livelihood Project of Fisherfolk (e.g. Marine Fish Cage)

SUSTAINABLE FISHERIES FOOD PRODUCTION

AVAILABLE AND AFFORDABLE FOOD FOR ALL FILIPINOS









Increase income of Fisherfolk

Mariculture Park Development

- Mariculture Park:
 - suitable area within municipal waters designated for mariculture development (production of marine species for food production) based on carrying capacity;
 - approved ordinance, policies, rules and regulations, and management plan;
 - provided with the appropriate infrastructure support facilities to ensure efficient, effective and sustainable development;







Objectives of Mariculture Park

- To promote mariculture as a major
 livelihood of fisherfolk in order to improve
 their socio-economic living condition;
- 2. To ensure available and affordable food for the Filipinos;
- 3. To provide appropriate **technical**, **financial**, **and management support services** to ensure greater efficiency, productivity, profitability, and sustainable mariculture development in the country;
- To develop skilled and technically-capable BFAR and LGU Technicians and other stakeholders to support the mariculture industry.;





























Why Invest in Mariculture Park?

- Minimal rental of the area;
- Protection and security provided by LGU, BFAR and military assistance from PNP/AFP;
- Technical assistance from BFAR, NGO and LGU;
- Financial assistance from private and government lending institutions, rural and commercial banks;
- Marketing assistance from BFAR, LGU and private marketing experts;
- Availability of feeds, fingerlings, fish cages, manpower pool and other ancillary services;
- Capital investment secured;

Who Can Invest?

- Investors, corporations, cooperatives and individuals;
- Locators are classified into:
 - > marginalized group/fisherfolk,
 - > small/medium investor, and
 - big player;

PROMOTION OF INVESTMENT, BUSINESS, TECHNOLOGY, LIVELIHOOD, AND JOB EMPLOYMENT OPPORTUNITIES IN MARICULTURE PARKS (PANABO CITY MARICULTURE PARK EXPERIENCED)



Government Support: financing, infrastructure (mooring system, service boats, floating station, harvesting facilities), security, training and technical, and marketing, etc.:

Delineation of Proposed Samal City Mariculture Parks

PROPOSED SAMAL CITY MARICULTURE PARK

Vision: "Promote an Integrated and sustainable Mariculture Park to ensure available and affordable Food for everyone, and improve the lives of Fisherfolk under President Rodrigo Roa Duterte "



Delineation of Proposed Samal City Mariculture Park

- Total Mariculture Park Area: 701 has (66% of Peñaplata cove)
- Location: 4 coastal Barangays of Catagman, San Miguel, Peñaplata, and Cawag
 - Marine Fish Cage Zone: 338 has (500 meters from shoreline)
 - Carrying Capacity (by category, 4 cage per ha): 338 has.; 1,352 units
 Big player (2 units/ha circular cage) 230 has.; 920 units
 Small & Medium Investor (4 units/ha) 73 has.; 292 units
 Marginalized Group/FF (4 units/ha) 35 has.; 140 units
 Research and Development and Conditioning Area (17.5 has.)
 - Seaweed Production Area: 87.5 has (300 meters from shoreline)
 - Navigational Lane (Vessels route from Pier to Davao City and Kaputian, and service boats within the mariculture park)
 - Proposed Fish Sanctuary- 3 coastal Barangays Catagman, San Miguel, Peñaplata (core Zone with existing coral reefs) and multi-use zone (deep area and no/less coral reefs)

Establishment of Mariculture Parks (FOO 74)

Criteria for selection of mariculture sites:	Suitability of the Area	
	Yes	No
Accessibility	√.	
Peace and Order	√.	
Availability of Inputs: Bangus fingerlings (garungan Babak, and neighboring towns in Panabo and Tagum), feeds supply (private)	√.	
Availability of Technical Guidance and Assistance (BFAR and LGU)	√.	
Availability of Fish Landing and other ancillary services (port/pier and proposed CFLC)	√.	
Availability of Transport	√.	
Availability of Ice Plant and Cold Storage (source Davao City)		Х
Proximity to Markets (must have high demand of culture species)	✓.	
Availability of Farm to Market Road (good road network, poblacion)	✓.	
Typhoon Free (cove), weather condition (Amihan and habagat-safe)	√.	

Establishment of Mariculture Parks (FOO 74)

Criteria for selection of mariculture sites	Suitability of the Area	
	Yes	No
Area is not directly affected by water pollutants from industrial, agricultural and domestic sources	✓.	
Good Water Quality Parameters (DO, Temp, Salinity)	✓.	
Bottom Topography (regular, irregular, plain/flat/sloping, flushing out, not basin type)	✓.	
Sandy/Muddy Bottom (not in coral reef area)	✓.	
Availability of Manpower Pool (Local Residents & fisherfolk)	✓.	
Availability of Electricity	✓.	
Area is not covered by MPA, Fish Sanctuary or seascape by the LGU, BFAR and DENR- PMB	✓.	
Area must not obstruct the navigational lanes of fishing boat, fishing vessel or commercial shipping	✓.	
Area is not part of the declared fish sanctuary or marine protected area (LGU -Proposed Fish Sanctuary)	✓.	
Fishing activities in the area will be not directly affected (less fisherolk fishing due to depleted fishery resources), designate fishing stations at least 30 meters outside the marine fish cage zone	✓.	

Establishment of Mariculture Parks (FOO 74)

Criteria for selection of mariculture sites	Suitability of the Area	
	Yes	No
Political Support from the LGU	✓.	
Support from Private Sector	✓.	
Support from community (fisherfolk)	✓.	
Other coastal development (beach resorts along shorelines which are exposed during low tide) will not be directly affected, could possible complement through mariculture tourism	√.	

Samal City is suitable for mariculture park operation based on the above-mentioned results of the technical and environmental survey;

Results of Bathymetric Survey



Water Quality Paramenters Sampling Stations



Conservation and Protection of Existing Critical Habitats

- Preparation of conservation and protection management plan including rehabilitation of damaged coral reefs using Artificial Reef module (concrete);
- Establish monitoring station for the protection of the area against illegal fishing (24/7);

Conservation and Protection of Existing Critical Habitats

- Prevention of damage on existing coral reefs by mariculture operation such as installation of mooring system, marine fish cage, service boats and other activities;
- Conduct IEC to enhance public awareness on the importance of critical habitats such as coral reefs, seagrass and mangroves protection;

Proposed Fish Sanctuary and Management Plan for the effective conservation and protection

- Installation of Physical boundary Marker Buoys to determine its location;
- Prepare and implment a Management Plan for effective and efficient conservation and protection of existing coral reefs in Fish Sanctuary (core zone with existing coral reefs, and a multiple-use zone);
- Organize the Fish Sanctuary Fishery Law Enforcement Team composed of FARMC, Fisherfolk, Barangay Officials, and other concerned agencies;
- Conduct regular monitoring, surveillance, control, and seaborne patrol against illegal fishing within the Fish Sanctuary;
- Conduct training of MCS-Fish Sanctuary Law Enforcement Group, and IEC on Fish Sanctuary management program;
- Establish a Watch Tower at the Fish Sanctuary Area with full-time personnel (24/7) and patrol boat;

- Design and construction of marine fish cage using HDPE frame, bamboo or anahaw frame (10mx10m), and net cage (10mx10mx4m) – Square Type;
- Circular HDPE or Norweigian type cage (20.0 m diameter) should be located in deeper areas (> 20 mts)
- Clustering of cage per investor (2 4 cage per cluster) to ensure good water quality such as Dissolved Oxygen (DO), Salinity, and Temperature; and provision of navigational lane;
- Proper distance and spacing of marine fish cage (e.g. 2-4 meters distance between cage cluster, and 20 meters distance between investors (avoid overcrowding of cage per cluster);

- Observe strictly the Good Aquaculture Practices in moderate stocking of fingerling (e.g. 10,000 – 15,000 pieces bangus garungan per cage for 10mx10mx4m, and 2,000 pieces danggit under polyculture method; and cost efficient feeding management (600 bags per 15,000 pieces bangus garungan/cage for 120 DOC);
- Regular fish sampling and monitoring of stocks to determine growth performance, health condition of stocks, and feed consumed or feed conversion ratio (FCR) at lowest level;

- Independent mooring system per investor (not gird type mooring connection) with adequate number of mooring blocks and reasonable size (e.g. 2-4 pieces concrete plastic drum size per corner or a total of 8-16 pieces depending on the water depth) to ensure greater stability and protection of marine fish cage against strong underwater current and big waves;
- Proper harvesting and handling techniques in cage using service boat or floating raft with chilling tanks, and adequate ice, and sorting stainless table at the bagsakan center involving trained/skilled harvesters, sorters, and fish handlers;
- **Practice proper hygiene and sanitation**, and avovid smoking during fish handling operation in cage and at the bagsakan center in compliance to food safety standard;

BFAR and LGU Technicians must conduct regular orientation and training of workers on good aquaculture practices, cost-efficient feeding management, conduct environmental monitoring of water quality parameters, underwater assessment or existing cage, feed wastage, and biodiversity, fish sampling, harvest, handling and marketing to ensure more efficient, effective, productive, profitable, and sustainable development;

- Mooring System:
 - Pre-installed mooring system for Marginalized Group/Fisherfolk (government support);
 - Private Investors mooring system
 - Independent and strong mooring system for fisherfolk and investors for greater stability and avoid movement of cages due to strong underwater current, big waves, and typhoons;

No damaged to critical habitats such as coral reefs and seagrass

Recommendation on Marine Fish Cage and Mooring System

- Installation of permanent perimeter /marker buoy for the proposed Mariculture Park (701 has.); Marine Fish Cage Zone (338 has. - Big players, Small & Medium Investors and Marginalized Fisherfolk); and Seaweed Production area,
- 4. Proper spacing and distance of marine fish cage to enhance good water circulation and dissolved oxygen (e.g. Per cage 5 meters; Per cluster 10-20 meters);

Policy, Plans and Program Recommendations for Sustainable Development of SAMAL CITY MARICULTURE PARK

Proposed Samal City Mariculture Park Development Plan

- Enactment of Ordinance for the establishment of Samal City Mariculture Park based on actual technical and environmental survey;
- Proper delineation of mariculture park based on carrying capacity and actual technical and environmental survey (social, economic, ecological and environmental consideration), and establishment of a Marine Fish Cage Zone by category to avoid conflict among fisherfolk and investors, and to ensure sustainable development :
 - Marginalized Group/Fisherfolk near shoreline areas;
 - Small/medium Investors;
 - Big Players;

Policy, Plans and Program Recommendations

- Formulation of effective and efficient policies, ordinance, rules, regulations and guidelines on the establishment and management of the new Mariculture Park;
- Delineation of mariculture park composed of marine fish cage zone based on carrying capacity (according to category marginal groups, small & medium & big players); seaweed production area; navigational lane; land-based infrastructure support facilties; and protection of existing critical fish habitats;

Policy, Plans and Program Recommendations

- Formulation of an Integrated Mariculture Park Development Plan and Value Chain;
- Establish infrastructure support facilities in the area:
 - Common bagsakan Center / Community Fish Landing Center (wholesale and retail);
 - Pasalubong-Direct Marketing Center;
 - Feed storage
 - Harvesting facilities (floating raft, chilling tank)
 - Service boats for transportation and delivery of fingerlings;
 - Fish processing plant;
 - One-stop-shop office or operation center (LGU, BFAR, Investor, Fisherfolk)

Thank You!