

**Island Garden City of
Samal (IGACOS),
Davao del Norte**



**The IGACOS Mariculture Park:
A Living Showcase in
Fisherfolk Alternative
Livelihood**

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Documentation of LGU Exemplary Practices**

Replicable Practice

**THE IGACOS MARICULTURE PARK: A LIVING SHOWCASE IN
FISHERFOLK ALTERNATIVE LIVELIHOOD IN IGACOS*, DAVAO DEL
NORTE**

(5th Class City)

CONTENTS

Summary	2
Project Description: From sea hunting to fish farming	2
History: Investing in a bountiful future	4
Results: Gaining wealth from water and land	5
Key Implementation Steps	7
Analysis and Lessons Learned: Harnessing LGU innovations in marine/coastal resource management and poverty alleviation	12
Annexes: Annex A - Contact Information of Relevant Institutions Annex B - Training Modules on Bangus Mariculture Annex C - Sample Monitoring Forms	

* Island Garden City of Samal

SUMMARY

The Mariculture Park of the Island Garden City of Samal (IGaCOS) in Davao del Norte is a viable showcase of a joint local and national government initiative on managing coastal resources while providing alternative livelihood to coastal communities.

Launched in 2001 by the local government of IGaCOS and the Bureau of Fisheries and Aquatic Resources of the Department of Agriculture (BFAR-DA), the Mariculture Park is the first of its kind in Asia and is an innovative component of the larger Coastal Resource Management and Zoning Plan of IGaCOS. Besides declaring protected zones where fishing is either prohibited or regulated, the Plan includes a Mariculture Park



where fisherfolk and local investors can pursue mariculture livelihoods. Similar to the delineation of an industrial estate in land areas, the Mariculture Park project features a) infrastructure for fish cage culture for lease to investors and fisherfolk groups, as well as b) technology transfer and organizing of fisherfolk on fish farming within and outside the park.

After more than a year, IGaCOS' Mariculture Park stands out as a potentially effective solution to poverty and marine degradation in coastal areas. Twenty-four fisher groups have been organized and trained in mariculture livelihoods and are now earning income from the project. Since its inception in mid-2001, some 2000 workers have been employed in the park's construction and operations and some Php 70 million in investments have already been generated by direct fish cage operations alone. More fishers have shifted from hazardous fishing methods to fish farming and marine species are once again thriving. As a result, the project won first place in the 1st National Search for Best Practices on Good Governance and Poverty Alleviation of the League of Cities of the Philippines in 2002.

Project Description: From sea hunting to fish farming

IGaCOS' marine ecosystems are some of the most diverse and abundant in the Philippines. Extensive coral reefs with at least 53 of 73 known genera of corals in the country provide a habitat to more than 250 fish species.

In addition, 9 of 13 species of sea grasses in the Philippines are found in IGaCOS' municipal waters, which comprise about 70% of the entire Davao Gulf.

Despite their abundance and strategic place in the Davao Gulf ecosystem, Samal's marine resources faced a bleak future before the project was implemented. Overfishing, marine pollution and the loss of marine habitats through erosion and destructive fishing methods were resulting in declining fish catch, and the growing poverty and marginalization of fishing communities.

Multiple uses of coastal zones and the influx of non-fishing settlers in former fishing villages were also displacing fishing communities. Finally, the full implementation of the newly-enacted national fisheries code posed a threat of further displacement and poverty in the absence of sustainable livelihood options.

This was the situation which prompted the local government of IGaCOS to embark on a comprehensive coastal resource development program, with the Mariculture Park as a major feature.

The Samal Island Mariculture Park is one of the special zones identified in the city's Coastal and Marine Water Zone Plan (CRZMP). The Park is similar to the concept of establishing an industrial estate on land. In an industrial estate, undeveloped lands are acquired and declared as an industrial zone, and made accessible to investors by a developer by putting up basic infrastructure like roads, electricity, water supply, and communication facilities, to attract investors and business locators. An investor in an industrial estate would then only have to pay an annual lease in exchange for enjoying a ready-made site for business for minimal capital investment.

Basic Profile: IGaCoS, Davao del Norte

Location: Davao del Norte province
Land Area: 30,130 hectares
Population: 82609 (NSO, 2000)
Population growth: 1.53 percent annually
Ave. HH size: 4.75 (NSO, 2000)
Income class: 5th Class City
IRA: Php 195.18 Million
Local Revenues: Php 17.34 Million
No. of barangays: 46
Land use/Terrain: group of islands, generally hilly to mountainous with some plains on the northwestern part of the mainland Samal; 90% devoted to agriculture, 7 % forest lands, and the rest built up, open spaces, marshes and mangrove areas
Major industries/economic activities: agriculture, with coconut, mango, citrus and banana as major crops; fishery; tourism

Similarly, the Mariculture Park is a specially-delineated development zone for mariculture undertakings. The developer, in this case the LGU, takes care of the documentary and other regulatory requirements, road access, and power connectivity, and with BFAR-FRMP funds installs the basic infrastructure such as a mooring system where fish cages or fish farms can be anchored, a pier, and cold storage facilities. The entire park is then divided into zones and lots for leasing to fish cage operators.

Project Objectives

The project's objectives are in line with the national government's thrust on poverty alleviation through increasing productivity, creation of jobs and livelihood opportunities, and promotion of environmental/natural resource management and sustainability.

Specifically, the project aims to:

1. Create jobs and alternative livelihoods among fisherfolk communities
2. Increase fish production through floating fish cage mariculture
3. Generate additional LGU revenue through encouraging more local investors/locators
4. Revitalize IGaCOS' municipal waters in the Davao Gulf

History: Investing in a bountiful future

After acquiring city status in 1998, IGaCOS began a comprehensive planning and development process. Along with a Comprehensive Development Plan (CDP), IGaCOS also developed a Coastal Resource and Marine Zoning Plan (CRMZP) to complement the land use zoning embodied in the CDP and in recognition of the importance of its marine resources (IGaCOS' sea area is five times as large as its land area).

To develop the CRMZP, IGaCOS conducted a rapid coastal and marine resources appraisal with the help of the Philippine Business for Social Progress and 5 marine biologists from the Hayuman Foundation. The findings were then presented and validated with coastal communities through barangay consultations. Community concerns and issues were likewise surfaced and included in the final report.

Planning workshops were then conducted, resulting in the formulation of the CRMZP which identified 15 'protected' zones where fishing would be either totally banned or regulated to allow marine ecosystems to recover.

At the same time, the LGU recognized that declaring these protected zones would deprive fisherfolk of their fishing areas; a livelihood alternative therefore had to be put in place. After linking up with the Bureau of Fisheries and Aquatic Resources of the Department of Agriculture (BFAR-DA), IGaCOS issued Ordinance No. 2001-30 declaring 224 hectares of municipal waters as the Mariculture Park, which would serve as alternative livelihood source for fishing communities.

Thus, the final CRMZP plan of IGaCOS features the designation of protected areas to rehabilitate and sustain marine resources, as well as an alternative livelihood component - the Mariculture Park.

After the plan was presented to and adopted by fishing communities and the city government, Mayor Rogelio Antalan created a multisectoral Executive Committee, chaired by the city administrator, to oversee the implementation of the CRMZP. An Executive Management Committee (EMC) co-chaired by the City Mayor and the BFAR Director was also created to serve as policy-determining body for the operations of the Mariculture Park. Representatives from the fisherfolks, the investors, and the technical experts also sit in the EMC to ensure that varied concerns of all stakeholders are surfaced and addressed.

IGaCOS' LGU then tapped various institutions for resources to implement the plan, including the Mariculture Park. As a result of these efforts, BFAR-DA funded the project under the Fisheries Resources Management Program (FRMP) financed by the Asian Development Bank (ADB). BFAR-DA and the LGU then tapped the Southeast Asian Fisheries Development Center (SEAFDEC) to lend its expertise in implementing the project. The Institute for Small Fish Industries (ISFI) of the Ateneo de Davao University and the Orient Integrated Development Consultants, Inc. (OIDCI) led in organizing marginal fisherfolk into cooperatives, in partnership with the Cooperatives Section of the City Agriculture Office (CAGRO).

Results: Gaining wealth on water and on land

A year after the Mariculture Park was established, the following gains were achieved:

- *Enhanced technical capacities in sea cage farming among fisherfolk.* From an initial target of 6, some 24 fisherfolk communities have been organized with a total membership of 1197 fisherfolk, all of whom have been trained in bangus fish cage farming. LGU personnel have also acquired skills in managing a mariculture park.
- *More livelihood opportunities.* Some 2000 jobs have been created as a result of the project. Trained fisherfolk have shifted from fish hunting to fish farming, either as hired technicians of private operators in the Mariculture Park, or as independent fish cage operators in nearby areas. Six fisherfolk organizations in 5 barangays have started their own fish cage culture operations and cooperative stores.



- Others have been hired as workers in the construction of the park or have gone into production of necessary equipment such as cages, fishnets, or became suppliers of fingerlings. Still others have been hired to provide caretaker or maintenance services. Park locators are also mandated to hire local workers in their operations, as another means of generating local employment. Fishers who have ventured into fish farming also have more time for other income-generating activities; some have started seaweed farming and the growing/gathering of fish fingerlings.
- While men focused on bangus mariculture as livelihood, women participated in fishnet production and fish processing activities like bangus deboning, fish smoking, marination and drying of seaweeds. Such skills in value-added products have opened additional livelihood and job opportunities in fish processing plants within and outside the Park.
- *Fully functioning mariculture park.* Inside the park itself, 20 fish cage operators have leased areas; more than 30 lease applications are also being processed. BFAR estimates that at full capacity, the park can create 20,000 jobs, generate investments in excess of Php 200 million and raise the country's fish production by at least 50,000 metric tons with a combined market value of Php 1 billion.
- *Increased local investments.* Since mid-2001, the Park has already generated some Php 70 million worth of investments on direct fish cage operations alone, which translate to increased revenues for the LGU. Investors have been encouraged because of the reduced cost of investing; basic infrastructure is already in place and all documentary requirements (environmental clearance certificates, development clearance, etc) are also handled by the local government. Equally attractive to investors is the promise that initial investments can be recovered within one-an-a-half cropping season (with one cropping season lasting 4 months on the average).
- *Increased marine biodiversity.* Since the entire 224-hectare Park has been delineated and restricted from commercial fishing (other than the use of traditional hook and line fishing for subsistence), the Park has become a fish sanctuary for wild species of fish that have been attracted to excess feeds that pass through the floating cages. After only a year, the food chain has been revived that supports biodiversity within the municipal waters and the entire Davao Gulf as well. Big wild fish, as well as various species of aquarium fish, have become more common sights. Thus, the Park has also functioned as a fish sanctuary along with the other protected zones in the area.
- *Better community services and social harmony.* With more investors and visitors being attracted to the park, more improvements have also been undertaken by the local government and nearby communities. Local security

has been improved, a community-wide waste management program has been started, a new access road has been opened, and electrification of the entire coastal community of Leydao, near the Park, has been facilitated. All these have contributed to building community harmony and instilling a greater sense of pride in the communities.

Key Implementation Steps

IGaCOS undertook the key implementation steps described below in establishing its Mariculture Park.

1. Undertaking technical preparations

Within the implementation of its larger CRMZP, IGaCOS undertook the following preparatory activities prior to the establishment of the Mariculture Park. These included the following:

- 1.1. *Conducting a technical study.* IGaCOS, with the help of marine biologists from Hayuman Foundation, conducted a biophysical survey to determine the most suitable site for the park. The study included depth sounding, studying current movements, salinity testing, water current analysis, and bio-diversity assessment in the area.
- 1.2. *Formulating a site development plan.* Based on the results of the survey, a 224-hectare zone was officially delineated as the area of the Mariculture Park. IGaCOS then formulated a comprehensive site development plan and design. The plan designated zones for small, medium and large-scale investors and identified locations for navigational lanes, floating bunkhouses, guardhouses and other structures. The plan also had provisions on the design and sizes of cages, the maximum number of cages to be allowed per hectare, the spacing requirements/designs, and other details. The plan was designed with the help of BFAR-DA and SEAFDEC.
- 1.3. *Obtaining an Environmental Clearance Certificate (ECC).* IGaCOS also applied for and obtained an ECC for the Park, which was granted by the Department of Environment and Natural Resources (DENR) in August 2001.
- 1.4. *Issuing an Ordinance designating the area of the Mariculture Park.* At the same time, IGaCOS worked for the issuance of an Ordinance officially designating the area of the Mariculture Park and delineating its territory.
- 1.5. *Setting up a management structure.* IGACOs also set up an Executive Management Committee for managing the park, which consisted of the following:

- The Mayor and a representative of BFAR-DA as co-chairs
- BFAR-DA as overall project coordinator
- ISFI took the lead in the organizing of the fisherfolk cooperatives
- SEAFDEC conducted the capacity development and technology transfer
- The LGU was responsible for installing some of the basic infrastructure

Members of the EMC include barangay chairpersons, BFARMC chairpersons, the City Agriculturist, the City Administrator, and key representatives of SEAFDEC, DENR and the Department of Trade and Industry (DTI).

2. Building community capacities for livelihood

This step involved community organizing and livelihood training. Initially, 150 fisherfolk from 6 coastal barangays (25 per barangay) were identified to undergo cooperative formation and training (training was expanded later to other communities). ISFI and OI DCI took the lead in organizing fisher communities into cooperatives so they could work together in managing the alternative livelihoods for which they will be trained for.

Social preparation activities were also conducted to ensure that local communities would not feel threatened by the influx of investors in the Park.



After cooperatives were formed, members were introduced to the technology of mariculturing bangus (milkfish) through a four-month, full-time, on-the-job training conducted by the Regional Fisheries Training Center (RFTC) on-site. The training included inputs on cage preparation, handling and seeding of fingerlings, feeding, monitoring and sampling, and harvesting and handling. Value-formation and character-building was also incorporated in the training modules. Trainings on post-harvest value-added activities, i.e., bangus deboning, smoking, etc., were also given to women fisherfolk as livelihood options. (See Annex B for Training Modules on Bangus Mariculture)

While undergoing training, each trainee was given a daily allowance of Php100. After completing the course, successful trainees were given Certificates of Course Completion; in many cases, these certificates helped trainees get jobs with park investors and other fish cage operators.

In addition, Barangay Fisheries and Aquatic Resources Management Councils (BFARMCs) were also organized/revitalized to help in planning and establishing the Mariculture Park.

3. Establishing the Mariculture Park

IGaCOS's Mariculture Park was designed to appear like a subdivision by the sea. The following key features were established or installed:

- Uniformly designed mooring systems and mooring spaces. The mooring system consisted of anchors or mooring blocks, mooring chains, mooring lines, cushion buoys and marker buoys. Fish cage operators who lease areas in the park only have to fasten their cage units to the mooring space leased to them.
- Navigational lanes were provided as drive-through for sea vessels among the fish cages installed in the park.
- Demonstration cages were also established in one portion of the park where the trained cooperative members tried out their new skills in mariculture. The Park initially leased out 8 modules of 6m x 6m cages to 4 cooperatives (2 modules for each cooperative).

Based on the Park's innovative design, only floating structures/cages are allowed, which can be anchored to the Park's mooring systems - these serve as sanctuary and shelter for the fish (Floating fish cages can be set up in coastal areas with 15 ft depth and above at low tide). This allows sufficient free zones for fish outside the cages to congregate under the floating structures and avail of excess feeds that escape from the cages. The prohibition of fish pens also allows for the free flow of water currents under the floating structures, which ensures that no wastes/effluents accumulate that may pollute the area and destroy the ecosystem. In this way, the park also functions as a marine sanctuary that helps to preserve and promote marine and coastal resources.

(The capital outlay for the construction of fish cages is a minimum of Php 20,000 / cage of 6m x 6m using bamboo to build mooring system. Such a cage, which lasts about 5 years, accommodates 5-6,000 fingerlings per stocking with 3 production runs / year. On the other hand, danggit-bangus polyculture using 6m x 6m bamboo fish cages at 4,000:1,000 stocking ratio

requires a budget of PhP 60,000/crop or PhP 180,000/year. The return on investment (ROI) is around PhP 20,000 / crop or PhP 60,000/year. According to research studies conducted by SEAFDEC, one 6m x 6m fish cage is enough to sustain a family of 4-6 members, as it is estimated to bring in a monthly income of PhP 6,000.)

- Formulation of mariculture park policies and regulations. Locators are encouraged to intersperse fish cages with seaweeds culturing and oyster culture to promote ecological symbiosis among various marine species, as the seaweeds increase oxygen in the water for the fish, and the mollusks clean up impurities in the waters.

4. Conducting an IEC campaign among investors and communities

IGaCOS also conducted an information, education and communication (IEC) campaign to encourage investors to locate in the Park. Upon winning the Urban Governance Innovations Facility (UGIF) from the United Nations Development Programme (UNDP) in 2003, the LGU acquired a laptop computer and an LCD projector to enable it to make presentation materials on the Park. These materials were then used in the Investors Forum held during the two-week WOW Philippines 2003 Exhibits (Southern Mindanao) in Intramuros, Manila in November 2003. IGaCOS is also hosting a monthly average of three (3) study tours on mariculture to help promote the park as well as share the technology with other LGUs.

5. Conducting monitoring and evaluation

Technical personnel of the Fisheries Section of the City Agriculture Office (CAGRO) and BFAR-RFTC with the assistance of SEAFDEC conduct close monitoring of project operations through monthly meetings. After stocking the park/fish cages, sampling is conducted by BFAR-RFTC, CAGRO-Fisheries Section and cooperative members every 15 days to monitor survival rate and feed consumption of the fish, among others.

As the Project Coordinator, BFAR-DA consolidates all reports for the perusal of the Executive Management Committee (EMC). The EMC meets on a quarterly basis to discuss policy issues on the operations of the Mariculture Park. (Please see Annex C for sample monitoring forms.)

6. Ensuring sustainability

IGaCOS aims for sustainability by improving the state of infrastructure and operational viability of the park through the installation of additional support facilities like floating guardhouses to improve security, off-shore feed warehouses to store operators' supplies, cold storage facilities for fish harvests and

fingerlings, and other service facilities. Such improvements enhance the attractions of the park to existing and potential investors/operators.

Leasehold regulations and investment schemes are also continuously refined to ensure their viability and attractiveness.

IGaCOS also continuously seeks opportunities to upgrade its knowledge and skills on mariculture technologies as well as share its knowledge with others. IGaCOS has hosted more than 30 study tours on mariculture to help promote the park as well as share the technology with other LGUs. Aside from the study tours the city hosts for other LGUs and investors, the IGaCOS city administrator has also been invited to various fora sponsored by development institutions to share IGaCOS' experience for eventual replication.

The LGU is now in the middle of negotiations to purchase a two-hectare property to house the land-based ancillary facilities of the park, including warehouses, an ice plant, a marina, a dormitory for workers, restaurants, and others.

Matrix of Key Implementation Steps

Key Implementation Steps	Expected Outputs	Person/ Agency Responsible	Budget/ Resources Required
1. Undertaking technical preparations 1.1 Conducting a technical study 1.2 Formulating a site development plan 1.3 Obtaining an ECC 1.4 Issuing an Ordinance 1.5 Setting up a management structure	<ul style="list-style-type: none"> ▪ Technical study ▪ Site development plan ▪ ECC ▪ Management structure for the mariculture park 	BFAR-DA, which accessed funds from the FRMP funded by the ADB	<ul style="list-style-type: none"> ▪ Technical expertise may be needed ▪ Time, budget and personnel to conduct assessment
2. Building community capacities for livelihood	<ul style="list-style-type: none"> ▪ Trained and organized fisherfolk organizations/cooperatives ▪ Organized fisherfolk have started up livelihood activities 	LGU	<ul style="list-style-type: none"> ▪ Time and personnel for legislative consultations and formulation
3. Establishing the Mariculture Park	<ul style="list-style-type: none"> ▪ mariculture park (laying of mooring systems, monitoring stations, fish cages, etc) 	LGU, SEAFDEC, BFAR-DA	<ul style="list-style-type: none"> ▪ Technical expertise may be required ▪ Time budget and personnel to formulate plan
4. Conducting an IEC campaign	<ul style="list-style-type: none"> ▪ Presentation materials ▪ Information campaign conducted 	LGU	<ul style="list-style-type: none"> ▪ Budget for information campaign ▪ Equipment to make presentation materials

Key Implementation Steps	Expected Outputs	Person/ Agency Responsible	Budget/ Resources Required
5. Conducting monitoring and evaluation	<ul style="list-style-type: none"> ▪ Monitoring and evaluation mechanisms 	CAGRO, SEAFDEC, BFAR-DA	<ul style="list-style-type: none"> ▪ Budget and personnel for monitoring and evaluation
6. Ensuring sustainability	<ul style="list-style-type: none"> ▪ Sustainability measures in place 	LGU, management structure, park stakeholders	<ul style="list-style-type: none"> ▪ Additional capital investment or revenues from operations

Analysis and Lessons Learned: Harnessing LGU innovations in marine/coastal resource management and poverty alleviation

Given its promise as a viable approach to marine resource management and livelihood enhancement, IGaCOS' Mariculture Park also has great potential for replication for other LGUs with coastal resources and corresponding coastal management challenges. While IGaCOS's LGU recognizes that the Park cannot address the livelihood concerns of some 8000 fishing families in 31 coastal barangays, the Park strongly contributes to addressing the problem, and may point the way to more innovative solutions in the future.

Below is a list of critical elements that IGaCOS was able to put together to effectively implement the project. For LGUs interested in replicating the experience, the list may serve as a partial list of requirements to make such an endeavor a success:

- Political will and commitment to pursue the project and actively engage various stakeholders, including communities and line agencies, in a participatory process
- Technical expertise in conducting the technical study and site development plan, community organizing, and livelihood training. Technical assistance may be obtained from line agencies, research and technology institutions, funding agencies (See Annex A for contact information on relevant institutions)
- Material/financial resources (in building the necessary park infrastructure and facilities and maintaining park operations). Floating fish cage farming may be undertaken without the sophisticated multi-million peso investments in infrastructure facilities; it is also relatively easy to adopt and implement. At the same time, the project requires some physical infrastructure investment and technical expertise to maintain such infrastructure, both of which require financial resources.
- Active community involvement. Empowering communities through organizing and capacity development will ensure that they become partners and

stakeholders in the project and will commit to do their utmost to make it a success. At the same time, ensuring that the project will also lead to their economic empowerment through viable livelihoods and improved incomes will ensure their sustained participation

- Appropriate park design/technology and responsive investment policies. Policies and regulations for park leaseholds should be attractive to investors to encourage their doing business in the park. At the same time, the park's design should ensure optimum opportunity to revive coastal resources, while at the same time promote viable livelihoods.

As a final note, LGUs interested in replicating IGaCOS's experience may also need to be prepared to sustain the park and make technological innovations to address the effects of fluctuations in the local and national economy. In IGaCOS, the park's operations were affected by the national economic slowdown and peso devaluation, as bangus feed prices rose and market prices for fish fell. To address this problem, the LGU decided to innovate: from focusing only on bangus culture, which was capital intensive as bangus were solely dependent on formulated feeds, the LGU went into danggit (rabbitfish) culture. Being endemic to Samal, danggit could feed on locally-available food like seaweed, and even cabbage, kangkong and camote tops. Its market price was also relatively stable. IGaCOS therefore, was able to turn a threat into an opportunity --the innovation led to the development of a technology on bangus-danggit fish cage polyculture and the rise in population of this once declining local fish specie in IGaCOS.

Annexes:

- A. Contact Information of Relevant Institutions that may be tapped for Replication
- B. Training Modules on Mariculture
- C. Sample Monitoring Forms

Annex A: Contact Information on Relevant Institutions

Institution	Contact Information
Bureau of Fisheries and Aquatic Resources	The Regional Director, DA-BFAR-XI, Magsaysay Avenue, Davao City, Philippines Tel. #: (+6382)224-1784, 226-2890/91 FAX # (+6382)225-1727
Southeast Asian Development Center	The Executive Director, SEAFDEC, Aquaculture Department, Tigbauan, 5021 Iloilo, Philippines Tel. #: (+6333)335-1009, 336-2965 FAX #: (+6333)335-1008 www.seafdec.org.ph
Institute of Small Fish Industries	The Executive Director, ISFI, Ateneo de Davao University, Jacinto Street, Davao City Tel. #: (+6382)227-3091
Department of Environment and Natural Resources	The Regional Executive Director, DENR-XI, Lanang, Davao City Tel #: (+6382)234-4401 FAX #: (+6382)234-0811
Philippine Business for Social Progress	The Executive Director, PBSP-Mindanao, Luna Street, Davao City Tel #: (+6382)221-2251 FAX #: (+6382)227-0164

Annex B: Training Modules on Bangus Mariculture

Table 1. Bangus Mariculture Training Modules

Module	Topics/Sessions	Methodology and Time Frame
Module 1	Fish Cage Technology <ul style="list-style-type: none"> • Overview • Project design and construction 	Classroom-type lectures, 3 days; actual fish cage construction, 7 days
Module 2	Fish Cage Operation and Management <ul style="list-style-type: none"> • Stocking of fingerlings • Feeding • Sampling and maintenance • Harvesting 	Hands-on training, 3-4 months
Module 3	Fish Processing and Value-added Products <ul style="list-style-type: none"> • Bangus deboning, smoking, marination and brine solution 	Lectures with return demos, 1 week
Others	Training on fish shelter support program and fish productivity	

