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Fishing for food in dry seasons

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JOHANNESBURG, 26 April 2007 (IRIN) - With food security often at the mercy of erratic weather patterns, Southern Africa could bank on its "tremendous" potential to farm fish to sustain its predominantly agrarian communities, according to aquaculture experts.

"Aquaculture in Southern Africa is unfortunately still underdeveloped but there is good potential, as there are adequate inland water resources in most parts of the region," said Erik Hempel, team leader of the regional office of INFOPECHE, an intergovernmental organisation providing marketing information and a cooperation service for fishery products in Africa, set up in 1985 as a United Nations (UN) Food and Agriculture Organisation (FAO) project.

Hempel pointed out that aquaculture could complement existing sources of income and food as well as provide alternatives to impoverished communities of subsistence farmers in the region. "We know of a subsistence farmer at the foot of the Hardap Dam in southern Namibia who uses the water not only for his fish farm, but recycles it for his crops - he grows vegetables and farms fish in combination."

According to the FAO, southern Africa has an estimated 20,000 small bodies of water, mostly reservoirs built to provide water for domestic use, watering cattle and irrigating crops. Some of these were stocked with fish, but, lacking adequate management, production remained low.

Besides inland water resources, countries along the east coast of Africa, like Mozambique and South Africa, have the potential to develop shrimp farming, but Hempel said aquaculture along the west coast, which is "exposed to the elements, would require a great deal of investment".

He pointed out that "there is good potential to develop oyster and mussel farming, which is already happening in South Africa", but said subsistence aquaculture could be developed mainly in inland freshwater bodies.

An illiquid potential resource

Alec Forbes, a marine biologist and aquaculture consultant, said aquaculture was prevalent in Namibia, South Africa, Zambia, Mozambique, Zimbabwe and Malawi, "all with some degree of success, but falling short of the real potential". Most efforts to kick-start fish farming for subsistence farmers have been stumped by lack of resources, skills and funding.

The FAO has developed a strategy to promote subsistence aquaculture in Africa, according to Lahsen Ababouch, Chief of the Fish Utilisation and Marketing Service at the FAO. "We are trying to replicate [in Africa] the success of aquaculture in Southeast Asia and Asia," he added. Fish as a source of protein is critical for improving food security, "which is our mandate" in least-developed countries.

Investment in aquaculture is critical, as the FAO's annual report on fish farming last year found that nearly half the fish consumed worldwide were raised on fish farms rather than caught in the wild. Dwindling fish stocks and rising demand have increased the pressure on aquaculture. The FAO was still in talks with donors on its plans for Africa, he added.

Despite its natural potential, Africa is a minor player in fish farming, according to the FAO's 'State of World Fisheries and Aquaculture 2006' (SOFIA) report. "Even aquaculture of tilapia, which is native to the continent, has not developed significantly." Nigeria is the continental leader, with reported production of 44,000 tonnes of catfish, tilapia and other freshwater fish.

Ababouch said there was a growing global demand for fish like tilapia and catfish, which are cost-effective species and suitable for subsistence aquaculture.

"The tilapia in all its different forms lends itself to aquaculture, being a hardy and forgiving creature, able to survive in the harshest of conditions and being the foundation pillar of the aquaculture diet," said

Forbes. "Catfish and bass are also excellent aquaculture candidates, as well as carp and some invertebrates, but tilapia spp. remain the cornerstone of the poverty-alleviation and food-security programmes."

The SOFIA report noted that there "are some encouraging signs in the continent: black tiger shrimp (*Penaeus monodon*) in Madagascar, and *Eucheuma* seaweed in the United Republic of Tanzania, are thriving, and production of niche species such as abalone (*Haliotis* spp.) in South Africa is increasing. In the Near East and North Africa, Egypt is by far the dominant country in terms of production (providing 92 percent of the regional total) and is now the second biggest tilapia producer after China, and the world's top producer of mullets".

Unlike Southeast Asia, where aquacultural integration with poultry and animal husbandry dates bank thousands of years, Ababouch said Africa lacked the technology and investment.

Getting in the swim of things

However, there were countries in the region, like Zambia, Mozambique and Zimbabwe, which have been experimenting with aquaculture since the 1950s, when the first attempts were made to raise indigenous species of the Cichlidae family, mainly tilapias, in dams and earthen fish ponds, according to an FAO profile.

A number of donors have taken an active part in assisting the Zambian government to encourage farmers to adopt aquaculture by introducing pond culture in rural areas as a way of enhancing nutrition. The government has provided extension services, which have made a marked improvement: Zambia has more than 6,000 small-scale fish farmers with over 13,000 fishponds.

Many countries in the region have been experimenting with fish farming. The Mozambican government built hatcheries and demonstration farms in the early 1960s, and renewed its interest in freshwater fish farming in the late 1970s, particularly as a means of supplying fish to the rural population, which was deficient in animal protein and beyond the reach of existing marine and freshwater fish distribution networks.

But INFOPECHE's Hempel noted that most government-driven projects have foundered. "Aquaculture needs 24-hour surveillance, while governments function nine [a.m.] to five [p.m.]. We are dealing with living organisms; it needs a lot of commitment." He suggested that governments rather help out with funds and training; small-scale farmers could be assisted with supplies of fingerlings to kick-start their farms.

"An enthusiastic government approach is vital to the success of all aquaculture ventures in southern Africa, without which efforts will come to naught," said marine biologist Forbes. "Incentive packages must be put into effect to attract foreign currency investors and, indeed, local investors."