

# Aquaculture in Sierra Leone

Aquaculture is a growing global industry that offers great potential for Sierra Leone's fisheries sector. A study conducted by Invest Salone has found that tilapia and catfish farming could provide the country with future investment opportunities.



## Industry snapshot

The marine fisheries sector plays a vital role in Sierra Leone's economy. It provides livelihoods for over 500,000 people and contributes 10% of GDP. Fish is a crucial source of protein for Sierra Leone's population, but poor fishing management threatens the sustainability of the country's marine life. Aquaculture has enormous potential to provide a more sustainable source of protein, as well as boost employment and export earnings.

The fisheries industry consists of the marine, inland and aquaculture sectors. Aquaculture is the smallest. In 2015/16, a survey of the industry recorded 2,089 fishponds, of which 2,059 were identified in Tonkolili District. Only 271 ponds were considered operational (13%).<sup>1</sup>

## The challenges

There is no commercial manufacturer of feed in Sierra Leone and only one company importing feed from Ghana. Mariculture (coastal or marine aquaculture for food and other products such as pharmaceuticals) is not currently practiced, although a few trials have been conducted on oyster and mussel culture. There is no supply of hatchery-produced shrimp seed, oyster spat or any other marine fish seed in Sierra Leone.

There is a need for year-round, high-quality broodstock to produce fish seed that can be widely distributed at a reasonable cost. At present, Green Agventure is the only commercial producer of catfish and tilapia fingerlings. Most smallholder farmers still depend on other farmers for seed, which is bred in ponds and subject to inbreeding pressure.

The aquaculture sector also requires technical knowledge, health and environmental support services, as well as specialist equipment and supplies along the entire value chain – all of which are currently lacking in Sierra Leone. Another issue is the shortage of skilled and knowledgeable workers.

## The opportunity

Globally, aquaculture is already a US\$243.5 billion industry. Continuing investment is the only way to meet growing international demand for more sustainable forms of protein, while protecting marine environments.

Total aquaculture production is projected to reach 109 million tonnes in 2030, an increase of 32% (26 million tonnes) from 2018. While Asia will continue to dominate and will be responsible for more than 89% of the increase, the greatest expansion (up to 48%) is expected in Africa.

Despite the challenges posed by the current lack of infrastructure and support services for aquaculture in Sierra Leone, there is significant potential. Water and land, the natural resources needed to sustain the industry, are readily available.

The Ministry of Fisheries and Marine Resources is aware that the regulatory framework (Fisheries Regulations 2019) is inadequate for the development of a commercial aquaculture sector and provision is being made to develop a separate Inland Fisheries and Aquaculture Development and Management Policy. This will hopefully be followed by the development of a standalone Inland Fisheries and Aquaculture Development and Management Act.

While there are several options in terms of species and technologies that could be considered, the expert view is that tilapia and catfish are the best choices.

Tilapia is the second largest globally produced fish. It is a locally, regionally and internationally acceptable and marketable fish species – and demand is increasing.

Additional advantages of tilapia are that it does not require a high protein diet, breeding technology is simple and farming methods can range from basic ponds to more intensive technologies.

In Sierra Leone, previous Corporate Social Responsibility and development aid projects have laid the foundation for tilapia cultivation. Furthermore, the processing, cold storage and marketing facilities servicing the marine fisheries sector could easily be adapted to the requirements of tilapia farming, until the industry develops specialist skills and facilities.

African catfish is also an increasingly important aquaculture species for sub-Saharan Africa. It is fast growing, has no demanding nutritional requirements and there is a growing regional market.

In Nigeria, the world's largest producer of catfish, production exceeds that of tilapia and represents an estimated 90% of Nigeria's fish farming activities. Around 80% of that is produced by subsistence farmers, who use some for their own consumption and the rest to boost their income.

African catfish has also overtaken tilapia as the most popular species in Uganda and is increasing in Ghana.

Catfish is often consumed as a smoked fish. This creates further job opportunities in the processing segment and opens export trade opportunities to neighbouring countries and diaspora populations.

## What will it take?

Previous initiatives to kickstart aquaculture in Sierra Leone have focused on building public sector

infrastructure to support small scale producers. A different approach is recommended in this case.

A pioneer investor is needed to overcome the existing challenges for inputs, staffing and energy – and establish a fully commercial aquaculture venture. This would help to demonstrate viability and would encourage others to invest. The scale and pond technology still need to be determined, but pre-feasibility work by Invest Salone points towards a freshwater aquaculture system using simple rectangular earthen ponds for the first phase of the business. There is also a need to investigate the potential for brackish water pond-based fish farming, using salt-tolerant tilapia.

Invest Salone will continue to encourage investment in aquaculture and will work with potential investors to facilitate this process.

### Minimum viable scale operation for Tilapia and African Catfish production

<b>Land area</b>	Four hectares
<b>Broodstock</b>	Imported and maintained
<b>Seed</b>	Hatchery produced in the facility
<b>System</b>	Aerated earthen ponds
<b>Structure</b>	2.5 ha ponds + 0.5 ha reservoir + 0.5 ha hatchery/nursery + 0.5 ha of infrastructure
<b>Power</b>	Grid electricity + solar
<b>Feeds</b>	Imported
<b>Grow out</b>	Six months/crop and two crops a year
<b>Harvest size</b>	500–700g (also based on market demand)
<b>Cold storage</b>	Using rented facilities at the beginning with the vision to build own cold storage facility
<b>Market</b>	Local, regional, and international

<sup>1</sup> The study was conducted by the World Fish Center and Food and Agriculture Organization.

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