



The Fishing Cluster in Uganda

Final Report for
Microeconomics of Competitiveness



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1. Executive Summary

As a small, landlocked country in poor and volatile East Central Africa, Uganda faces numerous challenges to its national competitiveness. By GDP per capita, Uganda is the 20th poorest country in the world and it faces significant capacity constraints in moving beyond a factor-driven economy. Several five-year development plans have been launched, but success has been limited due to lack of prioritization, under-resourcing and poor implementation.

Uganda's fishing and fish processing cluster developed and experienced strong growth throughout the 1990s and 2000s. A series of bans from 1997 – 2000 forced the cluster to adapt and drastically improve the quality of its fish. Now as it faces issues of depletion, pollution, and international competition, the cluster is once again threatened. However, with strategic adaptations, it will be possible to maintain the livelihoods of the 700,000 Ugandans it employs.

2. Country Analysis: Uganda

...for magnificence, for variety and color, for profusion of brilliant life – plant, bird, insect, reptile, beast – for the vast scale... Uganda is truly the pearl of Africa. Winston Churchill, 1908

Uganda, a small country in East Central Africa about the size of Oregon, is one of the poorest and most unequal countries in the world. Surrounded by Kenya, Tanzania, Rwanda, the Democratic Republic of Congo, and Sudan, Uganda is landlocked within a historically poor and volatile neighborhood. In 2009, Uganda's PPP-adjusted GDP was \$43 billion and its PPP-adjusted per capita GDP was \$1300, both below Kenya and Tanzania though slightly above EAC averages (CIA, 2010).¹ Uganda sits on the north shore of Lake Victoria, the second largest freshwater lake in the world and source of the Nile River, and has a tropical climate, fertile land, plentiful minerals, and incredible biodiversity.

¹ The East African Community (EAC) includes: Uganda, Tanzania, Kenya, Rwanda and Burundi.

Value Proposition. Despite Uganda’s challenges in establishing a competitive business environment, its relative political and macroeconomic stability compared to neighbors, supply of natural resources, labor market flexibility, favorable government regulations, international trade agreements, and strong donor/NGO presence make up a unique value proposition for Uganda.

2.1 Overall Economic Performance

Uganda ranks in the bottom 11th percentile in the world on GDP per capita, yet its 2009 GDP growth rate of 6.6% was the 12th highest in the world (CIA, 2010). Its PPP-adjusted GDP per capita grew at a CAGR of 5% in 2009, well above the 3.1% average for the EAC. Uganda’s growth has been driven by increased investment and exports to the European Union (EU) and the Common Market for Eastern and Southern Africa (COMESA), particularly in industry and services. However, income inequality also grew, from a Gini coefficient of 0.37 in 1996 to 0.46 in 2009, making Uganda the 39th most unequal country worldwide (WDI, 2010).

Figure 1: 2009 Key Economic Indicators

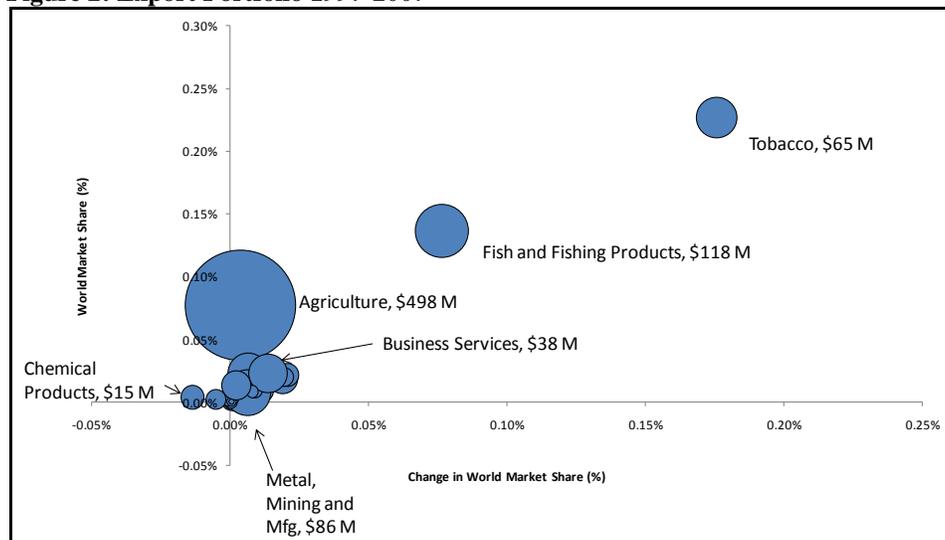
		Uganda	Tanzania	Kenya	Rwanda	Burundi
GDP and Demographics	Real GDP (PPP US\$ at 2005 prices)	38.6	52.3	57.8	9.3	2.9
	GDP (% real change pa)	6.6	5.5	2.0	5.5	3.2
	GDP per capita (\$ at PPP)	1,360.0	1,310.0	1,600.0	1,020.0	389.0
	Real GDP growth per capita (% pa)	3.2	2.5	-0.6	2.6	0.4
	Population	32.7	43.7	39.8	10.0	8.3
GDP Composition at factor cost (%)	Agriculture/GDP	22.5	26.5	20.6	41.3	33.5
	Industry/GDP	25.1	22.6	16.6	14.0	20.8
	Services/GDP	52.4	50.9	62.5	44.7	45.8
Fiscal and Monetary Indicators	Budget balance (% of GDP)	-3.9	-4.4	-4.9	-2.5	-3.1
	Public debt (% of GDP)	21.8	25.0	69.0	n/a	n/a
	Consumer prices (% change pa; av)	13.1	12.1	20.5	11.0	11.0
	Domestic credit growth (%)	24.0	20.1	11.2	29.8	30.6
	Lending interest rate (%)	21.6	14.6	14.8	16.0	16.5
	Deposit interest rate (%)	9.6	8.0	5.2	8.1	n/a
Foreign Payments	Current-account balance/GDP (%)	-0.1	-7.7	-5.1	-6.2	-13.2
External Debt Stock	Total debt/GDP	15.5	32.2	25.6	14.9	n/a

Note: Rwanda external debt stock figures are from 2007, the most recent year available.

Data Source: EIU Database, 2010

Composition of the Economy. Uganda's economy is heavily factor-driven and diversified across agriculture, industry, and services. However, most of the workforce is still concentrated in agriculture, including the coffee, fishing, and flowers clusters. Although agriculture only comprised 23% of the economy as a percent of GDP in 2009, it employed 70% of the workforce. Other major clusters are tobacco, fishing, metal mining, precious metals, processed food and textiles. Although each of these makes up a significant portion of Uganda's GDP, they are small in the world market, with less than 0.3% market share.

Figure 2: Export Portfolio 1997-2007



Data source: Porter, 2010

Historical Context for Economic Development. Uganda's development has been shaped by its turbulent history. In the 19th century, the British combined autonomous tribal kingdoms to form the protectorate that is now Uganda. The British showed tribal favoritism in state functions, selecting the Buganda to serve in the administration, while northern tribes made up the army. This fostered ethnic divisions that persist even today.

From the late 19th century through the end of World War II, the British imported business talent by encouraging Asians to develop Uganda's private sector. As a result, Indians and Europeans dominated the private sector, while native-Ugandans primarily subsistence farmed.

In 1962, Uganda gained independence from Great Britain. The next two decades were marked by political instability, ethnic conflict and extensive violence. In 1972, all Asians were expelled to shift wealth and control of businesses over to native-Ugandans, leaving a dearth of business expertise and capital. This, coupled with multiple civil wars between 1972 and 1986, destroyed Uganda's human resources, infrastructure and economy. From 1970 to 1980, GDP declined by 25%, imports by nearly 50%, exports by 60%, and inflation rose to 70% (Pill, 1998). Finally, in 1986, Yoweri Museveni became president and brought a period of relative stability.

Restoring economic stability was one of Museveni's first priorities. Within a year, he committed Uganda to a textbook Washington Consensus plan approved by the World Bank and IMF, launching Uganda's close relationship with international donors. The government, with help from abroad, implemented policies to control inflation and boost production and exports. Policies included fiscal conservatism, structural reforms such as liberalization, currency reform, raising producer prices on export crops, and civil service wage improvements (Pill, 1998). The economic reforms and re-established political stability boosted economic growth and many exiled Indian-Ugandan entrepreneurs returned. After Museveni became president, per capita GDP grew at 5.6% per year, more than double the 2.2% average for the EAC (IMF, 2009).

2.2 Macroeconomic Competitiveness

Uganda ranks 58th out of 93 countries worldwide for macroeconomic policy competitiveness, yet only 79th for microeconomic competitiveness and 85th for social infrastructure and political institutions (GCR, 2009).

2.2.1 Social Infrastructure and Political Institutions

Social Infrastructure: Education and Health. Uganda has some of the worst health indicators in the world, due to HIV/AIDS, tuberculosis, malaria, and inadequate family planning

services. Life expectancy is 52 years, slightly worse than the 54 years for Kenya and 55 years for Tanzania (WDI, 2008). The HIV prevalence rate for adults between 15 and 49 years old is 6.4% for Uganda, 1% higher than the EAC average (WDI, 2008). These poor health outcomes result in higher absenteeism and lower labor productivity. They also lead to limited public and private resources being spent on healthcare rather than investments.

Uganda adopted universal primary education in 1997, yet primary school completion is just 54%, much lower than Tanzania's 85% and Kenya's 93% (WDI, 2005). Uganda's secondary school enrollment rate of 19% is also low, compared to Tanzania's 26% and Kenya's 45% (WDI, 2007). Uganda's low education attainment levels yield a low-skilled labor force. It also has the youngest population in the world, with 50% of its population under the age of 15 (CIA, 2010).

Political Institutions: Government and the Rule of Law. Uganda is a young unicameral republic; the constitution was adopted in 1995 and amended in 2001. Uganda has evolved into a country with universal suffrage, multiparty elections, and a popularly elected president. Despite Uganda's relative stability since 1986, occasional violent uprisings from guerilla troops increase the perceived risk of investing in Uganda. This is evident in Uganda's 10% risk premium on lending, compared a 6% average for all other EAC countries (WDI, 2007).

Uganda's political institutions rank in the bottom 34% worldwide, but show signs of improvement (GCR, 2009). Gains in the decentralization of economic policymaking, reliability of police services, and property rights were offset by a rise in organized crime, loss of transparency, and higher costs of corruption. Enforcement of laws is weak due to high levels of corruption, which lead to expensive and lengthy business procedures. In Uganda, 51.7% of firms surveyed expected to make informal payments to public officials "to get things done" compared to just 22.6% for firms in Africa overall (WEF, 2006).

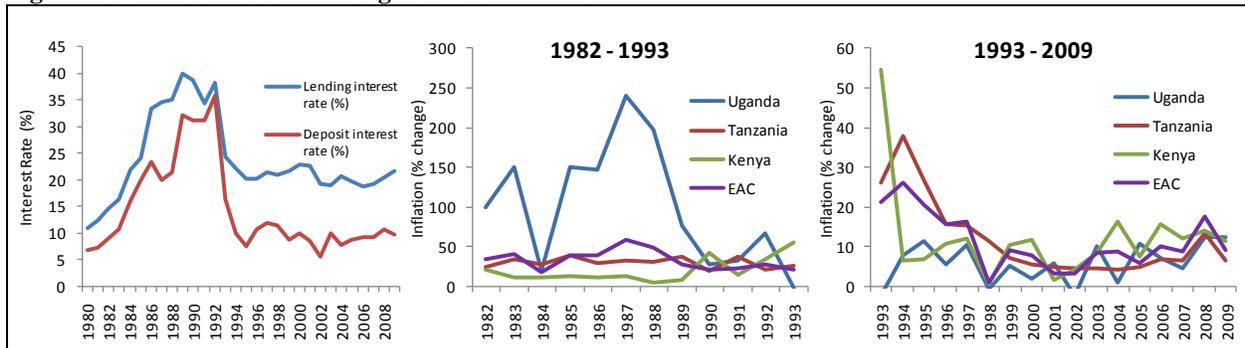
Uganda’s next presidential election will be held in 2011. While Museveni is expected to win, there is potential for violence from the Buganda and other regions seeking autonomy. This creates some uncertainty in political stability, potentially hurting investment decisions.

2.2.2 Macroeconomic Policies.

Fiscal Policy and Performance. Under IMF supervision, Uganda corrected its fiscal imbalances by implementing restrictive fiscal policies (Pill, 1998). Uganda’s budget deficit, 4% of GDP, has remained low and steady (WEF, 2010). Instead of financing fiscal deficits through bank borrowing and printing money, the Bank of Uganda (BoU) has controlled money supply through restricted government borrowing and selling government bonds at market interest rates (Kiggundu, 2006). Public debt has remained constant since 2006 at around 20% of GDP, which is 5-10% less than Sub-Saharan Africa and 30% less than the rest of the world (EIU, 2010).

Monetary Policy and Performance. Uganda maintains a loose monetary policy. Since the economic reforms of the late 1980s, inflation has subsided, averaging 6% since 1993. Recognizing that moderating exchange rate appreciation helps maintain export competitiveness, the BoU allows market mechanisms to work and only intervenes to even out large fluctuations.

Figure 3: Interest rates and change in inflation rates



Data Source: IMF World Economic Outlook Database, October 2009

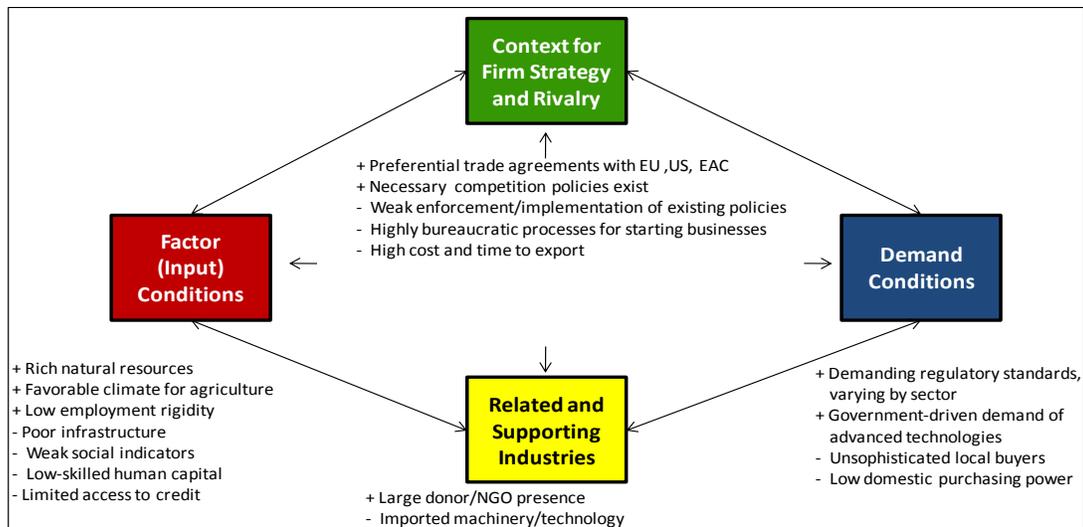
The interest rate spread of 9.8% is high compared to Kenya and Tanzania and in the 21st percentile world-wide (WEF, 2010). The Bank of Uganda is reducing the spread to improve monetary policy transmission and reduce the cost of financing.

Other Macroeconomic Indicators. Workforce participation is high with 81% of women and 94% of men employed in 2006.² Only 3-5% of Ugandans were employed in professional positions, with the remainder employed mainly in low-skilled manual labor or agriculture. (Uganda Bureau of Statistics, 2007). FDI has increased steadily over the past two decades, from \$4 million in 1993 to \$788 million in 2008, at a CAGR of 20% (EIU, 2005; World Bank, 2009). Foreign investment has been directed at manufacturing, telecommunications, and oil and gas.

2.3 Microeconomic Competitiveness

2.3.1 Quality of the National Business Environment

Figure 4: Uganda Country Diamond



Data Source: Team Analysis

Factor Conditions. Uganda's key strengths in factor conditions are favorable climate for agriculture, rich natural resources, and low employment rigidity. Uganda ranked 19 out of 94

² May be overstated because employment is liberally defined as "any work within the past seven days"

countries on burden of government regulation, which is higher than expected given that its GDP per-capita ranking was 89 and its global competitiveness ranking was 78 (GCR, 2009). Uganda's donors and NGOs have also established many university-industry research collaborations and have initiated reforms to improve the soundness of banks.

Access to credit is one of the top problematic factors for doing business in Uganda. (WEF, 2003). Only 17.2% of firms in Uganda have lines of credit or loans from financial institutions, compared to 26.2% for firms in Africa (WEF, 2006). Lending rates are higher in Uganda at 18.7%, compared to 15.6% for EAC peers (WDI, 2006). In addition, domestic private sector credit makes up 10.1% of GDP in Uganda, less than the 21% for EAC peers (WDI, 2006).

As a result of Uganda's weak social institutions, low-skilled human resources are another main challenge. With a young population and weak education system, Uganda lacks management talent and technologically skilled labor. In Uganda, the top manager in each sector has an average of 10 years work experience, compared to 13.3 years for Africa (WDI, 2010).

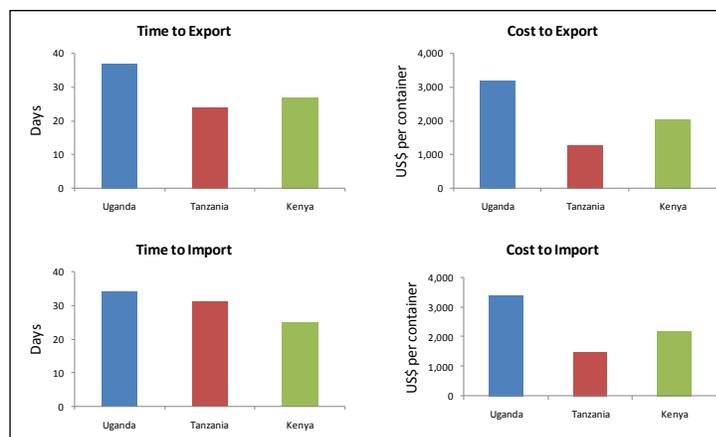
Highly bureaucratic procedures, especially in the context of Uganda's high corruption, hinder the efficiency of the business environment. 18 procedures are required to start a business in Uganda, compared to an average of 8 across EAC countries. The number of procedures to register property is 13 in Uganda, compared to 7.8 in the EAC (WDI, 2009).

Poor power and transportation systems make it difficult for Ugandan firms to compete globally. Power outages cost Ugandan businesses 10.2% of sales in lost value, compared to just 6% for Kenyan firms and 8.7% for Rwandan firms (World Bank, 2006). Only 29% of roads in Uganda are in fair condition, compared to 56% for the EAC overall (World Bank, 2007). Air transport systems are also weak; Uganda only has seven direct flight departures per week to Europe and Asia, far less than Kenya's 68 and Tanzania's 24 (World Bank/MIGA, 2006).

Context for Firm Strategy and Rivalry. Uganda has a flexible labor market and favorable government policies promoting investment and competition. It scored 0 on the World Bank’s 0-100 rigidity of employment index and ranked 7 out of 183 countries on ease of employing workers (World Bank, 2010). Uganda promotes foreign investment through the Uganda Investment Authority (UIA). 15.5% of enterprises in Uganda are owned by foreigners, higher than the 6% in Kenya or 9.1% in Tanzania (WDI, 2010). The Tax Act of 1997 provides incentives to promote investment across all industries, including capital allowances on plant, machinery, and R&D, as well as import duty exemptions on certain equipment. Uganda also has liberal policies on expatriation of funds and protection against compulsory acquisition. Since Uganda is a member of the World Bank’s Multilateral Investment Guarantee Agency, investors can also access investment guarantees (UIA, 2010). However, implementation of these policies is weak, making it difficult for investors to access incentives (Kiggundu, 2006).

The time and cost to export from Uganda are significantly higher than for Tanzania or Kenya, due to poor infrastructure, high number of required procedures and Uganda’s heavy reliance on Kenya’s Mombasa port, which processes 90% of Uganda’s exports (Kulabako, 2009).

Figure 5: Time and cost to import and export



Data source: WDI, 2007

Uganda has low levels of innovation, which is not surprising given its weak education system and low-skilled labor. The US PTO granted zero patents to applicants from Uganda from 2003-2007, compared to 8 for Kenya and 1 for Tanzania (World Bank KAM, 2009).

Related and Supporting Industries. Uganda has a wide local supplier base yet weak supplier quality. Fortunately, the quantity and quality of suppliers and improved technologies have been increasing in recent years (GCR, 2009). Unfortunately, the state of cluster development in Uganda is low and declining due to poorly implemented competitiveness plans.

A unique characteristic of Uganda is the strong presence of international donors and NGOs. Uganda is highly aid dependent, with aid levels at 109% of central government expenditures in 2006, compared to just 25% for Kenya and 78% for Tanzania (WDI, 2010). While the aid has helped address issues such as high HIV/AIDS rate, it has also had distortionary effects on the economy. The influx of funds has contributed to appreciating Uganda's currency and increased demand for goods and services, creating inflationary pressures. In response, the Ugandan government has raised interest rates, which makes credit more expensive for businesses (Sheikh, 2005). Politically, donor presence has had mixed effects. Donors exert pressure on the government to implement certain economic and social reforms. However, "unearned revenue" allows the government to avoid direct accountability from its citizens and permits donors to shape an agenda that may not always be optimal for the country (Mwenda, 2006).

Demand Conditions. Uganda's business environment suffers from having unsophisticated buyers and volatile demand. However, it does benefit from demanding regulatory standards which drive quality improvements. Lack of consumer demand for advanced technologies is substituted by government-driven demand, particularly in the Information and

Communications Technology (ICT) sector, which has had double-digit growth and high levels of FDI (UIA, 2010). However since 2003, Uganda's success in ICT promotion has been decreasing.

2.3.2 Market Conditions. Uganda benefits from several regional and bilateral trade agreements with the EU, US, and its African neighbors. In many sectors, this has led to more sophisticated foreign demand driving up quality standards and innovation. The Everything But Arms policy gives Ugandan exports duty-free access to the EU. As part of the African Growth and Opportunity Act (AGOA) Uganda has duty-free preferential access to the US market.

Membership in the EAC gives Uganda access to a regional economic block of 125 million people and a wider pool of suppliers, customers, and competitors.³ In 2005, the EAC set up a joint Customs Union to facilitate trade and is in the process of establishing a Common Market by the end of 2010. Uganda is also a member of COMESA, which promotes regional economic integration through trade and investment. COMESA's 19 member countries have a total population of 430 million and a total export bill of \$157 billion.⁴

2.3.3. State of Cluster Development. The government of Uganda has developed competitiveness plans for priority clusters, including: tourism, coffee, fishing, cotton, dairy, maize, beans, floriculture and oilseeds. However, these plans have not been well implemented, evidenced by limited growth. Implementation challenges are limited government capacity, leadership and accountability.

Uganda has a few IFCs to promote cluster development, yet most have had limited impact. The Medium Term Competitiveness Strategy (MTCS) Secretariat was established to implement the government's five-year competitiveness plan, yet its exact role and funding are unclear. The Private Sector Foundation Uganda (PSFU) is an organization of 81 business

associations and corporations that promote the development of private sector initiatives and capacity building. However, PSFU is understaffed and struggles to fulfill its role in implementing the World Bank's Private Sector Competitiveness Project.

2.4 Country-Level Recommendations

Maintain and improve political, legal and macroeconomic stability. Museveni needs to strengthen Uganda's stability since this is critical to establishing a competitive business environment and attracting FDI. Museveni should cooperate with the DRC and Sudan to address guerilla forces in the north who threaten to disrupt the country's stability. Neutral third-parties should be utilized to help resolve the dispute with Kenya over Migingo Island on Lake Victoria and border area oil disputes with DRC and Sudan. In the longer term, Museveni should continue to develop the institutions necessary to sustain political and economic stability, including capacity building within government institutions and better implementation of its decentralization policies. Museveni should also focus on economic development efforts in the north, since the growing income inequality between regions contributes to unrest and volatility.

Fight corruption. The government should minimize corruption by increasing its transparency and investing resources to enforce anti-corruption laws. This will attract investment, reduce the costs of doing business, improve Uganda's credit ratings, and reduce the cost of capital.

Improve energy and transportation infrastructure. Uganda must address bottlenecks in energy and transportation infrastructure. Since Uganda is a landlocked country, it needs adequate roads, rail, and air transport to support timely and cost-effective trade. Road and rail infrastructure connecting to border areas and Entebbe Airport is essential, as well as a reliable power supply.

³ EAC website <www.eac.int> Accessed April 2010.

⁴ COMESA website <www.comesa.int>. Accessed April 2010.

Invest in health and education. Social infrastructure advancement is also critical for competitiveness. Uganda should leverage the NGO community to improve health care quality and access. It should increase school enrollment and completion rates by giving incentives to families and partnering with the private sector to develop vocational training programs.

Improve access to capital. The government should encourage banks to lend, through government guarantees for loans meeting certain criteria and by asking development institutions to provide additional capital and co-invest with the private sector.

Implement competitiveness plans. Uganda should focus on implementing the five-year economic development plan and cluster competitiveness plans that have already been created.

Prioritize clusters with high value-to-weight products. Given the logistical disadvantages Uganda faces as a landlocked country, it should prioritize building competitiveness in clusters with air-freight shippable goods that have high value-to-weight ratios, as well as tradable services.

Lead regional economic coordination and become a hub in East Central Africa. Uganda should leverage its relative stability, central location, and trade agreements to position itself as a transportation, trade, and logistics hub. As a founding EAC member, Uganda should continue to lead economic coordination with its neighbors and push for the establishment of a common market. To establish itself as a major transit route, Uganda needs to build out its physical infrastructure, focusing on border points with its neighbors, and adopt an open skies policy.

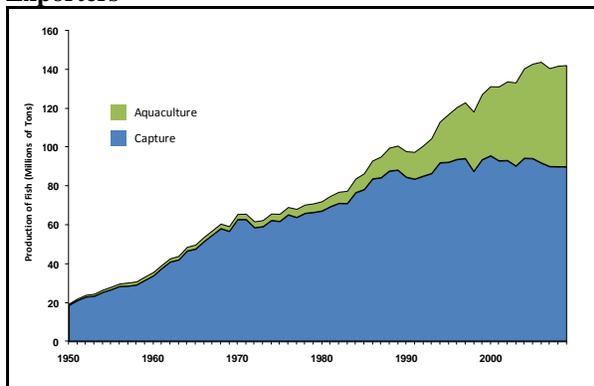
3. Cluster Analysis

3.1 The Global Fishing Industry

In 2009 the global fishing industry is estimated to have produced 142 million tons of fish. The industry has grown at a 3% CAGR since 1950. 37% of global production was exported in 2006. In 2008 exports were worth \$99.5 billion (Lem, 2009).

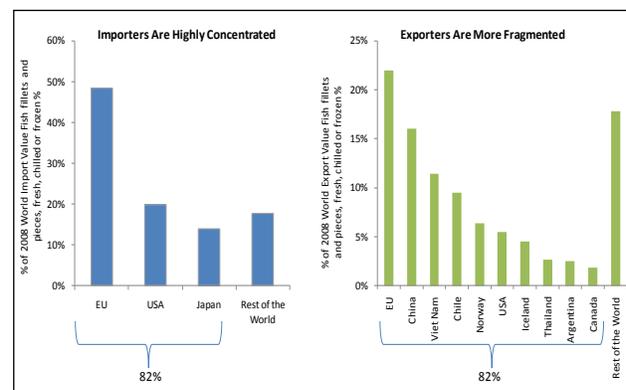
There are two ways to source fish. Capture, the traditional form of catching fish in their natural habitat, has flattened out in recent years. In 2009, 63% of fish were captured (Lem, 2009). Aquaculture, an alternative to capture, involves farming fish in a controlled environment. Fish produced through aquaculture comprised 37% of 2009 production. Aquaculture has grown dramatically from just 12.3 million in 1989 to 52 million in 2009. China is the dominate player in aquaculture, making up more than 60% in 2007 (Lem, 2009).

Figure 6: Global Fish Production Exporters



Data Source: Lem, 2009

Figure 7: Concentration of Fillet Importers and Exporters



Data source: International Trade Centre, 2010

In 2008 the largest segment of fish exports was fish fillets at \$16 billion dollars. The EU, the United States and Japan together import 82% of all fillets. Vietnam is currently the third largest fillet exporter, with 11% market share, and has been growing at an impressive 53% CAGR from 2005 to 2008 (International Trade Centre, 2010).

3.2 Uganda's Fishing Cluster Overview

Cluster Importance. Finance ministry data estimates that the fish and fish products sector make up 2.6% of Uganda's GDP; however, others estimate it to be much higher (Biryabarema, 2009).⁵ Fish and fish products are Uganda's 2nd largest export after agricultural products (Porter, 2010). Fish exports generated \$141M in 2006 though it has dropped in recent

years (FAO, 2010). The sector employs over 700,000 people⁶. Despite the importance to the Ugandan economy, Uganda is a small player on the international fish market. Ugandan exports comprise less than 1% of the global fillet market, its largest sub segment (International Trade Centre, 2010).

Cluster Description. Lake Victoria produces half of the national fish production, followed by Kyoga, Albert, Edward and George (UFCP, 2006). In 2006 approximately 90% of Ugandan fish was caught using the capture method, with independent fishermen using artisanal boats and nets (FAO, 2009; FAO-“Global Production”, 2010). In Uganda, there are different supply chains for local and export markets. Higher quality fish is funneled to the export market while lower quality fish stays local (Keizire, 2006). Fishermen sell primarily to middlemen who purchase export quality fish at lake landing sites and keep them chilled. The export quality fish are transported to the processing facilities where the majority is turned into fillets. More than 90% of Ugandan fish exports are fillets (International Trade Centre, 2010). Processing is labor-intensive, requiring sorting, washing, grading and separation of fish from skeletons. Frozen fish is exported by road to Mombasa port, and chilled fish is transported to cold storage and shipped by air to foreign markets (Kiggundu, 2006). Fish processors do not participate in distribution or marketing once fish reach foreign markets. Lower quality fish is sold as either fresh, dried, or salted in local markets (UFCP, 2006).

⁵ In a 2006 paper economist Boaz B. Keizire estimates that this sector contributes 6% of GDP and notes that others have estimated it to be as high as 12% to 30% (Keizire 2006).

⁶ Uganda Investment Authority, <http://www.ugandainvest.com/uia.php?uhpl=fish&&uhpl1=fish>. Accessed May 2010.

There are more than 350 species of fish in just Lake Victoria (UFCP, 2006). Nile perch makes up 95% of export (Nyapendi, 2009). Nile perch is a “mid- to low-end” white fish that is considered to be most similar to cod (UFCP, 2006).⁷

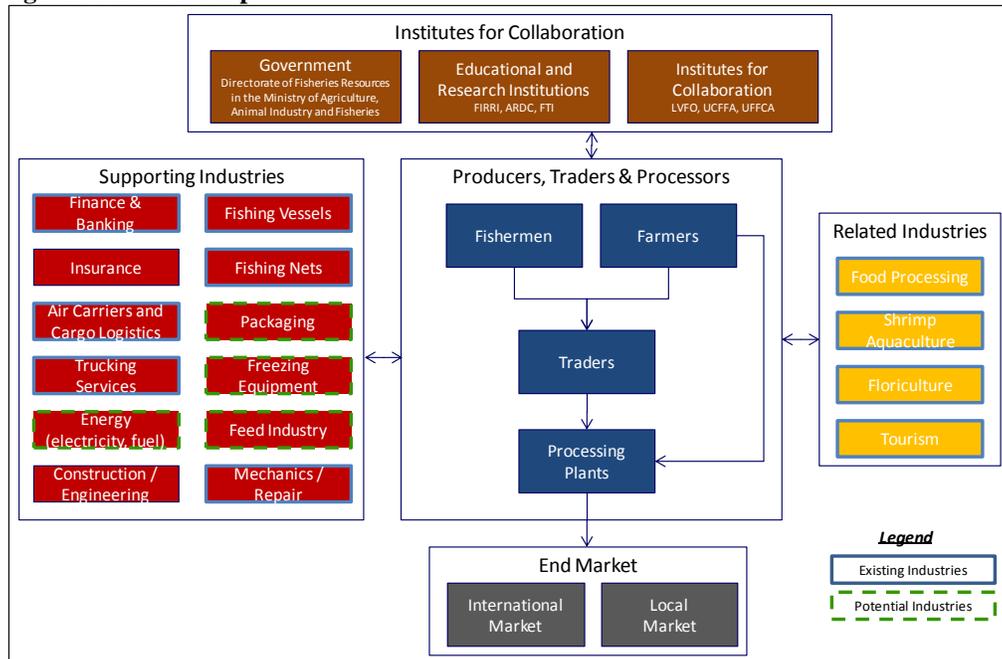
Figure 8: European Fish Prices (April 2008)

Fresh Fillets	Product Form	Euros/Kg	Reference & Area
Cod	Fresh Fillets	6.00	Italian Wholesale
Nile perch	Fresh Fillets	7.00	Italian Wholesale
Blue Fin Tuna	Fresh Slice	14.65	Italian Wholesale
Atlantic Salmon	Fresh, gutted, head-on, superior quality	3.25 to 5.30	France (CIF)

Data Source: FAO Globefish 2008 “European Price Report” April 2008

Value Proposition. Uganda has leveraged its natural resources, stable government, cheap land and labor to provide high quality, sanitary white fish fillets to export markets. The domestic consumers provide a market for non-export quality fish and non-exportable fish parts, minimizing waste. This value proposition is not sustainable given current depletion challenges.

Figure 9: Cluster Map



Data source: Team Analysis

⁷ Interview with Hendrik Colpaert, Marketing & Retail at Anova Seafood a European fish importer. May 2010.

Cluster Development. In 1948, the British government established the Uganda National Fisheries Department and fish processing began with the establishment of the state-owned Uganda Fish Marketing Corporation, which manufactured salted and frozen products for Europeans in East Africa (Kiggundu, 2008; Kiggundu, 2006). The Nile perch and Nile tilapia, native to Lake Albert, were introduced to the Ugandan side of Lake Victoria by the British in the 1950's and 1960's. Nile perch, already a popular table fish in northern Uganda, fed on the native Haplochromine fish, and eventually dominated Lake Victoria. Political instability from 1971 to 1986 slowed the fishing sector's development and the Uganda Fish Marketing Corporation collapsed in 1975 (Kiggundu, 2006).

Once Museveni took over in 1986, the government began pushing the development of non-traditional exports and fishing was a targeted sector. Kenya was the first of Lake Victoria's owners to succeed in fish exporting due to a more developed export market, infrastructure, and private sector. Tanzania and Uganda soon followed suit (Dijkstra 2001). In the 1980's and early 90's state enterprises conducted projects in net production, trawling, processing and distribution and fishing supplies (Kiggundu 2008). In 1991 the government opened the Uganda Fisheries Enterprise Ltd, the first fish processing plant (Dijkstra, 2001). Many of these state owned enterprises were closed or privatized after financial and management issues (Kiggundu, 2008).

Also in 1991, Uganda banned exports of unprocessed whole fish to Kenya because many Kenyan fish processing plants were sending collecting whole fish from Uganda and transporting them back to Kenya for processing. After the ban, investors from Kenya began moving into Uganda to set up fish processing plants, including some plants that still exist (Balagadde, 2003).

Soon after, the EU established complex export guidelines for sanitation and quality levels and donors began pushing for an increased private sector role in the fishing sector (Kiggundu,

2008). Between July 1991 and July 1994, almost \$14 million dollars were invested in the fish processing industry for new facilities or upgrades for the new standards (World Bank, 1996). Investment into the sector promoted growth; the export value of the sector grew at a 75% CAGR between 1990 and 1996 (FAO-“Fishery Commodities,” 2010). Uganda benefited from Europe’s large fish consumption and residual colonial ties as growth was focused in the EU.

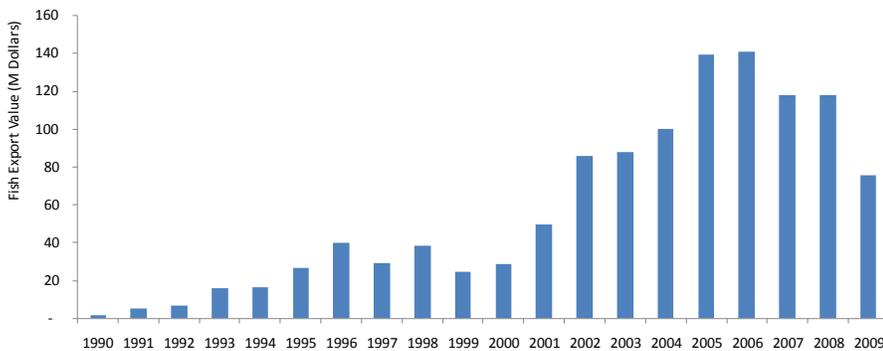
During this time, regulations of the fishing industry were inconsistent and poorly enforced. Field officers had varied roles and inspectors did not have clear procedures for inspecting and ensuring hygiene levels. This worsened when the government began its decentralization policy (Kiggundu, 2008).

Uganda’s fish cluster experienced three separate bans from the EU market from 1997 to 2000. The bans were caused by failure to meet EU safety standards, a cholera outbreak and pesticide residues. In 2000 the last ban was lifted, and bilateral trade resumed. In 2001, Uganda’s standards were fully harmonized with the EU (Rudaheranwa, 2003). The bans resulted in the loss of large export revenues and local employment; however, they established high quality standards. Processors made investments and the World Bank and UNIDO provided appropriate training (Rudaheranwa, 2003). Uganda’s Directorate of Fisheries Resources (DFR) also required licensing of all export plants, based on strict operational standards (Kiggune, 2006).

Recent cluster performance. After the bans, fish exports rose again growing at a 30% CAGR from 2000 to 2006 (FAO-“Fisheries Commodities,” 2010). Exports are still concentrated with 80% of fillet value going to the EU (International Trade Centre, 2010). Recovery was helped by the “irregular supply of traditional whitefish species” in Europe (Josupeit, 2004). There is also important regional demand, estimated at 20,000 metric tons in 2006, of dried and smoked fish (UFCP, 2006).

Export levels have dropped dramatically in recent years. Fish exports dropped 46% from a high of \$141M in 2006 to \$75.6M in 2009 (FAO-“Fishery Commodities,” 2010; Biryabarema, 2010). Between 2006 and 2008 Ugandan fillet export volumes declined 31% while price per kilo increased 14% (International Trade Centre, 2010). Various factors could have caused this trend. Depletion has increased costs at plant gates. Increased competition in Europe from other white fish, including pangasius and tilapia, has limited price increases (Josupeit, 2006); Vietnamese pangasius EU export volumes have increased by 30% from 2007 to 2009 (Josupeit, 2010).

Figure 10: Uganda Fish Exports



Data Source: FAO-“Fish Commodities,” 2010; UFCP 2006; International Trade Centre 2010; Biryabarema 2010⁸

Over the past decade, Uganda’s fishing cluster has become much

more crowded. Data on the entire fishing sector in Uganda is not readily available, but in the last fishing survey of Lake Victoria the number of fishermen increased by 52% from 129,305 in 2000 to 196,426 in 2006.⁹ The number of fishing crafts also increased 63% from 42,493 in 2000 to 69,160 in 2006, in particular motorized boats suggests that fishermen are doing well enough to afford motors.¹⁰

Uganda Fish Processors and Exporters
Byansi Fisheries Co. Ltd
Fish ways Uganda Ltd
Freshwater Fish Industries Ltd
Gomba Fishing Industries Ltd
Greenfields Uganda Ltd.
Hwan Sung Ltd
Igloo Food Industries Ltd
Marine and Agro Export Processing Ltd
Masese Fish Packers Ltd
Ngege Ltd
Tampa Fisheries Ltd
Uganda Fish Packers Ltd
Unifoods Ltd
Wild Catch Fisheries
Oakwood Investments

⁸ Data from multiple sources given limited data. 2001 estimates of recover vary across sources. Ugandan Bureau of Statistics data was used for 2003 since 2003 FAO data was incorrect. 2007-2008 data is the sum of product codes 301-305 from International Trade Center.

⁹ Lake Victoria Fisheries Organization website

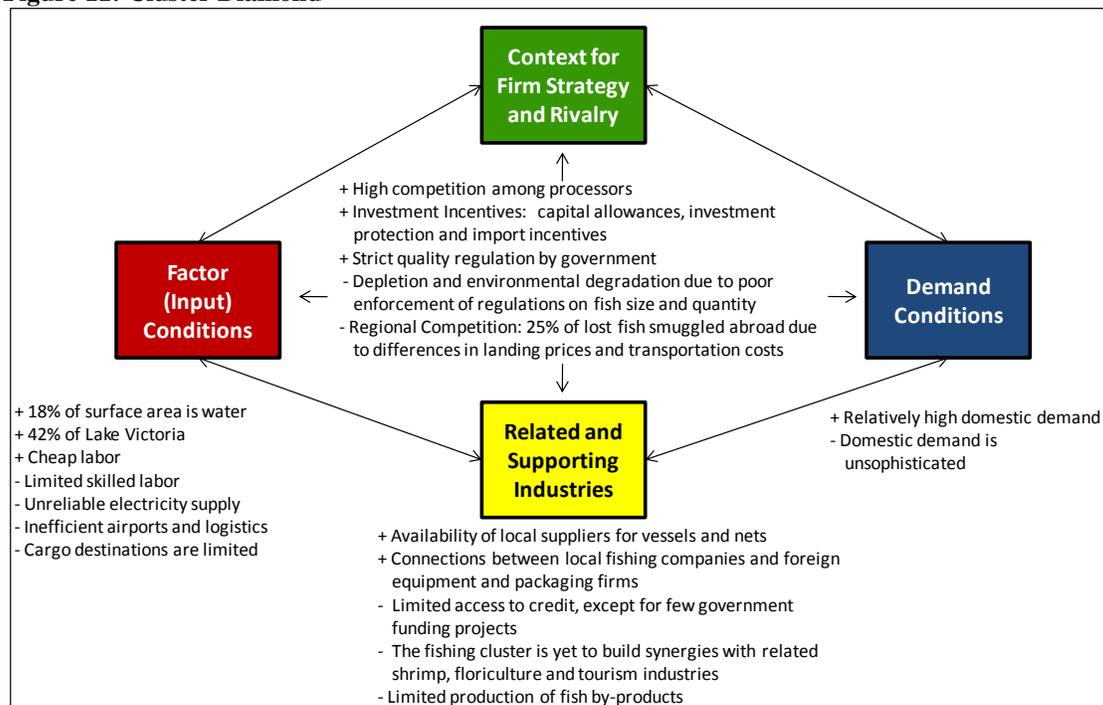
<<http://lvfo.org/index.php?option=displaypage&Itemid=150&op=page>> Accessed April 2010.

¹⁰ Ibid.

Uganda's 15 major fish processors comprise 90% of total fish exports from Uganda and are located in Kampala, Masaka, Entebbe, and Jinja, in proximity to the lakes.¹¹ Companies vary in installed capacity size from 20-80 tons per day.¹² Some have established cold management systems at the landing sites and invested in refrigerated trucks to access the raw material and process in any location. Uganda's fish processing industry operates well below capacity at about 31% of total installed capacity of 940 MT/day in 2006 (UFCP, 2006).

3.3. Cluster Diamond

Figure 11: Cluster Diamond



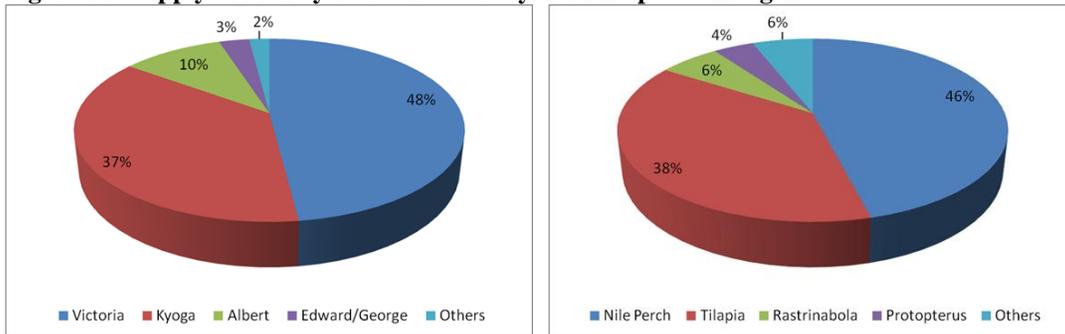
Data Source: National Fisheries Competitiveness Plan Uganda Investment Authority, www.ugandainvest.com, International Trade Center, Building Uganda's Global Competitiveness in Agribusiness 2005-2010. Rep. 2006

3.3.1. Factor Conditions

Uganda's geography, rich in aquatic resources, is conducive to fishing and aquaculture. The smaller lakes and rivers are also important fish sources especially for local communities. Uganda has three major commercial fish species: Nile perch, Rastrinabola and Tilapia.

¹¹ Uganda Fish Processors and Exporters Association, e-mail message to Tamara Heimur, May 4, 2010.

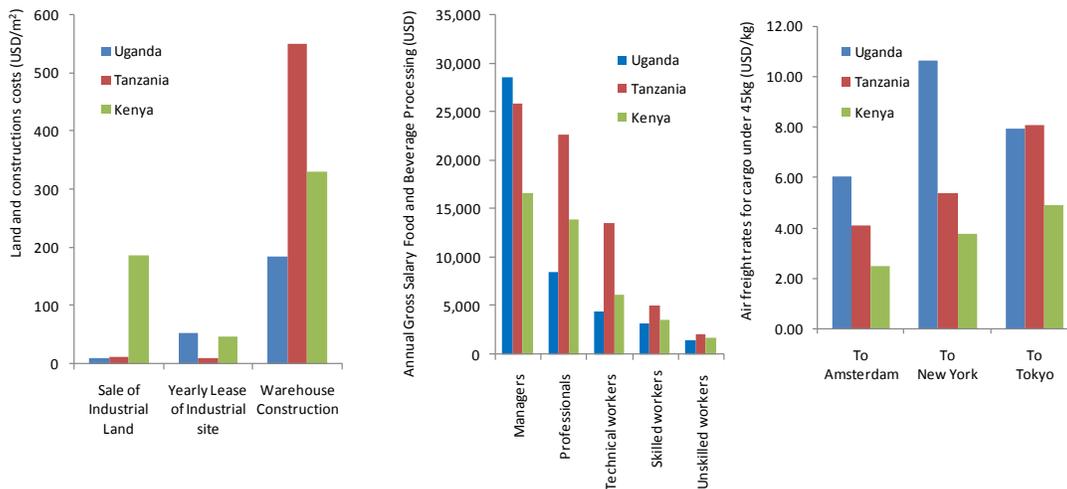
Figure 12: Supply of Fish by Lake and Variety of Fish Species in Uganda



Data source: FAO. Ugandan Investment Authority

Compared with its neighbors, Uganda has lower land, construction and labor costs. These are all important inputs for aquaculture, fish processing and supporting industries. Yet infrastructure is the most striking disadvantages within the factor conditions. Unpredictable electricity supply is a constraint to growth and requires large generators that increase production costs (Ministry of Agriculture, 2006). The number of blackouts per month is three times Tanzania's levels (World Bank/MIGA, 2006).

Figure 13: Relevant prices for land, construction and labor cost and freight rates in 2007



Data source: World Bank/MIGA, 2007. Snapshot Africa.

¹² Ibid.

Fish producers also highlight an uncompetitive cold chain and limited airport facilities as constraints. Without an adequate power supply to support the cold chain, transportation and storage are unreliable. Cargo logistics are also limited and expensive; international air freights are US\$6 per kilo from Uganda to Europe, 50% more than Tanzania and 140% more than Kenya (World Bank/MIGA, 2006).

3.3.2. Context for Rivalry and Strategy

Uganda's fishing industry is characterized by strong rivalry among its fisherman and fish processors. Fishermen actively compete for limited stocks in the lake, particularly for high value Nile perch. Until 2002, only local firms could fish in Uganda, which has led to a predominance of local operators (Kiggune, 2006). Processors create largely undifferentiated Nile perch fillets for export. Uganda does not have fishing quotas, but instead specifies a minimum size for fish, which is intended to prevent capture of immature fish and limit depletion. Uganda also developed Beach Management Units (BMUs) in 2003, a community-based monitoring mechanism for environmental degradation and fish depletion. Uganda has 355 BMUs on Lake Victoria, all legally registered with the DFR (Odongkara, 2009).

Uganda has established a substantial set of regulations governing the fishing cluster. The overall strategy for the sector was set out in the National Fisheries Policy in 2004. This policy covered areas such as sustainable management of fisheries, encouraging investment and promoting aquaculture. Uganda's 1964 Fish Act governs issues such as the conservation, sale and processing of fish. It requires substantial updating and a new draft was issued in 2003, but has not yet been passed. Uganda has passed a series of laws, such as the Fish (Quality Assurance) Rule in 1998 and the Fish (Immature Fish) Instrument in 2002 which covered issues such as fish inspection, approval of landing sites, processing plant quality control, vessel

licensing, net size, and legal minimum fish sizes. Despite these institutions and regulations, enforcement is a key challenge (Bwathondi, 2001).

The DFR is charged with overseeing, promoting and regulating the development of Ugandan fisheries. However, the department has limited enforcement capabilities (Bwathondi, 2001). The Tax Act of 1997 provides government incentives for investing in R&D, plants and machinery, and imported equipment but they are not specific to fishing (UIA).

Innovation. Innovation in fish processing techniques and quality standards was high at the time of the European bans. Since then, innovation has been limited, resulting in little differentiation in the processes and output of fish processors, due to a lack of affordable financing, skilled labor, investment in R&D and linkages to outside expertise (Kiggune, 2006).

Challenges. This competition has also created challenges for the sector. First, depletion of fish is the most important limitation. Population growth, weak governance, inadequate management, market demand for immature fish and low investment in the fishing sector are causing overfishing which is reducing output and income.¹³ The Lake Victoria Fisheries Organization (LVFO) estimates that Nile perch stock was down 80% over the past decade, from 1.9 million tons in 1999 to 370,000 tons in 2008. Uganda is also experiencing depletion in its other major lakes and has even closed some of the lakes to fishing (Mugira, 2008).

To deal with its depletion issues, Uganda has begun an aquaculture industry with limited progress. Aquaculture was initiated in the 1950s, but current production is still only about 32,000 tons per year as of 2006, or 10% of Uganda's total fish production (FAO-"Global Production," FAO, 2009). However, this is a substantial increase from 5,500 tons in 2004. The aquaculture sector still suffers from inefficient supply chains and an uncoordinated market. The

public sector and research organizations are encouraging aquaculture, but efforts have been limited. Aquaculture is constrained by high start-up cost and the fact that Uganda's primary exported fish, Nile perch, does not grow well in aquaculture conditions (UFCP, 2006).

A second major challenge is environmental degradation due to a lack of enforcement of regulations on lake use. Human, urban and industrial waste is prevalent on Lake Victoria. Given that 50% of Uganda's fish come from this lake, which is shared with Kenya and Tanzania, a third challenge for Uganda is rivalry with these two countries (UFCP, 2006). An estimated 25% of all lost fish are smuggled into Kenya and Tanzania (UFCP, 2006).

3.3.3. Related and Supporting Industries

Fishing in Uganda requires supporting industries that provide inputs for the cluster and links to related industries. Ugandan fish producers purchase a variety of locally-produced vessels, gears, and nets. However, more sophisticated equipment such as freezers are imported from Europe (UFCP, 2006). Packaging materials are currently imported, but a newly formed local partnership will soon commission a state of the art packaging facility in Uganda (UFCP, 2006).

The state-owned Uganda Development Bank offers special government subsidized credit lines to select sectors, including fishing. It provides financing in the form of direct loans, co-financing, special fund loans, trust fund loans and leasing (UIA, 2007).

Given that by-products account for 60% of the whole fish, this is an important area (UFCP, 2006). By-products currently include fish frames, oil and fat that are sold in the local markets while fish maws and skins are exported (FAO, 2004). Among recent investments, a company is investing in an omega-3 extraction plant (Josupeit, 2006).

¹³ LVFO, <http://www.lvfo.org/downloads/LVFOFMP2.pdf>. Accessed April 2010.

Fresh water shrimp farming is growing but despite intensive research, development has not moved forward on a commercial scale; 2008 exports were \$56,000. The National Fisheries Policy highlighted this as an area for development since the fishing cluster and the shrimp aquaculture cluster share common structures and inputs. One of the main barriers to increasing fish and shrimp aquaculture is the lack of an aquaculture feed industry. This has led the sector to rely on imports for most of its feed requirement. (The Uganda’s New Vision, 2009).

Uganda is focusing on increasing the competitiveness of targeted industries like floriculture and tourism. The fishing industry can benefit greatly from these efforts since the clusters would share use of, among other things, distributors, air carriers and airports.

3.3.4. Demand Conditions

In 2008 Uganda produced 502,000 tons of freshwater fish (FAO-“Global,” 2010). The vast majority of this fish is consumed locally.¹⁴ Uganda’s fish food supply per capita is higher than both Kenya and Tanzania (FAO-“Consumption” 2010). Fish is important for food security as up to 50% of all animal protein comes from fish.¹⁵

Table 1: Food supply quantity

	Uganda	Tanzania	Kenya
Fish/Seafood: Food supply quantity (kg/capita/yr) Average 2000-2005	8.61	7.00	3.75

Data source: FAO-“Consumption” 2010

High domestic demand for fish is countered by a low level of sophistication and is dominated by unprocessed and smoked/dried fish. Most of the local market distribution is done

¹⁴ FAO Fish Exports/FAO Freshwater Fish Production indicate average export levels of 9% from 2004 to 2006 (FAO-“Fishery Commodities,” 2010; FAO-“Global Production” 2010). However, the Ugandan Investment Authority states that 67% of fish are consumed locally implying that 33% are exported. (Uganda Investment Authority, <http://www.ugandainvest.com/uia2.php?uhpl=fish&&uhpl1=Fish>. Accessed May 2010).

¹⁵ Uganda Investment Authority, <http://www.ugandainvest.com/uia2.php?uhpl=fish&&uhpl1=Fish>. Accessed May 2010.

without refrigeration which leads to lower quality and higher losses (UFCP, 2006). Products rejected from export focused processing plants find their way back to the domestic market.¹⁶

3.3.5 Institutions for Collaboration

Uganda’s fishing sector has a number of good institutions for collaboration. The Uganda Fish Processors and Exporters’ Association has played a large role in coordinating the actions of the processors especially during the EU bans. The Lake Victoria Fisheries Organization (LVFO) is a key IFC because it facilitates dialogue across the three countries that share the lake.

Table 2: Institutions for Collaboration by type

Type	Name	Description
Education and Research Institutes	National Fisheries Resources Research Institute (FIRRI)	FIRRI is a research institute operating under the National Agricultural Research System.
	Aquaculture Research and Development Center (ARDC)	ARDC is affiliated with FIRRI and carries out research in aquaculture, aquatic environment health and disseminates the results
	Fisheries Training Institute (FTI):	FTI provides fisheries training at the community level as well as for staff in fish processing industry, fish farms, government departments and development
	EU Lake Victoria Fisheries Research Project	LVRFP is a program supported by the EU, with the goal of building scientific knowledge of the lake’s fishing industry.
Institutes for collaboration	Lake Victoria Fisheries Organization (LVFO)	The LVFO is a regional organization under the East African Community responsible for coordinating and managing fisheries resources of Lake Victoria. The organization was formed through a Convention signed in 1994 by
	Uganda Fish Processors and Exporters’ Association (UFPEA)	The UFPEA is a voluntary association for fish factories which works with the Ugandan government on the creation and enforcement of environmental,
	Uganda Commercial Fish Farmers Association (UCFFA)	UCFFA brings together commercial fish farmers to support and promote the industry.
	Uganda Fisheries and Fish Conservation Association (UFFCA)	UFFCA is a national umbrella association of community-based fisheries organizations.

Data source: *Uganda Fisheries Competitiveness Plan, 2006*

3.4. Cluster Recommendations

Develop an Updated Comprehensive Sector Competitiveness Strategy. The government must develop a comprehensive strategy for the sector going forward. The current competitiveness plan (2006-2010) should be used as the foundation for this strategy, in particular to update legislation. This strategy should be co-owned by the Department of Fisheries and the Ugandan Fish Processors Association with clear milestones and accountability mechanisms.

¹⁶ Marine & Agro Export Processing Ltd. Mr. Moyez Kassam, Managing Director April 6 2010

Improve Sustainability. Current capture practices are depleting the fish stock, but sustainability can be implemented through two primary steps. First, the government must protect the quantity and quality of fish by enforcing fishing regulations in Uganda's lakes. Enforcement should focus on issues such as minimum fish size as well as smuggling of fish. Government should also continue its efforts at involving communities in enforcement through the Beach Management Unit structure. Finally, given that Uganda's largest source of fish, Lake Victoria, is surrounded by three countries, all efforts at depletion should continue to be coordinated through the LVFO, which is already active in conservation and stock management. A second approach is to increase volumes by investing in aquaculture and diversifying into different types of fish.

Improve General and Cluster Infrastructure. Uganda's poor infrastructure hurts fishing cluster competitiveness. The government needs to make significant investments in transportation and electricity infrastructure. Having a competitive airport to service this cluster is critical. The government should push more flights into service by promoting tourism in Uganda and adopting a universal open skies policy. Additionally, the country is in urgent need of competitive cold chain logistics which can be leveraged for by-products and other industries. Fish processors should invest to improve the landing sites to reduce losses.

Establish Ugandan Brand. There is little distinction around Ugandan fish. The Uganda Fish Processors & Exporters Association should continue its efforts at developing branding process for the European market to stimulate demand. Uganda fish can also enhance its image and increase willingness to pay through labeling initiatives such as the organic and eco-labeling. A eco-labeling pilot project has had initial success in achieving a small price premium.¹⁷

¹⁷ Interview with Dick Nyeko Executive Secretary of the Lake Victoria Fisheries Organization on May 3rd 2010. Project is located on Lake Victoria in Tanzania. http://www.naturland.de/naturland_fish.html .

Increase Research and Development. The government should also increase R&D in the fishing sector, focusing on aquaculture, fish quality, fish products and fish practice sustainability.

Promote Related Industries. Explore expansion of local suppliers of equipment and packaging to reduce dependency on imports and costs. Fish processors should establish joint ventures with small local and regional suppliers. The same should be done for aquaculture suppliers (e.g. feed).

Expand Credit. Limited access to financing limits the expansion of fish farming which has substantial upfront costs. Expanding financing through development banks or government credit guarantee programs could allow greater growth in this segment.

Promote by-products. Extract more value of limited fish resources by processing products with higher economical value. Some alternatives could be: fish oil, fish meal, fish flour, etc. Fish processors should expand their efforts to extract more value from their current ‘waste.’

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