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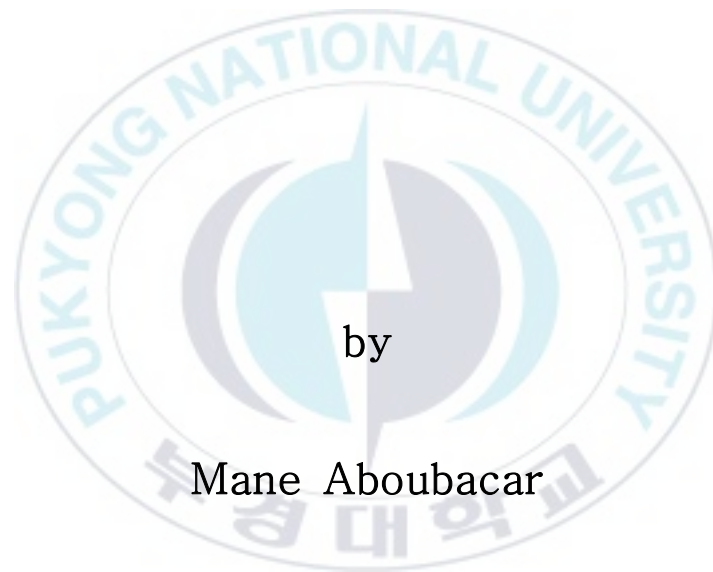
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Thesis for the Degree of Master of Business Administration

Distribution of Artisanal Smoked Fish Products in the Gambia



by

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February 2016

Distribution of Artisanal Smoked
Fish Products in the Gambia
(감비아 영세소규모 어업 훈제 수산물
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Advisor: Prof. Young Soo Jang

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Distribution of Artisanal Smoked Fish Products in the Gambia

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List of acronyms

ANR	Agriculture and Natural Resources
ANRWG	Agricultural and Natural Resources Working
CCLME	Canary Current Large Marine Ecosystem
CCRF	Code of Conduct for Responsible Fisheries
CECAF	FAO Fishery Committee for the Eastern Central Atlantic
CFC	Community Fisheries Center
COFI	FAO Committee on Fisheries
EEZ	Exclusive Economic Zone
EU	European Union
FAO	Food and Agriculture Organization
FAO/SPWG NW	FAO Working Group on the Assessment of Small Pelagic fish of Northwest Africa
FAO/CECAF DWG	FSAO/CECAF Working Group on the Assessment of Demersal Resources
FEU	Fishing Economic Unit
GAFDP	Gambia Artisanal Fisheries Development Project
GBOS	Gambia Bureau of Statistics
GDP	Gross Domestic Product
GRT	Gross Registered Tonnage
GMD	Gambian Dalasi
GOTG	Government of the Gambia
IMR	Institute of Marine Research
MCS	Monitoring Control and Surveillance
MOA	Ministry of Agriculture
NES	National Export Strategy
NORAD	Norwegian Agency for Development Cooperation
OMVG	Organization for Management of the Gambia River Basin
PRCM	Regional Coastal and Marine Conservation program
SRFC	Sub-Regional Fisheries Commission

UK	United Kingdom
USA	United States of America
WTO	World Trade Organization
WFP	World Food Program



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Distribution of Artisanal Smoked Fish Products in the Gambia

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Abstract

The artisanal fisheries sector in the Gambia is the major producer of cured fish. About 60% is marketed as smoked or dried. Fish is the affordable source of animal protein in most parts of country. Traditional processing of fish in the Gambia is a reliable means of extending its shelf life hence making it available to consumers living in rural areas. Post-harvest losses are estimated at 20-30%. The market for smoked fish is expanding, although inadequate market information and low level of organization among producers and traders limit the efficiency of the trade. In this study, an overview of distribution of artisanal smoked fish products in the Gambia was presented using four approaches. First, an overview of the national fisheries policy objectives by looking at some of the programs and strategies put in place by the government. Further, description of the resource potentials, characteristics of the fisheries, and the production were discussed. Attempts were also made to determine the importance and contribution of the fisheries sector to the national economy. The first approach focused on the capacity to generate employment, foreign exchange, fish protein for local consumption, and over all, the contribution of the fisheries sector to Gross Domestic Product (GDP). Secondly, the various products, processing technology and the gender pattern of the fisheries sector, were explored highlighting their strengths and weaknesses. A few case studies were given as an illustration. Thirdly, an overview of marketing and distribution of fish and fish products, including fish handling, diaspora trade, organizational structure and strategy of the cured fish industry was examined. Lastly, study gives an overview of the sociocultural dimensions of the fish marketing. The family relations,

expectations, the ethnicities of the fishing families, the conjugal relations and the expectations from the society, importance of family members, their beliefs and customs, and role specialization within the fishing families were highlighted.



I. Introduction

The Republic of the Gambia is one of the smallest countries in Africa. It is located in West Africa, bordering the Republic of Senegal and the Atlantic Ocean. Its geography is distinctive: like a tongue in the mouth of Senegal. The country extends inland for about 480 km along the banks of the river Gambia; its Atlantic coastline is only 80 km in length.

The Gambia is one of the 48 countries that are officially recognized by the United Nations as Least Developed Countries (LDCs), based on economic vulnerability and human asset indicators. In spite of its LDC status, the country shows some economic dynamism. The country's 3.8 percent average annual GDP growth rate during 2000–11 was higher than the average among West African Economic and Monetary Union countries (UNCTAD, DTIS Update 2013).

In terms of output structure, the tertiary sector currently contributes over half of the country's GDP and is rapidly developing, driven by tourism and construction. The tourism sector alone (a sector in which the Gambia is improving its competitive position) employs over 10,000 people directly. The private sector on the other hand employs 22,000 people (World Bank, DTIS 2007). The GBOS estimates the overall contribution of the Agriculture and Natural Resources (crops, livestock, forestry and fishery) at 34 percent (2010). With the crops sector alone contributing 20 percent. Agriculture and Natural Resources account for more than 70 percent of employment.

Industry (including the extractive industry, energy, construction and manufacturing) was estimated to account for about 12 percent of GDP (2010).

The Gambia continues to run a merchandise trade deficit, but has had a current account surplus since 2008, driven by net transfer

payments. Remittances constitute an important source of foreign capital, accounting for 7.4 percent of Gambia's GDP and 26.2 percent of trade in goods and services (UNCTAD, DTIS Update 2013). The Gambia also relies heavily on official development assistance (ODA) inflows. In 2010, the Gambia received \$110 million which was equivalent to 11 percent of its GDP (UNCTAD, DTIS Update 2013). The Gambia has high export and import ratios to GDP, but as much as 90 percent of exports were estimated to be re-exports to the sub-region (World Bank, DTIS 2007). Tourism is the single most important export sector and a major foreign exchange earner.

Fish marketing and distribution play an important role in the nutrition of the Gambian population. It is one of the policy objectives of the government of the Gambia; aimed at enhancing the nutritional status of the population. Majority of the rural Gambian women concentrate on agriculture (subsistence farming), mainly for the household. Few women used to be involved in the fishery sector in the past but nowadays they are being integrated in every sector of development in the Gambia. Historically fishing was mainly practiced by two ethnic groups but presently many other ethnic groups are involved in the fisheries sector. Fish supply still remains insufficient due to the increased demand for fish and fishery products.

The objectives of this study are:

- 1- To identify the methods and techniques used in artisanal fish processing in the Gambia.
- 2- To list and describe the roles played by different stakeholders in the fisheries sector.
- 3- To explore the quality of smoked fish products and link them to their destination markets.

II. Fisheries in the Gambia

1. General background

The Gambia lies on the West coast of Africa between latitude 13 and 14 degrees north. The country is a strip of territory jutting into Senegal (Figure 1; The World Factbook, 2015). It has a total area of 11,420 sq. km. The country is divided into two by the Gambia River which is 50 km at its greatest width (around the coast) and narrower towards the east (width 30 km). The capital city is Banjul and it is situated on the St. Mary's Island at the mouth of the river. It is connected to the main land by a bridge. The country is divided into the North Bank Division, Lower River Division, Western Division, MacCarthy Island Division and the Upper River Division. The Gambia has a population of about 1.95 million (World Factbook, 2015) and a population density of 61/sq. km. 80% of the population live in the rural areas. 90% of the population are Muslim. The population growth rate is considered to be one of the highest in Africa. The Gambia has 12 ethnic groups, different culture and languages. The ethnic groups include Mandinka, Wolof, Serere, Lebu, Jola, Fula/Paul, Sarahulie etc. The Mandinkas constitute about 40% of the total population. They live in the rural areas, and in the Kombo St.Mary area, western Lower River and the North Bank Division. The Fulani are mainly concentrated in the Fulladu district in the MacCarthy Island Division and Upper River Division, with the Wolofs found mainly in Banjul and some part on the North Bank Division (African Development Bank 2011).

Each of these ethnic groups has its main economic activity. The Mandinkas are mainly farmers. Men cultivate cash crops, like groundnuts and cotton while women do rice cultivation. A few men combine farming and fishing. The women farmers sometimes double

up as fish mongers. The Fulanis are mostly cattle herders while the Serere and the Lebus are historically known for fishing. The Jolas are mostly involved in oyster harvesting, crop farming and fisherwomen besides they process palm oil.



<Figure 1> Map of Gambia

Source: World Factbook, 2015.

The river

The Gambia river is one of the most navigable rivers in West Africa. Its source is from the Fouta Jallon Mountain (Guinea Conakry). It flows through Senegal and Guinea Bissau with approximately 450 km length flowing through the Gambia. Ocean moving vessels can sail 250 km up wide and deep river while small boats can sail 80 km further. It is one of the most important geographical features of the country and its reputed to be rich in fishery resources.

The climate

Seasonal climatic variation play an important role to the lives of the

people more so farmers and the fisherfolk.

The climate is subtropical and has two different seasons, dry and wet seasons. The wet/rainy season starts from June to October. The rainy season is the cropping period for all farmers. The rainy season is highly variable with reduction of about 50% in the past century due to frequent prolonged drought seasons (World Factbook, 2015). This phenomenon could be attributed to the environmental problem of deforestation, among other reasons.

The dry season is from November to May. From November to February, the north-east trade winds or the cold dry harmattan wind blows southwards from the Sahara Desert causing dryness and soil moisture deficiency. This season is more favorable for the fisherfolk involved in fishing, processing and marketing. Fish landing sites become busy with people (“banabanas”, processors, marketers and consumers) rushing to get access to fish since it is the only readily available food item in the dry season. Fish processors are also become busy smoking or drying their fish under the hot sun, as they sell their products.

Agriculture

Agriculture is the backbone of the economy, employing over three quarters of the labor force. In 1988, agriculture contributed 59.4% of the foreign exchange earnings. This changed to 47% in 1989 and 53.9% in 1990 due to highly un predictable weather. Agricultural production comprises of mainly farmed crops, livestock, forestry products and fisheries.

The crops cultivated in the Gambia are mainly food crops such as groundnuts, rice, maize, cassava and beans. Others are horticultural crops like vegetables tomatoes, pepper, okra, garden-eggs, spinach, cabbages etc. The cash crops produced are mainly groundnuts and cotton.

Farmers mainly depend on rainfed agriculture. They do not therefore farm all year round. The sector is labor intensive involving both men and women . Men cultivate cash crops, mostly for the export markets while women cultivate food crops for the local markets and for home consumption.

During the drought years most of the farmers (both men and women) become economically handicapped. Most of them turn to fisheries, combining agriculture crops during the rainy season and fishing during the dry season.

2. The resource base

The Gambia has a continental shelf area of about 4,000 Km². It also has approximately 10,500 km² Exclusive Economic Zone (EEZ). The country is believed to have a rich biodiversity of fish species. This resource base offers great potential to make substantial contribution to the Gambia's socio-economic development, if fish resources are managed sustainably.

Over 500 marine fish species have been identified in Gambian waters. They range from demersals (bottom dwelling) to pelagics (surface dwelling). The demersals include shrimps, groupers, sea breams, grunts, croakers, snappers, etc. Small pelagics group consists of two species sardinella (*Sardinella aurita* and *Sardinella maderensis*). The others include the bonga/shad (*Ethmalosa fimbriata*), horse mackerels (*Trachurus trecae*, *Trachurus trachurus* and *Caranx rhoncus*), breams and mackerel (*Scomber japonicas*). These are all high value demersal species. The Gambia coastline is also rich in shrimps, sea lobsters and cephalopods, among others. The latter are mainly supplied to fish processing factories for export to the EU, America, and Asia. Small pelagics are mostly consumed locally as fresh or traditionally processed by smoking or deep frying and the excess are

exported regionally.

Inland fish resources are found within the Gambia River. The river runs across the entire country. The river produces fresh water species such as catfish, (*Clarias spp.*), tilapia (*Oreochromis niloticus*), bony tongue (*Heterotis niloticus*), Gymnarchus (*Gymnarchus niloticus*), etc. It is also important to note that the river's ecology serves as a transitional phase for many marine fish species, where they spend part of their life cycles to reproduce, feed or as nursery grounds. Such anadromous species include the shrimps, the croaker, the thread fins (locally known as the "kujali") and other high value pelagic species such as the barracuda, whose Juveniles occur among mangroves and the estuaries. The shrimp stock found in the Gambia, has its spawning grounds in the estuary/river. After hatching and metamorphosis to various larval stages in the river, the juvenile shrimp migrate upstream in shallow areas of the River Gambia for feeding and growth in the nutrient-rich mangrove areas. After three months, the adult shrimp migrate to the sea for spawning in the central and deepest part of the estuary.

Despite the rich resource abundance, the Gambia does not have adequate financial, human and technical resources to conduct scientific surveys on their stocks. The country relies on assistance provided by international institutions and organizations such as FAO and the Norwegian Agency for Development Cooperation (NORAD). For several years, annual hydro-acoustic surveys of small pelagic fish stocks in the Gambia, Morocco and Senegal were conducted with assistance from FAO and the Norwegian Institute of Marine Research (IMR). Estimates from these surveys are shown in Table 1. Relatively sufficient information exists on the status of pelagic fish stocks but very little information is available on the demersal fish stocks. The first attempt survey of the demersal fish resources was carried out by the Spanish Institute of Oceanography in 1986. The survey estimated the biomass at 43,645 tons. In 1995 a partial survey of demersal stocks

was conducted during a survey focusing on pelagic fish species.

<Table 1> Biomass estimate of fisheries resources

Unit : Ton

Year	Biomass Demersal	Biomass Pelagic
1986	43,645	-
1992	30,000	160,000
1995	22,000	156,000
1996		122,000
1997		113,000
1998		173,000
1999		510,000
2000		213,000
2001Jun		213,000
2001 Nov		165,000
2002Jun		470,000
2002Nov		242,000
2003Jun		62,000
2003Nov		285,000
2004Nov		212,700
2005Nov		284,000
2006Nov		153,000

Source: Mendy, 2009. An Overview of the Gambia Fisheries Sector. Gambia, Fisheries Department.

Concerns have been raised over excessive exploitation of marine fish species. The results obtained from limited surveys and assessments over recent years indicate that the major marine fish stocks are over-fished or fully-exploited (Table 2). In particular, the most commercially important demersal species appear to be under threat from high levels of exploitation (Mendy, 2009; Tobey et al, 2009).

<Table 2> Status of Main Stocks

Species	Status	Year of assessment	Reference
Small pelagic			
<i>Sardinella aurita</i> /NW Africa	O	2008	FAO SPWG NWA (2008)
<i>Sardinella maderensis</i>	NA	2008	FAO SPWG NWA (2008)
<i>Ethmalosa fimbriata</i>	NA	2008	FAO SPWG NWA (2008)
<i>Scomber japonicas</i>	O	2008	FAO SPWG NWA (2008)
<i>Trachurus trecae</i>	F	2008	FAO SPWG NWA (2008)
<i>Caranx ronchus</i>	O	2008	FAO SPWG NWA (2008)
Demersal species			
<i>Pagellus belottii</i>	O	2007	FAO/CECAF DWG (2008)
<i>Arius spp</i>	O	2007	FAO/CECAF DWG (2008)
<i>Pseudotolithus spp.</i>	F	2007	FAO/CECAF DWG (2008)
<i>Epinephelus aeneus</i>	O	2007	FAO/CECAF DWG (2008)
<i>Penaeus notialis</i>	F	2007	FAO/CECAF DWG (2008)
<i>Octopus vulgaris</i>	O	2007	FAO/CECAF DWG (2008)

Source: Mendy, 2009 based on reports of the FAO Working on the Assessment of Small pelagic fish of Northwest Africa (FAO SPWG NWA) and of the FAO/CECAF Working Group on the Assessment of Demersal Resources (FAO/CECAF DWG).

Note: O – over-exploited; F – fully exploited; NA – inclusive assessment.

3. The structure of fisheries sector

The Gambia's fisheries sector consists of two sub-sectors: the artisanal fisheries sub-sector and the industrial sub-sector.

Artisanal fisheries

The artisanal fisheries sub-sector consists of relatively extensive,

low-capital fishing practices. It refers to those fishermen and women (both national and foreigners) operating in small units of a few fishermen or on individual basis employing little equipment and technology. It also includes the women oyster and cockle harvesters who generally operate within the estuarine areas. Essentially, the crafts employed in this sub-sector are planked and/or dug-out canoes. The sub-sector is highly diversified, covering marine (coastal), brackish (through the estuary waters of the river Gambia) and freshwater (upstream along the river) fishing operations.

In spite of the small scale nature of its operation, the artisanal sector provides 90 percent of the national fish consumption. It is also main source of raw material for the industrial sector. supply 80 percent of input to the industrial fish processing plants. The main species landed by the artisanal fishermen are bonga, sardinella (both flat and round) and small pelagics. These species are mainly consumed locally while fresh or traditionally processed (smoked or dried). The excess fish are exported regionally.

The high value commercial species the sector produces such as (shrimps, sole fish, sea breams, lobsters and cephalopods) are mostly supplied to fish processing factories for export to the EU markets, America, and Asia.

The sub-sector has witnessed a huge expansion in the number of fishing economic units (FEU) operating in the coast and along the river banks and estuaries. There were 1,299 canoes in 1989 but the number rose to 1,969 canoes in 2003. However, a decline was recorded in the 2012 during a frame survey which estimated a fleet of 1,785 canoes operating in both the marine and along the river Gambia.

As shown in Table 3 and Figure 2 below, the sub-sector provides direct employment to 6,104 fishermen (1,410 head fishermen and 4,694 assistant fishermen). Out of the 1,410 head fishermen, 805 (57 percent) are Gambians and 605 (43 percent) are foreigners. Foreign fishermen (mainly Senegalese) form the majority operating in the coastal area,

249 (60 percent) are foreign nationals compared to 167 (40 percent) Gambians. In addition to fishermen, fisheries sector stakeholders include boat builders, fish processors, fish traders, and fish retailers and wholesale buyers. It is estimated that the artisanal fisheries sub-sector provides direct and indirect employment to 25-30,000 people. Indirectly an estimated 200,000 people are dependent on fisheries and related activities (Mendy, 2004). Women play a very important role in the artisanal fisheries sector. They account for about 80 percent of fish processors and 50 percent of small-scale fish traders (African Development Bank/GAFDP).



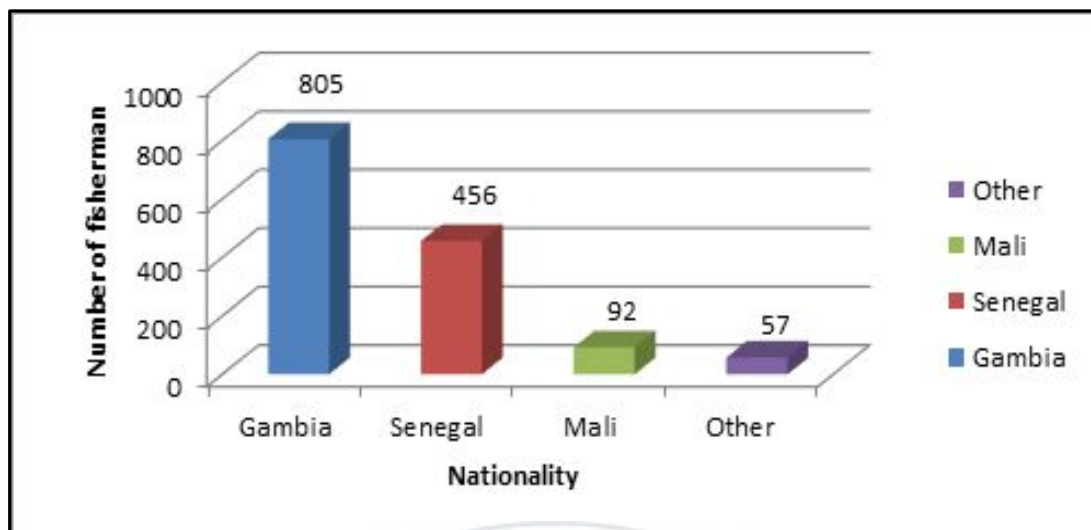
<Table 3> Fishery Frame Surveys (2003–2012)

Unit : No, %

	2003	2012	Percentage change from 2003
Head fishermen	1,969	1,410	-28.4
Gambian	1,238	805	-35.0
Foreign	731	605	-17.2
Assistant Fishermen	4,067	4,694	15.4
Gambian	1,985	2,291	15.4
Foreign	2,082	2,403	15.4
Total Fishermen	6,036	6,104	1.1
Gambian	3,223	3,096	-3.9
Foreign	2,813	3,008	6.9
Type of Canoes			
Non-motorized Canoes	1,243	1,082	-13.0
Gambian	888	700	-21.1
Foreign	357	382	7.0
Motorized Canoes	542	625	15.3
Gambian	306	325	6.2
Foreign	236	300	27.1
Fishing Gear Used			
Encircling Net	279	295	5.7
Gill Net	1,050	1,066	1.5
Long Line	158	177	12.0
Head Line	138	169	22.5
Drift Net	165	344	108.5

Source: GOTG, 2012 Fishery Frame Survey Report.

Unit : No



<Figure 2> Number of artisanal head fisherman by nationality

Source: GOTG, Department of Fisheries, 2012.

Industrial fisheries

The development of industrial fisheries has been relatively limited in the Gambia. Industrial fisheries account for less than 10 percent of the total national fish consumption. The industries are estimated to process 20 percent of the locally produced fish. This is due to the fact that over 90 percent of the fishing vessels legally operating in Gambian waters are foreign owned and land their catches abroad. They usually make contractual arrangements with Gambian fishing companies in order to satisfy national licensing conditions, or operate by virtue of fishing access agreements between the Gambia and these countries. Good examples of this include, Senegalo-Gambian Reciprocal Fishing Agreement and the bilateral agreements with Japan, the Republic of Korea, and the EU under the now expired EU/Gambia Fishing Agreement. Most of these foreign fishing vessels land their catches in Senegal, or process them at sea and export to Spain, Greece, South Korea, etc. Although foreign trawlers are required to land 10 percent

of their catches in the Gambia (a licensing requirement), sometimes they land the bulk of the fish in overseas ports after paying the value of the 10 percent to the Gambian government for lack of handling space in the existing Gambian factories. Industrial catches landed in foreign ports for processing and value addition are exported, not as products of the Gambia but as products of those countries where the catches have been landed. This deprives the country of foreign exchange, employment opportunities, and reduces the availability of fish for local consumption and local industrial processing.

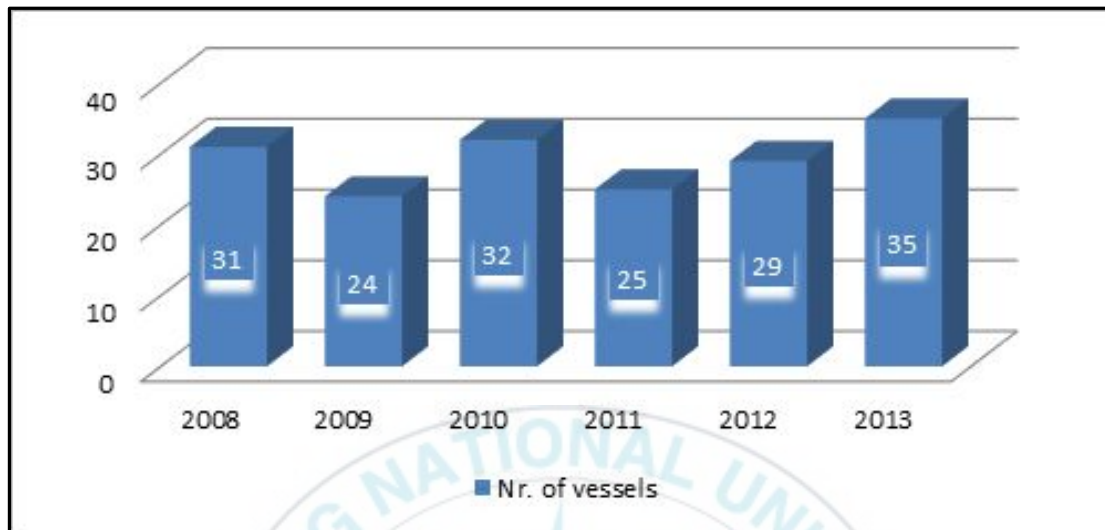
This situation is due, among others, to the absence of a modern fisheries port and related auxiliary facilities. This has negatively impacted on the development of industrial fisheries and the economy in general. This is coupled with other constraints such as lack of storage facilities, financial constraints, high cost of energy, and poor management resulting in some of the fish factories going bankrupt.

The major contribution of the sub-sector lies in its foreign exchange earning potentials and its employment generating capacity. In the licensing condition, for example, 20 percent of the crew of a fishing vessel licensed to operate in Gambian waters must be Gambian. This is aimed at building the capacity of Gambian youths in fishing operations. It is estimated that, about 2,000 people are presently employed in the industrial sub-sector. Women account for an estimated 70 percent of employees. The female employees are significantly many in the packaging/processing (Fisheries Department).

The number of vessels licensed to operate in Gambian waters is presented in Figure 3 below. Approximately 67% of these vessels operate under the auspices of the Senegalo-Gambian agreement on Maritime Fishing, a reciprocal fishing agreement between the Gambia and Senegal in existence since 1982. Unfortunately, the Gambia and its citizens have not been able to reap the full benefits of this agreement because of the paucity of locally-based fishing vessels. Furthermore, a majority of the vessels spend limited time in Gambian waters because

they usually possess licenses from both countries yet target specific species of fish in their home countries.

Unit : No



<Figure 3> Number of Licensed Vessels

Source: GOTG, Department of Fisheries, 2012.

Revenue accruing to the Government of the Gambia for its marine resources is from licensing of industrial fishing vessels. Industrial vessels pay license according to the fishery segment they operate in and the size of vessel in terms of Gross Registered Tonnage (GRT), Table 4.

<Table 4> License fees by category of industry segment

Unit : GMD

Product	Cost/GRT (Foreign)	Cost/GRT (Local)
Shrimp	4,062.50	1,560.00
Fish and Cephalopods	3,250.00	1,228.50
Fish Processing Vessel	1,950.00	1,950.00
Seiners/Pelagic trawlers(small pelagics)	1,625.00	715.00

Source: GOTG, Department of Fisheries, 2013.

Note: GMD - Gambian Dalasi; GRT - Gross Registered Tonnage

\$1 = GMD30

The licenses are issued on a pro-rata basis but extra administrative charges are levied on licenses drawn for less than six months. Revenue generated from licenses by the industrial fishing segments in 2013 is GMD7, 140,480.36 (U\$324,567) as shown by breakdown given below.

Industrial Stern Trawlers (Fish and Cephalopods)	GMD 3,694,545.79 (U\$167,933.90)
Industrial Shrimp Trawlers	GMD 3,445,934.57 (U\$156,633.10)
Total	GMD 7,140,480.36 (U\$324,567.00)

4. Production trends

In 2013, a total of 50,000 tons of fish landed from both the artisanal and industrial sub-sectors (Fisheries Department). Out of this, the artisanal fishery contributed approximately 46,000 tons (92 percent), with only 4,000 tons (8 percent) coming from the industrial fisheries. In overall, the nominal output of the industrial fisheries sector has by far and large remained low over the years. Catches from the artisanal fisheries have always dominated landings and the trend keeps

increasing (Table 5 and Figure 4). In 2005 industrial production was 12,000 tons, but declined to 4,000 tons in 2010, while landings from the artisanal sector increased from 32,000 tons in 2005 to 46,000 tons in 2013. It should be noted that these figures do not capture the largest proportion of industrial catch caught in Gambian waters, which is not landed in The Gambia but in foreign ports.

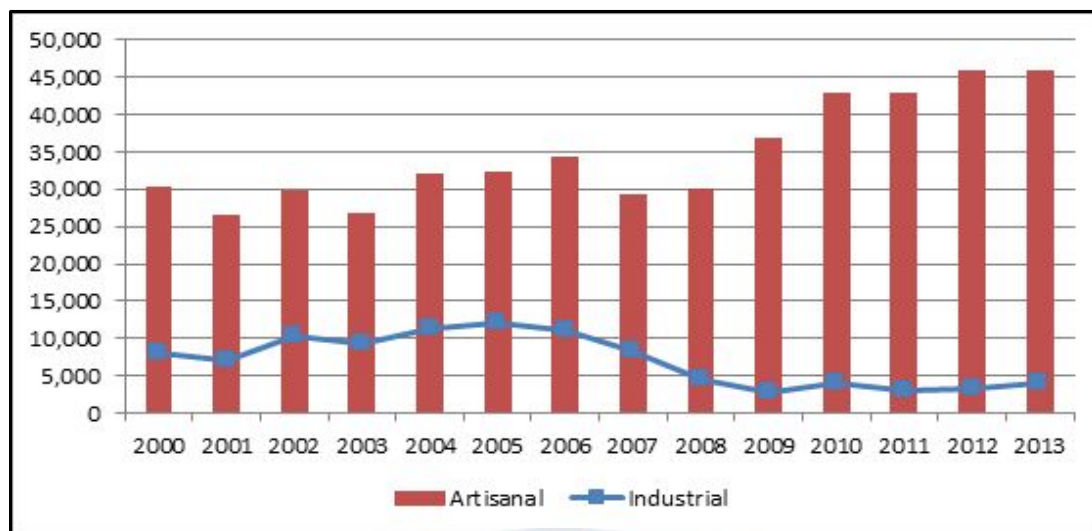
<Table 5> Industrial and artisanal fish production

Unit : Ton

Year	Industrial	Artisanal	Total
2000	7,988	30,243	38,231
2001	7,012	26,533	33,545
2002	10,249	29,743	39,993
2003	9,237	26,867	36,104
2004	11,198	32,016	43,214
2005	12,160	32,336	44,496
2006	11,005	34,365	45,370
2007	8,375	29,317	37,692
2008	4,600	30,169	34,769
2009	2,830	36,898	39,728
2010	4,000	43,007	47,000
2011	2,973	42,841	45,814
2012	3,179	45,881	49,060
2013	4,001	45,910	49,911

Source: Data provided by the GOTG, Department of Fisheries, 2013.

Unit : Ton



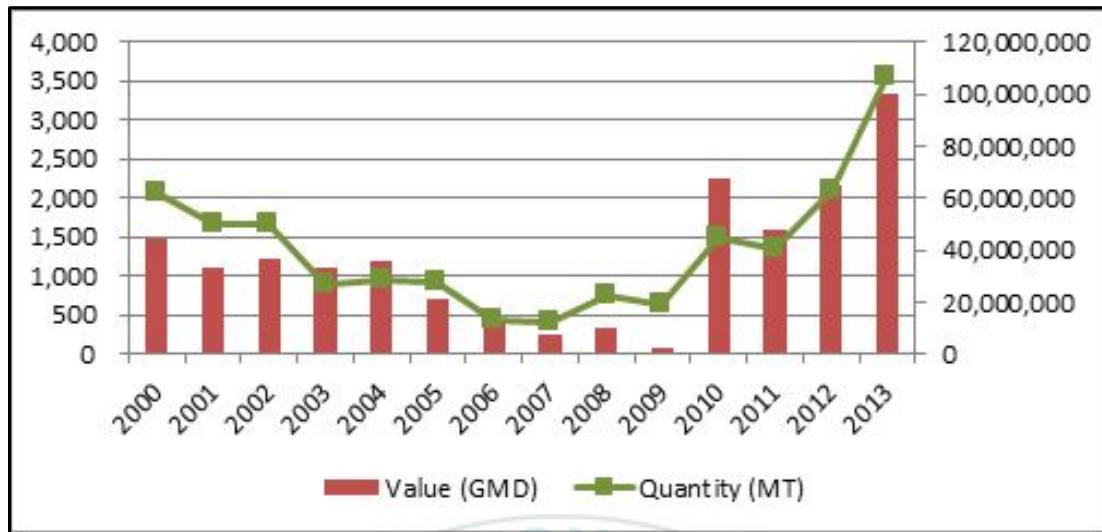
<Figure 4> Industrial and Artisanal Fish Production

Source: Data provided by the GOTG, Department of Fisheries, 2013.

5. Export of fish and fishery products

Export figures for fish and fishery products are shown in Figure 5. A total of 932 metric tons were exported in 2005. This rose to 3,563 tons in 2013. This is attributed to an increased production from the artisanal sub-sector. This has been mainly due to the fact that the fisheries sector, especially the industrial sub-sector, has lacked inflows and investments to allow for its optimal operation. The value of fish exports from the Gambia is believed to be severely underestimated, as most fish caught in Gambian waters is landed in foreign countries, and hence not accounted for in the Gambian trade statistics.

Unit : GMD, Ton



<Figure 5> Exports of Fish and Fishery Products

Source: GOTG, Department of Fisheries, 2013.

\$1 = GMD30

The EU is the main destination for fishery products. Trade requirements for this market are stringent and production systems and products must comply with equivalent regulations on hygiene, food safety, consumer protection and official control requirements. It will be noted that exports to the EU were suspended for four months (October 2010 to February 2011) following detected deficiencies in the system of official control of fishery products, but have since resumed: four out of five establishments approved to export to the EU are fully operational and continue to export a variety of fresh, frozen and smoked products. The fifth one is a shrimp aquaculture establishment which was delisted due to non-submission of a national residue control plan for aquaculture in 2010. The residue control plan was submitted in 2011/2012 and approved by the EU. Hence, the establishment is being relisted for export of aquaculture products to the EU.

6. Contribution of fisheries to the national economy

The Gambian government continues to give high priority to the development of the fisheries sector, because it is not only a source of revenue and foreign exchange earnings for the country but also a receptacle of hope for increasing employment opportunities, particularly for women who are mainly involved in fish processing and marketing. The sector is also contributing in improving nutritional dietary in-take of the citizenry, especially in the process of alleviating poverty and ensuring adequate food security.

It is difficult to gauge the sector's contribution to GDP, given the informal and unrecorded nature of artisanal fishing and artisanal processing activities in the Gambia. According to official figures from the Fisheries Department, the sector contributed about 3 percent of GDP in 2013. Other less conservative estimates from the same Department situate the fisheries GDP share at about 8 percent or even more. However, a much more conservative figure of 1.8 percent (2013) is reported by the Gambia Bureau of Statistics (GBOS).

Though small in absolute terms, fish exports are significant for the economy. In 2010, fish and fishery products accounted for about 15 percent of merchandise export earnings (excluding re-exports) (Department of Fisheries). The bulk (about 80 percent) of the exports is sent to the EU (fresh and frozen fish).

The fisheries sector's contribution to government revenues is relatively small: fishing licenses and registration fees account for as low as 0.1 percent of total government revenue according to Gambia's 2012 budget estimates. Although the contribution of the sector is small, great importance is attached to its development because of its huge potential to make a significant contribution to national socioeconomic development. In particular, the sector is the third largest food production sector, after agriculture and livestock, and plays a

significant role from a nutritional standpoint, being the main supplier of animal protein in the diets of most Gambians. The estimated per capita fish consumption is 25 kg along the coast with the average dropping to 9 kg as one moves away from the coast. Also, as discussed, the artisanal sub-sector provides direct and indirect employment to between 25,000 and 30,000 people. Approximately 2,000 people are presently employed in the industrial sub-sector. The livelihoods of an estimated 200,000 people dependent on fishing and fisheries related activities (Mendy, 2004).

<Table 6> Fisheries Contribution to GDP

Unit : '000GMD, %

	2008	2009	2010	2011	2012	2013
Agriculture	1,817,209	3,019,867	3,868,742	5,122,581	3,162,904	3,564,843
%	9.88	16.43	21.04	27.86	17.20	19.39
Livestock	1,848,072	1,952,007	1,973,037	2,126,772	2,262,623	2,415,553
%	10.05	10.62	10.73	11.57	12.31	13.14
Fisheries	400,611	429,002	449,933	470,138	516,027	542,833
%	2.18	2.33	2.45	2.56	2.81	2.95
Total GDP	19,870,635	21,432,735	23,997,006	26,662,542	26,640,757	29,321,563

Source: FAO, 2013.

Note: \$1 = GMD30

7. Key elements of the policy environment

Following the identification of a number of constraints (institutional, technical, economic, social, and physical) impeding the sustainable management and development of the fisheries sector, the Gambian government adopted a new Fisheries policy in 2007 which aims to address the constraints in order to contribute to the realization of the country's goals as outlined in the main national blue print "Vision

2020". The review process incorporated the principles of the Code of Conduct for Responsible Fisheries (CCRF) as well as other emerging trends in fisheries management into the Policy.

The policy objectives include: a rational and long-term utilization of the resources; the use of fish as a means of improving the nutritional standards of the population; increasing employment opportunities in the sector; increasing foreign exchange earnings; expanding the participation of Gambians in the sector; the development of aquaculture; and through strengthen regional and international collaboration in the management and sustainable exploitation of shared stocks, among others.

To implement these policy objectives the government developed the Fisheries Strategic Action Plan (2012 - 2015). The policy is being implemented thou it faces challenges due to, inadequate skilled manpower; inadequate scientific information and data for informed decision making; poor infrastructure; limited control over the resources; low product quality management; low level of aquaculture development; low level of regional trade in fish and fishery products; and inadequate investment in the sector.

It will be noted that the Fisheries Policy is being implemented within the context of the overall framework of the Agriculture and Natural Resources (ANR) Policy which encompasses the water and other natural resource sectors (forestry, livestock, parks and wildlife, and the environment), each of which is implementing its own sectorial policy. This essentially means that harmonization and coordination of these interrelated polices must be achieved to enhance coherence and complementarity in their implementation. In this regard, conflicts and inter sectoral policy inconsistencies are addressed by the ANR Working Group (ANRWG). This Working Group is co-chaired by the Permanent Secretaries of the Ministries of Agriculture, Forestry and the Environment, and Fisheries and Water Resources, and serves as a clearing house mechanism. Policy conflict resolution forums, where

planned sectoral policies are reviewed and harmonized in order to avoid duplications, conflicts and redundancies in their implementation.

Implementation of the Fisheries Policy presents major challenges. Coordination and consensus building especially with other entities outside the ANR sector is challenging. Very often conflicting interpretations and low level commitment to the principles of the policy from partner institutions lead to ineffective implementation and hence, the required outcome is not achieved. Furthermore, harmonizing policies, strategies and programs of other partner institutions with the Fisheries Policy is often fraught with resistance. Achieving sustainable growth and development of the fisheries sector as envisaged in the policy, has so far been a challenge due to the constraints listed above. This negates the goal of increasing fisheries production and promotion of aquaculture to meet local demand for fish protein, as well as satisfying the international markets.

An important element of the Fisheries Policy is the need for collaboration with international, regional and national organizations to address the numerous problems. The sector often faces trans-boundary and global challenges conservation and protection of the aquatic environment. In this regard, the government has placed strong emphasis on international cooperation within the context of the various multilateral and bilateral agreements and processes to which the Gambia is a party such as the Sub Regional Fisheries Commission (SRFC)¹, the Organization for the Management of the Gambia River Basin (OMVG - French acronym), the Regional Coastal and Marine Conservation Program (PRCM in French)², the FAO Fishery Committee for the Eastern Central Atlantic (CECAF), the Canary Current Large Marine Ecosystem (CCLME)³, and the World Bank/GEF funded West Africa Regional Fisheries Project⁴. Others include the FAO Committee on Fisheries (COFI), the Economic Community of West African States (ECOWAS), and the World Trade Organization (WTO).

At the bilateral level, regular monitoring and implementation of the national obligations occur within the respective cooperation framework, including the fisheries cooperation agreements with Senegal, the Republic of Guinea, Guinea Bissau, and Mauritania.

¹ This is an intergovernmental organization comprising seven countries (Cape Verde, Gambia, Republic of Guinea, Guinea-Bissau, Mauritania, Senegal, and Sierra Leone). It was established in 1985 for the purpose of sub regional integration in fisheries resources management. Based in Dakar, Senegal the organization has three organs: Council of Ministers, Coordinating Technical Committee, and a Permanent Secretariat. The Strategic Plan of Action of the organization focuses on strengthening resources management; harmonization of policies and legislations; research, data and information exchange; and cooperation in monitoring control and surveillance.

² The PRCM program is essentially aimed at the sustainable management of marine and coastal areas in West Africa. The process involves the member states of the SRFC and four international NGOs operating within the sub region (IUCN-International Union for the Conservation of Nature, FIBA- Foundation International the Bank d'Arguin, World Wildlife Fund (WWF), and Wetlands International).

³ Funded by the GEF, this project covers six of the SRFC members plus Morocco. The overall objective of the project is to secure global environmental benefits by reversing (over time) the depletion of fisheries resources and conserving nursery and reproductive habitats of the Canary Current Large Marine Ecosystem.

⁴ A US\$65 million program funded by the World Bank/GEF and being implemented through the SRFC in its seven member countries, it will provide support to efforts to eliminate illegal fishing activities; curtail damage to resources and the loss of economic rent from the fishing sector; and create the conditions for the implementation of access rights and fishing capacity control.

<Table 7> Implementation of the Fisheries Act (2007) and Fisheries Regulations (2008)

Industrial Fishery Regulatory Management Measure	Description
Mesh size regulations on trawlers	<ol style="list-style-type: none"> 1. demersal fish species - 70 mm 2. pelagic fish species: 40 mm 3. shrimp: 50 mm 4. tuna seine nets: 40 mm 5. tuna gill nets: 60 mm
Licensing	<p>The bilateral agreement with Senegal has a limit on the total tonnage of fishing catch capacity. When the maximum allowable catch capacity for each fishery is reached, no other vessel can be registered.</p>
Surveillance and Monitoring	<p>Fish production is recorded by the Fisheries Observer Program (each vessel carries an observer) and industrial fishing vessels are monitored by the Gambia Navy.</p>
Near shore fishing restriction	<p>For the purpose of resources management and to reduce conflict between the industrial and artisanal fishing fleets, the legal near-shore fishing limit for industrial vessels, less than 250 gross tons in the waters of the Gambia was in the past 7 nautical miles. In January 2009, the allowable near-shore fishing limit for industrial boats (less than 250 tons) was extended from 7 to 12 nautical miles. This was amended to 9 miles in February 2009 when it was clear that none of the Senegalese boats would obey because the 12 nautical miles restriction would require costly new fishing technologies. The regulations prohibit vessels of gross tonnage over 250 tons from operating within a 12 nautical mile zone from the shoreline.</p>

Source: Tobey et al, 2009.

The only reciprocal fisheries agreement in which the Gambia is currently involved is with Senegal. It has been in existence since 1982. This reciprocal agreement covers areas such as fishing and joint research and training, and is reviewed every two years. Under its provisions, artisanal fishers can fish in either country, provided they abide by the laws of the country where they are fishing. For industrial fishing vessels, there is a limit on the total maximum tonnage of fishing catch capacity. However, since the Gambia does not have an industrial fleet, only Senegal benefits in this regard, with all of the catches delivered to Senegal and the revenues from these exports not reflected in the Gambian economy. Gambian flagged vessels⁵ are not registered under the agreement, and like the Senegalese registered vessels, their entire catch is landed in other ports, mainly in Europe.

The agreement does not restrict the artisanal fishermen from entering the fishery. The agreement stipulates that they land their catches in the respective waters of the Gambia and Senegal. They are then weighed recorded and sold in the country where they operate. This poses a problem for Gambian fish factories, because very often, the catches of the Gambian-based Senegalese canoes are landed and sold in Senegal, especially when the price is better than that offered in the Gambia. This is particularly pertinent since foreign nationals, mainly Senegalese, dominate the most productive Atlantic Coast Stratum with 249 fishermen as opposed to 167 Gambians. This study could not ascertain the presence of Gambian artisanal operators in Senegal. However, it is apparent that as with the industrial sector, the implementation of the agreement is lopsided, grossly in favor of Senegal.

⁵ These vessels are usually European owned, and they only fly Gambian flags to enable them to fish within the region. They are managed by Gambian agents, usually Gambian fishing companies who are remunerated in cash.

III. Products, processing technology and gender role

Artisanal fish processing is still traditional in nature producing products that are sun dried or smoked. The artisanal fishermen sometimes transported fresh fish for sale to the city, towns and villages within the coastal areas. Some of the processed fishery products (smoked or dried) are sold within the country especially in the inland markets. Some are however exported to neighboring West African countries where demand for fish is very high. The high value fish species caught by artisanal fishermen e.g. shrimps, sole fish, sea breams, lobsters and cephalopods are sold to industrial fish processing companies processing and export to foreign market in Europe and Asia.

Over 95% of industrial fishing vessels legally operating in the marine waters of the Gambia are foreign vessels. These foreign operators usually make contractual arrangements with Gambian companies, in order to satisfy licensing conditions or operate by virtue of fishing access agreements with the Gambia such as the Senegalo-Gambian Reciprocal Fishing Agreement, the expired EU/Gambia.

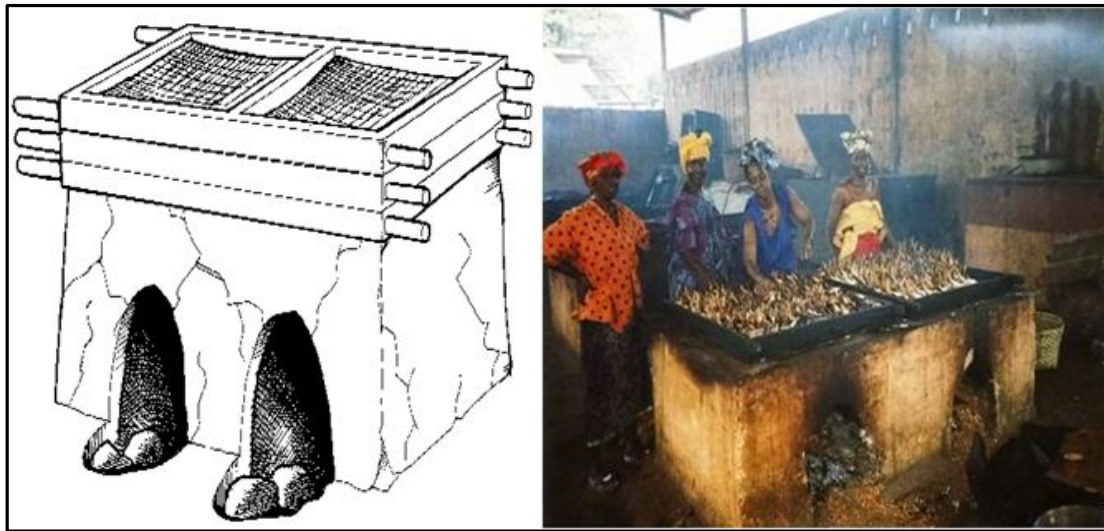
Smoking is especially the most common processing method when there is a glut. This processing techniques produces both cold-smoked and hot-smoked products. Processed products for the Gambian market are almost exclusively produced by women. They make cold-smoked and dried products. Cold-smoked products are usually made from bonga and catfish. Dried products are produced from all fish varieties including the higher value species that have gone rotten. They are mainly made of fish that is no longer fresh. Sometimes fresh fish is processed by sun drying especially when there is a glut.

1. Fish smoking equipment

Fish smoking equipment used are diverse in nature and may be dependent on availability of resources. The most common fish processing equipment in use in coastal fish landing centers is the modified chorkor oven. It was first introduced in 1985, and has proved to be a successful technology with high efficiency in firewood use. According to Jallow, (1995), this oven has a capacity for smoking the large quantities of shad that are usually landed and smoked in the coastal landing centers. It is made of rectangular enclosed walls, divided into compartments of 1.5m long x 1m high and 1.5m wide. Each compartment has a front door/stoke hole to access the fire place. The fish are placed on metal grills for smoking (Njai, 2011).

Women who do not have access to these ovens often use poorly constructed traditional fish smoking ovens, of low capacity and efficiency at the landing sites or in their homes. These smoking ovens are of different types such as the traditional ovens (open fire banda), mud ovens and cut-up barrels (Njai, 2011).

The most common firewood used for fish smoking are local wood plants such as wolloh (*Terminalia macroptera*) and Keno (*Pterocarpus erinaceus*) (Jallow, 1995). Palm fronds, coconut fibres and shells are also used for smoking fish, but on a relatively small scale (Njai, 2011).



<Figure 6> Shorkor oven and tray

2. Cold-smoked Products

Figure 7 shows a traditional smoking pit used in the processing of the small bonga and the steak of the catfish.

Smoking is usually done using a hole dug in the ground measuring about 1.5 meters in diameter and about 1 meter deep. Wire grill or sticks are laid across the hole. Fuel used in this process consists of the fibrous cover of the coconut fruit, small size wood chopping, groundnut shells, or even pieces of cartons. These are burnt at the bottom of the pit to emit the smoke. The fish arranged over the pit on the grill just above the smoking fire. The fish is arranged in a single row across the diameter of the pit on wire grill. In some cases, there is no wire grill and so the women would lay sticks across the pit on which the fish is laid. After lighting fire beneath the rows of fish, a piece of wet jute sack is spread over the fish to retain the heat which cooks the fish. In the case of pans, the same principle is involved although in this case the fish is closer to the fire because the pan is shallower than the pit. In either case, however, the smoking

process takes about 2-3 hours. Sometimes the sack or stick catches fire and burns or scorches the fish. During the process, the fish is smoked on one side first till it turns dark red, and then turned on the other side to receive heat and smoked for about 1-1.5 hours. When the process is complete the moisture content is from 60 - 70% (Department of Fisheries). This is essentially a fresh fish product which last no longer than three days. The smoking process is more for imparting flavor than for extending the shelf life of the product.

For the cold-smoked products the majority of this group of processors (women) operate mainly from the confines of their homes. Ethnicity is generally mixed, but the Mandinka and Serrer women make up the majority of the processors, that deal with these products. When processing the catfish, the fish is cut up into steaks especially when the fish weighs more than 1 kg. The fish is first put into hot water to remove the top greyish and slimy substances on the skin. The skin is then scrubbed to almost white, and this allows for easier penetration of heat into the thick steak without scorching the product. Like the small pelagic species the steaks are arranged on the wire grill or wooden sticks, and are turned from one side to the other to achieve the typical attractive dark red color of the product. Also, like the small pelagic species, the moisture content of the product is from 60 - 70%. After the smoking process, both products are left to drain and cool in open baskets or bowls overnight, and early in the morning, they are transported to the nearby markets like Brikama, Serekunda or Banjul.



<Figure 7> Traditional smoking pit

3. Hot-smoked products

Hot-smoked fish products in the Gambia are made from species such as the small pelagic Bonga (*E. fimbriata*), smoked sharks, skates and rays. Hot-smoked products are mostly produced for export. A small percentage is however locally consumed. Processing of this product is generally done by men, and it usually involves more capital than the cold-smoked processes which are mainly done by women.

There are two similar methods used to produce hot-smoked fish products. One system is where the fresh bonga (*E. fimbriata*) is arranged first in single row on “runway” racks. A fire is lit under the rows of fish to cook and drain the fish. After about 3 hours of intense heat, the fire is put off and the fish is allowed to drain overnight. The single layer is transformed into a double layer of fish the following morning before the fire is lit under the rack again to resume the smoking process. The fish cooks and drains further over a lower fire intensity than the day before. After about 6 hours of smoking, the fire is put off and the process is repeated on days 3, 4 and 5. On each respective day, the layer of fish on the rack is increased accordingly.

This means that on the third day there are three layers and four layers on the fourth day. On the fifth day the layers will be increased to five.

The product is described according to the number of “fires”. Thus “four fires”, “five fires” will describe days 4 and 5 respectively of the number of the smoked fish. The fish gets drier and more brittle as it is subjected to more heat, and it is not uncommon for the product to catch fire as a result. Sometimes especially where the house is made on palm leaves. The whole house may catch fire, destroying the whole product. However, after “five fires” the product is dark-red with patches of black, and according to the fisheries department, the moisture content is usually less than 10%, and the product is believed to have a shelf-life of more than 6 months.



<Figure 8> Traditional oven with hot smoked shad (bonga)

The other method of producing hot-smoked products is by using shark and skates. In the case of shark meat and skates, the products are smoked in steaks. The fish is chopped up into steaks of about 1–2 kg weight (Figure 9) and washed before they are arranged on the “runway” racks as in the process with Bonga. Unlike the Bonga, Skate steaks are arranged in single layer even after two fires and

consequently the product is usually heavily scorched as it burns so often during the smoking process. The product is inconsistent in both appearance (colour) and texture, and is mainly for the export to markets in the neighbouring Guinea. Like the smoked Bonga this product too has a long shelf-life (about 2-3 month).

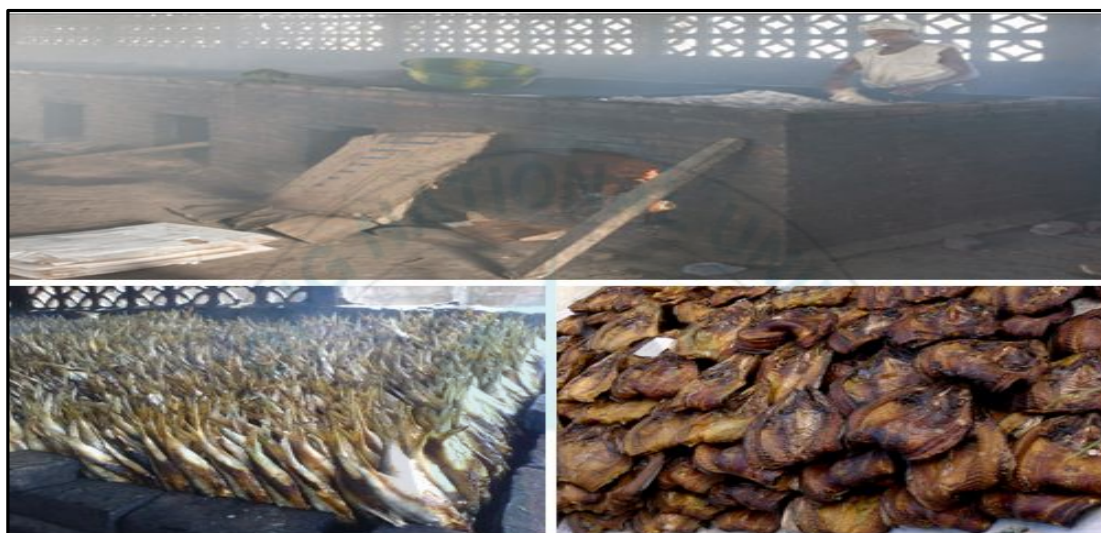


<Figure 9> Chopped steaks of shark and skates to be smoked

Figure 10 is an improved version of the traditional smoked house introduced by the Gambian Department of Fisheries. The smoke ovens are another version of the shorkor oven developed in the village of Chorkor in Ghana.

As can be seen, this smoked house is constructed from cement blocks and the roof is made from corrugated iron sheets. The smoking ovens are constructed from burnt clay bricks and divided into compartments. Each compartment is provided with a stove through which firewood is fed during the smoking process. Because the compartment is mostly closed off, the breeze and consequently the flames can be easily controlled. Also the amount of firewood needed to complete the smoking process is about 50% lower than the traditional smoke house. According to the fisheries department, most of these

houses are less prone and less vulnerable to fire outbreaks. The fisheries department also claims that the “shorkor” type oven produces much better and nicer looking products than the traditional smoke houses. Handling the fish is at its minimum or very little damage done to it. The processing capacity of both types of smoke house are however much more than those employed by the traditional women smokers.



<Figure 10> Improved version of chorkor oven with cold smoked shad (L) and hot smoked catfish (R)

4. Dried Fish Products

The dry fish products are mainly produced by women operating at the beach or fish landing site. Some of the women involved in the drying process are the wives of the fishermen or are kin related. They buy the fish directly from the fishermen. The fish is normally the catch that has gone rotten or has less quality (almost rotten). Sometimes, fresh fish is used especially during the glut periods. When the price of fish is very low. The processors find it worthwhile to dry the fresh fish. Dried fish products can be make a variety of species

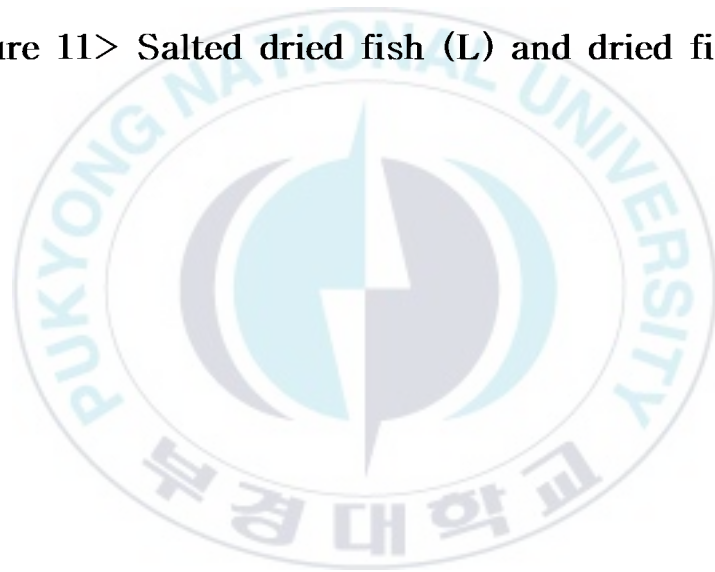
such as Bonga, catfish and the higher value species such as polynemus quarifilis and sompat. Some of these women have formed themselves into an informal organization, cooperating by lending each other money, drying or racks, fish processing tools, and equipment.

The processing of the dried fish is done at the beach site into main steps; salting and drying (Figure 11). The fish is gutted, and then washed in clean water. Then salt is applied to the fish and dried on the racks under the hot sun for 4-5 days. Sometimes it is dried for a week or more depending on targeted markets. For the near by markets, it needs not be too dry (3-4 days). For the inland markets, it is dried further for a longer shelf-life. When the process is complete, the moisture content is 10% and the shelf-life of the product can extend to 6 months (Department of Fisheries).

Drying is done outside (in the open) and during the rainy season (July-October). Plastic sheets are use to cover up the fish when it rains. Sometimes with several days with continuous rain the product take up so much moisture that they cannot be good enough for marketing. They are therefore discarded to the disadvantage of women. Drying fish is very popular and often meat used in cooking. People use a small amount for taste added in preparing meals. Another dried product is the shark meat which is purchased by the Ghanians (mostly women) for export to Ghana. The meat chopped up into steaks of about 1-2 kg weight, washed and dried on racks without salt. This product has a long shelf-life under good storage.



<Figure 11> Salted dried fish (L) and dried fish (R)



IV. Marketing and distribution of fish and fisheries products

Both men and women play key roles in the marketing and distribution of fish and fish products in Gambia. In the capture fisheries sector (Industrial and Artisanal fisheries), the men dominate at the production stage while the women are the key processors and sellers of the products.

1. Fish handling

The existing ice production facilities serve only a portion of the Gambian fishing and processing communities (Jallow, 1995). Fishermen do carry ice to sea. Due to lack of ice production facilities close to the major coastal fishing centers, the cost of ice increases for operators who have to transport it long distances. This means that the fishermen often do not carry enough ice during their fishing trips. The lack of ice can result in loss of freshness or, at times, spoilage of fish. Fish are not gutted prior to landing, because customers will doubt the freshness of gutted fish.

Onshore fish handling in the artisanal sector is often poor (Njai, 2011). Fish (shad) are usually scooped out of the boats with all sorts of containers, such as buckets. This method of unloading the catch by hand takes considerable time during which the temperature of the fish increases considerably. This extra handling time can cause damage to the fish such as looseness in flesh, and bruising of the skin resulting in contamination of micro-organisms. When all the fish have been off-loaded and put into boxes, the boxes are arranged in piles under sheds with open walls for the purpose of counting and selling (open auction market). Since most of the fish are usually not properly iced,

the quality of the fish deteriorates before they are sold. This shows that there are basic educational problems, such as lack of awareness of the importance of hygiene and the importance of using ice.

2. Fresh fish marketing and distribution

In the fresh fish trade, women tend to be small scale dealers. They mainly buy from large-scale mongers a few trays of fresh fish (typically bonga, but also white fish) and transport it to various urban markets where the fish is retailed. Sometimes, they collectively hire a commercial vehicle to transport the fish to the urban markets, or use local taxis.

Large scale dealers are mainly men: they often buy big quantities (e.g. one or more canoes of fish). Some large-scale fish dealers (usually men) export the fish to Senegal, Ghana, Guinea Conakry, Nigeria, etc. in smoked or dried forms. Processing factories also procure their supply from large-scale (men) fish suppliers. Local hotels and restaurants are also mainly supplied by this category of dealers. However, within this group of suppliers, a few women are quite often very active as they too enter into contracts with hotels and restaurants especially during the tourist season (October - April). This trade offers substantially bigger return for the woman than to the small scale processor who takes their produce to the market daily. This category of women traders usually require a bit more working capital and better cash flows because the hotels and restaurants usually do not pay on delivery. The women are paid fortnightly or monthly. Thus, with a credit line extended to this category of women traders, will help them expand their business and thus increase their level of income to get them out of poverty. In addition, these women would require training in the various aspects of the fish value chain, small business management, etc (Njie, 2010).

The fish is unloaded from the canoes by carriers (who used to be predominantly women, but are increasingly being replaced by men) paid in kind (3-4 pieces of bonga per pan carried), and loaded onto refrigerated trucks or pick-up vans, for distribution to inland markets. Typically, these men come from Mali, and would do any odd job, including unloading and carrying fish on wheel barrows from the canoes to the waiting trucks (Figure 12).



<Figure 12> Men carrying fish on wheel barrows from the canoes to the waiting trucks

Wheel barrows carry more fish than the usual head pans the women use. Even though, the women try their best to cope, they are outmatched because the men are quicker and stronger and their wheel barrows carry more fish per trip. Very soon the canoe load of fish is emptied and the truck is on its way, of course to the satisfaction of the trader. Clearly if this trend continues very soon the women will be pushed out of the business of unloading the canoes and this essentially means they will lose an important source of their daily fish acquisition. This further means that their daily revenues will drop because they will have fewer fish to sell and to take home for their

families' consumption.

3. Cured fish marketing and distribution

Artisanal fish processing constitutes small family or women-owned business enterprises with rudimentary technologies of processing. The curing sheds are often located close to the beaches or markets around the landing sites. Cured fish products are mainly sun-dried and/or salted and smoked. Fish dryers are mostly women. They produce salted sun-dried fish for urban and inland markets or for regional export dealers (Figure 13). The same women who process the fish often market it (small-scale traders).



<Figure 13> Bales/Sacks of cured fish destined for urban and inland markets or regional markets

Market information

Fish processors and traders often complain about the unavailability of markets. This is mainly due to the absence of reliable market information (Njie, 2010). Operators therefore store their products for

long periods. There is evidence that under poor storage conditions i.e. long periods at high temperatures and high humidity, mould attacks can result in fish losses (Sefa-dede et al., 1995). Good market information network for traders might alleviate these problems.

Transportation

The cost of transport is high and may limit profitability (Njie, 2010). Operators at times resort to accumulate sufficient quantities of smoked fish before they can transport and sell in profitable consignments. This is practiced to avoid the relatively high cost of transport to domestic markets to sell in small volumes. It takes three days by road from The Gambia to Guinea. Frequent breakdown of vehicles often result in changes of vehicles which adds to the cost of transport and causes delays which affect quality (Tetteh, 1988). This also results marketing delays.

Customs and tariff barriers

Custom duties and other charges levied on fish and fishery products can be high. These charges sometimes increase without notice, making business more expensive and less predictable for operators (Njie, 2010).

General trend on the fish market

Due to the limited buying power of consumers, smoked fish product variety is limited mainly to shad and catfish (Njai, 2011). Shad is relatively cheap and abundant. Smoked catfish is a higher priced product than shad. The product is a favorite to the more affluent consumers in the urban markets and is often in short supply. There is evidence that smoked shark and other smoked fish products such as

barracuda are mainly destined for export or for the more affluent domestic consumers (Njai, 2011). Prices of catfish, sharks and barracuda vary according to size and quality. Bigger products of high quality and with evenly golden brown smoke coloring on fish with no breakages command higher prices than smaller sized products (Essuman, 1992). On the whole there is a demand for high quality smoked products which is a vital in marketing and profitability. Fish is widely consumed due to its affordability and availability to consumers with annual per capita fish consumption estimated at 25 kg (Mendy, 2004).

Rapidly changing economic and political climate in the sub-region often destabilizes the markets (Tetteh, 1988). With slowing down of the economy in the past years, the export of smoked fish to Nigeria was relatively low. For the past three to five years, the exports of smoked fish to Nigeria are increasing again. Ivory Coast, with its stable economy, has evolved into a major market for smoked fish from the Gambia, both in volume and value. The markets in Cameroon, Guinea Bissau and Guinea Conakry which also constitute important markets for smoked exports from the Gambia are expanding (Ndow, 1997). Ghana is the single most important market for dried shark and to a lesser extent of smoked fish. All products to these markets are transported either by sea or air.

Distribution channel of smoked fish

Processors distribute their smoked fish directly to consumers (77.5 %), some through middlemen, retailers, and some to wholesalers. This is shown in the Table 8 below.

<Table 8> Distribution channel share of smoked fish

Unit : No, %

	Frequency	Percent (%)
Directly to consumers	62	77.5
wholesalers	11	13.8
Middlemen	4	5
Retailers	3	3.8
Total	80	100

Note: The frequency was obtained from a survey that was conducted on number of processors and distribution of smoked fish products.

Stakeholders in the marketing channel of smoked fish

The main players of the marketing channel of smoked fish are fishermen, processors, wholesalers, middlemen and retailers. The following is a description of each of these stakeholders in the marketing channel of smoked fish.

Fishermen

Fishermen are the licensed men and women authorized to catch fish for either sale or consumption. They are the “primary producers” who feed or supply fish to the markets.

Fishermen are the first link in the fish marketing channels. They are classified as small, medium and large-scale, depending on the size of catch potential and type of fishing gear. Small-scale (family-scale) fishermen consist of 1-3 persons who fish primarily for family subsistence and income. In the recent past the number of small-scale fishermen has increasing annually due to population growth and lack of alternative livelihoods.

Medium-scale fishers are extended families and village level

partnerships (3–6 persons) who catch fish for family income. In the marketing channel of smoked fish, fishermen sell their catch to processors.

Processors

Fish processors add value to fish and fishery products. They change the form and state of fish to improve its quality and taste. They also do packaging.

Processing of fish is an important sector for women employment in the Gambia but it is less developed and dominated by small and medium-scale processors. Fish is processed using several methods with smoking being dominant. Most of the processing takes place at the individual or household level and the most common species of fish processed is shad, catfish and shark. It is however common to see other types of smoked fish. In the marketing channel of smoked fish, processors purchase fish directly from fishermen. If there is insufficient supply of fish, processors travel to other landings to purchase fish. Processing technology is mainly traditional using manual labor. Smokers use various equipment such as the “chorkor” ovens, traditional smoking pits and traditional smoking huts. They utilize various inputs such as baskets, basins, grills, basket nets, firewood, and brown paper.

Wholesalers

Wholesalers are large-scale traders who purchase smoked fish products (shad, catfish, shark and speciality products) to processors in large quantities and sell to retailers (such as market women) and consumers. The wholesalers carry out value addition on fish products by sorting and packaging them before sale. They then transport the

fish and fish products to major markets for sale. Wholesalers are located in the marketing channel of smoked fish products between processors, retailers and consumers providing an interface between supply and demand.

Middlemen

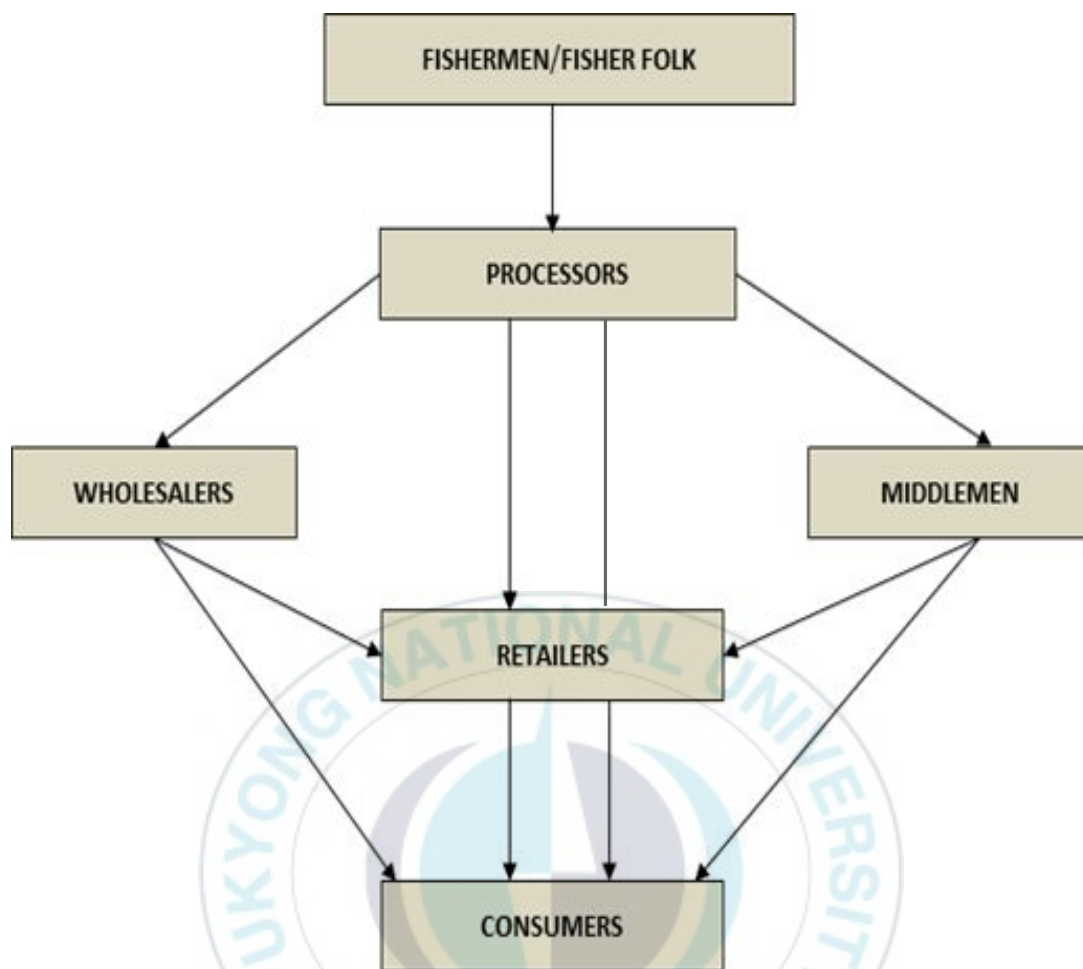
Middlemen are those businessmen / women who do not have/take ownership of the products but establish a bridge between buyers and sellers and receive commission for their services.

In the Gambian fishing sector, middlemen are defined as small business wholesalers. They act in the marketing channel of smoked fish products as an intermediary between processors, retailers and consumers to bridge the gap between them. Middlemen are small-scale traders who purchase smoked fish products (shad and catfish) from processors in small quantities and sell to retailers and consumers.

Retailers

Fish retailers are those businessmen / women who sell fish in markets directly to consumers.

In the marketing channels of smoked fish, retailers buy smoked fish from processors, wholesalers or middlemen. They assess their customers demand and purchasing power before determining which products to sell. Mostly they purchase fish on cash. Sometimes they also purchase on credit for short term periods. Retailers hawk the fishes from house to house. Some of them stay in the market place. They are mostly women of various ages but sometimes involves men too.



<Figure 14> Smoked fish marketing channel

Figure 14 highlights the different channels through which smoked fish may ultimately reach the consumer, directly or indirectly, formally or informally. The distribution of smoked fish in the Gambia takes place through a series of stages run by a set of intermediaries. Usually, the primary stage occurs at landing sites, when fishing vessels return from the fishing grounds and discharge their catches. Processors buy fish from fishermen and undertake processing such as smoking and salting and then sell to traders or consumers directly. The different channels identified can be summarized as follows:

- 1) Fishermen —————> Processors —————> Consumers

In this category, the study identified a direct communication linkage between fishermen and processors for the sale of fresh fish and between processors and consumers for the sale of smoked fish. Smoked fish is usually sold at smoking sites or at market places, while in some instances, consumers can make phone calls and request for house delivery of smoked fish from the processors.

2) Fishermen → Processors → Retailers → Consumers

The second identified channel exists between retailers and processors and then between consumers and retailers for the purchase of smoked fish. Retailers buy smoked fish from processors and sell in small units directly to consumers either at a market place or at the door steps of the consumers.

3) Fishermen → Processors → Wholesalers → Consumers

The third communication channel used was identified between wholesalers and processors and then between consumers and wholesalers for the purchase of smoked fish. Wholesalers make negotiations with processors with respect to the availability and pricing of smoked fish before making the eventual contact for purchase. Wholesalers buy smoked fish products (shad, catfish, shark and speciality products) from processors in large quantities and sell directly to consumers at the market.

4) Fishermen → Processors → Middlemen → Consumers

The fourth identified channel exists between middlemen and processors and then between consumers and middlemen for the purchase of smoked fish. Middlemen buy smoked fish products (shad and catfish) from processors in small quantities and sell directly to

consumer at the market.

5) Fishermen → Processors → Wholesalers → Retailers → Consumers

In this case, the communication channel used was identified between the wholesalers and the processors on one hand and between the retailers and wholesalers on the other hand. The wholesalers buy smoked fish products (shad, catfish, shark and speciality products) from processors in large quantities and sell to retailers, and finally get to the consumers.

6) Fishermen → Processors → Middlemen → Retailers → Consumers

Finally, the sixth identified channel exists between middlemen and processors and then between retailers and middlemen for the purchase of smoked fish. Middlemen buy smoked fish products (shad and catfish) from processors in small quantities and sell to retailers, and finally get to consumers.

<Table 9> Distribution of different artisanal smoked products according to markets

Market	Products	Estimated share (%) based on Quantity	Quantity (kg)	Value (US\$)	US\$/kg	Major distribution channels
Urban markets	Hot-smoked shad	6	13,875	4,301	0.31	1, 3, 4
	Smoked shark	1	1,278	1,048	0.82	1, 3
	Cold-smoked shad	14	30,875	6,793	0.22	1, 3, 4
	Hot-smoked catfish	15	33,885	51,844	1.53	1, 3, 4
	Smoked speciality products	2	1,350	2,484	1.84	1, 3
Rural markets	Hot-smoked shad	0	971	583	0.60	1, 3, 4
	Hot-smoked catfish	4	8,951	14,322	1.60	1, 3, 4
	Smoked shark	1	1,543	1,420	0.92	1, 3
Regional Export	Hot-smoked shad	12	27,031	47,304	1.75	3, 5
	Smoked shark	40	88,227	194,099	2.20	3, 5
	Smoked speciality products	0	685	1,665	2.43	3, 5
European and American Export	Hot-smoked shad	0	256	486	1.90	3, 5
	Hot-smoked catfish	3	6,777	18,501	2.73	3, 5
	Smoked speciality products	3	5,881	20,584	3.50	3, 5
Total		100	221,585	365,434	1.60	

Source: Department of Fisheries, 2013.

Note: Channel numbers indicate the different channels of smoked fish marketing (figure 14 – pages 46-48).

Markets

Distribution of different artisanal smoked fish products in the Gambia is generally complex because of the range of different markets served. The choice of a market depends on the operating capacities, and the quality of the product. There exists direct and indirect

linkages between processors and consumers which largely affect the distribution pattern and makes the sector difficult to regulate. The existing markets for smoked fish products are:

- Urban markets
- Rural markets
- Regional markets and
- European and American markets.

Urban markets

These markets comprise of Banjul City and towns within Gambia. In 2013, the total consumption of smoked fish products was 81,263 kg. This was worthy \$66,470 and represented 37% of market share by quantity (Table 9).

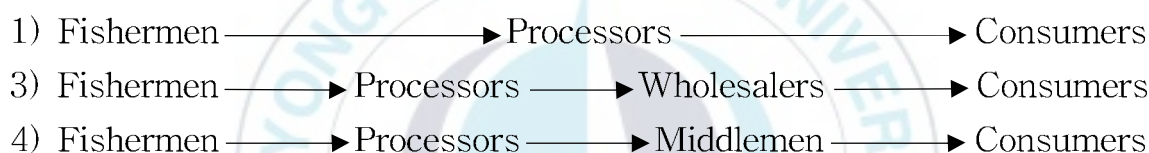
Women processors are predominant dealers involved in the marketing of cold-smoked fish products in this markets. They distribute different smoked fish products e.g. hot-smoked shad, smoked shark, cold-smoked shad, hot-smoked catfish and smoked speciality products. The operations of women fish processors are characterized by small-scale direct marketing (daily basis) and low profit margins. The major distribution channels in these markets are:

- 1) Fishermen → Processors → Consumers
- 3) Fishermen → Processors → Wholesalers → Consumers
- 4) Fishermen → Processors → Middlemen → Consumers

Rural markets

These markets consist of small towns and market settlements. They are mostly informal operating from makeshift shades or from the open. These markets are also dominated by both men and women processors. In 2013, the total amount of smoked fish products sold

through these markets was 11,465 kg. This earned the traders a total value of \$16,325. This represented 5% of market share by quantity (Table 9). The main smoked products sold in these markets are hot-smoked shad, hot-smoked catfish, and smoked shark. The prices these products were found to be higher in rural markets than in the urban markets which are along the shores. This was due to the transportation and other costs incurred by the traders during distribution from the processing sites to the marketing points in the rural areas. In addition, the price difference was due to existence of demand for these products in these areas. The major distribution channels of smoked fish products in the rural markets were similar to those in urban areas i.e.



Regional markets

These markets comprise of towns and cities in the neighbouring countries. They include cities in Ghana, Senegal, Cameroon, Ivory coast, Guinea Conakry to mention just a few. They play an important role in the distribution of smoked fish products e.g hot-smoked shad, smoked shark and smoked speciality products. In 2013, a total of 115,943 kg was traded in this market. This earned the traders a total value of \$243,068. The quantity traded represents 52% of market share (Table 9).

The main Exporters of smoked fish products are wholesalers. They mostly buy products prepared by male fish smokers who produce better quality products since their operations are more intensive. Their products are also marketed to the European and American markets where the profit margins are higher.

For the regional markets, especially in Nigeria, Cameroon and Ivory Coast, transportation of products is either by sea or air. Traders travel by air to countries of destination of the products and co-ordinate and supervise the marketing. The major distribution channels in these markets are:

3) Fishermen —→ Processors —→ Wholesalers —→ Consumers

5) Fishermen —→ Processors —→ Wholesalers —→ Retailers —→ Consumers

European and American markets

These markets comprise of various EU Countries and American States. The main EU countries that provide markets for smoked fish products from Gambia are UK and the Netherlands. This block of markets were the third largest in determining the distribution of smoked fish products in 2013. The main smoked fish products that were traded included hot-smoked shad, hot-smoked catfish, smoked speciality products. A total quantity of 12,914 kg of smoked fish products was exported at a value of \$39,571. This represented 6% of market share by quantity (Table 9). The main exporters in these markets are wholesalers operating as individuals or groups of individuals. Due to the far distances involved, smoked fish products were exported by air and usually the traders accompanied the products for marketing.

This practice reflects lack of structured organization since the fish traders operate on an individual basis, except for a few that operate in small units of two or three members making it difficult to break even. Many a time the traders have to make prior arrangements with the buyers and agree on prices before exporting their products. The major distribution channels of smoked fish products in European and American markets are:

- 3) Fishermen → Processors → Wholesalers → Consumers
5) Fishermen → Processors → Wholesalers → Retailers → Consumers

4. The diaspora trade

Smoked fish products in the diaspora trade to the EU (UK and the Netherlands mainly) and to, USA is currently virtually a women-led business, although a few men exporters are also involved. It is practiced at small - scale, and mainly involves women from the Gambia. The business deals with a wide range of fish species with products such as smoked catfish, shrimps, sole fish, bonga, sardinella, croakers, and barracuda, but dominated by smoked products. Between 2007 and 2013 these exports constituted 3-18 percent of all fish exports from the Gambia, (Table 10 and Figure 15).

Currently, the women operate from Rosamond Trade, the only processing facility in the country certified to export cured fish to the EU. They supply to specific diaspora market dominated by Gambians but also the African diaspora including the Caribbean - living in the EU (UK and the Netherlands mainly), the USA, Canada, and Africa. With a permanent staff of 13 (6 women and 7 men). The processing facility is rented by a group of women (6 women at the time of the visit) on a monthly basis, and the women's fresh fish is smoked by the staff of the facility. Those are fisherfolks with individual quota of fresh fish ranging between 500 - 5000 kg.

The processed fish is stored, awaiting the completion of all the products of the women before the fish is loaded onto a 20 or 40 foot refer container for shipment. Each woman acquires her shipping documents and other forms of certification for her consignment before travelling by plane to the UK, the Netherlands. These traders usually await for arrival of their container at the UK ports where each woman collects her consignment (usually addressed to herself, or to a

UK-based business partner). The woman could either retail her fish by herself or sell to a wholesaler after which she returns to Banjul to load another container.

The trade needs to be formalized to enable the women to develop and expand their production from the current small scale operations of 200–500 kg per woman. In addition, the women involved need training in hygiene, handling, and marketing of fish products, to improve quality and food safety. They also need capacity building in relation to EU market requirements.

Another system of regional niche marketing involves both men and women some of who travel from the countries of export destination to process the products in the Gambia. In this system, there is greater gender interaction coupled with multi-nationality and ethnicity. Gambians, Senegalese, Ghanaians, Guineans and Malians are variously involved in the Gambian fish trade.

<Table 10> Export of Smoked Fish Products to the Diaspora Market by Destination

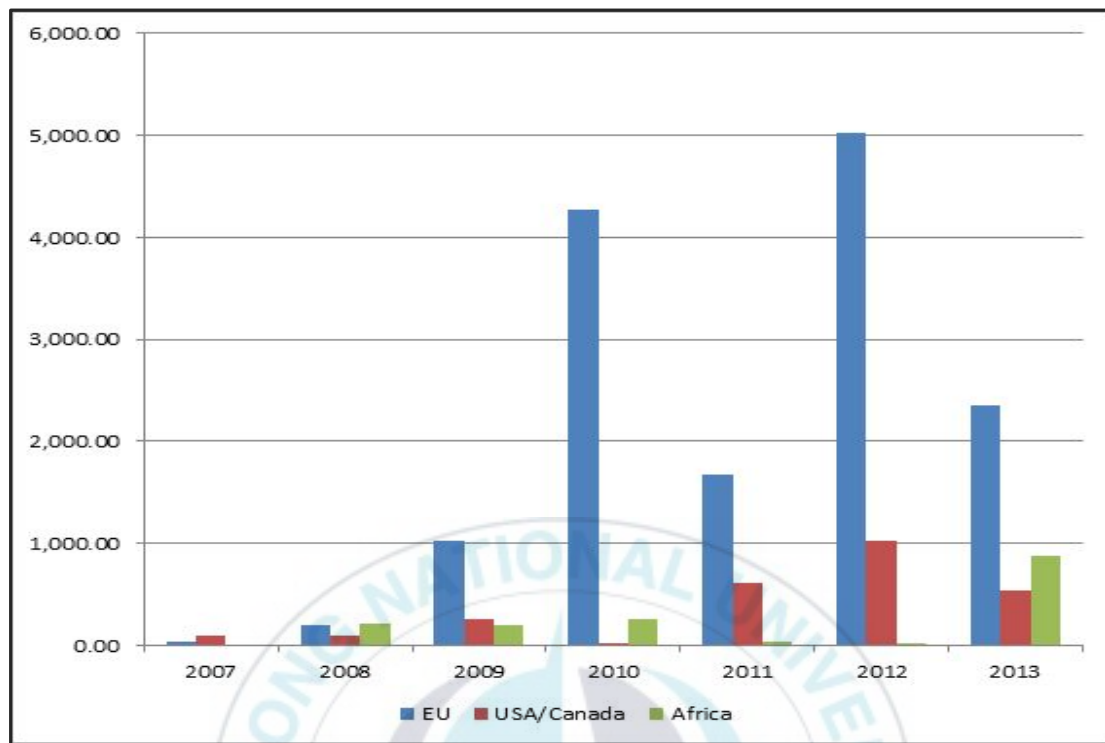
Unit : Kg

Year	Total quantity	Destination		
		EU	USA/Canada	Africa
2007	18,194.2	4,684.6	13,509.6	–
2008	143,994.5	21,911.0	14,122.5	107,961.0
2009	114,946.5	61,098.0	19,595.5	34,253.0
2010	159,464.0	140,564.0	1,000.0	17,900.0
2011	188,390.5	175,350.7	11,572.8	1,467.0
2012	187,849.8	156,166.7	29,200.5	2,482.6
2013	123,349.1	79,028.7	14,564.4	29,756.0

Source: Department of Fisheries, 2013.

Note: \$1 = GMD30

Unit : '000GMD



<Figure 15> Breakdown of Exports of Smoked Fish Products to the Diaspora Market by Destination

Source: Department of Fisheries, 2013.

5. Organizational structure and strategy of the cured fish industry

According to Njie, (2010), the level of organization of the cured fish trade is inadequate. This is characterized by the general trend to operate individually. Associations for the marketing and distribution of artisanal products hardly exist in The Gambia. Hence, individual traders often have problems of identifying markets. They therefore tend to deal in small volumes that are less profitable and sometimes delivered to uncertain markets (Njie, 2010). This could be attributed to the lack of market information to producers which could be due to the lack of a structured organization in the industry. For the cured fish

industry to experience growth and gain better access to lucrative markets, there is a need for an organized and structured cured fish industry.

Fish prices are sensitive to the forces of supply and demand. Wide price fluctuations continue to be a dilemma to fish processors and traders (Essuman, 1992). The smoked fish trade for the domestic markets is dispersed and wholesale and retail traders normally function with very limited operating capital (Moen, 1983). This indicates a need for a sales organization of traders and processors to monitor the prices of fish with regards to its demand from the consumers.



V. Socio-cultural dimension of fish marketing

The sociocultural dimensions of marketing of fish in the Gambian artisanal fisheries aims to identify family relations and expectations, and some of the factors that are taken into consideration in the determining of fish price by the fishermen to the “banabana” (intermediaries/middlemen). It also looks into the role of the “banabana” and attempts to answer the question, “can the banabana be excluded from the fish trade and rather have the fisherman market his catch directly to the consumer?”

1. The ethnicities of the fishing families

Traditionally fishing in the Gambia was mainly practiced by the Serrer tribe. The serrer people are immigrants of Senegalese origin but many have become Gambians by virtue of intermarriages, among other things. However, the small number of Gambian Serrer still maintains for the most part their tradition as fishermen. In the village of Gunjur, the Mandinika tribe forms the majority but they are more involved in land agriculture. It is relatively recent that Mandinkas have taken to fishing as a means of marketing a living. Other tribes that take to fishing for their livelihood include the Jolas. The Lebous constitute another ethnic group from Senegalise that migrated to Gambia because they are 100% fishing families. They engage in nothing else in Gunjur other than fishing an fishing related activities such as boat building and fish marketing. This ethnic group contributes significantly towards fish production on Gunjur beach (more than 70% of the “white” fish species). These include high value species such as “kujeli” (*Polynemus quadrifilis*), “Tonone” (*pseudotolithus typus*), sole fish,

lobsters etc.

2. Conjugal relation and expectations

Culturally, the Gambia is a male dominated society. Women have little say in decision-making process. As noted by Bartos (1989), final decisions are done by the husbands. As a wife the woman's role is to do all house activities and the husband's duty is to contribute economically to their feeding, provide shelter for the wife and the children and to pay their school fees.

3. Importance of children in the fishing families

Children do help their parents both inside and outside the house. Older girls within the family help in caring for the younger ones and also in fetching water. Sometimes they accompany their mothers to the landing sites to take care of their siblings while their mothers are busy loading fish to the trucks or taxis or busy processing fish. The old girls also sometimes help in making food or cleaning dishes.

4. Relationship between the “banabana” and fishermen

“Banabana” is a term used to refer to intermediaries/middlemen. These people act as a link through all the stages fish goes through from the time it is landed by the fisherman until it reaches the consumer. The “banabana” are both male and female fish traders and creditors.

Within the sociocultural context, the relationship between the “banabana” and the fisherman can have an effect on the pricing of fish. The type and extent of the relationships can vary from kin

relationship to ordinary “buddy” friendship. The relationship can also be based on a financial dependency relationship where the “banabana” provide assistance in the form of loans to the fisherman in time of fish scarcity and thus low income for fisherman.

5. Women as “banabana” and their relationship with the fishermen

There is a close relationship between fishermen and “banabana”. Some of the “banabana” are in one way or the other related to the fishermen. Some of the “banabana” are wives, sisters, cousins, neighbours or long term friends (referred to as sister in the Gambian custom) of the fishermen. A long term neighbour in the Gambian context is considered a family member and is referred to as relative, especially when they are good neighbours. This makes the trade system complex especially in determining fish price. The “banabana” always expects a price reduction from the fishermen which they normally give because of the kin-relationship (Stivens, 1981; Harris, 1990). This kind of relationship has been discussed by the economists and anthropologists within different theoretical schools as to whether or not these relations imply economic exploitation of the fishermen by the middlemen/women or whether there is mutual benefit to both parties.

6. Men as “banabana” and their relation to fishermen

There are some differences between the relationship of the female “banabana” and male “banabana”. As could be seen from the earlier discussion, the majority of the female “banabana” depend on the fisherman for credits. When men act as “banabana” the relationship is

different. Here, the majority of the fishermen are perpetually dependent on the “banabana” for credit and consequently the fishermen are obliged to sell to them. This shows power differentiation in gender relations within the Gambian artisanal fishery.



VI. Conclusion and proposals for development action

Market information

Market information is a vital factor for efficient production planning. It is one of the most important factors in increasing efficiency in an industry dealing with highly perishable goods like fish. The lack of wholesale markets and market intelligence can be a constraint to efficient marketing. However in the Gambia, there is need to improve markets for existing products. It is recommended that a study be undertaken on aspects such as market price trends, product quality and price relationship, seasonality of product supply and product packaging. Information from market research will make it easier to identify supply gaps, the planning of supplies to markets where or during periods when prices are highest. This will also provide the basis for improving product quality and packaging in order to meet existing and potential market demands.

The market information should include where the demand is greatest, where it is likely to achieve greatest level of sales on a regular basis and in the shortest period of time. Hence the collection and publishing of information on market trends and opportunities will stimulate the sales of fish to the benefit of the industry. The cured fish industry needs to be structurally organized for the development of existing and potential markets.

Transportation infrastructure

The single greatest obstacle to the wider domestic and regional distribution of fish and fish products in the Gambia is the extremely

deficient state of the road network. At all times the road conditions and poor transport links in general contribute to product wastage and limit the distribution of smoked fish products. Bad roads increase the marketing margins as transporters/wholesalers recover the high cost of vehicle maintenance from consumers. Although most road works and rail and steamer system rehabilitation must be planned and financed at the macro-level, the possibility of effecting improvements in landing site feeder road connections and small-scale waterborne transport services through community level actions should be considered.

Tariff barriers

Tariff barriers continue to hamper fish trade despite efforts of regional bodies to introduce preferential trade policies for their member states. Common trade policies are essential. Customs duties and other formalities in the sub-region need to be re-examined to reflect an Economic Committee of West African States (ECOWAS) standard. Therefore, to have an effective inter-regional trade in fishery products, the simplification and harmonization of tariff structures should encompass the sub-region. Besides, any meaningful expansion of inter-regional fish trade would require liberation of trade policies.

Landing sites, markets, and the organization of trade

Faulty fish handling practices along the distribution routes compound those that have already occurred at the landing site, resulting in further loss from breakage and spoilage to fresh and cured products before they can reach the consumer. Loads of fish in the back of pick-ups often serve as a platform for other heavy cargo and passengers to rest upon. Dried and especially smoked pieces of table fish are frequently packed in large open-weave baskets which offer no

protection from dust, rain, or insect infestation, and which weigh so much (100 kg and more) that their contents tend to get crushed and fragmented. The conditions under which fish are kept and offered for sale at final market points for the most part merely extend this pattern of indelicate handling that began at the landing site. Whilst improvements in handling need to be made throughout the distribution network, they would be to little avail unless a start was first made at the landing site level. Product damage inflicted during handling at that early stage is impossible to rectify at any later stage.

Major market centers throughout the country lack adequate receiving and bulk storage facilities for either fresh or cured fish, a situation which impedes the development of a true wholesaling sector within the marketing system. Bulk assembly, transport, and storage/distribution of smoked fish products could effectively be managed by relatively small numbers of dealers in the chief fisheries regions if they operated on a sufficiently large scale and restricted their activities only to these functions. The likely gains to be realized from this clearer separation of wholesale and retail trade include cheaper and steadier supplies of fish to principal nodal points in the distribution system and better opportunities for fish to penetrate into retail outlets further afield. For such arrangements to evolve however, requires joint action by the local authorities responsible for market administration and development on one hand, and the traders who would run wholesale operations on the other. It is possible that the traders themselves could better look after their interests through the formation of a wholesalers' association.

Whilst improvements in transport links would do much to ameliorate the situation, other impediments to effective distribution of fish products also need to be attacked through project action at the community level. In terms of marketing organization, a true wholesaling sector needs to be created so that both fresh and processed fish can reach a wider range of consumers at reasonable

prices.

Improved physical facilities and handling practices are also long overdue. As indicated above, most landing and trading places, whether old and formally established or new and informal, feature very rudimentary facilities. Unhygienic handling practices are the rule rather than the exception. Cemented and roofed receiving stations and clean water supplies are rare. Washing and gutting slabs or sheds are generally lacking, as are adequate drying racks, salting vats, and fish stores. Smoking kilns are generally of poor design, resulting in imperfect curing and highly inefficient use of firewood, supplies of which are dwindling to critical levels in some areas. At all points along the chain of distribution, fish products are exposed to rough treatment, with little or no provision being made to protect them from contamination or insect infestation.

Fish Technology Division

Quality control for the fisheries in the Gambia is the primary responsibility of the Fisheries Department. The study proposes that a division be created that will operate the Fish Technology Laboratory. The aim of that division will be to conduct research on improved methods of handling, processing, and marketing of fish and promote the optimal utilization of fish resources through product development. In addition, the Laboratory will be supposed to serve an extension role with regard to the dissemination of information on research results and the general education of the public on matters relating to fish handling and utilization. In order for it to deliver on its mandate, the Laboratory should be adequately funded, stocked with essential facilities and hire qualified and experienced personnel.

Development of Consumer Demand

There is a need to promote the wider use of fish products in the diets of people dwelling in the remote parts of the country, as well as in parts where people were historically not fishermen. In all of these areas there are traditions of fish avoidance, yet at the same time there exist problems of malnutrition, sometimes acute, that should be ameliorated. It is worth noting that these days the practice of fish avoidance in the Gambia is diminishing as the result of various factors. Civic education and fish promotion work should be intensified in an effort to hasten this process. It could be organized on a fairly modest scale without heavy funding requirements. Maximum contact between extension workers in Fisheries, Health, and Agriculture (Home Economics) would be the key to success for any consumer demand development program. This could be most efficiently secured through a concentration on institutional and public contexts of interaction, such as schools, clinics, marketplaces, and the like. Distribution of sample products in order to gauge and cultivate consumer acceptance, and the use of fish products in food-for-work schemes such as those sponsored by the WFP, might be considered as well. Both UNICEF and WFP involvement could be sought to help with such tactics.

The policy makers should develop a policy with the aim of developing a training syllabus for teaching institutions of all descriptions, from primary to university and technical school level. Obviously it would be desirable to co-ordinate product promotional efforts in this program.

The development of a market for fish powder, as distinct from fish itself, is a task that should be undertaken throughout Gambia as a whole. The idea of introducing or expanding the use of fish products as a protein base in infant weaning foods should be encouraged. Fish powder technology proposal will be more efficient in encouraging effective utilization of small-sized species like *Sardinella*. Linkage between the latter and a promotional program to upgrade diets through

greater consumption of fish products could yield substantial benefits in terms of national nutrition welfare.

National Fisheries Policy and Planning

It is imperative that a comprehensive statement of policy covering the future development of the national fisheries be elaborated, with particular regard to the respective roles to be played by the small-scale artisanal sector and medium-scale commercial sector in fish harvesting, processing, and marketing. Current policy statements are rather vague on specifics, and leave the impression that government wants to encourage the interests of both sectors without really coming to grips with the competitive relations and inconsistencies that are involved. Equally it is hoped that government authorities will move to establish a policy aimed at promoting further development of commercial fish processing firms. Fish is highly perishable and requires to be processed in order to avoid post harvest losses. These huge losses should be curbed since the fishery situation is already facing over-capacity which threatens the ability of the standing stocks in the Gambia to withstand additional fishing pressure.

In order to reduce post-harvest losses, the Gambian government should come up with a policy that encourages investment in fish processing. The government in collaboration with the private sector should come up with ways of providing credit to the artisanal processors and traders at low interest rate to spur growth in the fish marketing and trade chain. The low interest rates will allow greater uptake of funds to invest in fisheries trade and processing activities for income generation, particularly for women and poor households.

Other issues

The role of fish products in promoting nutritional welfare countrywide cannot be over emphasized. It is also suggested that suitable agencies; national and international, governmental and non-governmental, serve as channels for project undertakings. In most cases, it would be appropriate to have the FAO serve as executing agency, given the experience and skills it can draw upon through its fisheries department. In terms of funding sources, as always the sticking point, it can only be suggested that consultations be held with those countries and agencies that recognize the critical importance of the fisheries and have either assisted similar sectorial development work in the Gambia or other African countries in the past or may have some interest in doing so in the future. A wide range of other issues warrant urgent attention by policy analysts and planning personnel. For example, a comprehensive review needs to be carried out for existing management structures and enforcement procedures for the major fisheries. That is, novel and more effective systems of revenue generation for the support of fisheries research, extension, and administrative services, and for the development and maintenance of local landing sites and markets need to be elaborated and put to practical test. Innovative approaches such as the designation of controlled fishing zones as exclusive breeding and conservation areas, special use of commercial areas, and community - controlled territorial - use - right - for - fishing (TURF) areas should be considered and tried; and regulations pertaining to gear types and mesh sizes within the various fisheries must be thoroughly reviewed and overhauled.

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