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Growth, Finance and the Triple Bottom Line in Kenya's Fisheries Value Chain

This note analyzes finance in the fisheries value chain in Kenya. It discusses how developing growth strategies for this value chain, with its complex structure, unique social fabric and direct relationship to a fragile natural environment, demands that the triple bottom line of economic, social, and environmental issues, is taken into account.

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BACKGROUND

This study is part of a series of case-studies on the role of finance in value chain analysis and sub-sector growth strategies. It is the outcome of a collaborative effort between two USAID funded projects: the Financial Services Knowledge Generation (FSKG) task order and the Kenya Access to Rural Finance (KARF) program.

Analyzing finance in the fisheries value chain provides an interesting case because unlike for example grains, tree crops or vegetables, seasonality issues play less of a role[1]. The case is also interesting for the complexity of interwoven value chain channels: fresh and processed fish, industrial and artisanal processing, domestic and export markets, food and feed products. Most notably however, developing growth strategies for the fishing value chain, with its unique social fabric and direct relationship to a fragile natural environment, demands a discussion on the triple bottom line of economic, social, and environmental issues.

Kenya's fisheries resources are important sources of food, employment, and foreign exchange. Driven by a 6% GDP growth rate in recent years and changing consumer habits, fish has become an increasingly important part of the Kenyan households' diet, both directly and indirectly (as a key feed ingredient for livestock and dairy).

[1] Seasonality still plays a role due to the cyclical breeding process of the various fish types. However, fish can always be caught throughout the year and so annual cash flow variation is far less stark than for agricultural crop cycles.

It is estimated that the fishing industry employs over 50,000 fishermen and women, and another 800,000 persons are engaged in fish processing and trade. In addition, fish exports generated US$50 million in export earnings in 2006.

Sun Dried Omena (Rastrineobola argentea)

MARKETS

A wide variety of markets are serviced by Kenya's capture fisheries sub-sector. The four main freshwater fish markets are: (1) the export markets for industrially processed fresh and frozen Nile perch filets, and the domestic markets for (2) fresh tilapia, (3) artisanally processed fish (Nile perch, tilapia, omena[2]) and (4) feed grade omena. These freshwater species markets handle 96% of Kenya's annual fish production of around 175,000 MT. The marine capture fisheries markets encompasses exports and domestic markets for shrimp, tuna, octopus, crab, etc.. Each of those markets is growing with supply generally lagging demand.

Nile Perch: There is a high demand for fish in industrialized markets, in part due to consumers perceiving fish as a healthier product relative to alternatives such as meats from a disease-plagued industry. The demand is especially good for fresh fillets which are seen as both healthy and convenient. This consumer preference finds expression in an FOB price of $6/kg for chilled versus $4.5/kg for frozen fillets. Kenya, along with Uganda and Tanzania, is one of the few non-EU countries that can competitively deliver fresh (chilled) fillets according to the exacting specifications of the EU market (e.g., food safety standards, delivery regularity). The broader market potential for Nile perch fillets was further underscored when Kenya, faced with an EU import ban in the late 1990s, could readily find buyers in other markets such as Israel, Australia, the US, and Japan, which today combine for more than 40% of sales. However, Kenya's competitive position in the export market is undermined by reduced Nile perch landings which resulted from (1) overfishing due to a poorly enforced fisheries management policy, and (2) focusing solely on Nile Perch for exports without diversifying into other species like tilapia (from aquaculture) as neighboring countries such as Uganda have started to do.

Fresh Tilapia: Fresh tilapia is the preferred and most widely consumed fish product in Kenya. There is no official import competition in this market, but unknown quantities of tilapia (and Nile perch) enter Kenya over water, as Ugandan fisherfolk bringing their catch illegally to Kenyan beaches. The export of tilapia, which also has good markets overseas, is hampered by too low volumes and is also actively discouraged by the Kenyan government who sees tilapia as a key source of protein in the Kenyan diet.

Artisanally Processed Fish: Fried Nile perch skeletons, fried, smoked, and sun-dried tilapia, and sun-dried food-grade omena are the dominant processed fish products in the domestic food market. Both the supply and demand of these products are to a large extent driven by the nearly total absence of cooling facilities. Processing is mainly a means to preserve some of the value of these highly perishable products. Competition with imported products in this market is limited to small quantities of smoked tilapia imported from Uganda.

Feed Grade Omena: Typically sun-dried in poor hygienic conditions, a significant volume of the omena is classified as feed-grade quality.

[2] Omena is the Kenyan name for Silver Cyprinid, a silvery, 2-inch long fish, unique to its natural habitat Lake Victoria. It is called dagaa in Tanzania and mukene in Uganda.

This omena still needs to meet certain quality criteria related to for example the maximum percentage of foreign material. It is the main protein, and most expensive, ingredient in feed in Kenya, especially for the large feed manufacturers who set minimum order quantities at 30MT. Unlike the informal 'jua kali' feed manufacturers, these large manufacturers do not use fishmeal made from fish offal because of quality issues, most notably adulteration. Feed-grade omena is not available in sufficient quantities throughout the year, due to resource constraints, regulatory restrictions and a weak supply chain structure. As a result, nearly 80% of the feed-grade omena is imported from Tanzania.

Marine Species: Kenya with its 880 km long coastal line has fairly untapped natural fisheries resources (considered by some as the "Last Frontier"), primarily in the off shore areas, which requires investments to move away from the traditional fishing The growing global market demand for marine fish presents opportunities for Kenyans to increase the export of marine fish (tuna), crustacean and mollusk species. In addition, the domestic market has grown as a result of a positive boost in the tourism industry. Nevertheless, the landed value represents less than 10% of the potential Ksh5 billion (US$70 million), mainly because of a local lack of deep sea fishing capacity and an unsupportive government policy. As most countries with marine fisheries face a collapse of their broodstock, Kenya can use its competitive edge on establishing a sustainable marine capture fisheries management.

Municipal Fish Market in Kisumu: Women selling fresh Tilapia (Oreochromis niloticus)

STRUCTURE OF THE SUB-SECTOR

Figure 1 maps out the Lake Victoria fisheries value chain structure. Although the structure is rather complex, we can distinguish three main components: fishing, trading & distribution, and processing.

Fishing: Fishing is done using small wooden boats propelled mostly by sail or paddles and staffed by hired crews, and using drift nets, seine nets, and long-lines that are set out overnight. Industrial fishing techniques are banned to protect both the livelihood of the fishing communities and the lake's fish stock levels. There are clear indications that Nile perch has reached its maximum sustainable yield (MSY), and over-fishing in Kenya's shallow lake waters is now reducing the landed volumes. Fisherfolk are forced to incur higher costs to go to deeper waters for decreasing quantities of fish caught per trip. Although there are associations and all the beaches have beach management units as part of the government fisheries policy, there is little collaboration between fisherfolk in terms of procurement, fishing, or marketing. Government policy further affects fishing through the Fish Act which amongst others establishes minimum catch sizes for Nile perch and a seasonal fishing ban on omena.

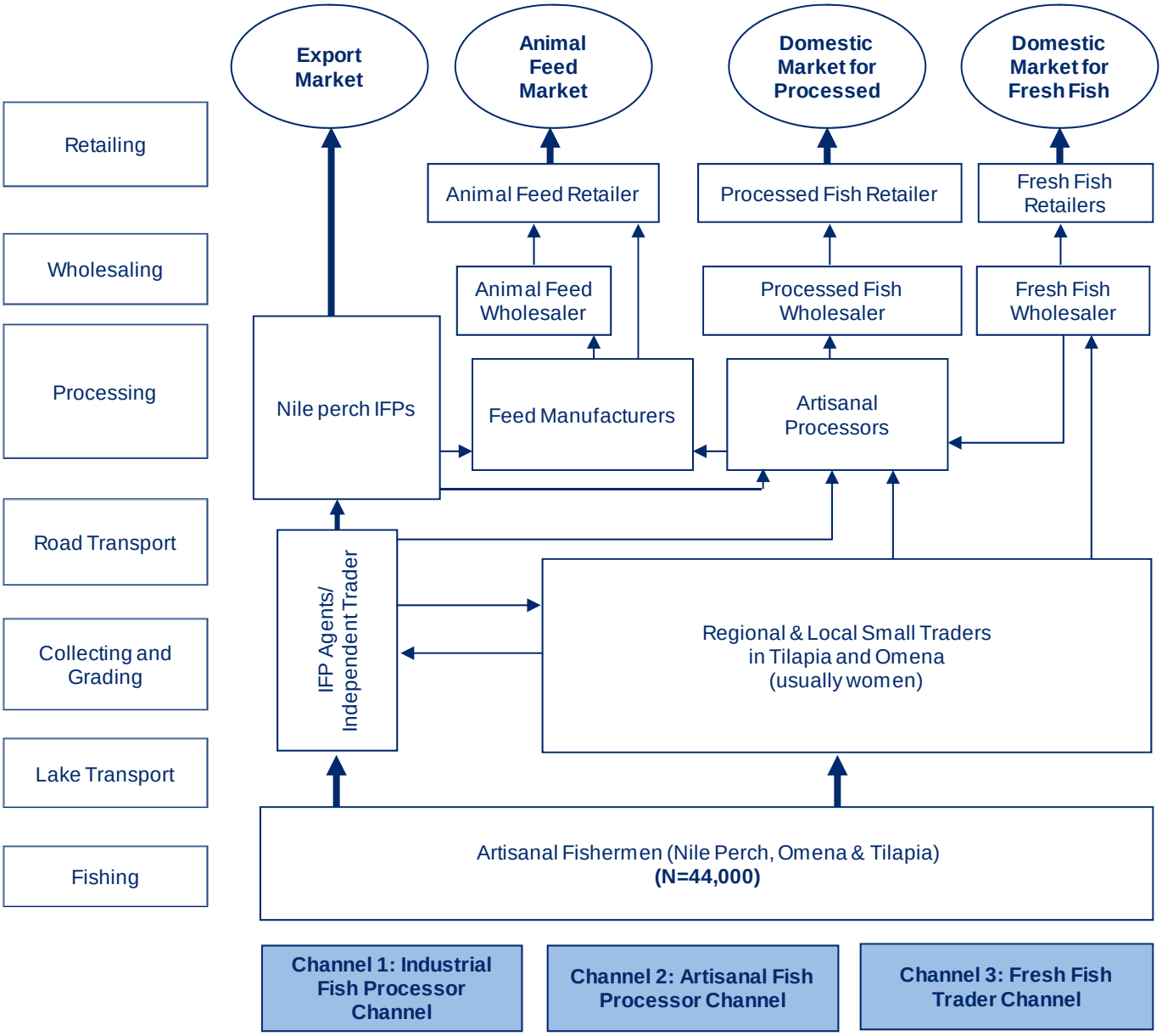
Trading & Distribution: The fish catch is sold directly on the beach to various traders. Industrial Fish Processor (IFP) agents who take the IFP's ice-laden trucks to the mainland beaches to buy the Nile perch that meets the processors' criteria (e.g., size, freshness). Lower quality grade Nile perch,

tilapia and omena are sold to a number of successive intermediaries along the supply chain: collecting traders, regional traders, wholesalers, and retailers. Most of the retailing takes place in urban open-air markets and through street venders. Sales of domestic fish products in modern retail outlets such as supermarkets are limited. Grading and the use of ice are minimal in these domestic end-market channels, resulting in high spoilage levels.

Processing: The processing of Nile perch takes place in modern facilities that are fully compliant with the food safety standards of export markets. Fish is filleted, packaged in 6kg labeled cartons and either exported chilled by airplane or frozen by boat, depending on the fish quality and the pertinent orders. In the domestic market, processing is artisanal and varies by the three main fish species. Tilapia is processed only when it is the only way to avoid a total loss of its value due to spoilage. For example, the fisherfolk operating on the more distant lakes sun-dry a large portion of their fish, and fish not sold fast enough in the urban markets is fried and sold as street food.

Figure 1: Lake Victoria Capture Fisheries Sub-Sector Map

Adapted from: *Lake Victoria Fish Subsector Analysis Report,* USAID Kenya BDS, November 2003, Figure 9.



Omena is bought by women traders who immediately sun-dry the fish near the beaches and then take it in bulk to the nearest wholesale markets or regional traders. Nile perch offal (skeletons, skins, etc.) is sold by the IFPs directly to the women who are specialized in processing this raw material (mostly frying). The governance mechanism is such that the women have to buy what the IFP offers to them, independent of what the women can actually sell. Artisanal processing in Kenya uses primitive technologies and takes place with little to no regard for food safety regulations.

Poor post harvest handling of Nile Perch (Lates niloticus)

GOVERNANCE AND FINANCE IN THE VALUE CHAIN

The following are the salient general aspects of finance in the fisheries value chain in Kenya (they apply to all fish species):

- **Enormous cash flows:** The annual landed value (at ex-vessel price) is estimated at Ksh8 billion (US$ 100 million) at least half of which is paid out in cash on the beach by the boat owners or boat renters to the fishing crews (hired labor). This has led to a situation that is both inefficient and insecure.
- **"Unbanked" value chain actors (socio-cultural factors):** Value chain actors, especially upstream in the value chain, are characterized by low financial literacy levels and largely operate outside of the formal finance system. The lack of a savings culture is probably the single-most important constraint to growth of the fish value chain. Historically, the fishing communities have shown little interest in saving because of the perception that there is always fish to catch if they need money. Furthermore, the fishermen typically spend a large part of their earnings on alcohol and prostitutes, both of which are in ample supply on the beaches. As a result, HIV/AIDS is wide-spread in the communities along the shores of Lake Victoria, destroying households and creating the most vulnerable and poorest sub-populations in Kenya.
- **Weak financial structure:** Apart from cash transactions, trade credit is wide-spread. Value chain actors are highly dependent on informal sources of finance which are unreliable, inadequate, and highly expensive. Options to save money through formal bank accounts are for most fisherfolk a costly and time-consuming boat trip away. In the last few years, commercial banks have begun to develop fish sub-sector specific loan products and to bring them closer to the beaches. While they are clearly changing the dynamics, formal finance institutions face an uphill battle, as they are perceived by most value chain actors as cumbersome and high-risk options.
- **Poor business management skills:** Value chain actors throughout the value chain (with the exception of the IFPs) do not (know how to) use proper costing and pricing

methods in their business operation. Financial records are not kept. As a result profitability is likely low or negative, thus effectively blocking growth of the MSMEs.

- **Weak group organization:** Throughout the value chain, actors behave individualistically. Groups are formed mostly to provide entry points for larger buyers (IFPs) and government and donor programs. There are Beach Management Units (BMUs) on all the beaches and many associations and cooperative societies for fisherfolk, fish traders and fishmongers, but these are weak and badly managed. Especially at the level of the fisherfolk, there are few if any economies of scale and market power is low, leaving them at the mercy of the potentially exploitative practices of the fish traders.
- **Vertical power imbalances (governance):** Overall, vertical power imbalances result from the well-capitalized larger traders initiating a wave of supplier credit that ripples through the value chain and creates buyer dependency (viscous cycles of debt). On the beaches, the imbalance

Table 1: Elements of the Proposed Upgrading Strategy

Value Chain Elements	Strategy Elements
Processing	• Promote the use of appropriate drying technology such as drying racks [Ec] • Facilitate a shift from competitive to more collaborative horizontal and vertical governance structures, e.g., collective action or contracts [Ec]
Trading & Distribution	• Improve cold chain (storage & transportation), packaging materials, transportation logistics, and better communication throughout the value chains [Ec] • Facilitate a shift from competitive to more collaborative horizontal and vertical governance structures, e.g. via collective action or contracts [Ec]
Fishing	• Facilitate and improve access to outboard engines to allow fishermen to shift to the deeper waters [Ec] • Improve cold chain (storage & transportation), packaging materials and better communication at the producer level [Ec] • Facilitate a shift from competitive to more collaborative horizontal and vertical governance structures, e.g. via collective action or contracts [Ec]
Support Markets	• Restock the lake with tilapia fry from improved hatcheries [En] • Align commercial and environmental interests by training fisherfolk [En, Ec] • Develop fish sub-sector specific savings products and loan products for asset and working capital finance for fisherfolk, artisanal processors, and traders [Ec] • Bring financial services closer to beach via mobile banking, ATMs, etc. [Ec] • Promote a savings culture and provide financial literacy and business management training, e.g., on pricing and costing skills [So]
Enabling Environment	• Work with the BMUs and the fish processors association to enforce the Fish Act, e.g., regarding the catch size [En] • Revise the policy on fishing rights for deep water vessels in the EEZ [Ec]

between low fish supplies and many women traders trying to secure these supplies has led to the jaboya system of fish-for sex whereby the women are forced to pay an "in-kind" premium on top of cash. Vertical power imbalances play out strongly in the Nile perch channel. The dominant players in this value chain are the IFPs who via their buying agents exert market power over the fisherfolk. They also create dependencies by providing equipment on (low-cost) credit to boat owners, which puts the latter in a debt position and locks them in. The greatest dependencies however play out in the artisanal fish processing channel where governance mechanisms keep the small processors of Nile perch offal in a highly dependent position with little or no room for upgrading and growth.

PROPOSED UPGRADING STRATEGY

The value chain analysis revealed that: (1) the objective is to improve the profitability of the various types of enterprises along the value chain, with a particular interest in improving the economic well-being of poor households engaged in the value chain while simultaneously addressing social constraints and assuring the sustainability of the fisheries resources; (2) domestic and export markets are readily available and growing; (3) supply is severely constrained by biological bottlenecks, regulatory constraints, and inefficiencies throughout the value chain; and (4) the different value chains overlap or face the same challenges. Based on these findings, Table 1 presents the recommended fish value chain upgrading strategy, indicating which strategy elements address economic (Ec), social (So), or environmental (En) constraints.

CONCLUSION

This value chain analysis of the Kenya capture fisheries sub-sector illustrates that a myopic focus on particular upgrading activities may increase short term profitability but is unlikely to lead to long term growth. Strengthening the weak financial structure, reducing power imbalances in the governance structures, and resolving socio-cultural and environmental concerns have to take place concurrently.

For example, the high levels of post-catch losses indicate that the introduction of coolers and improved ice distribution systems would be an upgrade strategy that could stimulate value chain growth. While this could indeed lead to higher profitability at first, without retaining these profits and reinvesting them back in to their business, value chain actors will not be able to grow their business. In addition to a dearth of accessible finance services, exploitative governance mechanisms, and limited business management skills, socio-cultural aspects of the fishing communities favoring consumption over savings constrain business growth through reinvestment.

Even if the savings rate of fisherfolk, artisanal fish processors and fishmongers improves and they reinvest in their business, growth will be severely hampered if environmental aspects are not taken into account. For example, more boats and more nets could lead to accelerated over-fishing in the shallow waters and a reduction of the overall fish stock. This risk needs to be addressed through a systemic enforcement of environmental protection measures and a diversification strategy that will direct some profits to other high-potential economic activities such as aquaculture or irrigated horticulture.

In the case of the Kenyan fish value-chains, the triple bottom line links the analysis of finance in the value chain to a broader reality that development programs can only ignore at their peril.