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Sustainable aquaculture and coastal resource management

Gapasin, Febe Lou C.

Aquaculture Department, Southeast Asian Fisheries Development Center

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Training module for LGUs and NGOs

Sustainable aquaculture and coastal resources management

By **FLC Gapasin, RF Agbayani** and **KG Corre**

The legal framework of delegating to the local government units (LGUs) jurisdiction over municipal waters is provided for in Republic Act 8550 (Philippine Fisheries Code of 1998) and the Republic Act 7160 (Local Government Code of 1991). The LGUs, in consultation with the Fisheries and Aquatic Resources Management Councils (FARMCs), shall be responsible for the management, conservation, development, protection, utilization, and disposition of all fish and fishery/aquatic resources within their respective municipal waters.

There is therefore, a need to develop the capabilities of the LGUs in conceptualizing, planning, and operationalizing appropriate aquaculture projects as a sustainable livelihood for the fisherfolk through the efficient and equitable use of coastal resources. In response to this need, SEAFDEC/AQD has developed a 6-day course that will provide LGU planners and policymakers the tools to improve policies related to aquaculture development and coastal resources management.

At the end of the training, participants are expected to: (1) know the basic concepts and principles of sustainable aquaculture and coastal resource management, and the importance of biodiversity conservation; (2) identify and make recommendations as to the important socio-economic, institutional, and environmental issues affecting sustainable aquaculture development and resource management; (3) relate sustainable aquaculture technology to coastal resource management; and (4) apply provisions of the Fisheries Code and other relevant legislations on sustainable aquaculture and coastal resource management.

Upon completion of the course, the participants should be able to formulate

action plans and implement effective strategies for the management of coastal environment taking into consideration the policy reforms; sustainable aquaculture and coastal resource management projects; and institution building, community organizing and resource mobilization.

The training course uses varied approaches but essentially applies the principles of experiential learning such as lectures, demonstration, group presentations and discussions, and planning exercises. Field visits and observation tours in different coastal aquaculture project sites are included in the training.

This training course is for Municipal Agricultural Officer for Fisheries, Sangguniang Bayan (SB) Chairman for Fisheries, Municipal FARMC Chairman, and Non-Government Organization (NGO) representative. Municipal Mayors or even Governors and/or representatives act as discussants/reactors during the presentation of the group action plan.

Highlights of the training module

The training module starts with a session on *Levelling of Expectations* during which the participants are asked to write their expectations of the course. At the end of the training, the participants' expectations are evaluated as to their attainability in relation to the course content.

The topic on *Overview of Aquaculture: Role in Food Security and Poverty Alleviation* explains the importance of aquaculture in attaining food security and alleviating poverty. A causal model of poverty in a fishing community is discussed with emphasis on the state of coastal resources, lack of education, lack of alternative livelihood and non-empowerment of the fisherfolk.

The lecture on *Coastal Ecosystem and Biodiversity: Importance and Conservation* focuses on the types of coastal ecosystems, food chains and trophic interactions, importance of coastal fisheries, resource status and fishery implications, management issues and sustainability, bio-resource management interventions and marine protected areas.

The topic on *Resource and Ecological Assessment in Coastal Fisheries Management* (REA) is divided into three (3) sub-topics. The lecture on *Coral Reefs and Invertebrates* emphasizes the coral reef ecosystem, major reef products and their economic importance. The *Seaweeds and Seagrasses* lecture tackles the seagrass community and its species, morphological characteristics, distribution and its ecological importance. The lecture on *Mangroves* discusses the environmental factors, attributes, mangrove species, utilization, valuation, conservation and management. It deals on some Philippine laws pertaining to fishpond development and mangroves.

The resource persons on the topic *Fisheries Code of the Philippines and Other Relevant Legislations Concerning SACRM* elucidate some important features of the implementing rules and regulations of the Philippine Fisheries Code of 1998 (RA 8550) especially those provisions concerning municipal fisheries, barangay and municipal FARMCs.

The topic on *Socio-economic Considerations for Sustainable Aquaculture* explains the need to understand the culture, perceptions, knowledge, experience, and economic situation of target participants before a certain aquaculture activity or technology is introduced. It focuses on some issues in aquaculture and the importance of co-management arrangements for

Exposure trips to recent technologies on aquasilviculture generated by AQD are part of the course. This site is in Ibajay, Aklan



farming systems, feeding, water management, and approaches in solving water quality problems. Techniques in sampling and recording, diseases prevention and control, harvest and post-harvest techniques are also discussed. It also reviews the technical elements involved in pond management of shrimps in the country with emphasis on sustainability. The lectures on *Seaweed Culture* and *Post-Harvest Management* cover topics on the ecological and environmental considerations, culture techniques and management for the different species of seaweeds. Post-harvest technology and problems related to seaweed farming are discussed. The topic on *Mollusc Culture* specifically on oyster and mussel focuses on site selection, spatfall and spat collection, different culture methods, stock management, harvest, production, marketing and public health concerns.

A field trip to mangrove-friendly aquaculture projects in New Buswang, Kalibo, Aklan; Bugtong-Bato, Ibajay, Aklan; and Tangalan, Aklan is part of the course to expose the participants to the recent technologies in aquasilviculture generated by AQD.

As an output of the course, the participants are required to prepare action plans on sustainable aquaculture and coastal resource management project for their respective municipalities using the tools and techniques they have learned from the course. The Mayors (or their representatives) of the participating municipalities are invited as reactors and discussants during the presentation of the action plans. An open forum is held to allow all participants to react on the action plans. A course assessment is done at the end of the course in order to provide feedback on the course topics, teaching methodology, effectiveness of lecturers, duration of the training and other matters that can contribute in improving the course.

For more information, you may contact Kaylin Corre or Febe Lou Gapasin at Tele/Fax No: (33) 336 2891, 336 2965, 336 2937 or at e-mail <training@aqd.seafdec.org.ph>

an effective management regime to achieve sustainable resource utilization.

The lecture on *Concepts and Principles of SACRM: Property Rights and Collective Action* stresses the conceptual framework and principles of sustainable aquaculture. The principles include: maintenance of ecological systems; improvement in economic and social well-being; inter- and intra- generational equity; and, adoption of precautionary approach. It also tackles the interactions of aquaculture and the environment, the external effects of aquaculture as well as the effect of other activities on aquaculture.

The topic on *Community Organizing and Institution Building* explains the role of institutions whether community, local or national in setting up or formulating rules and rights of an organized fisherfolk community to ensure its enforcement and compliance.

The topic on marine fish culture with emphasis on *Grouper Culture in Floating Cages* discusses site specification, design of cage frame/catwalk and netcages. Farming practices such as stocking, feeding, size

grading, monitoring and harvesting are included in the lecture. A simple cost and return analysis of grouper culture is also discussed. The topic on *Culture of Tilapia and Other Freshwater Species* focuses more on the different methods of culturing tilapia in tanks, cages and ponds. The requirements in each culture method is briefly discussed to give participants a good perspective on the proper methods of managing different tilapia culture systems. Other freshwater species included in the lecture are bighead carp and catfish. The lecture on *Mudcrab Culture* provides information on sources of stocking materials, site specification, pond design and construction, pen and cage construction. It also includes discussion on transport of juveniles, stocking and acclimation, water quality and pond management, and feeds and feeding management. Comparative analyses of the technical features of crab monoculture and polyculture with milkfish in ponds, and their cost and returns are presented.

The topic on *Shrimp Culture* focuses on the criteria for site selection, different