Lake View Fisheries Ltd
Grantee Case Study
Background

AgriFI Kenya Challenge Fund (AgriFI) seeks to support productive and market-integrated smallholder agriculture through the provision of financial support to agri-enterprises. The aim is to contribute to improvements in the capacity of smallholder farmers/pastoralists to practise environmentally sustainable and climate-smart agriculture as a business in inclusive value chains. AgriFI’s objectives are aligned with the Government of Kenya’s aspirations for the agriculture sector as embodied in its Vision 2030, the Big 4 Agenda, and the Agricultural Sector Transformation and Growth Strategy (ASTGS).

This is one of a series of 6 case studies commissioned to extend key lessons and recommendations from grantee level review and analysis. A previous research phase explored high priority impact areas including gender, youth, nutrition, and climate smart agriculture (CSA) with a view to supporting effective design, targeting and implementation of AgriFI. These case studies test some of the logic and understanding of that research, illustrating effective strategies, issues of concern, and areas with potential for increasing positive impacts.

The suite of case studies include two (of 8) Call 1 grantees, three (of 12) Call 2 grantees, and one non-grantee as a counterfactual. Grantees from the COVID-19 Response and Recovery Call and Call 3 have not been included due to insufficient progress with project implementation at the time of fieldwork. Grantees were selected for inclusion on the basis of VC (i.e. broadly representative of the wider portfolio), geography (i.e. reasonable geographic spread), and relevance to key impact areas (i.e. strong learning potential). Fieldwork was conducted in late June and early July 2021 in compliance with COVID-19 guidance and restrictions.
Introduction to Lake View Fisheries Ltd

Lake View Fisheries Ltd (LVF), founded in 2013, is a vertically integrated fish farm operating from Mfangano Island, Lake Victoria, Kenya. The company seeks to improve the sustainable production and availability of fish farmed through modern aquaculture technologies; ultimately, it aims to increase per capita fish consumption and boost economy for small scale fish producers as well as other actors along the value chain. The company employs 12 permanent, 22 part-time and 37 casual staff.

LVF operates a fish hatchery which currently produces 300,000 fingerlings per month, from 20 land-based breeding ponds. Some fingerlings are retained for the company’s own fish production whilst others are sold to fish farmers in the area. LVF is in the process of developing an on-site Recirculatory Aquaculture System (RAS), a system which improves efficiency of temperature and oxygen control and therefore increases productivity of fingerling output. LVF anticipates this investment will increase its fingerling production three-fold.

Additionally, the company operates 14 floating fish cages, anchored approximately 1km offshore. Each cage has the capacity to produce 35,000 fish to maturity (~300 grams/piece) per production cycle. LVF produces tilapia for a range of different income segments on the Kenyan market. A significant proportion of fish harvested by LVF ends up in the hands of female fish traders/vendors who either work in retailing or processing for value addition in the local market.

Incorporated in their business model, Lake View Fisheries engages with smallholder farmers (SHF) in three key areas:

1. Supplying SHF outgrowers with high quality fingerlings, alongside other inputs, for fish production;
2. Providing training (production, management and marketing) and technical assistance on aquaculture through group structures and lead farmers; and
3. Providing SHF with a market for their fish through aggregation and market linkages.
Project Overview

Lake View Fisheries specialises in breeding tilapia; whereby the hatchery manager and team apply selective breeding methods, producing an improved variety of tilapia which grows both larger and faster. The company currently supplies aquaculture inputs, including their high-quality mono-sex fingerlings, to 600 fish farmers in the region. With support from AgriFI funding, LVF has established a cage farming demonstration site where it hopes to train lead farmers on the management and production of cage aquaculture, in addition to the benefits of climate smart agriculture (CSA).

With support from AgriFI, the project aims to:

- Integrate over 1,000 cage fish farmers into LVF’s outgrower scheme, involving guaranteed market access and access to extension support, high-quality inputs and credit;
- Train 600 cage fish farmers in good cage management practices, leading to higher quality fish, higher productivity and increased sustainability;
- Organise and support farmer groups to set up aggregation centres, thereby preserving the quality of fish and minimising post-harvest losses;
- Set up cold storage facilities at farmer group locations;
- Set up demonstration cages, managed by lead farmers, to demonstrate environmentally responsible cage management practices; and
- Assist outgrowers to carry out environmental assessments and acquire environmental compliance licenses.

As one of Kenya’s leading integrated tilapia farms, LVF has important connections and relationships with various apex bodies. The company links with Kenya Fish Processors & Exporters Association (AFIPEK) regarding policy development, such as organizing farmers into groups under the Beach Management Unit (BMU). Additionally, the county government, in association with AFIPEK, engages consultants for training farmers in environmental management, gender, nutrition, gender policy, CSA and business management. Tied to this, LVF works with the National Environment Management Authority (NEMA) of Kenya (the principal instrument of government in the implementation of all policies relating to the environment), to assist SHF in acquiring permits for operating in the lake. That said, even though LVF follows licensing
protocols for cage production (and encourages others to do the same), the company reports a general lack of legislation in the fisheries sector in Kenya, especially on taxation and standards.

**Challenges**

In addition to sector level challenges, industry players like LVF are still heavily challenged with flooded markets of cheap Chinese imports at macro level.

At company level, LVF acknowledged that offtake of fish from SHF has been particularly challenging. To manage their own cashflow, outgrowers would rather harvest and sell their fish in small amounts instead of harvesting the entire cage at one time. LVF have sensitized against this practice, stressing diminishing returns from extended production cycles. A discontinuous/sporadic offtake model from outgrowers is too logistically intensive for LVF, concomitantly, SHF have high asking prices for their fish.

Theft of fish from floating cages was highlighted as a primary concern of stakeholders involved in cage aquaculture on Lake Victoria. An outgrower from Sena beach reported that he ‘needs to be vigilant of the cages he manages as capture fishermen can easily come and harvest fish stock, day or night.’ LVF also emphasized this as a risk to their operations and reported to be investing in floodlights as well as CCTV at their cages in the lake.

Finally, LVF reported that COVID restrictions have impacted their operations and fish trade in the area. LVF implemented staff shifts, reduced training duration and attendees to adhere to national safety guidelines. Specifically, counties in west Kenya were placed under extended curfew from 19:00-04:00 impacting trade. This mostly affected fish mongers in local markets who typically rely on business during evening hours. LVF reported a 35% drop in sales compared to pre-COVID figures.
**Climate Smart Agriculture**

Recent weather-related changes in Lake Victoria, such as rising water levels & upwelling events, affirm a changing climate & rationale to integrate CSA into fish farming practices. The transition from metallic to HDPE cages permits use of floating feeds which are better for the lake’s ecology. They do not sink or float away, therefore uptake by the fish in the cage is high with less wastage.

Cage nets also allow free movement of water & are placed in ecological zones recommended by NEMA (away from natural breeding sites). LVF adheres to advised stocking rates, is licensed & teaches/encourages SHF to do the same. Additionally, LVF only stocks mono-sex fish in its cages, which reduces the risk of reproduction with other species in the lake.

**Gender**

Though there are gender disparities in the fish value chain in Kenya – where traditionally women are mostly involved at the processing level – there is growing evidence of more female inclusion in the VC. LVF currently supplies ~200 traders with fresh tilapia, most of these are women.

Moreover, 90% of traders who LVF supply are older women, while only 10% are male & female youth. LVF also supports 10 womens groups engaged in cage farming who benefit from provision of fingerlings, extension training & market linkages. Despite women having a smaller market share in fish farming, 30% of LVF’s registered outgrowers are women.

**Youth**

There are limited opportunities for entrepreneurship or formal employment in fish farming or along the VC for youth. Some male youths are employed to manage privately or communally owned cages, but many gravitate towards working in the “fast-cash” catch fisheries sector. Youth have the energy & capacity for the physically demanding labour requirements, typically visiting the cages three times to feed & check on the fish. Primarily, youth do not have the financial capital to invest in cage aquaculture. A traditional 6m² cage requires investment of ~KES 300,000 (€ 2,300). However, as cage culture becomes more popular the employment potential for youth will increase. While immaturity & a lack of soft skills precludes them from occupying roles further down the fish VC.

**Nutrition**

Culturally, fish is the preferred protein in the lake region. However, with increasing population pressure & dwindling catches of natural fish (partly due to the introduction of Nile perch in the lake), per capita fish consumption sits at a low of ~4.2 kgs/person/year, a contributing factor to high malnutrition rates. Fish meat is a healthy source of protein & Omega-3s, both important in a nutritious diet. Through its regional cold storage facilities, including a truck, tuk-tuks & recent disbursement of cooler boxes, LVF is able to transport fish further, maintaining freshness & hygiene.

Nutrition impacts are bolstered through increased fish production & consumption – driven by positive synergies of women empowerment, CSA practices & cold chain expansion.

**e-fish banda App**

Transport & communication is a challenge on the island, & historically LVF has been the link between fish farmers & markets – aggregating & transporting fish between producers and primary retailers. With a growing market, providing this service is becoming ever more time consuming, logistically challenging & costly for the LVF team – spawning the idea to go digital...

The App, still in development, will link farmers & markets/traders by providing info on quantities, pricing & location; saving LVF significant management time which will be redirected into growing operations in their fingerling production & sale. The App will likely impact gender & youth inclusion, as well as increase efficiency along the fish VC.
Key Learnings

Though current indicators of impact may seem limited or in early stages, LVF’s different work streams and business/project plans portray a holistic vision to improve fish productivity and economy for various stakeholders involved in fish production.

That said, the growing demand for fish protein in the lake region and across Kenya's interior presents immense opportunity for actors along the fish value chain to participate in socially and ecologically responsible development of the sector. Not only do growth strategies prioritizing gender and youth inclusion, CSA and nutrition, have the potential to create lasting social impact; research presents a compelling business case for seriously considering these thematic areas for SMEs navigating the current economic climate.

This section highlights some of the nuances in the impact areas, considering LVF’s current experience with project implementation against evidence from prior research.

CSA

CSA impacts of cage aquaculture are dependent on their placement, type of cage and inputs used. LVF’s set-up demonstrates key CSA approaches in these areas, as described in the impacts summary. Broad adoption of such practices has significant positive impact potential, not only for the ecology of the lake but also for youth inclusion, fish production and ultimately the nutrition and food security for the population the lake serves. However, limited access to HDPE cages constrains the uptake/application of these practices by SHF. Floating feed is not as effective in traditional metallic cages, physical gaps in their structure allow feed to drift away and secondly, metallic/iron cages are susceptible to corrosion. The HDPE cage technology is currently inaccessible to SHF with no manufacturers in Kenya, and importing the equipment and floating feed is beyond the financial capacity of many SHF.

Though there is merit to cage farming in general – free flow of water, placement in recommended ecological zones – some of the climate smart practices taught through demonstration at LVF’s floating HDPE cages are not transferrable to SHF at this stage. Furthermore, the Kenyan government has recently implemented a directive temporarily stopping installation of any cages in the lake over concerns regarding licensing, pollution, placement of cages in restricted areas, cage material
and stocking densities. A census of cages is planned to inform control of new cage developments and increase regulatory compliance. While LVF plans to cost share 10 new cages with SHF, the study highlights several constraints – both at sectoral and farmer level – in creating positive impact through cage aquaculture.

**Youth**

Although cage farming circumvents youth inclusion issues stemming from land and inheritance rights onshore – highlighted as a challenge to youth integration in farming by AgriFI’s youth research paper – youth are still precluded from investing in cage farming due to low financial capital (even constructing traditional cages is usually beyond their capacity). Despite this, youth – particularly male youth – hold a very important role in the day-to-day management of cages on the lake. For example, it is mostly youth who are involved in cage construction and anchoring. Currently, LVF is sponsoring training for three youth to complete a deep-sea diving course on the lake. These skills will empower them to offer cage cleaning and anchoring services to both the company and out grower farmers. These opportunities are limited in number at the moment due to the ecological and regulatory constraints on installation of new cages. However, if enabling factors promote uptake of cage aquaculture on the lake, there is potential for employment impact; especially for youth populations who are less likely to be integrated further down the fish VC.

**Gender**

The LVF team reported that older women, given their circumstances, are more committed to choosing fish trading as their livelihood, compared to other demographics. While there is indication of more female inclusion, gender segmentation in the fish value chain is still pertinent. As expected, and as referenced in AgriFI’s gender paper, **women tend to occupy more roles towards the tail end of the VC** – especially in trading and value addition of fish/fish products – participating in activities that are typically closer to the household, build on existing skills and use of family labour. Despite growing opportunities for female inclusion along the VC, these **positions are often chosen** precisely because they are **more accessible to women**.

The case study team visited a female fish trader and restaurant owner, one of 200 currently operating in LVF’s supply chain.

**Phenny Muga – Fish Trader, Rodi Market**

Phenny has been operating her business for just over a year, with start-up capital borrowed from a friend. She reported paying back the loan in less than six months due to the profitability of the business. Additionally, Phenny has recently purchased a motorbike through her earnings, allowing her to offer a paid delivery service to customers who order from further away.

Before opening this fish business, Phenny was selling milk and vegetables which she said was challenging due to seasonality. She reported not facing the same challenge with her fish business and is **open from 7am to 9pm most days**.

Phenny used to collect her fish from Mbita (~50km away), but now LVF delivers the fish to her store. Phenny reports selling 30-35kg fish per day, on average. This can increase to 50kg on
market days and between 40-45kg per day during school holidays. She can also store 90kgs at a time and reported receiving new stock from LVF on a daily basis, if needed. As such, Phenny can **turnover between KES 360,000-420,000 a month (€ 2,782-3,246)**, with a **profit margin of 25%** - she noted this was both more profitable and consistent than her previous business ventures.

Phenny identified power cuts as a major challenge affecting her cold storage. To assist her through power cuts, Phenny will benefit from one of the cooler boxes procured through the fund. At half cost, these cooler boxes will be sold to female fish traders, primarily to maintain freshness and hygiene during transportation. Her business is set to become one of LVF’s franchise outlets, while she also **plans to open another branch in Rodi due to its success**. LVF is working on franchising depot outlets and will have MoUs with outlet owners to supply their fish. Though Phenny has relied on word-of-mouth to market the business, she realizes this is inadequate to keep her business growing at the rate she would like; she looks forward to being trained on the e-fish banda application to streamline market linkages and business processes. Ultimately, Phenny reported being very happy with her pivot into fish trading and would encourage other women to venture into the business by starting small and growing with time. Phenny’s story aligns with AgriFI’s research which highlighted good opportunities for gender inclusion and empowerment in the aquaculture VC, including low barriers to entry for women entrepreneurs, with low start-up costs and the ability of women to control sales and income. Phenny’s experience also speaks to AgriFI’s inclusive VC approach, demonstrating **impact optimisation through close engagement with downstream VC players.**

**Nutrition**

Increasing food and nutrition security for SHF is one of the key impacts anticipated through AgriFI; for LVF this also applies to actors along the VC and culminates with improved nutrition for end consumers. Without adequate nutrition people are less healthy, productive and likely to break the poverty cycle and fully participate in society. As a healthy source of protein and Omega 3s, fish plays an important role in fighting hunger and malnutrition.

LVF’s work draws out positive synergies between nutrition, women’s roles within the fish VC, the CSA approaches being championed through the project, and LVF’s efforts to expand its cold chain. AgriFI’s nutrition research highlights that when women have control over resources, they are shown to spend more on the education and nutrition of their children and are considered safeguards of nutritious diets in their households. Such is the case for women who naturally dominate trading/value addition roles within the value chain, while LVF concurrently works to increase female integration at production level. There are clear nutrition impact pathways from the increased incomes and direct access to fish women in LVF’s value chain benefit from to improve household nutrition outcomes.
Additionally, LVF’s cold chain expansion is reflective of nutrition impact research promoting implementation of post-harvest interventions which seek to reduce post-harvest losses and reduce deterioration of nutritional quality. Not only is LVF able to expand its reach of fresh ice-packed fish through a refrigerated van, but it also assists traders in maintaining freshness and hygiene through disbursement of cooler boxes through the project; mitigating the risks associated with temperamental power supply and providing clean storage environments for fish that may have previously been sold from open-air stands. These interventions support the supply of fresh fish to populations who have historically had less access to it. LVF is pursuing more funding to expand the reach of its cold chain, currently they are able to transport fresh fish for up to 2-3 days with ice – annually dispersing 12 tonnes of fish to a network of traders within 60 km² of Mbita.

Finally, through the development of the RAS, LVF anticipates injecting 900,000 high-quality fingerlings per month into the fish VC – both for internal production and sale to other outgrowers. With an attrition rate of 20% and assumed harvest size of 300g, these fingerlings could potentially produce 2,592 tonnes of fish per year. Creating potential to feed 259,000 people an annual average of 10 kg of fish per person; which is half the average global fish consumption per capita rate, but more than double the current fish consumption in Kenya.