AquaFish
COLLABORATIVE RESEARCH SUPPORT PROGRAM

INTER-REGIONAL EXCHANGE ON LOCAL AND CRSP-DERIVED TILAPIA CULTURE AND KNOWLEDGE

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with contributions from CRSP HCPI Exchange Project participants*






Introduction

Following over twenty years of tilapia research by the Aquaculture Collaborative Research Support Program (ACRSP), the Program in 2004 launched an innovative exchange project designed to facilitate more direct collaboration among ACRSP Host Country institutions in Honduras, Kenya, Mexico, the Philippines, and Thailand. The objective of the activity was to share successful tilapia production techniques among scientists and institutions in different countries and regions. The project involved visits to each of the participants' home countries, where tilapia culture information was exchanged through seminars, field visits, and informal discussions. Feedback from all participants was overwhelmingly positive.

In 2006 the new Aquaculture & Fisheries CRSP (AquaFish CRSP) was initiated, renewing the CRSP emphasis on poverty eradication and focusing on both aquaculture and fisheries. Because the exchange project conducted under the ACRSP was so successful, the concept was continued under the AquaFish CRSP. A novel mentored-training approach was employed, and greater emphasis was placed on the entire value chain of tilapia production. In 2007 and 2008, CRSP researchers from four new countries—South Africa, Ghana, Vietnam, and Brazil—participated in Phase II of the project.

Each of the participating countries represents a unique combination of conditions and factors within which the culture of cichlids has been developed. Regional and local differences with respect to climate, species, available inputs, pond management protocols being practiced, and constraints to continued growth have all influenced the development of the tilapia farming industry in each country. One characteristic common to all sites, however, is the important role of cichlid fish in fish farming at all scales. The CRSP's ***Host Country Principal Investigator Exchange Project*** facilitated the sharing of information among these sites so that, where appropriate, the most successful practices could be transferred and applied across sites and regions.

In both phases of the project the participants spent at least four days in each country, beginning with a seminar in which each participant reported on the status of tilapia and native cichlid culture at home, followed by a tour of the host institution's research facilities. Two to three days of field visits typically followed, including visits to hatcheries specializing in all-male fingerling production, small-scale farms, larger intensive commercial operations, other collaborating institutions, processing facilities, and markets. Each workshop concluded with a wrap-up session in which lessons learned and possible approaches to technology transfer were discussed.

For Phase II, two of the workshops were scheduled to coincide with other major aquaculture conferences or seminars. In South Africa the HCPI workshop followed immediately after the Eighth Conference of the Aquaculture Association of Southern Africa (AASA), held in Cape Town, and in Brazil the HCPI visit was organized to include the two-day "International Workshop on the Production of Tilapias and other Cichlids," at the Aquaculture Center of the State University of Sao Paulo (CAUNESP), in Jaboticabal. Participation in these two "extra" conferences significantly increased the benefits of this project for its participants.

PHASE I: Thailand, the Philippines, Mexico, Honduras, and Kenya

Phase I workshops were held in five countries in 2005 and 2006:

- Thailand and the Philippines — July 2005
- Mexico and Honduras — October 2005
- Kenya — January 2006

Phase I "discoveries":
During Phase I of the project, several factors that had constrained development in the participating countries prior to the 1990s were identified. These included:

- The initial widespread use of Oreochromis mossambicus as the primary culture species.
- A reliance on mixed-sex culture for fish production.
- No selection to improve stocks for culture.
- A lack of technical expertise among farmers and extension personnel.
- A lack of quality fish feeds.

Factors cited as having significantly contributed to increases in tilapia production in the last two decades included:

- A shift to the use of Oreochromis niloticus as the primary culture species.
- The development of improved strains for culture.
- The development of reliable methods for producing of all-male fingerlings for stocking.
- The subsequent widespread adoption of monosex culture practices.
- The implementation of research programs to identify improved management practices.
- The implementation of training programs for extension personnel and farmers.
- The availability of affordable feeds for tilapia farming.

Many government institutions, research and assistance agencies, and private sector entities contributed to these developments. Among them, the CRSP was credited with making significant contributions in the areas of establishing good research partnerships and programs that led to the development of improved management strategies and with sponsoring a large number of outreach activities, including both formal and informal training programs.

Countries participating in the HCPI Exchange Project of the Aquafish CRSP. Other countries participating in the AquaFish CRSP: Cambodia, China, Guyana, Indonesia, Mali, Nepal, Nicaragua and Tanzania.

PHASE II: South Africa, Ghana, Vietnam, and Brazil

Phase II workshops were held in four countries in 2007 and 2008:

- South Africa and Ghana — October 2007
- Vietnam — December 2007
- Brazil — February 2008

New in Phase II:
Although similar to Phase I in most respects, the following variations were included in Phase II of the project:

- Widening of scope to include value-chain aspects of aquaculture (e.g., harvesting, transportation, processing, and marketing)
- Considering production technologies and economic factors.
- Using a mentoring approach, whereby participants from Phase I of the project participated in the Phase II exchange visits, using their past experience to assist Phase II participants, thus broadening the overall benefits of the project.
- Focusing greater attention on Africa, and in particular on countries falling under the US Initiative to End Hunger in Africa (IEHA), by including participants from South Africa, Ghana, and Kenya.

Beneficiaries of the Project:
Many individuals and institutions have benefited from this project, including:

- The CRSP Host Country researchers themselves, who have gained valuable first-hand knowledge about institutions engaged in aquaculture research, aquaculture extension systems in use, and aquaculture technologies being practiced in other regions of the world, some of which can be transferred back home.
- Professional colleagues and students at participating Host Country institutions, who have benefited from interactions with the visiting PIs. They have gained new knowledge and insight into cichlid culture in other parts of the world.
- Host Country fish farmers, who learned directly from visiting PIs during field visits and who will benefit indirectly as the recipients of better extension and research services provided by their own countries' research and extension institutions in the future.
- The exchanges have provided opportunities for strengthening existing linkages as well as making new professional contacts, leading to greater networking among researchers in CRSP and other host-country institutions.

Participants in the Host Country Principal Investigator Exchange Project are already applying and disseminating knowledge gained through these visits. In all countries, one of the first steps has been to conduct "echo seminars," in which the lessons learned during visits to other countries are shared with a large number of colleagues, students, farmers, and others. New information gained is also applied through inclusion in university courses, new research projects, and extension materials.

***Project participants:**
Phase I: Amrit Bart, Remedios Bolivar, Wilfrido Contreras-Sánchez, Arlette Hernández-Franyutti, Nancy Gitonga, Dan Meyer, Suyapa Meyer, Charles Ngugi, Betty Nyandat, Benson Thiga, and Yang Yi.
Phase II: Steve Amisah, Lourens DeWet, Nguyen Thanh Phuong, and Maria Célia Portella, with selected Phase I participants as mentors.





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