

Africa's Age of Aquarium

The dawning of ornamental fish culture – a high value livelihood option for vulnerable communities



Food fish is an important rainforest commodity, selling for \$15,000 per ton. Ecologically diverse and colorful ornamental fish sell for an equivalent of \$1.8 million per ton. However, their relative rarity requires innovative, environmentally sensitive aquaculture technology that blends fish farms with the rainforest and its waterways.



A forward-looking community service organization (CSO) in Cameroon dedicated to sustainable development and environmental protection, Organisation pour l'Environnement et le Développement Durable (OPED), has enlisted the help of the WorldFish Center and other partners in the public and private sectors to replace a shady trade in ornamental fish with an innovative and sustainable livelihood option for the 8 million people who live in the riverine ecosystems of the Lower Guinean rainforest.

A squandered opportunity — the ones that got away

More than 200 species of valuable ornamental fish live in the rivers of the Lower Guinean rainforest. However, individuals of the colorful species found in the deep rainforest are too rare to sustain rural livelihoods, and local fisher folk have heretofore lived by catching food fish. Yet wasteful exploitation and callous shipping of ornamental fish — almost entirely for the profit of foreign middlemen — has seen 85% of the fish perish before reaching overseas markets. Such squandering of natural resources is clearly unsustainable.

A river of livelihood and ecological benefits begins to flow

The project aims to implement ornamental fish management on three forest rivers in south-central Cameroon; train fishers already identified and a number of others in aquaculture technology; establish sustainable fishery-management entities in five villages housing more than 4,000 people; and improve scientific documentation of rainforest fish biodiversity, ecology and reproduction. Reduced fish mortality in shipments to Europe handled by Gulf Aquatics, a small Cameroonian trading company, has already boosted returns to local communities by fivefold. Higher export volumes, newly adopted species and fair trade marketing promise to bring substantial new income, a quarter which will be channeled into community projects.



In addition to refining aquaculture technology and honing local marketing expertise, Aquaculture for Vulnerable Groups in Rainforest Fishing Communities will establish sustainable village fishery-management entities and empower forest communities to advocate and justify the fair valuation and protection of their forest aquatic resources.



Women are active in rainforest fisheries and the primary beneficiaries of Aquaculture for Vulnerable Groups in Rainforest Fishing Communities. Related to the project is the \$25,000 grant that the National Geographic Society in the United States recently awarded WorldFish to study and commercialize women's fishing activities in rainforests.



Fishers and partners take stock of resources and options

In the collaborative project **Aquaculture for Vulnerable Groups in Rainforest Fishing Communities**, OPED, WorldFish and village fishery groups conducted research and established sustainable aquaculture for ornamental fish. Importantly, the project also empowers forest communities to monitor and report on their forest aquatic resources, advocate and justify their fair valuation and protection, and manage and market them responsibly and sustainably.

An alternative livelihood that truly protects the rainforest

Non-timber forest products support forest dwellers who would otherwise live by slash-and-burn agriculture or resort to illegal logging. However, most wild products are prone to over-exploitation, and commercially viable production of the few that are cultured typically requires clearing the forest. In contrast, ornamental aquaculture systems are being designed to depend on natural nutrient cycles and so mesh with the forest. Minimal modifications to streams expand the habitat conducive to natural spawning and juvenile survival. This provides wild brood stock that ensures both the genetic integrity of the cultured fish and strong incentives for forest dwellers to conserve rivers and streams.

Market chain developed - An innovative public-private partnership driven by demand

Cementing the collaboration are the initiative and leadership shown by local communities in seeking expertise and public-private partnership to help them manage their natural resources in ways that are viable both environmentally and economically. The partnership brings together — in addition to OPED, WorldFish and Gulf Aquatics — taxonomic expertise from three universities and two natural history museums in Europe and America, as well as the promotional and networking skills of three international environmental groups. At the heart of the partnership are the village fishery groups that are fully engaged in every step of developing a market chain that stretches from their ponds and rivers to the aquariums of the West.

An exemplar in a fishbowl and model for other communities

Commercially sound and environmentally sustainable trade in non-timber forest products provides the best hope of ensuring the survival of rainforest ecosystems and improving the lives of their inhabitants. **Aquaculture for Vulnerable Groups in Rainforest Fishing Communities** promises to grow and become recognized as a valuable model for other African communities, perhaps first for the 20 million people of the neighboring Central African rainforest, who face similar challenges and opportunities.

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