

## **PROJECT EXPERIENCE IN FISHERIES AND AQUACULTURE**

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### **UGANDA, COMPETE Project, 2000-2002 (USAID)**

Served as consultant to the CARANA Corporation to implement the COMPETE project, a USAID-financed activity to increase the competitiveness of Uganda's coffee, cotton and fisheries exports, aimed at increasing Uganda's foreign exchange earnings, employment and rural incomes. AISD facilitated the development of a sector working group for the fisheries sector, comprising public, private and non-governmental representatives, to conduct a competitive assessment of the fisheries sector and develop a national strategy. The key elements of the strategy were to increase the export value of the existing capture harvest through the introduction of value added products, while developing a commercial aquaculture strategy to create a renewable source of the principle fish species Nile Perch. The strategy entailed:

- Improving the production value of existing harvest
- Introducing reproductive biology practices with hatchery trials
- Planning in-lake net cages and creating a monitoring and modelling program to examine environmental and productivity impact
- Facilitating finance and credit to support rollout of net cage trials
- Supporting the new GOU national fisheries management plan and the multi-country Lake Victoria Fisheries Management Plan, including support to the Department of Fisheries Resources to develop aquaculture regulations
- Improving the infrastructure in the sector, with a focus on beach management units.

A major impact of COMPETE project in the fisheries sector was in changing unrealistic perceptions relating to the sustainability of catch fisheries and gaining a national level commitment to the introduction of commercial aquaculture as the strategic cornerstone of the competitiveness strategy. Results of AISD's work include:

- Makerere University and the Department of Fisheries Resources set up 6 tanks at the Entebbe aquarium for a Nile Perch culturing trial starting with fingerlings, and conducting feed acclimation trials.
- Ugandan fish processors are actively increasing the value they can derive from each Nile Perch, by developing products from previously discarded by-products for trial sales in Asia.
- Ugandan processors are developing new valued added products for both the domestic and international markets, exhibiting for the first time at the 2002 European Seafood Exposition.

A supporting element of COMPETE was an effort to integrate information and communications technologies (ICT) into competitiveness strategies and create linkages between the traditional export sectors and the ICT sectors to support

competitiveness and improve quality. AISD sought innovative but affordable ways to accelerate access to and utilization of technologies in the fisheries sector that would improve the performance of producers, processors, and exporters. In cooperation with MTN (Uganda's major cellular service provider), SMS-Ads and Impact Associates (a Uganda software company and a small Ugandan consulting firm), COMPETE launched a *price information service delivered via cellular phone Short Messaging Service (SMS)* to promote greater price transparency in the fisheries sector. Daily selling prices for fishers, collectors and processors for 10 landing sites on Lake Victoria will be available through SMS at any time of day.

The collaboration with MTN led directly to an alliance among MTN, Grameen Foundation USA, AED and USAID to expand mobile phone service to women in rural areas. In addition, the WMIS model is planned for replication in Sri Lanka in the fisheries sector and in Romania in alfalfa.

#### **RUSSIA, Regional Economic Policy and Investment Strategy (REPAIS), 1999 (USAID)**

The purpose of REPAIS was to strengthen the capacity of the select regions to attract and facilitate the flow of foreign capital and technology into the local economies through the improvement of the private business environment and the public-private sector dialogue. As consultant to the CARANA Corporation, conducted an assessment of investment potential of the fisheries sector in Khabarovsk Krai and the Sea of Okhotsk and made recommendations to the Krai administration on developing trade links. Organized international delegation of Chinese investors and American commercial interests to investigate investment opportunities in Khabarovsk.

#### **CHINA, World Bank, 1989 to the present**

Loan appraisal and supervision of \$650 million in loans for aquaculture development, including:

- ***Sustainable Coastal Resource Development Project (1998 to present):*** The project was designed to plan and assist in the implementation of efficient and sustainable use of all coastal resources. The stated objectives, which have been successfully implemented, are: (a) support the Government's commitment to sustainable development of China's coastal resources, (b) reduce pressure on coastal fishery resources and (c) help improve aquatic product quality. These objectives are being achieved through (a) the design and implementation of a coastal zone management (CZM) plans in selected areas of four coastal provinces; (b) investments in advanced hatchery technology and marine aquaculture that promote and reinforce sound CZM policies; (c) expansion and quality improvement of storage, processing and marketing facilities for aquatic products; (d) training of public and private sector staff in quality control procedures for aquatic products consistent with "Hazard Analysis at Critical Control Points" (HACCP); and (f) the application of HACCP standards to processing plants and markets upgraded by the project. A principal of AISDevelopment was active in all stages of the design of the project and implementation of the project, headed the design,

implementation, and supervision of the Aquatic Product Quality Improvement Component. This component has successfully financed the construction and rehabilitation of 21 processing facilities with an investment of US\$ 32.1 million. All of the plants are currently certified using the HACCP control process. The project targets the four provinces of Shandong, Liaoning, Fujian, and Jiangsu, and the total project investment is US\$200.0 million.

- ***Heilongjiang Agriculture Development Project (1997 to present).*** Cold water pond culture of adapted species of carp and other cold water species and the re-stocking of large lake resources. The project is currently being implemented with a planned investment of US\$ 70.6 million of which \$US 40.26 million has been invested to date with the resulting construction and rehabilitation of 470 hectares of ponds, and the re-stocking of a 12,000 hectare lake.
- ***Song Liao Agriculture Development Project (1994-1999).*** Sustainable production of shrimp, scallops, river carp, including hatcheries and processing facilities. The project financed the development of low-lying mudflat wastelands (northern area containing no mangroves) for shrimp, shellfish, and river carp production. The project has concluded with the following results: 1,333 hectares of shrimp ponds were rehabilitated. A shellfish hatchery producing 200 million scallop spats was put into production, and the low impact, marine scallop production was increased by 8500 rafts or chains. 13,333 hectares of inter-tidal hard and short neck clam culture were seeded and are being harvested. Construction was accomplished on a 1600 square meter river crab hatchery, 134 hectares of river crab area was put into production using individual household contract farming. The total investment in the Aquaculture component was US\$ 20.63 million.
- ***Guangdong Agriculture Development Project (1991-1999).*** Sustainable mariculture of shrimp, oyster, marine net cages, inland fresh water fish production with hatcheries and processing. A total investment of US\$ 230.38 million, of this amount US\$ 159.8 was used in the fisheries and aquaculture component, with the following accomplishments: (a) construction of 1.6966 million square meters of sea dikes, (b) 1,126 hectares of brackish water ponds and 1293 hectares of fresh water ponds and 208 ha of shrimp ponds (c) construction of 4 cold stores, (d) development of 440 hectares of oyster cultivation and (e) 8,000 marine net cages and 3000 fresh water net cages for fish cultivation. Twenty-eight fishing vessels were also constructed, 52 additional fishing vessels were originally planned, but due to the determined status of the fish stocks, the construction of these vessels were canceled and part of the funds were shifted to aquaculture production.
- ***Henan Agriculture Development Project (completed 1998).*** Inland pond production of mixed carp species, developed individual household contract program

- ***Hebei Agriculture Development Project (1989-1998).*** Coastal shrimp, introduction of scallop culture, fresh water fish production using individual household contract system. Pre-appraisal, appraisal and supervision over the life of the loan project of ten years. Over that period, the number of scallop chains in the Bohai (Bo Sea) grew from 800 to 92,000.
- ***Fourth Rural Credit Project (completed 1997).*** Loan to the Agriculture Bank of China. Supervised disbursements for loans relating to fisheries and aquaculture.
- ***Shandong Agriculture Development Project (completed 1996).*** Coastal mariculture (saltwater), including hatcheries, pumping facilities, and processing for large scale shrimp production.
- ***Coastal land Development Project (completed 1995).*** Coastal mariculture (saltwater), including hatcheries, pumping facilities, and processing for large scale shrimp production

***MEXICO, World Bank***

Analyzed Mexican aquaculture market, production and seafood processing industry and provided technical assistance in restructuring plants and products.