

fisheries

research findings for development policymakers and practitioners

Ornamental fish farming in West Africa's rainforests

Over 200 species of valuable ornamental fish live in the rivers of the Lower Guinean rainforest in Cameroon. The export trade for these fish largely benefits foreign businessmen, who keep up to 95 percent of profits. More sustainable approaches to trade are needed if local people are to benefit.

The trade in ornamental fish (fish kept for their beauty rather than for food) is dominated by 'middlemen'. They keep the profits and their crude capture techniques result in an average fish mortality of 85 percent. Low quality products and unreliable services mean that aquarium fish from Cameroon have a poor reputation internationally. Many fish stocks are at the point of collapse and local people gain little from the industry.

The WorldFish Center in Cameroon, in partnership with the Organisation pour l'Environnement et le Développement Durable (a local non-governmental organisation), is working on an ongoing project with middlemen and fishers. The aim is to turn an inefficient, exploitative business into a profitable local enterprise that benefits local populations. This is done by improving the handling and transport

These men are fishing for ornamental fish in the Koke River, southwest Cameroon. More than 200 species of valuable ornamental fish live in the rivers of the Lower Guinean rainforest. Yet wasteful exploitation and callous shipping of ornamental fish – almost entirely for the profit of foreign middlemen – means 85 percent of the fish perish before reaching overseas markets.

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of fishes for overseas markets, and renegotiating the distribution of profits.

The project is applying several principles:

- underpin business with good science: research into the ecology of river ecosystems has been vital for identifying the best strategies for fish capture, husbandry and stock monitoring
- establish partnerships: a committed long-term involvement with local communities is essential to success
- launch new technologies: these include training courses, loan schemes to build fish holding stations, improved natural fish food, discipline in recording catches and mortality, and a centre for holding and packaging fish
- establish cooperatives: community groups can mediate between individual fishers and external buyers for better prices and help to use profits for community projects
- integrate technology, good business planning and market understanding, as well as knowledge of local traditions and customs
- help local authorities to appreciate the financial value of rainforest ecosystems, so they can support their protection.

There is a low natural abundance of fish in Lower Guinean Rainforest, and limited infrastructure. As a result, the trade in wild ornamental fish will not produce enough money on its own to sustain rural communities, or justify the responsible management of rainforests.

However, cultivating ornamental fish through aquaculture could form the basis of a sustainable and profitable rainforest river management project. This could provide alternative employment for young men and women, who might otherwise live by slash-and-burn agriculture or illegal logging, or be forced to migrate for work.

The key lessons from the project so far include:

- Ornamental aquaculture systems that have minimal impacts on streams, and

depend on natural nutrient cycles, provide incentives for forest-dwelling communities to conserve rivers.

- A profitable and environmentally sustainable trade in non-timber forest products – such as ornamental fish – can help to conserve rainforest ecosystems and sustain traditional livelihoods.
- Projects should work with local organisations to improve marketing skills, and advocate conservation and the fair valuation of ornamental fish.
- Reducing the number of deaths in shipments of ornamental fish to overseas markets helps to conserve fish in their ecosystems, whilst increasing the profits to local communities.

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Adult education and training in fishing communities

Fishing communities in South Africa's Western Cape are being disadvantaged in respect of access to adult education, vocational education and training provision. Despite relative prosperity in the region, the level of educational provision remains highly uneven. These communities are disadvantaged due to their employment largely being in the informal sector.

The South African Government has implemented a national Adult Basic Education and Training (ABET) programme and established the National Qualifications Framework (NQF) to integrate education and training. Yet, adult literacy and skills or vocational education and training (VET) have been sidelined, both politically and financially. Internationally and in South Africa, training is not prioritised for the informal micro- and small-enterprise sector – within which most local small-scale fishing and related activities fall.

Research from the University of

Edinburgh, in the UK, examines access to adult education and VET provision in fishing settlements in the Western Cape.

- Several institutional factors are slowing adult education and training in reducing poverty in South Africa: for example the Department of Labour's reliance on private VET providers, which include unreliable or unaccountable providers.
- Fishing allocation has been influenced by the international Individual Transferable Quota (ITQ) system – fishing rights in South Africa are allocated as quotas, favouring larger companies.
- New national regulations have been crippling for small-scale local-level fishing and detrimental to the sustainability of the resources – such as the allocation of quotas for one species at a time (some fishers can catch their annual quota in less than three days).
- The quota application process also discourages fishers from working in other sectors (many undertake seasonal work to feed their families).
- ABET classes tend to follow the formal schooling method and are not linked to fishers' real-life experiences.
- ABET class completion rates in the area are very low. ABET and literacy provision are not meeting the needs of fishing communities.

The paper draws several conclusions:

- Rural areas are not being adequately served by public and private adult educational and VET provision.
- Gaps in provision are exaggerated by the implementation of imported international models like the NQF.
- International donor efforts have been adversely affected by too little attention being paid to local and national structures and processes that influence access to education.
- National marine resource allocation issues and local and national institutions are also affecting progress, including detrimental effects on livelihoods and a lack of responsiveness of ABET and VET provision to the changing policies.
- Adult education and training provision needs to take a more equity – and poverty-oriented approach.

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'Educating and Training out of Poverty? Adult Provision and the Informal Sector in Fishing Communities, South Africa', *International Journal of Educational Development*, 27, pages 446 to 457, by Carolyn Petersen, 2007

Co-managing Lake Victoria's fisheries

Lake Victoria is Africa's largest fishery resource, but ineffective management has contributed to a serious decline in the volume of catches since the early 1990s. One solution may be co-management between governments, industrial processors and the traditional institutions that represent fishing communities.

Co-management is as a management system that includes two or more groups with an interest in a resource – often the state (or government institutes) and the community using the resource. Many experts recommend using traditional groups or institutions as the basis for co-management because they are usually accepted by communities and can work with state institutions.

Research by the International Water Management Institute, the Tanzania Fisheries Research Institute, the Fisheries Resources Research Institute in Uganda, and the Kenya Marine and Fisheries Research Institute, looks at the challenges of managing fisheries in Lake Victoria. The communities living on its shores supply up to 30 factories, which are the basis for a multi-million dollar fish export industry. Catches peaked at 787,899 metric tonnes in 1990. Since then, however, there has been a decline in the volume of fish caught and a change in the composition of fish species in the catches.

These changes have come from the absence of co-management between the state, fishing communities and industrial

fish processors. The research shows:

- Fisheries regulations are not applied effectively and many people do not know what the regulations are, including state fisheries officers.
- The state is reluctant to transfer managerial power to local institutions at Lake Victoria's fish landing sites.
- There is a conflict between livelihoods and fisheries management: as resources become scarcer, people use less sustainable fishing techniques.
- There is an overemphasis on biological science within fisheries, which does not always provide management officials with the right information.
- Policymakers underestimate the managerial abilities of fishing communities, tending to criminalise fishermen rather than work with them.
- The state regulatory organisations do not have enough funding, which encourages corruption.

The researchers propose a co-management structure based on three levels of administration: Beach Committees (BCs), District Committees (DCs) and Regional Committees (RCs).

The researchers also recommend:

- BCs should act as forums for negotiating management decisions. The selection of members should be determined by communities and represent all concerned groups.
- DCs should advise

BCs on district-level trends, deal with the issues that BCs feel they cannot handle, and support communication between BCs and RCs.

- RCs should include BC representatives and, with the Lake Victoria Fisheries Organization, advise on national and regional issues.

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© Institute of Development Studies 2008 ISSN 1746-8655
Printed on paper produced from sustainable forests

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Keywords: adult basic education and training, co-management, fisheries, ornamental fish, vocational education and training.