

APPENDIX 3

**SUSTAINABILITY IMPACT ASSESSMENT OF PROPOSED WTO
NEGOTIATIONS: THE FISHERIES SECTOR**

COUNTRY CASE STUDY: GHANA

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List of Acronyms

ACP	African, Caribbean, Pacific
CECAF	Committee for Eastern Central Atlantic Fisheries
DfID	Department for International Development
DoF	Directorate of Fisheries
EEZ	Exclusive Economic Zone
EU	European Union
ECOWAS	Economic Community of West African States
FAO	Food and Agriculture Organization
FOE	Friends of the Earth
FCUBE	Free Compulsory Universal Basic Education
FVO	Food and Veterinary Office
GAFCO	Ghana Agro-Food Company Limited
GAFEA	Ghana Assorted Food Exporters Association
GDP	Gross Domestic Product
GEPC	Ghana Export Promotion Council
GLSS	Ghana Living Standards Survey
GNA	Ghana News Agency
GOG	Government of Ghana
GSB	Ghana Standards Board
GSP	Generalised Schemes of Tariff Preferences
GSS	Ghana Statistical Service
HACCP	Hazard Analysis Critical Control Point
ICCAT	International Commission for the Conservation of Atlantic Tuna
IOC	Intergovernmental Oceanographic Commission
LDC	Least Developed Countries
MoFA	Ministry of Food and Agriculture
MoFI	Ministry of Fisheries
MT	Metric Tonne
NAFAG	National Fisheries Association of Ghana
NEPAD	New Partnership for Africa Development
SANAS	South African National Accreditation Service
SFLP	Sustainable Fisheries Livelihoods Program
SPS	Sanitary and Phytosanitary Measures
TBT	Technical Barriers to Trade
UBC	University of British Columbia
UNDP	United Nation Development Program
WRI	Water Resources Institute
WTO	World Trade Organization

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Executive Summary

This study attempts to analyze the possible impact of the World Trade Organization's (WTO), Doha Development Round on Ghana's fisheries sector. The WTO agreements of relevance for fisheries are: Agreement on Sanitary and Phytosanitary Measures (SPS); Agreement on Technical Barriers to Trade (TBT); Agreement on Subsidies and Countervailing Measures; Agreement on Import Licensing Procedures; Agreement on Anti-Dumping; Agreement on Rules of Origin; Dispute Settlement; and, Tariff reduction.

Ghana is both an exporter and importer of fish. Over the years, Ghana has exported large volumes of fish to international markets, particularly to the EU. As a signatory to the ACP-EC Partnership Agreement, Ghana currently enjoys a zero tariff on its fish/fishery products exports into the EU. To comply with the agreements on the Application of Sanitary and Phytosanitary Measures (SPS) and the Agreement on Technical Barriers to Trade (TBT), Ghana has developed domestic food safety and quality standards which are mandatory. Efforts are being made to harmonize these domestic standards with those of the EU. Additionally, the government of Ghana provides subsidies largely to support artisanal fisher men and women.

Analyses of the possible impacts of the Doha Round indicate that the reduction in tariffs will have the greatest impact, including:

- Erosion of Ghana's preferential access to and competitive advantage on the EU fish market
- Ghana's fish and tuna exports will become uncompetitive
- Profits from exports will be reduced as a result of decreasing volumes and depressed prices
- Unemployment, as exporting businesses will lay off workers to reduce production cost
- Poverty arising from unemployment
- Limited investment in infrastructure and facilities as a result of reduced profits
- Reduced government export receipts due to low volumes of exports and profits.

Significant changes in the food safety and quality standards might bring about some capacity building issues which would put strain on the resources of the country and fish exporting companies.

The government of Ghana (GOG) provides some subsidies largely to support artisanal fisher men and women. If these subsidies are removed as proposed, a significant number of fisher folk will be out of business, with grave consequences; poverty would increase and access to primary health care and education could suffer.

To mitigate and/or enhance the identified impacts, the following recommendations are proposed:

Tariff Measures

- i. Ghana should invest in the provision of infrastructure, support systems and modern efficient technology in the fisheries sector to reduce production cost.
- ii. Ghana should seriously work towards developing the West African and African regional markets.
- iii. Ghana should institute ecolabelling as a fisheries management tool and a marketing strategy.
- iv. Ghana and other ACP countries should endeavour to negotiate for compensatory payments to cover losses from the preference erosion.

Non-Tariff Measures

The capacity of the Ghana Standards Board should be strengthened to enable it play its role in developing standards, ensuring compliance and certifying exports and imports.

Subsidies

- i. The government, through the Ministry of Fisheries, should design and implement alternative livelihood programs as a safety net for fisher folk when subsidies are removed.
- ii. The government should take an integrated approach towards managing and protecting resources in its exclusive economic zone.

Aquaculture

Led by the Ministry of Fisheries, the government, research institutions and the private sector should work towards developing aquaculture into a medium to large scale commercial industry.

Capacity building

Ghana needs to resource the Regional Maritime Academy to develop the necessary manpower in tuna fishing technology to ensure sustainable development of the tuna industry in Ghana.

Institutional Support

A solid institutional support will be required for the successful implementation of most of these recommendations and it is hoped that the recently created Ministry of Fisheries will be able to provide the necessary leadership and direction.

1. Introduction

1.1 Background

Ghana has a long tradition of a very active fishing industry and fish provide an importance source of animal protein for most Ghanaians. Ghana's fishing industry has made tremendous strides over the years, developing from a predominantly traditional canoe fleet to a mix of traditional and modern fleet, including industrial trawlers. Bounded on the south by the Gulf of Guinea, Ghana has a 550 kilometre coastline and a total continental shelf area of about 24,300 square kilometres that support a marine fishing industry. Ghana also has a system of rivers, lagoons and lakes that form the basis of an inland fisheries industry. The fisheries sector has for a long time provided a source of employment for Ghanaians living in close proximity to these resource bases.

The fishing industry in Ghana started as an artisanal fishery with very simple and inefficient gears and methods operating close to coastal waters, lagoons, estuaries and rivers. Fish caught were mainly to meet domestic demand for fish especially in the towns and cities. There were limited exports to neighbouring West African countries. Therefore, fish has far-reaching implications for food security in Ghana. Fish supplies naturally augment food availability; consumption of fish improves on the utilization of food thereby ensuring good nutritional outcomes particularly of the poor and rural populations; and, the vast number of people engaged in the fishing industry earn incomes that improve upon their access to food (Seini *et al*, 2002).

The fish sector has expanded considerably over the past decades—modern fishing fleets are used; volumes of fish landed have increased; and, exports have gone beyond the boundaries of Africa, particularly into Europe. Ghana's involvement in the international fish trade has meant that the trade policies of its Western trade partners can have a great impact on the country's fishery sector, given its dependence on income from fish exports. Ghana is a founding member of the World Trade Organization (WTO) and as such its participation in the international fish trade is regulated by WTO trade agreements.

1.2 Objectives of study

The Natural Resources Institute (NRI) of the University of Greenwich, UK, is undertaking a study, funded by the European Commission, on the possible impact of the WTO's Doha Development Round on the fisheries sector with the title "Sustainability Impact Assessment (SIA) for Fisheries". The overall objective of the study is to assess the potential economic, social and environmental impacts of trade measures arising from the Doha Development Agenda (DDA) negotiations that have an impact on fisheries production and trade. These trade measures include:

- Market access (i.e. tariff and non-tariff measures) as part of the negotiations on non-agricultural market access (NAMA);

- Subsidies to the fisheries sector in different forms, which are being discussed by the WTO Negotiating Group on Rules; and
- Other trade issues, e.g. eco-labelling and services incidental to the fishery sector (i.e. outcomes of WTO GATS negotiations).

SIA is both a method and a process for assessing the potential or actual impact of trade policy on economic, environmental and social development. It can therefore contribute to the effective mainstreaming of trade into development policy. SIA is a practical policy tool for analysing the contribution that trade makes to sustainable development.

The importance of stakeholder consultation and participation has increasingly been recognised as part of the Sustainability Impact Assessment (SIA) methodology. In particular, the importance of undertaking case studies and involving developing country stakeholders are emphasised. Upon initial screening and scoping, Ghana was selected as one of seven countries to be studied as part of the “Sustainability Impact Assessment (SIA) for Fisheries” study. The case study analyses trade measures arising from the Doha Development Agenda negotiations and their potential impacts on Ghana’s fishery industry and trade. In particular, the study focuses on the policy changes relating to tariffs, non-tariff measures, and subsidies.

1.3 Sources of Data

The bulk of information and data for this study came from secondary sources, particularly materials from the Internet. Some of the websites visited include the FAO, World Fish Centre and IFPRI. Documents from the Ministry of Fisheries, Ghana, were also reviewed. To complement the secondary sources, interviews and discussions were held with some players in the fishery industry.

1.4 Consultation Process with Stakeholders

Due to time constraints, the consultation process was not as far-reaching as one would have wished. Nonetheless, consultations (in the form of interviews and discussions) were held with a major exporter of fish and fishery products, fish traders, officials of the Ghana Agro-Food Company Limited (GAFCO), Ghana Assorted Food Exporters Association (GAFEA), National Fisheries Association of Ghana (NAFAG), Ghana Tuna Association, Ministry of Fisheries and the Ministry of Trade and Industry, as well as the Environmental Protection Agency.

2 Baseline

Located along the west coast of Africa, Ghana is bounded by the Gulf of Guinea in the south. With a total land area of 238,527 km² (i.e. 92,100 sq. miles), Ghana has a marine coastline of nearly 550 km long. The continental shelf is about 24,000 km². The Volta River basin (including Lake Volta, the largest man-made lake in Africa) dominates the country's riverine systems. Ghana's fishing industry is based on the resources from the marine and inland sectors.

2.1 Fisheries Production

2.1.1 Marine Fisheries

The activities in the marine sector range from artisanal canoe operations through semi industrial to industrial operations. Both pelagic and demersal fishery resources are exploited up to 200 nautical miles, i.e. the Exclusive Economic Zone (EEZ). There are more than 50 coastal lagoons of various sizes in Ghana. These lagoons contribute significantly to the diversity of fish stock in coastal waters as many fish species spend part of their life cycles in the lagoons. The main marine species include tuna, sardinella, mackerel, anchovies, cassava fish, seabreams and burrito.

Total fish production from marine sources for the period 1999-2004 is shown in Table 1. Production has been relatively stable.

Table 1: Marine Fish Production, 1999-2004

Year	1999	2000	2001	2002	2003	2004
Inland Fish Production (MT)	344,049	379,793	365,741	290,008	331,412	352,405

According to the Ghana Canoe Frame Survey (Bannerman *et al*, 2001) nearly 10,000 dugout canoes and about 124,000 fishermen with nearly 1.5 million dependants operate from 334 landing centres in 195 fishing villages along the marine coast. The fleet is responsible for over 80% of the total annual catch of small pelagic fish species (sardinella, mackerels and anchovies). The artisanal landing sites are estimated to have accounted for 200,769 MT of fish, equivalent to 69% of total marine fish output in 2002 (FAO, 2004).

Semi industrial fleet is made up of about 348 vessels, ranging in size between 8 m and 37 m long, which operate both as trawlers and purse seines (MoFI, 2006). The fleet exploits both pelagic and demersal fish species. The number of other operational vessels in 2001-2005 is as shown in the Table 2.

Table 2: Fishing Fleet Size in Ghana, 2001-2005

Type of Vessel	Semi industrial	Industrial	Shrimper	Tuna	Total
2001	244	45	3	47	339
2002	230	34	2	43	309
2003	172	54	6	36	268
2004	151	67	4	35	257
2005	348	75	5	36	464

Source: Ministry of Fisheries 2006 Annual Report

The vessels operate from Tema and Takoradi where there are deepwater ports. Tema Fishing Harbour is the main landing site for industrial vessels, though Takoradi harbour also has berthing facilities for industrial vessels. The trawlers and shrimpers exploit demersal and semi-pelagic species. The tuna vessels exploit mainly yellowfin, skipjack and bigeye tunas. Most tuna vessels operate on joint-venture ownership with Ghanaians having at least 50% shares as required by the Fisheries Act 625 of 2002. The industrial vessel landing sites reported 86,454 MT in 2002 (FAO 2004^a).

Over capitalization, among others, is contributing significantly to over exploitation of Ghana's fisheries resources. Declines in fish stocks in waters off West Africa have coincided with more than ten-fold increases in regional fish harvests by foreign and domestic fleets since 1950. The EU has consistently had the largest foreign presence off West Africa, with EU fish harvests here increasing by a factor of 20 from 1950 to 2001 (UBC, 2004). Researchers from the University of British Columbia suspect the decline in the availability of fish at local Ghanaian markets is linked to heavy overfishing in the Gulf of Guinea. UBC fisheries professor Daniel Pauly and others have identified the Gulf as one of the most overfished areas of the world, and now at risk of collapse.

By the 1990s, inshore marine resources had been overexploited which also contributed to stagnation of the semi-industrial fleet. In both the semi-industrial and industrial fleets, there has been an overall trend of declining catch per unit effort from 1980 to 2001 (Atta-Mills *et al* 2004).

As yet, Ghana unlike other West African countries such as Senegal, Guinea and Guinea Bissau, has not entered into any access agreements allowing European vessels to exploit resources within its EEZ. According to officials of the Ministry of Fisheries, the EU has initiated talks on an access agreement with Ghana. Foreign vessels do intrude into Ghana's EEZ. The monitoring, control and surveillance of the EEZ and the enforcement of the relevant fisheries laws are weak, making it difficult to assess the level of illegal fishing and therefore the catch by foreign vessels (Atta-Mills *et al* 2004). Although the level of unlicensed intruders is unknown, it is considered high (Koranteng 1998). It must be added, however, that in November 2005, the government procured and commissioned a vessel monitoring system to check illegal fishing in Ghana's EEZ.

2.1.2 Inland Fisheries

The Lake Volta, reservoirs associated with irrigation and potable water projects and fish ponds are the main sources of freshwater fish. The Lake Volta has a surface area of 8,480 km² and 5,200 km shoreline. There are about 310 landing beaches along the very long stretch of Lake Volta. The Lake contributes about 90% of the total inland fishery production, which is around 90 MT (MoFA, 2004^a).

According to the Volta Lake Frame Survey completed in 1999 by the Directorate of Fisheries (DoF), there were over 1,200 villages along the Lake, over 24,000 planked canoes and over 70,000 fishermen engaged in the Lake Volta fishery. It is also reported that, 20,000 fish processors and traders also depend on the lake for their livelihood. The gears used are cast and gill nets, hook and line and traps. The species exploited are mainly Cichlids (38.1%), *Chrysichthyes* spp. (34.4%) and *Synodontis* (11.4%) (MoFA, 2004^a).

Artisanal fishers are facing dwindling catches due to overfished inland resources. Concern had been raised, among others, over artisanal fishers using small mesh sizes, and trawlers operating close inshore, destroying coastal habitats as well as the gear of artisanal fishers (Koranteng 1998; Overå 2002).

The fishing sector, especially the artisanal and semi-industrial fisheries, used to be a prime source of employment, primarily for unskilled young men (Pauly 1976). Employment in the sector has been decreasing over the years. The number of fishers, processors, traders, boat builders and maintenance personnel declined from 500,000 in 1992 (IOC 1997) to 400,000 in 1996 (FAO 1998). Although there are no reliable data on the number of persons currently employed in the sector, one may not be wrong to assume that the numbers have come down due to, among others, dwindling fisheries resources.

2.1.3 Aquaculture

Aquaculture (fish farming) is relatively new to Ghanaians but its practice is becoming widespread in many parts of the country. There are about 1,000 fish farmers and over 2,000 ponds with a surface area of about 350 hectares. The total production from fish farming currently stands at about 1,000 MT only (MoFA, 2004^b). Fish culture is mainly semi-intensive in earthen ponds either as monoculture of tilapia or polyculture of tilapia and catfish. Cage culture in ponds has recently been introduced and is being practiced on one commercial fish farm in the Volta Region. Pen culture with tilapia, recently introduced in the Keta lagoon, has been very successful.

Total inland fish production for 2002 was about 88,000 MT, but decreased to 82,450 MT in both 2003 and 2004 due to depleting fish stock. In all these years, the Lake Volta contributed 85% of total inland fish production. Total domestic fish landings for the period 1999-2004 are indicated in Table 3.

Table 3: Total domestic fish landings for the period 1999-2004

Year	1999	2000	2001	2002	2003	2004
Total Domestic Fish Landings (MT)	433,449	467,294	453,741	378,008	413,862	434,855

Source: DoF, 2005^a

2.2 Overview of Trade

The fisheries sector contributes 3% of the national GDP. It is estimated that about 2 million Ghanaians comprising 860,000 females and 1,140,000 males are employed or dependent on activities in the sector (extrapolation from GSS, 2002). Fish is one of Ghana's most important non-traditional export commodities. Nevertheless, Ghana is a net importer of fish since domestic fish supplies continue to fall short of meeting total domestic demand. The ratio of imports to exports declined from 1960s to the 1980s, but increased in the 1990s (Atta-Mills *et al*, 2004).

The major inland fish trading centres on Lake Volta are Yeji, Kpandu-Tokor, Buipe, Atimpoku, Agormenya and Kete Krachi. Nearly 40,000 MT of fresh fish are cured and transported from these towns annually to the urban markets, especially in Southern Ghana. About 10,000 MT of fresh fish are harvested from other smaller rivers and lakes each year, and processed for sale in urban markets. Inland fishing centres in remote areas are not easily accessible to the major consuming centres. This factor impedes internal as well as intra-regional fish trade. Bad roads from major fish producing towns make fish distribution in Ghana very difficult. These constraints make inland fish products expensive, and also result in deterioration in quality during distribution.

Various traditional methods are employed to preserve and process fish for consumption and storage. These include smoking, drying, salting, frying and fermenting and various combinations of these. In Ghana, smoking is the most widely practised method; practically all species of fish available in the country can be smoked and it has been estimated that 70-80 percent of the domestic marine and freshwater catch is consumed in smoked form.

Fish smoking in Ghana is traditionally carried out by women in coastal towns and villages, along river banks and on the shores of Lake Volta. Efforts are being made to improve the traditional methods of smoking, salting and drying. The main species smoked traditionally are the anchovies, sardinella, chub and horse mackerels. In 2002, the quantity of smoked fish exported was 5,312 MT with a value of US\$4,380,199; that for 2003 was 6,031 MT with a value of US\$3,291,750 (GEPC 2005).

Women are particularly active in Ghana's fishing industry. In marine canoe fisheries, only men fish but women are crucial as intermediaries in processing, distribution and exchange. The canoe fisheries have experienced a tremendous expansion through the introduction of outboard motors and modern nets over the last three decades. In this process the large scale female fish traders were and are central as creditors and financiers of canoes and equipment, and an increasing number of women are also owners of means of production and managers of fishing companies themselves. In the artisanal fishery

sector, women have proved important in financing innovation – they supported male fishers with credit in procuring outboard motors (Overå, undated).

Total export from fish and fishery products amounted to nearly US\$96 million in 2002. Average annual exports have increased more than 500% since the 1960 (Atta-Mills *et al*, 2004). The export destination is mainly EU countries such as Spain, Portugal and Greece (DoF, 2005^a) and USA and Japan. Fish exports from Ghana are made up of high value tuna (whole, loins and canned), frozen fish (mostly demersal species), shrimps, lobsters, cuttlefish and dried and smoked fish.

The total tuna export from Ghana was 55,343 MT (DoF, 2005^a) with an estimated value of US\$50 million. There are three large tuna canneries in Ghana. These are the Pioneer Food Cannery, the Ghana Agro-Food Company and the Myroc Food Processing Company. Products from these processing plants go to the EU countries, USA, other ECOWAS countries and the domestic market. These companies supply at least 90% of their products to the export market. About 15,000 MT of canned tuna valued at \$35 million were exported in 2002. The Fisheries Act 625 of 2004 requires that at least 10% of landings of the tuna vessels be sold in Ghana.

Frozen low value fish are imported into the country. In 2002, Ghana imported US\$125 million worth of fish, including US\$32 million of frozen mackerel, US\$7 million of frozen sardines and US\$12 million of Yellowfin tuna (Audun, 2002). Frozen horse mackerel, chub mackerel as well as sardinella are imported through the Tema and Takoradi Ports and distributed through the internal trade channels, during the lean season November to May (FAO 2004^b). The five top suppliers of fish are Mauritania (20%), UK (14%), Poland (8%) and Netherlands (6%) (Canadian High Commission 2005). Other suppliers are Morocco, Norway, the Netherlands, Belgium, Senegal, Namibia, and the Gambia.

Many local Ghanaian fishing companies, such as Mankoadze Fisheries, which prospered throughout West Africa in the 1960s and 1970s, have either ceased operations or are engaged in the importation and retailing of fish. The only fishing businesses that are profitable under current economic conditions are those that import fish from Europe and other West African countries into the country for domestic consumption (Atta-Mills *et al* 2004).

2.3 Consumption

Fish is consumed by the majority of people in Ghana from the rural poor to the urban rich. It is estimated that 60% of the total animal protein requirement in the Ghanaian diet comes from fish. With a population of about 20 million people, the average per capita fish consumption is 27 kg per annum, which is higher than the world's average of 13 kg. The estimated domestic supply of fish is about 435,000 MT and a demand of about 840,000 MT (DoF, 2005^a). According to the Minister for Fisheries, Ghana spends nearly \$100 million dollars a year to import 200,000 MT of fish to supplement domestic production (Ghanaian Times, December 21 2005).

About 75% of the total domestic production of fish is consumed locally. Most of the artisanal landings are consumed within the country but they do not meet the demand for fish. Small pelagic species such as sardinella, anchovy, chub and horse mackerel are relatively cheap and popular and consumed by the majority of Ghanaians. They are preferred in smoked form whereas demersal species (e.g. seabream, snapper, shrimp, lobster, grouper, and cuttlefish) are usually consumed in non-smoked form.

Of particular significance to the fishing sector has been the government's attempt to stabilize per capita fish consumption through the effective implementation of a responsive fish import policy where fish is imported only and during the lean season.

2.4 Baseline Fisheries Trade Projections

According to a FAO (2004) projection of demand and supply of fish in Ghana, computed from a baseline demand of 800,000 MT in 2002, a population growth rate of 2.7% and an average achievement rate of 56% over the previous 5 years, is presented in Table 4.

For the foreseeable future Ghana will continue to import fish such as Sardinella, and Mackerel to supplement the domestic supply. However, there is the potential for Ghana to increase its export of tuna to Spain, Singapore and Japan. Based on annual growth rate of 3% between 2002 and 2004 and baseline export of 55,343 MT in 2004 (DoF, 2005^a), it is projected that total tuna export from Ghana will be about 68,000 MT in 2010; 81,000 MT in 2015; and 96,000 MT in 2020. According to available data/information, tuna is the only fisheries resource that can withstand considerable expansion. The sustainable catch in Ghana is estimated between 90,000 and 100,000 MT, and the annual landings are about 36,000 MT (FAO, undated).

Table 4. Projected fish supply and demand for Ghana, to 2023.

Year	Supply (MT)	Demand (MT)
2007	511,836	913,992
2012	584,767	1,044,226
2017	668,090	1,193,017
2022	763,286	1,363,010
2023	783,894	1,399,811

Source: FAO (2004)

3. Changes in trade measures as a result of WTO negotiations

3.1 Non-agricultural market access (NAMA)

3.1.1 Tariff Measures

Ghana's main trading partner remains the European Union (EU), accounting for almost half of total fish exports (i.e. €30.45 million), partly due to trade preferences.

EU has some 11% of nominal tariff for fisheries products. However, as a signatory to the ACP-EC Partnership Agreement (the successor to the Lomé Convention), Ghana receives non-reciprocal tariff and other preferences from the EU on many goods. Ghana currently enjoys a zero tariff on its fish/fish products exports into the EU. This preferential access is, to a very large extent, what accounts for the increasing fish exports. Any changes to this situation that will arise out of the Doha trade negotiations will potentially impact negatively on the fortunes of Ghana's fish exports. It is without doubt that Ghana's fish will not be competitive on the EU market without the cost advantages arising out of the preferential access.

Another measure that may erode Ghana's preferential access to the EU are the special 'Generalised Schemes of Tariff Preferences' (GSP) arrangements to combat drug trafficking. The arrangements are so far only applicable to Pakistan and twelve Latin American countries, including fish-exporting countries such as Ecuador, Peru, Nicaragua and Guatemala. These countries are competitors to Ghana and other ACP countries on the EU market. The main significance of the standard GSP arrangements is therefore that they would enable non-preferred exporting countries to access the EU market with their fish, and by so doing engender competition with ACP countries.

Currently there are no tariffs on imports and exports of fish in the country except for a small levy of US\$2.20 per MT on either imported or exported fish. This situation is likely to remain unchanged despite the outcomes of the Doha negotiations. The non-existence of tariffs would continue to make Ghana a favourable destination for external fish exporters and local importers because of the cheap cost of landing fish in the country. Also the cost of exporting fish would not appreciate significantly to affect the cost of operation of exporters.

3.1.2 Non-Tariff Measures

Current developments in international trade are putting pressure on Ghana's fish exporters as higher food safety and hygiene standards are increasingly demanded on the international fish market. Two international agreements of particular significance are the Agreement on the Application of Sanitary and Phytosanitary Measures (SPS) and the Agreement on Technical Barriers to Trade (TBT).

The coming into force of the SPS and TBT agreement required that Ghana must ensure that fish exports meet the quality standards of the EU. This called for the harmonization of Ghana's food safety and quality standards with those of the EU. However, the resources and technical capacity required to achieve harmonization were going to put undue pressure on the country's resources. Doubts were even raised about Ghana's ability to have systems and structures in place to ensure compliance to the requirements. Therefore it came as no surprise when the EU, the largest importer of Ghana fish, decided to assist Ghana achieve harmonization with EU regulations.

The harmonization programme is still on-going and the activities carried out with EU assistance include:

- a. Building the capacity of the competent authority to undertake inspection of fish exports to the EU
- b. Helping equip the laboratory of the competent authority
- c. Ensuring that fisheries establishments put in place a Hazard Analysis Critical Control Point (HACCP) system to assure safety and quality of fishery products.

a. Fish Inspection System

The Ghana Standards Board (GSB) was chosen as the Competent Authority (CA) by the Government in 1997 based on the facilities available and calibre of personnel in the organisation. In an audit carried out by the Food and Veterinary Office (FVO) of the EU, the structure and organization of the GSB was found to be satisfactory. The GSB is responsible for the inspection of consignments of fish exports destined for EU and Japan markets. Exporters of fresh fish are obliged to acquire a Quality Assurance Certificate from GSB.

In a review of inspection and control programmes, only 7 establishments out of 16 and 10 freezer vessels out of 34 had regained their approval since January 2005 to operate. The situation could largely be due to the lack of relevant documentation on HACCP plans. Some of the official controls consisted of sampling microbial and chemical tests of both raw and final products (FVO 2005).

b. Laboratory

GSB's laboratory has three sections which have been equipped to handle fishery products. These are microbiological, chemical and water samples. The laboratory operates with ISO standards and has secured international accreditation from South African National Accreditation Service (SANAS). Under an EU grant, modern equipment has been procured for chemical analysis. However, the methods of analysis for environmental contaminants are yet to be developed (FVO, 2005).

c. HACCP Implementation

With the introduction of mandatory HACCP requirements for exports to the EU and USA in 1997, Ghana had no option but to put measures in place to ensure that fish exports from the country are allowed on its major external markets. Implementation of HACCP system has, however, been a problem. In the audit by the EU, some processing plants were found to be deficient in the identification of critical control points (CCPs). There

was therefore the need to ensure complete compliance to safety and quality from production to consumption with its attendant documentation (FVO, 2005).

In the past, questions were raised about the capacity of the local industry and relevant supporting institutions to provide exporters with the needed expertise and technical assistance to meet the quality and safety standards, particularly in the EU. Of particular concern is compliance to food safety standards. European importers have had cause to raise doubts about the safety of smoked fish, which were processed mostly by women with limited capacity and in unhygienic environments.

Currently there is only one EU-approved smoke fish export company (i.e. Can and Kaa Limited) after the other company was suspended in 2005 due to its inability to satisfy some of the EU requirements. The GAFEA has consequently initiated plans to set up a 35 MT/day capacity processing facility to process and export smoke fish. It is working closely with the Ghana Standards Board and other stakeholders to establish the US\$800,000 processing facility. It is however being challenged with finance. It is projected that the facility will have the potential to increase smoke fish export receipts by about 60% with employment levels of over 3,000 along the value chain.

A US\$20,000 pilot project, sponsored by UNDP, ITC and Ghana Export Promotion Council (GEPC), was implemented under the export-led poverty reduction project to assist smoked-fish exporting companies to meet EU standards. It involved the construction, testing and replication of a pilot fish processing plant meeting EU specifications, to facilitate the processing of smoked fish under hygienic and sanitary conditions.

As a member of WTO, Ghana is obliged to be as transparent as possible on issues relating to Standards, Technical Regulations and Procedures for assessing the conformity of goods and services to relevant standards. Ghana is again obliged to notify WTO Secretariat indicating the Standards and Technical Regulations being prepared or in the process of adoption for dissemination to other WTO members. In addition to the notification, the Ghana Standards Board has established the Ghana Standards Board Information Centre as a WTO/TBT Enquiry Point (established in 1999) for Technical Regulations, Standards and Conformity Assessment Procedures. The centre handles all enquiries from the business community, as well as interested parties and provides the necessary information about trade regulations, technical regulations, standards and conformity assessment procedures adopted or proposed within Ghana as well as WTO members. Among other benefits, the enquiry point assists exporters to identify standards, technical regulations and conformity assessment procedures they need to know before they enter a particular market or target markets such as the EU.

Ghana's domestic standards are currently mandatory. Ghana has issued its own standards for most products under the auspices of its testing authority, the Ghana Standards Board (GSB), which subscribes to accepted international practices for the testing of imports for purity and efficiency. The GSB has promulgated more than 250 Ghanaian standards and adopted more than 3,057 foreign standards for certification purposes. The GSB determines standards for all products. Ghana is working on harmonising with

international standards and move away from its mandatory domestic standards, except for products that raise environmental or human health or safety concerns.

3.2 Subsidies

There is considerable debate as to what fisheries subsidies actually are and what they include which complicates any discussion of their implications for markets, resources and livelihoods. In assessing subsidies the different types of fisheries subsidies outlined in the UNEP (2004) study – and discussed in the Main Report - have been used. The UNEP study distinguishes between eight different types of fisheries subsidies, namely (i) subsidies to fishing infrastructure (e.g. construction of port-facilities); (ii) management services (e.g. monitoring and surveillance, management related research); (iii) subsidies to securing fishing access (iv) subsidies to decommissioning of vessels (v) subsidies to capital costs (e.g. grants, loan guarantees) (vi) subsidies to variable costs (e.g. fuel, insurance), (vii) income supports and (viii) price supports (e.g. guaranteed minimum price). Due to lack of data it proved difficult to fully cover all these categories of subsidies in detail.

Subsidies to the fishery sector in Ghana date back to the late 1940s when after the creation of the Fisheries Department, two surfboats powered with 15 horse power engines were imported. These were to help in preservation experiments. Other subsidies introduced include, among others, a boatyard in Sekondi and later the introduction of outboard motors in early 1958. The improvement allowed fishermen to reach fishing grounds quickly and have access to grounds which were earlier on not accessible. A subsidized premix fuel regime was introduced in 1991 although one must add that questions have been raised about the effectiveness of this arrangement in getting the fuel to the intended beneficiaries. A comprehensive coverage of the subsidies follows:

Direct Financial Transfers: these are direct payments by the government to the fisheries industry. These subsidies are likely to have a direct effect on the profits of the industry and can also be negative (i.e. payments from the industry to the government). These transfers include:

- Equity infusions to fish processing, harvesting or aquaculture firms by government: Under the World Bank funded (1996-2002) Fisheries Sector Capacity Building project, fish farmers were helped in their activities. Fish farmers were given financial support for pond construction/rehabilitation.
- Support to improve economic efficiency: Introduction and provision of *Chorkor smokers* to selected fish mongers. The *Chorkor smokers* are traditional fish smoking ovens adapted and re-designed to improve fuel efficiency, working conditions of the women who smoke fish and the quality of the finished product.

Services and Indirect Financial Transfers: these are other active and explicit government interventions but which does not involve a direct financial transfer.

- Fishery-specific infrastructure: The Bosomtwi Sam fishing harbour was developed purposely to aid fishing activities. Some proposed development for

- fish landing sites which will include fish markets among others are James Town, Elmina along the marine coast and Dzemini on the Lake Volta
- Gear development: Development of turtle excluder device and trammel nets
 - Government support to community-based fisheries management and producer organizations.
 - Loans made on favourable terms: Government loans are given to fish processors, fishermen and fish farmers on favourable terms.
 - Government funded research and development programmes: Trawl surveys include the RV Fridtjof Nansen surveys of 2000 and 2002.
 - Sales of commodities to fishers at less than market prices: Premix fuel supplied to fishermen at less price than the market prices.
 - Information collection, analysis and dissemination is carried out
 - International fisheries cooperation: The EU and FAO collaborates with the Ministry and there are regional development programmes
 - Inspection and certification services: Fishing vessels are given certificates
 - Provision of seed and feed for aquaculture: Fish fingerlings are produced and sold to fish farmers.

Regulations: these are government regulatory interventions

- Hatchery and fish habitat programmes: Stipulated in fishing license that trawling should not be done in fish breeding areas
- Environmental regulations: Environmental impact assessment has to be carried out before starting aquaculture establishments.
- Technology transfer: Introduction of the *Chorkor smoker* and improvement in fish processing and storage activities.
- Gear regulation: The Fisheries Law contains gear specification that can be used in Ghanaian fishing waters.
- Waivers of import duties: All agricultural inputs are not supposed to be taxed.
- National and residence requirements for company officials, managers and crew: In the industrial sector 75% Ghanaians to 25% foreign are to make up the crew.
- Fisheries management: Fisheries sector is managed by government at the national level and the community based fisheries management committees are to manage fisheries at the local community level.

Ghana has no export quotas or voluntary export restraints, and no export subsidies per se. Instead, there is a small import and export levy of US\$2.20 per MT of fish. This levy is collected into a fisheries development fund. However, income tax concessions assist exporters of non-traditional products, such as fish and fishery products, who pay a corporate tax rate of 8% instead of 25%.

4. Initial Outcomes of Changes in Trade Measures

The extent of the impact of the outcomes of trade negotiations on the fisheries industry in Ghana will largely be influenced by Ghana's status as a net importer of fish and fishery

products, the competitiveness of the local fishing industry and its ability to take advantage of the incentives that the WTO negotiations will present.

In 2002, Ghana exported 18,254.9 MT of fish valued at €30.45 million to the EU. In the event of an imposition of a 10% tariff on fish imports into developed countries and the implementation of the GSP arrangements, the competitiveness of Ghana's fish in the EU markets will very much be compromised. Tariff reduction and the GSP would erode preferential trade conditions and with it will go whatever competitive advantage Ghana enjoys on the EU fish market. The loss of this advantage will be against the background that, the tariff reduction and the GSP will be seen as an incentive by non-ACP fish exporting countries to increase their exports into the EU. With their efficiencies and economies of scale, the non-ACP exporters will be able to export and sell more fish at relatively cheaper prices and render the Ghanaian exports non-competitive.

One of the projections made in the previous section was that Ghana could increase its tuna exports. This projection was premised on the existence and Ghana's enjoyment of duty-free status on its tuna exports. Thus, this dream may not materialize with the erosion of Ghana's preferential access and the opening up of the market to non-preferred states such as Thailand and South Korea. These countries can land tuna at relatively lower costs on the international market thereby making Ghana's tuna uncompetitive.

Increased supplies from competing countries on the EU market could depress prices on the market to the detriment of Ghana's exporters; their profits will be whittled away by increased cheap imports. Lower profits could trigger a downward spiral leading to reduced foreign exchange flows into the country, unemployment, poverty, limited investment in fishing infrastructure and facilities, as well as a number of social issues.

With increased competition in the EU and reduced profits, some exporters will be compelled to cut down on their levels of operations, resulting in job cuts. Other fishery enterprises will also be compelled to reduce their respective labour force to cut down on their cost of operation. Crew members on vessels, most of whom must by law be Ghanaians, could be laid off as a result of reduced activity. Artisanal fishermen who supply fish to the exporters could also be thrown out of employment. Besides these direct victims, workers of supporting or related industries/businesses could also lose their jobs.

Low profits from fish exports will without doubt impinge negatively on foreign exchange inflows to the economy from the fisheries sector. This is against the backdrop that the government is seeking resources to develop the sector to make it more competitive.

A corollary to the above is that the low profits could limit private investment into the fisheries sector. While exporters will not have enough resources to plough back into the businesses, prospective investors may channel their capital into relatively more profitable sectors. The fishing industry which is largely traditional and thriving on inefficient and ineffective technology will be deprived of the investment needed to build a solid

technological and infrastructural support base for enhanced competitiveness on the international market.

There is no question about the fact that fishing communities are among the most deprived and poor communities in the country. Of particular mention here is the fishing communities located along the Volta Lake. Fishing is the largest employer and source of income for the majority of the people in these communities. Thus, any measure that will throw people out of their jobs or even reduce their level of activity will go a long way in worsening their poverty status.

The fact that persons in rural fishing communities are among the poorest in the country is evidenced by the data in Table 5 below. Mean annual household income in rural coastal communities is less than incomes in rural forest and rural savanna. In terms of mean per capita income, the rural coastal communities fall below rural forest communities by US\$53 and is slightly better (by US\$19) than rural communities in the three northern regions. Incidence of poverty in the Northern, Upper East and Upper West regions are 69%, 88% and 84% respectively. (GLSS, 2003). The poverty of the fishers can be attributed, among others, to dwindling fish catches and the fact that they operate profitably in only four months of the year (i.e. from June to September).

Table 5: Household and Per Capita Incomes by Locality (1999)

Locality	Mean Annual Household Income (US\$)	Mean Per Capita Income (US\$)
URBAN	1,128	289
Accra (the capital city)	1,462	406
Other Urban	994	249
RURAL	843	196
Rural Coastal	675	165
Rural Forest	983	218
Rural Savanna	744	146
GHANA	947	220.

Source: Ghana Living Standard Survey, 4. (GLSS, 2003)

The potential knock-on effect of rising poverty in the rural communities will include, among others, declining standards of living and rural-urban migration. If income to fisher-folk are cut or reduced as a result of reduced purchases by exporters, it is more than likely that the living standards of the family, particularly the education, nutrition and general health of children, will be affected. Likewise, some of the people, particularly the youth, would attempt to escape the poverty by migrating to the towns and cities, with its attendant social problems and strains and stresses on urban infrastructure and facilities.

As active participants in the fisheries sector and home makers, the impact of trade negotiations could have far-reaching implications for women's livelihood and the wellbeing of families. In a study in Elmina, a major fishing community, it was found that

women's incomes in the community varied depending on whether the fishing season is good or bad. For small tradeswomen, the income can increase from US\$25 to US\$40 per month. Fishmongers of relative importance earned between US\$112 and US\$470. As for important fishmongers, they earned between US\$430 and US\$2,092. It must be stated that the most important part of their annual income is earned during the high season that is from July to September. The bulk of the income that women fish processors and mongers receive from their activities is spent on providing food for their families. The women also spent on medical care for their children, provided clothing and, to a lesser extent, paid school fees. Besides catering for their family needs, women also funded fishing inputs, mainly the purchase of fuel, from their savings (Odotei, undated). The above illustrates the typical role played by women in fishing communities. It must be emphasised that should the ability of the women to play this role be curtailed, as a result of the proposed trade liberalisation, it would have serious adverse impacts on the nutrition, health and general wellbeing of fishing families.

For the foreseeable future Ghana will continue to export high-value demersal fish species and tuna and import low-value fish such as Sardinella, and Mackerel to supplement the domestic supply. It is unlikely, at least in the short-run that trade flows in terms of species will change in the face of reduced exports emanating from erosion of preferential access to the EU. It must be stated that the reduced exports could relieve the pressure on exportable species. Fears have been expressed by certain sector stakeholders that the increasing export of high value species could result in declining availability and consumption of these types of fish locally.

Generally, concerns have been expressed about the risk of cheap fish imports being dumped in coastal nations with a strong domestic market, such as Ghana and Cameroon, making it impossible for fishers to sell their catch locally (FOE 2005). Although this is likely to happen in the long term, it may not be the case in the immediate aftermath of tariff reductions. Cheap fish would still be imported into Ghana but it may not have a severe debilitating effect on the local fish market. It is envisaged that with the tariff reductions, major fish exporting countries such as China, Thailand, Spain and South Korea, would immediately turn their attention to the more lucrative EU and US markets. Over time, these markets could become saturated with imported fish. It will be at this point that the exporters would flood the markets of developing countries with large volumes of cheaper fish, leading to significant depression of prices on the local market.

For the effective management of the country's fishery resources, management systems have been put in place for marine fisheries and for Lake Volta fisheries. The management plans attempt to respond to ecological, socio-economic and institutional issues related to the development of the national fishery (FAO 2004^a). It is difficult to imagine that in the short term, preference erosion and its limiting impact on Ghana's fish exports, would affect the implementation of the systems or even call for the revision of the management systems. Similarly, Ghana's commitment and contributions to regional fishery management bodies such as Committee for Eastern Central Atlantic Fisheries (CECAF) and International Commission for the Conservation of Atlantic Tuna (ICCAT) are expected to continue regardless of the erosion of its competitive advantage on the international fish market.

The potential of the fisheries sector to contribute to the economy and development of the country has not been lost on successive governments. As such various government-led efforts have gone into building the institutional capacity to support the sector. Appropriate institutions have been established and the necessary human capital has been developed to support the fisheries sector. In 2005, a Ministry of Fisheries was established; headed by a Minister with cabinet status. The work of the Ministry should not be hampered by the erosion of preferential access of Ghana's fish to the EU; rather the Ministry will have to take the lead in finding solutions to the challenges that will arise from preference erosion.

5. Sustainability Impact Assessment (SIA) of longer-term effects

The sector contributes significantly to the nation's development and to the livelihoods of some 2 million people, which is 10% of the population. The long-term effect of the trade liberalisation would be its adverse impact on the development of the sector in Ghana, especially the tuna (canned and fresh) and smoked fish export trade. This chapter reviews at the effect of the changes in tariff and non tariff measures on the sector. Impact on the changes in the status quo of the subsidy regime is also considered. The review of the tariff and subsidy regimes as anticipated would aggravate the impact on the industry in Ghana.

5.1 Tariff Measures

Currently, Ghana, as a member of the ACP countries enjoys zero tariff on exports of fish and fishery products to developed countries. This protocol has facilitated the ability of Ghana to export US\$96 million worth of fish and fishery products even though it has a relatively high cost of production. If the fish trade is liberalised as proposed in the WTO negotiations, then some of the non-ACP countries, who are low-cost leaders in fish production, such as Thailand will have competitive advantage over Ghana. According to the Chief Executive Officer of Can and Kaa Limited, a smoke fish export company in Ghana, the FOB (Tema-Ghana) price per MT of smoke fish is about 5% higher than CIF (USA) of the same product from Thailand. But for the tariff on imports from Thailand, their fish and fishery products would have been cheaper on the USA market. Thus, the present tariff regime which favours Ghana, enables her to export to the USA. According to the CEO, even though one of Ghana's trump cards on the smoke fish export market is its high quality, the erosion of this preferential access has the potential to reduce the income from smoke fish trade by about 30% and this would bring about its attendant job cuts along the value chain.

As discussed in the previous section, trade liberalisation has the potential to increase fish imports into Ghana. In the long term, after the lucrative EU and USA markets are saturated, the leading fish exporting countries will turn their attention to developing countries like Ghana. The influx of cheaper fish import into Ghana has the potential to kill the semi industrial and artisanal fish industry which is characterized by high costs of production. This could also lead to increased unemployment accompanied by its negative social and economic impacts.

According to the President of the Ghana Tuna Association, the implementation of the proposed 10% tariff will increase exports from the non ACP/LDC countries which will consequently increase their profit. It would lead to larger fleets in those producing countries which would consequently attract the South East Asians, especially Koreans, who are currently championing tuna fishing technology in Ghana due to lack of skilled Ghanaians. Fears are that it will affect tuna production in Ghana and could result in estimated 50% decrease in incomes of the tuna fishing companies. It is estimated that

about 20-30% jobs will be lost along the value chain. Also concern was expressed about accompanying potential social upheavals and vices.

Also the three tuna canneries would be adversely affected should the tariff for non ACP/LDC be reduced as anticipated since they rely on local companies for supply. Apart from Pioneer Food Cannery, a subsidiary of the US food giant, H.J. Heinz, which has trawlers to supply 60% of its fresh tuna needs, the other 2 canneries rely mainly on the domestic tuna companies for tuna supplies. Officials of the canneries subsector project about 30% decrease in production with about 25% (500 jobs) cut in direct employment. These would lead to increased unit costs of production and therefore aggravate the uncompetitive status of these products on the export market which would eventually lead to the collapse of the respective businesses. These companies export 90% of their products mainly to the EU market which is also the target market for Thailand and other low cost producing countries. The officials anticipate the current price for chunk-in-brine of US\$27/case of 13 kg (FOB-Tema) could increase by up to 10% should the tariff proposal be implemented.

If the tariff is lowered to 10% (50% reduction) as proposed, it will put exports from Ghana at a disadvantage. Should this happen, it is projected to cut total fishery exports by 30–40% with 15–20% job cuts. It would also adversely affect investments in the sector and consequently affect the development of the industry and the economy of Ghana. GOG export receipts from the fishery sector will suffer and there would be consequential effect on its GDP. The reduction in employment and income levels would have substantial economic and social impacts.

5.2 Non Tariff Measures

Non-tariff barriers continue in many markets to present obstacles to imports in developed countries. Such non-tariff barriers are linked to technical standards and procedures. As discussed in the previous sections, Ghana has built adequate internal systems to check on the qualification of businesses to process and export fish and fishery products. The Ghana Standard Board ensures that businesses are updated on the changes on the international trade technical requirements.

However, any dramatic change in the quality standards requirements might bring about some capacity building issues which would put strain on the profitability situation of the companies involved. It could require substantial capital investment which might expose the respective companies to some economic and financial challenges.

5.3 Subsidies

The GOG provides direct and indirect support towards the development of the fishery sector. It is sometimes difficult to draw a line between its responsibility as a government

towards the development the fishery industry, and subsidies. However, the subsidies as enumerated in the earlier section could be summarized into three main subsidies as support by GOG to artisanal fishery. These are fuel, capacity building and credit through commercial and rural/community banks.

5.3.1 Fuel Subsidy

The fuel (premix fuel – a special blend of fuel) subsidy support, which started in 1991, is for only fishermen who operate on the inland and marine fishery resources of Ghana. The fuel is sold at subsidised prices to these fishermen through their respective community premix fuel committees. The price is the ‘bone-dry’ cost of fuel production without taxes by GOG. However, the premix fuel committees, at the community level, put on a margin for the respective administrative purposes, community development programmes as well as the welfare of the fishermen.

The fuel subsidy serves as incentive to encourage more fishermen to go fishing and more importantly to cut down cost of production. Moreover, most of the fishing communities are poor and therefore the fishermen could not afford the high fuel cost for fishing.

According to DoF (2005^b) the GOG spent a total of US\$35.3 million (143 million litres) as subsidy on fuel between 2001 and 2004 at an average subsidy of US\$0.25/liter for artisanal fishery. Thus there is a subsidy of approximately 63% on litre of fuel sold to the fishermen.

Should GOG abandon the fuel subsidy, it would not be surprising to see over half of the fishermen out of job and this would also affect their income. The consequential effect on their respective dependents and communities will be enormous. Poverty level could increase and, access to primary health care could also be a challenge. Moreover, the Dutch Government’s €500,000-sponsored Public-Private-Partnership project on the use of fibre glass canoes in place of the dug out canoe would not materialise if subsidies are removed from the premix fuel for the fisher folk since they might not be able to afford the unsubsidized fuel prices. The negative effect on the fish production level will therefore be high since the artisanal landing is estimated to account for 200,769 MT of fish, equivalent to 69% of total marine fish output (FAO, 2004).

5.3.2 Capacity Building

The fish stock level is low within the Ghanaian territorial waters; there is therefore the need for the fishermen to procure effective and efficient tools and gears for fishing. Otherwise, they will resort to the use of illegal fishing methods which will have adverse effect on the natural resource stocks and the environment. There are two main forms of capacity building support by the GOG to the artisanal fishery in Ghana – financial support to retool the fishermen under the ‘work and pay tool’ programme and skill training on efficient fishing and post harvest technologies.

a) Work and Pay Tools

This concept is basically to recapitalise the fishermen through special arrangements with Agricultural Development Bank and some of the rural/community banks to extend credit facilities to the fishermen to procure and replace any of the fishing equipment that are old and/or spoilt. In the absence these special arrangements, most of the fishermen could not have afforded to pay for the total cost of capital to procure such equipment for their fishing activities. According to an official of MoFI, these arrangements have been successful and have increased their landing (catch) to about 80% in recent times. It has also minimized post harvest losses.

b) Skill Training

The skill training programme is an outreach programme to provide the fishermen and women knowledge on harvesting and post harvest handling techniques respectively. The fishermen are introduced to improved fishing technology so as to increase productivity. The women are also introduced to effective and efficient fish smoking processes (*Chorkor smoker*). These value adding processes are to reduce post harvest losses and also increase the income of women who are involved in such activities.

The Ministry of Fisheries spends a lot of resources in capacity building programmes to ensure increase in production and productivity. The absence of this capacity building support would lead to inefficient and ineffective fishing technique which would aggravate the cost of production. It is believed that if this support from GOG is taken away under the trade liberalisation process, it would worsen the plight of these fishermen decrease production considerably. It could also have negative effect on the environment since most of the fishermen who could not afford to procure more effective equipment would resort to illegal means of fishing such as the use of light and dynamite.

5.3.3 Credit

Soft loans (women fund) facilities are extended to artisanal fish processors to increase their capacity to handle larger quantity of fish. The main advantage is the ability to access what they would otherwise not be able to obtain from the financial institutions. It is estimated that 85% of the women who accessed this facility have been able to increase their income by an average of 65% over 12 months.

The absence of these soft loans and other support to these poor fishing communities would end up with low productivity which would have the potential to aggravate their situation.

An official of NAFAG is of the view that about 60% jobs along the value chain would be lost of which about 35% would be artisanal fishermen if subsidies are removed. This has the potential to reduce the current marine fish production contribution of 69% from artisanal fishing by about 32%.

In Ghana, poverty is prevalent within the fishing communities, so if more liberalised market is to take away all these subsidies, then it would worsen the poverty levels. This will consequently affect employment levels as well as incomes. It is anticipated that health and educational levels within these communities will be affected since most of the affected people would find it difficult to afford good and nutritious meal and, even basic input to educate their children, even though there is free education under the FCUBE programme.

5.4. The Longer-Term SIA Implications

As per the above discussion, it is believed that the longer-term effect of significant changes in the situation of the tariff and subsidy effect would be as assessed in Table 6

Table 6: Sustainability indicators for fisheries SIA

Sustainability dimension	Core indicators	Second tier indicators
Economic	Real income Employment Fixed capital formation	<ul style="list-style-type: none"> ▪ If the tariff is lowered to 10%, the quantity of smoke fish and tuna export would be reduced significantly since most of them would be uncompetitive. It is projected to reduce export receipts from smoke fish and tuna by 30% and 50%, respectively. This would consequently affect the income levels of the companies involved. ▪ Government revenue from taxes and licence would also be affected tremendously ▪ In the event of GOG withdrawing its subsidies, unemployment levels in the fishing communities would increase by about 60%. ▪ Fish production would reduce by about 32% should the trade liberalization scrape off GOG subsidies for artisanal fishery.
Social	Poverty Health and education Equity	<ul style="list-style-type: none"> ▪ Abandoning GOG subsidies for artisanal fishery is likely to increase the poverty levels of the fishing communities by 5–15%. This would consequently lead to poor nutrition and other related health issues. ▪ There is the likelihood of aggravating rural-urban drift as a result of anticipated high unemployment in the fishing communities
Environmental	Natural resource stocks Environmental quality Biodiversity	<ul style="list-style-type: none"> ▪ The absence of GOG capacity building support could have negative impact on marine and freshwater stocks. ▪ The removal of the subsidies by developed countries therefore presents a good opportunity for sustainable fisheries resource management in Ghana’s Exclusive Economic Zone (EEZ).

		<ul style="list-style-type: none"> ▪ A reduction in the pressure on the fishery resources in the Ghana's EEZ, as a result of removal of subsidies to foreign fleets to fish outside their territorial waters, will help replenish fish stocks.
Process	<p>Consistency</p> <p>Institutional capacity</p>	<ul style="list-style-type: none"> ▪ GOG support to the fishery sector is a necessary ingredient towards its development; the absent of that support will adversely affect the requisite momentum it requires to achieves its goals. ▪ The uncompetitive status of Ghana's fish and fishery products as a result of the proposed trade liberalization has the potential to affect her commitment towards participating and implementing some regional fishery programmes ▪ GOG investment programme in the fishery sector could be adversely affected

6. Prevention, Mitigation and Enhancement

At this stage of the Doha negotiations, it is difficult to imagine how Ghana, a poor developing member of the WTO, can on its own influence changes in the NAMA measures, let alone influence their implementation. The measures will certainly be implemented. The most viable option left to Ghana and other developing countries is for them to devise and implement policies and strategies that would enable them to minimize the potential economic, social, and environmental costs of the NAMA measures, while enhancing their positive impacts. The recommendations that follow tend to be more inward looking, building on internal resources and energies that can be marshalled to achieve the above. It must be admitted, however, that the successful implementation of these recommendations will depend on the assistance and goodwill of other countries, including WTO members.

6.1 Tariff Measures

- i. As stated elsewhere, the preference erosion would cause Ghana some economic losses as a result of scaled down exports and reduced profits. It is obvious that a similar fate will befall other ACP members. Ghana can suggest to the ACP to make representations to the WTO and particularly the EU to make compensatory payments to cover losses from the preference erosion. In the spirit of ACP-EU relations, the EU could be prevailed upon to see the payments as helping its developing country partners overcome its cost of adjusting to the preference erosion. However, direct compensation is unlikely partly for reasons of principle (in that it would be odd to compensate for a benefit granted in the past) and fairness (in that some developing countries have not as yet benefited from any preferences). The tariff preferences granted by the EU do not constitute a right for benefiting countries and consequently, they are not entitled to compensation if removed. Rather these preferences have been granted on an autonomous basis. Moreover they do not fall under the WTO rules on compensation (Article XXIV).

According to UNCTAD (2005), the idea of financially compensating countries for the adverse effects of preference erosion has never been envisaged as a multilateral trade issue, although financial packages have been common in most bilateral and regional integration schemes. The same source goes on to say that, “the question of financial compensation for LDCs that are faced with the challenge of preference erosion should be at the heart of the current debate on aid for trade”. Financial compensation may be in the form of special frameworks for assistance, trade integration mechanisms, or a compensatory fund. At the same time, it is recognised that the issue of compensatory payments or packages may be difficult to implement from the viewpoint of donor organisations in that, amongst other things, some developing countries that do not benefit from zero tariffs are likely to be opposed to such a policy. Similarly, such countries are likely to reject an alternative suggestion that tariffs be reduced at a slower rate, arguing that they have been waiting long enough to access markets on equal terms.

- ii. The difficulty that Ghana will face with the preference erosion is that it will expose its fish exports to competition from exports from other countries. The exposure to competition in itself would not have been a problem if Ghana had the capital, technology and capacity to operate efficiently to lower its cost of production. Currently, Ghana's cost of production is relatively higher and that puts it at a disadvantage. Obviously, what Ghana needs to do is to develop the requisite infrastructure and support systems and employ modern efficient technology to beat down its costs of production. If Ghana can export fish to the EU at competitive prices, then some potential problems of preferential erosion will not be prevented. Here too, Ghana will do with a lot of technical and financial support from the developed countries. Any such support to Ghana will also be to the benefit of the developed countries as consumers in these countries will have access to affordable fish.
- iii. In the face of potential reductions in the volumes of Ghana's fish exports to the EU and the US, Ghana should seriously work towards developing the African market, with emphasis on the sub-regional West African market. Africa has a population of over 750 million while West Africa is home to about 260 million persons; both populations are growing at an average annual rate of about 3%. Urbanization is growing and it is reckoned that a third of Africans live in towns and cities. There is also evidence that the middle class in most African countries is growing. Putting all these together, one can say that Africa constitutes a significant potential market. One must add however, that import tariffs on fish and fishery products are generally higher in developing countries and this poses a problem regarding development of more "South-South" trade (Valdimarsson, 2005). This notwithstanding, Ghana can build on its cordial relationship with other Economic Commission of West African States (ECOWAS) and leadership role in the New Partnership for Africa Development (NEPAD) to forge a closer trade relationship with the countries. With such relationships, volumes of fish left over after exports to EU and US can be shipped to markets in the sub region or Africa as a whole.
- iv. Currently, ecolabelling is not practiced in Ghana though there have been consideration towards this end. Ecolabelling could be used both as a fisheries management tool and a marketing strategy. Ecolabels offer consumers the chance to lower the harmful impacts from their consumption by buying products which are manufactured and grown in ways that cause less environmental damage. In these days of increasing "environmental consumerism" in the developed countries, ecolabelling Ghana's fish exports could be used in a massive marketing effort to promote Ghana's fish on the international market. There are internationally acceptable ecolabel programs such as the Marine Stewardship Council that can certify Ghana's fish, thereby providing a market-based incentive to maintain sustainable fish. In order to benefit from applying ecolabelling programs, Ghana will require technical and financial assistance to develop and maintain appropriate monitoring, control and surveillance (MCS) arrangements for effective fisheries management.

6.2 Non-Tariff Measures

Ghana has indeed taken up the challenge of making its fish exports meet the food safety and quality standards of the EU and other international markets. There is general agreement among stakeholders in the fisheries sector that there has been tremendous improvement in this direction and complaints on Ghana's exports have been fair and in between. The improvements in compliance with SPS and TBT can be attributed mainly to the increased capacity of the Ghana Standards Board (GSB) to develop and ensure compliance to domestic standards as well as providing a ready source of information to exporters. Efforts should therefore not be spared in strengthening further the institutional capacity of GSB to enable it to work towards fully harmonizing the domestic standards with international ones. One must hasten to add that a standards system without a dedicated and motivated workforce will be compromised. Improving on the working conditions of the staff of GSB should therefore be considered in any institutional capacity efforts.

6.3 Subsidies

- i. Looking at the current capacity in Ghana's fisheries sector, it is difficult to categorize the subsidies in the sector as capacity enhancing. However, there is no question about the fact that the removal of the subsidies will hit hard on the sector, particularly on the artisanal fishers and smokers for whom most of the subsidies were implemented. These people do not have the resources to operate on their own and so it is likely that most of them will lose their source of livelihood. Perhaps, it is in recognition of this that the government has sought to provide the people with alternative sources of livelihoods. A major DFID funded Sustainable Fisheries Livelihoods Program (SFLP) which was involved in alternative livelihood diversification for fisher folk was implemented during the period 1996-2002. Under the SFLP, men and women in some fishing communities were trained in carpentry, masonry, dress making, and textile (batik) making. The Ministry of Fisheries should explore opportunities for similar programs to help alleviate the negative impact that is likely to befall artisanal fisher folk with the withdrawal of government subsidies.
- ii. It is widely agreed that capacity enhancing subsidies have contributed enormously to the over-capacity problem experienced by fishing fleets globally, leading to 'too many boats chasing too few fish'. As stocks in developed countries have declined, their fleets have gone elsewhere, including the Gulf of Guinea, to capture fish. The removal of the subsidies by developed countries therefore presents a good opportunity for sustainable fisheries resource management in Ghana's Exclusive Economic Zone (EEZ). A reduction in the pressure on the fishery resources in the EEZ should be complemented by feasible fisheries management systems that will help replenish fish stocks. Indeed, Ghana needs to take an integrated approach towards managing and protecting all resources in the EEZ. As Ghana's Minister for Fisheries stressed recently, Ghana will have to make and implement authoritative fishery management decisions which control not only the behaviour of the country's nationals but also that of all other States as well (GNA, 2006). In this way, it is recommended that the government develops a policy on EEZ operations and management with a very detailed fisheries management component. Additionally, conscious efforts should be made by the Government to acquire the necessary assets;

including multi-purpose fishery protection vessels, coastal surveillance systems, and other measures to prevent illegal fishing operations by foreign vessels in the EEZ.

6.4 Aquaculture

With declining fisheries resources, alternative employment opportunities need to be developed for fishers. One area that needs to be given the necessary governmental attention is the development of aquaculture. There is significant potential to develop aquaculture for it to become an alternative source of employment for fishers and a source of fish for the domestic market. Small-scale aquaculture in freshwater lakes and brackish lagoons has been practised for decades, but production is low: 511 MT in 2000 (Atta-Mills *et al* 2004). Led by the Ministry of Fisheries, the government, research institutions and the private sector will have to expedite action on developing aquaculture into a medium to large scale commercial industry. The area available for pond-based aquaculture is estimated at over 50,000 hectares in brackish and freshwater environments. There are also vast areas for cage culture in the Volta Lake and medium size reservoirs (FAO, undated). The development of aquaculture into a medium to large scale commercial industry would, however, require significant investment in infrastructure, capacity building and support systems. The FAO and Water Resources Institute are providing the necessary technical support in the development of the industry. At a recent workshop on Genetic Management of Aquaculture Stocks in Western Africa, held in Accra (February 27 to March 3, 2006), fish farmers from Ghana, Nigeria, Uganda and Zimbabwe deliberated on how they could get their respective governments to allow the importation and breeding of Genetically Improved Farmed Tilapia (GIFT) fish to increase their yields. The issue of productivity needs to be considered seriously in any drive towards developing aquaculture to make it profitable and attractive to investors. The government will also have to work with stakeholders in the financial sector to provide the private sector with the necessary credit it would need.

6.5 Capacity building

One of the areas that hold significant promise for the fisheries industry in Ghana is, as stated earlier, the development of tuna resources. Unfortunately, Ghana is currently dependent on persons from the Far East, especially South Koreans, as crew on tuna vessels. It is envisaged that as the fishing industry in the Asian countries grow to take advantage of opportunities on the international fish market following the reduction of tariffs, these persons will return to work on vessels in their countries. It is therefore imperative that Ghana builds the necessary capacity. The government should resource the Regional Maritime Academy to provide the necessary training. The government can source funding from development partners such as EU, USAID and JICA to upgrade the Academy for the creation of faculty or department of tuna fisheries technology.

6.6 Institutional support

One must hasten to add that regardless of how feasible and viable these recommendations appear to be, their successful implementation would require a solid institutional support. It is in this light that the setting up of the Ministry of Fisheries, headed by a Minister with

cabinet status, is seen as a very strategic move by the government, especially at this time that significant changes are happening in the international fish trade. The vision of the Ministry is to maintain fish availability at all times through exploitation and culture of fisheries resources. The Ministry's mission is to promote sustainable and thriving fisheries enterprises through research, technology, development, extension and other support services to fishers, processors and traders and to fulfill its role in ensuring food security and poverty reduction.

It is worth reiterating that Ghana will have to make use of existing regional and bilateral alliances and working with like-minded countries to try and minimize the economic, social, and environmental cost of liberalizing international fish trade.

7. Conclusion

7.1 Tariffs, Non-Tariffs and Subsidies in Ghana

Ghana's main trading partner remains the European Union (EU). As an ACP country, Ghana receives non-reciprocal tariff and other preferences from the EU on many goods and currently enjoys a zero tariff on its fish/fish products exports into the EU. This preferential access will, however, be lost as liberalization of trade would open up the EU to other fish exporting countries. The implementation of the special 'Generalised Schemes of Tariff Preferences' (GSP) arrangements will also erode Ghana's preference margins.

The agreements on Sanitary and Phytosanitary Measures (SPS) and Technical Barriers to Trade (TBT) have made it imperative for Ghana to work towards harmonization of its food safety and quality standards with those of the EU. With assistance from the EU, Ghana is progressing steadily towards this goal. The Ghana Standards Board (GSB) has been selected as a competent authority and its capacity has been enhanced for fish inspections. GSB's laboratory with international accreditation from South African National Accreditation Service (SANAS) handles fishery products. Serious efforts have been made towards the implementation of Hazard Analysis Critical Control Point (HACCP) system to assure safety and quality of fishery products. Ghana has also developed domestic standards which are mandatory.

The government of Ghana provides subsidies to poor men and women in the industry to help stay in business and increase production. The subsidies include direct financial payments to the fisheries sector; indirect financial transfers which are active and explicit government interventions but do not involve a direct financial transfer; and, government regulatory interventions. Ghana has no export quotas, voluntary export restraints, or export subsidies. Rather, a token levy is collected on fish exports and imports into a fisheries development fund. Other sources into the fund are penalties from fishing infractions and payments for fishing licenses by semi-industrial and industrial fleets.

7.2 Analysis of Trade Negotiations

Analysis of the outcomes of the Doha trade negotiations and their impact on Ghana's fish trade shows clearly that the reduction in tariffs will have the greatest impact. In the first place, the competitiveness of Ghana's fish in the EU markets will very much be compromised. Tariff reduction and the GSP would erode whatever competitive advantage Ghana enjoys on the EU fish market.

Ghana will also be exposed to competition from such tuna exporting giants as Thailand and South Korea. The low cost of production in these countries will give them competitive advantage over Ghana. The FOB (Tema-Ghana) price per kg of smoke fish is about 5% higher than CIF (USA) of the same product from Thailand.

Cheap imports would depress prices in the EU and US markets and thereby reduce profits that could accrue to Ghanaian exporters. With their profits whittled away, exporting

businesses could be compelled to cut down on their operations or fold up altogether. Such a situation will have significant negative impacts on foreign exchange flows into the country, employment, poverty, and investment in fishing infrastructure and facilities. There will also be knock-on social effects such as declining standards of living and rural-urban migration.

Cheap fish imports into Ghana as a result of the trade liberalisation may not have immediate severe debilitating effect on the local fish market. It is envisaged that it could have the potential to collapse the artisanal fishery industry in the longer term.

Tariff reduction would affect government export receipts from the fishery sector due to reduced volumes of exports and profits. The effect of reduced receipts on GDP could be substantial.

Some impacts of the trade negotiations relate to the non-tariff measures. Any dramatic change in the food safety and quality standards might bring about some capacity building issues which would put strain on the resources of the country and fish exporting companies.

The government of Ghana (GOG) provides pre-mixed fuel which is sold at highly subsidised prices to artisanal fishermen. If this subsidy is removed, it is estimated that about 35% of the artisanal fishermen would be out of job and the consequences on their families and communities will be enormous. Poverty would increase and access to primary health care could also be a challenge. Domestic fish supplies would also be affected since the artisanal landing accounts for about 69% of total marine fish output.

The GOG provides financial support to retool the fishermen and skill training on efficient fishing and post harvest technologies. Without this financial support, most of the fishermen could not afford to pay for the total cost of equipment for their trade. The Ministry of Fisheries provides resources for capacity building programmes for fisher folk to ensure increase in production and productivity. The absence of this support would lead to inefficient and ineffective fishing techniques, with potential negative impacts on production cost and the environment. The Ministry also provides soft loans to artisanal fish processors (mainly women) to increase their capacity to handle larger quantity of fish. The withdrawal of these loans and other support to these poor fishing communities would affect their productivity and further aggravate their poor livelihood situation.

7.3 Prevention, Mitigation and Enhancement of Impacts

The proposed tariff and non-tariff measures of the Doha negotiations are bound to be implemented. Ghana must therefore devise and implement policies and strategies that would minimize the potential economic, social, and environmental costs, while enhancing the positive contributions to the country. The recommended measures to achieve this objective include:

7.3.1 Tariff Measures

- i. Ghana can suggest to the ACP to make representations to the WTO and particularly the EU to make compensatory payments to cover losses from the preference erosion. Such payments could help overcome the initial cost of adjustment. The EU should be able to afford this after saving billions of dollars from cancelled subsidies. However, as discussed in Section 6.1 (i) direct compensation is unlikely.
- ii. The cost of production of Ghanaian exporters is high and this would make them uncompetitive on a liberalized international market. Ghana should invest in the provision of infrastructure, support systems and modern efficient technology in the fisheries sector to beat down production cost.
- iii. In the face of potential reductions in the volumes of Ghana's fish exports to the EU and the US, Ghana should seriously work towards developing the West African and African regional markets. With a population of 750 million that is growing and urbanizing steadily, Africa constitutes a very viable potential market. Ghana could take advantage of its membership of Economic Commission of West African States (ECOWAS) and New Partnership for Africa Development (NEPAD) in this effort.
- iv. Ecolabelling could be used both as a fisheries management tool and a marketing strategy. Ecolabelling Ghana's fish exports could be used in a massive marketing effort to promote Ghana's fish on the international market. To set up an ecolabelling program, Ghana will require technical and financial assistance from development partners to develop appropriate monitoring, control and surveillance (MCS) arrangements for effective fisheries management.

7.3.2 Non-Tariff Measures

The Ghana Standards Board has been selected as the competent authority. There has been an improvement in compliance with SPS and TBT and this has been attributed mainly to the increased capacity of the Ghana Standards Board. The capacity of the board should be further strengthened to enable it to play its role in developing standards, ensuring compliance and certifying exports and imports.

7.3.3 Subsidies

- iii. The removal of subsidies will hit hard on the livelihoods of most artisanal fishers. To provide a safety net for the fishers the GOG, through the Ministry of Fisheries (MoFI) should design and implement alternative livelihood programs. There should be follow-up programmes to a DFID funded Sustainable Fisheries Livelihoods Program (SFLP) which was implemented during the period 1996-2002.
- iv. The removal of the subsidies by developed countries therefore presents a good opportunity for sustainable fisheries resource management in Ghana's Exclusive Economic Zone (EEZ). Ghana should take an integrated approach towards managing

and protecting all resources in the EEZ. GOG should develop a policy on EEZ operations and management with a very detailed fisheries management component to, among others, prevent illegal fishing operations by foreign vessels in the EEZ.

7.3.4 Aquaculture

Ghana has tremendous potential in the development of aquaculture for the provision of employment opportunities and as a source of fish. The government needs to provide the needed resources, direction and support to the private sector to develop a viable commercial aquaculture industry.

7.3.5 Capacity building

Ghana's dependence on crew from the Far East on its tuna vessels is not good for the future development of tuna resources in the country. The government must therefore necessarily work towards building local capacity by resourcing the Regional Maritime Academy to provide the necessary training.

7.3.6 Institutional Support

The recently created Ministry of Fisheries should provide the needed leadership and direction to the fisheries sector, especially at this time that significant changes are likely to occur in international fish trade.

Ghana will also have to make use of existing regional and bilateral alliances and work with other ACP countries to try and minimize the economic, social, and environmental cost of a liberalized international fish trade.

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