

Identification of Potential Aquaculture and Fish Processing Investment Projects and Partners in Selected Countries in Africa



Volume IV - Annex B - Four Countries Profiles

Final Report - April 2009

Nordenfjeldske Development Services

Nordenfjeldske Development Services

Foreword

This report is one of four documents produced during a study conducted on the 'Identification of potential aquaculture and fish processing investment projects and partners in selected countries in Africa'. The study emanates from a memo to the Ministry of Foreign Affairs on strategic priorities for Norwegian cooperation assistance for business development within fisheries and aquaculture. It concluded that commercial companies in Norway have special competence, resources and interest that can be matched with existing or emerging commercial enterprises in developing countries, and provide a basis for collaboration and investments within the aquaculture and fish processing sectors. The purpose of the study was to provide relevant information for Norwegian companies interested in investment and/or joint ventures in African fisheries and aquaculture by identify potential investment projects and partners within the aquaculture, fish handling and processing sectors within selected African countries. The study has been undertaken focusing primarily on commercial viability, but wider issues such as development impact has also been noted¹.

The study was commissioned and financed by NORAD (Norwegian Development Assistance Agency) and completed by NFDS (Nordenfjeldske Development Services) and Econ Pöryr. The study team consisted of Dr James Muir (Team Leader and Fishery Sector Expert) and Ms. Emelie Aurell (Economist) who completed the field trips, supported by Ms. Sandy Davies, Mr. Per Erik Bergh, Mr. Audun Gleinsvik² and Mr. Sveinung Fjose. The study started in mid-2008 and was completed in early-2009; it included a preliminary meeting with NORAD, and visits to four countries (Ghana, Mozambique, Tanzania and Uganda). The descriptions, analysis, conclusions and recommendations are the responsibility of NFDS and Econ Pöryr.

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Report structure

A large amount of material has been compiled during this study and has been arranged as follows:

- a) **Volume I – Executive Document** – a brief overview of the main study process and findings.
- b) **Volume II – Main Report** – sets out the study findings including background information, the initial assessment of all African countries, summaries of the nine potential countries for investment, further summaries of the four countries visited, and the recommended strategy and conclusions of the study.
- c) **Volume III – Annex A** - contains the nine country profiles (Egypt, Ghana, Kenya, Mauritius, Mozambique, Namibia, South Africa, Tanzania and Uganda) made prior to the field visits. These were compiled as desk studies using publicly available information together with the teams' background knowledge.
- d) **Volume IV – Annex B** - sets out the four country reviews (Ghana, Mozambique, Tanzania and Uganda) where field visits were conducted. These reports are based on locally sourced information and oral consultations. They build on the work done in Volume III and are more focused on the realities on the ground, recent trends and actors involved.

Note on sectoral data

Effort has been made to include the latest data that were available at each point in the study; however, in some cases older figures were used due to limited availability of information for all countries, to allow comparative analysis. Also it is noted that data from different sources do not always agree – we have used our best judgement to provide the reader with as accurate an overall picture as is possible given the uncertainty around some data.

¹ The TOR are attached in Annex 1: Volume II

² Mr Gleinsvik was unable to participate in field work as initially proposed but continued his involvement in backstopping, while Econ also provided Ms. Aurell as an additional team member.

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IV. List of abbreviations used in the text

Abbreviation	Full name
ACDI/VOCA	Agricultural Cooperative Development International/ Volunteers in Overseas Cooperative Assistance
ACP	African Caribbean and Pacific
ADF	African Development Foundation
AfDB	African Development Bank
AIDS	Acquired Immune Deficiency Syndrome
AISA	Aquaculture Institute of South Africa
AMAPIC	Industrial Shrimp Fisheries Association (Mozambique)
ANAP	National Fisheries Association (Mozambique)
ARMAPESCA	Semi-Industrial Fisheries Association (Mozambique)
ASSAPEMO	Mozambique Fisheries Association
ATIIA	Africa Trade Insurance Agency
BEE	Black Economic Empowerment (South Africa)
BMU	Beach Management Unit
BSc	Bachelor of Science
CAADP	Comprehensive African Agricultural Development Programme
CASEIF	Central American Small Enterprise Investment Fund
CBO	Community Based Organisation
CCLME	Canary Current Large Marine Ecosystem
CDE	Centre for Development Enterprise
CGIAR	Consultative Group on International Agricultural Research
COMESA	The Common Market for Eastern and Southern Africa
CPI	Investment Promotion Centre (Mozambique)
CSIR	Council for Scientific and Industrial Research (Ghana)
CSR	Corporate Social Responsibility
CTA	Confederation of Business Association (Mozambique)
DEAT	Department of Environmental Affairs and Tourism (South Africa)
DFID	UK Department for International Development
DoF	Department of Fisheries (Ghana)
DSFA	Deep Sea Fisheries Authority (Tanzania)
DWFN	Distant Water Fishing Nations
EAC	East African Community
EACU	East Africa Custom Union
EC	European Community
ECOWAS	Economic Community Of West African States
EDIF	Export Development and Investment Fund (Ghana)
EEZ	Exclusive Economic Zone
EIA	Environmental Impact Assessment
EPA	Environmental Protection Agency (Ghana)
EPPO	Export Promotion Programme Office (Kenya)
EPZ	Export Processing Zone
EPZA	Export Processing Zone Authority (Tanzania)
ERS	Economic Recovery Strategy and creation of Employment (Kenya)
EU	European Union
FAD	Fish Aggregating Devices
FAO	Food and Agricultural Organisation of the United Nations
FAST	Faculty of Aquatic Sciences and Technology (where?)
FCUBE	Free, Compulsory, Universal Basic Education (Ghana)
FDI	Foreign Direct Investment
FIRI	Fisheries Research Institute (Uganda)

Abbreviation	Full name
FISH	Fisheries Investment for Sustainable Harvest, USAID Programme 2005-2009 (Uganda)
FISH	Fish Farming For Income Generation And Food Security, DFID Programme, 1999-2004 (Uganda)
FiTEC	Fisheries Training and Extension Centre (Mauritius)
FMRA	The Fisheries and Marine Resources Act (Mauritius)
FSA	Financial Services Act (Mauritius)
FSDA	Financial Services Development Act (Mauritius)
GAFCO	Ghana Agro-Food Company (Ghana)
GAFI	General Authority for Investment and Free Zones (Egypt)
GAFRD	General Authority for Fisheries Resources Development (Egypt)
GDP	Gross Domestic Product
GEF	Global Environment Facility
GEPC	Ghana Exports Promotion Council (Ghana)
GFZB	Ghana Free Zones Board (Ghana)
GIEK	The Norwegian Guarantee Institute for Export Credits
GIF	Ghana Investment Fund (Ghana)
GIFT	Genetically Improved Farmed Tilapia
GIPC	Ghana Investment Promotion Center
GNCCI	Ghana National Chamber of Commerce and Industry
GOU	The Government of Uganda
GSB	Ghana Standards Board (Ghana)
ha	Hectare
HACCP	Hazard Analysis Critical Control Point
HIPC	Heavily Indebted Poor Countries
HIV	Human Immunodeficiency Virus
HND	Higher National Diploma
Hrs	Hours
IAA	Integrated Agriculture Aquaculture
IBRD	International Bank for Reconstruction and Development
ICC	International Chamber of Commerce
ICEIDA	Icelandic International Development Agency
IC(A)M	Integrated Coastal (Area) Management
ICSID	International Centre for Settlement of Investment Disputes
IDF	Import Declaration Form (Kenya)
IDPPE	Institute for the Development of Small Scale Fisheries (Mozambique)
IFAD	International Fund for Agricultural Development
IFC	International Finance Corporation
IIP	Fisheries Research Institute (Mozambique)
ILM	Integrated Lake Management Programme, DFID
INIP	Institute for Fish Inspection (Mozambique)
IPC	Investment Promotion Centre (Kenya)
IPEX	Institute for Export Promotion (Mozambique)
IPPAs	Investment Promotion and Protection Agreements
IRR	Internal Rate of Return
IUCN	International Union for Conservation of Nature
IUU	Illegal, Unregulated and Unrecorded (catch or fisheries)
JAST	Joint Assistance Strategy for Tanzania
Kg	Kilogram
LME	Large Marine Ecosystem
LVEMP	Lake Victoria Environmental Management Programme
LVFO	Lake Victoria Fisheries Organisation

Abbreviation	Full name
m	Meter
MAAIF	Ministry of Agriculture, Animal Industries and Fisheries (Uganda)
MACEMP	Marine and Costal Environmental Management Project (Tanzania)
MAFS	Ministry of Agriculture and Food Security (Tanzania)
MCM	Marine and Coastal Management
MCS	Monitoring, Control and Surveillance
MFA	Ministry of Foreign Affairs (Norway)
MFMR	The Ministry of Fisheries and Marine Resources (Namibia)
MFRD	Marine Fisheries Research Division (Ghana)
MIGA	Multilateral Investment Guarantee Agency
MLDF	Ministry of Livestock Development and Fisheries (Tanzania)
MLRA	Marine Living Resources Act (South Africa)
MNRT	Ministry of Natural Resources and Tourism (Tanzania)
MOFI	Ministry of Fisheries (Ghana)
MONAP	Mozambique Nordic Agricultural Programme (Mozambique)
MOU	Memorandum of Understanding
MPAMITA	Mkakati wa Pamoja wa Misaada Tanzania
MRAC	Marine Resources Advisory Council
MSc	Master of Science
MW	Mega watt
NAFAG	National Fisheries Association of Ghana (Ghana)
NAFIRRI	National Fisheries Research Institute (Uganda)
NAMFI	Namibia Maritime and Fisheries Training Institute (Namibia)
NARO	National Agricultural Research Organization (Uganda)
NCCO	National Cold Storage Operations (Tanzania)
NEMA	National Environmental Management Authority (Uganda)
NEMC	National Environmental Management Council (Tanzania)
NEPAD	New Economic Partnership for Africa
NGO	Non-Governmental Organisation
NHO	Confederation of Norwegian Enterprises
NICMS	National Integrated Coastal Management Strategy (Tanzania)
NORAD	Norwegian Development Assistance Agency
NPV	Net Present Value
NRI	Natural Resources Institute (UK)
NSEC	Norwegian Seafood Export Council
OCT	Overseas Countries and Territories
OECD	Organisation for Economic Co-operation and Development
ONDD	The Belgian Export Credit Agency
OPEC	Organization of the Petroleum Exporting Countries
PBG	Policy Based Guarantee
PCG	Partial Credit Guarantees
PPP	Public-Private-Partnership
PRG	Partial Risk Guarantees
PRS	Poverty Reduction Strategy
PTM	Princes Tuna Mauritius
R&D	Research and Development
REC	Regional Economic Community
RFB	Regional Fishery Bodies
RMP	Risk Management Products
RV	Research Vessel

Abbreviation	Full name
SACU	Southern African Customs Union
SADC	Southern African Development Community
SAL	Sustainable Aquaculture Ltd (Ghana)
SEAFO	South-East Atlantic Fisheries Organisation
SEEGAD	Smallholder Empowerment and Economic Growth through Agribusiness and Association Development (Tanzania)
SEMMA	Sustainable Environmental Management through Mariculture Activities (Tanzania)
SEZ	Special Economic Zones (Tanzania)
SFLP	Sustainable Fisheries Livelihood Programme (Ghana)
SFP	Strengthening Fishery Products (Ghana)
SME	Small and Medium Scale Enterprise
SON	Source of the Nile (Uganda)
SUA	Sokoine University of Agriculture (Tanzania)
SWOT	Strengths, Weaknesses, Opportunities and Threats
t	Tonnes
TAC	Total Allowable Catch
TAFIMA	Tanzania Fisheries Research Institute (Tanzania)
TCCIA	Tanzania Chamber of Commerce, Industry and Agriculture (Tanzania)
TIC	Tanzania Investment Centre (Tanzania)
TIFPA	Tanzania Industrial Fishing and Processors Association (Tanzania)
TNBC	Tanzania National Business Council (Tanzania)
TNC	Trans National Companies
TSh	Tanzania Schilling
UBOS	Uganda Bureau of Statistics (Uganda)
UCA	Uganda Cooperative Alliance (Uganda)
UEPB	The Uganda Exports Promotion Board (Uganda)
UFFRO	Uganda Freshwater Fisheries Research Organization (Uganda)
UFPEA	Ugandan Fish Processors and Export Association (Uganda)
UIA	Uganda Investment Authority (Uganda)
UNAM	University of Namibia (Namibia)
UNCTAD	UN Conference on Trade and Development
UNDP	United Nations Development Programme
UNECA	UN Economic Commission for Africa
USA	United States of America
USAID	The United States Agency for International Development
USD	United States Dollars
USDM	University of Dar es Salaam (Tanzania)
USh	Ugandan Shilling (currency) (Uganda)
VAP	Value Added Processing
VAT	Value Added Tax
VMS	Vessel Monitoring System
WAF	West African Fish Limited (Ghana)
WAFICOS	Walimi Fish Cooperative Society Limited (Uganda)
WRI	Water Research Institute (Ghana)
ZIPA	Zanzibar Investment Promotion Authority (Tanzania)

1 Introduction

The initial screening carried out in the first stage of the study set out and considered the broad characteristics of national resource, political and commercial environments, and identified the potentially positive attributes of four countries, Tanzania, Mozambique, Ghana and Uganda, for external investment. To validate these initial rankings and assess national fisheries sectors more specifically and realistically for investment opportunities, the team took several steps;

- Using the overview in the stage 1 study as a basis, we updated data and their implications with more specific and detailed information, if no source is listed, information has been collected through consultations with key stakeholders as listed in Section 6 to this Volume;
- We defined a framework approach for business development, based on type, scale, risks and returns of potential sector business models;
- With specific focus on the practical aspects of development, economic and business context for investment, we assessed existing and potential commercial developments;
- This was then used to identify possible options for development, and where possible we discussed concepts and options with potential commercial principals and/or key informants; and
- We then developed ideas and suggestions, based on the national context and the commercial environment, showing ways in which these investments and their successful commercial outcomes might be realised.

The study was carried out by James Muir, NFDS and Emelie Aurell, Econ Pöyry during country visits to Tanzania from the 9th to the 14th of November 2008, Mozambique from the 1st to the 5th of December 2008, Ghana from the 26th to the 30th of January 2009 and Uganda from the 8th to the 14th of February 2009. The field visits were prepared through initial contacts by email and phone, and meetings with national and other representatives prior to the visit. Consultations were carried out with a number of stakeholders in public and private sectors.

- Separate country reports presented in this Volume describe the outcome of these consultations and a list of people consulted in each country is also provided in Section 6.
- Section 6 of the Main Report, Volume II includes an overview of the background issues, as means of an introduction to this section including an approach to country reviews (6.1.1); context for business development (6.1.2) and framework for choice (6.1.3) – this is not repeated here.
- Section 6 of the Main Report also contains a summary of the chapters of this report.
- While Section 7 of the Main Report contains the overall recommendations and strategy of the consultant team, with an assessment of the potential, from a Norwegian business perspective, and related suggestions for how this might be realised – this summary is also not repeated here.

2 Ghana

2.1 Executive summary

Fish is a staple food in Ghana and provides 60 % of animal protein needs. Fish is consumed all across the country and by all groups, though with local differences. National per capita consumption is 23 kg, considerably above the global average of 13 kg. This is based primarily on lower priced marine fish, although freshwater fish, particularly tilapia, are becoming much more popular.

Ghana's annual aquatic food requirements were estimated in 2007 at 910,000 t compared with production of some 510,000 t, the deficit covered by imports. Marine fisheries land on average 325,000 t per year but are fully or over exploited for most species, and though further capacity for tuna may exist, catch levels can be very variable. Freshwater fisheries make up the balance but are also heavily exploited. In 2006 imports were some 302,000 t, suggesting a substantial deficit, which it is increasingly hoped to supply with aquaculture.

Ghana has a relatively good infrastructure and business conditions, with a growing economy and good markets. With a relatively good road network, and direct flights to London, Amsterdam, Frankfurt and Rome of less than 7 hrs, it is well placed for export options, in both value addition and aquaculture. It is also has good potential for serving the region across the sector.

Ghana is well suited for freshwater aquaculture, particularly cage culture of tilapia in Lake Volta, entirely in Ghanaian territory, unlike the shared water resources of other case study countries. A small number of commercial producers are already establishing and potential is substantially greater. Pond fish culture is also underway, as is artisanal coastal aquaculture of shellfish and molluscs, but these are less likely to become commercially significant.

The Government of Ghana is set to accelerate development of the sector over the coming decade by improving conditions for private sector fingerling supply, feed facilities, and related services. High market prices for tilapia are stimulating investment and the sector is growing, with good potential in national, regional and international markets. Some value added prospects can be identified, though in more specialised contexts, integration may also be viable. Options include:

- Aquaculture; medium to large scale cage culture of tilapia in Lake Volta for regional and international markets; development and supply of high quality aquaculture starter and on-growing feeds for tilapia, development of specialist hatchery and seed production for tilapia; provision of service and support functions for commercial and artisanal producers.
- Value addition; small-medium scale options based on aquaculture raw materials, for local to international markets; specialised tuna products and small scale value addition associated with high value coastal demersal species.

A number of potential investment partners can be identified, and for CSR oriented approaches, various artisanal development and community organisations could be considered. Investment conditions are relatively sound and particularly in cage culture, feeds and seed have good potential for early returns, though the establishment of a sound resource strategy for Lake Volta will be essential.

2.2 The Ghana fishery sector

Ghana's fishery sector covers marine and fresh water fisheries, aquaculture, processing, and marketing. It is an important economic contributor, estimated at 3 % of total GDP and 5 % of agriculture GDP. In various ways some 10 % of the population is estimated to be engaged in the sector. The gross value of the sector in 2002 was estimated to be USD 251.2 million, rising to USD 740 million by 2007, with the value of imports in 2006 at USD 125 million and exports at USD 51 million. Currently marine fish accounts

for more than 80 % of fish consumed in Ghana, but with decreasing stock and an increased interest for aquaculture, fresh water fish is steadily increasing its share of supply and consumption.

Fish is a staple food in Ghana and provides about 60 % of animal protein needs, consumed around the country and by all groups, though with local and tribally related differences. National per capita consumption is 23 kg, compared with the global average of 13 kg. The recent trend is that aquaculture is being more strongly promoted to fill the current deficit. Figure 2.1 illustrates the location of main activities within capture fisheries and aquaculture.

Figure 2.1: Location of main activities (Ghana)



2.2.1 Strategic and developmental settings

Organisational and policy features

Until 2005, fisheries issues were handled within the Ministry of Food and Agriculture and thought to be insufficiently addressed to fully exploit the sector's potential, though a Minister of State was appointed to provide a stronger focus for aquaculture. In 2005, a separate Ministry of Fisheries (MOFI) was established, but following the 2008 elections this will return to the Ministry of Agriculture, while retaining previous earlier functions, with a Minister of State addressing fisheries sector issues. Sources suggest that little will change in terms of implementation.

The Fisheries Commission was established in 1993 to advise the Minister on issues related to sustainable exploitation of fisheries resources. The Commission works through the Department of Fisheries (DOF) as the implementing agency. At the time of the field visit, no firm decisions had been taken concerning the final organisational structure for the fisheries sector and so an organisational chart could not be provided, though the expected structure of Fisheries Officers operating at local levels is expected to continue.

The Water Research Institute (WRI) under the Council for Scientific and Industrial Research (CSIR) carries out aquaculture research in Akosombo, by Lake Volta. It was established in 1991 and they provide a range of technical support to the aquaculture sector. They carry out R&D activities related to production

systems as well as provide fingerlings to farmers. The majority of sales are carried out on a commercial basis, through one farm, that provides the institute with fish feed, purchases fingerlings at a discounted price.

Table.2.1 provides a summary of some of the legislative frameworks and policies relevant to the sector. Environmental regulation of aquaculture activities, are addressed through the Environmental Assessment Regulation LI 1652. However, the team was not able to obtain a copy of this document.

Table 2.1: Summary of key legal frameworks and policies (Ghana)

Act/Policy/Strategy/Plan	Key objectives
Fisheries Act 2002	Regulates fisheries sector and aquaculture. Section 60 regulates licensing for aquaculture projects and regulates that an application to be submitted to Fisheries Commission together with and EIA. The act is not explicit on legal rights, protection against other resource users, ownership and tenure.
National Aquaculture Policy (1998, under revision)	The aim of NAP is to increase fish production for local consumption and export markets. Aquaculture is expected to contribute to economic growth, food security and poverty alleviation. The development objective is to establish the national sector framework outlining the responsibilities, duties and obligations of regional cooperation, government, local authorities and actors involved.
Environmental Protection Agency Act 1994	The act mainly regulates the establishment of EPA and the roles and functions of EPA. It further stipulates that EPA should set up an office in each region of Ghana.

Development assistance

A number of development activities have been carried out in the sector and may have a bearing on its future development. In marine fisheries, Ghana has an important role in the regional GEF/FAO Canary Current Large Marine Ecosystem (CCLME) programme, which combines improved stock assessment (linked with the Govt of Norway Fritjof Nansen programme), capacity building and fisheries management within national system, recognising their need to function regionally to address the resource system effectively. Ghana was also a partner in the recent DFID funded FAO Sustainable Fisheries Livelihoods Programme (SFLP), which operated from 1999-2007 across 25 countries in West and Central Africa. The SFLP specifically addressed the small-scale fisheries sector and the means to reduce vulnerability and strengthen livelihoods in coastal and inland fishing communities. It covered both fishing activities and artisanal post harvest and market sectors, and in Ghana as elsewhere, the role and opportunities for women were particularly important.

More generally, FAO's regional office in Accra and its sectoral specialists have been able to give some focus to fisheries and aquaculture in Ghana. For the aquaculture sector, a recent Spanish-funded project for the Volta basin involving collaboration between FAO, WorldFish and the DOF/WRI is examining options for introducing improved Nile tilapia (GIFT) strains with respect to the locally selected varieties. This project has recently commenced and will introduce GIFT fish for comparative trials in secure conditions at the WRI centre at Akosombo.

The Netherlands has supported the "Phenegan project" the project started as a PPP (Public-Private-Partnership) in 2005 with the aims to link Dutch fish-traders, exporters from Ghana, fishermen's association, NGOs and a Pilipino partner to the Ghanaian fishermen. Due to the many actors involved, it turned out to be a rather complex project structure with different expectations from the stakeholders. Currently, the project is not active due to a need to clarify roles and responsibilities before moving ahead. There is also need for additional funding.

The Strengthening Fishery Products Health Conditions in ACP/OCT Countries programme (SFP), jointly funded by the European Commission, UK and the Netherlands had the objective of assisting ACP and OCT countries to put in place health and sanitary requirements demanded by Commission decision 91/493/EEC. In line with this, the SFP Regional project commenced in Gambia, Ghana, Liberia and Sierra Leone in March 2005. Its overall objective is to improve access to world markets for fishery products from these countries, by strengthening health controls on exports and improving production conditions.

At the time of visiting, a small team from the World Bank was assessing prospects for supporting the fisheries sector, looking at possible mechanisms for linking better fisheries management (eg control of IUU fishing, limiting capacity), with investment support in infrastructure and possibly aquaculture. At this early stage it was only possible to discuss outline concepts, but prospects for investment were thought to be generally positive. They had also been informed that the IFC was recently considering strategic investment in a cage aquaculture project, though it unclear whether any of the existing projects or concepts would be at a sufficient scale to meet their typical portfolio criteria.

Other, cross-sectoral developments

A range of other development programmes have been carried out in Ghana, in core issues of health, education, security, and governance. Initiatives in crop and forest production and in developing Fair Trade products have also been notable in their impacts for poorer rural communities. Apart from the general political stability and broad process of economic development and growth which has been supported in this process, which has helped to increase demand for fish and fishery products, the other main interacting issue is that of agricultural production and the potential supply of raw materials for fish feed. At this stage a considerable amount of Ghana's agricultural production is still smallholder based, but farmers' co-operatives and improved infrastructure and market information increasingly mean that products can be sourced and marketed in better condition and more commercial quantities. Commercial farming enterprises are also increasingly common, and high-revenue crops such as oil-palm are encouraging investment from many sectors. However, Ghana still suffers from under capacity in storage in many areas, and traders from neighbouring countries, especially Burkina Faso in the north, buy large quantities at main harvest seasons and resell at much higher prices during seasons of low domestic supply. Support to the establishment of larger commercial farms or cooperative storage facilities, would improve supply of raw material and smoothen the supply on a yearly basis.

2.2.2 Private sector development

Introduction

Marine fisheries accounts for over 80 % of the fish consumed in Ghana. However, the sector is not adequately managed and shows clear signs of overexploitation. The inland fishery is mainly focused in Lake Volta and is small scale in nature using traditional fishing methods. Consumption levels in the country are above global average but the capture fishery sector is not able to meet the demand and hence Ghana imports fish in large quantities – mainly lower priced pelagic species. However, the government is increasing the efforts to expand supply from aquaculture, both small scale pond farming and larger cage farming activities.

As also recognised in the other study countries, the main challenges in Ghana are to manage available resources, both marine and inland, more effectively; to develop and improve the value chain in terms of adding value domestically before export; improving the input supply chain to aquaculture activities in terms of fish feed and fingerling supply. The challenge will be to strike a balance between well managed and controlled resources while also assuring that the poorest segments of its population are included in its benefits. In many cases, if a resource is more strictly managed, dependent populations with low income levels and high vulnerability can be hardest hit. While inclusion in mainstream services of education and health are important, as demonstrated in the FAO/DFID SFLP analyses and community initiatives, alternative income opportunities are often essential, and in certain cases small-scale aquaculture can be a viable option. However, for its successful implementation it must be backed up by supply of inputs and technical expertise. As with Uganda, Ghana is well on its way to developing this sector, while Mozambique and Tanzania are in early stages.

There have been few comprehensive assessments of the profitability of various subsectors, though reviews have been carried out on costs and earnings in parts of the fishery sector, and of yields and profitability of aquaculture, particularly at small pond-based levels. In 2005, a regional analysis of various

forms of Nile tilapia production was carried out³, with a focus on ponds of 2,000-4,000m² based on a survey of 124 pond farmers (Table 2.2), using either mixed sex tilapia systems with catfish to control excessive tilapia reproduction, or based on single sex (male) tilapia production.

Table 2.2: Indicative pond farming costs (Ghana)

Pond characteristics	Item	Unit	Value
Area of ponds		m ²	2,000 & 4,000
Weight at stocking	Tilapia	g	20
	Catfish	g	30
Density stocked	Tilapia	m ²	2
	Catfish	m ²	0.2
Financial variables			
Fixed costs	Land	USD/ha	130
	Pond construction	USD/300 m ²	1,960
	Equipments	USD/ha	20
	Maintenance and depreciation (10%)		198
	Interest on capital (8%)		109
Variable costs			
Labour	Number of persons/ha/yr		0.34
	Cost per day		0.99
Feed	Manure	USD/kg	0.12
	Fertilizer	USD/kg	0.19
	Maize bran	USD/kg	0.04
Fish price at farm level			
	Tilapia fingerlings	USD/kg	0.02
	Small tilapia fish	USD/kg	0.88
	Medium size tilapia	USD/kg	1.10
	Large size tilapia	USD/kg	1.44
	Catfish	USD/kg	1.46

Source: Quagrainie, Kaliba, Osewe, Mnembuka, Senkondo, Amisah, Kosu, Ngugi, Makambo (2005)

Results are presented in Table 2.3, suggesting that all male production was considerably more profitable than mixed-sex production and that in all systems, feed costs constituted a major element in total costs. Production and profit were approximately doubled for the 4,000 m² systems, suggesting that for these systems, economies of scale were not notable. However, individual farm performance was likely to vary quite widely about these means.

Table 2.3: Financial assessment, 2,000m² & 4,000m² ponds (Ghana)

	Pond 2000m ²		Pond 4000m ²	
	mixed-sex tilapia with catfish predation	hand sexed all male tilapia	mixed-sex tilapia with catfish predation	hand sexed all male tilapia
Ownership and annual costs (USD)	509	575	1,014	1,134
Total annual unit cost per kg of fish harvested (USD)	0.70	0.65	0.70	0.64
Feed costs per kg (USD)	0.41	0.41		
Annual revenue (USD)	686	1,061	1,367	2,112
Production (kg)	728	879	1,445	1,759
Annual Gross Profit (USD)	178	486	353	978

Source: Quagrainie, Kaliba, Osewe, Mnembuka, Senkondo, Amisah, Kosu, Ngugi, Makambo (2005)

This also supported the concept that a small scale investment, without major investment in electricity and other additional infrastructure should be able to produce 2 t per ha per year. By contrast, by intensifying and with additional infrastructure a level of 8-10 t per ha per year should be manageable.

³ Quagrainie et al, 2005 "An economic assessment of aquaculture potential in rural Africa: the case of Tanzania, Kenya and Ghana"

A recent PhD study⁴ estimated net profits of commercial farms to be in the range of USD 3,423/ha/yr to USD 54,594/ha/yr with payback times of 1 to 4 yrs, international rate of return (IRR) at 35 % to 105 % and Net present value (NPV) of USD 5,825 to USD 246,263. Out of non-commercial farms, only two out of five made positive net returns and had IRR of only 4 %. In this study, commercial farms produced fish of 250g which were sold at wholesale prices of USD 2 to 3 USD per kg. The break even prices for the commercial farms analysed ranged from 1 USD to 0.70 USD per kg. The current prices are high due to the large supply - demand gap but with increasing interest in the sector, supply is likely to increase and prices to fall.

GIPC also provides indicative figures for culture based fishing (where fry or fingerlings are introduced into open water bodies, typically ponds or reservoirs), depicting average productivity at 150 kg/ha/year while average production from small scale ponds is 2.5 t/ha/year at a total value of USD 0.463 million annually. An estimate for commercial cage culture is derived from one of the already established facilities and might not provide the maximum potential. GIPC nonetheless present the figures as follows: production level of 200 t per ha per year valued at USD 0.316 million. Production from commercial fish farming of 8.7 ha is estimated to have a production level of 87 tonne valued at USD 0.134.

Markets

Ghana's domestic demand is well above its national supply, with an estimated shortfall of 400 000 t at an average per capita consumption of 20-25 kg, nearly twice the global average. With many consumers also very appreciative of freshwater species sold directly in fresh form, tilapia currently commands high prices, the equivalent of 4USD/kg, compared with a typical world market price of 1-1.5 USD/Kg. If aquaculture production starts to expand, the price is likely to fall, but at this stage its elasticities are uncertain. The study by Asmah (2008) suggested consumption at a range of income levels, with some regions showing higher preference for tilapia. It is likely however that higher prices are associated with medium to higher income urban groups, which although significant in Ghana, may ultimately limit the scope for higher prices. As annual population growth in Ghana is 3.5%, however, general demand for fish is set to increase. The GIPC projection of supply and demand up to 2023 (Table 2.4) suggests that supply deficits will reach 555,000 t or more.

The domestic market is structured around two main channels - fresh and iced fish – often directly from catch or farm gate, or sold via small traders, and smoked, salted and dry fish – typically via artisanal post harvest channels and into local markets. Another market is also developing for frozen fish, sold from freezer outlets and small stores, and canned fish, often imported, is distributed widely through shops and supermarkets. The smoked/salted/dried fish market accounts for some 60 % of the total domestic market. Imported fish comes from Morocco, Mauritania, Namibia, Norway, the Netherlands, Belgium, Senegal and the Gambia. Frozen horse mackerel, chub mackerel, sardinella and other frozen fish not specified are the main imported commodities.

Table 2.4: Projected fish supply and demand (Ghana)

Year	Supply (t)	Demand (t)	Deficit (t)
2007	511,836	913,992	402,156
2012	584,767	1 044,226	459,459
2017	668,090	1 193,017	524,927
2022	763,286	1 363,010	599,724
2023	783,894	1 339,811	555,917

Source: GIPC: 2008; "Profile of Ghana's fish industry"

Ghana has a strategic position in the Western Africa region. It is a relatively stable country with good business, infrastructure and trade features, with good access to neighbouring countries such as Nigeria

⁴ Asmah, 2008, "Development potential and financial viability of fish farming in Ghana"

which have excellent market potential but may be more challenging to operate in directly. It is a member of ECOWAS, the Economic Community of West African States, which covers both the Francophone and Anglophone countries with the aim of creating a customs union, and a long run goal of creating a full common market and free movement of labour. With the ECOWAS fully in operation with a common external tariff, an investment in Ghana would mean access to a market of more than 250 million people. Using the average per capita consumption for Sub-Saharan Africa of 8kg/person/year, this is equivalent to 2 million t of fish or fishery products. However, the Anglophone/Francophone divide still exists in many contexts and may limit the full regional potential, at least in the shorter term. Nonetheless, Ghana with its stable and growing economy, and its growing range of business services is well placed to be the 'gateway to West Africa'

Table 2.5: Quantity and value of fishery exports (Ghana)

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Tonnes	43,694	35,730	40,941	54,742	60,236	45,338	45,983	47,877	35,907	24,062
USD 1000	96,944	69,300	72,233	78,472	83,513	76,255	120,460	93,785	97,439	51,956
Average value (USD/kg)	2.22	1.94	1.76	1.43	1.39	1.68	2.62	1.96	2.71	2.16

FAO Fishstat 2009

The value of fisheries exports has oscillated between USD 70 and 120 million over 1997-2005, but dropped to around USD 52 million in 2006 (Table 2.5) . This also shows substantial change in apparent value per tonne over the period, falling again in 2006 suggesting a loss of higher value exports. The level and value of imports has risen steadily (Table 2.6), with varying values, though with the exception of the unusually high values for 2005, typically only 25-35% of the unit value of exports.

Table 2.6: Quantity and value of fishery imports (Ghana)

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Tonnes	219,939	186,922	198,035	171,361	174,317	230,054	109,875	279,518	269,173	302,012
USD 1000	63,659	105,001	103,226	83,646	92,308	125,347	58,357	116,773	190,725	125,321
Average value (USD/kg)	0.29	0.56	0.52	0.49	0.53	0.54	0.53	0.42	0.71	0.41

FAO Fishstat 2009

It appears that very limited systematic analysis has been done of value chains in Ghana and the team was not able to obtain any studies covering this issue.

The capture fishing sector

Ghana has 550km of marine coastline, with a capture fishing industry characterised by four major groups: artisanal, semi-industrial, industrial and tuna fleets. All but the tuna fleets are centred within the narrow continental shelf which is 24km out from the coast at the east and west and widest in the central parts, at 80 km. The industrial vessel landing sites are placed in Tema and Takoradi and these report of 30% of total marine catch while artisanal fisheries constitutes for the rest. The semi-industrial inshore fleet consists of 230 locally constructed wooden vessels while the industrial fleet consist of 100 vessels (36 tuna boats and 64 trawlers and shrimpers). All vessels are fully owned by Ghanaians with the exceptions of the tuna fleets which are joint ventures. The fleet is old and inefficient and does not meet international sanitary and phytosanitary standards. However, an upgrade of the fleet may be difficult due to overcapacity, poor returns on new investment and difficulties of decommissioning older vessels.

According to a recent review by the GIPC, the total domestic catch was above 375,000 t in 2007, with marine capture fishing accounting for more than 75 % of production, and some 2/3rds of this coming from artisanal canoes, mainly catching anchovy, sardinella, mackerels and burrito. The main demersal

species come from the Sparidae, Lutjanidae, Mullidae, Pomadasidae, Serranidae, Polynidae and Penaedae families – groupers, jacks, snappers, mullet, bass, shrimp, plus lobsters. Cephalopods – squid and cuttlefish are also caught. Also notable were tuna vessels, and freshwater fisheries in Lake Volta, each contributing almost 20 % of catch (Table 2.7). A recent MOF paper places marine fishery landings on average 325,000 t, a slight reduction from the average during 1993 – 2000 of 358,000 t⁵. However, the dates of these figures are uncertain. Based on both sources, this sector shows signs of full or over exploitation. However, some tuna species are considered to be still under exploited.

Table 2.7: Total domestic catch 2006 to 2007 (Ghana)

Production	2006 (tonnes)	2007 (tonnes)	Percentage 2007
Marine fisheries			
Canoes	231,680	187,088	49.8
Inshore vessels	9,877	10,008	2.7
Industrial trawlers	17,419	19,892	5.3
Paired trawlers	1,090	1,217	0.3
Shrimp vessels	299	143	neg
Tuna vessels	63,252	72,355	19.3
Total marine fisheries production	323,617	290,703	77.4
Inland fisheries			
Volta Lake	74,500	74,500	19.8
Rivers and dams	7,000	7,000	1.9
Ponds	1,668	3,256	0.9
Total inland fisheries production	83,168	84,756	22.6
Total domestic catch	406,785	375,459	100.0

Source: Developed from GIPC, 2008, 'Profile of Ghana's Fishing Industry'

However, FAO statistics from Fishstat 2009 (Table 2.8) disaggregated by main species groups, present slightly lower figures. However these are well within the typical ranges of error encountered in defining catches, particularly in smaller scale geographically dispersed locations.

Table 2.8: Capture fisheries production (Ghana)

Species	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Crustaceans	1,784	232	1,559	1,858	1,226	1,473	1,307	4,210	2,775	2,040
Diadromous fishes	3,632	3,262	3,341	3,600	5,202	6,435	5,128	5,549	4,660	7,140
Freshwater fishes	74,500	74,500	74,500	74,500	74,500	75,000	75,000	75,000	75,000	75,000
Marine fishes	359,335	410,668	370,861	364,263	286,664	302,362	313,954	304,600	280,472	233,994
Molluscs	3,391	4,114	1,809	2,960	3,649	5,500	4,000	2,508	4,012	2,551
TOTAL	442,642	492,776	452,070	447,181	371,241	390,770	399,389	391,867	366,919	320,725

FAO Fishstat 2009 – tonnes

⁵ Ministry of Fisheries, 2008, "Draft National Fisheries and Aquaculture policy.

Lake Volta is the world's largest artificial lake with some 8,500 km², and is the most important water body for inland fisheries, together with other lakes such as the Bosomtwi, Weiija, Barekese, Tano, Veia and Kpong, along with other smaller reservoirs. The Keta lagoon is also important for the capture of brackish water fish. According to the MOF, inland fisheries are estimated to land 150,000 t fish per year, with approximately 80 % from Lake Volta. However, statistics are a bit uncertain as the GIPC presents figures of 84,000 t. A frame survey in 1998 reported some 24,035 boats employed in inland fisheries, mainly small traditional canoes with only 4 % having outboard engines.

Aquaculture

As both marine and inland fish resources are near or over exploited, prospects of expanding capture fishery production are limited, and aquaculture would have to expand to meet demand gaps. Aquaculture is as yet in a development phase. While the draft National Fisheries and Aquaculture policy document quotes annual production of 3,257 t in 2007, FAO statistics (Table 2.9) quote a lower value of 1,150.t, the majority of which is Nile tilapia. However, catfish production, which is known to exist in current production, has been unrecorded since 2003, and may to some extent account for the discrepancy.

Table 2.9: Aquaculture production (Ghana)

Species	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
African bonytongue	-	-	19	20	20	.	.	.	.	.
Freshwater fishes	-	-	69	70	70	653	190	200	200	200
Nile tilapia	1,350	2,175	3,712	4,400	4,400	285	760	954	950	950
North African catfish	450	725	1,200	1,510	1,510	.	.	.	.	.
TOTAL	1,800	2,900	5,000	6,000	6,000	938	950	1,154	1,150	1,150

FAO Fishstat 2009 - tonnes

In water and land resource terms, there is a huge potential to increase aquaculture production. A current overview and distribution of fish farms and culture based fisheries is provided in Table 2.10.

Table 2.10: Distribution of aquaculture and culture fishery activities (Ghana)

Region	No of pond farms	No of reservoirs
Ashanti	267	5
Brong-Ahafo	106	2
Central	180	33
Eastern	166	9
Western	36	2
Greater Accra	110	129
Volta	101	88
Northern	0	311
Upper East	0	156
Upper West	0	152
Total	966	887

Source: Asmah (2008)

It should be noted however that rainfall in the three northern regions (Northern, Upper East and West) is limited and may be subject to further variability in the future, and the reservoirs are likely to be a mix of

old mining pits filled with water, and various irrigation and other water storage bodies. The sector is currently dominated by artisanal systems with tilapia making up 80 % of output, together with Clarias catfish and other species. Productivity from small-scale operators is estimated at 1.5 t per ha per year, which is typical of lower yielding semi-intensive levels. More recently, more commercial systems have been established and a number of cage facilities now operate in Lake Volta.

The Ministry has developed a strategic framework to address the main challenges within the sector, and is likely to commit substantial efforts over the coming decade to accelerate development by creating better conditions for fingerling supply, feed development, and related services.

Commercial cage farms

Crystal Lake Fish Ltd was the first cage farm in Lake Volta and was established in the late 1990s in the Eastern Region based on an initiative from the UK NRI and a UK consultant, together with a Ghanaian partner. They grew indigenous tilapia in ponds and concrete tanks as well as cages, covering the whole chain from fingerling production, brood stock to full market size tilapia. The farm has 24 circular tanks for their hatchery and nursing businesses fed by water pumped from the lake. At 5-8g, the fingerlings are transferred to one of the nine cages, 1km from shore in 25 m deep water. The ongrowing period is 5 months and annual production in 2006 was around 300 t with a target of 600-1,000 t per annum, (FAO report). The farm is currently receiving support from the Centre for Development Enterprise (CDE), who are funding a production manager, based at the farm since early 2009. Currently the farm imports feed from the US but aims to produce their own feed and have a pelleting machine ready for use. Their market is mainly Accra and the demand is high. Buyers are said to pay up to two months in advance to secure the delivery of tilapia.

West African Fish Limited near Akosombo is a newly established company with Ghanaian and Danish ownership. The Danish counterpart, Royal Danish Seafood, owns up to 75% of the company. Its aim is to produce up to 5,000 t of tilapia annually for eventual export into European markets. Currently they are in the phase of setting up the farm, with three cages in the water. Equipment and feed come from Iceland, Norway and Denmark, and in this initial stage, fry come from WRI Akosombo. It is reported that the company has received a start-up grant of 2 million USD from the Danish government. They suffered a 30% loss on the first cage but have since sold their first 40 t of fish at the farm gate at USD 4/kg. They aim to have a total of 32 cages with 33,000 tilapia per cage.

Tropo Farms started producing indigenous tilapia in 2003 with an approximate harvest capacity of 12-14 t of fish every fortnight (approx 250-350t/year). They are reported to supply a range of fish up to 1kg and have built up a good supply link to restaurants and hotels. They have ponds for breeding and juveniles which are then transferred to cages. Current production is reported to be 1,000 t with an aim for producing 2,000 t.

Commercial pond farms

Aqua Farms, near Accra is Lebanese owned and operates in the agricultural and agro processing field. The company was established five years ago supported by Finatrade, a Lebanese company based in Switzerland, operating in Ghana. It has now separated from Finatrade and trades as Agriserve. The owner has worked closely with several donor organisations, such as USAID, FAO and IFAD in a number of projects, particularly focusing on small scale agriculture and aquaculture businesses. The farm has pond and hapa based breeding facilities, farming and small scale feed production, as due to the shortage of fish feed inputs in the country, the owner started to import maize, soya meal and fish meal for his own production. Although arranged for integrated animal/fish production, with poultry and pig wastes falling in to the ponds to fertilise them, it is not done routinely. All the farmed fish is sold at the farm gate within hours due to the high demand. The farm is integrated with poultry (5,000 hens for egg production), ducks, goats, ostriches and a vegetable garden. It is staffed with local graduates and is also aimed to become a training centre for small-scale farmers.

Other activities

Dakuodeve Fish Farms in Atikpui, Volta Region was reportedly set up in 2007, supported by Aquaculture Production Technology Ltd (APT), an Israeli company providing a complete 'technology package'. Based on the contact information published on the website, the company has links to New Zealand. However no further information could be found during the visit.

Aquaprima Ghana is made up of Ghanaian and European investors, developing intensive commercial aquaculture facility in Ghana at Rivergate farm using water from Lake Volta. No further information was available.

Sustainable Aquaculture Ltd is a small female-owned company cultivating tilapia along the southern shores of lake Volta, breeding tilapia fry and fingerlings in concrete nursery ponds near Dodi Asantekrom before transferring them to cages in the lake. The company was supported by the US African Development Foundation (ADF) in 2004, with enhancements expected to expand production of fresh, whole tilapia from 240 t to more than 4,000 t by 2009. SAL's increased output would allow it to expand full-time employees from 70 to 120, and help it assist local fishing communities expand production by sponsoring a pilot out-growers programme. This would stock lake inlets with tilapia fingerlings and provide out-growers with training in stock management, fish processing and preservation. This would expand the company's supply base and generate more income for independent producers. SAL was also to establish a community-development fund to benefit the three villages that surround its facility that will be supported by an annual contribution from its profits.

A large **Chinese investment** of 40-50 million USD in aquaculture production has been reported in 2007, the Ministry of Fisheries contracting a loan from the Government of China for a 2,000 ha project on River Pra at Shama in the Western Region, with a Memorandum of Understanding (MOU) between the Ministry and two Chinese companies, Chinese National Fisheries Corporation and Lu Ye Fisheries. Under the MOU, a joint committee comprising representatives of the companies and the Ministry would supervise the project that would provide employment for the youth. The companies would provide equipment for construction works and supply farmers with high quality fingerlings and after harvesting buy the fish. The Ministry would assist farmers with soft loans to be repaid within 12 months to construct ponds and supply of fingerlings. The status of the project is currently uncertain, some sources suggesting that it has stopped; others that they are still in the process of acquiring land.

Anglogold Ashanti (AGA) - Obuasi Mines was reported to have committed a total of USD 530,000 for developing aquaculture using the surface mining area of the Homase concession, commencing in 2007, with the aim of creating employment and equipping some 300 with employable skills, also enabling AGA to reclaim the area in line with EPA regulations for decommissioning the land. The project is intended to become operational in three years, also including chalets to accommodate visitors. The communities of Hemang, Adubrem and Krodua were to be encouraged to form co-operatives to support fish farming, with a local company JYJ Limited, aquaculture and environmental restoration consultants implementing the project, which also include recreational fishing, pig production and other livestock rearing.

Dizengoff Ghana, dealers in agro-chemicals, electronics, building and agro-industries were also reported in 2005 to be considering investment in aquaculture, but nothing further was noted. This company is part of the Bolton Group, which has aquaculture related interests elsewhere in Africa (see Uganda report).

Smaller farms reported include Komsol Enterprise Ltd, Pacific Farms in Lashibi and Oceaba Farms in Asutsuare, and also Dekpor Farms, and Kumah Farms near Kumasi

The team was also informed that a company called **Fish Right**, had submitted a proposal of 10 million USD but were not able to obtain further information.

Hence, a number of enterprises are active on the aquaculture scene in Ghana, with a particular focus on Lake Volta as a location for large, cage based projects. As earlier noted, the price of tilapia on the domestic market is currently well above the world market price, and production is potentially very

profitable. With more supply coming into the domestic market, however, the price is likely to stabilise and reduce. However, no detailed studies have been carried out to study the market closer and how sensitive the demand for tilapia is on price.

Value addition and processing

About 80 % of the landed fish is processed while the remaining is consumed fresh. Sixty percent of the processed fish is smoked, 20 % is sundried and the rest is salted. Freezing and canning are only for export, with businesses concentrated around Tema port. Fish landed by the artisanal fleet, mainly anchovies sardinella, scad and chub mackerel, is handled by the informal sector made up of numerous traders, in locations along the coast.

Ghana is strongly dependent on a small number of major customers. France and the UK account for some 74 % of canned tuna exports, and Spain takes about 50 % of export volumes of frozen fish, Togo almost 90 % of salted and smoked fish exports, and Greece and Italy almost 70% of crustacean exports. Table 2.11 summarises key exported species/groups and their values for 2004, while Table 2.12 summarises fisheries commodity production from 2000 to 2006, showing the dominance of fresh and frozen fish, and the traditional dried/smoked forms, while canned products have dropped significantly in the last two years recorded.

Table 2.11: Top exported species (Ghana)

Species/group	Export value, USD million
Canned tuna	72.00
Fresh tuna	7.20
Tilapia	n/a
Misc dried fish	1.00
Salmonids, frozen	0.90
Marine fish, frozen	0.60
Cuttlefish and squid	0.60
Shrimp and prawn	0.09
Sardines	0.08
Frozen crustacean	0.05

Source: FAO Fishstat 2005

Table 2.12: Fisheries commodities production (Ghana)

Commodity	2000	2001	2002	2003	2004	2005	2006
Crustaceans and molluscs	1,800	2,800	3,600	5,500	2,200	2,800	2,800
Fish, canned	25,052	27,010	25,301	25,535	28,318	11,866	5,868
Fish, dried, salted, or smoked	52,175	53,020	50,000	49,445	49,000	48,077	48,088
Fish, fresh, chilled or frozen	53,583	52,822	44,530	41,260	43,949	42,722	45,932
TOTAL	132,610	135,652	123,431	121,740	123,467	105,465	102,688

FAO Fishstat 2009 -tonnes

With respect to EU export, in 1998, the Ghana Standards Board (GSB) was accredited as a competent authority to register companies for exporting seafood. It approves and registers companies based on an inspection of their premises and vessels, production systems, and records of quality assurance. Industry Codes of Practice have been developed based on EU directives 91/493/EEC and 92/48/EEC, including quality control systems based on the Hazard Analysis and Critical Control Point (HACCP) system which exporting companies must meet. By July 2000, over 50 Ghanaian companies were approved and registered by GSB.

As shown above, canned tuna is by far the most important processed products and the most important non-traditional foreign exchange earner, far exceeding fresh tuna. The tuna catching sector is the most developed, with vessels over 30.5 m long and engines of 400 hp or more. Of the 33 operational in 1997, 30 were pole and line vessels, and 3 used purse seines. Main species caught are skipjack, yellow fin and bigeye. Some 2/3rds of landed tuna is processed into loins or canned and exported; the rest is sold locally. Landings in 1997 were some 36,000 t, though these are subject to current, local upwelling and the movement of stocks through Ghanaian waters.

The Pioneer Food Cannery (PFC), a subsidiary of the US Heinz Corporation, is the largest tuna canner, located in the free port zone of Tema. In 1997 they processed about 39,000 tons of tuna per year, about 70% of national output. Tuna is supplied by TTV Tema Tuna, a French-owned locally operating company. PFC exports about 95% of its production, mainly to the UK, but also to Spain, France, Italy, Germany and the Scandinavian countries. Turnover for 1997 was reported at about 57 Million USD per year, but is now likely to be substantially reduced, given declining volumes (Table 2.12).

The Ghana Agro-Food Company, (GAFCO) has activities in tuna canning, wheat milling, feed milling and fishmeal production, agro feeds and veterinary drugs, and is a parastatal joint venture with the Swiss based Industrie-Bau Nord AG. It has a capacity of 50 t per day for retail and catering packs of canned tuna, in brine and various types of oil and spices. It has distributed its tuna products under partner company brand names in Europe, exporting about 4,800 t in 1997 GAFCO had plans to significantly increase production to supply large-scale retailers in export markets, particularly in South and North Africa, as well as regionally, having started exporting to Nigeria. In mid 2008 however, GAFCO suspended production after a period of operating well below capacity, unable to obtain enough raw material, reportedly also because better quality yellow fin and skipjack were being landed in neighbouring countries.

Shrimp are processed and packed on board the vessels for export. High priced demersal species such as burrito, sea breams, cuttlefish, grouper and cassava fish caught by the artisanal, inshore and industrial fleets are either sold at the local market or frozen and exported. A number of companies operate in the fresh and frozen fish and shellfish sector, also mainly in the Tema/Takoradi areas, including **Dakomer Seafoods Limited**, who trade mainly in live lobsters (*panulirus regius*), prawns, shrimps, slipper lobsters, and other fish including White and Black Grouper, sword fish, sharks, *seriola*, snappers, dorade, dentex, cassava fish, sole and barracuda, **Eborns Seafood Co, Ltd** who export cuttlefish, octopus, lobsters, fresh & frozen tuna, **Greenfish Exports** who export live spiny lobsters and other fish, and **Quest International** who deal in frozen skipjack tuna & yellow fin tuna. Most of these enterprises are small-medium scale, highly dependent on seasonal supplies and reportedly face continued difficulties of supply. Most recently, a Chinese group, China International Fisheries Corporation (CIFIC) is reported to have established a joint venture with Legon Fisheries trading as **CG Elmina**, for a USD 2.5 million fish-processing factory at Elmina, on a 1ha site, with 40 staff, a processing plant, a 400-ton capacity cold store, a 20-ton flake ice maker, office and living accommodation, to process fish both for the local and export markets.

The GIPC report on the fish sector also provides indicative information on regional distribution of cold storage facilities in Ghana, with a total installed capacity of 148 000 t. However, the level of usage for fish products and the condition of the infrastructure is not specified. As shown in Table 2.13, the main cold store infrastructure is clustered around Accra constituting 73% of national operational capacity as well as the Ashanti region. Lake Volta has limited capacity at present, which is a constraint both for freshwater fisheries and potentially for emerging aquaculture production.

Table 2.13: Distribution of cold store facilities (Ghana)

Region	no. of cold stores	Installed capacity (tonnes)	Operational capacity (tonnes)	Percentage contribution of national capacity
Greater Accra	65	110,984	99,308	73%
Ashanti	26	21,696	20,946	15%
Central	15	4,332	4,332	3%
Western	28	3,212	3,212	2%
Eastern	10	2,506	2,421	2%
Brong-Ahafo	6	1,995	1,995	1%
Northern	6	3,281	3,281	2%
Upper East	3	107	99	0,1%
Upper West	2	22	22	0,02%
Volta	9	81	81	0,1%
Total	170	148,216	135,697	100%

Source: GIPC, 2008, "Profile of Ghana's fishing industry"

A range of smaller scale facilities have also been established very recently, particularly with Spanish development funding, including construction of two fishing harbours and 12 landing sites, at Elimina and James Town fishing harbours in Central and Greater Accra Regions, and landing sites at Axim and Dixcove in the Western Region, Moree, Winneba, Gomoa Fetteh, Senya Berekue and Mumford in the Central Region, Ada, Teshie in the Greater Accra Region, Dzemeni, Tapa Abotoase and Keta in the Volta Region. EUR 7million was also reported to be allocated for ice plants and refrigeration facilities including Nyanyano and Kromantse/Abandze in the Greater Accra Region, Prampram in Accra, Half-Assini, Shama and New Takoradi all in the Western Region.

The processing of aquaculture product has been considered but not yet developed, as local demand for fresh product has been very strong. Crystal Lake has included the operation of a processing plant in their business plan, but this has not been developed to date.

Service and support

Hatcheries for aquaculture exist in Ghana but on only a limited commercial basis, mostly relying on small farmers harvesting fry and fingerlings from mixed sex tilapia production, with no selection or other forms of quality control. The Water Research Institute has a hatchery in Akosombo (southern Lake Volta) where farmers can buy fingerlings at commercial rates, or commercially based arrangements. Thus the newly established company WAF supplies the WRI with feed and buys fingerlings at a 50 % reduced price. Other than that, commercial farms such as Crystal Lake tend to have their own hatcheries to secure the supply of fingerlings for their production, and may in some cases sell outside. As earlier noted, current investment plans, such as the proposed Chinese-Ghanaian joint venture, intend to expand hatchery production potentially much further.

Most local informants stated that access to good quality fish feed was a major constraint to development of aquaculture in Ghana. With no commercial feed production currently in place, farmers either attempt to produce their own feed, typically moist mixes, or simple sinking pellets, or at considerable cost, import more specialised feed, eg from Brazil, Europe or Israel. Asmah (2008) study find that prices of feed varies

between USD 0.52/kg for locally produced, to USD 4.27/kg by feed factory to USD 9.38/kg for imported feed from Israel.⁶

It was reported that GAFCO, who until recently also produced fish meal as a by-product of their tuna canning enterprises, were planning together with an Israeli feed producer to develop a specialist unit, producing good quality extruded feeds. GAFCO already have capacity of 7 t/hour for all types of animal feed, e.g. for layers, broilers, pigs, goats, horses. They had already produced dry pellet tilapia feeds with 30 and 37% protein levels, for on-growing and hatchery production respectively. However, it was unclear whether or not production would commence. Our discussions with GAFCO revealed that though the plans were in place to develop this independently, with a capacity of 300-500kg/hr – some 2,000t/yr – and the company would be ready to commence production in 2009, bad debts incurred in 1993/94 (a loan of \$10m from OPEC, which had been substantially 'misplaced') had been retained on the company's books and had made it impossible to finance the new venture. There were hopes that under the new government, this could be substantially written down, perhaps to \$3 million, which might make further financing feasible. Alternatively, in further discussion, it was agreed that a separate business entity, eg a joint venture between GAFCO and an external party, could be developed without the pre-existing debt burden.

Agricare and Tema Flour Mill have also shown some interest in producing fish feed but no clear project concepts have been developed. One reported constraint to the fish feed chain is the lack of large bulk inputs for raw materials, and the need to purchase and collect from multiple small sources. It was stated for example that getting 500 kg of maize in one batch was not possible. However, GAFCO stated that bulk sourcing was not very problematic, and routinely obtained maize, soybean cake, cotton seed cake, wheat bran, oyster shell, groundnut cake and other materials for their feeds. In the absence of significant domestic production, fishmeal was imported.

The Dizengoff/Bolton CP group provides a range of agro-industrial inputs and in other countries (eg Uganda) has actively taken part in the provision of aquaculture materials and services. However, apart from its stated aim to develop aquaculture production on its own account, its support and service role in Ghana had not been so clear. Nonetheless, together with other supply and service companies the potential for developing support inputs is clearly present.

The new policy for Fish and Aquaculture drafted by the Ministry of Fisheries includes the establishment of an Aquaculture Development Fund. However, it is not clear if it will actually be established, how it will be funded and what it shall be used for, though the need for services is widely recognised, and the need to engage younger people in aquaculture has been a longstanding issue.

Technoserve, an American based company working with management issues and technical support within the agribusiness sector has been based in Ghana for more than 10 years. Their vision is "Business solutions to rural poverty" and through this approach, supporting small and medium scale business enterprises, and facilitating supply and value chain development, they have been interested in broadening their involvement into aquaculture. They had conducted a small study, funded by Google Foundation, on the feasibility of introducing GIFT tilapia stock, and had applied more widely for funding to develop a sector strategy approach and investment proposal. However, they currently have no further funding for the sector.

An NGO, established by Dr Abban, who is the former Director of the WRI, works with technology transfer and local capacity building in aquaculture. Their concept is to act as knowledge/skill brokers or intermediaries in developing aquaculture, partnering with major institutions and possibly external private sector interests to work with local partners to ensure that training, capacity building and production aims are completed and followed up.

⁶ Asmah, 2008, "Development potential and financial viability of fish farming in Ghana"

2.2.3 Recent actions and trends

Fisheries and aquaculture issues

Management of fish stocks in the marine and inland waters continues to be a challenge, with a combination of what is in practice largely unregulated and at best only partly recorded artisanal fishing, and the issues of effective monitoring, control and surveillance (MCS) for industrial fishing, including possible incursions from international fleets. Though regional stock assessment programmes have been valuable in determining the status and health of resources, and professional staff in national authorities are well qualified, management resource constraints remain a challenge. There are signs that many marine stocks are fully or over exploited. Tuna is considered to be the only fisheries resource that can withstand considerable expansion. The sustainable catch in Ghana is estimated at between 90 - 100,000 mt, which leaves a potential of some 30-40,000t, depending on current catch levels. This area has been given a further boost by the construction of a tuna-landing bay by the Japanese Government.

Currently there is no regulation specifically targeting cage culture and as such, no formal document stipulating for example the minimum distances between two cage farms in a water body, or the responsibilities shared users would have. Nor are there specific guidelines for interactions between aquaculture and fishing interests. A number of small scale illegal cages exist in the Lake Volta but the government in Eastern Region has proclaimed that they will remove these. The EPA seems to be aware of the need to establish a stronger management regime for future developments, and discussions are currently underway between EPA and WRI staff, possibly with external inputs, to develop a strategic planning and monitoring approach. This might also involve zoning to ensure that differences in local environmental capacity and other uses, particularly fishing activity and lakeside developments, are recognised. .

More strategically for aquaculture and other developments, medium to longer term water availability in Ghana is under question, with the potential for the current variability's in rainfall to be accentuated in future climate change scenarios. Northern Ghana in particular, already dry, is likely to be further affected by desertification, and national water use is likely to become a more significant issue. However short to medium term impacts for Lake Volta and the southern part of the country are unlikely to be so significant, and developments such as aquaculture will be favoured by easy access to markets and export facilities.

The introduction of GIFT tilapia to Ghana has been considered over some time, and will now be evaluated more clearly, with specific safeguards, under the new FAO/WorldFish/DoF/WRI programme. A number of the larger cage farms, and certain pond producers, are pushing for its introduction, in the strong belief that its potential performance could greatly enhance viability of aquaculture. However, there has also been concern about potential environmental impacts of introducing new strains, particularly if it might be unnecessary if locally selected strains could perform at similar levels. This is likely to be better resolved during 2009/10, though if GIFT is shown to be better, their use will still have to be approved. In terms of the value-added sector, though potential markets are good, many smaller processors are reported to be struggling to source raw material. This in turn tends to constrain investment in improving facilities and seeking further added value. Issues of quality control remain, a mission in October 2008 by the Food and Veterinary Office of the EU DG SANCO following a previous mission in 2005, regarding health conditions for EC imports of fish and fishery products, reported several problems, with no significant improvement in official controls. Several approved establishments were non-compliant for hygiene conditions, but had not been refused export certification. Non-equivalent test methods were also used for histamine testing, and laboratories were not accredited. In consequence the Commission requested an action plan to address the issues identified.

Infrastructure

Ghana has approximately 40,000km of main roads of which one third is paved and in generally good condition. Four-by-four vehicles or equivalents are generally needed to travel in the remote rural areas. In Accra, road conditions are good, with considerable investment in new capacity, though due to a

substantial increase in car users, together with busy freight traffic, daytime congestion is common and the road between Accra and Tema can be especially difficult. The development of industrial and business park areas around Tema does however mean that many commercial activities can be carried out without the need for going into or crossing Accra.

More than 17 international flight companies operate to Accra, with a flight time to Europe of not more than seven hours, which facilitates market access by air in comparison with for example Mozambique that has a 10 hours flight to Europe and less well connected with direct flights.

The ports and harbours in Tema and Takoradi are in good condition. A number of major shipping lines operate from these two ports which also has facilities to land fish of large quantities. Lake Volta has approximately 32 smaller landing sites.

Reliable access to electricity has been a challenge in Ghana, which is powered mainly through the Volta River Authority through the Akosombo Hydro Power Plant of 912 MW and Kpong Hydro-Electric project of 160 MW. The country is also trying to promote renewable energy into the energy mix.

Phone and internet service is improving in the country with best coverage around the major cities but landlines are found in remote areas in the form of pay phone services and the network coverage of cell phones is improving yearly.

2.2.4 Overview of sector business health

Overall, the Ghanaian fish sector faces a strong future for growing value as the demand for fish products is high, but a number of challenges need to be addressed before the full potential can be exploited. In terms of capture fisheries, the likelihood of development or expansion is limited unless a more effective management regime can be put in place, together with good resource monitoring. There are prospects for extending and improving the efficiency of value addition for capture fisheries, but with supply uncertainties and existing investment in place, significant investment is currently difficult to justify except for possible niche markets unless further supply can be secured via aquaculture.

Aquaculture is clearly seen as the main channel to fill the national demand gap, while also providing an alternative income in artisanal fishing communities and a possible employment option for younger people in rural areas. Lake Volta in particular has major capacity and excellent year-round growing conditions for tilapia, creating the prospect of becoming a significant domestic source as well as a highly important regional and international export resource. Such is the scale and potential that it stands together with only a small number of other African resources, as being a globally significant contributor. The key elements to this will be availability of good quality seed and the supply of quality feeds at internationally competitive prices, both of which appear to be feasible.

In terms of larger scale cage farming, a number of initiatives are already under way, and there are strong signs that the sector will develop more rapidly within a short time period. There are still a few gaps in the input supply chain but it seems that the sector is becoming mature enough for decisions to be made to fill these gaps. Historically, there has been the problem that without good seed and feed, investment in on-growing had been restricted, while without prospects for good markets, potential developers of hatcheries and feed producers have also been reluctant to commit. For feed in particular, the capital cost of extruded pellet systems pushes to distinct economies of scale, and assured volume sales would be required. The potentially rapid scale-up of cage culture operations, plus the steady build-up and potentially intensifying small pond sector is likely to make this much more viable, and Ghana appears to be at break-through point for the sector.

2.3 Conditions and mechanisms for investment

2.3.1 Introduction

This section aims to provide an overview of the investment climate, the different incentives and guarantees available for Norwegian investors as well as an indicative guide to the necessary steps to be taken to establish an operation in Ghana. It is estimated that for 2008, Ghana had a GDP growth of 6.3 % and an inflation rate of 16.4%, which is well above the inflation rates for the other three countries included in this study. The overall ranking of Ghana in key international reports was discussed in Volume III (summary in Table 2.14). The aim in this country report is to complement these with observations from the field.

Table 2.14: Summary of rankings (Ghana)

Institute/Study	Rank
Transparency International	67 (of 180)
Doing Business	87 (181); 99 adjusted
OECD	6 (B or B-)

Out of the four countries targeted for an in depth country visit, Ghana is ranked highest by Transparency International Corruption Perception index.⁷ Tanzania, Mozambique and Uganda are ranked 102, 126 and 126 respectively.

The World Bank Doing Business Report 2008 rated Ghana as one of the top ten reformers, ranked at third, after Egypt and Croatia. The report argues that the country has increase efficiency of its public services, especially mentioned is the increased efficiency at the company registration office and environmental office.

2.3.2 Investment climate

Investment promotion and support

To facilitate investments, the Ghana Investment Promotion Centre (GIPC) was established following the Ghana Investment Promotion Act 1994. The GIPCs primary objectives are to encourage and promote investment in the Ghanaian economy and to coordinate and monitor all investment activities by:

1. facilitating and liaising between investors and relevant Ministries, Government departments and agencies as well as institutional lenders and other authorities, such as the Environmental Protection Agency (EPA), that are relevant for the investment in questions;
2. providing and disseminating up-to-date information on the available incentives; and
3. assisting incoming and existing investors by providing support service as needed.

The GIPC reports that during the first three months of 2008, they had registered 92 projects worth more than USD 3 billion, an increase of more than 8,000% over the same period in 2007. The largest investment, which alone explains the huge increase in registered value, was a public private partnership between the Government of Ghana and a Dubai based company to invest USD 2 billion for the rehabilitation and modernization of the national rail system. Of the 92 projects, 36 are joint ventures between Ghanaians and foreigners while 56 were fully foreign owned. India and China have the greatest number of projects in Ghana and the United Arab Emirates account for the greatest value.

⁷ http://www.transparency.org/policy_research/surveys_indices/cpi

The Ghana Trade and Investment Gateway Programme is administered by the Ministry of Trade and seeks to promote FDI and 'establish Ghana as a major manufacturing, value added, financial and commercial centre. The Ghana Exports Promotion Council (GEPC) is an autonomous body established by NLC Decree 396 of 1967, the facility for export development and production under the Ministry of Trade and Industry. It can assist the private sector with market information and statistical trade data services. The Ghana Free Zones Board (GFZB) manages the Free Zones Scheme, an integrated programme to promote processing and manufacturing of goods by establishing specific Export Processing Zones. The Export Development and Investment Fund (EDIF) and the Ghana Investment Fund (GIF) were established to overcome some of the barriers to private sector development. The EDIF provides financial resources to address problems associated with constraints in the exporting sector while the GIF aims to provide loans to SMEs at concessional rates.

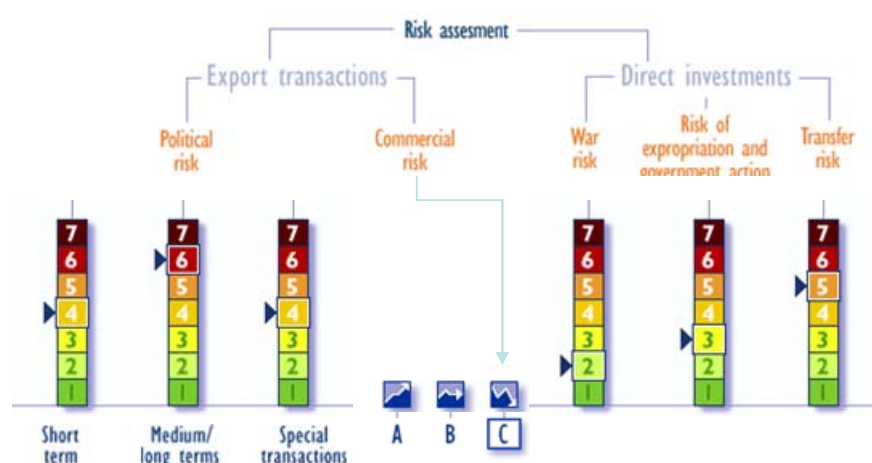
Other agencies include the Association of Ghana Industries (AGI), a not-for-profit organisation whose main objective is to contribute to growth and development of the industries in Ghana and to create an enabling business environment, and the Ghana National Chamber of Commerce and Industry (GNCCI), whose vision is to provide 'leadership for the growth and prosperity of business in Ghana.

For the fisheries sector, industry associations including the National Fisheries Association of Ghana (NAFAG) the umbrella fisheries organisation, the Ghanaian Tuna association and the Ghana Fish Processors Association also have the potential to facilitate potential foreign investment.

Constraints and risks

The ONDD⁸ rates Ghana 4-6 on their political risk, ranging from short term to long term risks (Figure 2.2). Risk of expropriation is low at 3 while transfer risk is higher at 5. Commercial risks are rated at C which is equal to high risk.

Figure 2.2 Investment and export risks (Ghana)



A US Commercial guide for Ghana⁹ is primarily directed towards US investors but provides useful insights to the investment climate in general. According to this, recent monetary policies introduced by the Bank of Ghana have lead to a better control of inflation, reduced official reserve requirements for banks, and increased competition in the financial services sub-sector which in turn has lead to the establishments of new banks and financial products. The Government of Ghana is highly motivated to attract larger investments and have taken a number of steps in order to try to decrease the bureaucratic burden, as well as disincentives for business activity. One such step is the gradual reduction in corporate tax rate from 32.5% in 2004 to 25 % in 2006.

⁸ ONDD is the Belgian Export Credit Agency www.ondd.be

⁹ US Commercial Service, 2008, "Doing Business in Ghana: a country commercial guide for US companies"

The US Commercial Guide list typical challenges at the Ghanaian market as complex land tenure system, unreliable supply of electric power and limited commercial information of the markets. The land tenure system issue is being addressed through the Ghana Land Administration Project which aims to improve security of land tenure and simplify the process of acquiring land. The acquisition of land is regulated by the Land Title Registration Law, 1986. Ownership of land can be categories in two categories:

1. Customary land is land held by stools, families or clans and usually held in trust by the chief; and
2. Public Land is lands vested in the president for public use.

To acquire land, or in practice to obtain a land lease, it is necessary to either purchase from customary land owners or private individuals or be given land from government. An investor entering the Ghanaian market and aiming to purchase customary land must first clarify land ownership. The recommended channel for this is through the Lands Department, who will advise on which individuals own the land concerned and who should be contacted for negotiations. The Land Valuation Board will carry out a valuation of the land which will then be used as basis for negotiations. For Public Land, an application should be submitted to the Lands Commission. A lease can be obtained for 20 years for agricultural related operations which will be reassessed and renewed every five years.

Theft was mentioned by a number of respondents as being a problem both in pond and cage farming. This is not unique for Ghana but rather a problem persisting across the case study countries, although it depends also on the social context in which the enterprise is established. For cage farming in particular, 24 hours security is essential, and cage nets need to be strong. Cages are otherwise vulnerable to attack by predators as well as fishermen trying to catch fish either inside or outside the cage, with the risk of cutting or damaging the net.

Other factors

In contrast to a number of other African countries, Ghana has just recently finalised a peaceful and fair election process, and has been praised as a front running country in terms of democratic processes and peace keeping. The opposition party won the election with a very slim margin but the sitting president quickly admitted defeat and stepped down. The newly elected president, Prof John Atta Mills, an academic lawyer, had been running for president in three previous elections, and amongst other things campaigned for better and more efficient governance, higher transparency and sound economic management.

Ghana re-denominated its currency in July 2007 by removing 4 zeros. One cedi is currently equivalent to 1.23 USD cents and is made up of 100 pesewas (GP). This was not a devaluation as such but rather carried out to make business transactions easier.

In order to facilitate business development, the government has set up a special fast track court system in order to more quickly respond to and solve disputes and enforce contracts

Out of the current commercial banks, the locally owned Prudential Bank Ltd, Ghana, has a specific interest in agricultural and small business sectors and has shown interest in cooperate in aquaculture projects, especially targeting small to medium enterprises. The Prudential Bank, operating since 1993, has a mission to *'provide domestic and international banking services with a strategic focus on project financing and export development'*¹⁰. The Agricultural Development Bank has also provided support to one smaller farm and the Merchant Bank and regional Stanbic Bank have also shown interest but are still to get involved. More generally, the banks are apparently rather reluctant to get involved in the aquaculture sector, in spite of the obvious enthusiasm of the Government of Ghana and of various

¹⁰ <http://www.prudentialbank.com.gh/>

individuals. They argue that the sector suffers from a lack of management and have little knowledge of potential cash flows. Stanbic did however express interest into getting involved in processing businesses.

In order to address the energy crisis, Ghana has embarked on a number of new power projects as well as an energy efficiency project involving domestic and public sector initiatives such as replacing incandescent bulbs with CFL bulbs, and industrial sector promotion of energy efficiency.

Nordic involvement

The recent Danish involvement in cage aquaculture sets an interesting example. Royal Danish Seafood that has invested a 75% share in the company West African Fish Ltd. The single Ghanaian partner holding the rest of the shares is a former public servant within the Ministry of Environment, who currently sits on the board of the EPA and is hence well positioned to assist counterparts with business procedures. Royal Danish Seafood representatives had been visiting Ghana during a number of occasions to screen for opportunities and when the Ghanaian counterpart won the award of best farmer 2005, the link between the two was made via the Danish Embassy in Accra.

The Norwegian Company NorPalm established an operation in Ghana in 1998. They grow palm trees and manufacture crude palm oil, palm kernel oil and cake. In 2007 they produced 8,643 t of crude palm oil with a price ranging from USD 600 to 945/t. The company has 160 permanent people employed in Ghana as well as up to 600 seasonal workers.

2.3.3 Incentives and guarantees

An investor wishing to establish a business and invest in Ghana must go through the GIPC. This section outlines the incentives and guarantees of importance to an investor in Ghana. The objective is to provide an overview of opportunities and give details on where to obtain more information.

Incentive regimes

The Ghana Investment Promotion Centre

The GIPC act provides for a number of incentives to potential investors. We have listed herein a few of the incentives that are specifically related to the fishing sector. For a full set of incentives, the GIPC website provides further information or contact may be made with the GIPC officer listed in the back of the report.

1. Customs duty exemptions
 - Floats for fishing nets; float cord for fishing net and inputs for manufacture of fishing nets and ropes. All these have VAT of 12.5% but no Import duty
2. Income tax incentives
 - Corporate tax will vary from 20-25 % however, on income from non-traditional exports, the tax rate is only 8%.
 - Tax holidays apply for 5 years for investments in fish farming and value added fish products.
 - Locational incentives also apply after the initial tax holiday period, specifically to value adding business. For example a fish processing plant located in Accra-Tema will have a corporate tax of 20% while a plant located in Northern region will have a 0 % tax.
 - Capital allowances also apply to persons who own depreciable assets and who use these assets in the generation of income. The rate varies with type of asset.
3. Tax losses are allowed to be carried forward for five years but this is only applicable to manufacturing for export, farming and mining.

4. The GIPC Act also has provision for a number of investment guarantees including free transferability of capital, profits and dividends; insurance against non-commercial risks (via MIGA, see below), double taxation agreements (however not currently with Norway) as well as Investment Promotion and Protection Agreements (IPPAs) (also, not currently with Norway).

Ghana Free Zone Board

Processing of fish products is one of the fields promoted by the GFZB. A free zone investor does not require a minimum capital investment as is needed by GIPC. The main requirement is that the investor should indicate that they will export at least 70% of their production. Business established in a free zone can import and export goods without any taxation and are exempt from other direct and indirect taxes.

Investment protection and guarantees

Norwegian Investments in Ghana can be insured or guaranteed under the following facilities:

GIEK is a Norwegian facilitated guarantee to heavily indebted countries (HIPC-countries). GIEK follows OECD's principles which imply that GIEK will not guarantee for transactions that contradict with the recipient country's financial-/social strategy. The policy applies only for projects with direct or indirect government involvement. It involves transactions with public buyers, government owned companies, and transactions where government guarantees from HIPC-countries exist. It does not apply for transactions with private buyers or debtors. Furthermore, GIEK offers a special Developing Country Scheme that guarantees credits and investments in developing countries where the risk is estimated too high for guarantees under the General Guarantee Scheme and certain criteria must be met.

MIGA: Eligible investors for MIGA include nationals of any MIGA member country¹¹, provided they are not nationals of the country where the investment is being made. MIGA insures new cross-border investments originating in any MIGA member country, destined for any developing member country. New investment contributions associated with the expansion, modernization, or financial restructuring of existing projects are also eligible, as are acquisitions that involve the privatization of state-owned enterprises.

World Bank Guarantee Programme (other than MIGA):

- **Partial Risk Guarantees (PRG):** Cover private lenders against the risk of a public entity failing to perform its obligations related to a private project. Eligible for IBRD countries.
- **Partial Credit Guarantees (PCG):** PCG covers private lenders against all risks during a specific period of the financing term of debt for a public investment. Available for countries eligible for loans from IBRD. No overlap with MIGA or IFC
- **Policy Based Guarantee (PBG):** support of development policy operations, cover part of bond/loan repayment against all risks. No overlap with MIGA or IFC. Eligible for IBRD countries

IFC can offer long-maturity Risk Management Products (RMP) to clients in their member countries. The risk management products (derivatives) are available for hedging purposes in terms of currency, interest rates and commodity prices and hence enable companies to enhance credit worthiness and improve profitability.

ICSID is an autonomous international institution established under the Conventions on the Settlement of Investments Disputes between States and Nationals of other States (the ICSID convention). The prime objective is to provide facilities for conciliation and arbitration of international investment disputes.

African Development Bank (AfDB) offers partial credit and partial risk guarantees to all countries eligible for loan under the Bank.

¹¹ Norway is a member but not a donor, ie Norwegian Investors are eligible under MIGA

2.3.4 Investment procedures

Foreign investors intending to invest in Ghana must register with the GIPC and meet a specific equity contribution (in cash or in kind). This is regulated by the GIPC act 478. The GIPC website provides a wealth of information on the business environment in Ghana and the specific process that apply. The main steps to be taken to establish an investment projects can be summarised as:

1. Registration with Registrar General's Department (normal time 5 working days);
2. Minimum equity contribution by setting up a bank account and transfer the right amount (JV: USD 10,000, 100% foreign owned: USD 50,000 and Trading: USD 300,000) or through physical cash or equity on kind (machinery and equipment to be used in the project);
3. Registration with GIPC (5 working days);
4. Immigration quota: investment of USD 10,000-99,000 will receive 1 immigration quota; USD 100,000 – 500,000, two quotas and above USD 500,000 three to four quotas. If the investment is above 30 million, the number of immigration quota is negotiable;
5. Register with Internal Revenue Service and Value Added Tax (VAT);and
6. Environmental Impact Assessment Certificate, for aquaculture, the Environmental Protection Agency (EPA) works closely with the Water Research Institute and Water Commission to approve the EIA. This process should not take longer than 90 days.

In addition to the strictly business related registrations outlined above, an aquaculture project must pass through a process of its own. If it is a cage farm using Lake Volta, a permit from Volta River Authority is needed. For use of any water, a water right permit should be obtained from the Water Commission. To obtain land, negotiations with the land owners are needed, assisted by local partners. The Lands Department will assist in clarifying ownership before entering into a negotiation process.

According to the WB report Doing Business in Ghana 2009, an actor must pass through nine critical steps/procedures, before being fully operational, these are summarised in Table 2.15.

Table 2.15: Stages in establishing a business (Ghana)

Step	Action	Days to complete
1	Check for availability of company name and obtain incorporation forms	1
2	Apply to the Registrar-General's Department to obtain a incorporation certificate	1
3	A Commissioner of Oaths authenticates forms required for the certificate to commence business	1
4	Obtain from the Registrar-General's Department the certificate to commence business	2
5	Deposit paid-in capital in an account	1
6	Apply for business licenses at the Metropolitan Authority	7
7	Inspection of work premises by the Metropolitan Authority	1
8	Apply for social security	1
9	Obtain the environment certificate	25

2.3.5 Overview of conditions for investment

Overall, the conditions appear to be positive and encouraging for private sector investments. Other people establishing themselves in Ghana received good support from GIPC and expressed that it was a smooth process of getting registered. A range of joint ventures across a wide spread of sectors also supports the case that conditions are positive and investors perceive Ghana to be a sound location for

opportunity and business development. A summary of the investment conditions for new external investors is set out in SWOT format in Table 2.16.

Table 2.16: Investment climate SWOT analysis (Ghana)

Strengths	Weaknesses
• Access to large regional market (ECOWAS and especially Nigeria) • Government is committed to create an enabling environment for investors • GIPC established to facilitate investments • Politically stable	• Weak but upcoming financial sector • No firm regulations in place for aquaculture
Opportunities	Threats
• Improving social and economic conditions • Large areas of available land and water bodies for aquaculture • A number of potential investment partners	• Impact of HIV on workforce • Potential reduced price of tilapia • Many actors already established

2.4 Investment opportunities

2.4.1 Introduction

Ghana has an active fisheries sector with a strong domestic market and medium scale export market, mainly focused on canned tuna. There has been investment interest in the sector from both domestic and external investors, with aquaculture being the primary focus of interest, with the most recent investment coming from Denmark. Considering both the broad criteria for investment selection set out in the start of Chapter 6, Volume II and the practical issues emerging from discussions in Ghana, a number of options could be identified.

2.4.2 Predefined suggestions

The Directorate of Fisheries had no prepared investment opportunities document but rather expressed that there exists great potential within the sector, specifically within cage culture in Lake Volta and in value addition. The GIPC also noted opportunities in value addition but did not specify particular areas. This has also featured in promotional materials for foreign inward investments via trade missions, etc. The need for investment in improving the fishing fleet, particularly for mid-water fisheries has also been noted, but since marine capture fishing is near or over exploited in most aspects, this would require a much stronger management context to justify fleet upgrading. As capture fishing was also excluded from the scope of the study, this was not taken up further.

Fish feeds were also highlighted as an imported area for investment, though the Directorate of Fisheries had not identified any specific investment approaches or targets. As outlined below, the team identified some potential approaches within the feed sector.

2.4.3 Review of findings

Across the fishery sector as a whole, Ghana is particularly well suited for aquaculture in terms of the resources of Lake Volta. This has a massive and high quality environmental capacity and is entirely within Ghanaian territory. This thereby removes the issues of water sharing and transboundary resource management common in many of the major African fresh water bodies, and in the three other countries reviewed.

An investment in a medium to large scale cage culture operation for tilapia, potentially through a joint venture with local partners could provide for good short term returns and excellent future potential for growth. Current operating scales of 500-2,000 t annual production could be a guide for development, and scale-up towards 5-10,000 t or more annually could be feasible, perhaps based on 2 or 3 sites, subject to

market opportunities and site conditions. This could be based on modern large circular cages (e.g. PolarCirkel systems) of 1,000-5,000 m³ or simpler artisanal cages of 200 – 300 m³. In most cases, access would be by boat, with a range of feeding and harvest options. The business model could be based on complete ownership and control of production, or could have varying levels of outgrowing with local individuals or co-operative groups, typically with local training and various sale/repurchase arrangements.

A JV or buy-in of an established operator would accelerate this process, and allow immediate site access and potential to expand. However, the potential profitability of such an enterprise should not be based on the shorter term market prices for tilapia, which are most likely to drop towards international price levels as production expands and the domestic market is more widely satisfied at the price points concerned. It is difficult to place a boundary on this without more detailed market studies, but a working estimate based on income groups is that current markets may be satisfied when the combined output from L Volta reaches around 5,000 t, and while overall market size is much larger, its price levels will be much lower. Given the existing production in the lake, it should be necessary within 2-3 years, to demonstrate profitable and competitive operation in regional and export markets.

An investment at this level could be integrated to incorporate hatchery production – using simple onshore fry facilities and cage-based fingerling production. This could be cost effective at a range of scales. Integration could also include feed production, potentially also at a large enough scale to be internationally competitive and hence most likely to be selling to other producers. Depending on raw material prices and access, feed production levels of 5-10,000 t annually would be a realistic target, though lower output levels could be acceptable while competing feed price levels remain relatively high.. Regional demands – e.g. in Nigeria, are also growing. Alternatively, if reliable and competitively priced seed and feed supplies were available, the investment could focus on cage culture alone. Any investment decision, particularly relating to local markets, input supplies and local community linkages should be made in close collaboration with Ghanaian partners.

A stand-alone investment in fry or fingerling production could be feasible at a range of scales, and broodstock and seed quality would be important competitive factors. Depending on market size, each 1,000t of tilapia produced in the ongrowing sector would require 5-6 million fry or fingerlings, which would represent a turnover of eg USD 500-600,000 annually at 10c/fish. A profitable smaller scale business could also be feasible, and again, depending on locations of outgrower links with local small producers, buying fry to produce fingerlings could be considered. This could also be developed as a public-private partnership, particularly if linked with technical support and government accredited broodstock to ensure stock quality.

A further and more specialised opportunity might lie in supporting and developing a range of public-private partnerships in aquaculture based enterprises, involving small local businesses, NGOs or community enterprises, building and developing supply and value chains. Working also with the larger mining companies and potentially also with larger agro-industry/plantation companies, practical options for site and environmental rehabilitation, integrated production, and local food supply and food security could also be possible.

Investment partnerships in value added areas may also be feasible, but at smaller to medium scale levels. Technical skills and market access from external partners could be linked with local supply linkages and in some cases business premises which could be directly used or relatively easily upgraded. Options would include specialised tuna products and small scale value addition associated with high value coastal demersal species. However, supply limits will be key constraints, and product flows may only be several hundred tonnes annually, with corresponding turnover. Competition for supply from other established businesses would also be an issue. There may however be newer opportunities for linking value addition with community fishing groups, as the government is supporting their development and improving local infrastructure. This may take longer to build, and to secure effective partnerships at a level on which commercial investment could be soundly based.

In the slightly longer term, opportunities are likely to exist for medium scale businesses in value addition e.g. tilapia filleting, portioning, and other preparations, based on aquaculture raw materials, for local, regional and international markets.

2.4.4 Investment partners

One aquaculture company, Crystal Lake, expressed an explicit interest in finding a strategic partner to invest in the operations, in order to scale up to 2,000 t of production of tilapia. The owner sees two approaches, either a part or full acquisition of the company or a lease contract for productive capacity. An involvement in Crystal Lake would give a positive cash flow from day one as most infrastructure is in place and in reasonable condition, and production is up and running. The facility has a license to produce up to 5,000 t as well as for processing (presumably for similar amounts, but not confirmed). The farm has 20 staff members at the farm and five administrative and accounting staff in the office in Accra. The farm also has land rights for 300 ha of land.

The owner of Aqua Farms also expressed interest in principle in joining with external investment in further aquaculture development, and would also welcome further opportunities to link with external expertise to develop skill and capacity building. The most likely area of potential production would be in hatcheries, and possibly integrated farming, though wider provisioning for smaller scale producers might also have interest.

With respect to feeds development, Mr Nsenkyire, the Ghanaian partner of the WAF project, is keen on seeking an external partner to enter the market, recognising Nigeria as well as Ghana as a potential market, proposing a pre-investment feasibility study (USD 30,000 suggested). Aqua Farms were also a potential partner, claiming to have good access to local raw materials and markets amongst small scale farmers. On an already more commercialised level, GAFCO, as already noted, would be specifically interested in a joint venture to permit their extruded feeds business to move forward, and claim that they would be able to operate within months. However, the nature and structure of such a partnership may need to be explored carefully to ensure that any new enterprise was not infected with any historical issues of the parastatal status of GAFCO.

Technoserve could be a strategic partner in two ways; either as an on-the-ground, hands-on partner to carry out ground work and operations in Ghana or as a technical support unit, assisting in the establishment of a new investment in the country but not being directly involved in the operation of the farm. Technoserve's roles would be to link up with the local market and local actors while the external investor's role would be to strengthen the link with the international markets. The NGO set up by Dr Abban, former director of WRI could also be engaged in a more specialised way as a support partner in local technical development and liaison with public authorities.

Although we were unable to explore the explicit linkages and opportunities, the potential to link with local NGOs and community groups appears to be very positive and would accord well with Government concerns for building skills and creating employment in coastal and rural communities. A number of initiatives involving women in the fishery sector have already been pursued, and there would be good prospects of linking these and others with more commercialised sectoral approaches.

2.5 Conclusions

Fish is a staple food in Ghana and provides Ghanaians with about 60 % of their animal protein needs. This creates a strong national market, with fish products consumed across the country and by all groups. Ghana has a national per capita consumption of 23 kg, compared with the global average of 13 kg per capita, and with relatively good economic growth, demand and purchasing power have been very positive.

Ghana's annual requirements for fish are estimated at 880,000 t, with a deficit of 560,000 t to be covered

by imports, mainly of lower priced pelagic species. However, in 2006 imports were only some 302,000 t, suggesting significant unfulfilled demand. The marine fishery lands on average 325,000 t per year but except for some tuna species, this sector shows signs of full or over exploitation. Fresh water fisheries, particularly in Lake Volta, also contribute significant amounts, and have been important in building strong preferences for species such as tilapia, which commonly fetch much higher prices in local markets than quality marine species. Tilapia is currently sold for up to 4 USD per kg, nearly four times the world market price.

Aquaculture is thought to play a more important role in meeting the country's future needs, and also to earn income through regional and international exports. In recent years, more commercial systems have been established and currently a number of cage facilities operate in Lake Volta. The Government of Ghana is likely to commit substantial efforts in the coming decade to accelerate development of the sector by creating better conditions for fingerlings supply, feed facilities, and related services. The Government also seeks to develop community based approaches, and to build skills and capacity for younger people in coastal and rural areas.

Ghana is very resourced for aquaculture in terms of Lake Volta, and also appears to have raw materials available for domestically manufactured fish feeds. It has a relatively good road network, shorter flight service into Europe with direct flights to London, Amsterdam, Frankfurt and Rome of less than 7 hrs. Opportunities at a range of scales are potentially available in both the aquaculture and value-added sectors, or in a more integrated approach. These have national, regional and international potential, and include:

- Aquaculture; medium to large scale cage culture of tilapia in Lake Volta for regional and international markets; development and supply of high quality aquaculture starter and on-growing feeds for tilapia, development of specialist hatchery and seed production for tilapia; provision of service and support functions for commercial and artisanal producers; and
- Value addition; small-medium scale options based on aquaculture raw materials, for local to international markets; specialised tuna products and small scale value addition associated with high value coastal demersal species.

Potential partners can be identified for many of these options, though in their own financial status or detailed partnership expectations were not defined at this stage, there are clearly opportunities for practical exploration of mutually beneficial investment options.

3 Mozambique

3.1 Executive Summary

Fisheries in Mozambique are primarily defined by industrial marine shrimp and tuna fishing, with substantial offshore catches and landing, together with a wide range of artisanal coastal and inland fishing. There is substantial pressure on marine stocks in particular, and increasing concern for more effective and accountable fisheries management. Except for some smaller scale activities and limited entry into commercial shrimp farming, aquaculture is not strongly developed, though there are positive expectations for its longer term growth and economic contributions. Infrastructure and distribution remain constraints for any form of commercial development, but these are progressively improving, and a more modern and competitive private sector is countering the traditional public sector dominance in economic affairs.

Unless reformed fisheries management results in more sustainable stocks and the landing of a greater part of Mozambique's marine resource, opportunities for significant change to value addition are limited. However, there are prospects on a more modest scale for linking with artisanal and fishing to add value, and subject to resource health, to build up partnership agreements in the smaller industrial sector to develop stronger market power together with better and more uniform export quality and a stronger focus on social and environmental attributes through eco-labelling and fair trade standards.

In coastal zones, investment in small-scale, integrated aquaculture has potential, possibly also linked with fisheries and community development for eco-labelled, fair trade product, and if carefully and realistically approached, larger scale and environmentally sound development of shrimp farming, for which there is substantial resource potential. Freshwater aquaculture in ponds is likely to remain at artisanal scale, but larger scale development is feasible, particularly in cage culture. As the sector is not well developed, with many gaps in the input supply chain, investment would have to be strategically integrated, inclusive of hatchery and feed development.

If the aim is to establish strategic market power in southern Africa to tap into the potential resources available for aquaculture, the timing could be right to establish a small scale operation with the longer term aim to grow to a regionally significant scale. However, competition from South African firms will be a major issue, and partnership with one of these may be strategically useful, to support commercial entry into Mozambique, ensure a more stable supply base and access a strong regional presence. However, Mozambican partners can also be considered, some of whom have good market links to Southern Europe, and a good potential for building quality image and brand strength.

3.2 The Mozambican fishery sector

The fisheries sector has an estimated annual production level of some 100,000 t of which 90 % comes from artisanal fisheries. In 2006, export earnings from the sector were valued at USD 90 million, which emphasises their significant role in the sectoral economy. Registered catch for the tuna, industrial and semi-industrial fleets for 2001 and 2005 is outlined in Table 3.1. The main fisheries in value terms are shallow water shrimp (fluctuating between 7,600 and almost 9,600 t) and deep-water prawn (approx 1,000 to 1,800 t). The small pelagic *kapenta* (*Limnothrissa sp*) fisheries in Lake Cahora Bassa is the third most important export oriented fishery with catch ranging from 7,000 to almost 19,000 t over the same period. Production of 12,000 t was valued at USD 14 million in 2000. Small-scale fishermen are also estimated to catch up to 100,000 t of a wide variety of reef, estuarine and pelagic species, though these figures are very difficult to assess or verify.

The private sector fishing companies in the coastal region can be divided into two major groups, small-scale and industrial, the latter consisting of 330 semi-industrial vessels and 200 industrial vessels.

However, industrial fleets face a number of challenges including decreasing stocks, falling real prices and recent fuel price rises. There are also future concerns for climatic impacts and for the potential impacts of oil exploration and development. The semi-industrial fleets are defined according to size and type; a group of vessels with freezing capacity fish under a quota system, and those without freezing capacity are not subject to quota. The semi-industrial fleet range from medium to family type businesses with 1-3 boats catching fish or prawns.

Table 3.1: Registered annual catch (Mozambique)

(tonnes)	2001	2002	2003	2004	2005	2006
<i>Marine fisheries</i>						
Tuna	3,096	300	7,450	14,783	5,396	
Other marine fish	1,230	550	1,075	484	660	
Prawns (Shallow Water Shrimp)	9,162	9,000	7,690	8,106	8,520	
Crabs	47	40	81			
Crayfish	69	80	124	132	149	
Deep water shrimp	1,738	1,500	1,425	993	1,774	
Squids and Octopus	76	60	131	195	165	
<i>Freshwater fisheries</i>						
Kapenta	7,076	9,500	10,978	18,760	12,991	
F. Acomp.	1,080	1,450	1,608	1354	1830	
Total	23,574	22,480	30,562	44,807	31,485	
Total*	30,074	36,462	43,933	44,683	42,473	42,536
Aquaculture	0	834	932	538	1278	1,174
Total inc aquaculture*	30,074	37,296	44,865	45,221	43,751	43,710

Source: FAO, Fishery Country Profile, 2007 * two different fisheries totals were provided; the total including aquaculture is based on the second, generally higher total figure.

Annual production levels for aquaculture are approximately 1,000 t, 75% of which is accounted for in large scale commercial shrimp culture. In the past five years some 88 million USD is reported to have been invested in the commercial sector, of which the largest (Indian Ocean), a reported 50 million USD investment, is no longer operating, and only one company in the sector is currently operational. There are some small scale activities in tilapia and carp farming in inland waters.

According to FAO (2007), total production from capture fisheries and aquaculture has increased from a level of 27,572 t in 1994 to 43,710 t in 2006, though as noted earlier, this is primarily related to the industrial and semi-industrial sectors. Official statistics defined by species group (FAO, 2009) show that in 2007, total annual production from captured fisheries amounted to 92,270 t. Production was stable at low levels from 1998 to 2002 after which it rose substantially to between 90,000 to 100,000 t annually, this was primarily due to increased recorded marine fish landings, probably attributable to better estimates of artisanal catches.

Table 3.2: Capture fisheries production (Mozambique)

Species	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Aquatic animals nei	2	8	12	11	10	4	<0.5	<0.5	.	.
Crustaceans	11,741	11,545	12,351	12,114	11,909	15,754	13,402	15,318	12,970	11,712
Freshwater fishes	14,313	16,044	19,192	15,076	20,037	19,831	27,760	22,991	26,017	24,081
Marine fishes	8,490	9,553	9,158	8,784	8,019	63,173	57,977	55,282	62,551	55,788
Molluscs	777	746	677	431	577	520	450	404	361	689
TOTAL	35,323	37,896	41,390	36,416	40,552	99,282	99,589	93,995	101,899	92,270

FAO Fishstat 2009 - Tonnes

Figure 3.1 illustrates the location of the larger fisheries activities in Mozambique.

Figure 3.1: Location of major activities (Mozambique)



Source: Map from www.mapsofworld.com

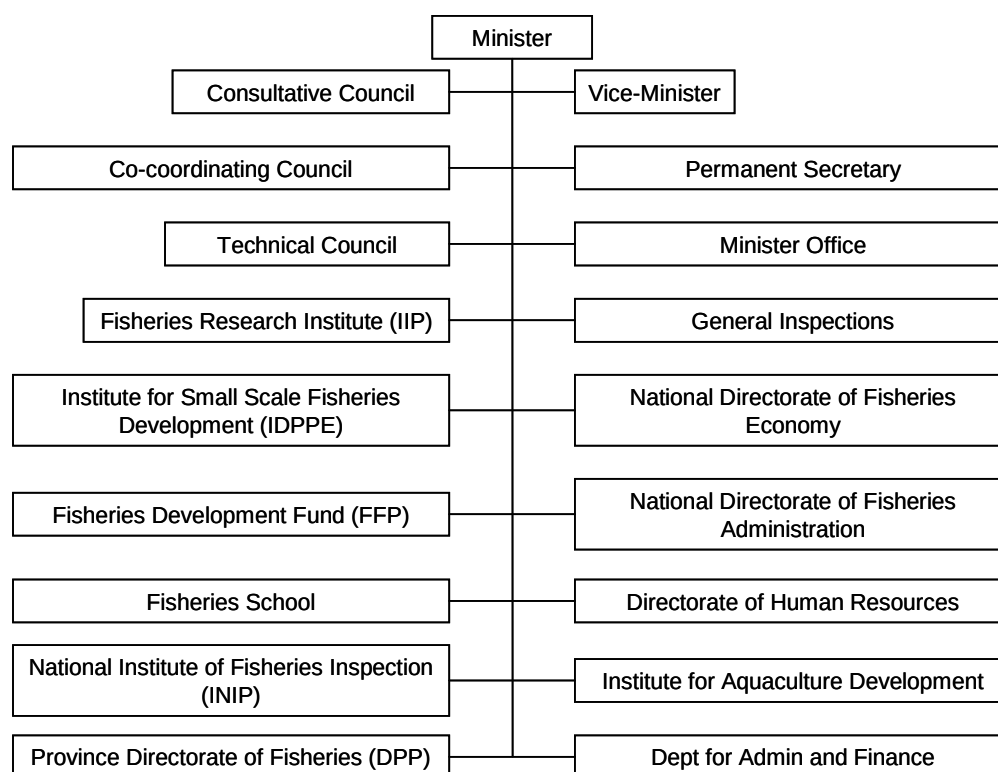
3.2.1 Strategic and developmental settings

Organisational and policy features

Ministry of Fisheries

The Ministry of Fisheries was created in 2000 and has the overall responsibility for the management and administration of aquaculture and fisheries in Mozambique. It is represented by Fisheries Departments at provincial levels. The structure of the Ministry and related governmental bodies is illustrated in Figure 3.2.

Figure 3.2: Organisational Structure (Mozambique)



The Directorate of Fisheries Economics has overall responsibility for policy and strategy development and is also mandated to look at the socioeconomic and bioeconomic issues of the sector. However, the view of non- public sector informants is that they do not have strong capacity to carry out economic analyses and do not put a lot of focus on these issues.

The Fisheries Research Institute and Institute for Aquaculture Development carry out research and provide technical support for each sector. However, these institutions suffer from a lack of capacity and are not able to fully carry out their mandate across the range of demands to which they may be exposed. Table 3.3 summarises the main acts and policies relevant for the sector. Even if it is not clear how fully or effectively these are implemented, they indicate the relative importance of major themes

Table 3.3: Summary of key fishery legal frameworks and policies (Mozambique)

Law/Act/Regulation	Key Issues
Fisheries Act (Law 3/90 of 26 September 1990)	Under revision. The Fisheries Law defines the role and responsibility of the fisheries administration and the principles which guide the fishing activities.
Fisheries Sector Master Plan 1994	Describes strategies for each-subsector. The strategies on intermediate level include: Increasing the standards of living of the fishing communities by prioritizing sub-sectors which contributes to jobs; making the fish administration on governmental level financially sustainable; and ensure

Law/Act/Regulation	Key Issues
	contribution from the fisheries sector to the national economy by introducing a fee system.
National Fisheries Policy 1996	Overall policy objective is to provide for food security, sustainable growth, increase in net foreign exchange earnings, reduce unemployment and contribute to poverty reduction.
General Aquaculture regulation (Decree 35/2001 of 13 of November).	The legislation defines specific norms and requirements for aquaculture farms and establishes procedures for licensing and parameters for each farming system.
Fish inspection and Quality Control 2001	Under revision
Maritime fisheries regulation (Decree 43/2003 of December 10th)	The maritime regulation deals with fisheries administration and management (licensing procedures, fishing regimes and gears, quality control, management measures etc).
Inland fisheries	Under revision
Environmental Law 1997	Legal requirements for environment impact assessment for aquaculture farms larger than 5 ha and with an annual output above 100 tonnes.
Decree restricting shrimp fisheries, 2005	Outlines restrictions to shrimp fishing practice in a delimited area of the coast and defines the forbidden season. Moreover, it indicates the vessels that are not allowed to fish shrimps. Finally, it regulates restrictions to shrimp processing during the forbidden season and the applicable sanctions.

Development assistance

Norway is a strategic partner and the principal donor to the sector both in value and duration, with substantial support from Norad. Norway's involvement started in 1977 with emphasis on research and management of the fisheries resource. Over the years, support has also covered small-scale fishing, trial fishing and support to the fisheries school. Norway has supported the Nordic Agricultural Development Programme, MONAP, covering support to the fisheries sector and in 1988-1992; the support was specifically channelled to IIP, IDPPE and DNP. Starting in 2005, a broader sector programme was initiated with the aim to contribute to overall efforts for fishery development and poverty reduction. Currently, Norad is funding a patrol vessel as well as two resident advisors to the Ministry, primarily focusing on IUU and MCS issues.

ICEIDA has provided development assistance to Mozambique since 1995, focusing mainly on the fisheries sector in the beginning. Today, they are also engaged in Social and Health Sectors. Current support to the fisheries sector includes the Fisheries School with scholarships to the United Nations University Fisheries Training Programme in Iceland. Currently ICEIDA provides assistance to INIP (the Fisheries Inspection Institute) with establishment of three larger and two smaller laboratories, rehabilitation of the office in Maputo, provision of technical assistance to finance and administration, preparation of a new Inspection Manual and setting up a database for all inspection data. In addition ICEIDA signed an agreement with the Ministry in April 2007 on a new Fish Research Project at Cahora Bassa for a period up to December 2010 for a cost of USD 440 000. The objective of the project is to contribute to "sustainable utilisation of the fisheries resource of the lake in order to increase food security, the standard of living and employment in the local lakeshore communities". ICEIDA also supported a capacity building project aiming at develop the capacity of Escola de Pesca staff in terms of fish quality assurance. The project ran from March 2007 to December 2008.

The only involvement from the EC Delegation in Maputo in the fisheries sector is through the Fisheries Partnership Agreements through which EU flagged vessels are allowed to fish in the EEZ of Mozambique. The vessels are required to pay a license and EU also contributes to a government fund that is intended to support investments in management and resources. The most recently agreed contribution level is EUR 900,000/yearly.

Other, e.g. cross-sectoral developments

A range of other development programmes have been active in Mozambique, many of which address fundamental issues in health, education, infrastructure, security, and governance, as well as introducing economic reforms and rationalisation of the public sector and its support and service functions. Apart from the generally improved political stability and the broad process of economic development and growth which has been supported in this process, the other main interacting issue is that of increasing agricultural production and the potential supply of raw materials for fish feed. At this stage much of Mozambique's agricultural production is still smallholder based, but the proximity to South Africa might facilitate imports for some products, and raw materials could also be sourced from potential investments in larger farms in Mozambique by South African farmers.

3.2.2 Private sector development

Introduction

The main activities in the capture fishery sector are focused around the shallow water shrimp resource. However, as this resource is under severe pressure, with sustainable landings estimated at 40 % of current levels, the sector is facing a major challenge in stabilising the stock while also maintaining adequate returns. Fisheries management and enforcement are critical issues, and with a long coastline and only one patrol boat currently available, and limited enforcement capacity ashore, illegal and unrecorded fishing is widespread as is offshore transshipment of illegal catch.

The main challenge for the Government is to manage resources more effectively, to develop the value adding sector as well as to encourage the large tuna fishing fleet to land and process the catch in Mozambique. Though not currently seen as problematic, better management of the artisanal sector may also be required, as increasing fleet size and fishing pressure from small boats can have a significant effect on resources. A management strategy, particularly if reducing access or fishing capacity, will have to be well balanced as many people in the sector have low income levels and are socially and economically vulnerable. In some cases, for coastal communities, it is hoped that aquaculture, local value addition, and other alternative income generation activities can be introduced to address this vulnerability and provide a wider livelihood base, but this will require a well targeted and co-ordinated farming backed up by supply of inputs and technical expertise.

The team was not able to obtain any reports studying the specific profitability of various sub-sectors in Mozambique, though a private sector consulting group had studied some parts of the fishing sector. There appeared to be a limited focus amongst public agencies on conducting economic assessments of the sector but the Research Institutes claim that this will be given more attention in the future.

Markets

Small local markets have developed around the over 700 artisanal landing sites, and there are commonly small artisanal processing operations, typically carrying out drying (sun-drying), smoking and salting of the fish. Even though Mozambique is a notable fish producing country, because of size, geographical configuration and limited infrastructure, the domestic distribution system is very limited, especially for fresh fish. Most fish harvested by artisanal fishermen are for their own subsistence or sold in local markets by the landing sites. Except for shrimp only a small fraction of the artisanal catch goes for export. Fish at landing sites is sold by the fishermen to wholesale traders; usually women who buy small quantities that are transported to local fish markets and sold as fresh. Some also buy for processing (drying, salting, smoking). Processed fish are usually packed in sacks and transported by bicycle or pick-up truck to local fish markets in villages and in the larger towns and cities. As people in inland areas generally prefer to eat vegetables rather than fish, domestic fish trade tends to slow down during the rainy season due to difficulties in transportation due to floods.

The per capita fish consumption is low at around 3kg/year in 2000, compared with an average for Sub-Saharan Africa of 8 kg and 13kg globally. Even so, the potential domestic market for a population of 21

million is 63 900 t. Despite its landings, Mozambique is still highly dependent on fish imports, mainly horse mackerel, to meet consumption deficits, and it is estimated that 25-30,000 t are annually imported from Angola and Namibia. Table 3.4 summarises recent import trends from official statistics. This shows relatively high unit values by international standards, and may be a reflection of regional market demand and purchasing power factors, but as noted further below is significantly lower than the average values of exported fish products.

Table 3.4: Fishery imports (Mozambique)

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Tonnes	7,588	2,270	3,400	6,363	4,567	6,693	11,422	14,973	23,700	17,783
USD 1000	3,919	2,483	4,758	9,403	8,559	10,992	33,391	28,918	33,561	31,781
Ave value (USD/kg)	0.52	1.09	1.40	1.48	1.87	1.64	2.92	1.93	1.42	1.79

FAO Fishstat 2009

The main regional export markets are countries in the Southern Africa Development Community, (SADC), which offer a potential market of a population of 215 million, equivalent to 1.7 million t, as well as the Southern Africa Custom Union (SACU). The SADC and SACU markets account for about 40 % of all Mozambican fish exports. Specifically, freshwater small pelagics (Kapenta) from the semi-industrial sector are exported in large volume to Zimbabwe. Artisanal fish products are exported through informal trade channels to bordering countries, mainly in dried and smoked form, with the exception of South Africa, which mostly imports frozen shrimps and fish.

The international market for Mozambique's fish products is wide, and includes other parts of Africa, Asia (Hong-Kong and Japan) and Europe (Italy, Portugal, Spain and the UK). The supply chain for international trade is more advanced than for the domestic market, particularly if key quality and hygiene standards are to be met. Most of the catch earmarked for exports is caught by the industrial or semi-industrial fleet and then either frozen on board or landed fresh and frozen or processed in land-based processing plants. Most of the catch is then exported frozen, in freezer containers to the international markets. The processing plants that are unaccredited to access the larger international markets ship their products to South Africa for further processing. High value prawns are the principal export product currently being exported to the EU and Japan. Deep-sea prawns are exported to Italy and South Africa. The value of exports from Mozambique to the international markets was USD 31.8 million in 2006. Informants estimated that total shrimp production was 12,000 t/year, valued at USD 10,000/t equating to a total value of USD 120 million. Recent trends are summarised in Table 3.5.

Table 3.5: Fishery exports (Mozambique)

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Tonnes	13,162	12,424	15,795	10,925	15,002	12,565	11,141	13,442	14,998	16,570
USD 1000	84,315	91,256	74,998	99,889	99,716	122,840	96,018	100,469	85,036	96,698
Ave value (USD/kg)	6.41	7.35	4.75	9.14	6.65	9.78	8.62	7.47	5.67	5.84

FAO Fishstat 2009

As the aquaculture sector is relatively undeveloped, markets have not been developed in terms of farmed tilapia. Very limited market information exists and the value chain has not been defined. However, a source confirmed that a farmed tilapia could potentially be sold to the inland market at USD 1.5 /Kg in fresh form, which corresponds approximately to import prices at first sale.

The capture fishery sector

The industrial fishing fleet is dominated by three companies, which hold substantial parts of the national shrimp quota:

1. Pescamar (owned 70 % by Pescanova and 30% EmoPesca) with 4,400 t quota;
2. Crustamoz (100 % Spanish) with 1,000 t of quota; and
3. Sociedad Industria de Pesca (SIP) (60-70 % Portuguese, rest Mozambican) with 1,100 t of quota.

Pescamar has also over the last couple of years taken over five of the larger industrial fleets, Efripel (Japanese backed), Carrelomar, Copoic, Pescabom and Berianave. As the total quota is currently 8,000 t, the remainder of the industrial companies share 1,500 t. All of the smaller industrial companies are Mozambican. In sum, the largest players in the industrial sector are:

- Pescamar with shares in five companies;
- Crustamoz;
- SIP;
- SSSS Ltd (Mozambican company with five subsidiary companies, 10 industrial freezing vessels, 9 vessels using ice only, 3 processing plants on land; produce 1,065 t for export via a commercial agreement with FI in South Africa, approx 9 million USD/year); and
- Mr Massinga with two industrial companies (Mavimbi (105 t quota) and Indico Pesca (250 t quota)) and two semi-industrial groups (Sulpesca and Pesca Norte)).

However, the industrial fleets are facing a number of challenges, with decreasing stock of wild shrimp and falling real prices. In the longer term there are concerns about the potential impacts of hydrocarbon exploration and development in coastal regions, and for climate change impacts. Hence Pescamar and Mr Massinga have been conducting trials to assess stocks of other species.

The semi-industrial fleet ranges from medium to family type businesses with 1-3 boats catching prawns or fish. Typical catch levels were difficult to define due to seasonality and the lack of records; however one estimate was for catches of 800 kg to 2 t over a period of 7-10 days with a vessel with a 15-20 man crew. There are nine semi-industrial vessels with freezing capacity operating under license for 1,355 t, an average of around 150 t per vessel.

One company, Pesca Rego, is owned by a Mozambican as a side business operating two boats and selling the catch in his own store while another company, Pescas do Sul, also have a small processing plant that is accredited to export to Europe. However, most catch is transported fresh in refrigerated trucks to South Africa.

The private sector has four membership associations:

- ANAP, National Fisheries Association with members of the Industrial and Semi-Industrial Sector, with only Mozambican owners.
- ASSAPEMO, Fisheries Association this was originally for the artesian fisheries but now has members from all sectors.
- ARMAPESCA, Semi-Industrial Fisheries Association, most member companies have 1-3 boats with ice for daily trips. They fish for shrimps and line fish.
- AMAPIC, Industrial Shrimp Fisheries Association, established in 1996, this Association is now basically made up of Pescanova companies, only one member is independent of Pescanova, namely Bonar-Sociedad Pescuiera.

The artisan fishery sector is estimated to involve 136,000 fishermen, 39,000 boats and 1,200 landing sites. Overall, the fishing sector has been suffering from rising fuel prices in combination with lower market price for shrimp and many semi-industrial and small industrial have severe financial problems in terms of investing in improved gears, boats and diversifying the business. In total, 78 vessels are registered and certified for fishing for the EU market.

Aquaculture

As confirmed further in Table 3.6 below, aquaculture production is at an early stage of development, at 907 t in 2007, of which giant tiger prawn and Indian white prawn accounts for 76 %, and undifferentiated Tilapia most of the remainder, though the seaweed 'Elkhorn sea moss' – *Eucheuma/Kappaphycus* is also recorded and may be overlapped with occasional records for spiny eucheuma. Though not included in the table, small amounts of common and grass carp are also recorded (< 0.5 t annually), while earlier records also separate out Nile and Mozambique tilapia.

Table 3.6: Aquaculture production (Mozambique)

Species	2002	2003	2004	2005	2006	2007
Elkhorn sea moss	157	210	92	36	15	69
Giant tiger prawn	500	166	215	553	498	346
Indian white prawn	100	166	214	553	497	347
Spiny eucheuma	.	313	.	20	.	.
Tilapias nei	77	77	17	116	53	145
TOTAL	834	932	538	1,278	1,063	907

FAO Fishstat 2009 – tonnes

Mozambique has extensive natural resources suitable for aquaculture, particularly in coastal regions, where prospects for shrimp aquaculture had been considered to be very promising. Three large scale initiatives had been developed in this sector:

- Sol e Mar in Beira, Sofala Province (500 ha): Chinese owned; the team was informed that they are looking for a buyer. The facilities are not yet up to EU standards and hence they are selling mainly to the regional market;
- Aquapesca, Quelimane, Zambézia province (1,000 ha): the only company currently in full operation and said to be expanding and investing in their own hatchery in Camela; and
- Indian Ocean, Pemba, in Cabo Delgado province (980 ha): had been run by an American company but the business collapsed, thought to be due to internal problems. The American owner has sold their shares to their Mozambican partner but there are also rumours that they will return to resume operations.

An area of some 1,700 km² of coastal lands, including mangrove, has been identified as having potential for shrimp or prawn aquaculture. This is an immense resource, and though current good practice will preclude most if not all of the area designated as mangrove, even 10% of the area, 17,000 ha, could support annual production of 40-50,000 t of shrimp in semi-intensive systems and more than double that quantity in more intensive production.

A small amount of artisanal coastal aquaculture has been developed - seaweed culture in Cabo Delgado and Nampula, but though the potential area for production is also substantial, returns are uncertain and development has so far been limited.

For freshwater aquaculture there are an estimated 6,000 small scale carp or tilapia ponds, but these are poorly productive due to inadequate seed supply and the lack of feed. Fresh water aquaculture on a larger scale has been discussed for Lake Cahora Bassa but due to the lack of infrastructure in the area, access to markets is a problem as is the supply of fingerlings and feed. A South African company has obtained a license for a 6,000 t tilapia cage farm in the Lake but is reported to be reluctant to start before hatchery and feed production is in place.

An inventory of potential sites for aquaculture is currently being undertaken and is to be published early 2009. However, the assessment only considers the biophysical aspects of potential sites and possible species and do not consider the actual or comparative investment costs to develop the sites nor the potential revenue and market potential.

Post harvest and processing

All of the industrial and some of the semi-industrial companies have processing plants, usually for grading, freezing and packing. The main products from processing firms are shrimps in 800g or 2kg packs, whole or tailed. All catch from semi-industrial vessels is landed onshore, processed and then exported or sold at local markets. Table 3.7 summarises recent trends in products and product forms, emphasising the importance of the 'crustaceans and molluscs' category – the shrimp products, with some output of dried/salted/smoked product.

Table 3.7: Fisheries commodities production (Mozambique)

Commodity	2000	2001	2002	2003	2004	2005	2006
Crustaceans and molluscs	10,443	12,534	10,357	10,000	10,000	10,000	10,000
Fish, canned	150	100	100	100	100	100	100
Fish, dried, salted, or smoked	2,500	2,500	2,036	2,000	2,000	2,000	2,000
Fish, fresh, chilled or frozen	.	.	301	-	-	-	-
TOTAL	13,093	15,134	12,794	12,100	12,100	12,100	12,100

FAO Fishstat 2009 - tonnes

There are 31 processing plants and 16 ice plants around the country (Table 3.8), though capacities are not defined. Out of these, eight to ten are approved for export to the EU market. One plant in Beira also initiated the production of fishmeal and fish oil to make better use of shrimp bycatch, but had been unable to operate profitably due to problems of getting raw material.

Table 3.8: Post-harvest and processing facilities by province (Mozambique)

Location	Number of processing plants					Total
	Nampula	Zambézia	Sofala	I'bane	Maputo	
Processing	3	4	9	4	11	31
Ice	3	4	6	0	3	16

Source: Presentation, Ministry of Fisheries, 2008-12-01

Limited transport infrastructure may still make it difficult for landings in some areas to have access to value addition.

Service and support

A range of traditional services functions for the fishing industry exist, eg boatyards, engine and gear repair, and simple provisioning, but their activities and potential profitability are modest. For

aquaculture, there were reportedly some initiatives in setting up hatcheries and possible feed factories but no specific project was possible to confirm. These initiatives were said to be in Maraquem for tilapia and in Namcala for shrimp. Currently feed is imported from Thailand and Malaysia at high costs, as there is no domestic production. Given the uncertain development status for aquaculture at present, it is unlikely that many developers would wish to commit to such projects at present, though smaller scale or pilot ventures might not be out of the question.

More generally, a number of entrepreneurs have been active in the sector for several years, and have the knowhow and networks to provide technical and other support should an investment be planned. These include Kusi Ltda Consultants, a one person consulting firm with 15 years of experience in the national sector, and Blue Water Marine Service, a two man company present in the country for more than 10 years. The company is not investing in the sector with its own capital but carries out technical assistance contracts for the Ministry and the donor community. They would however be interested to team up should an investor with the right capital be interested to enter the market. Additionally NFDS is working with the Norwegian assistance programme and among others provides technical assistance and capacity building to the Ministry.

3.2.3 Recent actions and trends

Fisheries and aquaculture issues

The Fisheries Research Institute (IIP) is mandated to conduct research in support of fisheries management. However, they have limited resources at national level, though every fourth year, have access to vessel survey time through the Norwegian Fritjof Nansen programme. From time to time they also join the industrial vessels as observers, and use vessel logbooks for their data. However, the accuracy of logbooks is commonly questioned.

Illegal fishing is a problem as it is in many countries. To attempt to address at least some of the problems, Norad is supporting the current regional 'stop illegal fishing' campaign as well as funding the operation of a patrol vessel, though with almost 3,000 km of coastline this is insufficient for national monitoring control and surveillance (MCS). Efforts are also being made through training to improve the skills and capacity of Fisheries Officers in MCS actions. It was reported that a VMS (vessel monitoring system) was set up but was no longer operational, and the UK British company which installed it had not returned to repair it. It was noted the Ministry of Fisheries had the responsibility to act on this issue.

Shallow water shrimp is fished to its maximum and it is stated that fishing effort should be reduced by 40%. The resource is poorly managed, with a mix of policy gaps and enforcement deficiencies. Thus semi-industrial vessels without freezing capacity can fish without quotas, which both constrains prospects of limiting effort and potentially reduces value, unless the catch is landed and processed very quickly. There is a Shallow Water Fish Management Plan in place, though its implementation still needs to be addressed.

Deep water shrimp fishing is reported to have the potential to be increased by some 40 %, though returns to fishing the shrimp alone look increasingly unviable, and the bycatch is becoming increasingly important, and targeted by the deep water fleet. Fishing for these bycatch species is not formalised, and the species are not within the current assessment and management framework. There are reports of a substantial and very valuable fishery developing for *Nephrops* species prawns, which is not under quota; the species could not be confirmed during the visit but if even similar to *Nephrops*, - the Norway prawn or scampi - which has a valuable European market, there could be very useful export potential. However, the level of fishing or the potential state of stocks could not be determined.

The tuna fishery is offshore, with effectively no raw materials being available for value addition within Mozambique, and payment for resource access was apparently not completely transparent. It was not generally considered viable to change this position, and the costs of shore-based infrastructure would

have to be justified by the potential product flow and value addition margins. Transshipment at sea was also noted as a management problem, more by public agencies than the private sector. This was especially noted for valuable bycatch, which was not allowed to be landed at more than defined percentages of the total catch, and hence was transhipped before reaching port and recording the catch.

Licenses for prawn fishing are in the range of USD 3,000-4,000 per boat per year and for line fishing USD 2,000 per boat per year. However, the licence costs tend to increase every year, creating an uncertainty among fish companies in terms of future costs. Sanitary inspections are also carried out annually, at the start of the season and then followed up every one to four months, depending on the outcome of the first inspection. Each vessel requires a sanitary licence, valid for two years while the sanitary authorisation is only valid for one year. To obtain a license, each vessel must have a sanitary programme, follow the hygiene standards and have one trained quality control technician.

Overall, views are that the management of the resources must improve to make the sector profitable. However, it is suggested that the strongest and largest player, Pescamar (owned ultimately by the major Spanish seafood group Pescanova) does not have a strong interest in improving management of the resource, and its dominance in the sector makes it difficult to build the political will for change.

Infrastructure

The massive effort in the Maputo corridor is an important project given the close economic ties between Mozambique and South Africa and the potential benefits of improved bilateral transport links. It is hoped that the combination of better road, rail and port services will serve as a catalyst for secondary development along the whole corridor.

The ports and harbours in Mozambique are well developed with adequate fishing ports in Maputo and Quelimane and Beira. Nampula in the North has a natural deep water harbour and along with better infrastructure in this area in terms of roads, electricity, and airport landing sites, the north of Mozambique is emerging more and more as a very valuable location for new investments.

Mozambique has 30,400km road, of which only 18% is paved. Generally, the road network is in worse condition in the north of the country, though it is noted to have improved substantially in the last couple of years with new road and bridge construction projects. Road links with S Africa from the southern part of the country are generally good, as evidenced by the transport of fresh fish product directly to S African markets.

The country is well connected in the south to Johannesburg with only a one hour flight, while the Portuguese company TAP operate direct flights between Maputo to Lisbon. The country has 22 airports with paved runways out of a total of 158, but their condition cannot be guaranteed and most are only operated by small private planes. In terms of shipping by air, freight cost can go as high as 2 Euro per kg, a major added cost for shipping fresh product to European markets. Final prices in Portugal for fresh marine fish would be estimated at some Euro 8/kg.

In the telecommunications sector, some services have been upgraded and the country has approximately 2.4 million cell phone users (13% of the population).

Electricity supply in rural areas is generally not reliable, however, the Government is prioritising expansion of electricity supply and hence the situation is expected to improve substantially with a new hydro power plant currently being planned for.

3.2.4 Overview of sector business health

The Mozambican fish sector is characterised by a small number of industrial fishing fleets, mostly owned by the Spanish company Pescanova. The semi-industrial fleet is mainly operated by Mozambicans, a majority of whom have Portuguese or Asian backgrounds. Access to domestic finance and wider

international markets are constraints among the domestic firms, providing a clear competitive advantage for Pescanova. If shallow water shrimp stocks are decreasing while other sectors have further potential, the Pescanova companies may be more able move capital into new opportunities. Wider business linkages with domestic companies, whether with regional (eg S African) or international partners, are not impossible, but with the small share of quota held by domestic companies this may not be very attractive, unless current non-quota species can be accessed in greater quantities.

Though substantial investment has entered the shrimp aquaculture sector it does not appear to have prospered. The reasons had not been entirely clear, but a common problem with projects of this type has been that it is difficult for heavily capitalised and indebted company structures to be supported by profitability which proves to be much less than projected. Feeding, water quality and disease problems are common issues contributing to this, and increasing competition in international markets from Asian suppliers shifting from tiger shrimp (*Penaeus monodon*) to more productive and profitable white shrimp (*P vannamei*) has created further challenge. More generally in aquaculture, including the inland sector, gaps in the input supply chain, particularly for feeds and seed, are a key constraint. As for Tanzania, the market and supply chains are suffering from a lack of capacity and the overall sector is in a development impasse in which investment in production is unattractive without the infrastructure and services, while no-one finds it profitable to invest in the necessary infrastructure and services unless there are buyers. On the public sector side, there is a lack of capacity to assess and analyse the sector in great depth. For example, the Ministry has a department for fisheries economics but when asked if they had any economic studies and market analysis available, the team got the response that they had not done any such studies.

For an investor with a long term target to establish aquaculture operations in the southern African market, Mozambique could be a potential starting point as local competition is not yet too strong and the regional market offers a potential promising market. However, the South African actors are likely to offer some strong competition.

3.3 Conditions and mechanisms for investment

3.3.1 Introduction

This section aims to provide an overview of the investment climate, the different incentives and guarantees available for Norwegian investors, and an indicative guide to the steps to be taken to establish an operation in Mozambique. It is estimated that for 2008, the country had a GDP growth of 6,9 % and an inflation rate of 11,2%. The overall ranking of Mozambique in key international reports was discussed in the Phase I report (summary in Table 3.9). The aim here is to complement the Phase I report with observations from the field.

Table 3.9: Ranking of international business and governance (Mozambique)

Institute/Study	Rank
Transparency International ¹²	126 (180)
Doing Business	141 (181), 157 in adjusted model
OECD	Business risk & (credit ranking B to B-)

Mozambique has gone from a rank of 139 to 141 in the overall assessment in the World Bank Doing Business Report. Even if the country has shown improvement in terms of number of days to start a business and number of procedures on some of the indicators, Mozambique has not improved with the same speed as other countries and hence the country rank worsened

3.3.2 Investment Climate

Investment promotion and support

To facilitate investments, the Investment Promotion Centre (CPI) was established following the New Investment Code in 1993. The CPI's mandate is to assist national and foreign investors to establish businesses in Mozambique and to access incentives offered by the government. In addition to the CPI, ACIS is a non-profit organisation based in Beira, aiming to contribute to the promotion and development of commerce and industry in Mozambique. The organisation has 145 members with a combined investment of 2.6 billion USD. Their website provides a wealth of information on the investment framework, land issues and environmental regulations in English and Portuguese. The organisation has also drafted an HIV and AIDS workplace programme which could be an important practical input for any investor, given the high rate of HIV in the country, and the importance of protection schemes.¹³

For the fisheries sector, the four Associations could also act as facilitators for potential foreign investors. In addition, the Institute for Export Promotion (IPEX) could be consulted. However, an assessment by USAID¹⁴, argues that the IPEX is not fully functional and investors might be better getting support from private associations. In addition to the specific fisheries associations, the Confederation of Business Association¹⁵ (CTA) is an umbrella organisation with members across sectors. The USAID report argues that CTA is more effective in promoting export and lobbying for the removal of barriers than IPEX. Finally, the Mozambique Chamber of Commerce was founded in 1980, with the main objective to promote trade among local and foreign companies.

The Finnish Embassy in Maputo compiled a report highlighting Investment and Trade opportunities for Finnish Companies in 2005. This report provides a range of country background information as well as discusses financing and market entry strategies. Even if it was originally written for Finnish Companies, a lot of the information is generic and also applies to Norwegian actors. The International Chamber of Commerce (ICC) together with UN Conference on Trade and Development (UNCTAD) published an Investment Guide to Mozambique in 2001¹⁶. Though slightly old, it still provides a good overview of key issues.

Constraints and risks

The Belgian ONDD¹⁷ rates Mozambique 4-6 on their political risk, ranging from short term to long term risks (Figure 3.3). Risk of expropriation is low at 3 while transfer risk is higher at 6. Commercial risks are rated at C which is equal to high risk.

¹² http://www.transparency.org/policy_research/surveys_indices/cpi

¹³ <http://www.acisofala.com/>

¹⁴ USAID, 2006, Transforming the Promoção de Exportação (IPEX)

¹⁵ www.cta.org.mz

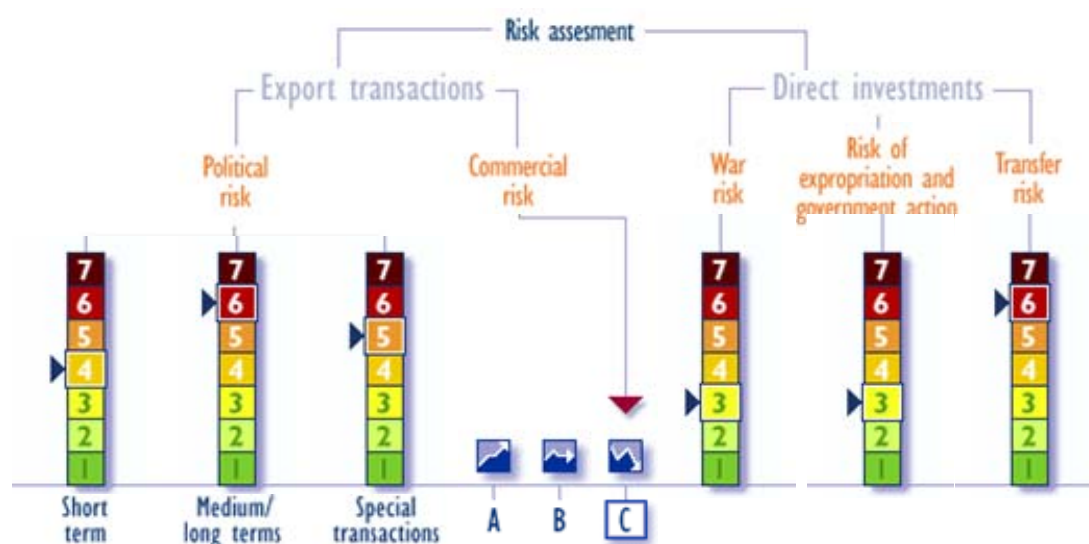
¹⁶ ICC/UNCTAD, 2001, "An investment guide to Mozambique"

¹⁷ ONDD is the Belgian Export Credit Agency www.ondd.be

According to the assessment in the ICC/UNCTAD report, one of the main constraints facing investors is the lack of administrative capacity in the country. The labour law and the regulations concerning labour relations were also stated to be a main hurdle. However, from the field consultations, this seems to have eased up and is now less rigid in terms of hiring and firing employees.

The ICC/UNCTAD report also highlighted that the fact that land cannot be owned but rather is leased on a 50 year non-tradable contract. This creates a barrier in terms of accessing credit as such land title cannot be used as credit collateral. Based on consultations in the field, it became apparent that the government has become more reluctant to grant land lease contracts if the applicant does not have a clearly identified project in place. This is due to the fact that the Government want to avoid having locked up major land areas that is not in use. The new regulations put more stringent requirements on investors before a land right is granted. Another added criterion on projects demanding large areas of land is that the project must contribute to food production and development.

Figure 3.3: Investment and political risk profile (Mozambique)



The exchange rate risk is high but mainly for local Mozambican companies with limited capacity to secure themselves against exchange rate fluctuations. An international company would be able to make use of international guarantee facilities to cover for this.

Other factors

The ICC/UNCTAD report also stresses that the presence of skilled labour is a challenge. The majority are poorly educated and untrained and finding suitable, trained professionals is a major challenge. This was also confirmed while in the field. One informant raised the issue of residential permits and the fact that they were reviewed every year creating a rather insecure environment. However, it is the teams understanding that CPI will assist an investor to obtain work permits with a longer validity period than one year.

Generally, the bank sector in Mozambique is reluctant towards investments within the fisheries sector. The track record in terms of access to finance from the bank sector is not good. As land is rented it cannot be used as collateral and neither can the fishing vessels. The African Banking Corporation for example recently turned down a big aquaculture proposal, though it is unclear whether the sector or the quality of the proposal was the key issue. Investors may well have to seek funding from outside the

country. Lack of access to credit was also stated by a number of the Mozambican businesses in the sector as their main constraint to why expansion was not possible

Another problem, particularly for aquaculture would be that facilities would have to be guarded continuously, whose cost would have to be included in any projections. However, as most businesses, international offices and their staff use guard services, a number of international security companies are present.

A summary of key investment related legal frameworks is outlined in Table 3.10.

Table 3.10: Summary of investment related legislation (Mozambique)

Act	Key Issues
Land Law was approved in July 1997	No private land rights exist. No foreigner can lease land and hence a international investors must first establish a company under Mozambican law in order to apply for lease of land.
Investment code 1993	Companies established under the Investment Code must get authorization from the CPI and register their investment at the Ministry of Finance and the Bank of Mozambique. Regulations governing business operations include labour and tax laws and investment incentives such as the ability to remit profits. The views from the field is varied in terms of CPI effectiveness in assisting investors. It should be stressed that a local partner will likely speed up the process

In the case of any dispute or commercial resolution, the majority of the consulted people also raised the issue that the court and legal system was highly inefficient and corrupt. Court cases are piling up and disputes take years to settle.

Nordic interests and other larger initiatives

In terms of other Nordic interests in the country, UPN and Stora Enso of Finland announced in November 2008 that they have advanced plans for investing in the forestry industry in Mozambique. Feasibility studies are about to be finalized after which finance will be raised.¹⁸ During the field visits, the team was also told that the Norwegian company Jara is about to invest in the agricultural sector. However, the team was not able to obtain more information on this.

Mozambique has also received a number of mega-projects such as the aluminium smelter MOZAL, and a number of large-scale manufacturing projects. MOZAL made an initial investment of USD 1.3 billion. The presence of such mega projects could serve as an indication that the investment climate is favourable. But it should also be noted that these mega projects were highly prioritised by the Government and hence received intense attention from high level officials which might have smoothen the process.

3.3.3 Incentives and guarantees

The easiest way for an investor to establish a business and invest in Mozambique would be to approach the Investment Promotion Centre (CPI). This section outlines the incentives and guarantees of importance to an investor in Mozambique. The objective is to provide an overview of opportunities and give details on where to obtain more information.

Incentive regimes

The Investment Promotion Centre (CPI)

As noted above, the CPI was established following the 1993 Investment Code with the aim to attract investments and provide assistance in the approval and implementation stages. The services provided by CPI include among others:

¹⁸ <http://www.afriquenligne.fr/news/africa-news/finnish-paper-mill-company-to-invest-in-mozambique-2008110815476.html>

- Business licensing
- Entrance visas
- Work and residence permits
- Customs exemptions authorizations
- Licensing of land

The investment incentives available under the 1993 Investment Code are so called Generic Benefits for eligible projects as follows:

1. Exemptions on importation duties on equipment of Class 'K' of the Customs Tariff Schedule
2. Reduction of 50% on the real property transfer tax on acquisition of immovable good for industry.

In addition CPI provides for some special regimes; however fisheries and aquaculture is not stated among them.

Industrial Free Zone

Industrial Free Zone Developers enjoy an exemption from custom duties, VAT and specific consumption tax on the importation of building materials, machinery, equipment, accessories, accompanying spare parts and other goods destined for the establishment and operation of the Zone, and pay no income tax on receipts from manufacturing and other Industrial Free Zone activities. There are two essential characteristics or requirements to qualify for Industrial Free Zone status.

- Job creation for Mozambican nationals
- The production for export (85% of the product must be exported)

However, processing of cashew nuts, fish and prawns are not acceptable industrial free zone activities at present.

Investment protection and guarantees

Norwegian Investments in Mozambique can be insured or guaranteed under the following facilities: **GIEK** is a Norwegian facilitated guarantee to heavily indebted countries (HIPC-countries). GIEK follows OECD's principles which imply that GIEK will not guarantee for transactions that contradict with the recipient country's financial-/social strategy. The policy applies only for projects with direct or indirect government involvement. It involves transactions with public buyers, government owned companies, and transactions where government guarantees from HIPC-countries exist. It does not apply for transactions with private buyers or debtors. Furthermore, GIEK offers a special Developing Country Scheme that guarantees credits and investments in developing countries where the risk is estimated too high for guarantees under the General Guarantee Scheme and certain criteria must be met.

MIGA: Eligible investors for MIGA include nationals of any MIGA member country¹⁹, provided they are not nationals of the country where the investment is being made. MIGA insures new cross-border investments originating in any MIGA member country, destined for any developing member country. New investment contributions associated with the expansion, modernization, or financial restructuring of existing projects are also eligible, as are acquisitions that involve the privatization of state-owned enterprises.

World Bank Guarantee Programme (other than MIGA):

¹⁹ Norway is a member but not a donor, ie Norwegian Investors are eligible under MIGA

- **Partial Risk Guarantees (PRG):** Cover private lenders against the risk of a public entity failing to perform its obligations related to a private project. Available for countries that are eligible for loans from IBRD.
- **Partial Credit Guarantees (PCG):** Covers private lenders against all risks during a specific period of the financing term of debt for a public investment. Available for countries that are eligible for loans from IBRD. No overlap with MIGA or IFC
- **Policy Based Guarantee (PBG):** Support of development policy operations, cover part of bond/loan repayment against all risks. No overlap with MIGA or IFC. Available for countries that are eligible for loans from IBRD.

IFC can offer long-maturity Risk Management Products (RMP) to clients in their member countries. The risk management products (derivatives) are available for hedging purposes in terms of currency, interest rates and commodity prices and hence enable companies to enhance credit worthiness and improve profitability.

ICSID is an autonomous international institution established under the Conventions on the Settlement of Investments Disputes between States and Nationals of other States (the ICSID convention). The prime objective is to provide facilities for conciliation and arbitration of international investment disputes.

African Development Bank (AfDB) offers partial credit and partial risk guarantees to all countries eligible for loan under the Bank.

3.3.4 Investment procedures

From the Ministry of Fisheries' perspective, an investor should fulfil the following criteria:

1. Investments would result in increased value added in fish production, for domestic consumption or for exports
2. Proposed technologies should be easily adopted to local conditions
3. Proposed labour force should be largely Mozambican and proposal should include transfer of knowledge and skills activity
4. The utilization of as much locally available materials, goods and services as possible is encouraged
5. Equipment used should be of brands that are covered by existing repair and maintenance networks
6. Production should be mainly export oriented
7. High level of technical knowledge, specifically for aquaculture projects

Based on information obtained from the Ministry of Fisheries, an investor must:

1. Submit a technical, financial and economic project document
2. Establish a Mozambican company
3. If necessary, carry out an Environmental Impact Assessment (always required for commercial aquaculture and processing plants)
4. for any fishing activity, register the vessel and navigate under the Mozambican flag.

The project approval process via CPI is described as follows:

1. Submission to CPI of three copies of the Business Plan (Proposal, see below for more details) or three copies of the CPI application form duly filled for approval. The following documentations should be attached to the application: copies of ID, company articles of association, maps, proof

of technical and financial capability, investors and/or company profiles as well as other useful details)

2. CPI coordinates with relevant sector authorities as well as the Environmental Authority at local and central level for approvals.
3. Assessment of Business Proposal
4. Drafting and negotiations of Terms of Authorization with the investors or their representatives, as part of project approval process
5. Upon agreement between CPI and the Investors on the Terms of Authorization, CPI will submit the Project for Approval by the relevant authority.

Hence, the Ministry requirements represent the first steps of the CPI process, the latter also including steps on how to access the incentives. CPI encourage investors to submit a preliminary proposal for review, submitted to both CIP and Ministry of Fisheries. If accepted, a detailed investment proposal should be submitted in Portuguese²⁰. The information required in a proposal includes:

1. Presentation of the investor
2. Objectives
3. Technical proposal
4. Financial and economic proposal
5. Environmental assessment

According to the Doing Business Report 2009, ten specific procedures are required to start a business in Mozambique (Table 3.11). The perception gained in discussions is that it is advisable to hire a local consultant who specialises in assisting international investors in setting up businesses. A local consultant will have a better overview of the procedures and a network of contacts.

Table 3.11: Stages in establishing a business (Mozambique)

Step	Action
1	Obtain certification of unique name at the Commercial Registrar Office of Maputo
2	Open a provincial bank account, deposit a minimum capital and obtain a verification of deposit with a local bank
3	Register with the Commercial Registrars Office of Maputo; request a commercial registry certificate; publish company statutes in the official gazette (Bolhetim da República)
4	Register for taxes and obtain NUIT from Repatção de Finanças (tax department)
5	Apply for an operational licence from the Presidente of Conselho Municipality
6	Receive inspection from Ministry of Health and Fire Department and Ministry of Commerce and Industry
7	Declare the beginning of activity at the tax department
8	Declare the beginning of activity and register job candidates at the provincial employment centre
9	Register with the social security system
10	Subscribe a workmen compensations insurance coverage

²⁰ English, Spanish and French may also be accepted

3.3.5 Overview of conditions for investment

Discussions with informants in the fisheries sector provided anecdotal information on the investment climate, confirming some the issues reflected in the published investment climate reports referred to above. The prospects for developing a business are sufficiently positive to consider, but our overall understanding is that a broad network of contacts has to be engaged in order to get established and operate effectively. As such, unless a very long view is to be taken, teaming up with an already existing company may be the surest way into the market, for the necessary contacts and political access, and also to address practical language issues. Table 3.12 provides a summary of investment conditions in the form of SWOT description.

Table 3.12: Investment SWOT analysis (Mozambique)

Strengths	Weaknesses
• Access to large regional market (SADC) • Government is committed to create an enabling environment for investors • Investment Centre to facilitate investments • Fast growing economy and increase in MEGA projects • Improving regulatory environment and administration • Norwegian development assistance	• Lack of infrastructure in terms of electricity and road network in the North • Low human resource base • Red tape and corruption, • Cumbersome processes, lack of transparency • Weak financial sector
Opportunities	Threats
• Large areas of available land and water for aquaculture • A few small scale potential investment partners	• Impact of HIV on workforce • Natural hazards (been hit hard by floods in recent years) • Dependency of foreign aid • Situations in neighbouring countries such as Zimbabwe (currently hit by cholera) • Long term political power by one candidate that could create tensions with the opposition

3.4 Investment opportunities

3.4.1 Introduction

Mozambique has an active fisheries sector with the main focus being the fishing and export of shrimp. A significant tuna catch is landed outside the country, and a substantial amount of other catch is reported to be transhipped. Governance in the capture sector is generally recognised to be problematic. Based on recorded per capita consumption, the domestic market is not very strong, though there are substantial imports of lower price fish from the region. To date the main investments from foreign companies have been channelled towards the industrial shrimp fleet, mainly from the Spanish PescaNova, and in large scale shrimp aquaculture. Considering both the broad criteria for investment selection set out in the initial section of the report, and the practical issues emerging from discussions in Mozambique, a number of options could be identified.

3.4.2 Predefined suggestions

In 2007, the Ministry of Fisheries produced a document ‘Investment in Mozambique’s Fisheries Sector’ in which were listed the following opportunities. Where feasible, we offer comments on the viability of the concepts, based on existing industry conditions, markets and potential profitability.

Industrial fisheries

- Shrimp fishing: the large Sofala Bank shrimp fishery is closed; alternative sites are only for reallocation of existing activities. Within this sector the only opportunities lie within fleet replacement and efficiency improvements, and are unlikely to be very attractive;

- High-value finfish including grouper, rock cod, snapper, emperor, sea bream and mackerel. These resources are likely best found in the North in the Inhambane/Gaza area; there may be opportunities to develop, provided access and infrastructure for processing and distribution could be defined, but if these are to be sustainable fisheries, justifying external investment, an effective management regime would need to be in place;
- Deep water shrimp fishery and associated fishery for deep sea crab and crayfish; there may be opportunities, and local vessels might be able to profit quickly but scope of fisheries and management effectiveness would be critical for serious external investment and not likely to be resolved quickly;
- Fishery of tuna and billfish; seasonal resources, and may have similar constraints to those above; and
- Fishery of small pelagic fish on the Boa Paz bank and outside Sofala Bank; similar constraints to those above – test fisheries and the basis of a management regime would at least be needed.

Small-scale fisheries

In the artisanal sector, the fishermen are Mozambicans and foreign investors are only seen to be involved in collection and processing of the fish, as providers of access to key fish markets and to stimulate the development of rural commercial networks for fish input supplies. The following offer opportunities in the small-scale sector:

- Collection, handling and export of mangrove crab;
- Shark fishing and processing;
- Capture, freezing and export of high-value finfish (Northern region);
- Collection and export of rock lobster (Northern region);
- Harvesting of small pelagic species (mid-water trawling);
- Collection, processing and export of seaweed and sea cucumber;
- Collection, purification, processing and export of molluscs including clams, oysters and mussels; and
- Collection and processing of pearls and cameos.

Most of these could be viable opportunities but are on a small scale and are unlikely to attract serious external commercial investment, though could appeal for SME interests. Some will be more readily developed than others, all will require good interaction with local communities, and some – eg shark fishing, would be unacceptable for many markets in broader political/conservation contexts. These areas may however be useful components in an integrated approach which linked community development with raw material collection and processing, perhaps with a socially-responsible ethic, to be exported to niche markets. They could also be part of a CSR programme (eg for an energy company) or an NGO support initiative.

Aquaculture

Large scale shrimp culture remains the highest priority for the Ministry but opportunities are also seen for culture of oysters, mussels, algae and pearls. Four locations have been identified as suitable for shrimp culture:

- Maputo Bay
- Beira Area
- Quelimane Area
- Region around Angoche and north to Ruvuma river

Surveys of potential sites have been carried out and approximately 19 000ha of suitable terrain is identified, within 25km of Maputo, Beira and Quelimane. The Aquaculture Master Plan is soon to be published and will provide more guidance; however, it is not likely to include any economic and financial aspects associated with developing these identified sites. The constraints of shrimp culture have been noted; *more detailed assessment of site and development conditions would be required; smaller scale coastal aquaculture could be viable, but as with artisanal fishing may not be too attractive for external investment except at SME/community support level.* External investment in fresh water aquaculture has been given less focus; *this is more likely to be developed in relation with a larger agro industrial scheme and not in isolation.*

Post-harvest and processing

Most exports are onboard frozen products and it is the Governments aim to increase the value adding industry in the country. The Government especially value the investment in processing of shark, shrimp from artisanal operations, by-catch from the shrimp fishery and production of frozen fillets of prime fish; industrial scale drying and smoking of fish; and cottage type industries manufacturing ornamental products from shell and coral. *These will be subject also to the limitations of small-scale activities linked with artisanal production, and will depend on the sustainability of the underlying resources and their management regime.*

3.4.3 Review of findings

Most if not all investments in the Mozambique fish sector should be taken with a perspective that returns would not materialise in the near future. The sector is still building up capacity, in the public as well as the commercial aspects, and quick wins are likely not obtainable. The fisheries management context at both artisanal and industrial level poses limitations, and these will have to be overcome if sound longer term returns are to be realised. To date larger investments in shrimp aquaculture appear not to have been very viable, and a careful appraisal would have to be made of sites, operating conditions, production risks and international competitiveness. Nonetheless, the quality of Mozambique's coastal environments could in the longer term provide positive opportunities, and production levels of 5-10,000t, with turnover levels of 20-50 million USD would be expected.

Other areas of opportunity, associated to some of the areas identified by the Department of Fisheries, would involve linking with the artisanal and local industrial/semi-industrial fleets to obtain supply and by requiring standards of responsible fishing – in effect using private sector market incentives, develop a range of shrimp, fish and other products, possibly also leading to a national brand identity, linked with Marine Stewardship Council or other eco-labelling approaches. The concept could be further developed through local community organisations to embrace Fair Trade attributes. As the market, at least in northern Europe, is becoming more and more socially and environmentally aware, this could be a strong marketing advantage. If farmed products, especially shrimp, are also to be involved, this would be an important step in establishing trust that aquaculture could be carried out responsibly and to the highest standards. If such an approach is to successfully penetrate the European market, clear marketing strategies and sustainability labelling must be carefully considered. This is most likely to be considered by companies which have strong market capability and brand presence. In the first instance this approach could easily collect 200-500 t tonnes of raw material annually, with turnover levels of USD 0.5-1 million in the first instance, with potential for considerably more.

Aside from shrimp aquaculture and the possible incorporation of small scale coastal aquaculture into high value/high ethics export markets, there may be opportunities to develop fish feed and fry production businesses, though these would have to match the development of ongrowing production, whether in Cahora Bassa or in wider networks of pond producers. For feed production, more assessment would be required of sourcing options, as smallholder agricultural production coupled with relatively poor distribution networks could create rather high barriers to cost-effective fish feed manufacture. For Cahora Bassa, if the existing concession were to be delayed, and alternative project could be considered,

though at a regional level, large cage culture projects in Uganda or Ghana might be more attractive and give sounder and less risky returns.

In terms of investing in the supply development/value-added sector, a realistic approach would be to start working with a few of the semi-industrial companies, and local fishing groups, build up partnership agreements, and possibly merge a number of elements into one entity company for stronger market power. The Norwegian investor could provide finance, technology and knowhow. However, there seem to be a reluctance towards this approach as it feels like a takeover and that there is no balance in power of control between the international investors and the Mozambican nationals. However, one of the semi-industrial owners expressed a greater trust in Nordic companies than they did in Spanish, French and English companies.

Some new aquaculture activities are already ongoing and a potential market strategy in order to establish a business in Mozambique would be to seek a commercial partnership with any of the ongoing operations, to save time and minimise competition. A South African company has been granted a license to farm 6,000 t of tilapia yearly in Cahora Bassa. The project has however not yet taken off as the necessary infrastructure is missing, such as a secure supply of feed and fingerlings.

In addition, another South African company is aiming to bring cobia from Madagascar for farming in Pemba. The company has already allocated a site for the farm. However, the market potential for both tilapia and cobia domestically is not well covered. Also, the opportunity to invest in the Sol e Mar shrimp facility might be interesting. However, the team was not able to investigate further into this issue.

The company SSSS (4S) is planning to expand its businesses to fishing and aquaculture in the North and on the Islands. As the company is 100% Mozambican, access to credit to finance additional investments has been a major constraint. Hence, they are seeking investment partners to diversify into new aquaculture projects. The team was also informed that IFC was about to finance a feasibility study for an aquaculture project. UNDP, in collaboration with CPI and Global Compact are financing a feasibility study under the 'Business Initiative for Sustainable Development – Growing Sustainable Business. The objective is to prepare a business plan for 4S to enter the international market and to identify opportunities within processing and export of marine products from mariculture and aquaculture of shrimp for commercial purposes.

Other less defined opportunities include: processing of canned sardines for the domestic market, as Mozambique is currently importing from Angola and Namibia; Processing of tuna onshore or enter into the Public Private Partnership project in Cabo Delgado that involves University of Benguela, IPP and a South African company to develop fish feed and fingerling production.

3.4.4 Investment partners

The main player in the sector is the Spanish company Pescanova who holds share in six of the industrial companies which means that they controls about 80% of the industrial fleet sector. They are likely not an investment partner but rather a key competitor.

In terms of partners, within the industrial sector, 4S is looking for an investor in order to be able to expand their businesses. As written above, they will initiate a feasibility study in order for 4S to be better prepared to enter into the international market, especially with products from mariculture and aquaculture.

The semi-industrial fleets run their operations without a quota system and are generally family type businesses with 1-3 boats catching prawns or fish. One company, Pesca Rego is owned by a Mozambican as a side business operating two boats and selling the catch in his own store while another company, Pescas do Sul, also have a small processing plant that is accredited to export to Europe. They both indicated an interest in entering into partnerships with foreign investors but this would be on a very small scale in the beginning with a long-term target to increase the size of the operations.

Within marine aquaculture, at current only one company is in an active business operational status and the other two could be potential targets for a takeover by a new investor:

- Sol e Mar in Beira, Sofala Province (500 ha): Chinese owned but they are looking for a buyer. The facilities are not yet up to EU standards and hence they are selling mainly to the regional market;
- Aquapesca, Quelimane, Zambézia province (1,000 ha): The only company currently in operation and is even expanding; and
- Indian Ocean, Pemba, in Cabo Delgado province (980 ha): Used to be run by an American company but the business collapsed which is thought to be due to internal problems. The American owner has now sold their shares to the Mozambican counterpart but there are also rumours that they will take up the operation again.

In addition, there are a number of entrepreneurs who has been active in the sector for several years, they have the knowhow and the right networks and would hence be key people to link up with should an investment be planned. These are Kusi Limitada Consultants who is a one person consulting firm with 15 years of experience from the sector in Mozambique as well as Blue Water Marine Service, a two man company with presence in the country for more than 10 years. The company is currently not investing in the sector with own capital but carries out technical assistance contracts for the ministry and the donor community. They would however be interested to team up should an investor with the right capital be interested to enter the market.

3.5 Conclusions

The likely approach in Mozambique is to slowly start working with a few of the semi-industrial companies, build up partnership agreements, and eventually merge a number of semi-industrial into one company for stronger market power and process high quality shrimp to Europe. However, as the stock is under severe pressure, this venture has to be carefully assessed.

Other areas include investment in aquaculture projects in fresh water bodies. As this sector is not well developed yet in Mozambique and there are many gaps in the input supply chain, an investment would have to vertically integrate. If the aim is to establish a strategic market power in southern Africa in order to tap into the potential resources available for aquaculture and create a strong brand, the timing could be right to establish a small scale operation in Mozambique now with the long term business aim to grow into a large scale business. However, the competition from South African firms and the Zimbabwe based Lake Harvest should not be underestimated. The South African companies active in this field has a head start based in South Africa and can easily establish a new venture in Mozambique. As such, a possible link would be to team up with South African actors and then enter Mozambique. In that way, the operation will have a strong regional presence with the necessary market links to Southern Europe, a more stable supply of input from South Africa as well as linkages to European markets through the International partner.

In terms of comparing Mozambique with the other three study countries, it is the teams impressions that establishing a business and to operate in Mozambique will be more challenging due to cumbersome bureaucracy, corruption and language difficulties.

4 Tanzania

4.1 Executive summary

Tanzania has excellent natural resources, a growing economy and a maturing political and business environment, with good prospects for future external investment and economic growth. The fisheries sector is however relatively undeveloped, and with the exception of the offshore tuna sector, capture fisheries are at a small-scale subsistence level, with simple market chains and only a small number of added value processors. By contrast a number of large scale processors have established factories by Lake Victoria for filleting, freezing and exporting Nile Perch. Fishing levels and resources in many parts of the sector are difficult to define and manage, and processors and exporters normally use intermediaries or other links for purchasing, making it difficult to ensure that catches are sustainable. A more recent exception is for Lake Victoria, where the export processors' association has enforced self-regulation, banning purchases below a certain minimum size. However, this does not eliminate the risk of artisanal fishermen selling smaller sizes to local markets.

Aquaculture is at a nascent stage with only one large scale commercial shrimp farm. A number of small scale initiatives are ongoing, with marine fish, shrimp, oysters, seaweed and sea cucumbers in coastal areas, and trout, tilapia and catfish in inland waters, but expansion is hindered by supply of inputs such as feed and fingerlings and by limited external market connections. However, the Department of Fisheries is currently developing an Aquaculture Strategy and the sector is expected to be more central in terms of food security and export earnings. Nonetheless, its development to full potential is a long term target.

In terms of access to market, Tanzania has developed links to export markets via the processors and exporters by Lake Victoria. The main hub is Mwanza, located far from the coastal harbours and main economic centres. However, its infrastructure is well developed and regional flights operate the area. More generally the country is well located in terms of access to regional markets such as East Africa and Southern Africa via Mozambique. It also has an expanding tourist market. The infrastructure to the south is improving steadily, but fishery sector distribution links need to be developed further.

Investing in Tanzania's fisheries or aquaculture sector is a long-term commitment that will have to be carefully planned and assessed. As the sector is largely driven by artisanal production and post-harvest activities, an external investor would have to adapt to local conditions and slowly build up to larger volumes and more organised production. However, if the aim is to establish long term presence and a strong market position in the region, it could be very opportune to enter now and build together with the sector as it matures and develops. The following options can be considered for investment:

- Acquisition of an existing processing and exporting firm. A medium scale opportunity with growth potential; at least one processing and exporting company is interested to sell;
- Small scale investment in coastal fisheries and aquaculture, collaborating with community based organisations and developing slowly into a medium/larger business. Could also be linked to a CSR activity;
- Development of larger scale shrimp farming and product export based on existing or new enterprise; would require careful assessment and scrupulous attention to environmental and social issues; and
- Long-term investment in large scale cage farming in Lake Victoria. A number of actors are interested but need investment capital and technical know-how.

4.2 The Tanzanian fishery sector

Tanzania is well endowed with water resources and shares three major lakes with its neighbouring countries. The sector has mainly been built up around Lake Victoria and the main processing and exporting activities are based there. The domestic market for fisheries products is below the global average at only 7 kg per capita per year contributing to 27 % of total animal protein consumption. The sector contributes about 2.9 % of GDP with production levels in 2007 of around 330,000 t, of which some 85 % comes from the greater lakes. Lake and inshore marine fisheries are only carried out by artisanal fishermen using small seven to ten metre boats, some have outboard engines. A survey from 2006 indicates that for fresh waters alone approximately 40,000 boats, dhows and canoes are used in fishing.

Total fisheries production by species group is provided in Table 4.1 below, emphasising the strong dominance of freshwater fisheries, and an apparent decline of harvested aquatic plants (e.g. seaweeds)

Table 4.1: Capture fisheries production (Tanzania)

Species	2000	2001	2002	2003	2004	2005	2006	2007
Aquatic animals	372	340	65	75	10	14	<0.5	<0.5
Aquatic plants	5,000	5,000	4,500	2,500	240	52	278	214
Crustaceans	2,100	2,000	2,000	1,700	1,300	1,800	1,800	1,656
Freshwater fishes	271,000	283,354	273,856	301,855	312,040	320,566	292,519	284,346
Marine fishes	46,828	49,945	46,810	45,795	47,560	52,614	39,167	41,933
Miscell aquat anim	250	437	325	896	317	300	277	270
Molluscs	600	650	800	1,700	1,600	1,334	703	882
Aq mammal	-	50	14	33	12	-	-	-
TOTAL	326,150	341,726	328,356	354,521	363,067	376,680	334,744	329,301

Source: FAO Fishstat 2009 - tonnes

Table 4.2 outlines the potential yield from natural waters, the total estimated at 730,000 t divided by main water bodies. This shows the great dominance of freshwater production, accounting for some 86 % of output, about half of which is from Lake Tanganyika.

Table 4.2: Potential fisheries yield (Tanzania)

Water Body	Tonne	Percentage of total
Lake Victoria	200 000	27.4
Lake Tanganyika	300 000	41.1
Lake Nyasa (= Malawi)	100 000	13.7
Other lakes, dams and reservoirs	30 000	4.1
Territorial marine waters	100 000	13.7
Total	730 000	100.0

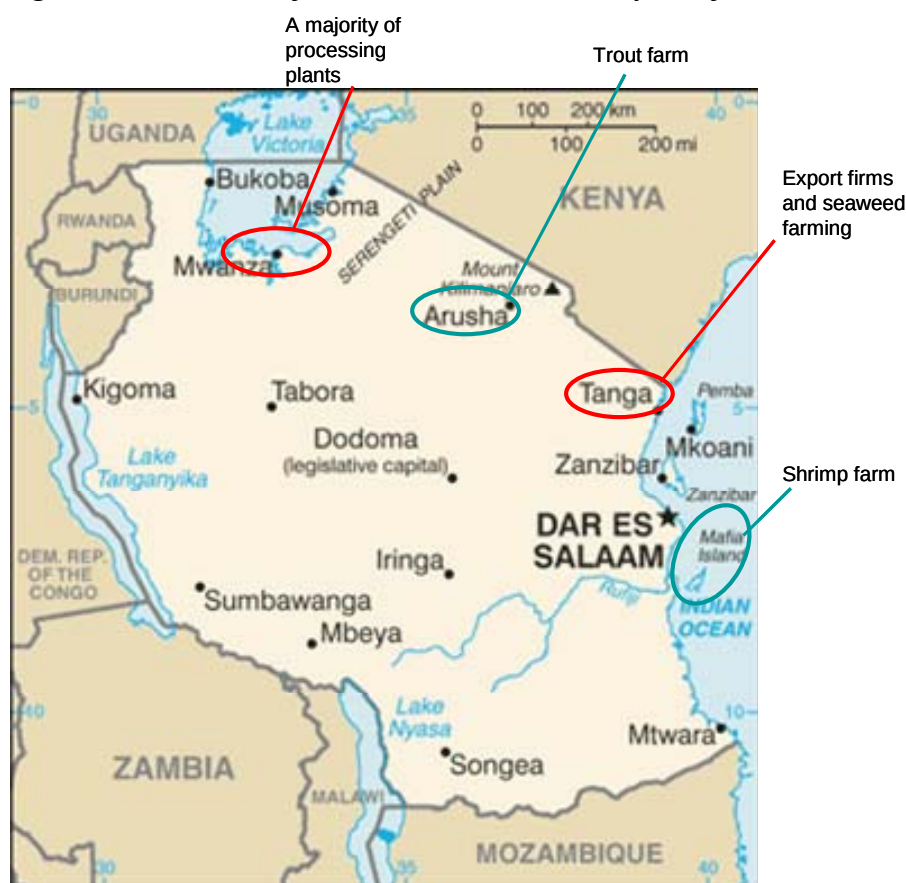
The main processing activity is located in and around Mwanza, by Lake Victoria and processes and exports Nile Perch. The sector produces up to 50,000 t of fillets annually, although this has fallen. Exports were worth USD 189 million in 2006. In 2006 the price paid by the processors rose by 60 % to USD 2/kg reflecting a fall in supply of Nile Perch, associated with heavy fishing pressure. The proportion of Nile perch in the total biomass of the lake fell from 90 % to under 50 % between 1980 and 2005. Its

decreasing stock has forced a number of processors to close down and the majority now operate well below capacity.

The aquaculture potential in the country is yet to be exploited on a large scale. It is currently dominated by small scale farming systems that tend to be unproductive and not very profitable due to problems of inputs, technical knowledge and management. It is estimated that there are 14,100 fresh water fishponds in the country. Larger activities include a rainbow trout farm in Arusha and a shrimp farm on Mafia Island. In 2004, yearly production of fresh water tilapia was estimated at 1,522 t, valued at USD 1.3 million and with a trout production of 7 t worth USD 18,000 (FAO/NASO, 2009)²¹. In addition to fish, seaweed production has also increased in recent years and produces approximately 1,500 t of dry seaweed for exports, worth USD 200,000. The total aquaculture production currently only constitutes 0.44 % of average total fish landings and its contribution to national food security and economic development is rather insignificant.

Figure 4.1 gives an indicative illustration of the location of main activities within capture fisheries and aquaculture.

Figure 4.1: Location of main activities within capture fisheries and aquaculture (Tanzania)



4.2.1 Strategic and developmental settings

Organisational and policy features

Previously the Department of Fisheries was under the Ministry of Natural Resources and Tourism. After a reshuffle of Government earlier this year and as the President is putting a higher priority on the fishing sector, the Department of Fisheries was moved to the Ministry of Livestock Development and Fisheries (MLDF), to make it more visible. Under the Department of Fisheries, two major Directorates are

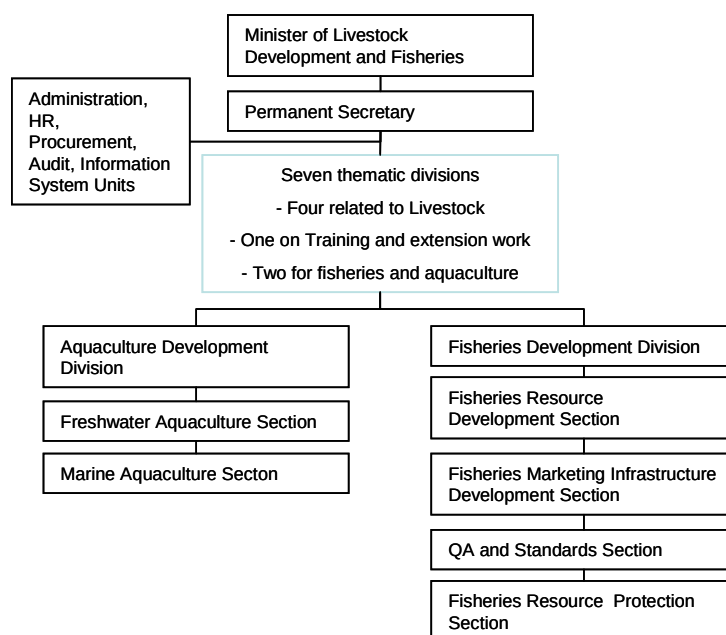
²¹ http://www.fao.org/fishery/countrysector/naso_tanzania

established, one for Fisheries and one for Aquaculture. Current organisational structure is set out in (Figure 4.2).

A Deep Sea Fisheries Authority (DSFA) will be a jointly established authority between mainland Tanzania and Zanzibar with mandate to manage and control deep sea fishing in the Exclusive Economic Zones (EEZ). It is being set up through the World Bank funded Marine and Coastal Environmental Management Project (MACEMP).

The National Environmental Management Council (NEMC) is the responsible agency in terms of Environmental Impact Assessment (EIA), for which they have issued guidelines.

Figure 4.2: Organisational Structure (Tanzania)



The Department of Fisheries (Tanzania) has identified commercialisation of aquaculture as a priority consistent with economic liberalisation goals, overexploited capture fisheries and a growing population. To this end a Strategy for Aquaculture has been drafted and submitted for approval. It is expected to be an official document by the end of December 2008. However, the team was not able to receive a copy of it by the time of submitting this report.

The National Sector Policy was published in 1997 but it is currently under revision, which is expected to be approved by April/May 2009. The overall goal of the policy from 1997 was “to promote conservation, development and sustainable management of Fisheries Resources for the benefit of present and future generations”. Table 4.3 summarises key elements in the legislative and regulatory framework.

Table 4.3: Summary of legislative and regulatory framework (Tanzania)

Act/Policy/Strategy/Plan	Key issues and objectives
Fisheries Act 2003	Regulates fishing and fishing industry and aquaculture development in Tanzania. Regulates licensing, inspections, stock assessment, movement of species and fingerlings, foreign vessels operations, sanitary and hygiene standards.
Land Act 1999	All land is publicly owned. Private ownership of land not possible. Non-citizens of Tanzania can only obtain right of occupancy for purpose of investment described in Tanzania Investment Act 1997 Occupancy right are granted for 33, 66 or maximum 99 years.
Deep Sea Fishing Authorities Act 1998	Outlines that DSFA have the authority to control and regulate fishing in EEZ of mainland Tanzania and Zanzibar. DSFA have the authority to draft fisheries policies,

Act/Policy/Strategy/Plan	Key issues and objectives
	coordinate research, enforce fisheries rules related to EEZ, and issues licenses.
Territorial Sea and Exclusive Economic Zone Act 1989	Set outs the regulations of EEZ for the United Republic (Mainland and Zanzibar)
Principal Fisheries Regulation (first edition in 1989, reviewed 2005)	Regulates registration of fishing vessels, licensing of fishing vessel, fishermen and dealers; regulate restrictions and exemptions; outlines offences and penalties as well s trade and the introduction of non-indigenous species, entry of foreign vessels in territorial waters.

Development assistance

The World Bank has been active in the sector for several years with MACEMP, the Marine and Coastal Environmental Management Programme. The programme aims at improving sustainable management and the use of the EEZ, territorial seas and coastal resources. The four objectives of the project are:

1. to establish and implement a common governance regime across Tanzania and Zanzibar for the EEZ, i.e. the DSFA
2. to establish and support systems for managing the marine areas in the Territorial Seas, building on Integrated Coastal Management (ICM) strategies;
3. to empower coastal communities to access opportunities
4. to provide efficient project implementation services.

From 2003 through 2005, USAID supported the Smallholder Empowerment and Economic Growth through Agribusiness and Association Development project (SEEGAAD). The second phase of this programme is called Sustainable Environmental Management through Mariculture Activities (SEMMA) and it is coordinated and implemented by ACDI/VOCA. ACDI/VOCA is a US based private NGO that aims to *'promote economic opportunities for cooperatives, enterprises and communities through the innovative application of sound business practice'*. The project is reported to be successful and has supported a community to establish an Association in order to access loans to be better able to purchase their own farming inputs and gain better negotiation status towards the monopolistic buyers. Currently the Association has negotiated a one year contract with one of the buyer, at a fixed price, in order to secure a buyer for their products.

Other, e.g. cross-sectoral developments

A range of other development programmes have been active in Tanzania, many of which address fundamental issues in health, education, security, and governance, together with infrastructure development. Support has also been given to supporting economic reforms and the rationalisation and modernisation of the public sector and its support and service functions. Through the Joint Assistance Strategy for Tanzania (JAST), in Kiswahili 'Mkakati wa Pamoja wa Misaada Tanzania' (MPAMITA), a national medium-term framework for managing development co-operation has been established between the Government of the United Republic of Tanzania and development partners to achieve national development and poverty reduction goals. The generally improved political stability and the broad process of economic development and growth has impacted on the fishery sector, increasing demand and markets for fish and fishery products, and generally improving the prospects for value addition and trade. Development support for co-operatives, and for community based natural resource management is also important and will have impact on the ways in which some aspects of fisheries and aquaculture will be developed. In the longer term, another interacting issue may be that of agricultural production and the potential supply of raw materials for fish feed, though at this stage aquaculture sector development is insufficient.

4.2.2 Private sector developments

Introduction

The major part of the private sector function in fisheries is associated with fish capture in Lake Victoria, by Mwanza as well as along the costal line. All of the capture fishery can be characterised by artisanal methods however a few fishermen might have adopted more advances boats and gear. The Nile Perch fishery supports the only commercialised activities, in the post harvest supply of fresh and frozen fillets to international markets, while most other post-harvest activities – boiling, salting, drying, smoking, are also artisanal. All these activities are seasonally influenced, both in terms of catches and in artisanal processing options. Output from the sector has varied widely, and until recently, when Beach Management Units came more widely into use and legally enforced, much of landing and domestic or regional trade was under-recorded. The aquaculture sector is small, small-scale inland pond farming with poor or variable inputs and limited profitability. One larger shrimp farm is in operation as well as a trout farm and a hatchery.

The major challenge, recognised in broad terms by the Govt of Tanzania, is to manage the fisheries resources more effectively, and develop value, while retaining sufficient levels of the social and economic benefit accruing to the many dependents on the sector, many of whom have low income levels and are subject to multiple causes of vulnerability. The development of aquaculture is seen as having a major role in this; however, the country is still in early phases of the learning curve in terms of larger scale aquaculture activities.

There have been very few comprehensive assessments of the profitability of various subsectors, though reviews have been carried out on costs and earnings in parts of the fishery sector, and of yields and profitability of aquaculture, particularly at small pond-based levels, such as the 2006 assessment in Table 4.4, which compared two forms of production, with single sex male tilapia, or mixed sex tilapia, optionally with catfish. This is based on very limited data, and profitability would vary significantly with yields but it provides indicative price and cost levels. The conclusions of the financial analysis based on this suggested that mixed-sex tilapia culture without predation was not viable while the hand-sexed all-male tilapia system would be. The article further argues that more detailed studies on optimal pond size, availability of feed and the fingerling supply chain is needed to improve the sustainability of tilapia production and improve the returns.

Table 4.4: Indicative pond farming cost (Tanzania)

Variable	Element	Unit	Values
<i>Pond characteristics</i>			
Pond area		m2	150; 300
Weight of stocking	Tilapia	g	20
	Catfish	g	30
Density stocked	Tilapia	no/m2	2
	Catfish	no/m2	0.2
<i>Financial variables</i>			
Fixed costs	Land	USD/ha	167
	Pond construction	USD/300m2	1,633
	Equipment	USD/ha	82
	Maintenance/ depreciation	10 %	171

Variable	Element	Unit	Values
	Interest on capital	8 %	137
Variable costs			
Labour		People/ha/yr	0.05
		Cost per day	1.31
Nutrients	Manure	USD/kg	0.05
	Maize bran	USD/kg	0.054
Returns	Price at farm level		
	Tilapia fingerlings	USD each	0.053
	Small tilapia	USD/kg	0.99
	Medium tilapia	USD/kg	1.24
	Large tilapia	USD/kg	1.57
	Catfish	USD/kg	1.03

Source: Kaliba et al, 2006, J World Aquaculture Soc, Vol 37 No 4.

In coastal areas, some analysis has been done of artisanal seaweed culture and post-harvest drying, demonstrating that the techniques were broadly viable, with reasonable yields and sufficiently reliable drying performance but that profitability depended highly on the market prices offered at community level, which were in turn strongly driven by world prices in a highly controlled oligopoly of major processors.

Profitability in the processing sector depends substantially on raw material availability, which for both Nile Perch supplies and marine catches, is very seasonal and has often been diminishing and very seasonal.

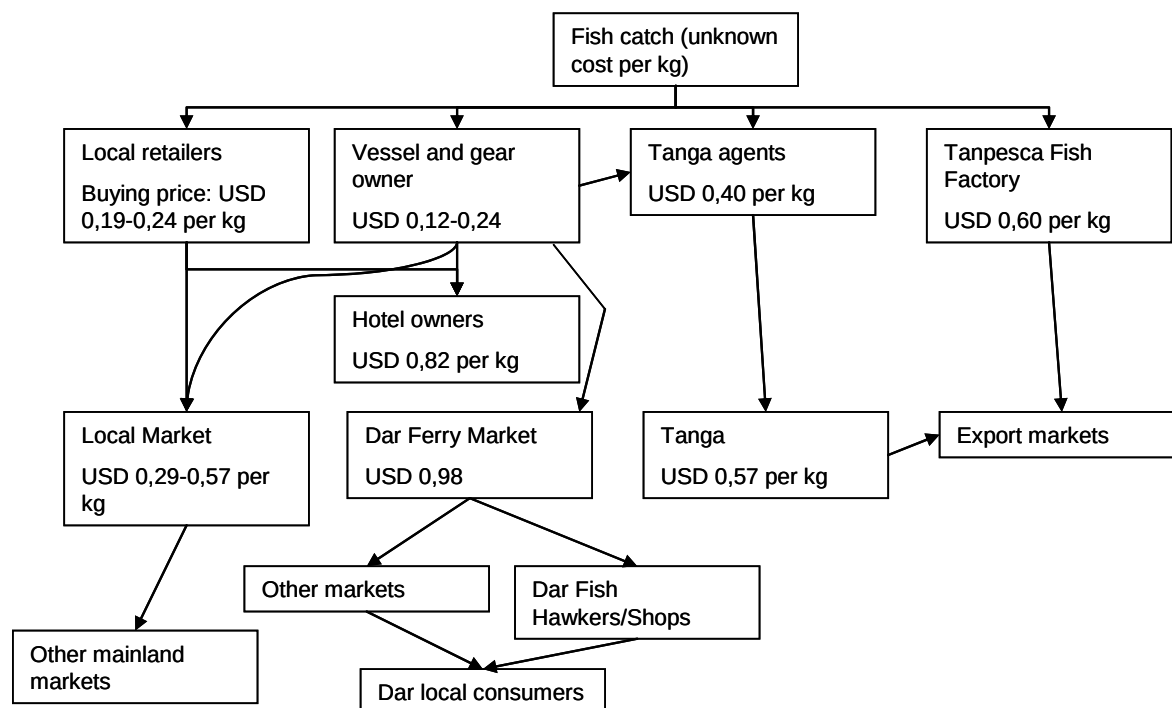
Markets

The domestic market for fisheries products is below the global average in term of yearly consumption at only 7 kg per capita per year. With a population of 40.2 million this results in a potential domestic market of 281,400 t annually. By applying a conservative estimate of the global average of 10 kg/capita/year on the potential East African Market with a population of close to 110 million, this would result in a market size of 1 million t. In addition, Tanzania is a member of SADC with a market of 215 million people.

A study funded by the EU Commission compiled a value chain for finfish trade at Mafia Island as illustrated in Figure 4.3²². This can provide an indicative illustration of the trade chain.

²² Bryceson et al, 2006, "Fisheries Study in Tanzanian Coastal Waters: the effects of trial exports from Mafia Island on ecological-social resilience and vulnerability

Figure 4.3: Value chain for fin fish (Tanzania)



In terms of the aquaculture sector, not much information was available as this sector is in a very nascent stage. It is however clear that the lack of domestic supply of fish feed and seed would imply higher importation costs or a larger operation as it would include in-house fish feed production and hatchery.

The capture fishery sector

As noted above, the capture fisheries sector is characterised by artisanal fishermen. A study by the EU commission compiled the following weekly average catch and price estimates as received by the artisanal fishing sector (Table 4.5).

Table 4.5: Artisanal catches and prices, weekly catch (Tanzania)

	Parrotfish	Grouper	Emperor
Catch (kg)	24	31	74
Sold (kg)	21	27	70
Price per kg (USD)	0.51	0.60	0.63

The same study found that fish at landing sites on average varies between USD 0.24-0.50 per kg. At the Dar es Salaam fish market, prices vary between USD 0.50-3.30 per kg.

Previously, a small shrimp trawling fleet operated the marine waters but due to the shrinking stock, the shrimp industry demanded that a ban on fishing for shrimp would be enforced in order to restore the stock levels. This ban is currently active and no date has been set for the lifting of the ban. Overall, the opinion on the exploitation status of the nation's lake and marine fisheries is divided but the statistics clearly show a decline in catch from Lake Victoria and the marine waters. No industrial fishing vessels operate in the waters, mainly due to the lack of landing sites for larger catches. The sector is dominated by small scale artisanal fishermen who sell their catch to either the local market or to the processing firms along the coast or by the major lakes.

Aquaculture

According to FAO, the sector is dominated numerically by small-scale production, with an estimated 14,100 freshwater tilapia ponds scattered across the mainland of Tanzania, usually very small sizes, sometimes integrated with other farm production. Most farmers own small ponds of an average size of 150 m², covering an estimated 221.5 ha. Four regions have more than 1,000 fish ponds each; Ruvuma (4,942), Iringa (3,137), Mbeya (1,176) and Kilimanjaro (1,660). In recent years seaweed farming has become popular in coastal zones, some of which are run specifically by groups of women and youth. These extend from Tanga in the north to Mtwara in the south, and the islands of Mafia and Zanzibar. It has become a major cash crop in Tanga and Zanzibar, producing enough income to cover household costs. Species farmed are *Kappaphycus cottonii*, thought to be indigenous, and *Eucheuma spinosum*, originally imported from the Philippines. There is also interest in and potential for farming of other species such as *Gracilaria*. Total production is summarised in Table 4.6, showing a rather strong decline in most groups, particularly the seaweeds.

Table 4.6: Aquaculture production (Tanzania)

Species	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Eucheuma seaweeds	5,000	7,000	7,000	7,000	7,000	7,000	6,000	6,000	320	400
Nile tilapia	200	200	210	300	630	2	4	4	4	4
Rainbow trout	.	.	.	.	.	.	7	6	6	6
TOTAL	5,200	7,200	7,210	7,300	7,630	7,002	6,011	6,010	330	410

Source: FAO Fishstat 2009 - tonnes

Tanzania had been considered for some time as having good potential for coastal shrimp aquaculture, and in 1996 a UNECA (UN Economic Commission for Africa) funded survey suggested suitable sites along the entire coast, with a total area of 3,000 ha capable of producing some 11,350 t. However, a major shrimp investment proposal for the Rufiji Delta caused huge political problems, with international outcry about environmental and social damage, and the apparent lack of potential supervisory responsibility. After high level legal challenges and political debate, the project was turned down, and has since made shrimp aquaculture an extremely sensitive topic, even for carefully designed low-impact approaches. The only shrimp activity of any size, Tanpesca, is situated at Mafia Island. This includes a hatchery and on-growing unit as well as a processing plant. Tanpesca belongs to the Alpha Krust Group, part of the regional Indian East African Alpha group. The farm is reported not to be producing the intended output, the likely causes being one or more of: 1) the hatchery not producing as planned; 2) diseases and/or 3) poor market price.

At a smaller scale, Prawnto Ltd is a shrimp farming business development company established in 2003. Its founder built on experience from the development of small farmer mariculture networks in Bangladesh under a USAID programme and from commercial farms in South America, Asia and the Middle East. The business strategy is to export high quality prawns to the international market by facilitating development of a network of small farmers. Prawnto is encouraging micro, small, and medium sized aquaculture ventures throughout coastal Tanzania by providing the necessary inputs, services, and training to facilitate efficient and profitable operation. The company has established a pilot hatchery at the Mbegani Fisheries Development Centre with a design capacity of 20 million PLs per year. Prawnto has built its first demonstration farm in Tanga and procured 100 ha of land for expansion in Pangani and Tanga districts. The main bottleneck is lack of investment capital and operating capital to initiate the first round of program expansion while the key strengths of the operations, as argued by the Managing Director, are that they have:

1. A strong technical team with experience working with challenges facing small farmer;
2. Received the government's blessing to develop the small farmers network;

3. Received environmental clearance which in Tanzania is quite a challenge; and
4. Been in contact with many small farmer groups who have shown great interest in participating in the project.

Ngare Seru Mountain Lodge started a Trout Farm in 1979 near Arusha, with ten raceways of 27 x 2m including a hatchery and fry production area. The production is currently at 7.5 t per annum, about to rise to 9 t, and then to 12 t in two years time, with a longer term target of 30 t. They manufacture their own air dried pellet feed. Their product is marketed as whole fish gilled and gutted deep frozen, Fresh Fillets deep frozen, smoked whole fish and fillets chilled as well as pate. They have a brine freezer and a deep freeze, a smoker for cold smoking, vacuum packer and a tub filler for the pate. Ngare Seru has also studied potential for tilapia farming in the area over several years. They argue that with the newly developed international market for fresh water fish, the time would ripe to enter into this venture. In addition in the 1980's they did a major study on a prawn farm on the coast near Bagamoyo partly financed by the European Development Bank. However, the project was never taken to the next level but they did carry out preliminary design for the farm.

The US based NGO Agricultural Cooperative Development International/ Volunteers in Overseas Cooperative Assistance (ACDI/VOCA) has entered a type of Public Private Partnership with a coastal community in Tanga. The community has formed an association in order to access commercial loans in order to develop their seaweed farming activities.

Processing

For processing plants, the majority are situated in the Lake Victoria Region. However, it was not possible to meet with all of them during the week of the in-depth study. The team did however meet with the Tanzania Industrial Fishing and Processors Association (TIFPA) the processors member organisation. The view of the Executive Secretary of TIFPA is that management of the stock in the lake is a challenge since the Lake is a common resource between several countries. However, TIFPA in coordination with the Ugandan and Kenyan counterparts have recently set up a self monitoring regime to assure minimum sizes are followed.

There are twelve currently established processing plants in Mwanza by Lake Victoria for Nile Perch filleting for export. The majority are foreign owned, belonging to the same parent company. Most are running on 40-50 % capacity due to the decreasing stock.

In the coastal area, three main companies operate, Sea Products Ltd, Alpha Krust and Bahari Foods, of which Alpha Krust is the biggest. It also owns two processing plants by Lake Victoria as well as the country's only larger aquaculture investment, the shrimp farm at Mafia Island.

The Alpha group is the largest fishery business in Tanzania and has operated in Sub-Saharan Africa and the Gulf Countries for 50 years. It is well established in Kenya and Uganda, is well placed in the regional market and is likely to be a strong competitor. Their products are marketed and distributed in the Middle East, Europe, America, Singapore and Hong Kong. The group employs over 6,000 people in total with an annual turnover of USD 150 million. In Tanzania, its filleting capacity is 15,000 t per annum with a plant approved for export to EU, and all processing carried out to HACCP standards. The processing plant also has its own generator due to the unreliable electricity supply. The company has 25 approved fish suppliers that deals with over 5,000 artisanal fishermen. To support the artisanal fishermen (and presumably to help secure supplies through formal contract or informal; obligation), the company was reported to be investing USD 1 million yearly in fishing gear.²³

²³ www.alphaafrica.com

Table 4.7 summarises recent trends in product output, representing some 30% of total production in gross terms, with a substantial output of traditional dried, salted or smoked product as well as the Nile Perch production, the largest part of the fresh, chilled or frozen fish category.

Table 4.7: Fisheries commodities production (Tanzania)

Commodity	2000	2001	2002	2003	2004	2005	2006
Crustaceans and molluscs	1,926	1,629	2,774	3,769	3,127	3,070	1,912
Fish, dried, salted, or smoked	60,000	66,800	67,500	67,358	66,393	66,000	65,700
Fish, fresh, chilled or frozen	30,831	33,456	26,294	33,367	30,448	30,160	23,508
TOTAL	92,757	101,885	96,568	104,494	99,968	99,230	91,120

Source: FAO Fishstat 2009 - tonnes

Service and support

Service and support functions for the fisheries supply and value chain are not well developed and many of these are done directly – e.g. exporters may commonly cover the complete marketing chain, from direct purchase of fish from the artisanal fishermen, transportation, ice supply, to the export market. Things are broadly similar for the aquaculture sector, where the supply chain is not yet developed, and intending aquaculture producers need vertically integrated operations covering fish feed production, hatchery and grow out facilities. Some public sector support is available, e.g. through the Tanzania Fisheries Research Institute (TAFIMA) which has overall responsibility for all the research on fisheries, and the Faculty of Aquatic Sciences and Technology (FAST) at the University of Dar es Salaam and the Sokoine University of Agriculture (SUA) both of which carry out research and training on fisheries. The Mbegani Fisheries Development Centre and the Nyegezi Fisheries Institute are also involved in training, and Mbegani have also provided inputs such as fingerlings.

In terms of equipment and gear, a few vessel manufacturing and repair companies exist in Dar es Salaam but there is no equivalent sector for aquaculture and cage farming. For artisanal fishing and aquaculture, much of this function – construction and repair - is taken up locally by producers themselves.

4.2.3 Recent actions and trends

Fisheries and aquaculture issues

The Department of Fisheries promotes and supports Collaborative Community Management programmes with the aim to create greater sense of ownership of the resource and hence better management. It is the belief that communities are strong enough to manage and enforce the management regulations. However, cases of violence have been reported, which could suggest that further oversight may be needed to make sure that human rights are not violated. Landing sites at Lake Victoria are owned and managed through Beach Management Units (BMUs).

Prawn fishing has been stopped due to decreasing stock; the ban has no formalized end date. New regulations to avoid overfishing are to be put in place before fishing can start again. A stock assessment is being undertaken whose results will guide when and how the ban will be lifted. Currently, a quota system is not envisaged but cannot be ruled out as an option. The aim is also to develop a prawn fishery Management Plan, but its time frame is as yet uncertain and it may be a long term activity.

The issue of fishing for export versus fishing for domestic use to secure food supply is regulated by the fact that only certain species can be exported. Following discussions with stakeholders, no one raised concerns that this regime could change suddenly, as has been done in Mauritania, where all exports were banned and processors forced to close business. For example, tilapia is not allowed to be exported if

fished, but can be if produced in a pond. However, there do not seem to be any legal means to outline how this difference of origin will be controlled.

In terms of the EEZ, the DSFA is to facilitate management and control of deep sea fisheries. A monitoring and surveillance programme was initiated with EU funding, jointly with the Zanzibar government. This programme involved the army, navy and other related stakeholders in order to effectively undertake surveillance of the stock and activities in the EEZ. This programme has come to an end and has not effectively continued, but this is to be taken up when the DSFA is up and running.

The management of Nile Perch is also enforced by the TIFPA, in coordination with the Uganda and Kenyan counterparts, who has introduced a self-regulation regime and set up a monitoring team to the size of landed fish. The self-regulation regime started with a minimum size of 40 cm with a small proportion allowed to be smaller. Minimum size was just recently increased to 50 cm which will reduce material inputs, but improve the likelihood of stock recovery. If the TIFPA monitoring team records a too large percentage of small fish, they report to the Government who will then fine those responsible and in some case ban from trading. So far, three processors have been fined, one twice and banned for as long as one months. With a production of approximately 40-50 t per day, such losses should be a strong incentive for better compliance.

Infrastructure

In terms of infrastructure, Tanzania has 78,891 km of road network, of which only 4.2 % was paved in 1995. The mainland has two International airports: Dar es Salaam International Airport and Kilimanjaro International Airport while Zanzibar has one that accommodates flights from Tanzania and Kenya. Other airports in Arusha and Mwanza also have regional connections. As an estimate of regional costs, air freight transport costs from Mombasa to Europe are quoted to be USD 1.40 per kg of fish.

Currently, no harbour has full facilities to receive larger fishing vessels to land deep sea catch. Though several ports are deep enough, cold storage and other facilities are not in place. According to the Department of Fisheries, there are plans to develop the ports in Mtwara, Dar es Salaam, Tanga and Zanzibar but this could not be confirmed with the Ports Authority. To fully benefit from the country's EEZ resources, a fully operational port with landing, ice and post-harvest facilities, as well as a dry and one wet dock, would be needed. Currently in some cases, fleets may find it simpler to land at or tranship to other regional ports such as Mombasa.

The telecom network is now relatively well developed, particularly with approx 6.72 million cell phones in use, approximately 16 % of the population. Total installed capacity in the Tanzania power system is 863 MW while the grid coverage is poor with not more than 1 % of the rural population connected. The system is mainly based on hydropower but due to shortfalls in rain, the government has lately started to seek other alternatives such as coal and they have also installed a number of emergency generators.

4.2.4 Overview of sector business health

Overall, the commercial aspect of the sector is characterized by artisanal fishermen channelling their catch to a number of processing firms, a majority which is owned by a few companies. The outlook for expansion on this basis looks poor unless strict management rules are enforced to control the stock in the lake and in the inshore marine waters. Currently, market and supply chains suffer from a lack of capacity and there is the dilemma that no one strives to invest unless the necessary infrastructure is put in place, while no one finds it profitable to invest in the necessary infrastructure and services unless there are buyers. Hence, at this stage, significant development is likely to require a long term perspective, in most cases building up from small scale businesses growing into larger establishments rather than larger establishment investing from scratch.

For aquaculture, a number of initiatives are ongoing, mostly of small scale and/or still in planning stage. Due to the reduced stocks of Nile Perch in Lake Victoria, the excess processing capacity and other infrastructure, there is likely to be an increased interest in the development of cage farming in the lake, but no specific initiatives had been described by informants. Until very recently Tanzania had been reluctant to allow the legal changes required to permit this use of Lake Victoria, but as of late 2008, through the tripartite Lake Victoria Fisheries Organisation (LVFO), this had been approved. The potential for coastal aquaculture is variable; while larger scale ventures for shrimp culture might have difficulty obtaining environmental approvals, operations linking shrimp, fish, seaweed and other production with community development and management could have scope to develop.

Shortly before the field visit, the Department of Fisheries was moved into the Ministry of Livestock Development and Fisheries after having a rather hidden role within the Ministry of Natural Resources and Tourism. This could potentially create a boost to the sector, specifically through the development of a new aquaculture strategy.

Several of the current establishments, both within processing and within aquaculture, are driven by the pro-active and entrepreneurial approach of one single person. As far as the team was informed, only the operations of Alpha Krust and Tilley are backed up by larger regional and/or international companies. Hence, the operations are of small scale and dependent on the engagement of a few individual. For the sectors to take off and develop its maximum potential, backing up by larger companies with access to capital will be necessary in the long run. For an investor with a long term target to establish operations in the African market, Tanzania could be a potential starting point as competition is not yet too strong and the regional market potential promising.

4.3 Conditions and mechanisms for investment

4.3.1 Introduction

This section aims to provide an overview of the investment climate, the different incentives and guarantees available for Norwegian investors as well as an indicative guide to the necessary steps to be taken to establish an operation in Tanzania. It is estimated that for 2008, Tanzania had a GDP growth of 7.1 % and an inflation rate of 9.3 %. The overall ranking of Tanzania in key International reports was discussed in the Phase I report (see summary in Table 4.8). The aim in this country report is to complement these with observations from the field.

Table 4.8: Summary of rankings (Tanzania)

Institute/Study	Rank
Transparency International	94 (180)
Doing Business 2009	127 (181) 146 adjusted
OECD	Category 6 (credit rating B to B-)

Over the years that the World Bank Doing Business Reports have been carried out, Tanzania has showed a minimal improvement in number of procedures and days for starting a business but the ranking of the country among the sample for the indicator 'starting a business', has worsened, from the rank 97 in 2008 to 109 in 2009, indicating that the situation has worsened relative to other countries even if it improved in absolute terms.

4.3.2 Investment climate

Investment promotion and support

To facilitate investments, a number of institutions exist to assist investors. Tanzania Investment Centre (TIC) was established in 1997 following the enactment of the Tanzania Investment Act of 1997. TIC is a one-stop-shop for investors and facilitates the necessary procedures for project start-up and to answer inquiries and questions from investors. More details on their services are outline below.

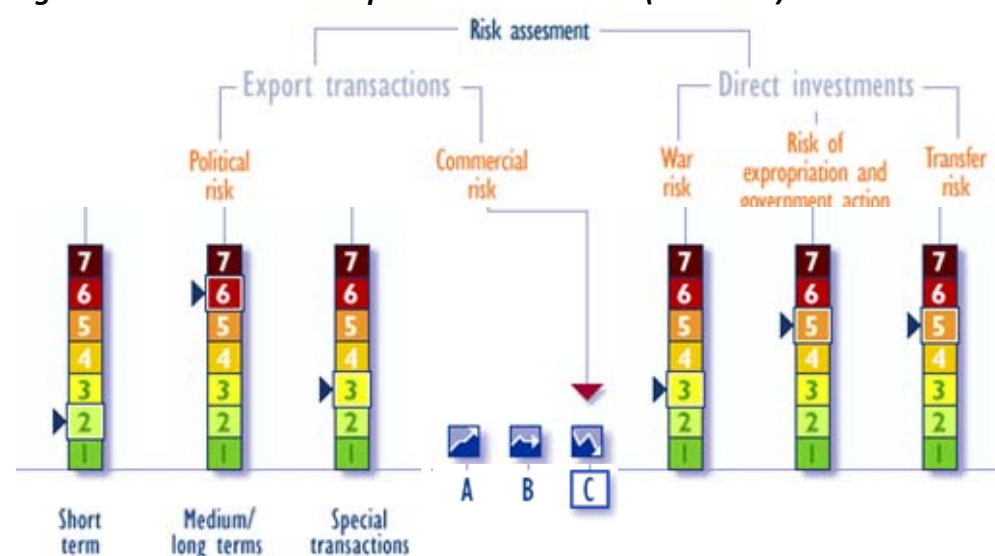
Since the mid 1990, Tanzania has initiated a number of reforms to improve the business environment. One such donor funded programme was launched in 2003, the Business Environment Strengthening for Tanzania, BEST.²⁴ The aim of the programme is to reduce the administrative and regulatory burden of doing business in Tanzania. Specific areas under the programme include business licensing, land regulations and labour laws reforms. A new Business Registration Act was approved in 2007 while the phase II of the review of the labour law is in an advanced stage. Overall, the BEST project is actively working to “sustainably enhance the quality and effectiveness of Tanzanian private sector advocacy for an improved investment climate” and the BEST team has an office in Dar es Salaam.

The mission of the Tanzania Chamber of Commerce, Industry and Agriculture (TCCIA) is “to strengthen the private sector in Tanzania by promoting and assisting businessmen and businesswomen in their efforts to succeed”. TCCIA wishes to represent the business and lobby for a “good and ideal” business climate in the country.²⁵ The Tanzania National Business Council (TNBC) was established in 2001 and is a “forum for public-private sector dialogue with a view to reaching consensus and mutual understanding on strategic issues relating to efficient management of resources in the promotion of social economic development in Tanzania”. TNBC has regional business councils to support private sector development throughout the nation and, at national level, facilitates Investors Round Table to debate the investment environment in Tanzania with both local and foreign investors.²⁶

Constraints and risks

The Belgian ONDD²⁷ rates Tanzania 2-6 on their scale of political risk, while risk of expropriation related to direct investments scores 5. The commercial risks are rated C which is equal to high risks. Figure 4.4 summarises these.

Figure 4.4: Business and export risk assessment (Tanzania)



²⁴ <http://www.best-ac.org/>

²⁵ www.tccia.co.tz

²⁶ www.tnbctz.com

²⁷ ONDD is the Belgian Export Credit Agency www.ondd.be

The IFC carried out a survey on the investment climate of manufacturing firms in Tanzania in 2003²⁸. The study compared Tanzania with similar indicators in Kenya, Uganda, India and China. It concluded that value added per worker in Tanzania was USD 2028 in 2003 which was higher than in Uganda (USD 960) but much lower than India (USD 3,214), Kenya (USD 3,551) and China (USD 4,397). In terms of human capital availability, this appears to be a serious constraint in Tanzania. Based on their survey, 43 % of the workforce only has primary education compared with 20 % in Kenya and Uganda, who had more people reaching secondary education and above. In terms of health, HIV/Aids is one of the most serious issues in any country heavily affected by the virus but in the IFC sample countries, Tanzanian firms tended to take less pro-active approaches towards its prevention than those in Kenya.

The main barrier to operations and growth stated in the study was tax rates. While the corporate income tax is similar to that of other countries, the VAT is sometimes higher and enterprises may sometimes face a number of additional national and local taxes. Other barriers for conducting business in Tanzania were unreliable power supply; access to finance and high interest rates; unofficial payments to government; and customs and trade regulations. In terms of setting up a business in Tanzania, the following barriers were mentioned in the survey: time to register a company (35 days); cost of process to register (204 percent of per capita GNI); obtaining electricity (30 days to get connected) and a restrictive labour law.

The International Chamber of Commerce (ICC), in collaboration with UNCTAD, has also published an Investment Guide to Tanzania which outlines details on operating environment, areas of opportunities and regulatory frameworks in place²⁹. It argues that the main weakness with the investment climate in Tanzania is the low human resource base and the inadequacy of infrastructure. In addition, the study conducted consultations with a number of private sector actors that highlighted that the main benefits with Tanzania was the politically stable environment, the abundance of natural resources, the ease of communicating with government, and the size of market. Things that needed improvements include investments in labour skills, infrastructure, bureaucracy and corruption. A majority of the consulted business highlighted that major improvement had been done to the business climate during the last couple of years.

In addition, the ownership of land is regulated by the Land Act 1999 which stipulates that foreign companies cannot own land. However, investors can apply for a lease contract for 33, 66 or 99 years. This process can be facilitated by the TIC. From discussions with investors, land certificates can be a cumbersome issue and delay investments.

The level of corruption is decreasing according to some sources, especially following the establishment of the Anti-Corruption Commission at both national and regional levels. However, this is also very individual and varies from sector to sector and depending on which level of society one is operating in.

Other factors

Though a number of reports above state that access to finance is a constraint, several foreign banks are established in Tanzania, such as Barclays, Citibank and Standard Chartered. Individual views on the investment climate range from the feeling that it is easier for foreign companies to establish business in Tanzania than it is for Tanzanian companies, to experience that three years after an investor submitted an application for a land lease, with no apparent problems, the confirmation letter was yet to arrive. Hence, individual experience is scattered. To know the right people within the sector is certainly a benefit, though is normal in any country. Overall, the view is that the investment climate is improving at central level while the regulation as local level is still a challenge.

An investment in the country, within the fishing and/or aquaculture will be watched carefully by local and international NGOs. Following other attempts to invest in the sector, for example in a shrimp farm in a

²⁸ IFC, 2003, “Investment Climate Assessment – Improving Enterprise Performance and Growth in Tanzania”

²⁹ ICC/UNCTAD, 2005. “An investment guide to Tanzania, opportunities and conditions”

mangrove area in Rufiji, the country has built capacity as well as community development and this might create a challenge. Hence, a close relationship with NGOs and Community Based Organisation (CBOs) will be an important strategy for any investment in the country. As the Government is also aiming to alleviate poverty through private sector involvement, working with local groups and organisation will likely strengthen the investment proposal. A summary of the key investment legislation is outlined in Table 4.9.

Table 4.9: Summary of investment legislation (Tanzania)

Legal document or other	Key issues
The National Investment (Promotion and Protection) Act, passed in April 1990, has been replaced with the Investment Act of 1997 [Tanzania]	The act outlines key incentives and regulations for investments. More details are outlined below. The Act only applies to investments larger than USD 300,000 for foreign investors and USD 100,000 for domestic investors.
Export Processing Zones Act, 2002	Under this Act, all inputs like raw materials and machinery which are imported and used to process or manufacture goods in the designated areas as EPZ are exempted from import duty and other taxes.
Special Economic Zones (SEZ) Act, 2005	SEZ comprises of specific selected geographical areas where economic activities are being promoted by a set of policy instruments that may not be applicable elsewhere in the country. The focus is on priority sectors whose economic activities have a potential for supporting domestic production and exports development and in areas that provide relative advantages for attracting private investment.

4.3.3 Incentives and guarantees

The easiest way for an investor to establish a business and invest in Tanzania, would be to either go to TIC or through EPZA. This section outlines the incentives and guarantees of importance to an investor in Tanzania. The objective is to provide an overview of opportunities and give details on where to obtain more information.

Incentive regimes

Tanzania Investment Centre

TIC was established to facilitate and undertake the following processes on behalf of investors:

1. Investment Facilitation
2. Tax registration
3. Land Issues
4. Business licensing and registration (with Department of Fisheries and BRELA)
5. Immigration issues and work permits for expats
6. Labour issues
7. After care service

The Investment Act provides for the following fiscal and non-fiscal incentives:

Fiscal Incentives

1. Corporate tax of 30 %
2. Import duty and VAT exemption on project/capital/deemed capital goods
3. Import duty draw back scheme
 - a. Refund of duty charged on imported goods used for producing goods for exports as well as for goods sold to foreign institutions such as UN and its agencies in Tanzania

Non-Fiscal Incentives

1. Immigration quota for up to 5 expatriates
2. Guaranteed transfer of:
 - a. Net profits or dividends of the investment
 - b. Payment in respect of foreign loans
 - c. Remittance of proceeds net of all taxes and other obligations
 - d. Royalties fees and other charges

In addition, for projects over USD 20 million that also offer specific impact for the society and/or the economy, the investor can request for special incentives from the government.

Export Processing Zones (EPZ)

The Export Processing Zones Authority was established following the enactment of the Act in 2002. The EPZ incentive scheme only applies to investment where more than 80 % of the production is going for export and it only targets the manufacturing and processing industry. All inputs imported for the use in manufacturing and processing in the designated EPZ areas are exempted from import duty and other taxes.

Special Economic Zones (SEZ)

Unlike the Export Processing Zones (EPZs) in which investors are legally required to produce exclusively for exports, firms and investors engaged in the SEZs have the option of venturing both domestic and export markets. Under the SEZs, substantial amount of the products are allowed in the local market provided they are subjected to due taxes differentiating the industrial zones from the EPZs. Economic activities under the Benjamin William Mkapa Special Economic Zone (SEZ) are not subjected to customs duty, VAT and other taxes payable in respect for goods purchased for use such as raw materials, equipment, machinery including all goods and services.

Zanzibar Investment Promotion Authority (ZIPA)

ZIPA was established following the Zanzibar Investment Code of 2004 and is a one-stop-shop for investors. To be eligible for incentives under ZIPA foreign investment must be above USD 1 million within the fishers sector. The incentives provided are exemptions from imposed duty, exemptions from corporate tax (percentage and number of years will vary with business) and other tax exemptions.

Investment protection and guarantees

Norwegian Investments in Tanzania can be insured or guaranteed under the following facilities:

GIEK is a Norwegian facilitated guarantee to heavily indebted countries (HIPC-countries). GIEK follows OECD's principles which imply that GIEK will not guarantee for transactions that contradict with the recipient country's financial-/social strategy. The policy applies only for projects with direct or indirect government involvement. It involves transactions with public buyers, government owned companies, and transactions where government guarantees from HIPC-countries exist. It does not apply for transactions with private buyers or debtors. Furthermore, GIEK offers a special Developing Country Scheme that guarantees credits and investments in developing countries where the risk is estimated too high for guarantees under the General Guarantee Scheme and certain criteria must be met.

MIGA: Eligible investors for MIGA include nationals of any MIGA member country³⁰, provided they are not nationals of the country where the investment is being made. MIGA insures new cross-border investments originating in any MIGA member country, destined for any developing member country.

³⁰ Norway is a member but not a donor, i.e. Norwegian Investors are eligible under MIGA

New investment contributions associated with the expansion, modernization, or financial restructuring of existing projects are also eligible, as are acquisitions that involve the privatization of state-owned enterprises.

World Bank Guarantee Programme (other than MIGA):

- **Partial Risk Guarantees (PRG):** Cover private lenders against the risk of a public entity failing to perform its obligations related to a private project. Available for countries that are eligible for loans from IBRD.
- **Partial Credit Guarantees (PCG):** Covers private lenders against all risks during a specific period of the financing term of debt for a public investment. Available for countries that are eligible for loans from IBRD. No overlap with MIGA or IFC
- **Policy Based Guarantee (PBG):** Support of development policy operations, cover part of bond/loan repayment against all risks. No overlap with MIGA or IFC. Available for countries that are eligible for loans from IBRD.

IFC can offer long-maturity Risk Management Products (RMP) to clients in their member countries. The risk management products (derivatives) are available for hedging purposes in terms of currency, interest rates and commodity prices and hence enable companies to enhance credit worthiness and improve profitability.

ICSID is an autonomous international institution established under the Conventions on the Settlement of Investments Disputes between States and Nationals of other States (the ICSID convention). The prime objective is to provide facilities for conciliation and arbitration of international investment disputes.

ATIA is the Africa Trade Insurance Agency is an inward investment guarantee as well as an Import and Export Credit Agency and offers the following insurance products:

- Trade Political Risk Insurance
- Comprehensive Trade Political Risk
- Foreign Direct Investment Insurance
- Project Loan Cover
- Mobile Assets Cover
- Unfair Calling of Bonds and Standby Letters of Credit
- Credit Insurance Cover

African Development Bank (AfDB) offers partial credit and partial risk guarantees to all countries eligible for loan under the Bank.

4.3.4 Investing Procedures

The Department of Fisheries will assist an investor with identifying specific investment opportunities. An investor will have to submit a written application regarding the investment to the Permanent Secretary of the Ministry, including a business plan and feasibility studies. The licensee will then be granted by the Department of Fisheries within 14 days of receiving the application, unless objection is raised. In order to access the incentives provided through TIC, an investor is required to submit the following documentation to TIC before receiving the Certificate of Incentives:

1. Three copies of the project business plan/feasibility study
2. Three filled copies of TIC application forms, issued by TIC at a fee of USD 100

3. In case of expansion, or rehabilitation: a copy of audited account for the past three years
4. A copy of the companies Memorandum and Articles of Association
5. A certified copy of the Certificate of Company Incorporation
6. A brief profile of investor(s)
7. Evidence of sufficient finance capital to implement the project
8. Evidence of land ownership for the location of the project
9. Company Board resolution to register the project with TIC
10. Project Implementation Schedule
11. A cover letter

TIC will assist the investor to obtain the above certificates and the investor then has to pay USD 750 for the Certificate of Incentives should the application be approved. In addition, projects are likely to need an Environmental Impact Assessment (EIA) which is overseen by the National Environmental Management Council. TIC will facilitate the permitting and communication with NEMC. If an investor is not passing through the TIC, then, according to the WB report Doing Business in Tanzania 2009, an actor must pass through twelve critical steps/procedures, before being fully operational, these are summarised in Table 4.10.

Table 4.10: Stages in establishing a business (Tanzania)

Step	Action
1	Apply for clearance of the proposed company at the Registrar's Office, BRELA
2	Apply for certificate of incorporation and of commencement to Registrar of Companies
3	Apply for taxpayer identification number (TIN) with the Tanzania Revenue Authority (TRA)
4	Income tax officials inspect the office site for new company
5	Apply for Pay-as-you-earn (PAYE) with the TRA
6	Apply for business licence from the regional trade officer
7	Have the land and town-planning officer inspect the premises and obtain signature
8	Have the health officer inspect the premises and obtain signature
9	Apply for VAT certificate with TRA
10	Receive VAT/stamp duty inspection
11	Register for workmen's compensation insurance at the National Insurance Corporation
12	Obtain registration number at the National Social Security Fund (NSSF)

For Investors establishing a business at Zanzibar and are intending to apply for incentives through ZIPA, the items outlined in Table 4.11 should be submitted to ZIPA

Table 4.11: Application requirements for ZIPA (Zanzibar)

Items	Action
1	10 copies of project profile/business plan
2	CV and three passports photos of all investors

Items	Action
3	Photocopied passport
4	Proof of availability of funds for the project
5	Company registration, memorandum and articles of association
6	Police clearance certificate from the country of origin

4.3.5 Overview of investment climate

The assessment of the investment climate is that overall the situation in Tanzania is improving (Table 4.12). The Government is taking necessary steps to create an enabling environment for investors. In terms of challenges and barriers facing investors in Tanzania it should be highlighted that these are not very different to challenges and barriers existing in other sub-Saharan African countries and hence should not work to the disadvantage to Tanzania.

Table 4.12: Investment climate SWOT analysis (Tanzania)

Strengths	Weaknesses
• Large international community • Access to large regional market as well as EU and US • Investment Centre to facilitate investments • Politically stable	• Lack of infrastructure in terms of landing sites and road network • Low human resource base • Petty corruption
Opportunities	Threats
• Improving social and economic conditions • Large areas of available land for pond farming and water bodies for cage farming • Strong community based organisation for potential CSR programme	• Impact of HIV on workforce • A sense of scepticism towards large private international investments.

4.4 Investment opportunities

4.4.1 Introduction

Tanzania does not yet have a well developed fisheries sector, and the market is still primarily artisanal except the Nile Perch processing industry by the Lake Victoria. So far, with exception of the processing of Nile Perch, very limited investment interest has been shown in the sector from either domestic or external investors. Considering both the broad criteria for investment selection set out in the initial section of the report, and the practical issues emerging from discussions in Tanzania, a number of options could be identified, as noted later, but many of the potential prospects would require long lead-in periods.

Both the Department of Fisheries (Mainland) and Tanzania Investment Centre (TIC) had identified broad areas for potential investments. These are described below after which the consultant team evaluates some potentially realistic options for Norwegian investors.

4.4.2 Predefined suggestions

Tanzania Dept of Fisheries

The Department of Fisheries is currently preparing a Guideline for Investment Opportunities within the fisheries and aquaculture sector. However, the guidebook will be on a general level and no feasibility

studies have been carried out for the opportunities that will be listed in the report. The long term aim by the Department is to prepare more detailed analysis of the different investment opportunities. Currently, discussions with the Department of Fisheries identified the following areas for investments, to which we have appended comment based on the perspectives and information we gained.

1. Fishing and processing of small sardines: *they are currently processed at artisanal level with large post-harvest losses. The market price for unprocessed sardines is low but with added value, such as canning, a better value can be generated. As of today, Tanzania imports all of their canned sardine products.*
2. Value adding activity from by-products of Nile Perch filleting: *As of today, all of the by-products are exported unprocessed, for processing abroad.*
3. Supply of fish inputs: *currently the manufacturing of nets and boats are not effective, according to the Department of Fisheries.*
4. Aquaculture:
 - a. Oyster farming is piloted at the university and could be a potential for the export market, both for their pearls and for consumption. *As nothing is done on this sector at current stage, an investment in this sector will require a longer start up phase to prepare the grounds.*
 - b. Prawn (shrimp) farming: *this has a potential but it is also controversial; competition from Asia is also a critical matter.*
 - c. Seaweed farming: *this is currently at a very small scale and an investment here would rather be on the adding value side than the farming side.*
 - d. Fish ponds: *tilapia could have potential for faming as there is a local, regional international demand for it. Only national species are allowed for farming – this is not a constraint but several generations of selection may be needed.*
5. Fin fish: Deep sea fishing; *this may have potential, but requires well regulated management to support it, and an effective means of landing and then adding value.*

Tanzania Investment Centre

The TIC has prepared a brief note on opportunities in the fish sector in their Investment Guideline. They argue that opportunities lie mainly within the following sectors:

1. Processing, canning and packaging of fish products for export; *similar constraints to those noted earlier – organising and maintaining supplies, variability of supply.*
2. Manufacturing of fish gear and other equipments, refrigerated trucks and cold storage facilities; *some local manufacture could be feasible as a small scale workshop level; provision of refrigerated trucks and cold storage, as a service function is interesting but requires sufficient market throughput, and might be difficult to compete with small individual market operators.*
3. Pond fish farming: existing location for pond fisheries are identified as follows and could potentially be targeted for expansion and improvement: *some of these locations may be worth examining but project scale is very modest, and scope for much expansion may be limited. One or more could however be adapted to specialise in hatchery production.*
 - a. Coast Region; Morogoro, Dar es Salaam
 - b. Arusha Manyara, Kilimanjaro and Tanga
 - c. Iringa, Mbeya, Ruvuma, Mtwara
 - d. Tabora, Kigoma, Rukwa
 - e. Mwansa, Mara, Shinyanga, Kagera
 - f. Singida, Dodoma

4.4.3 Review of findings

After discussions with various stakeholders in the sector, large scale aquaculture is not likely to be a direct investment opportunity as that is related with a number of environmental and socioeconomic concerns. The political fallout from the Rufiji shrimp farm project is still fresh in people's minds and will take some time to settle. If aquaculture is the preferred target area, investors would have to start in a small scale manner, building up relationships with communities and expanding the business step wise. More opportunities are likely in the coastal area but this will have to be on a small scale. Large scale investments are thought to be too difficult in a short term due to lack of necessary infrastructure and the lack of icing and other facilities. As it stands now, ice is transported to Tanga from Dar es Salaam in some cases, which illustrates the state of infrastructure necessary for the sector to run properly on a profitable basis. Small scale opportunities could be identified in coastal zones and on Mafia Island and Zanzibar, mainly in integrating coastal fishing with small scale mariculture, including shrimp, fish, sea cucumber and seaweeds, and co-ordinating with community management units. Prospects for eco-labelled, ethical and fair trade production are also positive.

Based on the recent developments related to the management of Lake Victoria and the agreement signed in late 2008³¹, a new interest has arisen for cage farming in Lake Victoria. At least two of the active processing companies have expressed an interest. As the field visit to Tanzania took place before this was signed, this had to be followed later up by email, and so it was more difficult to get in touch with or gain responses from all the key companies. However, the two firms that expressed interest are Alpha Krust and VicFish.

4.4.4 Investment partners

Three processing plants exist along the coast of which one has expressed an interest in selling of the business. Sea Products Ltd, that process a full range of seafood caught from artisan fishers along Tanzania's and Mozambique's coast for export mainly to the EU market, expressed an interest into entering into agreements with potential investors/partners looking to invest in seafood processing in Tanzania and/or Mozambique. The company is looking to enter into a joint venture or sell full shares to potential investors.

The only larger aquaculture activity, Tanpesca, is situated at Mafia Island outside the coast of southern Tanzania. Tanpesca is part of the Alpha Krust Group. The team tried to get an appointment with the Managing Director but did not succeed. However, the team managed to get in touch with them via a request from TIFPA. They indicated that they were keen to venture into cage farming in Lake Victoria. This is one of the largest players in Tanzania, who knows the market, have the export links through their engagement in the processing sector and could be a strategic partner. Alpha Krust also have establishments in Kenya and Uganda and is hence a strategic partner in terms of access to the East African market. VicFish, as mentioned above, also showed an interest in enter into cage farming in Lake Victoria but the team has failed to obtain further details on the scope and type of such operations.

The Ngare Mountain Lodge has three initiatives to which they seek investment partners:

1. They are seeking a market in Europe for value added trout products. This would be focused on the organic markets as their production of trout is organic with no chemicals or drugs in the farming or packing.
2. They have studied potential for tilapia farming in the area over a number of years and argue that the time is now right to move this initiative forward into a major aquaculture project.
3. Prawn (shrimp) farming would also be feasible providing environmental conditions are met.

In addition, the ACDI/VOCA NGOs work with communities associations is a potential partner for a long term CSR activity. This could potentially be further developed into larger scale business but in a long term

³¹ The joint communiqué of the Council of Ministers of the LVFO issued in Kampala, Uganda on 29th October 2008

perspective (10-15 years) with no quick returns. A list of companies is outlined at the end of this Volume.

4.5 Conclusions

Investing in Tanzanians fisheries or aquaculture sector is a long-term commitment that will have to be carefully planned and assessed. As the sector is largely driven by small scale fishermen and pond farmers, an investment in the country will have to adapt to local conditions and slowly build up to larger volumes. However, if the aim is to establish long term presence and a strong market position in the region, it is likely to be strategic to enter into the Tanzanian market now and build up step by step as the sector matures and develops. In terms of pure investment potential, the following is identified but needs further assessments:

1. Acquisition of an existing processing and exporting firm. At least one of the processing and exporting companies are interested to sell.
2. Small scale investment in coastal aquaculture, collaborate with community based organisations and develop the business slowly into a medium/larger business, which could be linked to a CSR activity.
3. Long-term investment in cage farming in Lake Victoria. A number of actors are interested to venture into this field but are in need of investment capital and technical know-how.

A number of established actors exist, mainly established within the processing and exporting industry but they are keen to diversify their operations into cage farming in Lake Victoria due to the decreasing catches of wild Nile Perch.

5 Uganda

5.1 Executive summary

Uganda has an active, diverse and relatively well developed fishery sector, with particular investment, production and market strengths associated with the Nile Perch fishery in Lake Victoria, but with a range of other significant species and fisheries resources. International export, mainly of fresh and frozen Nile Perch fillets, and regional trade in a wide range of other species has supported a substantial post-harvest industry, in the former case with facilities fully meeting international standards.

As in many other cases there are concerns about overfishing, and Nile Perch stocks in particular have declined, though may stabilise under emerging regional management measures. Although aquaculture has been promoted for some decades, mainly in artisanal ponds, it is only recently moving towards becoming an effective sector. It is expected to become more important in meeting national and regional needs, and is potentially tipping towards significant expansion.

In development terms, Uganda has well established export links with main markets including EU, USA and the Middle East. It is strategically located, linking the East and Central African communities, and is a major regional market route, supplier and location for added value. Its major infrastructure is located within a 100 km radius of Kampala, around the upper shores of Lake Victoria, providing a good resource cluster for investment. Economic, fiscal and business support conditions are positive, and improving political conditions have been accompanied by good levels of economic growth.

Investment opportunities at a range of scales are potentially available in both the aquaculture and value-added sectors, or in a more integrated approach. These have both national and regional potential, and include:

- Aquaculture; large to very large scale cage culture of tilapia for regional and international markets; development and supply of high quality aquaculture starter and on-growing feeds for tilapia and African catfish (clarias); development of specialist hatchery and seed production for tilapia and catfish; provision of service and support functions for commercial and artisanal producers.
- Value addition; diversification of existing Nile Perch processing, and development of tilapia products; organisation of capture and value addition for small-scale pelagics in Lake Victoria and other lakes.

Small-scale, more specialised opportunities may also exist in producing ornamental freshwater species and in organising supply and external markets for ethnic food products. Potential partners can be identified for all of these themes, and indications are that joint ventures or other commercial initiatives could be established in relatively short time. Compared with the other countries reviewed in detail, Uganda has the best opportunities for shorter term commercial development, and also has strong potential for regionally based growth. It also has the most directly identifiable opportunity for a major regional scale aquaculture based business, potentially to be developed to globally competitive scale.

5.2 The Uganda fishery sector

Uganda has an abundance of water resources, covering almost 44,000 km², including lakes, swamps, rivers, and including the major shared resource of Lake Victoria. These resources support a well established fishery sector, supplying both domestic and export markets. The sector is noted as "the country's most important non traditional export, and fish representing 52 % of per capita animal protein consumption in 1996. By conventional measures contribution of fish and fish products to the country's GDP is estimated at about 2.5 % (Table 5.1). The recorded value of fish exports had increased significantly from USD 1.4 million in

1990 to USD 147 million in 2006. Other revenue sources include; licenses, fishing permits, landing fees, fish movement permits and tender charges.

Table 5.1: GDP from fisheries at factor cost at current prices, 1998-2004 (Uganda)

Period (Years)	Monetary	Non monetary	Total Fisheries GDP	Total GDP	% Contribution of Fisheries to Total GDP
1998	173,680	21,906	195,586	7,114,074	2.75
2000	168,069	21,198	189,267	8,650,323	2.19
2002	228,996	28,882	257,878	9,901,012	2.60
2004	292,886	36,941	329,827	12,951,938	2.55

Source: UBOS 2003, 2004 (Million Uganda shillings - USD US1 = ~ 1,970 Ugandan Shilling (USH))

Domestic consumption accounted for some 75 % of total catch (Govt of Uganda, 1996), and aside from Nile Perch which is mainly exported, substantial amounts of national catch still enters regional trade, particularly to Rwanda, DRC and Kenya, and increasingly through Northern Uganda to Sudan. Artisanal fish processing methods include: sun drying, salting, smoking and fresh forms while industrial processing includes: chilled fillets, smoked whole fish, swim bladders and fish steaks. Market prices varied across regions and averaged USH 1,256, 1,124 and 584 per kilo for Nile perch, Tilapia and mukene (small pelagics) respectively over the period 1990 to 2004.

After an earlier EU ban on exports, processing facilities and procedures had been substantially upgraded and fish production in Lake Victoria had markedly increased, with a rise in its contribution to the total catch, peaking in 2006. The number of fishers on Lake Victoria also rose from 34,889 in 2000 to 54,148 in 2006, with a steady rise in people employed by the formal post harvest sector, reaching 2,529 persons in 2004, with an annual wage bill of USH 3,547 million, and average monthly incomes to fishers, processors and traders ranging from 40,756 to 436,530 USH. Stable and rising prices within the sector have been noted to offer strong potential for Uganda's GDP and economic growth in general, with strategies including:

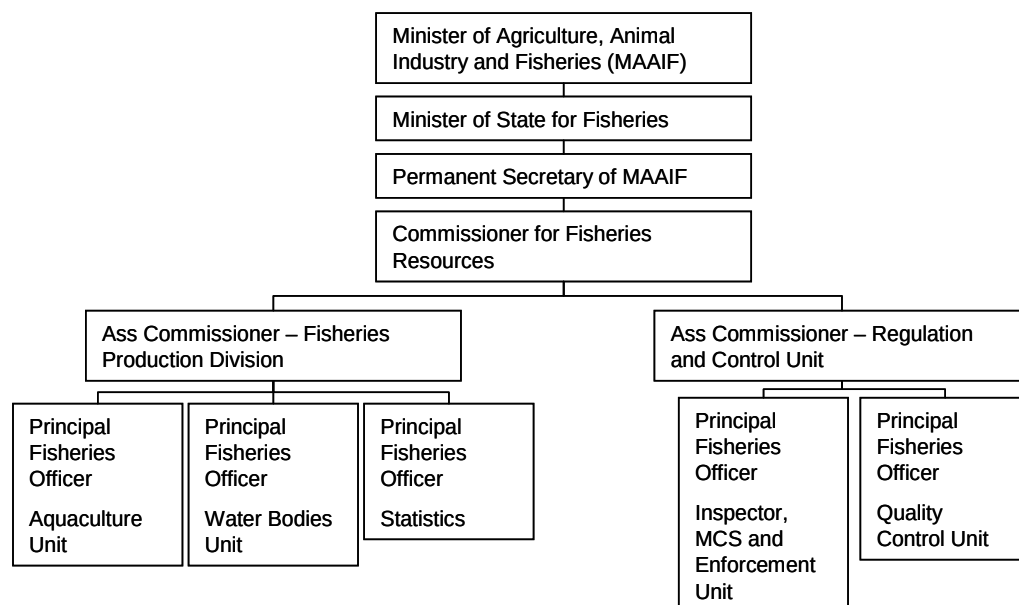
- Increasing total catch, particularly through off-shore exploitation of mukene and harvesting other aquatic resources such as mollusks
- Increasing margins by reducing operating costs, improving prices through improved infrastructures and marketing, and minimizing post harvest losses.
- Diversifying production, particularly through aquaculture.

The dangers of over exploitation and declining yields, and the need to develop a sustainable fisheries management policy are reflected in the mandate of the Fisheries Department, which also recognises the potential of aquaculture to contribute to the growing national demand, and generate new export-orientated activities. This includes new production activities, improved post harvest management, and new product development.

However, notwithstanding apparent opportunities, recorded aquaculture production fell from some 900 t in the 1970s, to only 30 t in 1990. Production, mainly from small scale semi-intensive ponds, has since increased, but remains much lower than expectations. In 2007, Uganda's aquaculture production amounted to over 51,000 t.

Whilst there have been several proposals for large scale commercial operations, none have yet been fully developed. Key constraints for further expansion identified include availability of stock, technical capacity, and appropriate institutional support. However, more recently, with strategic support from the Govt of

Figure 5.2: Organisational Structure of MAAIF (Uganda)



The National Environmental Management Authority (NEMA) is a semi-autonomous body established in 1995. NEMA is the principal agency mandated with the responsibility of coordinating, monitoring, supervision and regulating all environmental management matters in Uganda.

The Lake Victoria Fisheries Organisation (LVFO) was established in 1994 by the riparian states of Uganda, Tanzania and Kenya, in recognition of the need to manage the fisheries resources in Lake Victoria in a coordinated and sustainable manner. The headquarters is located in Jinja, Uganda and is currently headed by the former Ugandan Fisheries Commissioner. Table 5.2 summarises some of the key policy and legislative instruments related to the sector, and though it is not clear how fully these are implemented, they indicate the relative importance of major themes.

Table 5.2: Summary of key fishery sector legal frameworks and policies (Uganda)

Act/Policy/Strategy/Plan	Key issues and objectives
National Fisheries Policy Draft	To promote stable fish production of over 330 000 tonne per annum; improve domestic fish consumption; improve fish exports; and modernize fish communities.
Fish (Aquaculture) Rules 2003	Regulates the approval and establishment of aquaculture businesses, fish seed operations, fish breeding, and the export or import of live fish. It regulates the way aquaculture should be carried out, that input used must be certified, the use of new genetic materials as well as marketing of farmed fish.
Fish (Beach Management) Rules 2003	Stipulates that there must be a BMU at all landing sites; BMU committees shall be formed and shall liaise with local and central government in registering all boats they their equipment, participate in licensing of boats, enforce rules, carry out inspections, patrol beaches and ensure landing is done according to regulation.
National Environment Management Statute	Protection of the environment and spells out regulation of all activities that might affect the environment. Regulates the process of Environmental Impact Assessment

Development assistance

The Ugandan fisheries sector has been the recipient of a range of development inputs, most of which, such as the major EU funded Lake Victoria Environmental Management Programme (LVEMP) have focused around the ecosystem functions and resource quality of Uganda's major aquatic resource, Lake Victoria. Programmes of environmental action, such as the management of water hyacinth in Lake Victoria, have also been carried out. However other initiatives such as the DFID ILM (Integrated Lake Management) programme, focused on Lake George and Lake Kyoga have looked at fisheries management in other water bodies, and within a community and livelihoods framework. Small and targeted assistance programmes had also been available through DFID on post-harvest loss reduction and through the EU and CDE on quality control for fish export, primarily focused on Nile Perch processing.

External support for aquaculture has been variable, with a small component of the LVEMP dedicated to exploring local species, and a sectoral support programme funded by DFID - Fish Farming For Income Generation And Food Security (FISH) programme over 1999-2004, which aimed to develop local stocks and stimulate private sector and co-operative programmes. This was followed by a USAID programme, also entitled FISH (Fisheries Investment for Sustainable Harvest) from 2005-2009 whose aim was to 'jump-start' commercial aquaculture through the use of model fish farms and farmer-to-farmer knowledge transfer. Internal evaluation of this programme suggests a substantial impact on the growth of the aquaculture sector through private sector facilitation, including development of first quality commercial pelleted fish feeds, introduction of feed extrusion technology for floating feed (yet to be run commercially), increased access to imported catfish larval diets for hatcheries; improved quality of tilapia seed; increased number of trained fish farmers; improved access to local fish markets and increased access to fish farming equipment.

During this period also, the Government of Uganda provided an important stimulus to hatchery seed production through its lake restocking programme, and although the impacts on fish stocks were uncertain at best, the market created an important surge of local investment in hatchery capacity, although this is not yet significant by international standards. A recent support programme by the African Development Bank also provided stimulus for production, with 500 farmers at small, medium and larger artisanal scales being provided with vouchers for a mix of inputs, including as preferred by the farmer/advised by local extensionists, seed, feed, pond or cage construction, aerators, or other equipment. A further component was to have rehabilitated four national public sector hatcheries. Though the programme was known to have stimulated local markets for inputs and services, it is not clear that these were applied cost-effectively or yielded any kind of longer-standing return. The hatcheries were not known to be substantially improved with respect to sustained output and seed quality.

Other, e.g. cross-sectoral developments

A range of other development programmes have been active in Uganda, many of which address fundamental issues in health, education, security, and governance, as well as introducing economic reforms and rationalisation of the public sector and its support and service functions. Apart from the generally improved political stability and broad process of economic development and growth which has been supported in this process, increasing demand and markets for fish and fishery products, the other main interacting issue is that of agricultural production and the potential supply of raw materials for fish feed. At this stage much of Uganda's agricultural production is still smallholder based, but an increase in farmers' co-operatives and improved infrastructure and market information increasingly mean that products can be sourced and marketed in better condition and more commercial quantities.

5.2.2 Private sector development

Introduction

The major part of the private sector function in fisheries is associated with fish capture on the larger lakes and other water bodies of Uganda, much of which is primarily artisanal. The Nile Perch fishery supports the only commercialised activities, in the post harvest supply of fresh and frozen fillets to international markets, while most other post-harvest activities – boiling, salting, drying, smoking, are also artisanal. All these activities are seasonally influenced, both in terms of catches and in artisanal processing options. Output from the sector has varied widely, and until recently, when Beach Management Units came more widely into use and legally enforced, much of landing and domestic or regional trade was under-recorded. The aquaculture sector is very small by comparison, and though it has grown steadily in the last decade is still relatively small-scale with poor or variable inputs and limited profitability. Though a number of larger scale enterprises have been proposed, none have so far developed to significant production levels.

The major challenge, recognised in broad terms by the Govt of Uganda, is to manage the fisheries resources more effectively, and develop value, while retaining sufficient levels of the social and economic benefit accruing to the many dependents on the sector, many of whom have low income levels and are subject to multiple causes of vulnerability. The development of aquaculture is seen as having a major role in this.

There have been few comprehensive assessments of the profitability of various subsectors, though reviews have been carried out on costs and earnings in parts of the fishery sector, and of yields and profitability of aquaculture, particularly at small pond-based levels. Profitability in the processing sector depends substantially on raw material availability, which for Nile Perch supplies, has been diminishing, though partially compensated by increased processing of tilapia.

Markets

Fish is consumed across the country, with local variations, though no data on specific consumption patterns was readily available. Uganda has a reported national per capita consumption of 10-15 kg. A current sector brief by the Uganda Investment Authority suggests local demand for fish to be in the range of 200,000 t. A study in 2004 for the DFID FISH project, estimated that Uganda would need 380,000 to 400,000 t of fish for domestic consumption (based on 10 kg/capita/year and a population 32 million). Data for regional markets was less available but the report concluded that good opportunities for regional sales existed. A concept paper from the Department of Fisheries proposed an annual demand of 525,000 t for local consumption within the next four years. This is based on 15kg/capita/year and a population of 35 million. It also proposed that another 300,000 t would be needed to meet international and regional export markets. With the capture fisheries currently providing 430,000 t, 395,000 t would have to be supplied from the aquaculture sector, which will require significant expansion from current levels. Current fishery imports and exports are summarised in Tables 5.3 and 5.4 respectively. Import levels are relatively low, with moderate but rather variable average values, as expected for a major fish producing country, while exports are substantial, with much higher average values. The primary exception is 2003, when quality control infringements closed access to EU markets for a period. This emphasises the close and critical market dependence.

Table 5.3: Fishery imports (Uganda)

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Tonnes	-	24	22	88	29	290	792	310	423	326
USD 1000	3	73	79	101	53	109	1,068	561	850	374
Ave value (USD/kg)	-	3.04	3.59	1.15	1.83	0.38	1.35	1.81	2.01	1.15

Source: FAO Fishstat 2008 - tonnes

Table 5.4: Fishery exports (Uganda)

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Tonnes	9,839	13,320	9,596	14,911	17,318	25,534	8,051	31,958	39,324	36,935
USD 1000	28,800	42,207	28,288	30,986	51,020	87,955	24,143	103,670	143,258	146,951
Ave value (USD/kg)	2.93	3.17	2.95	2.08	2.95	3.44	3.00	3.24	3.64	3.98

Source: FAO Fishstat 2008 - tonnes

The LVFO commissioned a study by a UK consultant (Pollard. 2008), to examine the value chain of the Lake Victoria Nile Perch fishery. This concluded a total production capacity of 1,148 t/day of raw material, with four major actors in the processing business: Tilley, Marine and Agro, Alpha and Vicfish-Bounty, the four groups controlling 71 % of current production. The whole weight equivalent per kilo prices recorded in June to July 2008, and the value addition levels are outlined in Table 5.5 below. This emphasises the significant changes in value and the high levels of value capture at the downstream, European part of the chain. Note that additional returns are available to processors in the domestic sale of heads and frames, and the development of other products.

Table 5.5: Value chain of Nile Perch fishery, 2008 (Uganda)

Chain position	Average selling price (whole and fillet)	Whole round price equivalent	Value distribution as % of total	Value addition	Value added as % selling price	% of total value added
Supermarket	USD 17.18	USD 7.39	52.85 %	USD 3.91	53 %	100.00 %
Importer/exporter	USD 8.10	USD 3.48	14.56 %	USD 1.08	31 %	47.15 %
Processing facility	USD 5.60	USD 2.41	3.63 %	USD 0.27	11 %	32.58 %
Factory agent	USD 2.14	USD 2.14	6.13 %	USD 0.45	21 %	28.95 %
Fisher	USD 1.69	USD 1.69	22.82 %	USD 1.69	100 %	22.82 %

Value share in Uganda: 32.58 %; in Europe 67.42 %

Source: Pollard, 2008, "Description and Analysis of Value Chain of the Lake Victoria Nile Perch Fishery"

Another LVFO study³² assessed the regional trade patterns of fish from Lake Victoria and other sources, finding a range of trade linkages:

- i) Mixed species supplied from the West Nile Region were bulked at Panyimur and Arua Town Markets and ferried to the Democratic Republic of Congo and South Sudan.
- ii) Fresh tilapia and dagaa/mukene from the Southern/Western Region was exported through Katuna Customs Border Post to Rwanda.
- iii) Dagaa/mukene was exported through Bunagana Customs Point to the Democratic Republic of Congo
- iv) Mixed species of fish were collected at Mpondwe Market prior to being exported through Mpondwe Customs Border Point to the Democratic Republic of Congo Fresh tilapia from the Eastern Region landing sites of Bwondha and Bugoto was assembled at Busia Central Market before exporting to Kenya through Busia Customs Post.

³² Odongkara, 2006, "Regional trade in fish from Lake Victoria"

- v) Smoked tilapia from Lake Kyoga was sold at Lubango and Murwanda Markets, after which it is ferried to Kenya through Lwakakha Border Post. Some was also assembled at Osukuru and Malaba Markets prior to being taken across to Kenya via Malaba Customs Post.
- vi) Sun-dried Nile perch and dagaa/mukene from the Central Region landing sites in Masaka District, Wakiso District, Mpigi District and Mukono District were ferried through to Rwanda and Democratic Republic of Congo.
- vii) Considerable undetermined quantities of fish were also ferried over Lake Victoria directly to beaches in Kenya as Illegal, Unregulated and Unrecorded catch (IUUs).
- viii) Dagaa/mukene was imported from Tanzania through Kasensero Landing Site and Mutukula Customs Border Post.

The prices received by Ugandan exporters per destination were also mapped in the study, as outlined in Table 5.6 below, in USD/Kg. Though volumes and more product formats, including size, were not recorded, this demonstrates the good margins apparently available, and the generally robust prices paid by importers. Fresh tilapia prices, particularly in Kenya, are of potential interest for aquaculture.

Table 5.6: Price levels for fish exports, 2006 (Uganda)

Fish species	Destination	Buying price	Selling price	Markup	% markup
Dagaa/mukene	DRC	0.41	0.71	0.30	73.2
	Rwanda n	0.40	0.72	0.32	80.0
Tilapia (fresh)	Kenya	0.65	1.41	0.76	116.9
	Rwanda	0.51	0.75	0.24	47.1
Nile perch (salted)	DRC	0.74	0.95	0.21	28.4

Source: Odongkara, 2006, "Regional trade in fish from Lake Victoria, LVFO

UFPEA and CDE have also commissioned a study looking at the regional market for farmed fish. However this is only due to be finalised by April 2009, but would be a valuable additional resource.

The capture fishery sector

The estimated catch from the capture fishery from the Uganda side of the Lake Victoria is outlined in table 5.7 below, while the contribution to national catches is outlined in Table 5.8.

Table 5.7: Ugandan fisheries in Lake Victoria, 2005-07 (Uganda)

Species	2005		2006		2007	
	Total catch (tonne)	Value (million USD)	Total catch (tonne)	Value (million USD)	Total catch (tonne)	Value (million USD)
Nile Perch	94,902	93.99	91,039	90.16	86,655	75.81
Tilapia	29,415	14.61	27,061	13.44	24,355	13.12
Mukene	106,399	10.67	95,734	9.60	113,791	9.86
Other	7,815	4.20	2,109	0.84	2,685	1.14
Total	238,531	123.47	215,943	114.04	227,486	99.93

Source: Catch Assessment Survey 2005-2007, Department of Fisheries

Based on the above, the average value of Nile Perch is 0.90 USD/kg, tilapia 0.54 USD/kg and mukene/dagaa 0.09 USD/kg. The contribution of Lake Victoria to recorded national catches is substantial, usually at least 60 % of the total, though for smaller lakes and water bodies in particular, catch records are likely to be incomplete, as unrecorded landings are common.

Table 5.8: Ugandan and Lake Victoria catches, 2000-4 (Uganda)

Year	Lake Victoria catches, '000 t	Total Ugandan catch, '000 t	Lake Victoria as % of total
2000	133.4	220.0	60.64
2001	131.8	221.0	59.64
2002	136.1	222.0	61.31
2003	175.3	247.0	70.97
2004	253.3	434.8	58.26

A more detailed and slightly more recent time series breakdown by species groups for the whole of Uganda is provided in Table 5.9, which notes also the major role played by Nile Perch and tilapia, but also the significance of carp and catfishes/lungfishes, the latter having increased strongly in most recent years. African catfish may in some cases be recorded as lungfishes. This table also suggests that mukene or dagaa are relatively under-recorded, which is perhaps consistent with an artisanal fishery.

Table 5.9: Capture fisheries production (Uganda)

Species	2000	2001	2002	2003	2004	2005	2006	2007
African lungfishes	5,755	5,796	5,000	4,566	12,938	14,503	12,778	17,400
Characins	10,331	10,331	7,100	9,491	20,002	22,422	19,754	26,900
Cyprinids	12,181	12,182	12,000	8,261	22,939	25,714	22,655	30,850
Freshwater fishes	2	2	1,800	728	7,436	8,335	7,347	10,000
Freshwater siluroids	.	.	.	1,210	1,487	1,667	1,469	2,000
Naked catfishes	4,375	4,375	4,800	5,723	8,179	9,169	8,078	11,000
Nile crocodile	508	900	.	2	600	300	.	.
Nile perch	87,257	88,881	90,698	112,804	156,301	175,205	154,340	210,200
Tilapias	96,468	96,172	98,000	97,330	138,789	155,575	137,006	186,650
Torpedo-shaped catfishes	2,987	2,987	2,500	1,697	3,718	4,168	3,672	5,000
TOTAL	219,356	220,726	221,898	241,810	371,789	416,758	367,099	500,000

Source: FAO Fishstat 2009- tonnes

Apart from the capture of the small pelagics, the mukene or the dagaa, for which it is estimated that some 200-300,000 t could still be harvested annually, this sector shows signs in most cases of full or over exploitation. In terms of the fishing fleet, Uganda has a ban on industrial fishing techniques and hence most fishing is done using canoes, either using paddles or smaller outboard motors, organised through Beach Management Units, with designated landing sites, at which fish are purchased locally for direct consumption or artisanal processing, or collected by market agents who supply the formal processing factories.

Aquaculture

Trends in aquaculture production are set out in Table 5.10. These show a substantial increase in tilapia and catfish production, particularly over the last 2-3 years.

Table 5.10: Aquaculture production (Uganda)

Species	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Common carp	30	30	100	270	230	300	50	41	47	73
Giant river prawn	.	.	.	.	.	.	2	2	2	1
Labeo victorianus	-	-	-	-	-	-	-	-	-	<0.5
Nile perch	.	.	.	.	.	.	.	7	14	49
Nile tilapia	100	200	400	1,350	1,797	2,000	1,660	4,221	11,365	16,763
Redbelly tilapia	100	150	200	200	160	200	.	18	23	128
Ripon barbel	-	-	-	-	-	-	-	-	-	<0.5
Torpedo-shaped catfishes	90	95	120	540	2,728	3,000	3,827	6,528	20,941	34,096
TOTAL	320	475	820	2,360	4,915	5,500	5,539	10,817	32,392	51,110

Source: FAO Fishstat 2009 - tonnes

Small scale pond farms

According to FAO, up to 51,000 t of fish were estimated to be produced from aquaculture in 2007, including small-scale farmers (2,500 t) an estimated 200 emerging commercial fish farmers (3,000 t), stocked community water reservoirs and minor lakes (9,500 t). There are some 20,000 ponds, with an average area per pond of 500 m², and yield from 1.5 t/ha/yr for subsistence to 15 t/ha/yr for emerging commercial farming. Total pond surface area is estimated at about 6.5 km² (650 hectares) with African catfish (clarias) comprising over 80 % of production. According to the Department of Fisheries registry, 10 farms produce up to 20 t/year; 35 farms produce up to 5 t/year and 372 produce less than 3 t/year. Production, often in polycultures, is based on Nile tilapia and clarias catfish, with small numbers of other local species also produced. Some producers are now intensifying and focusing on monoculture of catfish, which has a good market for direct consumption, and is increasingly valuable as a baitfish, particularly around the northern Lake Victoria margins. A recent ban on the use of captured baitfish has intensified this demand.

Various initiatives are under way to develop this sector. The Uganda Cooperative Alliance (UCA) is an umbrella organisation whose vision is “strong cooperatives with empowered members in Uganda”. They administer a project, funded by the Swedish Cooperative Centre and the Royal Norwegian Society for Development (Norges Vel), and called ‘Empowering Farmers through Agribusiness and Financial Services’ running from 2007 to 2010. Through this project, small scale fish farmers have received training in improved fish farming techniques covering pond construction, stocking, feeding and harvesting. The Walimi Fish Cooperative Society Limited (WAFICOS) is a member of UCA. It is a membership organisation focusing on addressing structural limitations on production, processing and marketing of fish farms. The aim is to build capacity among its member fish farmers and to make aquaculture a competitive activity. The members are generally small scale but some have the potential to produce up to 10 t/year.

Commercial pond farms

A small number of larger commercial pond producers have now emerged in Uganda, though to date these are not significant in scale. In particular, the Fourways Group of Companies, primarily engaged in fish processing and other sectors, initiated collaboration with GenoMar (Norwegian company supplying GIFT tilapia and related services) to develop tilapia seed and market production. However, though the

company has six ponds, and planned to establish up to one hundred, this was halted following GenoMar's strategic decision not to develop their African business. However, Fourways are still keen to diversify and enter into new ventures, particularly as the stock of Nile Perch is depleting. The water system is in place, as are all required permits and licenses, and an approved EIA, but they are not currently in production as they had preferred to develop with GIFT rather than local tilapia. However in discussions with the consultants, they were potentially open to using locally improved strains, though they still noted the constraints of obtaining suitable feeds.

Blessed Investment has 65 acres (≈ 26 ha) of land of which 8 acres (≈ 3 ha) are currently for ponds with a potential to increase to 20 acres (≈ 8 ha). The farm buys fry from S.O.N and currently sells the production at farm gate. This is one of the smaller farms currently in operation that has the interest and potential to grow into a larger, commercial pond farm.

Other farms noted include Ekitangaala Fish Farms, Sustainable Livelihoods International and SunFish Farm Ltd.

Commercial cage farms

Cage farming is yet to take off though there are several potential entrants. A recent concept paper developed by the Department of Fisheries³³ estimated that in terms of environmental capacity, the large water bodies can support some 328,000 t and rivers some 244,000 t of cage culture production annually. Together with the development and intensification of ponds this suggests great potential for expansion. The main constraints to expansion of larger commercial aquaculture are stated to be the gaps in the value chain such as lack of fry and fingerlings of good quality, lack of good quality feed and technical knowledge. In late 2008, through the LVFO, the Fisheries Ministers of the East Africa Council confirmed and agreed to permit cage farming in Lake Victoria, provided it followed best international farming practice. This process started in 2004 but Tanzania had up till now been reluctant to commit to cage farming in the lake.

The Source of the Nile Fish Farm (SON) is a tilapia farm started up in a partnership between Lake Harvest, Zimbabwe and Greenfield Ltd, Uganda in 2005 with an initial investment of USD 0.5 million. They are located in Jinja with a 20 year lease agreement of 900 acres of land, which they are currently trying to extend to 49 years. They have a hatchery for tilapia and are developing a locally improved strain. Currently, the farm produces 500,000 tilapia fry per month, sold to nearby small-scale farmers or stocked. They produce their feed in-house to secure high quality. Currently this is done manually but they aim to mechanise this. They have approx 20 small 2x2x2 cages in Lake Victoria and aim to expand to 1500, or an equivalent volume of slightly larger cages. SON is planning to invest some USD 5 million, with a target of 2500 t annually. Of this, some 50 % is aimed for the regional markets, of which around 20 % is expected to go to the Ugandan market alone, i.e. 250 t. Their main markets are EU where France, Belgium, Holland and UK are mainly quality driven while Germany is price driven.

The team was also informed that there was a South African Company that had started setting up their operating near Lake Victoria. The Uganda Investment Authority stated that the company had 100 ponds but were also considering cage farming. However the team was not able to obtain any more detailed information on this activity. Likewise, the Ugandan Investment Authority has been approached by a Singapore company interested in larger scale fish farming. However, this was at a very initial stage and not further information was obtained.

Processing

The processing industry in Uganda has built up a strong position during the last ten years. The processing technology and sanitary procedures are in line with EU and USA Hazard Analysis Critical Control Point (HACCP) procedures. All factories meet the standards of design and construction as set out in the EU hygiene directive (91/493/EEC). In addition, the entire industry has achieved ISO 9001 status. The

³³ Department of Fisheries, "Concept paper for reservoirs and minor water bodies development and management"
Potential aquaculture and fish processing investment projects in Africa – 4 Country Reviews -Volume IV Page 96

number of plants is 18; however, only 12 are in operation and most do not operate on full capacity due to the reduced supply from the capture fisheries in the Lake Victoria. Total processing capacity in the country is estimated at 540 metric tonne of raw material per day. Table 5.11 summarises national production of fisheries commodities, the fresh, chilled and frozen sector primarily representing Nile Perch and the substantial and probably under-recorded amounts of traditionally prepared fish in the dried, salted and smoked category.

Table 5.11: Fisheries commodities production (Uganda)

Commodity	2000	2001	2002	2003	2004	2005	2006
Fish, dried, salted, or smoked	22,247	21,090	20,230	20,070	20,100	20,178	20,353
Fish, fresh, chilled or frozen	14,141	16,850	24,919	7,624	30,005	37,084	34,274
TOTAL	36,388	37,940	45,149	27,694	50,105	57,262	54,627

Source: FAO Fishstat 2009 - tonnes

The largest landing site around Lake Victoria is located in Kasenyi with has also attracted most processing companies. The price of Nile Perch in local markets is reported at from USH 5,000 – 7,000/kg (USD 2,500-3,600 per tonne), while export prices for fresh fillet are quoted at USD 4,210 per tonne; frozen fillet USD 2,816 per tonne (UIA sector brief, 2008). Price of farmed tilapia: 3,500 USH/kg for 800g-1kg fish; 2,500 USH/kg for 400g fish. Transportation costs, chilled by air are 1.6 USD/kg; or frozen by sea via Mombasa (container) 50-60 USD cent/kg to the EU. The majority of the processing plants are focused on capture fisheries, with Nile Perch and more recently tilapia, though depending on supplies, some are also considering sourcing from farmed product.

The Uganda Fish Processors and Export Association (UFPEA) was established in 1993 with the aim of uniting the industrial fish processors in the country and to promote international trade of fish and fish products from Uganda. The UFPEA in Uganda has now come together with its equivalents in Kenya and Uganda to form the East Africa Industrial Fishing and Fish Exporters Association. The newly formed regional Association will create a stronger platform to improve the management of the stock in the lake as well as strengthen and promote products from the region.

Greenfields Uganda Ltd started in the late 1980's with a fish processing plant near Entebbe, an investment of USD 100,000. They acquired full EU standards in 1997 and ISO 9001:2000 since 2003. They employ 200 people and have a capacity of 40 t/day. They currently generate in excess of USD 6 million from export of over 4,000 t of fish products to Europe and America. Their range includes skinless fillet, skin-on fillet, headless and whole gutted as well as kosher fillets. Products are delivered in chilled or frozen form but they are also looking into ways of packaging fresh products for longer transport times. Greenfields is one of the two partners behind Source of the Nile cage farming. They are also entering into sustainable fishing using long-lining and are aiming to set up a 'one-stop-centre' type landing site to improve artisanal fishing and assure sustainability. Greenfield is also committed to try to get the first certified sustainable freshwater fish in Africa from the Marine Stewardship Council. In so doing, they receive support from the Export Promotion of Organic Products from Africa programme, which is funded by Sida and managed by Agro Eco (Netherlands) and Grolink (Sweden). The project is located by Lake Kyoga. Greenfields are also looking into possibilities of handling fish waste using silage. The Managing Director has well established links with buyers of organic products in Europe so the exporting network is well established. He is also the Chairman of Uganda Fish Processors and Export Association as well as Chairman of the newly established East African Processing Association.

Fourways Group has two processing factories, Ngege Ltd and Gomba. Ngege produces chilled and frozen freshwater fish and fish by-products for export. The factories have a capacity if 40-50 t/day but are currently only producing around 50 % of this. Supply is very seasonal and they have seen a clear downward trend hence their interest in diversifying their activities into aquaculture. Gomba Fishing was one of the first companies to export chilled and frozen fish from Uganda.

Alpha Group, also present in Tanzania, has two factories in Uganda with the capacity to produce 80-90 tonne/day. Processing operations in Uganda go under the name Uganda Fish Packers Ltd. Marine & Agro Export Processing Ltd is the largest processors and exporter of fresh fish in Uganda. Other processing plants for which more detailed information was not obtainable are listed in the Annex.

Service and support

There are around 20-30 small scale hatcheries around in the country out of which 30-40 % are considered to be sustainable over a longer term. The USAID FISH project worked closely with them, trained close to 1,000 farmers and worked directly with 3-4 farmers in the Kampala area. Fingerling production is also a lucrative business as supply of bait for capture fisheries, and though demand is considered to be better in Tanzania than Uganda, it is increasing. The cost of producing tilapia fingerlings was estimated at some 50 USH/fingerling with imported feed or 150-200 USH with own feed.

The National Agricultural Research Organization (NARO) produce fingerlings but sources argue that these are not up to standard. In 2004, NARO sold 80,000 – 100,000 non sex-reversed tilapia seeds monthly at a price of USD 0.03/unit, three times the world market price. Catfish is sold at USD 0.17/unit. As noted earlier, SON is now producing tilapia fry in significant quantities, and is becoming increasingly established as a prime source of quality stock. Another initiative had been reported in which a Chinese group would lease a part of the Department of Fisheries central hatchery facility at Kajjansi, between Entebbe and Kampala. However its aims and development targets were not known, and Kajjansi is not ideally established for large scale production without substantial investment.

Most informants stated that access to fish feed is the major constraint to the development of aquaculture in Uganda. Although feeds had been available, there were problems of poor or variable quality, uncompetitive prices and supply irregularity. Though some farmers produced simple on-farm feeds these were not generally viable and gave poor stock performance. The production of better quality floating feeds would require significant capital investment for which returns through existing feed markets might be questionable. Nonetheless a number of initiatives are being launched.

Ugachick, the country's leading animal feed manufacturer, was one of the first groups to move into fish feed production, its "Aquafeed" a sinking pellet feed, based on a formulae provided by a Dutch feed expert. The group have access to a range of raw materials, and have been able to recycle animal products including chicken slaughter wastes. They also have a pond unit in Magigye for testing feed on catfish and tilapia, after which fish is commercially harvested. Ugachick have also been supported by the USAID FISH project to purchase an extruded feed line from a US supplier, to enable them to produce a better quality floating feed. The equipment arrived early February 2009, and a technician from the supplier is to arrive in March 2009 for one year to train local staff and support start up of the operation. This is supported via EU funds. The sourcing of raw materials should not be a large challenge as the company already has a sourcing network for its poultry feed. They are however considering contracting farmers in the north for secure a more reliable supply of maize and soya. The company also state that they are able to do their own quality analysis of raw materials. The company also have a well established distribution network and are confident of being able to supply to smaller farmers throughout the country.

With similar encouragement from the USAID project, Kahoora Enterprise is also about to start producing floating fish feed. They are currently producing local beer from maize, sorghum and millet and hence have a network to source for some of the raw material required. They have ordered equipment from the same US supplier, and are also due to get installation and operational support for four months, but have had only limited financial assistance and are yet to receive the equipment due to lack of finances. Though the plant capacity is up to x t/hr (total output will depend on raw material availability, feed composition and operating schedules), they are uncertain of likely production levels and the potential market for fish feeds of this type. They are hopeful that the Ministry will support them as together with USAID they persuaded them into considering this business. However, they consider that if the fish feed market is insufficient; they can reduce risks by using the equipment for other products.

The Bolton Group is a regional enterprise providing agricultural and building supplies, together with other input materials as requested by customers. Owned by UK interests, they have a network of stores in many Southern African countries, and a well developed purchasing and distribution system. A recent trend in the agricultural sector has been the provision of packages of technical solutions, advice, equipment, seeds, fertilisers, and other chemicals. They have also developed expertise and technical inputs for irrigated agriculture, with associated soil and water management and construction inputs. This background has allowed them readily to take up the issues of supplying aqua-culturists at various levels with supplies, technical advice, construction services and equipment, and the recent ADB programme, though now completed, provided a particular opportunity. The Uganda branch is keen to develop this further, and if feasible, to extend this regionally, if aquaculture expands more widely. A particular area of interest is also feeds, where in response to demands for higher quality fry feeds, they commenced importing specialist tilapia feeds from the Israeli Ranan Group, at a cost of 6,000 USH/kg. As shipping and other costs make this unviable for the longer term, both groups are now exploring the potential of establishing a local feed plant. However, while both may be prepared to invest neither wish to take up the operational role, Ranan wishing to provide formulation and related technical expertise, while Bolton would wish to focus on sales and distribution.

Fish feed production by SON has already been noted. This is the only group to have produced tilapia feeds for commercial use to date, and it appears that their feeds are well appreciated, the management having a rigorous approach to quality control. A Chinese company was also reported to be planning to set up a fish feed factory but the team did not manage to find out more about this operation.

Uganda Fish Nets is part of the IPS Group under the Aga Khan Fund for Economic Development with main focus the production of gillnets for capture fisheries. They are however positive to the prospect of diversifying into cage production if the demand will increase. They have started to produce nets and equipment for cage farming but at this stage it is only an 'on-demand' service. They had also stated that they would be able to consider leasing arrangements for facilities and workforce, but would not wish a direct partnership.

Alpha Group Biotech is a sister company to the Alpha Group operating in Uganda. They started a process of utilizing the waste from the fish processing factories and have now a factory, equipped with Alfa Laval equipment, to produce high quality pharmaceutical grade fish oil and fish powder from the Nile Perch waste. However, they have not yet found an appropriate high value market for these products and are looking into options to pursue the necessary market studies and market development approaches.

5.2.3 Recent actions and trends

Fisheries and aquaculture issues

The importance of the fishery sector is widely recognised, and the value generated from exports of Nile Perch has been particularly evident in the last decade. Concern for overfishing and an expectation of the potential for aquaculture has led to specific national objectives. Thus the Department of Fisheries' draft strategy defines two main themes, to develop strategies for:

1. sustainable production, productivity and exploitation of the capture fisheries resource at the highest possible levels without compromising the environment; and
2. sustainable production and supply of aquaculture products at the highest possible levels without compromising the environment.

Management of the fish stocks has not been handled optimally and the Nile Perch stock has shown a steady decline. However, a number of initiatives are under way to improve the situation. For example, Uganda Fish Processors and Export Association (UFPEA) has introduced a self-regulation in terms of minimum purchase size for fish. This commenced with a minimum size of 40 cm but has now been increased to 50 cm. According to UFPEA, this system has worked well but they are also trying to push the

government to do more on regulation and control. In addition, the newly established East African Industrial Fish and Fish Exporters Association will work commonly to find a sustainable use of the waters.

The aim of the Department of Fisheries is to manage the resource in such a way that production levels can be kept at around 400,000 t, with specific initiatives to strengthen BMUs, restock larger water bodies, strengthen advisory service to fishermen communities and strengthen fisheries information system. The Department also recently introduced a number of new measures to stop illegal fishing. Identity cards are to be issued to all fishermen, all boats are to be registered and provided with number plates and identity cards. It is intended to reduce the current numbers of about 31,000 boats to about 25,000. Each boat owner will also be required to pay between USD 50 to 80 in an annual operation fee, depending on the lake of operation. Furthermore, no person will be approved unless they have the right fishing gear, is a member of an approved landing site, has a valid identification card and is submitting records of their catch to the district fisheries officers.

With improved market prices for fish, government intervention for increased production and stagnating supply from capture fisheries, aquaculture has begun to attract entrepreneurial farmers seeking to exploit the opportunities provided by the demand for fish. According to FAO (2005) this recent expansion has also resulted in the transformation of 20 to 30 % of the smallholder subsistence ponds into small-scale production units through developments in management as well as scale of production. It is estimated that there are 2,000 such farmers who own nearly 5,000 ponds, with an average pond size of 1,500 m² per pond. More significantly, the impact of the USAID FISH programme in supporting hatchery and feed development, and in defining business models for small and medium –sized commercial ventures has also made transition from artisanal production more viable. Uganda's economic growth over the last decade, and the rise of local commercial enterprises has also increased the local investment interest and capability in developing aquaculture.

The introduction of improved GIFT stocks to Uganda has not yet occurred to any significant level (though small stocks are reported to have imported) but some actors have been looking into the possibility. However, SON are currently developing a locally improved tilapia strain which has the potential to match the GIFT stocks, and so this may not be a critical issue.

Currently, the licensing system for cage farming is not firmly regulated and though a license can be obtained to set up a cage facility in a water body the license will not be attached to any specific site. It is up to the promoter to find a suitable site, get a lease of the land and negotiate with local communities, specifically through the Beach Management Units, as well as to get an approved EIA for the site.

Infrastructure

Uganda has approximately 70,746 km of main roads of which 23 % is paved and heavier vehicles are generally needed to travel in the rural remote areas, particularly in poor weather. In many cases average speeds are low. In Kampala, road conditions are good, but due to a substantial increase in vehicle users, and the absence of peripheral routings, daytime congestion is increasingly severe.

Fifteen international flight companies operate from Entebbe and the flight time to Europe is approximately nine hours. All of them offer cargo space daily for chilled products while frozen products are taken to Mombasa port, a three day journey by road. The approximate cost for export transport is chilled by air at 1.6 USD/kg or frozen by sea via Mombasa (container) 50-60 USD cent/kg to EU.

Reliable access to electricity has been a challenge in Uganda. However, the GOU has introduced a number of thermal plants as well as finally starting the construction of the 250 MW Bujagali Hydro station. Phone and internet service is steadily improving in the country.

Uganda has a strategic position in the Eastern and Central Africa region. Southern Sudan, Eastern Congo, Rwanda and Burundi are high potential export markets. Sudan and Congo are especially dependent upon

food imports from Uganda due to the conflict situations in these countries. Infrastructure access is variable but well established truck routes exist for all these markets.

Development support

Fisheries resources and their management, particularly in Lake Victoria, continues to receive strategic development support, and the strengthening of the LVFO and the support of its member states makes it likely that such support will increase, as prospects improve for co-ordinated management, wealth generation and ecosystem support. However, with the closure of the USAID programme, one of the major external sources of support for the aquaculture sector has now finished, though a further USAID programme will have some more targeted inputs for the sector. A final summary of future needs of the aquaculture sector by the programme suggested the following:

- Develop a collaborative, coordinated strategic plan among donors to implement a focused aquaculture development program.
- Continue sectoral assistance for feed mills, fish gear manufacturers and aquaculture suppliers, mostly in terms of technical advising.
- Expand private sector advisory services for new farmers to other areas of the country by training more advisors and promoting demonstration farms in the north, west and east.
- Assist farmers in setting up marketing schemes; whereby, they can group their produce for coordinated sales.
- Assist farmer groups in accessing equipment, qualified advisors, quality feed and quality seed at favourable prices.
- Help small commercial fish farms develop by providing loan guarantees, but **only** if services of a certified advisor can be assured.
- Increase utilization of private sector consultants to avoid conflicts of interest associated with government employees.
- Encourage development of an aquaculture curriculum and a Fisheries Department within newer universities, such as Gulu University or Busoga University, to produce highly qualified graduates with proven hands-on experience.

5.2.4 Overview of sector business health

In broad terms, the fishery sector in Uganda, although somewhat constrained by the decline in Nile Perch stocks, is in reasonable condition, with a diverse range of enterprises and a reasonable level of optimism that with good domestic and regional markets, opportunities for business remain reasonable and it merits potential future investment. Though export processing businesses are currently running under-capacity and in some cases have had to cut staff, earlier profitability has helped recoup the major capital costs and it is generally possible to make a working return with reduced operating levels and costs. More widely the interest in commercial development in the sector is relatively strong and there are wealthy and diversified commercial groups who would welcome opportunities. This is particularly the case for aquaculture, though to date the combination of technical constraints have held back immediate action. However, the combination of interests and the potential for turning points suggests that aquaculture could start to grow, and that resources would potentially be available to allow it to do so.

5.3 Conditions and mechanisms for investment

5.3.1 Introduction

This section aims to provide an overview of the investment climate, the different incentives and guarantees available for Norwegian investors as well as an indicative guide to the necessary steps to be taken to establish an operation in Uganda. In overall economic terms Uganda experienced a growth rate of 6.5 % annual in the 1990s, which increased to 8.3 % in the past five years to 2007/2008. The Government has managed to keep inflation on single digit levels. The 2006 inflation level was 7.2 %, slightly higher than the Government's goal of 5 %. The overall ranking of Uganda in key international

reports was discussed in Phase I report (summary in Table 5.12 below). The aim in this country report is to complement these with observations from the field.

Table 5.12: Summary of rankings (Uganda)

Institute/study	Rank
Transparency International CPI	126 (of 180)
Doing Business	111 (181) – 151 in adjusted model
OECD	6 (B or B-)

Out of the four countries targeted for in depth assessment, Uganda is ranked last together with Mozambique by Transparency International Corruption Perception index. Tanzania, Mozambique and Ghana are ranked 102, 126 and 67 respectively.

5.3.2 Investment climate

Investment promotion and support

The Uganda Investment Authority (UIA) was established in by the Investment Code Act 2000 as a semi-autonomous government body to facilitate investment and drive national growth. The services offered by the UIA include:

- provision of market information to investors, if such is available;
- information on general economic conditions;
- identification of investment opportunities;
- introduction to key stakeholders and facilitation of meetings;
- site identification;
- facilitation of business registration, permits and licensing;
- facilitation in acquiring land;
- facilitation of joint ventures as well as; and
- facilitation of a dialogue between the private sector and the government in terms of policy and regulatory development to create a good investment climate.

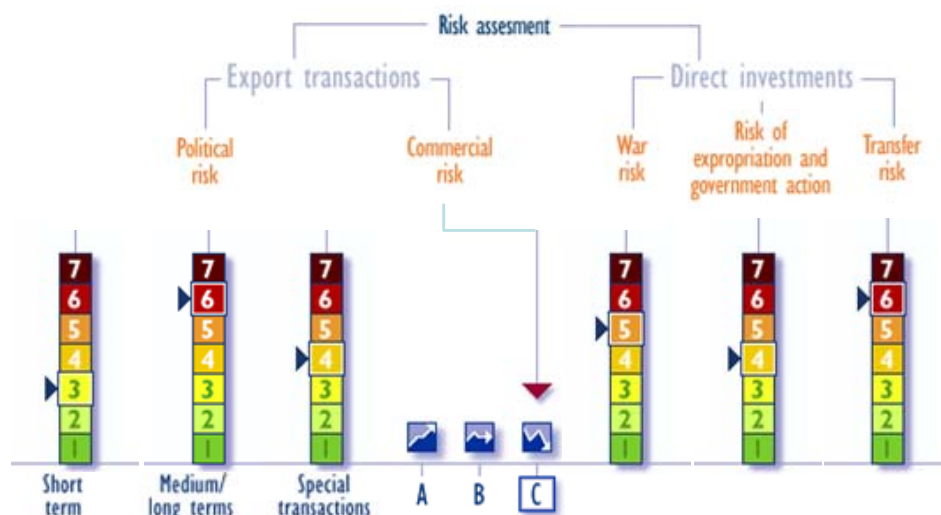
The UIA registered approximately 160 projects in 2002 worth USD 896 million. Of these, 38 % were promoted by Ugandans, 36 % by foreigners and 26 % by joint ventures. Currently, the largest investor is the UK followed by Libya, India and Kenya with Chinese and Pakistani investments steadily growing. Overall, the Government is positive towards foreign investors, allowing them to form 100 % foreign owned companies and majority or minority joint ventures with local investors with no restrictions.

The Uganda Exports Promotion Board (UEPB) is a trade promotion organisation operating under the Ministry of Tourism, Trade and Industry. UEPB was established in 1996, with the mission to “facilitate the development, diversification, promotion and coordination of all export related activities that lead to an export growth on a sustainable basis”. Uganda has set aside more than 1,000 hectares of land to be developed into fully services industrial estates and export processing zones. Uganda also has specially ‘free zones’ where business can be set up in a tax-free environment. Uganda National Chamber of Commerce has a vision to “become a modern and decentralized organisation by global standards” and has the mission to strengthen the private sector in Uganda.

Constraints and risks

The Belgian ONDD³⁴ rates Uganda 3-6 on their political risk scale, ranging from short term to long term risks. The risk of expropriation is medium at 4 while transfer risk is higher at 6. Commercial risks are rated at C which is equal to high risk.

Figure 5.3: ONDD political risk rates (Uganda)



The US Commercial guide for Uganda³⁵ is directed towards US investors in first hand but provides useful insights to the investment climate in general. The guide list the continued high level of corruption, high land cost, high air and rail transport costs, poor infrastructure and inefficient government service. These constraints are commonly cited in the other case study countries as well. The report further argues that even if the Government of Uganda is positive towards Foreign Direct Investments, this is mostly taking place on an ad hoc basis instead of following clearly defined and transparent sector wide investment strategies.

Several reports states that Uganda has had 21 years of political stability which is only partially true, as much of Northern Uganda has suffered from years of conflict between the Lord's Resistance Army (LRA) and Government Forces. The country has not had any political violence as such but after serving his legally approved two terms, the law was changed to allow President Museveni to serve for a third and possibly more terms. Unfortunately this has now created a situation similar to several other sub-Saharan African countries where leaders refuse to step down, and where risks increase of the established power groups over-riding constitutional principles and good conduct in governance. However, more positively the LRA has now been largely forced out of the country, and the improved yet rather fragile peace situation is encouraging people to return and resume domestic and commercial activities.

The Land Act of 1998 regulates the rather complex land tenure system in Uganda. Foreign companies cannot own land but may hold land under long term lease contracts. The current Ugandan land regulations are outdated and little transparency is applied. However, the UIA aims to improve the process of acquire land for investors by keeping a database of all land owners with whom to negotiate over the land. UIA also facilitate the negotiation process. According to the US Commercial guide, it is estimated that approximately 8,000 fake land titles are in existence and hence a foreign investor should always work together with UIA to reduce the risk of negotiating land with wrongful owners.

As stated above, the state of the infrastructure is a serious problem to the economic development in Uganda. Kampala road system is urgent need of rehabilitation and expansion, journeys in and out of

³⁴ ONDD is the Belgian Export Credit Agency (www.ondd.be)

³⁵ US Commercial Service, 2007, "Doing Business In Uganda: A Country Commercial Guide for U.S. Companies"

Kampala that would normally take 40 min to one hour can take up to three hours. The country has suffered from a severe lack of power, a situation persistent in the other case study countries. The situation has improved lately but every larger industry actor would have a backup generator if production levels are to be kept steady. The hope is that the long delayed Bujagali Hydropower Project (250 MW) will assure a more reliable supply of electricity to the network.

Other factors

The financial sector in Uganda is becoming more and more sophisticated and many international banks are present such as Citibank, Barclays and Standard Chartered. However access to capital is rather limited, loans are mostly short term with interest rates ranging from 18-24 % (2007).

Labour is regulated by nine legislative acts of which the Employment Decree of 1975 and the Employment Regulations of 1977 covers contract of services, termination of contracts, protection of wages, hours of work and care for employers. Working hours in Uganda should not according to law exceed 48 hours. A study done by MIGA in 2006, indicated that the cost of professional labour in Uganda is about USD 4,000 per annum which could be compared with USD 14,000 per annum in Kenya and USD 104,000 per annum in South Africa. The wage rate for unskilled labour is approximately USD 57 per month, comparing with the East African average of USD 72 per month.

The Ugandan commercial court has created a mediation process to facilitate commercial disputes. This mediation process has greatly reduced the length of disputes settlements. It now takes approximately seven months to settle disputes as opposed to several years if going through the ordinary Ugandan judiciary.

Uganda is part of the East African Customs Union (EACU) that has agreed to introduce a common customs tariff and remove barriers within the union. Uganda is also a member of the Common Market for East and Southern Africa (COMESA) which is also aiming for lower import tariffs among its member countries. In terms of access to regional markets, other than the EACU, Uganda is well placed geographically to supply war affected countries such as Southern Sudan and Eastern Congo as well as Rwanda and Burundi. All these countries show a high demand for fisheries products and often, prices received at these markets are higher than domestic prices. However, no hard figures in terms of regional demand are available.

Nordic Involvement

A range of Norwegian interests are associated with Uganda, primarily in the construction, agribusiness, telecommunications, energy and business service sectors. Norwegian companies with physical presence in Uganda include Buildmaster, Norplan, Norconsult, Nemko Certification, Sunhill Group of Companies, Nordic Consulting Group, Norema Service, Jumbo Roses, Uno Phone Uganda Ltd, Norcoffee, Global Entrepreneurs International AS, The BroadBand Company and Nortura. Other Norwegian companies not physically present but with interests in Uganda include Agder Energi, Trönder Energi, Veidekke and Reno Norge.

Overview of investment climate

A summary of the investment conditions for new external investors is set out in SWOT format in Table 5.13.

Table 5.13: Investment climate SWOT analysis (Uganda)

Strengths	Weaknesses
• Access to large regional market (ECA and COMESA) • Government is committed to create an enabling environment for investors • UIA established to facilitate investments • Strong economic growth and strategically located to access regional markets	• Weak but upcoming financial sector • No firm regulations in place for aquaculture • High corruption levels
Opportunities	Threats
• Improving social and economic conditions, highest GNP/capita among neighbouring countries • Large areas of available land and water bodies for aquaculture • Improving market condition and value chain for aquaculture • Strong support to cage aquaculture in Lake Victoria	• Widespread impact of Hiv which will have implications on the workforce • Unsure political future and unrest among neighbours

5.3.3 Incentives and guarantees

A foreign investor wishing to establish a business and invest in Uganda must go through the UIA. This section outlines the incentives and guarantees of importance to an investor in Uganda. The objective is to provide an overview of opportunities and give details on where to obtain more information.

Incentive regimes

The Uganda Investment Authority

The UIA act provides for a number of incentives to potential investors. We have listed herein a few of the incentives, for a full set of incentives; the UIA website provides additional information. The Government, through UIA, provides for the following incentives to investors:

1. The corporate tax rate is 30 %, which allows to carry forward losses;
2. The Investment Code guarantees that investors that have invested a minimum of USD 500,000 can repatriate their investment and dividends;
3. Import duty exemptions for plant and machinery;
4. Duty draw back facility for exporters;
5. A number of capital allowances such as 100 % initial allowance for training, 25 % of start of cost spread over the first four years and 50-75 % for plant and machinery depending on the location;
6. Immigration permits for the investors and family. If more expats are required, an application arguing that the specific expertise is not available in Uganda and hence an expat is required, must be submitted to the Immigration Office, via UIA; and
7. Generators of above 100kVA and fuel for own use is exempt from duties.

Export Processing Zones/ Free Ports (Provisional)

It is possible for certain types of export-oriented enterprise to be established in designated export processing zones or to have free port status, which confers benefits such as:

1. A ten year tax holiday for exporters;
2. Withholding tax exemptions on interests, raw materials and plant and machinery;
3. Stamp duty exemptions on increase in share capital and mortgages; and

4. Duty and tax exemptions on raw materials and plant and machinery.

Investment protection and guarantees

Norwegian Investments in Uganda can be insured or guaranteed under the following facilities:

GIEK is a Norwegian facilitated guarantee to heavily indebted countries (HIPC-countries). GIEK follows OECD's principles which imply that GIEK will not guarantee for transactions that contradict with the recipient country's financial-/social strategy. The policy applies only for projects with direct or indirect government involvement. It involves transactions with public buyers, government owned companies, and transactions where government guarantees from HIPC-countries exist. It does not apply for transactions with private buyers or debtors. Furthermore, GIEK offers a special Developing Country Scheme that guarantees credits and investments in developing countries where the risk is estimated too high for guarantees under the General Guarantee Scheme and certain criteria must be met.

MIGA: Eligible investors for MIGA include nationals of any MIGA member country³⁶, provided they are not nationals of the country where the investment is being made. MIGA insures new cross-border investments originating in any MIGA member country, destined for any developing member country. New investment contributions associated with the expansion, modernization, or financial restructuring of existing projects are also eligible, as are acquisitions that involve the privatization of state-owned enterprises.

World Bank Guarantee Programme (other than MIGA):

- **Partial Risk Guarantees (PRG):** Cover private lenders against the risk of a public entity failing to perform its obligations related to a private project. Eligible for IBRD countries.
- **Partial Credit Guarantees (PCG):** Covers private lenders against all risks during a specific period of the financing term of debt for a public investment. Available for countries eligible for loans from IBRD. No overlap with MIGA or IFC
- **Policy Based Guarantee (PBG):** Support of development policy operations, cover part of bond/loan repayment against all risks. No overlap with MIGA or IFC. Eligible for IBRD countries

IFC can offer long-maturity Risk Management Products (RMP) to clients in their member countries. The risk management products (derivatives) are available for hedging purposes in terms of currency, interest rates, commodity prices and hence enable companies to enhance credit worthiness and improve profitability.

ICSID is an autonomous international institution established under the Conventions on the Settlements of Investments Disputes between States and Nationals of other States (the ICSID convention). The prime objective is to provide facilities for conciliation and arbitration of international investment disputes.

ATIA is the Africa Trade Insurance Agency is an inward investment guarantee as well as an Import and Export Credit Agency and offers the following insurance products:

- Trade Political Risk Insurance
- Comprehensive Trade Political Risk
- Foreign Direct Investment Insurance
- Project Loan Cover
- Mobile Assets Cover

³⁶ Norway is a member but not a donor, ie Norwegian Investors are eligible under MIGA

- Unfair Calling of Bonds and Standby Letters of Credit
- Credit Insurance Cover

African Development Bank (AfDB) offers partial credit and partial risk guarantees to all countries eligible for loan under the Bank.

5.3.4 Investment procedures

An investment license authorises the holder to make the necessary arrangements to establish a business. This is required for all foreign investors. The first step is to submit an application to UIA together with a copy of certificate of incorporation, copies of Memorandum and Articles of Association, a business plan and a detailed investment programme. Any foreign investor must show a minimum planned investment of USD 100,000. In addition, all businesses operating in Uganda require a trading license under the Financial Institutions Act 2003. The World Bank Doing Business Report outlines eighteen steps an actor must pass through, before being fully operational, summarised in Table 5.14 below:

Table 5.14: Stages in establishing a business (Uganda)

Step	Action
1	Reservation of a name at the Office of the Registrar
2	Pay fees at the bank
3	Obtain necessary forms
4	Sign the declaration of compliance before the Commissioner for Oaths
5	Obtain requisition for bank pay-in slip and bank payment advice forms from the Uganda Registration Service Bureau
6	Make payment of registration fees at a given bank
7	File with the registrar general
8	File with the local office of the Uganda Revenue Authority and receive a tax identification number
9	Apply for corporate tax file number
10	Apply for VAT registration
11	An inspector for Uganda Revenue Authority inspects premises
12	Apply for Pay As You Earn (PAYE)
13	Obtain application form for trading license
14	The licensing officer arranges inspection of the premises and fills out an assessment form
15	Pay the license fee at the bank
16	Obtain trading license
17	File form with the National Social Security Fund (NSSF)
18	Make a company seal.

In addition to the strictly business related registrations outlined above, an aquaculture project must also obtain licenses and permits from the Water Commission, the Department of Fisheries as well an approved Environmental Impact Assessment (EIA) by NEMA, regulated by the Environmental Impact Assessment Regulation, (S.I. No. 13/1998).

5.4 Investment opportunities

5.4.1 Introduction

Uganda has an active fisheries sector with a strong market and export orientation. There has been widespread investment interest in the sector from both domestic and external investors, with value addition and aquaculture the primary focus of interest. Considering both the broad criteria for investment selection set out in the initial section of the report, and the practical issues emerging from discussions in Uganda, a number of options could be identified.

5.4.2 Predefined suggestions

The Directorate of Fisheries has highlighted that the country aims to increase aquaculture production as the stock of fish in the major Lakes has shown signs of decline and as demand for fish products continues to increase. The Department is discussing setting up specific aquaculture parks for the development of cage culture in Lake Victoria and the aim is to bring up production levels through aquaculture to 300,000 to 400,000 tonne yearly. It is not completely clear whether these will have to be designated before site allocation can proceed, but the current view is that potential cage culture ventures could proceed independently (see earlier). The Uganda Investment Authority lists the following as potential opportunities within the sector, and we note the likely interest associated with these:

1. Manufacture of value added fish products: currently no company is processing fish into finished products such as canned fish, fish sausages, fish soup or breaded products; *this may have some potential, most likely within a wider food operation; markets for many of these are untested and margins may not be high enough.*
2. Local and regional cold distribution chain; *there is evidence that this is starting to pick up – applicable to the wider food sector; however it will represent only a small share of the national and regional market and for fishery products is likely to be a small-medium scale business at most.*
3. Dry/smoked fish: there is high demand for this type of fish in the region but the production is currently characterised by artisanal operations and hence could benefit from a larger investment. The consumption of smoked fish in EU has also increased lately, providing for a potentially good export market. *There may be some potential, but with potentially negative social consequence; for anything but informal trade to the EU this will be subject to strict quality and hygiene standards.*
4. Production of value added by-products: There has not been any significant investment in the waste handling sector and specifically in operation adding value to the waste such as producing fish oil, fish meal or tanning the skin into leather. *Some local businesses – eg Alpha Group are already moving into this sector; some of these are small-scale and localised, but others, as with the Alpha Group may justify further examination.*
5. Fish export marketing; *this is a generic area of opportunity and could be relevant to both capture fishery and aquaculture production for regional and international markets; key issues will be supply, quality and competitive transport and distribution options.*
6. Ornamental fish; *this is a specialised area which may have opportunities for small-medium scale production, either through fishing – possibly subject to conservation restrictions – or aquaculture; regional competition, eg from Tanzania and Malawi could be an issue.*
7. Aquaculture: small and large scale farming. According to UIA, a closed fish farm system with the capacity of producing 200 t per acre annually that has equipment for breeding, hatching, fish fattening and fish tanks would cost approximately USD 1.5 million; *this technical option is not usually competitive at local or international levels, but cage aquaculture (see later) could be much more viable.*

5.4.3 Review of findings

Generic elements

Lake Victoria offers a huge resource in terms of cage aquaculture and over the medium-longer term could become the base of a very large and globally competitive industry. Uganda also has other lakes but they are less utilised due to the lower level of infrastructure and/or poorer access to main market and commercial centres. In terms of utilising the potential of Lake Victoria, and compared with Kenya and Tanzania, Uganda is potentially best placed for aquaculture development as Kampala, Entebbe and Jinja, three major market centres, are placed just by the lake, facilitating supply of inputs and also market access, by air to exporting markets and by road via Mombasa. Although Kisumu in Kenya and Mwanza in Tanzania have useful infrastructure components the major centres are distant from the lake, closer to the central and coastal zones.

Uganda is strategically located with access to a number of regional and international markets. It already has very well established export links into the EU market and the membership in COMESA offers markets in 20 countries with a population of 300 million. EAC itself provides a market with 90 million people.

As the capture fishery lands of Nile Perch shows signs of full or over exploitation, The Department of Fisheries together with the Lake Victoria Fisheries Organisation will put an increased focus on the development of commercial aquaculture and support the market conditions. The main challenges to establish a commercial farm was stated to be lack of feed and fingerlings but recent developments within these two sub-sectors will likely improve the conditions further.

Among the countries neighbouring the Lake Victoria, Uganda is the best placed to pursue large scale aquaculture. Uganda is the country with the largest area of the water body in its territory; they have the necessary infrastructure in terms of roads, airports and processing plants located by the lake.

Domestic competition in terms of cage farming is so far not very developed. However, the sector is building up and hence if an actor wants to become a strong brand in the region and secure a certain level of market position, the timing is right to enter into Uganda cage farming. In terms of regional competition, Kenya and Rwanda have had some initiative on cage farming but they are assessed to be years after Uganda hence strong regional competition should not be a near time threat.

Specific opportunities

The team see as the four main areas of investment as being:

1. Fish feed production: Currently this activity is on a small scale level and has the potential to become an important regional supplier of fish feed.
2. Seed and hatchery: This activity is becoming more established but is still at small scale level. As aquaculture is to be a central activity promoted by the Government, secure supply of high quality seed will be crucial.
3. Production using cages: An activity that is not yet developed in the country or in the region. As Uganda offer good water resources, cage farming in Uganda offers a good potential and a strategic regional market position.
4. Service and support: The sector is not yet developed but a number of actors are looking for ways to develop the sector and technical support from an international actor would greatly benefit the sector. However, given that the aquaculture sector is not yet in full bloom, an investment in service and support is likely to be a longer term investment that could potentially create a strong strategic market position in five to ten years horizon.

An investment in cage culture in Uganda, likely by a strategic partnership by an already established business, could provide for short term returns while also securing a market position in a region and in a

sector which is yet to boom. However, careful studies of the supply-demand relation for the fish species to be farmed are required as little such data is available at the moment.

5.4.4 Investment partners

Major investment potential

Source of the Nile (SON) with Lake Harvest and Greenfields Ltd as the two main shareholders, would be a key strategic partner if entering into aquaculture in Uganda. Lake Harvest has built up the largest farm in Africa, in Zimbabwe, that has been in operation for eight years. They moved into Uganda four years ago and their next strategic move will be to enter into Ghana to reach the West African market. They already collaborate with Crystal Lake and Tropo Farms in Ghana to initiate their own market entrance. Hence, a strategic partnership with SON would provide a good platform to create a market position, not only in Uganda but also in Ghana. They would be more interested in sector partners and not pure financial institutions or venture capital. They would prefer a company that has the intention to put funds and efforts into African markets with a long term perspective and hence secure the future of the operations.

Medium scale investment potential

Fourway Groups are continuously interested to team up with foreign investors in order to diversify their operations into aquaculture. They are themselves reasonably new in the field of aquaculture, having had two processing plants for Nile Perch in their current operations. However, they initiated collaboration with Genomar which resulted in construction of a number of ponds and a water system ready to be used.

Kahoora Enterprise is currently not in fish feed production but was introduced to the sector via the USAID FISH project. Equipment has been sourced from the US and the owner of the company is currently seeking further investment to finalise purchase. The aim is to produce floating fish feed for the domestic and regional market. This could be a potential collaboration partner together with SON as this company has all the equipment or as a separate investment partner if the focus is only on the fish feed supply.

Alpha Group Biotech is operating within the sector of value addition of fish waste. They are currently producing fish oil and fish powder from Nile Perch and the product is unique in that it is made of fresh water fish and has shown very good nutritional levels. However, they are currently lacking the marketing and export skills needed to enter the larger international markets.

Small scale investment potential

Uganda Fishnet Manufacturers (UFM) expressed a willingness to provide a lease contract for anyone interested in producing cage farming equipment on a larger scale, using UFM already established equipment. However, as Aga Khan is a foundation, they cannot enter into commercial partnerships.

5.5 Conclusions

Uganda has an active, diverse and relatively well developed fishery sector, with particular investment, production and market strengths associated with the Nile Perch fishery in Lake Victoria, but with a range of other significant species and fisheries resources. International export, mainly of fresh and frozen Nile Perch fillets, and regional trade in a wide range of other species has supported a substantial post-harvest industry, in the former case with facilities fully meeting international standards.

As in many other cases there are concerns about overfishing, and Nile Perch stocks in particular have declined, though may stabilise under emerging regional management measures. Although aquaculture has been promoted for some decades, mainly in artisanal ponds, it is only recently moving towards becoming an effective sector. It is expected to become more important in meeting national and regional needs, and is potentially tipping towards significant expansion.

In development terms, Uganda has well established export links with main markets including EU, USA and the Middle East. It is strategically located, linking the East and Central African communities, and is a major regional market route, supplier and location for added value. Its major infrastructure is located within a 100 km radius of Kampala, around the upper shores of Lake Victoria, providing a good resource cluster for investment. In spite of some specific issues, economic, fiscal and business support conditions are generally positive, and improving political conditions have been accompanied by good levels of economic growth. A simple test of the climate in this respect is whether businesses are developing within the country and foreign direct investment is active and growing. It is clear that Uganda has a vibrant and growing economy and that many external partners are contributing to it.

The review has shown that investment opportunities at a range of scales are potentially available in both the aquaculture and value-added sectors, or in a more integrated approach. These have both national and regional potential, and would include:

- Aquaculture; large to very large scale cage culture of tilapia for regional and international markets; development and supply of high quality aquaculture starter and on-growing feeds for tilapia and African catfish (clarias); development of specialist hatchery and seed production for tilapia and catfish; provision of service and support functions for commercial and artisanal producers; and
- Value addition; diversification of existing Nile Perch processing, and development of tilapia products; organisation of capture and value addition for small-scale pelagics in Lake Victoria and other lakes.

Small-scale, more specialised opportunities may also exist in producing ornamental freshwater species and in organising supply and external markets for ethnic food products. Potential partners can be identified for all of these themes, and indications are that joint ventures or other commercial initiatives could be established in relatively short time. Compared with the other countries reviewed in detail, Uganda has the best opportunities for shorter term commercial development, and also has strong potential for regionally based growth. It also has the most directly identifiable opportunity for a major regional scale aquaculture based business, potentially to be developed to globally competitive scale.

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Ghana National Chamber of Commerce	+233 21 662427	gncc@ncs.com.gh

6.2 Mozambique

Name	Organisation/Agency	Phone	E-mail
Government Bodies			
Angelica Dengo	Ministry of Fisheries, Chief Department for International Cooperation	+258 823160070	adengo@mozpesca.gov.mz
Ivone Lichucha	Director Fisheries Administration		ilichucha@mozpesca.gov.mz
Isabel Omar	Institute for Aquaculture Development	+258 843991080	lomar@mozpesca.gov.mz isabelomar@hotmail.com
Edson Jose	Institute for Aquaculture Development		ejose@mozpesca.gov.mz
Ana David Timana	National Institute of Fisheries Inspection (INIP)	+25821315226/8 +258824768750	atimana@inip.gov.mz
Domingos Zefanias Gove	National Director, Fisheries Research Institute	+258 21 490307/21499963 +258823118530	domingosgove@moziip.org
Mussa Usman	Investment Promotion Centre (CPI)	+258 21313310/ 21313375/21313299 +258 823032920	musman@cpi.co.mz
Donors			
Clarisse Barbosa	Programme Officer Fisheries, Royal Norwegian Embassy	+258 21 480 100	cba@mfa.no
Maria Imelda Sousa	EU Commission, Maputo	+2581481000/494949	Imelda.sousa@ec.europa.eu
Gudmundur Valur Stefansson	Project Manager Fisheries Project, Icelandic International Development Agency (ICEIDA)	+258 21 483 509	gudmundur@iceida.is
Private Sector – overall fisheries associations			
Mr Moises Rafael Massinga	National Fisheries Association (ANAP) Also owner of Industrial fleet: Mavimbi Lda Three semi-industrial fleet: Pesca Norte (processing plant and boats); Indico Pesca and Supesca	+258 823016670	mrmassinga@tvcabo.co.mz
Sheinaze	ASSAPEMO – Mozambique	+25821431615	sheinaze@yahoo.com

Name	Organisation/Agency	Phone	E-mail
Sulemane	Fisheries Association Representing the company SSSS Ltd	+258823849935	
Private Sector – semi-industrial			
Carlos Silva	ARMAPESCA – Semi-Industrial Fisheries Association Also owner of Pescas do Sul (semi-industrial boats, small processing plant and exporting)	+258 21 320255 +258 82 3014150	polymar@tvcabo.co.mz pesul@tvcabo.co.mz
Nuno Rego	Semi-industrial (2 boats and shop)		nunorego@kpmg.com
Private Sector – Industrial Shrimp Fleet			
João Marcos Mangave	AMAPIC – Associação Moçambicana de Armadores de Pesca Industrial de Camarão	+25821308464 +258823159920	amapic@teledata.mz jmmangave.amapic@teledata.mz
Private Actors - Other			
Alexander Shalke	Blue Water Marine Service Lda	+258823191610	Alexander.schalke@gmail.com
Peter Micklewright	Blue Water Marine Service Lda	+258823055600	petemick@fastmail.fm
James Wilson	Kusi Limitada Consultores	+258214867884/823184890	kusimoz@mac.com

6.2.1 Additional Contact Information

Organisation	Phone	E-mail
Institute for Export Promotion (IPEX)		contactos@ipex.gov.mz www.ipex.gov.mz
National Directorate for Environmental Impact Assessment (NDEI)	+258 21492403	lucracia.lopez@micoa.gov.mz fernando.conta@micoa.gov.mz
Confederation of Business Associations (CTA)	+ 258 21 491914	www.cta.org.mz
National Chamber of Commerce (Chambre de Commerce du Mozambique)		mzchamber.rc@teledata.mz
ACIS	+258 23 325997	acis@acisofala.com acisofala@yahoo.com http://www.acisofala.com/

6.3 Tanzania

Name	Organisation/Position	Phone	Email
Government Agencies – Fisheries and Aquaculture			
Esther Mndene	Department of Fisheries, Ministry of Livestock Development and Fisheries, Acting Assistant Director		eyesmndeme@yahoo.com <i>However, she left the Department after the team's field visit. New contact is: Mr. Emmanuel Koyano (FsO)</i> koyanoee@yahoo.com
Dr Ben Ngatunga	Tanzania Fisheries Research Institute	+255 784 369755	
Mr Mahongo	Tanzania Fisheries Research Institute	+255 245449	
Licensing and permits			

Name	Organisation/Position	Phone	Email
Mr Ignas Mchallo	Director of EIA, NEMC	+255 754 611 333	www.nemctan.org nemc@nemctan.org
Liliam Lukambuzi	Officer, NEMC	+255 754 265158/715265158	Lilian_luka@yahoo.com
CEO, Mr Esteriano Mahingila	Business Registration and Licensing Authority (BRELA)	+2552180141/2180113	www.brela-tz.org usajili@intafrica.com.com
Patricia Mhondo	Investment Promotion Manager (Foreign), Tanzania Investment Centre	+255 784 966 669	www.tic.co.tz mhondo@tic.co.tz
Mr Machemba	Tanzania Chamber of Commerce, Industry and Agriculture	+255 222 119 436 +255 784 665053	dmachemba@tccia.com dmachemba@gmail.com
Executive Secretary	Tanzania National Business Council	+255 22 2124297/ 222139681	www.tnbctz.com tnbc@africaonline.co.tz
Dr Meru	Director General, Export Processing Zones Authority	+255 754 299 494	admeru2003@yahoo.com
Zawadia Nanyaro	Director of Development, Export Processing Zones Authority	+255 784 266 009	znanyaro@epza.co.tz
Donor and NGO active in the field			
Juzar Sachak	Program Manager, ECDI/VOCA (seaweed, crab fattening and milk fish farming)	+255 784 660 051 +255 713 660 051	jsachak@acdivoca-tz.org jsachak@yahoo.com
Jane Kibbassa	Environmental Specialist (MACEMP), World Bank	+255 754 282 478	jkibbassa@worldbank.org
Louise Setshwaelo	FAO country representative	+255 22 2135244	louise.setshwaelo@fao.org
Other key stakeholders			
Mr Machemba	Director of Planning and Budgeting, Tanzania Chamber of Commerce, Industry and Agriculture (TCCI)	+255 22 219436	dmachemba@tccia.com dmachemba@gmail.com www.tccia.com

Private Actors - Coastal			
Mr Nwani	Director, Tanzania Industrial Fishing and Processors Association (TFIPA), Dar es Salaam	+255 784 484717	tifpa@bol.co.tz
Eric Allard	Director, Sea Products Ltd, Tanga		eric@seaproductstanga.com
General Manager	Alpha Krust Ltd, Tanzania, Dar es Salaam	+255 222128828	secretary@alphatz.com
	Bahari Foods Ltd, Dar es Salaam	+255 270 1715/16	bhagat@naturesbountytz.com info@naturesbountytz.com
	Tanpesca (Prawn Farming, Mafia Island), Dar es Salaam	+255 22 2128828 +255 22 2128854	tanpesca@alphatz.com esposito@alphatz.com
	Fruits de la mer, Dar es Salaam	+255 22 286 2501/02	samshufdm@simbanet.net
Private Actors – Lake			
	Kagera Fish Company, Bukoba	-	kagerafish@yahoo.co.uk
	Musoma Fish Processors Ltd, Musoma	+255282622988/9	mfpl@alphatz.com vedagiri@alphatz.com
	Mwanza Fishing Industries Ltd, Mwanza	+255 282560885 +255 282560946 +255 28256 0868 +255 28257 0035	mwansafish@thenet.co.tz muntaz_velji@yahoo.com
	Nile Perch Fisheries Ltd, Mwanza	+255 28257 0432	info@nileperchfisheries.com
	Omega Fish Ltd, Mwanza	+255 282560665	omegafish@africaonline.co.tz

Private Actors - Coastal			
	Prime Catch Exports Ltd	+255282640002/3	pcl@tilleygroup.com nadir@tilleygroup.com http://www.tilleygroup.com/ (Ugandan Based)
	Tanperch Ltd, Mwansa	+255 22 2600293	tanperch@qualityg.com
	Tanzania Fish Processors, Mwansa	+255282550105	tfpl@alphatz.com vedagiri@alphatz.com
	Vicfish Ltd, Mwansa	+255 282551596 +255 282552306	murtaza@naturesbountytz.com bhagat@naturesbountytz.com
	Vicfish Ltd, Bukoba	+255 282551596 +255 282552306	murtaza@naturesbountytz.com bhagat@naturesbountytz.com
Private Sector - Aquaculture			
Mike Leach	Ngare Seru Trout Farm	+255-27-255-3638	mike@gmp-engineers.com
Tim Leach	Ngare Seru Trout Farm	+255-27-255-3638	tim@ecotz.com
Ganeshan Vedagiri	Alphakrust Ltd, Shrimp Farm	+255 784233651	vedagiri@alphatz.com
Glen Bieber	Prawnto Ltd	+255 786713172	prawnnto@hotmail.com
Satendranath Tiwari	Vic Fish		tiwari@baharibounty.com

6.3.1 Zanzibar

Name	Position/Organisation	Phone	E-mail
Executive Director	Zanzibar Investment Promotion Authority	+255 24 2233026	www.zanzibarinvest.org zipa@zanzinet.com zipaznz@zanzinet.com

6.4 Uganda

Name, Position	Organisation/ Agency	Phone	E-mail	
Government Bodies				
Dr Wilson Mwanja, Commissioner for Fisheries Resources	Ministry of Agriculture, Animal Industry and Fisheries Resources	+256 772 594923	wwwmwanja@fisheries.co.ug	
Mr David Tilia, Head of Aquaculture	Ministry of Agriculture, Animal Industry and Fisheries Resources	+256 777525693	tiliadavid@yahoo.com	
Dr Rhoda Tumwibate, Regulation and control	Ministry of Agriculture, Animal Industry and Fisheries Resources	+256 772927886	t60rhoda@yahoo.com	
Mr Dick Nyeko, Executive Director	Lake Victoria Fisheries Organisation	+256 434 120205 +256 772 721455	dnyeko@lvfo.org	
Prof Maggie Kigozi, Executive Director	Uganda Investment Authority	+256 414301 000	info@ugandainvest.com mkigozi@ugandainvest.com www.ugandainvest.co.ug	One-stop-shop for investors
Joseph Tomusange, Ambassador	Ugandan Embassy, Denmark	+45 396 20 966	info@ugandaembassy.dk	Ugandan Embassy to Scandinavia
Margret Otteskov,	Ugandan	+45 396 20 966	m.otteskov@gmail.com	Ugandan Embassy to

Name, Position	Organisation/ Agency	Phone	E-mail	
Investment Officer	Embassy, Denmark			Scandinavia
Mr Nokleby, Programme Director	Confederation of Norwegian Enterprise	+47 67535350	nnokleby@online.no	Administrator of Private Sector Development Programme
Donors				
Mary Mabweijano, Senior Programme Officer, Private Sector Development	Norwegian Embassy, Kampala	+256 417112004	mary@mfa.no	
Germund Säter, Deputy head of mission	Norwegian Embassy, Kampala	+256 41711 2000	gjs@mfa.no	
Björg S Leite, Ambassador	Norwegian Embassy, Kampala	+256 41 711 2000	bsl@mfa.no	
Dr Nelly Isyagi, Veterinary/Aquacultur e Specialist	USAID FISH Project Independent consultant	+256 782 728028	Nisyagi18@yahoo.co.uk	PhD for Prof James Muir in aquaculture at Stirling University, previously Programme Coordinator for USAID FISH project, now Consultant
Private Sector				
Patrick Blow, CEO	Lake Harvest, Jinja	+256 78 640078	pblow@lakeharvest.com	Partner in Source of the Nile (S.O.N), operating the largest cage farm in Africa, in Zimbabwe
Philip Borel de Bitche, Managing Director	Greenfields Uganda Ltd	+256 752764764	iil@infocom.co.ug pborel@infocom.co.ug www.greenfieldsuganda.com	Partner in Source of the Nile (S.O.N), also operating a processing plant; Chairman in UFPEA as well as Chairman of the newly established regional Association.
Mohamood Thobani, Managing Director	Fourways Investment Ltd A member of Fourways Group of Companies	+256 772 786499	fourways@infocom.co.ug	Group owns two processing plants (Ngege Ltd and Gomba), have three ponds and are active within coffee processing/export; oil palm; fuel distribution and farming
D Kasozi, GM – Operations	Fourways Investment Ltd A member of Fourways Group of Companies	+256 75700943	dwalukaalikasozi@yahoo.com	As above
Moses Kasule-Kalanda, Director	Fourways Investment Ltd A member of Fourways Group of Companies	+256 782683790	moseskalanda@yahoo.com	As above
Lucy Pelham Burn, Head of Corporate Social Responsibility	New England Seafood		lucy@neseafood.com	Middlehand from fish from developing countries to large retailers such as Marks and Spencer, and Waitrose
Aga Sekalala, Managing Director	Ugachick Poultry Breeder Ltd	+256 77 2702905	ugachick@infocom.co.ug sekalala@infocom.co.ug www.ugachickug.com	Producing sinking pellets but about to start producing floating

Name, Position	Organisation/ Agency	Phone	E-mail	
				fish feed
Maurice Kajura, Managing Director	Kahooru Enterprise Ltd		kahooru@gmail.com	About to import equipment to start producing floating fish feed, currently producing local beer
Eng. Alex Turihohabwe, CEO	Blessed Investments Ltd	+256 39 2948747	Blessed_investments@yahoo. co.uk	Pond farmer, small commercial
Mary Zaramba, Managing Director	Samarieza Mixed Far Ltd	+256 772 431166	samarizamixedfarm@yahoo.c om	Small scale pond farming of Tilapia, member of WAFICO
Sujal Goswami, General Manager	Alpha Group Uganda, Alpha Biotech	+256 41505991 +256 772 796978	sujal@alphauganda.com	The Alpha Group has six processing factories around Lake Victoria, shrimp farm at Mafia Island, Tanzania as well as a Biotech company I Uganda producing fish oil and powder.
Nitin Suvarna, General Manager	Uganda Fishnet Manufacturers Ltd	+256 75 2704345	nitin@ipsuganda.com	Part of IPS group under Aga Khan Foundation for Economic Development, producing fishnets for capture fishing and cage nets on order
Associations				
Ovia Katiti Matovu, CEO	Uganda Fish Processors and Exporters Association (UFPEA)	+256 772 631058	ufpea@infocom.co.ug ociakk@yahoo.com www.ufpea.co.ug	Membership based association, 16 processing plants are members, Chairman: Philip Borel de Bitche
Ahmed Kibirige, Advisor	WAFICOs	+256 772 441572	kibskibirige@yahoo.com	
Leonard Msemakweli	Uganda Cooperative Alliance		lmsemakweli@uca.co.ug	

6.4.1 Additional contact information

Organisation	Phone	E-mail/Website
National Environmental Management Authority (NEMA)	+256 414 251064/5/8	info@nemaug.rog www.nemaug.org
Uganda Export Promotion Board	+256 41 230250	www.ugandaexportsonline.com
Private Sector Foundation Uganda	+256 41 342 163	www.psfuganda.org
Uganda National Chamber of Commerce and Industry	+256 41 258 791	www.ugandachamber.co.ug

6.4.2 Processors

Company	Phone	E-mail	Products
Ngege Ltd, Kampala Managing Director: Mr Kassam Nathoo	+256 41 221 362	ngege@imul.com	Fresh and frozen fish fillet of Nile Perch
Gomba Fish Industries, Jinja Managing Director: Mr Yusuf Karlami	+256 43 122107	gombaf@infocom.co.ug	Fresh and frozen fish fillet of Nile Perch, fish skins
Unifoods Ltd, Kampala	+256 43 122107	gombaf@infocom.co.ug	Fresh and frozen fish fillet

Company	Phone	E-mail	Products
Mr Yusuf Karmali			of Nile Perch
Uganda Fish Packers, Alpha Group, Kampala Managing Director: Mr Riyaz Kurji	+256 41 287970	ufp@alphauganda.com	Nile Perch fillets and related by-products
Greenfields Uganda Ltd, Kampala Managing Director: Mr Philip Borel	+256 41 321141	iil@infocom.co.ug	Fresh and frozen fillets of Nile Perch
Byansi Fisheris Co, Masaka Managing Director: Mr Paul Wasswa	+256 481 220062	byansifisheries@yahoo.co.uk infbyansifisheries@yahoo.co.uk	Fresh/Frozen fish fillets, Nile Perch/Tilapia, Skin on fillets, Whole gutted
Fishways Uganda Ltd, Entebbe General Manager: Mr Irfan Jessa	+256 41 322211	lrfan@tilleygroup.com	
Freshwater Fish Industries Ltd, Masaka Managing Director: Mr Moyez Kassam	+256 41 258860	marine@starcom.co.ug	
Tampa Fisheries Ltd, Kampala Managing Director: Mr Moyez Kassam	+256 41 258860	marine@starcom.co.ug	
Marine and Agro Export Processing Ltd, Kampala Managing Director: Mr Moyez Kassam	+256 41 258860	marine@starcom.co.ug	Frozen and chilled Nile Perch products, head and gutted fish
Igloo Food Industries Ltd, Kampala General Manager: Mr Zulequar Ahamed	+256 41 258860	marine@starcom.co.ug	
Oakwood Investment Ltd, Kasensero, Rakai General Manager: Mr Shakel Ahamed	+256 41 258860	marine@starcom.co.ug	
Hwan Sung Ltd, Kampala General Manager: Mr Jeung Bong Ahn	+256 41 285355	hsltd@hwansunggroup.com	Fresh and frozen Nile Perch fillets
Masese Fish Packers, Jinja Managing Director, Mr Riyaz Kurji	+256 43 122111	mfpuganda@spacenet.co.ug	Nile Perch fillets and related by-products
Tropical Fish Industries Ltd, Kampala Managing Director: Mr George Begumisa	+256 41 344237	tropical@infocom.co.ug	Processed fish maws, bladders, skins, and other related by-products
Begumisa Enterprise Ltd	+256 41 254984	begumisa@infocom.co.ug	Fish Fillets, Fish Maws, Cow horn tips, Cow gall stones
Uganda Marine Products, Kampala Managing Director: Mr Yogesh Grover	+256 41 531 695	ump@infocom.co.ug	Fresh and frozen fillets

6.4.3 Others – service and supply

Company	Phone	E-mail	Products
Booth Manufacturing Ltd, Kampala	+256 414342891	ual@swiftuganda.com	Fish boxes
Kalisizo Victoria Fishnet, Kalisizo	+256 481 422062	byansifisheries@yahoo.co.uk	Fishing nets
Kyotera Victoria Fishnet Co Ltd, Kampala	+256 41235814		Fishnets

Company	Phone	E-mail	Products
Lake Victoria Fishing Industries, Jinja	+256 434121032		Fishnets, nylon twines, cotton thread, generators, outboard engines
Nile Fishing Company, Kampala	+256 414259832		Generators, outboard engineers, spareparts, fishnets, twines
Tropical Fish Industries (Begumisa Enterprise Ltd)	+256 41233812	begumisa@spacenet.co.ug	In addition to processed fish: they import fish nets, fish machinery and outboard engines
Isopack Ltd	+256 41 347775		Expanded polystyrene products such as fish boxes and fish floats



Nordenfjeldske Development Services

NFDS NORWAY

Postal address: Vegamot 8, 7048 Trondheim, Norway

Tel: +47 91632277, Fax: +47 73827719

Email: nfds@nfds.info

NFDS SOUTHERN AFRICA OFFICE

Postal address: Postnet Kgale, Private Bag 351#145,

Gaborone, Botswana

Tel: +267 3926298, Cell: +267 71559767, Fax: +267 3926290

Email: nfds@nfds.info



www.nfds.info

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Nordenfjeldske Development Services