



DRIVING EAST AFRICA'S Blue Revolution

by Menno Morenc, Larive International

Many donor-driven attempts at developing the East African aquaculture sector have failed, until a Dutch-East African initiative adopted an innovative approach and the FoodTechAfrica project was born.

Worldwide, aquaculture produces more than what is caught from the wild. However, this is not yet so in Africa. Of the global aquaculture output, only 2.5 percent is farmed in Africa, according to the FAO and most of this is concentrated in two countries; Nigeria and Egypt. Now contrast that with an African population set to rise from one to two billion (>20 percent of the world's population) and the stage is set for a blue revolution.

Demand for fish in Africa is thus going up, whilst wild-catch is declining. In East Africa, Lake Victoria, wild catch declined by half on the Kenyan side of the lake. This leaves fish farming or importing fish as the two main options to provide fish to the growing consumer base. Africa is under the spotlight when it comes to global food security, and food security is best achieved by sustainable local production. Thus, it is important to look inland, towards sustainable farming of freshwater fish.

FoodTechAfrica

Enabling sustainable fish farming is why FoodTechAfrica was established in 2013 as a public-private partnership combining the strength and expertise of 14 partners, all of which are active in the aquaculture value chain. Together, they created and put in place an approach towards creating a sustainable aquaculture sector in East Africa, starting with the basics:

- Feed
- Fingerlings
- Sustainable production systems
- Processing

The well balanced mix of partners each play their indispensable role. Unga Group Limited, Nutreco, Ottevangner Milling Engineers and Almex Extrusion Techniques set up aquafeed production. Fishion, Holland Aqua, Viqon and Kamuthanga Farm pioneered on local recirculating aquaculture systems (RAS) production. Wageningen University and Research and Kenya Marine and Fisheries Research Institute (KMFRI) laid the academic groundwork. The project was initiated and is currently managed by Larive International, and its East African partner Lattice Consulting. The Netherlands Ministry of Foreign Affairs, enthused by the project's approach and strength of the individual partners, provided co-financing.

Locally produced aquafeeds

To date, most government and donor programs have aimed at stimulating aquaculture in East Africa by focusing on smallholder farms and stimulating their output. However, fish feeds make up roughly 70 percent of the cost for a fish farmer. So, not having local fish feed production is like having a 'truck without an engine'. It's hard to get moving. With the combined expertise of Ottevangner Milling Engineers, Almex, Nutreco and Unga, a fish

feed facility was opened last March, producing high-quality feed in the heart of East Africa, Kenya.

Unga, manufacturer of human nutrition and animal nutrition products, invested in a fish feed plant, producing the greatly needed floating extruded fish feed pellets and eliminating the single most important impediment to the growth of aquaculture in the region. The facility can produce 5,000 tonnes of floating pellets for the local market, coming in a four-part-offering from 'starter' to 'finisher' feeds and based on the lifecycle of the Tilapia fish.

"We have a vision of aquafarming being as popular as dairy farming"

According to Unga Holdings Limited Board Chair, Ms. Isabella Ochola-Wilson, the factory is "In line with our Vision of 'Nutrition for Life', Unga has taken a bold step – investing, with the support of funding from the Dutch Government – Kshs. 225,000,000 (approximately €2m) in a state-of-the-art fish feed production facility to serve an aquaculture industry still in its infancy. It is the first facility of such size and technical capability in East Africa and also worth noting is that it has been designed with the flexibility to double capacity within a very short timeframe."

Sustainable Production Systems

Aquaculture requires stakeholders, farmers and investors to 'think ahead'. Especially in East Africa, where water and land become ever more scarce resources, fish farming should use the

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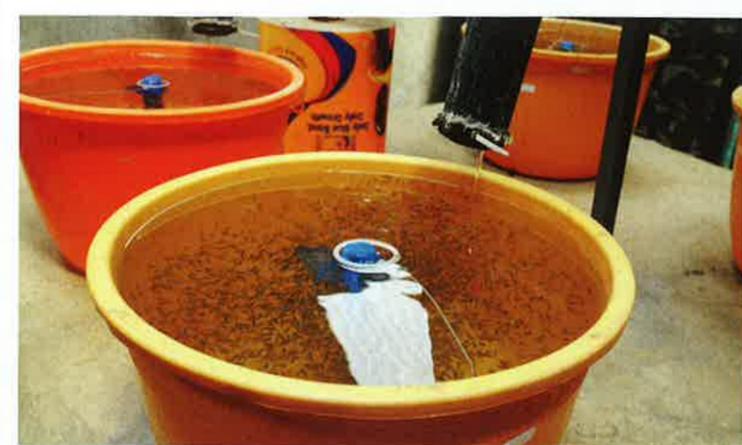


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least amount of these resources as possible. The FoodTechAfrica partner Kamuthanga, together with their Dutch counterparts Fishion, Viqon and Holland Aqua have therefore developed a recirculating aquaculture systems (RAS), specifically for application in East Africa.

The system has been tested in East Africa for over two years and the results are above and beyond all expectations, outperforming traditional open pond systems in all areas. Annual production per square meter is 100-150kg, compared to 0.5-1.5kg for an open pond system. Feed Conversion Ratio (FCR) – amount of feed needed to grow a kilo of fish - is 1.3 for the closed farm and 2.5 for an open pond. The semi-intensive aerated system is fully controlled, from hatchery, pre-grow-out and grow-out, providing 50-100 times the output as compared to a traditional East African fish pond of the same surface. Furthermore, the system slashes the growth period for tilapia in half. Based on these premises, the adapted system represents a viable business case in which a farmer can sustainably supply year round fresh fish for the local market.

Value chain approach: Fingerlings and Processing

True to its holistic approach, FoodTechAfrica partners invest in all links of the value chain. At the start of the aquaculture value chain are fingerlings. Proper fish farming requires breeds, developed specifically for aquaculture. Using improved varieties of tilapia increases breeding success, fish growth rates and their survival and success in aquaculture production systems. Investing in fingerling production has enabled the partnership to produce not only for its own production but also increasingly, other fish farmers are being supplied with quality genetic material.

Getting fresh fish to the market is the final, yet equally important, step of the value chain. Preventing wastage requires a holistic approach to include processing, packaging, marketing and distribution of fish. Existing team expertise and proven

solutions are being blended with local insights in how to best serve local consumers with fresh, healthy fish.

Looking ahead

After having established local feed, fingerling, fish and processing capacity, the partners are looking to scale-up, as the five-year FoodTechAfrica project has only been the first step towards its ambition to start a blue revolution in East Africa. This revolution will only be achieved by involving other investors and farmers. However, involvement can sometimes be hampered by the lack of financial means to invest in large fish production facilities.

To solve this issue, the partners have developed a stand-alone, modular and aerated production unit. The unit will be demonstrated from the second half of 2017 onwards in Kenya and will be open to interested fish farming entrepreneurs. The unit will be rolled out to investors who want to invest in the technology and sign them up so that we start the blue revolution. In due time, details on the features and performance of the unit will be published in *Aquafeed* and on the FoodTechAfrica website.

When the partners first started in East Africa in 2013, they had a vision of starting a blue revolution, or in the words of Winnie Ouko, CEO of Lattice Consulting “We have a vision of aquafarming being as popular as dairy farming”. The FoodTechAfrica consortium has shown commitment ever since, building out its partnership, and taking important steps towards realising that vision.

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