Asian Aquaculture

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RP starts pilot aquaculture support system program

The Philippines has set into motion an aquaculture industry development support scheme. The pilot project, called the *Aquaculture Resource Management Program*, is a joint undertaking of four entities – two regional, one national, and an academic institution. These are: the Philippines' Bureau of Fisheries and Aquatic Resources, Development Academy of the Philippines, Southeast Asian Regional Center for Graduate Study and Research in Agriculture (SEARCA), and Southeast Asian Fisheries Development Center (SEAFDEC) Aquaculture Department.

The project model provides for two components: a macro component which covers the aquaculture-rich island of Panay comprising the four provinces of Iloilo, Aklan, Antique and Capiz; and a micro or village level component which, in this pilot stage, is operational at four selected sites, one site being a cluster of three *barangays* or villages. The produc-

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OI, SEAFDEC in joint R & D venture

The SEAFDEC Aquaculture Department has entered into another collaborative venture, this time with the Oceanic Institute, a non-profit marine science center based in Hawaii, calling for joint activities in research and development particularly on milkfish, transfer of developed technology, and exchange of information.

In a memorandum of agreement formally signed on October 7 during the visit of top OI officials to the Aquaculture Department main station at Tigbauan, Dean D.K. Villaluz, Department Chief, and R.W. Power, president of the Oceanic Institute agreed to work out the possibility of integrating aquaculture

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Oceanic Institute President R.W. Power and SEAFDEC Aquaculture Department Chief D.K. Villaluz wish each other success after signing the OI-SEAFDEC memorandum of agreement for a collaborative aquaculture research and development venture.

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tion sites are located in the following townships: Barotac Nuevo in Iloilo Province for milkfish production; Pontevedra in Capiz for "sugpo" (tiger prawn) and other crustaceans; Sapian in Capiz for mollusks; and Batan in Aklan for an appropriate and suitable aquaculture commodity mix. The last site, Batan, is an "economically depressed area with a high potential for the establishment of a fish farming industry."

Concept

An industry system consists of three elements — the support, production and marketing systems. The support system includes provision of production inputs like fry, feeds and fertilizer, credit and financing, transportation and handling of inputs, the required fish farming technology, and infrastructures. The production system will essentially be composed of fish farmers organized into viable aquaculture production units. This is envisioned to be effected through the organization of fish farmers' association operating at the barangay or village level. The third element includes: post-harvest handling, marketing, processing, storage, distribution and other essential services and infrastructures to enable the production units to take optimum advantage of market opportunities. *(See box.)*

Integrated Area Approach

The support and marketing elements will be organized and implemented at the regional (Panay-wide) level. The four institutions as well as other organizations and service agencies such as the National Economic and Development Authority (NEDA), colleges/universities, regional offices of ministries concerned, etc. working in Panay Island will be involved in the provision of these elements. A mechanism that links the production units back to the support system and forward to the marketing system will be developed to come up with an integrated area approach to aquaculture development, keeping in mind the reality that aquaculture enterprises operate within a milieu of other agricultural and non-agricultural enterprises existing in the same area.

Technology Transfer

Since aquaculture will be used as the main point of entry to the village, a vital input is a package of appropriate aquaculture technology which will be introduced to the production units. The package includes the technology, sociology, economics, and communications components. While the socio-economics component will largely be influenced by the organizational patterns and production systems obtaining at the micro level, the communications component will be designed to provide the communications support to the whole project in general but especially to the production units.

In effect, the pilot project is a technology transfer scheme which at the same time provides for the verification of technology at the farmers' level. The packaged technology to be introduced to the villages are being collected, and processed and put together into a form ready for adoption. Institutions involved in the selection and packaging of such aquaculture technology are: the SEAFDEC Aquaculture Department, the University of the Philippines College of Fisheries, the Bureau of Fisheries and Aquatic Resources, and progressive fishfarm operators in the private sector.

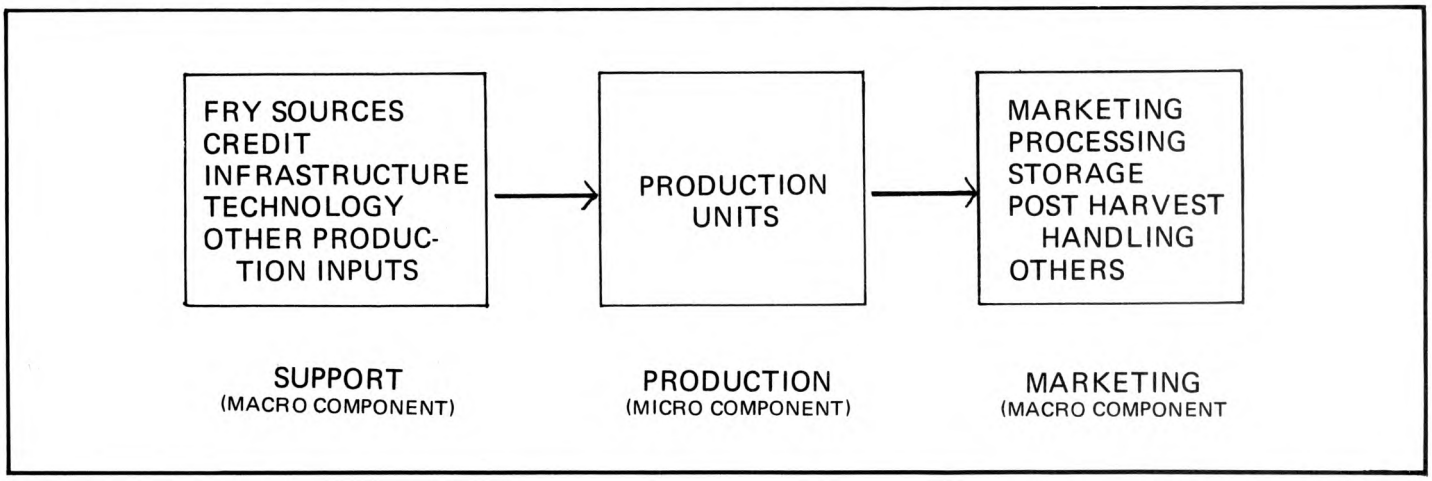
How these packages are adopted and utilized by the production units will be constantly monitored and evaluated so that, ultimately, one end product of the pilot scheme will be field tested aquaculture technology.

Field Implementation

Five implementing activities have been identified: (1) *organization development* which involves the formation of fishermen's associations; (2) *innovation package operations planning* to translate technology packages into a form suited to the production units as well as the support and marketing systems; (3) *systems installation* which involves making necessary negotiations and arrangements for the support and marketing strategies to be responsive to the needs of the production sector; (4) *adoption* which involves the training of the fish farmers on the various aspects of the technology and on such vital areas as financial management, marketing, resource utilization, production and processing; and (5) *the phase-out and expansion* activity which will be done as soon as the associations can manage the activities on their own, the systems and schemes have been evaluated, and steps have been taken for expansion into other areas.

Management

The project is run by a management committee, the highest decision and policy making body of the program. It is composed of BFAR Director Felix R. Gonzales as chairman, and AIA Director



Oceanic Institute President, R.W. Power (left) and SEAFDEC Aquaculture Department Chief, D.K. Villaluz sign agreement. Witnesses to the signing are (seated) Dr. Richard Neal of the Oceanic Institute and Dr. Joseph C. Madamba, director of the Asian Institute of Aquaculture. Standing (l-r) are Engr. Vicente Alferez of the SEAFDEC Freshwater Aquaculture Station; Department Personnel Chief, P.L. Torres, Jr.; Research Director Jose A. Eusebio; Dr. Ching-ming Kuo of the Oceanic Institute; and Atty. J.M. Garay, director for Administrative Services.

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methods, products and techniques between the two research institutions. The Department and OI will (a) *exchange scientists and technologists;* (b) *exchange breeding materials* (e.g., fry, etc.) *and germ plasm*; (c) *exchange scientific literature, information and methodology;* and, (d) *import and export seedstock and scientific equipment for common programs.*

These will be implemented through mutual scientific and technical relations; creation of facilities for exchange of scientists, technologists, and experts; and grant of fellowships to scientists and graduate students, as recommended by either the OI or through the Department, for SEAFDEC member countries and other developing countries in Asia. Findings from collaborative researches shall be published by mutual agreement. Both OI and the Department will also establish links between their respective similar scientific research centers and institutes.

Meanwhile, Work Plan No. 1 has been finalized to undertake a cooperative effort over an initial three-year period to develop methods and systems resulting in breeding milkfish in captivity in order to be able to supply seed for stocking in ponds in Southeast Asia and other areas where milkfish farming is important for food production.

A Cooperative Program emphasizing artificial propagation, induced breeding, and larval rearing of milkfish has been formulated for implementation next year. Specifically, the Cooperative Program seeks to develop and define an optimum induced-spawning procedure for milkfish and develop a method for larval rearing and fry/fingerling production.

A team of selected staff members from OI and the Department will undertake the work in two locations: at the Department's facilities in the Philippines from March 15 to may 16, 1979; and at OI in Hawaii from June 15 until August 15, 1979.

The OI team consists of Dr. Chingming Kuo, Mr. Craig Paulsen, and Mr. Wade O. Watanabe plus 3 technicians and 1 postdoctorate fellow; and Dr. Jess Juario, S. Hara, Herminigildo Sitoy, Marietta Natividad, Gerald Quinitio, Jesse Banno, Nepheronia Jumalon, Jose Canto, Jr., Pedrito Bombeo, Rito Bombeo, W. Esteba, and R. Calibjo, plus 20 fisheries aides, from the Department. Three to four OI team members will stay in the Philippines for the cooperative work and two to three Department team members will stay in Hawaii.

The Oceanic Institute is a non-profit private marine science center founded in 1960. It seeks to secure scientific and technical knowledge through research and development for the wise use of the ocean and its resources, and to share that knowledge with the peoples of the world. It undertakes projects to increase the production of food from the sea, with its attendant responsibilities of protection and conservation; improve mankind's compatibility with the aquatic environment

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Joseph C. Madamba (representing the SEAFDEC Aquaculture Department), SEARCA Director General J.D. Drilon, Jr., and DAP Executive Vice President J.P. de Jesus.

The reason the BFAR director has been selected committee chairman is that, after 1980 — the end of the project life span — the Bureau will take over the project and implement the scheme in other sites. Total budget requirement of the project is ₱2.1 million spread out into ₱0.3 M in 1978, ₱1.4 M in 1979, and ₱1.4 M in 1980.

Agency Roles

The Development Academy of the Philippines is the lead agency in the development and installation of the macro component; SEARCA will work on the *barangay* or micro level. SEAFDEC will provide the lead role in technology packaging and communications support as well as 60 percent of the project cost while BFAR will shoulder 40 percent of the total funding and take active part in both the village level (micro) and Panaywide (macro) components of the system.