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**THE LINKAGES BETWEEN TRADE,  
DEVELOPMENT AND POVERTY REDUCTION:  
THE CASE STUDY OF FISHERIES  
SUB SECTOR IN TANZANIA**

**BY**

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## ABREVIATIONS AND ACRONYMS

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BMU(s)	Beach Management Unit(s)
CUPUE	Catch per Unit Effort
EEZ	Exclusive Economic Zone
EU	European Union
MITM	Ministry of Industries, Trade and Marketing
MNRT	Ministry of Natural Resources and Tourism
MSY	Maximum Sustainable Yield
NTP	National Trade Policy
NP	Nile Perch
NSGRP	National Strategy for Growth and Reduction of Poverty
PMO-RALG	Prime Ministers Office – Local Governments and Regional Administration
PRSP(s)	Poverty Reduction Strategy Paper(s)
SACCOS	Saving and Credit Cooperative Society
TAFU	Tanzania Fishers Union
TDP	Trade, Development and Poverty Reduction Project
TShs	Tanzanian Shillings
URT	United Republic of Tanzania
URT	United Republic of Tanzania
US	United States of America
WAWADA	Wavuvi Wadogo Wadogo Dar –es-Salaam (Organisation of Small Scale Fishers in Dar es Salaam)

## 1.0 INTRODUCTION

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International fish trade has grown rapidly in the last two decades as a consequence of trade liberalisation. Exports have risen from US\$ 15 billion in 1980 to US\$ 56 billion in 2001. At the same time the share of developing countries in this trade has risen from 40 percent to 50 percent and net receipt from under US\$ 4 billion to US\$ 18 billion respectively (Bostock et al 2004). Although the sector has not been sufficiently mainstreamed in poverty reduction strategies in Africa (see Thorne *et al* 2004), the sector is considered to be a significant contributor to poverty reduction since it is a notable source of food security, income and livelihood.

The linkage between trade and poverty in the fishery sector is ambiguous for two reasons. First, increased export trade of fish may decrease the supply for local consumption (hence compromising food security role of the sector). Second, although fisheries can be a source of livelihood in many fishery-endowed poor countries, the benefit of fish export to the poor is not automatic and may depend on specific policies of a particular country or how the poor are positioned in the supply chain. It is therefore cause for concern that, in their study of 29 African countries, Thorne et al (2004) found out that only in three countries namely Ghana, Guinea and Senegal fisheries had the sector been sufficiently mainstreamed in the poverty reduction strategies.

The present study<sup>1</sup> examines the linkage between trade and poverty in the Tanzanian fishery sector focusing on both the policy framework and the supply chain analysis. The overall objective is to examine how the poor who are at the bottom of the value chain (production process) gain from the sector's increased exports trade and explore factors which may constrain the poor from gaining (more) from the fishery trade. Using perceptions from some stakeholders, secondary data, and a review of literature on the fisheries sector, this case study concludes that, the fish export trade has had significant positive impact on poverty reduction given the sector's remarkable response to trade liberalisation.

This report is organised in five sections. After this introduction, section two presents an overview of the fisheries sector in Tanzania, including a succinct review of fishery and related policies. Section three discusses key outcomes of liberalization, while the main issues for trade, development and poverty linkages such as efficiency, risks, and regulation are discussed in section four. Section five concludes.

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<sup>1</sup> The study is part of a series of country studies of the TDP (Trade, Development and Poverty Project) that is being implemented in fourteen countries in Europe, Asia, Africa and Latin America and managed by CUTS in India covering various case study sectors. The objective is to identify 'winners' or 'losers' from trade liberalisation and analysing the extent to which the trade liberalisation has impacted on poverty.

## **2.0 THE FISHERIES SECTOR IN TANZANIA**

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### **2.1 Overview**

Tanzania is a country with great potential in both inland and marine fisheries resources. It has a coastline of 800 kilometres which has been declared an Exclusive Economic Zone (EEZ). The marine water covers 64,000 square kilometres while the EEZ covers some 223,000 square kilometres (URT, 2006a). The fresh water resources are found in the shared waters of the East African Great Lakes namely, Lake Victoria, Lake Nyasa and Lake Tanganyika. In addition, the country is endowed with other small natural and man made lakes, rivers systems and wetlands. Recent assessment indicates that the potential yield is 730,000 metric tones (URT, 2006b) distributed as follows: Lake Victoria (200,000 metric tones), Lake Tanganyika (300,000 metric tones), Lake Nyasa (100,000 metric tones), Other lakes (30,000 metric tones) and marine waters (100,000 metric tones).

The fisheries sector has a significant contribution in poverty reduction endeavours. The sector contributes about 10% of the Gross Domestic Product (URT, 2006b). Its contribution in the growth of GDP for the last five years has been between 1.6% and 3.1% (GoT, 2006b). Foreign exchange earnings have been shooting up in recent years. For example, foreign exchange earning from fish sales rose from USD 61.8 million in 1996 to USD 92.2 million in 2004 (URT, 2005). One third of the Tanzanian population derive its protein from fish. Almost fifty percent of the Tanzania population live below the poverty line of 1USD per day. This section of the population depends to a large extent on fish for their protein intake, as they cannot afford other protein-rich foods.

The fisheries sector is one of the significant sources of employment in the country. It is estimated that 80,000 fishers are employed full time in the fisheries sector (URT, 2006b). Also, others derive their livelihood from fisheries related activities such as animal feeds industries and boat building. Furthermore, the fisheries sector is a source of recreation, tourism and foreign exchange. In view of these potentials, the Government of Tanzania has established marine parks and reserves to conserve marine resources.

There are various types of fisheries in Tanzania, namely, marine fisheries, inland (or freshwater fisheries), industrial fisheries, artisanal fisheries and aquaculture. The marine fishery is practised along the EEZ in the islands of Zanzibar and Pemba. Freshwater fishery is mainly on Lake Nyasa, Lake Tanganyika and Lake Victoria. Eighty five percent of all the freshwater fisheries yield come from Lake Tanganyika and Lake Victoria (World Bank 2005). The Nile perch (NP) is exclusively found in Lake Victoria. NP exports account for a significant part of Tanzanian exports. Aquaculture has been identified as an area of opportunity but as yet is not highly developed in Tanzania.

The Tanzanian fish market has been broadly categorised into two segments -- the marine fisheries and the fresh water fisheries. Fish processing for exports is mainly done along the Indian Ocean and Lake Victoria Zone. There are currently eleven fish processing factories along the Indian Ocean and fourteen

in the lake Victoria Zone. Main species of fish processed for export are Nile perch, tilapia and sardines. The main destination for the Tanzanian exports is the European Union and to some extent the US.

The fish supply chain in Tanzania can be grouped in two parallel channels. Firstly, there is the artisanal or informal trade channel which supplies to the local market. Under this channel fishers supply fish to traders at the lake side who in turn sell to the nearby market or to middlemen who finally sell to the rural market or distant urban markets. This channel makes use of both road and railway transport (and occasionally air transport). The traditional fish sub-sector is part and parcel of this channel. The processing entails either fish smoking or deep drying. The main species dealt with in this sector include tilapia and sardines.

The main actors in the formal channel include factory processors, factory agents, and artisanal fishers. Big fishers may employ up to six fishermen per canoe. The main species dealt with in this channel are Nile Perch, tilapia and prawns. Nile perch is exclusively produced in the lake Victoria Zone and forms the bulk of Tanzania fish exports. The Fisheries Department (in the ministry of natural resources and tourism), is a key Government Authority whose mandate is to oversee implementation of fishery policy and regulations and facilitates monitoring and control of the fishing business.

The formal supply chain involves the use of middlemen or 'fish agents', who operate between the factory and the fishermen. We can distinguish between two types of agents namely, company agents and independent agents. Company agents are contracted by a factory to supply fish. The contract is so binding that the agent cannot supply fish to any factory other than the one contracted for. Often, the factories provide them with insulated iced trucks. Independent agents may sell fish to any factory and have trucks of their own. Whatever the form of arrangement, factory operators have complete control over fish agents.

## 2.2 Fish Export Performance

Table 2.1 indicates that there has been a persistent increase in the contribution of fish exports to total export. The share of fish exports rose from 7.5 percent in 1997 to 13.5 percent in 2003. The contribution of non-traditional exports has been growing from year to year during the last decade and the fish exports are the third greatest contributor in this category after minerals and tourism. The average contribution of fish exports was about 11.6 percent of total exports while minerals contributed an average of about 21.1 percent between 1995 and 2003.

**Table 2.1: Composition of exports (in percentages)**

	1995	1996	1997	1998	1999	2000	2001	2002	2003	Average
Traditional exports	56.2	57.1	57.8	60.5	55.4	44.1	29.8	22.8	21.1	45.0
Coffee	20.9	17.8	15.9	18.5	14.1	12.6	7.4	3.9	4.8	12.9
Cotton	17.6	16.4	17.3	8.1	5.2	5.7	4.3	3.2	4.5	9.1
Tea	3.4	3.0	4.2	5.2	4.5	4.9	3.7	3.3	2.4	3.8
Tobacco	4.0	6.4	7.1	9.4	8.0	5.8	4.6	6.2	4.0	6.2
Cashew Nuts	9.4	12.8	12.1	18.2	18.6	12.7	7.3	5.2	4.0	11.1
Sisal	0.9	0.7	1.2	1.2	1.3	0.8	0.9	0.7	0.6	0.9
Cloves					3.7	1.5	1.6	0.4	1.0	1.6
Non-traditional exports	43.8	42.9	42.2	39.5	44.6	55.9	70.2	77.2	78.6	55.0
Minerals and Metals	6.6	7.3	6.8	4.5	13.5	26.9	38.9	42.5	43.2	21.1
Gold			0.2	0.5	6.4	17.0	32.5	37.8	38.6	19.0
Other minerals	6.6	7.3	6.6	4.0	7.1	9.9	6.2	4.7	4.6	5.8
Manufactured	16.0	16.1	14.8	6.1	5.5	6.5	7.2	7.3	9.6	8.8
Fish and Products			7.5	12.6	10.4	11.5	12.5	12.9	13.5	11.6
Horticulture			0.7	1.5	1.6	1.5	1.4	1.2	1.1	1.3
Other	21.3	19.5	12.4	14.8	13.5	9.5	10.2	13.2	11.2	11.6

Source: Extracted from World Bank (2004) DTIS

## 2.3 Policy Framework in the Fishery Sector

Management of fisheries resources in Tanzania mainland is the responsibility of the Department of fisheries under Ministry of Natural Resources and Tourism (MNRT). In Zanzibar the fishery sector is regulated by the Department of Fisheries and Marine Resources of the Ministry of Agriculture, Natural Resources, Environment and Cooperatives. The main duty of the Department of Fisheries (DF) is to implement the Fisheries act of 2003 and the fisheries policy of 1997; and the general development of the fisheries sector. These departments, in collaboration with Local Government Authorities, are responsible for efficient and effective collection and allocation of revenue. Wilson (2004) notes that more than 50 percent of the total revenue collected is directed back to the fisheries via the retention scheme. While the Fishery department (MNRT) collects fish royalty the Local Government (under Prime Ministers Office – PMO) collects boat and fishing licence fees. .

### 2.3.1 The Fisheries Policy and Strategy

The National fisheries policy of 1997 is aimed at regulating, promoting and developing the exploitation of fisheries resources in as sustainable manner as possible in order to provide food, employment, income and foreign exchange. The main objective of the fisheries are summarised in box 1. Clearly, the impressive performance of the fishery sector has partly been a result of the policy, which encouraged development of industrial processing in Lake Victoria. However, it should be noted that, effectiveness of the fishery policy is dependent on the focus and implementation of policies on related sub-sectors such as environment and trade.

The objectives of the National Environmental Policy 1997 specific to the fisheries sector are highly coherent with those of the Fisheries policy. These include (i) utilisation of fisheries in a sustainable manner by using appropriate fishing gear and processing methods, (ii) control of destructive fishing and processing methods by regulation and support, (iii) promotion of alternative fishing methods to avoid deforestation to fish smoking, (iv) Conservation of fish stocks with a view of maximising maximum yield, (v) Control of the introduction of non-indigenous species, (vi) Reduction of post-harvest losses through improved processing and preservation techniques, (vii) Protection of fragile ecosystems and endangered species through proper fishing management, mitigation of coastal/waterways degradation and control of industrial pollution, and finally (viii) Integration of fish farming methods and other environmental methods of farming to enhance productivity.

#### Box 1: Objectives of the fisheries policy and strategy (1997)

The objectives of the fisheries are:

- (i) To put into use the available resources in order to increase fish production so as to improve the nutritional standards of people and at the same time contribute to the growth of the economy.
- (ii) To promote employment opportunities through fishing, fish processing, fish marketing and distribution, fish farming, fish gear manufacture and boat building.
- (iii) To increase foreign exchange earnings through increased utilisation of under utilised resources, improving quality of fish and fisheries products, and increasing fish products, increased exports of surplus production and increased export of locally unpopular fish species.
- (iv) To promote and strengthen international collaboration and cooperation with neighbouring states so as to sustain shared fish resources.
- (v) To promote maintain and improve environmental conservation measures by preventing water pollution and illegal fishing using detrimental methods such as use of poisons, dynamite etc.
- (vi) To improve the quality and enhance availability of fishing crafts and gears.
- (vii) Improve fish catching methods.
- (viii) to promote and propagate aquaculture in order to increase fish production and provide income to farmers.

Source: Extracted from URT (1997a)

### 2.3.2 Other related Policies and institutions



Other relevant national policies governing fishery sector in Tanzania include the National Investment Policy 1997 (NIP), the Fisheries Master Plan 2002 (FMP), The National Trade Policy (NTP) 2003 and the National Strategy for growth and Poverty Reduction (NSGRP) 2005. The NIP, through the Tanzania Investment Centre, has acted to lure investment both foreign and domestic to the industry. The FMP aims at developing a feasible integrated development strategy that will stimulate sustainable economic growth in fisheries sector. The benefits of FMP are directed at artisanal fisheries groups, small-scale trader, fish processors and their communities. One of the strategies of NTP is to enhance the contribution of non-traditional (including fishery) export in the growth of the economy. The NSGRP which is the second round of the PRSP started to be implemented in July 2005 and focuses on growth as a means to reducing poverty. Although fishery sector was not mainstreamed in the first poverty reduction strategy, its contribution to growth makes it important sector for poverty reduction in the context of the NSGRP.

## 3.0 KEY OUTCOMES OF LIBERALIZATION

### 3.1 Employment and Earnings in the Fisheries Sector

The fish trade has helped to boost employment hence contributing to poverty reduction. As can be seen from table 3.1 the number of fishers increased consistently from 75,621 in 1995 to 119,856 in 2003 while the number of boats increased from 22,464 in 1995 to 36,776 in 2003<sup>2</sup>.

**Table 3.1: Number of people employed in the freshwater fisheries sector 1995-2003**

Year	1995	1996	1997	1998	1999	2000	2001	2002	2003
<b>Number of Fishers</b>	<b>75,621</b>	<b>75,621</b>	<b>75,621</b>	<b>78,672</b>	<b>81,572</b>	<b>92,529</b>	<b>101,195</b>	<b>119,856</b>	<b>119,856</b>
Fresh water	50,029	50,029	50,029	50,029	56,088	75,042	75,042	95,547	95,547
Marine	25,592	25,592	25,592	28,643	25,484	17,487	26,153	24,309	24,309
<b>Number of boats</b>	<b>22,464</b>	<b>22,976</b>	<b>22,976</b>	<b>22,268</b>	<b>22,268</b>	<b>30,171</b>	<b>29,941</b>	<b>36,776</b>	<b>36,776</b>
Fresh water	18,696	18,696	18,696	18,696	18,696	25,014	25,014	31,849	31,849
Marine	3,768	4,280	4,280	3,572	3,572	5,157	4,927	4,927	4,927

Source: World Bank (2005) and Economic Survey 2004

Another area where fisheries contribute to employment is the production of fishing gear (boats, fishnet etc). For example, the production of fishnet has doubled from 24 tons in 1999 to 41 tons in 2003 (see table 4.2). As noted earlier, the number of fish processing factories has increased from none in 1995 to 24 in 2005. These factories (especially around the Lake Victoria) provide employment to local people (fish agents, factory workers). Both skilled and semi-skilled worker are employed in fish processing factories. It is estimated that 600 semi-skilled people are employed per factory. Hawkers, mostly women, benefit from fish trade by dealing with punk from the factories. In the fishing camps, women are engaged in the preparation of meals for fishermen in addition to fish hawking.

**Table 4.2: Fishnet production and import 1999-2003**

	1999	2000	2001	2002	2003
Fishnet production (tons)	24	42	57	30	41
Imports of fishnets (tons)	447.8	720.6	1,346.1	1,940.0	1,860.2
Total fishnet supply	471.8	762.1	1,403.1	1970.0	1901.2
Proportion imported	94.9	94.5	95.9	98.5	97.8

Source: Extracted from World Bank 2005

Kulindwa (2001) estimated the fisheries employment multiplier<sup>3</sup> at 1.56 with backward linkages of 1.37 and forward linkage of 0.18 (qtd in World Bank 2005). Applying this multiplier to 2003 data we can estimate the total employment contribution by the fisheries at 239,712.

<sup>2</sup> Note that these statistics do not include fish for own consumption. Kulindwa (2001) estimates that the contribution of fish for own consumption to total fish production is about 10% (see World Bank, 2005)

<sup>3</sup> The employment multiplier is calculated as total employment due to fish business divided by those directly employed as fishers.

## 3.2 Output prices

As it has been said in the introductory section, the fisheries sector in Tanzania has undergone substantial change during the last decade. The Government has worked hand in hand with the private sector in a bid to ensuring smooth running of fish market. In its part, the Government has established two modern fish markets, one in Mwanza to cater for the Lake Victoria Zone and another (the Magogoni fish market) in Dar-es-Salaam to cater for the Marine Zone. In fact in Dar-es-Salaam fish market is considered to be the largest in Eastern and Southern Africa (see details in box 2).

The trade liberalisation process which started in the mid 1980s and heightened during the 1990s has had a substantial impact on the fisheries sub-sector. The number of fish processing factories has risen from none in 1995 to 27 in 2005 (URT, 2005). Eleven of these industries are located along the Indian Ocean while 14 are in the lake Victoria Zone. As a result, fish output has also increased tremendously although output per fisherman seems to be declining due to the increase in number of fishermen. The output of fish rose from 331,466.90 tones in 1993 to 362,510.0 tones in 2004.

Subsequent to trade liberalisation, the fish prices are determined by market forces. In fact, the prices fluctuate widely since the fishing activities are seasonal. During the rainy season the fish market becomes over-supplied and the prices drop. Notwithstanding the seasonal nature of the business, there is some improvement in the prices of fish now compared to the last ten years (even after taking care of inflation). In 1995, fishers used to supply to factories/agents at a price of TShs 500 per kilogram compared to TShs 1200 per kilogram in 2004. Apparently, this increase is a reflection of rise in the export price (although not at equal proportions).

## 3.3 Perceived Obstacles in Fish Export Trade

Despite the impressive achievements of the fisheries sub sector in Tanzania there remain some impediments hindering full exploitation of the international fish trade opportunities. In this study, various stakeholders interviewed were asked to identify key obstacles faced in improving their performance in fish export trade (or benefiting there from). Largely, the constraints mentioned are of two types: the common structural constraints on one hand; and fishery-specific obstacles.

The common structural constraints include poor infrastructure and inadequately provided and costly utilities (electricity, water, telephone). Such problems affect the efficiency and increase the cost of production – there by adding to the transaction costs hence lowering value addition in the fish export. Local fish suppliers raised a complaint regarding the poor state of railway and road transport. Given the perishable nature of fish products, lack of reliable transport can lead to frequent losses on the part of traders.

Despite these seemingly common (and economy wide) constraints, there are sector-specific obstacles that affect fish export and value addition process. The biggest obstacle among fish processors is fish export royalty which affects the relative competitiveness of Tanzanian fish exporters compared to Kenya

or Ugandan counterparts who have no royalty. However, officials from Fishery department emphasise on the usefulness of the Royalty in financing fishery research and developing the fishery infrastructure hence sustainability of the sector. Nevertheless, the three East Africa states are in a process of harmonising the taxes in the fisheries sector, whereby the fish processors/exporters will be subjected to level playing field.

Another obstacle to the development of robust fisheries sector in Tanzania is lack of access to modern technology. Two problems can be inferred from this state of affairs. Firstly, is the observation, particularly in marine fisheries (Silva 2006, Berach 2003) that the type of fishing gear used by artisanal fishers can have a serious impact of the environment and consequently on the sustainability of the fisheries sector. Second, fish processors lack technological capacity for increasing value addition by producing fish and related products (e.g. samosa, fish-leather products, fish meal etc.) other than raw products (fillets). Such industries would have added more return to the investors, create more jobs, and tax revenue.

## 4.0 MAIN ISSUES FOR TDP IN THE SECTOR: EFFICIENCY, RISKS AND REGULATION

### 4.1 Industrial Organization Issues

One of key issues underlying the impact of fish export on poverty is not about price transmission, but rather biased industrial organisation. On one hand, Fish processors/exporters are highly organised through their the Tanzania Fish Processors Association. Fishermen on the other hand are highly

#### Box 5.1: Organisation of Small Scale Fishers in Dar-es-Salaam (WAWADA)

WAWADA is an NGO dealing with organisation of small-scale fishermen in Dar-es-Salaam that was registered in 2000. Its main objective is foster the bargain power of its members in the market economy. Apart from this core objective, WAWADA is also engaged in enhancement of economic and social well being of its members. To enhance the well being of its member, WAWADA has formed a Savings and Credit Cooperative Society (SACCOS). WAWADA SACCOS provide loans to both its members and non-members as well.

The members of WAWADA comprise the small-scale fishers who sell their produce in Magogoni fish market. Fish produce from Magogoni market sell as far as Bagamoyo, Zanzibar and Lindi. The main problem of the small-scale fishers in Magogoni is inadequate market for their products especially during the rainy season when fish supply is abundant.

Source: Authors' Field Survey October 2005

disorganised. They lack associations which would assist them in price negotiations or provide a forum for coordinating their concerns. Some organisations however, have emerged in recent years (e.g. TAFU, WAWADA, MUWADA) but these are relatively infant and incapacitated. As a result of a lack of

#### Box 5.2: Modern fish market helping to reducing poverty in Dar-es-Salaam

As a result of the rapid expansion in marine fishing in Dar-es-Salaam the local government authorities embarked on a project of constructing a modern fish market in the city. Magogoni fish market which has been serving the city for quite some time was considered an ideal place. According to the market's CEO the area was chosen because of infrastructure reasons: It can be accessed by road from all corners of the city. Furthermore, Magogoni is one of the shores with the largest amount of fishing activities in the city. The Japanese Government agreed to fund the project and the project took off in 1999. The market was officially inaugurated in 2002.

The good organisation of the market is not only beneficial to fishers but also to the municipal authorities. It is now more convenient to collect revenue from fishing activities. According to the authorities the centre gathers 280-300 tones of fish per day. This output generates revenue of about TShs 1.5 billion per year.

Infrastructural facilities available in the market include cold rooms, convener, water (soft water from City water and hard water drained from the sea), Electricity, Steam generator, shops and other services. Security in the market is not a problem. The municipal authorities hire security guards and the National Policy is handy.

For better organisation the market has been divided into eight zones which a dedicated to the following activities: Storage and Selling zone; Fish preparation; Retailing; Restaurants; Seashells, Vegetables and Fruits; Fish frying; Storage facilities; Shops and Garage.

One advantage of the markets is the employment opportunities it avails to the city residents, particularly women from low-income brackets. Hawkers flock the market from dawn to sunset to collect fish and sell in the local areas. Women benefit from fish hawking as it does not require large amount of capital to start. One can embark one fish hawking with as little as ten thousand Tanzanian Shillings.

Source: Authors' Field Survey October 2005

collective bargaining, fishermen and agents often complain of unfair prices from factory owners. It is the factory owners who set prices while the fishermen and agents are prices takers.

Clearly, this means that the price transmission is partial and market forces are less than fully functioning, thus limiting the extent in which fishermen and agents (who are at the lower end of the value chain) can benefit from fish export trade.

#### **Box 5.3: TAFU and Collective Bargaining in Lake Victoria Fisheries**

Tanzania Fishers Union (TAFU) was formally registered in July 2001 as an NGO. Its membership is comprised of fishers in fishing camps in Mara Mwanza and Kagera. Its head office is located in Mwanza.

One interesting thing about TAFU is that it is the first endeavour to bear fruit in as far as collective bargaining in the fisheries sector is concerned. The main complaint of artisanal fishers is unfair price of fish offered by factory owners. Due to lack of collective bargaining, fishers have been price takers. Being a price taker in the fishing business affects fishers in two ways. Firstly, the factory owners offer whatever price they deem to be profitable without the discretion of the fishers. Secondly, is the aspect of 'fish rejects.' Once an output is deemed a reject the fishers are not involved in determining the price of the rejects.

The specific activities of the organisation are: To safeguard and conserve the environment; To fight illicit fishing; To conduct seminars and public debates to sensitise fishers in green fishing; to stand for fisher's rights, enhance security to their properties and contain child labour; to negotiate with fish processors on the price so as to fight exploitation; to fight HIV/AIDS; to execute government policies on effective use of natural resources for the benefit of the next generation

Source: Authors' Field Survey and TAFU Brochures

## **4.2 Fish Quality, Environment and Food Security**

### **4.2.1 Fish quality and Value of Fish Exports**

Fish exports from East Africa have had two bans from the EU market. The first ban occurred in January 1997 and was due to the outbreak of cholera in East Africa. The ban was triggered by unhygienic fish handling in the landing sites and markets, hence substandard fish processing in the factories (Mitullah 1999). The second ban was attributed to fish poisoning (Musonda and Kessy 2001). Consequently, the EU sent a mission to investigate the whole fish supply chain in East Africa. The mission recommended the establishment of competent authority in each country exporting fish to the EU that would be responsible for approving all fish processing.

Following the recommendation of the EU mission, the Government of Tanzania appointed the Department of Fisheries (DoF) under MNRT as the competent authority. As a result of the collaborative efforts between the DoF and other stakeholders in the sector, the fish ban was lifted in November 2000. The DoF not only oversees the adherences to standards in the fisheries sector but also undertakes regular monitoring and control inspection of landing sites and fishing camps to make sure that fisher are adhering to fish handling standards. Quality control officers of the fish processing factories make regular inspection of fish processing plants to ensure that quality standards are adhered to. Fish processors also train fishers and fish agents regarding hygienic methods of handling fish.

In addition to these efforts by public and private sector, the success of environmental standards at landing sites can be attributed to community-based fisheries management. Embracing the concept of community management, the government has, through the Department of fisheries, coordinated the

community-based fisheries management. During the period from 1995-2004, about 500 Beach Management Units (BMUs) have been established. The BMUs function as part of the local Governments but are manned by fisheries department via its field offices. Under the BMUs initiative fishing communities in land sites and the community at large do self-policing to stop environment degradation activities such as fish poisoning. However, the BMUs are only operational in the Lake Victoria area. Plans are underway to spread them to all the fishing communities in Tanzania.

### 4.3 PPP/Stakeholder Collaboration

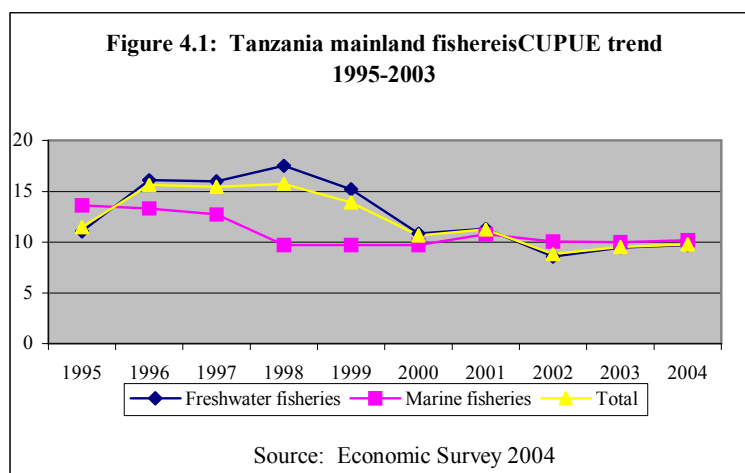
The lifting of the fish ban can be attributed to improved quality and adherence to international quality standards. To meet the international standards different stakeholders were involved. In the first place collaborative efforts of different stakeholders (both private and public) were used to stop fish poisoning. Secondly, fish processing factories established modern laboratories for testing fish quality. Thirdly, the fisheries department has quality control section that is charged with the role of making sure fish exports adhere to internal hygienic standards (quality auditing).

The fisheries department inspects factories and landing sites regularly to make sure quality standards are being adhered to and take appropriate measures where there are irregularities. Fish processing factories train agent about modern hygienic ways of handling fish before allowing them to engage in this activity. Fisheries department personnel have regular programs to train fishers on hygienic ways of handling fish. The fisheries department makes sure that fish processors have a Tanzania Bureau of Standards (TBS) and EU certificate before they are allowed to export fish products.

The Fisheries department and fish processors work hand in hand to make sure no harmful chemicals are used in fish processing factories except chlorine, which is used for treating water for factory use. The government negotiated with the EU on behalf of the processors thereby auguring their efforts. In order to tackle the problem of fish quality in a more sustainable manner, the Government of Tanzania has established two fish quality control laboratories, one at Nyegezi in Mwanza and another one in Dar-es-Salaam.

### 4.4 Food Security and Sustainability of the Fisheries Sector

There is an observation from stakeholders that the harvesting of fish resources in Tanzania is not sustainable. Several empirical studies indicate that the resources are not being harvested according to the principle of



maximum sustainable yield (Wilson 1993, Berachi 2002, Berachi 2003, Bulayi 2001, Kulindwa and et al 204, Silva 2005). This allegation is evident from the table below. The table indicates that Catch per unit effort (CUPUE) is falling over time. The CUPUE for the inland fisheries is falling faster than that of marine fisheries indicating serious depletion risk for inland fisheries due to higher Nile Perch exports.

The surge in fish exports may also pose risk on food security as supply for local consumption seems to fall putting upward pressure on prices. A study by Abila (2001) in the Kenyan side of the Lake Victoria found out that increased exposure of the fisheries sector to international trade not only leads to a shrinkage of the local supply chain but also was a threat to food security in the fishing community. The increased number of fish processing factories also increases demand pressure hence rise in prices that may affect the price for local consumers.

It is worth noting that some measures have already been taken to address the environmental problems in the fishing communities. One such measure is the establishment of Beach Management Units (BMUs) by the Lake Victoria Environmental Management Programme (LVEMP) funded by the World Bank. As noted earlier, BMUs aim at fostering community participation in the management of fisheries resources. As of now, the BMUs are only operational in the Lake Victoria zone but plans are under way to spread it the other fishing communities in the country. Currently there are about 500 BMUs countrywide as compared to none in 1995.

#### **4.5 Gender Involvement in Fish trade**

Generally, women involvement in the fisheries activities is much lower than that of men, and concentrated on the lower end of the value chain (see for example Medard et al 2001, Chando 2002) Nevertheless, women have benefited significantly from the liberalised fish trade. All stakeholders contacted in this study are of the view that trade liberalisation has had positive impact on the life of women. Women are not involved in direct fishing activities for it is considered male activity given its risky nature.

Our study found that women are involved in several activities directly or indirectly connected to the fish trade or fishery activities. These include support activities (cooking for fishermen etc) and hawking at landing sites, in addition to selling some processed or bi-products to local consumers. Women are key suppliers of labour in the fish processing factories. On average, women comprise about half of the total labour force in these factories. Women are also key beneficiaries of fish processing bi-product, where they buying punks from the factories and sell the same to chicken feed manufacturers. Another activity where women are highly involved is fish smoking and frying. Fish smoking and frying are activities which are mainly done by women. After having processed the fish women sell them to local market for local consumption, including fish wholesalers who transport fish to various parts of Tanzania.



Another activity in which women are highly involved is seaweed farming. Seaweed farming is practiced mainly in Tanzania mainland coast and the isles of Zanzibar and Pemba. In Zanzibar seaweed farming forms a significant part of exports.

As has been previously mentioned, aquaculture is relatively new in Tanzania. Although they cannot typically own ponds (do to lack of capital, land etc) women are highly involved in aquaculture (Chando, 2002). Indeed this is an activity that, once developed, will contribute greatly to poverty alleviation among women.

#### Box 5.1: Gender Participation in trade

EDDA MWANDAMBWA was Born 1962. She got married in 1982 and remained a housewife until 1990 when she became a widow. In order to be able to cater for her three children she started to work in private company in Mwanza. She later on left the job to engage in business. She was retailing rice cereals.

Mwandambwa started to engage in the fishing business in 1998. The main thing which made her engage in this activity is the success of the sector which started to show up in 1995. She registered as a factory agent. She started with a capital of TSHs 1 million. By 2001 her capital had increased to 3 million!

As a result of the fishing business the widowed Mwandambwa can manage her life well. She is able to pay school fees for her three children. She has built a modern house.

Source: Authors' Field Survey

## 4.6 “Dutch Disease” Type of Social Concerns

Clearly, as a consequence of trade liberalisation, the fishing export industry has been one of the most been one of Tanzania’s most flourishing. However, while impressive, this performance is not without caveat. The first of these is that there have been many social problems attributed to the lucrative fishing business. Many children engage into fishing business with the intention of getting rich quickly. This has resulted into high drop-out in the fishing communities. Some of the stakeholders interviewed confirmed that many school pupils consider the opportunity cost of schooling as being relatively high. Secondly, other social problems include high HIV/AIDS spread as a result of both being richer and lacking education. There have also been reported incidences of increased violence.

## 5.0 CONCLUDING REMARKS

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This study has sought to explore the linkages between trade, development and poverty reduction in Tanzania using the case of the fisheries sector. From economic point of view, the fisheries sector can be considered 'winner' of trade liberalisation. This success is exemplified by increased contribution of the sector to total exports and Government revenue. It is also evidenced by improved livelihood of grassroots workers due to increased employment opportunities (both direct and indirect) and increased price fish products. Questions however arise whether the fishery sector can be used as a demo by government in enhancing the impact of trade liberalization. In addition, how this should be done. Is it through the EU partnership, Donor Support (e.g., World Bank), or Regional Integration Arrangements?

The study has also found out that TDP linkages are possible. But these linkages are effective only when other underlying issues are addressed. For example, the paper has observed that the contribution of the fisheries sector is poverty reduction has been hampered by ill-functioning market. Consequently, grassroots workers are not able to take full advantage of the opportunities arising from increased exposure of the sector to international trade.

Furthermore, there is a problem unsustainable fisheries management. Evidence indicates that fisheries resources in Tanzania are not harvested according to the principle of maximum sustainable yield and this has been exacerbated by increased exposure of the sector to international trade (Kulindwa et al 2004, World Bank 2005, Silva 2006). The fisheries resources in Tanzania are currently exploited using the principle of open access as opposed to community based management principle as suggested from research findings (Bulayi 2001, Berachi 2003, Lokina 2005). Consequently food security and long-term sustainability of the fisheries is threatened.

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## APPENDICES

### Appendix I: Number of people employed in the freshwater fisheries sector 1995-2003

Year	1995	1996	1997	1998	1999	2000	2001	2002	2003
Number of Fishers	75621	75621	75621	78672	81572	92529	101195	119856	119856
Of which: fresh water	50,029	50,029	50,029	50,029	56,088	75,042	75,042	95,547	95,547
Marine	25,592	25,592	25,592	28,643	25,484	17,487	26,153	24,309	24,309
Number of boats	22,464	22,976	22,976	22,268	22,268	30,171	29,941	36,776	36,776
Of which: fresh water	18,696	18,696	18,696	18,696	18,696	25,014	25,014	31,849	31,849
Marine	3,768	4,280	4,280	3,572	3,572	5,157	4,927	4,927	4,927

### Appendix II: Proportion of fish exports to total exports 1996-2003

	1996	1997	1998	1999	2000	2001	2002	2003
Total exports (in mil US\$)	1298.7	1235.0	1109.8	1143.6	12190.6	1455.7	1568.3	1827.6
Total fish exports (in mil US\$)	61.78	70.17	83.52	61.79	64.54	95.45	94.24	129.61
Nile Perch exports (in mil US\$)	52.27	54.82	65.73	51.99	45.9	77.21	76.31	102.37
Nile Perch exports % of total fish exports	84.6	78.1	78.7	84.1	71.1	80.9	81.0	79.0
Proportion of fish exports to total exports	4.0	4.4	5.9	4.5	0.4	5.3	4.9	5.6

Source: Extracted from World Bank 2005

### Appendix III: Export royalty revenue (Mainland) in US\$ millions 1995-2002

	1995	1996	1997	1998	1999	2000	2001	2002
Freshwater	0.8	2.1	3.6	4.2	3.5	3.4	5.8	5.6
Marine	0.3	0.4	0.5	0.8	0.5	0.5	0.7	1.1
Total	1.1	2.5	4.0	4.9	4.0	3.9	6.4	6.6

Source: Extracted from Wilson (2004)

### Appendix IV: Effort indicators for major fish

Lake Victoria, Nile Perch	1996	1997	1998	1999	2000	2001	2002
Number of Gilets in Use	10,342	110,000	119,676	155,000	206,564	270,000	350,452
Number of hooks in use	1,419,687		675,030		2,201,901		4,577,196
Marine industrial shrimp fishery							
Number of trawling days	1,779	2,091	2,778	2,202	3,352	3,882	2,500
Declared industrial catch	782,430	699,059	995,564	688,006	909,715	1,192,019	926,079

### Appendix V: Number of fishers, boats and CUPUE 1995-2004

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
No. of artisan fishers	75,621	75,621	75,621	78,672	81,572	92,529	101,195	119,856	119,856	115,001
Number of boats	22,464	22,976	22,976	22,268	22,268	30,171	29,941	36,776	36,776	37,119
Of which: fresh water	18,696	19,208	19,208	17,111	17,111	25,034	25,014	31,849	31,849	32,172
Marine	3,768	3,768	3,768	5,157	5,157	5,137	4,927	4,927	4,927	4,947
Fish Catch (tons)	258,339	358,810	354,750	350,000	310,000	320,900	336,289	323,531	351,125	362,510
Of which: fresh water	207,139	308,600	306,750	300,000	260,000	271,000	283,354	273,856	301,855	312,040
Marine	51,200	50,210	48,000	50,000	50,000	49,900	52,935	49,675	49,270	50,470
CUPUE (freshwater)	11.1	16.1	16.0	17.5	15.2	10.8	11.3	8.6	9.5	9.7
CUPUE (marine)	13.6	13.3	12.7	9.7	9.7	9.7	10.7	10.1	10.0	10.2
CUPUE (all)	11.5	15.6	15.4	15.7	13.9	10.6	11.2	8.8	9.5	9.8

Source: Calculated using data from The Economic Survey, 2004