

Farmer to Farmer Program and Aquaculture without Frontiers

Trip Report: India, January 2011

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A trip was scheduled for January 13 - 24, 2011 to conduct field visits, speak at a regional aquaculture conference and a farmer's day convention, and meet with aquaculture extension agents from Kerala and Karnataka states. I also had meetings with Dr. M.C. NANDEESHA, president of Aquaculture without Frontiers and other board members to discuss our progress on the AwF-Farmer to Farmer program.

I departed Arizona on January 13 and arrived in Kochi, India on January 15, after a short overnight stay in Delhi to change flights. I checked into the Travanacore Court Hotel in downtown Kochi and found my way to the aquaculture conference venue a few kilometers away. On January 16, I participated in a meeting with other directors of Aquaculture without Frontiers to report on the Farmer to Farmer program. We discussed the completed missions and the requests pending at that time. We especially focused on the need for missions to Haiti and potential volunteers for Haiti and for our other outstanding requests for assistance. On January 17 and 18 I participated in a regional aquaculture conference with a focus on sustainable fish farming in southern India. I was asked to chair one session and lead a discussion on sustainable fish farming and the role of certification programs. Discussions included Dr. Ambekar EKNATH from the Central Institute of Freshwater Aquaculture in Bhubaneswar, Orissa State, INDIA and Dr. A.G. PONNIAH from the Central Institute of Brackishwater Aquaculture in Chennai, Tamil Nadu, INDIA. We discussed my specific recommendations to alter feed formulations, improve handling at harvest and consideration of a certification program for fish quality and safety.

The conference also included an evening fund raiser for AwF to increase funds to support projects in India. Slightly over \$4,000 was collected in support of future projects. On January 19th I led a full day discussion with farmers, extension specialists, and government regarding tilapia farming and integrated sustainable methods for aquaculture in southern India.

On January 20, I spoke to the Fish Farmers Day group which included 300 active farmers primarily from the states of Kerala and Tamil Nadu. After a formal presentation we had an open discussion regarding constraints to development and potential technological innovations and management (feeding, fry selection, handling and marketing) that would enable the farmers to improve quality and profit. My specific recommendations to the group included the need to import additional broodstock varieties, an alteration in the feed formulation and feeding method most of the farms were currently using, a more mechanized method of harvesting fish, and a best management practices code that could be used to develop or fit into an existing certification program.

On January 21 I traveled from Kochi to Hyderabad. I was met at the airport by my host Dr. PRABHUDEVA. We spent a few hours touring downtown Hyderabad and had a late lunch. We then drove about two and half hours to the town of Raichur in Karnataka state. Dr. PRABHUDEVA was the aquaculture extension specialist for Karnataka and I stayed at the Raichur agriculture experiment station which is attached to the KARNATAKA VETERINARY, ANIMAL AND FISHERIES SCIENCES UNIVERSITY. After a very late arrival, we had a small snack and retired.

January 22 was spent with a 90 minute drive to the RH-2 (Rehabilitation Camp #2) in Sindhanur. This camp was arranged for Bengali refugees from Bangladesh at the time of the

independence from Pakistan. Fish farming and integrated agriculture is the primary activity in the camp and only source of outside revenue. The camp includes 150 members in their fish farming cooperative (130 men and 20 women). This coop in turn is part of a larger fish farmer's cooperative that includes 250 more members (total 400) from several more local villages. The RH2 includes 150 ponds and 1000 families who consume fish from these ponds.



Inspecting Rice-Fish Pond in RH2

Carp grown in RH2 Fish pond

My presentation was well attended by approximately 200 people and was also broadcast live on local radio. We were not told what the potential listening audience might be. I used the opportunity to present on improved aquaculture techniques, how best to integrate the fish culture with irrigation and fertilization of their rice and vegetables and to present the cooperative with a new YSI Dissolved oxygen meter which will allow them to safely increase the density of fish they can maintain in their ponds. Specific recommendations included how to make low cost diets from local ingredients, how to use the dissolved oxygen to monitor oxygen levels to know if fish were stressed overnight when algae were not photosynthesizing, how to maximize the fertilizer value of fish water for their field and vegetable crops, and how to handle fish better at harvest and post-harvest in order to lengthen shelf life and quality. Finally, I also provided recommendations of how they might develop a simple strategy for a certification program that could mesh with those developed by NGO's and the Indian government. Before and after the presentation we toured nearby ponds to examine and to discuss with farmers how their fish crops were faring. The final event was a meal prepared for the entire community including fish from the ponds and rice and vegetables from the farms. We returned to the Ag Experiment Station near Raichur that evening.



Banner for F2F workshop



Traditional welcome ceremony



Presentation of oxygen meter to coop leaders



Traditional lunch with carps and rice

On January 23, we toured the Raichur Agriculture station including the aquaculture research and extension station. The ponds at the station had been built several years earlier and were in need of renovation and improvement. Some specific recommendations I offered were to obtain liner material to update one or more of the ponds, to redesign with improved drainage and capture facilities in the ponds, and to add a low cost bird cover with monofilament line and streamers. We met with the station staff and discussed potential collaborative work in the future, including a memorandum of agreement between universities. Later in the morning we visited with the Vice-Chancellor of the College, Dr. Suresh HONNAPPAGOL and other administrators to further discuss recommendations, review of the preceding day's visit to the Rehabilitation Camp and future options for collaboration. That afternoon/evening Dr. PRABHUDEVA and I drove back to Hyderabad and stayed in the guest hotel of the National Institute of Rural Development and Agriculture based just outside the city. This is a large complex including an Agricultural University and several national and international ag centers. On January 24 I departed India from Hyderabad traveling to Dhaka, Bangladesh via Kolkata.

Conclusion

The opportunity to speak with many farmers and extension agents was well worth the effort. After many years of investment in computer and information technologies and portions of the

manufacturing sector, the government of India has recognized the need to reinvest in the agricultural sector. They specifically want to support aquaculture as fish is a primary protein for a large percentage of the Indian population. Tilapia and the carps have been identified as the most sustainable aquaculture crops and integration with irrigated agriculture will be a primary methodology that has been widely accepted as the most efficient use of nutrients and water. The fish farming community along with the academics and extension professionals also recognize the benefits and hope to develop strong domestic and international markets for their products.

In follow up activities, I extended formal invitations to Drs. HONNAPPAGOL and PRABHUDEVA to attend an international aquaculture conference in Shanghai China and we drafted a Memorandum of Agreement between KARNATAKA VETRINARARY, ANIMAL AND FISHERIES SCIENCES UNIVERSITY and the UNIVERSITY OF ARIZONA.

Table 1.

Location / Organization	Male	Female	% M/F	Number of families represented	Number of consumers benefiting	Number of recommendations
Tilapia session	35	17	66 / 34	52	520	3
Farmer day	240	60	80 / 20	280	2800	5
RH2	110	90	55 / 45	150	5000	5
Raichur Ag Station	9	0	100 / 0	8	20	4
Total (adjusted for those present at multiple locations)	391	167	70 / 30	490	8340	17