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REVIEW OF THE FISHERIES SECTOR, THE GAMBIA

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BY

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Contents

ACRONYMS

ADB	African Development Bank
CFC	Community Fisheries Center
CBO	Community Based Organization
CCLME	Canary Current Large Marine Ecosystem
DoF	Department of Fisheries
EEZ	Exclusive Economic Zone
FAO	Food and Agriculture Organization of the United Nations
GAFDP	Gambia Artisanal Fisheries Development Project
GDP	Gross Domestic Product
GoTG	Government of The Gambia
GRT	Gross Registered Tonnage
IMR	(Norwegian) Institute of Marine Research
IRD	(French) Institute of Research and Development
IUU	Illegal, Unreported and Unregulated (fishing)
LRR	Lower River Region
MCS	Monitoring, Control and Surveillance
MPA	Marine Protected Area
NASCOM	National Sole Co-Management Committee
NM	Nautical Mile
NORAD	Norwegian Agency for Development Corporation
UNDP	United Nations Development Program
UNEP	United Nations Environment Program
UNCTAD	United Nations Conference on Trade and Development
PAGE	Program for Accelerated Growth and Employment
URR	Upper River Region
SFVCA	Sole Fisheries Value Chain Assessment
USA	United States of America
UEMOA	Union Économique et Monétaire de l'Afrique de l'Ouest (West African Economic and Monetary Union -WAEMU- in English)

CURRENCY

D 32.00 = USD 1.00 = FCFA 600 (May 20

1. INTRODUCTION

The Gambia is one of the smallest countries in Africa, with an area of about 11,000km^2. It has a coastline of roughly 80 km facing the Atlantic Ocean, and of this, 25 km lie as the estuary of the Gambia River. The country can be divided into three major ecological regions: the marine ecosystem and coastal zone on the Atlantic Ocean in the west; the east-to-west freshwater Gambia River and estuarine brackish water ecosystems; and the terrestrial ecosystems in the remaining stretches of land behind the coast to the north and south of the river.

The country is bisected by the River Gambia that originates from the Futa Djallon highlands, forming the north and south banks. Its continental shelf area is about 4,000 km^2. The estuarine areas have a dense mangrove forest (67,000 hectares)[1], which provides breeding and nursery grounds for important commercial marine fish species, shrimps and other valuable aquatic organisms.

The country is divided into five Administrative Regions (West Coast Region [WCR], North Bank Region [NBR], Lower River Region [LRR], Central River Region [CRR] and Upper River Region [URR]) and the two municipalities, namely, Kanifing Municipal Council (KMC) and Banjul City Council (BCC).

The Gambia has a Sudano-Sahelian type of climate, with a short rainy season from June to late September - early October and a long dry season from November to May. The average annual rainfall is 900 mm. There has been an average reduction of 27% in the annual average rainfall since 1951 with reductions in the length of the rainy season and increases in ambient temperature that has rendered the atmosphere drier with a mean temperature of 25^{o}C.

Economically, the Gambia ranks among the least developed countries in the world. With a Gross Domestic Product (GDP) of US$ 489 per capita in 2008, which is significantly less than the sub-Sahara Africa average of $1,233, the economy is characterized by its small size with a low level of literacy. For this reason, poverty is a major development challenge as in 2014, calculations revealed that more than 60 percent of the overall population lives in poverty, while a little under half of the population live in poverty conditions[2]. Redistributive trade, agriculture and tourism makeup the main sectors of the economy. Other areas of the Gambian economy that have been expanding rapidly over the recent years are the construction and telecommunication sectors.

Trade and re-export are strongly influenced by trans-boundary interactions with Senegal and sub-regional trade relations. Agriculture plays an important role in the economy contributing about 30% of GDP[3] of which the fisheries sector's input is 12%[4]. In terms of food supply and employment, agriculture sustains over 80% of the population and remains the main source of income.

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[1] www.accessgambia.com/information/forest.html)
[2] http://www.borgenmagazine.com/poverty-gambia/
[3] www.theodora.com/wfbcurrent/Gambiathe/gambia_the_economy
[4] www.accessgambia.com/information/fisheries-sector

While groundnut production was previously the major export crop followed by sesame and cotton, agricultural diversification towards food crops such as rice, coarse grain (millet and sorghum) and horticulture has been promoted by Government and is being increasingly integrated into farmers' activities despite the hurdles in relation to international trends. Horticultural production has steadily increased during the recent years and already contributes to GDP at the same rate as the livestock sector for about 5%.

Agriculture and livestock provide income and livelihood for over 60% of the rural population[5]. Groundnuts and its by-products contribute to over 90% of export earnings. Total arable land is estimated at 558,000 ha, with approximately 180,000 ha for groundnut cultivation and 50% for cereals of which rice accounts for 20%.

Currently, most of the industrial activities in these sectors are limited to groundnut milling, cereal processing, dairy processing, cotton ginning, sesame oil extraction and fish processing. In the livestock and fisheries sectors the production systems are predominantly traditional.

Tourism is an important industry in The Gambia. Between 1965 and 1998, the number of tourists visiting The Gambia has increased from 27,000 to 96,000 but has been on the decline since 1998. Efforts are underway to reverse this negative trend.

With a population density of 108 persons per km^2, The Gambia ranks among the four most densely populated countries in Africa, which is clearly one of the most severe causes of land degradation. Of particular importance is the age structure of the population. It is estimated that 80% of the total population fall into the age bracket of 31 years and below; while 71% are 24 years and younger. With such a youthful population, a demographic pressure is to be feared for the future; but it should be kept in mind that the youthfulness of the population is a great potential for the country's development.

Women in The Gambia experience significant disparities in, among others, life expectancy, educational attainment and income. Economically active Gambian women are commonly engaged in low remuneration activities such as lowland crop production and petty trading. According to the 1993 Household Economic Survey, the average Gambian male has an income nearly four times higher than the average female, but a reverse tendency has been observed in the past decade.

Other development challenges include: inadequate infrastructure (e.g. energy, transport, and telecommunications), institutional constraints, and heavy reliance on external trade and foreign investment.

Although The Gambia has a very short coastline of about 80 km (one of the shortest in Africa), it is located in the highly productive up-welling zone of the Atlantic Ocean and the Canary Current Large Marine Ecosystem (CCLME) region. The productivity of the marine and estuarine

[5] https://www.ifad.org/documents/10180/

waters within the jurisdiction of the country is further enhanced by the huge annual influxes of nutrients from the river, fringed on both sides with mangroves for up to one hundred and fifty (150) kilometers inland[6].

The River Gambia has enormous freshwater resources that can sustain massive extraction for various irrigation schemes (rice, aquaculture and horticulture). The freshwater zone of the river overflows its banks twice every month during spring tides with tidal amplitude reaching one meter or more in some places. This characteristic of the river has rendered the adjacent flood plains gravitationally irrigable, particularly in the Central River Region (Fisheries Frame survey, 2006). This is quite a positive attribute for development of aquaculture along the river banks.

[6] http://en.wikipedia.org/wiki/Wildlife_of_the_Gambia

2. ECONOMIC AND SOCIAL OVERVIEW OF THE GAMBIAN FISHERIES SECTOR

2.1 Brief history of the Sector

The Gambian fisheries have gone through a number of development stages and are still on this evolution trend to fine-tune its performance both environmentally and socio-economically.

The fisheries sector started as a purely artisanal sector with essentially non-motorized canoes. The few motorized canoes that were locally operating used to travel short distance to get fish. This period that coincided with the era of the independence was a period of climax for the resource; many terms and concepts that are currently used such as resource depletion, biodiversity management, shared resources, endangered or threatened species, and fish stock carrying capacity were not known or at least uncommon. ad severely hit the agricultural sector, more demand started to be put on fisheries. To cater for the rising demand in fish products, the numbers of motorized canoes and sophisticated fishing gears This fisheries favorable period was associated at least locally, with a low human population and a well thriving agriculture. Then in the 1970s, with the rise of population and the drought that h increased.

Up to this period in the 1970s the carrying capacity of the fisheries was intact as a result of the high resilience of the stocks. This situation which was characterized by a rich local marine and inland waters biodiversity started to attract foreign fishers.

Among the first fisheries companies that were established in the country, the Sea Gull, the Scan-Gambia and many others which came later to further increase the pressure that was already high on the stocks as a result of rapidly growing artisanal fisheries.

Data on the catches during the 1970s are scanty due to a fisheries sector that was hardly formalized or organized. With time, in the 1980s the sector became more organized with more dichotomy and formalization introduced due to the efforts of a young fisheries department that was still in the need of expertise. Presently there is a clear cut between the sub-sectors of the fisheries and as such, the industrial and the artisanal sub-sectors can be distinguished Aquaculture is considered as a sector (or sub-sector) on its own.

2.2 Resource base Summary of the Gambian Fisheries Resource System, Species and Stocks

2.2.1 Marine Fisheries

There are over 500 marine fish species that are usually classed as demersal and pelagic. Demersal fish include shrimps, groupers, sea breams, grunts, croakers, and snappers, etc. The high value demersal species (shrimps, sea breams, octopus, lobsters) and other pelagic species such as squid, are mostly supplied to fish processing factories for export, mainly to the European Union (EU), North America, and Asia. According to a trawl survey supported by UMEOA (West African

Economic and Monetary Union) in 2015, the demersal biomass assessment at regional level displays a stock value of 36,201.7 tons
The small pelagics group consists of the two sardinellas (*Sardinella aurita* and *Sardinella maderensis),* bonga and shad (*Ethmalosa fimbriata*), horse mackerels (*Trachurus trecae*, *Trachurus trachurus* and *Caranx rhonchus*) and mackerel (*Scomber japonicus*). Small pelagics are mainly consumed locally in fresh or traditionally processed product form, or exported regionally.

In terms of stock, the biomass fluctuates. The most recent data from regional survey supported by the FAO in 2015 on this stock highlights a biomass estimate of 86,000 tons with *Sardinella maderensis*, 45,000 tons with *S. aurita*, 49,000 tons with *Trachurus trecae* and the Carangidae species being the most represented with 220,000 tons for the region.

The Gambian waters have benefited and continue to benefit from different surveys of both demersal and pelagic fish resources. The first survey of fisheries potential of Gambian waters was conducted with the assistance of FAO (Food and Agriculture Organization of the United Nations) and UNDP (United Nations Development Program) in 1964 and 1965. The results indicated that the country is endowed with diverse demersal fish species, cephalopods, crustaceans and pelagic fish species. This survey was followed in 1986 by the most comprehensive survey under the support of the Spanish Institute of Oceanography. Biomass estimates of demersal fish resources were of the order of 43,645 tons. The country has relied on assistance provided by international institutions and organizations, such as FAO and/or the Norwegian Agency for Development Cooperation (NORAD) to obtain information on the stocks. In this respect, the present available data on demersal stock from 1986 to 1995, display an increase from 22,000 tons in 1995 to 36,201 tons in 2015 .

Thanks to the support given by FAO and the Norwegian Institute of Marine Research (IMR) under the project GCP/INT/730/NOR, the Gambia, together with three coastal countries namely; Morocco, Mauritania and Senegal has annually benefited between 1995 and 2010 from hydro-acoustic surveys of small pelagic fish stocks and thus has been able to collect information on this pelagic stock.

Besides, on the coastal and marine environments, concerns have been expressed over the status of exploitation of marine fish species as shown in Annex 1, Table1.

The results of limited surveys and assessments over recent years indicate that the major marine fish stocks are over-fished or fully exploited. In particular, the most commercially important demersal species appear to be under threat from high levels of exploitation[7].

Whatever the situation, it urges to improve fishing technology and techniques especially in the artisanal sub-sector to allow for increased fish landings in a sustainable manner.

[7] http://www.mofwrnam.gov.gm/images/

2.2.2 Freshwater and Estuarine Fisheries

Among the species found in the Gambia River and its estuarine waters, different fish families ranging from the *Carangidae*, *Drepaneidae*, *Clupeidae*, *Haemulidae*, *Polynemidae*, *Cichlidae*, *Sciaenidae*, *Cynoglossidae* have been identified thanks to the survey that was conducted by the IRD and the Department of Fisheries (DoF). In the inland sector, fish resources are found within The Gambia River system, which runs through the entire length of the country. It is important to note that the river and its ecology also serve as a transitional phase for many commercially important marine fish and shrimp species: they spend part of their life cycles there to reproduce and feed.

It should be mentioned that the shellfish and cockle fisheries are undertaken in the estuary, but reliable data are not available.

Although the species identification is an important step for management purposes, indication of the size of the stocks is capital for relevant advice to policy makers. Inasmuch as information on stock in the fresh and brackish water is scanty, the production obtained from 2006 to 2014 by the artisanal sub-sector can serve as an important indicator of the status of the stock in these fishing areas. Of the 53,000 tons of fish landed in 2015, 11,000 tons came from the inland fisheries (DoF, 2015).

According to a survey conducted in 2004, by the French Institute for Research and Development (IRD) in collaboration with the Fisheries Department, it was revealed that the brackish and estuarine portions of the river are very rich in terms of species diversity and abundance. About 70 fish species were identified within the river system and several of them are of commercial significance.

The mind set of many fisheries agents is that the fish resources of the River Gambia are still under-exploited but the reality on the ground seems to be the contrary in some areas namely, Tendaba and Jareng, two very active inland landing sites. The communities have deplored the decreasing tendency of the present stocks in comparison to what they used to be.

2.3 Fishing zones

Although small in size as a country, the Gambia is endowed with enough fishing grounds in different ecosystem types that support a myriad of aquatic life. Facing the Atlantic Ocean, the country is in an ideal geographical position as it benefits from both coastal and marine resources. This advantageous position is enhanced by the highly productive upwelling zones that extend from Morocco to the Gulf of Guinea along the East Atlantic Ocean façade but also by the wetlands and lush mangrove ecosystems (67,000 hectares[8]) which fringe the banks of the river serving thus as breeding and nursery grounds for important commercial marine fish species,

[8] www.accessgambia.com/information/forest.html

shrimps and other valuable aquatic organisms. It must be highlighted that the country is endowed with 155 landing sites of which 11 are situated on the coastal strip of the East Atlantic facade.

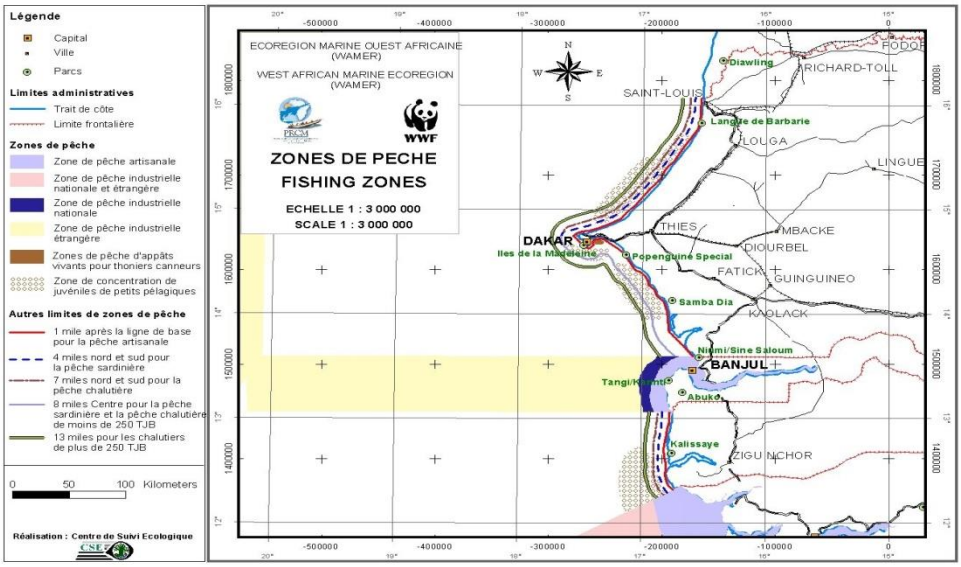
Artisanal fishing is performed on almost all available fishing grounds of the country depending on the availability and suitability of appropriate fishing gear. Yet, for management measures and conservation purposes in the Atlantic Ocean, which is a common ground for both fisheries, the Gambia waters have been delineated into into zones:

The coastal strip of 7 Nautical Miles (NM) from the shore is the zone allocated to the artisanal fisheries while the industrial fisheries zone extends from the upper limit of the artisanal fisheries zone to 12 NM. The 1981 Fisheries Act and the Fisheries Regulations of 1995 further enforced these measures/restrictions. In fact, Licensed fishing vessels less than 250 GRT (Gross Registered Tonnage) are authorized to operate in the coastal waters outside the 7 NM limit. Likewise fishing vessels over 250 GRT can only operate beyond the 12 NM[9]. Beyond the limits of 12 NM, the Exclusive Economic Zone (EEZ) expands over 200 NM as a predilection zone for the industrial fisheries (Fig. 1).

Up country where traditional fishing methods are still in vogue, the river is dominated by the artisanal fisheries with more un-motorized than motorized canoes.

It must be highlighted that as a result of the vast and distant areas of the industrial fisheries, the Monitoring, Control and Surveillance (MCS) unit put in place by the fisheries department will always need the support of the Gambian navy.

Figure 1: Fishing zones delineation in the Atlantic Ocean.



Source: West African Marine Eco-region (WAMER)

[9] http://www.accessgambia.com/information/fisheries-sector.html

In this regard, efforts have been made to obtain new high-powered engine boat and training is offered to the fishing community that will assume responsibility in supporting the surveillance and control of the waters.

For management and conservation purpose of the stock, the Gambia Fisheries Authorities have delineated a one-NM width zone on the Atlantic facade from the coastal line that is closed every year for a period of six months (1st May to 31st October) to favor reproduction and replenishment of the stocks (Fig. 2). As highlighted on the map below (no take zone), fishing in this area is prohibited to both artisanal and industrial fisheries during a period of six months yearly.

Figure 2: One Nautical Mile (1NM) Closure area for spawning (yellow line).

No-take zone during spawning times: One NM from the coastline for all fishing from May1 through October 31. This will be for all fish species and gear types (DoF).

3. VALUE CHAIN AND THE STRUCTURE OF THE FISHERY SECTOR

The fisheries of the Gambia as it is currently known and underlined earlier, is composed of two sub-sectors: the artisanal sub-sector which is characterized by low investments and labor intensive activities and the industrial fisheries sub-sector which is a high investment arena. These two sub-sectors although different in many respects (fishing methods and gears, fishing areas.), entertain important commercial relations, as the industrial sub-sector is a potential market for the artisanal sub-sector particularly for high value fish species and other valued marine species like shrimp, cephalopods, sea breams and groupers.

3.1 Products, Demand and Supply

- ✓ Artisanal fisheries

The artisanal main fishing fleet operating in the marine waters as well as on the River Gambia is composed of small fishing crafts. Although there is a strong reduction in the number of head fishermen, both Gambian and non-Gambian by 35.0% and 17.2% respectively, the number of artisanal Gambian motorized canoes (325 in 2006 against 306 in 1997) and Gambian assistant-fishermen (2291 in 2006 against 1985 in 1997) have slightly increased in this period (Annex 2 Table 2). Based on the results obtained from the 2016 frame survey, the general tendency is a decrease in the total fishermen population of 31 percent. Taking consideration of their status, the number of head fishermen operating in the artisanal fisheries sub-sector has declined over 13 percent since 2006, whereas the population of the assistant fishermen has decreased by 36 percent since 2006. With respect to nationality, the proportion of foreigners in the artisanal fishery has declined by about 34 percent (Annex 2, Table 2bis).

The artisanal sub-sector provides direct employment to 6,104 fishermen composed of 1,410 head fishermen and 4,694 assistant fishermen. Furthermore, an estimated 11,000 people belong to households headed by head fishermen (GoTG, 2006). The artisanal fisheries sub-sector also employs ancillary workers such as boat builders, fish processors and fish exporters/traders including fish retailers. Out of 1,410 head fishermen, 805 are Gambians and 605 are foreigners. Over half the fishermen in the coastal area are foreign nationals (mainly Senegalese), and the rest Gambians, while most fishermen in inland areas are Gambians. According to results of the 2006 frame survey conducted by the Fisheries Department, over 200,000 people are directly or indirectly dependent on artisanal fisheries and their related activities.

In the same vein, it should be noted that women are very dynamic and account for about 80% of fish processors and 50% of small-scale fish traders (African Development Bank/GAFDP).
As shown by the frame survey 2006, the use of drift net has attracted more adepts between 1997 and 2006 but the gill net remains the most used gear in the artisanal fishing sub-sector.

The present management set up in 2015 of the fisheries is apparently more dynamic than in the past as can attest the number of registered and recorded canoes, 2,692 against 1,707canoes which had no legislation information on their status in 2006 (DoF, 2015).

In spite of the small-scale nature of its operation (low investment and labor intensive), the artisanal sub-sector contributes for 90% to the total national fish consumption. It also supplies about 80% of its output to the industrial fisheries processing plants (UNCTAD, 2014).

The bonga, round and flat *sardinella* - and other small pelagics - are the main species landed by the artisanal fishermen.

The high-value commercial species the sector produces (shrimps, sole fish, sea breams, lobsters and cephalopods) are mostly supplied to fish processing factories for export mainly to EU, North America, and Asia making thus the sector a major source of foreign exchange income. The production of the artisanal sub-sector has been on the rise over the last decade owing to an increase in the number of fishermen, motorized canoes and fishing gears as well. This increasing tendency has been confirmed by a recent survey of fish landings in the coastal and riparian landing sites: 53.000 tons in 2015 against 45,910 tons in 2010 (DoF, 2015). Of this catch, about 42,000 tons originated from the Atlantic coast and 11,000 tons from the inland fisheries (Annex 3 Table 3).

The oyster and cockle fisheries are also counted as part of the artisanal fisheries sub-sector even though development support has recently come to rescue the efforts of many community working groups and individuals to keep along with a domain that used to go un-estimated. Oysters and cockle fisheries are ongoing in the Tanbi National Park; the Allahein "Bolong" in Kartong; and in the north bank villages of Tambana and Bakang, and Kemoto in the Lower River Region.

Harvesters - the majority of whom are women - mainly belong to the Jola, Balanta and Manjago ethnic groups. The harvesting season lasts from March through June for oysters, and from July to November for cockles.

The total number of people involved in the oyster and cockle fishery sectors countrywide is not known. Yet, for the oyster fisheries alone, the latest but limited surveys that had been conducted in the Tanbi National Park gave estimates of about 500 oyster harvesters who are predominantly women (Njie and Drammeh, 2011).

In terms of means, the oyster harvesters as well as those involved in cockles harvesting use non-motorized, paddled dug-out canoes of 3 or 4 meters in length that carry one or two women. Other harvesters without means simply go on foot during low tides to the resource with bags, cutlass, axe and/or spoon to reap the resource.

There is need to carry out more study on the shellfish business.

Due to its numerous ancillary activities, many regulatory and or legislation provisions and community organizations such as Community Based Organizations (CBOs), Community Fisheries Centers (CFCs), inland fisheries Gambian nationality exclusivity and Marine Protected Areas (MPAs) are being put in place to support communities with vested interests in artisanal fisheries.

- ✓ <u>Industrial fisheries</u>

Composed of trawlers, big fishing boats and few industrial plants, the development of industrial fisheries is relatively limited in the Gambia. Presently, most fishing vessels operating in Gambian waters are foreign-owned and the Gambian owned are seven but of which only four are operating namely, Pelican seafood, Atlantic seafood (Original name is Barra seafood-leased to Atlantic), and Rosamond Trade.

The number of vessels licensed to operate in Gambian waters was 24 in 2006, 48 in 2007 and 35 in 2008. Furthermore, as at mid-2012, there were 20 locally registered fishing companies operating in The Gambia, but only 10 companies had managed to invest in on-shore facilities (fish factories). Five of these: Barra Fishing (Atlantic Sea Food), Kendaka, Rosamond Trade, International Pelican, and West Africa Aquaculture/(WAAq)) had met the required standards and been certified to process and export fresh and frozen fish products to the EU. Only one factory (Rosamond Trade) was certified to export smoked fish products to the EU (UNCTAD, 2014). The Gambia has entered in agreement with a number of countries in terms of industrial fishing in its waters but many of these are outdated or being revised.

With these defunct agreements (Senegalo-Gambia Fisheries Agreement, 1982) and other bilateral agreements, it used to be policy that 20% of the crew of fishing vessels licensed to operate in the country must be Gambians. As a revised setting, the aim now is to increase this quota of 20% Gambian of the crew to 80% in order to boost local capacity and know-how in this sub-sector.

The total fish catch by industrial fishing vessels is low: nearly 3,000 MT in 2006 against 4,001 MT in 2010. Yet, these production figures of the industrial fisheries do not seem to have captured the largest proportion of industrial catch from Gambian waters, which is not landed in The Gambia. It is noteworthy to mention that in the past periods 2001 to 2003, production used to be in the range of 11,000 to 12,000 MT (Annex 4 Table. 4).

Overall, the nominal output of the industrial fisheries sector has, by and large, remained low over the years. As a cause of this situation, it can underline the un-accountable escaping quota to abroad horizons where the product is accounted for. In the last decade, the industrial production maxima were far less than the artisanal production despite all technical sophistication that is virtually available in this sub-sector. In fact in this current time when illegal fishing and clandestine intrusion in the Gambian waters are still faced with inappropriate or unsophisticated means of control, it is obvious that data collection on the catches is illusory. One of the ways to obtain information on this catch could be a strong network between the regional fisheries or markets to share information on the tonnage and origin of the fish. The jetty in Banjul and the dockyard rehabilitation are concrete means that may and should normally contribute to reverse the trends.

The capacity of the industrial fisheries has large opportunity to increase but for that some major obstacles have to be overcome: the continuous availability of energy, the improvement of the labor force in terms of skills and the revision of taxes to name a few. Besides, it should be born in mind that, most local fisheries establishments hardly function currently at maximal capacity level; the reason for this deficiency being their heavy reliance on raw material acquisition.

3.2 Business model

- ✓ Artisanal fisheries

The business model of the artisanal sub-sector is more complex for the numerous markets (urban, rural, local, regional and domestic). It comprises also industrial processing participants as it provides a good deal of their needed raw materials. The business model is heteroclite with different interveners. Bulk sale and retail sales are available; the driving factor is variable and depends mainly on clientele availability for fear of quality depreciation.

- ✓ Industrial fisheries

The industrial fisheries business model is essentially export driven with regional and international markets being the targeted commercial centers. Products bought essentially from the artisanal fisher folk are supplied to local processing establishments or to specialized individual exporters - particularly women - who rely on certified establishments to export. The export/import ratio is highly positive since more export is done in terms of fish and fish products transactions.

The major issue that confronts the business model is the low number of locally based processing establishments even though favorable conditions were tailored to mainstream private sector investments in the play. In this direction, the new jetty in Banjul is presently put in use to curb landing and processing abroad as this would imply a loss to the socio-economy of the country. In the package to boost the industrial sub-sector fisheries, the Government has decided to levy only 10% of the landed catch.

3.3 Participants

- ✓ Artisanal fisheries

From the fishermen through the bana-bana and the retailer to the consumer the number of participants and stages can be very lengthy but the major problem with this chain of participants is the conservation of the quality of the fresh fish. Due to this difficulty, some other participants like the local fish processors interfere. The local processors include those engaged either in fish smoking using small ovens or in the sun drying of the fish. It should be taken into consideration the workers in the boat building, maintenance, engine repairs and boat unloading. More women are found in the fish processing activities.

With the present increasing yields, the number of participants in the artisanal fisheries is expected to rise as a lucrative activity.

- ✓ Industrial fisheries

In addition to the owner of the processing factories or the fishing trawler and crew, the participants in the industrial fisheries sub-sector include the factory workers mostly women engaged in the processing of the fish and fish products. These workers, in general employed on

a shift basis are under the supervision of technical personnel who are full or part time workers. There is need to take consideration of other major participants if the fish is originating from the artisanal fishery landing. In this case, commercial agents such as traders or bana-bana purchase the raw product that they sell to the factory. Some of these who are specialized traders (in majority Gambian) in fresh fish products may use the factory to secure the quality of their product under frozen conditions until enough to export is gathered. This may take several days before substantial quantity for export is obtained. Exports on behalf of these specialized traders (done by the factory in some cases) may comprise overseas agents who receive the goods and assure the sale in the foreign country. In terms of administration regulation, the customs with the quality control agent have also their roles to play.

It must be recalled that the Government is committed to ensuring favorable and encouraging conditions to boost the national fisheries sector and trade. In this regard, incentives like tax exemption during the two first years of fish entrepreneurship, the development of road network country wide and the creation of cold chambers at landing sites are clear indicative clues to this commitment. .

3.4 Processing and trading; actual and potential fishery products

- ✓ Artisanal fisheries

The artisanal fish catch, in processed (dried and/or smoked) or fresh form, is transported to the city, town and village level markets within the coastal areas and in some of the major growth centers in the rural areas. The processed fishery products (smoked or dried) are mainly marketed within the country especially in the inland markets and some are exported to neighboring West African countries where demand for fish is very high (UNCTAD, 2014). Senegal, Guinea, Guinea Bissau and Mali are targeted destinations for this product.

In effect, different markets are supplied fish and fishery products of small pelagic: Fresh and hot-smoked fish products tend to serve the urban markets mainly. Smoked-dry and a small quantity of fresh fish serve the rural and regional export markets, while low to medium moisture content hot-smoked fish products serve the domestic urban, European and American markets.

In terms of high value fish species, (shrimps, sole fish, sea breams, lobsters and cephalopods), the artisanal fisheries supplies the industrial fishing companies for factory processing and export.

For example, the harvested sole is mainly supplied to fish processing plants where they are transformed into value-added products such as fillets and exported, primarily to EU markets. A small amount of sole landings and other high value fish species such as sea breams, and groupers are also sold fresh to hotels and restaurants in the country (Fatajo et al, 2010).
The exported sole fish to Senegal via the border is carried out mainly by the Senegalese agents based in The Gambia who supply using insulated vehicles to Senegalese fish processing establishments in Senegal. As such, the supply chain for high value fish species like sole fish, follows two different paths, one that caters for the locally based fish processing establishments which exports to the USA, EU countries and the sub-regional neighboring countries; the other one being essentially dominated by Senegalese agents supplies the fish processing companies in

Senegal. The domestic market that is either restaurants or hotels is supplied by both supply chains.

Besides, little sole fish in fresh form is sold and consumed by Gambian residents, as it is not a preferred species.

In brief, the Gambian fisheries export of fish and fish products albeit already prominent and characterized by a growing range and levels of markets(urban, inland, sub-regional, international - EU and USA, including the Diaspora niche), a large number of different operators (fishermen, fish traders/dealers, artisanal processors, industrial processors, specialized exporters, etc.) and modes (small-scale and large-scale trade), is yet limited only to provision of fresh and cured or processed fish (smoked or dried). Fish canning is not yet available but constitutes a potential to explore.

About 40% of fish landed in The Gambia is marketed fresh within the coastal areas and in some of the major growth centers in the rural districts where white fish is mainly supplied to urban markets and consumers, as well as hotels, restaurants and other catering houses. Bonga fish is brought to both urban and rural markets.

Distribution of fish from riparian coastal areas to inland communities is very important. However, this aspect of the sector is relatively under-developed, and requires improvements in the handling, transportation, and storage of products.

An estimated 30% of landed fish is traditionally processed (dried and/or smoked) and marketed within the country (especially in the inland markets); part of this product is then exported to neighboring West African countries.

The inland fisheries also provide processed fish to neighboring countries. For example, from the inland, the konokono fish species is dried/smoked and sold to Malian traders while the white and the bulkier portion of the fresh high-value fish is taken to Senegal.

The rest of the fish (mainly high value demersal species) is supplied to industrial fish processing companies for export processing. According to the latest data for 2015, the amount of exported fish and fishery products was around 458,129 kg. Finally, to add to this already sprawling market, men and women tend to produce rather distinctive products, operate on different scales and serve different markets (UNCTAD, 2014).

In addition to the sun drying of fish and other products such as mollusks, the artisanal fisheries intervenes tremendously on the smoking of fish. Women mainly perform this operation and mostly the products are small pelagic species and or the well-exploited marine catfish (kong). Depending on the humidity content and the degree of heating of the smoked products, local, regional and international markets are served with variable proportions. On the aspects of revenues generation, smoked fish is very lucrative as can highlight the earnings between 2006 and 2010 from the only EU market (Annex 5 Table 5).

Local marketing of the small pelagic fish landed by the artisanal fishermen appears rather complex. In terms of share, products such as dried and smoked fish products have their main markets that take various shares as indicated below (Annex 6 Table 6).

- ✓ Industrial fisheries

The EU is the main export destination for fish and fishery products. Yet, in this era of globalization, the opportunity to widen the market is not lacking, as many other countries are potential clients of fish and fisheries products. The routine local processing should not be the only available technique if new and wider market opportunities are to be met. For example, fish products canning undertaking is one that may enhance sales locally and regionally if the standard requirements are guaranteed. Banning of export had happened to the local factories in the past for some months for non-compliance with the routine norms; this undesired situation should serve as a lesson to the private sector and the government.

With regard to the processing, many steps are involved in the processing of the products before the export aspect. From weighing, washing peeling/filleting, calibrating packaging, freezing, un-molding and storing, the steps are followed until the final stage of packaging and storing or loading into containers. The final control will take place on the quality of the frozen product and the container as well before closure and sealing to avoid tampering with the products.

Exports totaled 932 tons in 2002 and 3,563 tons in 2010, which mostly reflects increases in production by the artisanal sub-sector. This has mainly been 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 Gambian trade statistics (Annex 7, Table 7). The latest value obtained in 2015 is 458,129 kg.

3.5 Value Chain for Selected Fishery Products

In relation to the setting up of product supply value chain a number of questions pertinent to the market context and the marketability of the supplied products are crucial for competitiveness and long term profitability.

For example,

1) How the supplied product that is produced reaches the final consumer?
2) What is the structure (economic relationships) between players in the chain?
3) What factors are likely to create change of this structure in the medium and long-term existence?
4) What are the key threats to the entire value chain? And finally, the key determinants of the share of the profits created by the value chain etc. are according to Gloy (2005), all important questions that enter in line to the building of a value chain.

- ✓ The case of the Sole fish

For the sole fish value chain whether the initial product is handled as a full item or as separate parts, the number of stages and inputs to final product differ. Yet, the two product processing patterns share some similarities and use electricity for quality preservation.

- ✓ The case of shrimp capture fisheries

Like fish and fish products, shrimp is as well a significant asset that plays an important economic role and offers opportunity livelihood to a good number of people.

The fishery shows two peak seasons: September to November, the major peak and February to March the lower season. Artisanal shrimp operations take place mainly in the estuary and tributaries within the brackish and saltwater regime of the river (A. Njai, 2008).

Roughly 500 traditional Sene-Gambian dugout fishing boats with 3 to 4.5 m in length operate during the low seasons and about 1000 boats during the peak season (FAO 2001) with over 225 shrimp fishermen operating in The Gambia.

There are two species of crustaceans in the Gambian waters. *Penaeus notialis* (pink shrimp) found in the coast and *Parapenaeus longirostris* in deeper waters. According to some fishermen in the inland fisheries (Tendaba) the bigger species, *Parapenaeus longirostris, which* used to be targeted by the industrial fisheries (250 GRT vessels), is presently found in the inland waters. The production of shrimps is dominated by the industrial fisheries contrarily to what is happening with the fish stock (Annex 8 Table 8).

The shrimp product at industrial level is mainly processed by women workers who proceed in the peeling and washing before sorting, packaging and freezing. The product is meant for export in the regional and sub-regional markets such as Senegal, Guinea and Cameroon but it is also partly delivered in local hotels and restaurants. The domestic urban consumption is supplied fresh shrimps.

4. SOCIO-ECONOMIC AND CULTURAL IMPORTANCE OF FISHERIES

4.1 Economic Contribution

In fact, a major contribution to national socio-economic development of the country is embedded within this sub-sector, which thus represents a critical entry point that could help in poverty alleviation (12% contribution to GDP). For example, the establishment of 15 community fishery centers (CFCs) along the Atlantic coast and in the inland sub-sector proved very important as they offer enormous opportunities to the various fishing communities. These centers have the

potential to impact on the lives of the communities contributing to greater awareness, mass mobilization, poverty reduction through increased landings particularly of pelagic species and the creation of employment opportunities. CFCs are also important for supply of ice and storage of fisheries products.

The industrial sub-sector employs roughly 2,000 people, the majority of whom are factory workers (mainly women). As a result, according to the Fisheries Department Authorities, its impact on the country's economy in terms of employment and foreign exchange earnings is still minimal.

Fisheries total contribution to the national GDP is about 12% putting it ahead of the horticulture sub-sector (5%). Of the global contribution of 30% of the Agriculture sector, the input of fisheries and the increasing inflow of labor force toward fisheries activities make of fishing and related occupations a promising domain for the future.

The fisheries with its 12% contribution to GDP uphold a significant proportion as contribution to the national economy. This can be understood when looking at the taxes; licenses and other inputs like fines from arrested trawlers. In fact most of the fishing trawls operating in the country's waters do pay license that cover six months and that is renewable depending on the option of the operator. So for all and all, the Fisheries Authorities make sure of the control of the boat capacity and provide a renewable six months fishing license that may or may not be profitable to the operator.

Over the last six to eight years, the average contribution from licenses only is in millions of dalasi and can be pegged at roughly three million nine hundred and forty-five thousand one hundred and six Dalasi (D. 3,945,106.00) per annum (Annex 9 Table 9).

Some trawl operators pay their licenses in foreign currency, which are an important opportunity for foreign currency earning and consequently a gain for the national economy.

4.2 Social and Cultural Importance

The examples of Tendaba and Jareng fisheries communities along the Gambia River are provided.

In the Tendaba landing site, the fisheries communities are organized into four different Kaffo: the fishermen kaffo, the fresh fish Kaffo, fish smoking kaffo, fish dryers kaffo all in perfect synergy.

A number of twenty-three villages around Tendaba village have vested interest in the river Gambia and the major activity carried out in the river is fishing.

In contrast to Tendaba, members of the community in Jareng village seem less unanimous in the way they conceive fishing and management of the resources.

4.3 Contribution to Food Security

In developing countries like the Gambia, fish consumption is generally based on locally and seasonally available products, with supply driving the fish chain. This situation is different from what prevails in developed countries where an important and growing share of fish consumed derives from imports as a result of steady demand and declining domestic fishery products.

The contribution of fish consumption to food security cannot be over-emphasized for its high value input to animal protein daily requirement in dietary terms. In fact, it is revealed that in 2010 fish provided more than 2,9 billion people with almost 20% of their intake of animal protein, and 4,3 billion people with about 15% of such proteins (FAO, 2014). As such, in the Gambia, where enough fishing grounds and fish stock are available, fisheries can make a crucial nutritional contribution (28kg/capita/year).

It would be an unanswerable argument to be specific on the contribution of fisheries to household consumption; nonetheless there is no doubt on the importance of such contribution due to factors such as:

- ✓ the accessibility to fish and fish products countrywide;
- ✓ high prices for meat (D. 200-230/kg) and low prices for fish (D. 50-75/kg) and fisheries products and the variability of these products, and also the huge efforts of government to encourage fish distribution and availability all over the country.

4.4 Contribution to Employment and Multiplier Effects

According to the frame survey, 2006, the total number of fishermen was 6,104. In 2016, this population has dropped to 4,236 individuals; thus, a decrease of roughly 30.5% for which the causes need to be identified. In any case, these figures do not include the uncountable individuals who fuss around fishing, related activities and auxiliary jobs. As a sector composed of two main sub-sectors and a growing aquaculture system, fisheries multiplier effects for lucrative goal are exorbitant and necessitate a thorough survey, which surely, will enhance management improvement.

Due to the migratory behavior of foreign fishermen and the part-time participation of a sizeable proportion of native fishermen in fishing, employment in fisheries is subjected to variations. During the rainy season (June-July and August to early September), which is the reproduction and spawning periods for a good number of fish species, a slight drop of landings may be associated and consequently corresponds to the low fishing season with the implication of lowering employment in the sector.

It should be underlined that a good deal of irresponsible fishing is carried out during this period by fishermen/farmers in the inland sector.

The fisheries high season corresponds to the dry season from late September or early October to May. This period coincides more with increased employment in the fisheries as many wet season

rural activities are wrapping up. It has been also revealed that the end of the rainy season (Late September – early October is the time when some fishing vessels tend to position to the entry of "bolong" blocking and capturing the departing adults fishes that have finished to reproduce in the "bolong".

4.5 Contribution to Community Development

Already 15 community fisheries centers are in place in the country; these important bodies have found in place larger and stronger associations which all focus on one final and ultimate goal that is the improvement of the fisheries for human living conditions. Towards this goal, the government is also putting the best strategies to fulfillment and as such provides the jurisdictional framework. In brief, it should be underlined that with all the embedded potentials in the fisheries, there is no doubt that fisheries contribution to community development will increase.

5. PROSPECTS AND CHALLENGES

Likewise the artisanal sub-sector, the industrial sub-sector is subjected to many challenges and has many opportunities as well as strengths, as indicated in the following SWOT (Strengths, Weaknesses, Opportunities and Threats) matrix.

Table 4: SWOT Matrix of the fisheries sub-sector

SWOT ANALYSIS	
Strengths • Strong presence of community-based organizations (CBOs) and improved co-management to protect and conserve the resource • Enhancement of the control and monitoring capacity through the acquisition of a new engine-powered boat and the training of some coastal communities on sailing • Construction of the fisheries jetty in Banjul and rehabilitation of the dockyard facility to attract landings and increase performance • Rich resource base for high volume low value pelagic species for domestic consumption and export.	**Weaknesses** • Limited innovation in production and value addition • Lack of brands and branding. • Insufficient storage, transportation and marketing infrastructures in parallel with an inadequate MCS. • Limited home based industrial fishing vessels • Burden of limited governance and regulatory environment for the inland fisheries • Low Gambian participation in artisanal fisheries • Lack of research and poor archival data • Low purchasing power of domestic consumers • Limited loan opportunity and exorbitant interest rates • Inadequate repair and maintenance services for fishing craft and outboard engines • Weak organizational and administrative capacities of CBOs • No accredited support laboratory which hampers the Fisheries department role.
Opportunities • Favourable trade environment that is supporting the industrial fisheries sub-sector (the strategy action plan 2016-2020 is linked to the country's development agenda (PAGE) in a view to promoting fisheries and reducing poverty. • Existence of training possibilities backed with opportunity of proposals	**Threats** • Low energy availability at national level before an unstable world economy • Overexploitation following the high pressure on marine resources with the increasing demand on fish and fish products as a result of population increase • Development of IUU fishing related to weak MCS units

SWOT ANALYSIS	
submission to JICA and KOICA– Korea International Cooperation Agency is a serious motivation • Low labour costs advantage • Regulatory policy proposal on Catch and Release requirements for the tourism sector which, in liaison with the fisheries department • Improved market strategies with better product quality and value adding • Establishment of a national fishing company	• High vulnerability of the fisheries sector to climate change effects and natural disasters.

6. RECOMMENDATIONS

Apart from the ban imposed on fish export to neighboring countries, all the other issues discussed are more or less typically financially related issues especially on the coast. For this reason, there is need to raise more awareness and training opportunity especially in terms of organization. The micro credit scheme that is well known in the country may be a possible solution if it is made available with clear and strong measures to these stakeholders.

For the ban issue, this is a political decision that requires more time for its revision. There is also need of clear technical advice to precede any political decision and all the jurisdictional and legislative steps that may be involved.

As efforts are being made to convincing more and more persons to enter the fisheries sector, the security aspect should be also given due consideration especially in this era of climate change and rapid atmospheric variations. In this regard, liaison of adequate rescue boats to an efficient meteorological service is needed to maximize security service.

The Gambia as a country with a limited land area, must give high priority to its fisheries resources since they constitute a real support pillar to both the national economy and the population's food consumption. As such, strong measures and surveillance must be put in place to deter all kinds of malpractices. One of these measures could be a solid linkage with the inland and coastal fisheries communities to fight the use of all forms of prohibited fishing gears. To this, training as well as sensitization campaigns and material support and incentives are pre-requisite to inculcate a complying change of attitude.

The surveillance operations should be continuous and exercised on land and in water as the right gears that are declared on land may not be used in actual facts once in the waters in some cases.

There is also need to do away with telephone calls alone especially in communities where members do have contrasting interests in fisheries resources. In this situation, the physical presence of fisheries Authorities should be represented in order to prevent conflicts and avoid confusion. As much as possible, thorough awareness raising campaigns should be done on the recommended fishing gears; for this, accurate studies have to be conducted to know the major species and most abundant thriving in the waters particularly the inland waters with different ecosystems.

In order to strengthen and expand the industrial market, there is need to improve on the quality of the products so that the internationally required norms are met. The private sector and the government are both responsible for attainment of this benchmark. To engage the private sector on this, it is essential for the government to further create more enabling conditions for material acquisition. And not only that, but a more softened trade opportunity that would allow reasonable time (probation period) for small and newly established private operators to grow enough before being subjected to strictly normal and regular fees.

In conclusion, the aim of the Government is to create conducive conditions for fishing and related activities. For sound political decision and strategic investments and partnership are some of the right pillars to set.

The size of the ovens for fish smoking and appropriate place for fish drying should be of interest with a well planned and tailored training for people undertaking these activities. Such trainings may tremendously help in the up grading of skills to tackle the regional and international market.

Besides, with the existence of the CFC, and CBOs, membership cards could be initiated for better management purpose of the artisanal fisheries subsector. In this regard, the sole co-management committee with NASCOM and affiliated bodies could be a strategic entry point.

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ANNEXES

Annex 1 Table 1: Status of main stocks

Species	Status	Year of Assessment	Reference
Small pelagics		2008	
Sardinellaaurita NW Africa	O	2008	FAO SPWG NWA (2008)
Sardinellamaderensis	NA	2008	FAO SPWG NWA (2008)
Ethmalosafimbriata	NA	2008	FAO SPWG NWA (2008)
Scomberjaponicus	O	2008	FAO SPWG NWA (2008)
Trachurustrecae	F	2008	FAO SPWG NWA (2008)
Caranxronchus	O	2008	FAO SPWG NWA (2008)
Demersal species			
Pagellusbelottii	O	2007	FAO/CECAF DWG (2008)
Arius spp.	O	2007	FAO/CECAF DWG (2008)
*Pseudotolithus*spp.	F	2007	FAO/CECAF DWG (2008)
Epinephelusaeneus	O	2007	FAO/CECAF DWG (2008
Penaeusnotialis	F	2007	FAO/CECAF DWG (2008)
Octopus vulgaris	O	2007	FAO/CECAF DWG (2008)

Source: Mendy, 2009 based on reports of the FAO Working Group on the Assessment of Small pelagic fish off 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** – inconclusive assessment.

Annex 2 Table 2: Comparison of the 1997 and 2006 Fishery Frame Surveys.

	1997	2006	% change from 1997
Head Fishermen	1,969	1,410	-28.4
Gambian	1,238	805	-35.0
Non Gambian	731	605	-17.2
Assistant Fishermen	4,067	4,694	15.4
Gambian	1,985	2,291	15.4
Non Gambian	2,082	2,403	15.4
Total Fishermen	6,036	6,104	1.1
Gambian	3,223	3,096	-3.9
Non Gambian	2,813	3,008	6.9
Type of Canoes			
Non-motorized Canoes	1,243	1,082	-13.0
Gambian	888	700	-21.1
Non Gambian	357	382	7.0
Motorized Canoes	542	625	15.3
Gambian	306	325	6.2
Non Gambian	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, 2006 Fishery Frame Survey Report

Annex 2' Table. 2bis: Comparison of 2006 and 2016 Frame Survey Results

Column1	2006	2016	% change from 2006
Head Fishermen	1,410	1230	-12.8
Gambian	805	833	3.5
Non Gambian	605	397	-34.4
Assistants Fishermen	4,694	3004	-36.0
Total Fishermen	6,104	4234	-30.6
Type of Canoes			
Unmotorized canoes	1,082	637	-41.1
Motorized Canoes	625	582	-6.9
Fishing Gears Used			
Encircling Net	295	149	-49.5
Gill Net	1,066	417	-60.9
Long Line	177	119	-32.8
Hand Line	169	6	-96.4
Drift Net	344	298	-13.4

Source: GOTG (zero draft frame survey 2016)

Annex 3 Table 3: Artisanal Fisheries Sub-Sector Production: 2006 – 2014

Stratums	Total Catches (Kilogram)								
	2006	2007	2008	2009	2010	2011	2012	2013	2014
Atlantic	**32,975,896**	**33,574,558**	**34,464,659**	**36,639,976**	**34,893,065**	**38,011,248**	**29,181,538**	**36,226,129**	**40,073,377**
Gunjur	9,402,964	9,589,588	10,641,383	11,492,694.1	10,574,555	11,568,122	9,412,360	11,618,540	8,999,488
Tanji	7,334,273	7,466,895	8,835,340	9,683,532.2	8,661,922	10,394,307	4,900,040	7,350,060	11,875,900
Brufut	4,957,713	4,991,776	4,211,604	4,380,067.7	4,527,816	5,540,706	3,627,963	4,441,945	5,701,934
Bakau	3,226,383	3,078,562	2,924,232	2,997,337.4	3,000,044	1,149,966	985,745	1,478,618	887,372
Banjul	2,728,956	2,972,728	2,815,055	2,851,651.1	2,879,812	348,656	263,952	995,928	1,469,176
New/Old Jeshwang	2,505,354	2,803,174	2,727,828	2,793,295.6	2,774,766	2,329,268	2,456,123	2,684,185	3,454,638
Sanyang	1,648,426	1,678,212	1,477,607	1,551,487.7	1,569,102	2,353,653	2,961,378	1,942,067	2,246,268
Kartong	548,853	512,991	480,518	501,180.2	498,230	3,714,553	3,854,632	4,781,948	3,980,086
T/batokunku	308,607	293,450	231,719	250,256.3	258,475	387,713	323,094	438,461	538,620
Barra	314,367	187,182	119,374	138,473.9	148,343	224,304	396,251	494,377	919,896
Inland	**8,904,796**	**9,432,137**	**8,376,605**	**9,241,458**	**9,016,733**	**5,662,063**	**6,884,782**	**9,900,352**	**11,426,195**
Upper R. South Bank	4,310,689	4,566,185	4,142,060	4,651,532.9	4,453,259	1,543,714	945,123	2,417,685	3,569,449
Lower R. South Bank	3,610,712	3,824,270	3,214,866	3,529,922.4	3,523,019	2,943,956	3,595,535	5,466,395	5,656,799
Lower R. North Bank	721,613	764,383	756,637	779,335.6	766,785	845,990	2,045,632	1,568,448	1,933,761
Upper R. North Bank	261,783	277,299	263,043	280,667.4	273,670	328,403	298,492	447,824	266,186
TOTAL	**41,880,692**	**43,006,695**	**42,841,265**	**45,881,434.5**	**43,909,798.00**	**43,673,311**	**36,066,320**	**46,126,481**	**51,499,571.92**

Source: DoF(North West Africa Cruise Report Part 1

Annex 4 Table 4: Industrial and artisanal fish production (MT), 1997-2010

Year	Industrial	Artisanal	Total
1997	7,988	30,243	38,231
1998	7,012	26,533	33,545
1999	10,249	29,743	39,993
2000	9,237	26,867	36,104
2001	11,198	32,016	43,214
2002	12,160	32,336	44,496
2003	11,005	34,365	45,370
2004	8,375	29,317	37,692
2005	4,600	30,169	34,769
2006	2,830	36,898	39,728
2007	4,000	43,007	47,000
2008	2,973	42,841	45,814
2009	3,179	45,881	49,060
2010	4,001	45,910	49,911

Source: Data provided by the Department of Fisheries, GOTG

Annex 5 Table 5: Export of smoked fish products to the Diaspora market, by destination, 2004 to 2010

Year	Total Qty (kg)	Value (GMD)	Destination					
			EU		USA/Canada		Africa	
			Quantity (kg)	Value (GMD)	Quantity (kg)	Value (GMD)	Quantity (kg)	Value (GMD)
2004	18,198.2	131,233.6	4,684.6	35,283.8	13,509.6	95,949.8	-	-
2005	143,994.5	521,742.1	21,911.0	202,622.1	14,122.5	102,687.0	107,961.0	216,433.0
2006	114,946.5	1,483,317.6	61,098.0	1,029,963.5	19,595.5	252,546.6	34,253.0	200,807.5
2007	159,464.0	4,554,958.5	140,564.0	4,266,233.5	1,000.0	25,000.0	17,900.0	263,725.0
2008	188,390.5	2,325,935.9	175,350.7	1,671,141.4	11,572.8	612,627.1	1,467.0	42,167.4
2009	187,849.8	6,052,783.0	156,166.7	5,022,861.9	29,200.5	1,026,640.7	2,482.6	3,280.4
2010	123,349.1	3,777,171.4	79,028.7	2,353,325.2	14,564.4	541,514.3	29,756.0	882,332.0

Source: Department of Fisheries, 2011, US$ 1 = GMD 30.

Annex 6 Table 6: Estimated percentage market share of the fish and fishery product

Products	Urban market	Rural Market	Regional Market	International Market	Total
Fresh	90	10	-	-	100
Hot smoked	90	7	-	3	100
Smoked-dry	2-5	35	60	-	
Dried	30	30	40	-	

Annex 7 Table 7: Exports of fish and fishery products, 1997 to 2010

Year	Quantity (MT)	Value (GMD)
1997	2,063	44,427.35
1998	1,666	33,293.22
1999	1,677	36,563.64
2000	901	32,779.47
2001	939	35,726.19
2002	932	21,334.062
2003	445	11,625.89
2004	405	7,694.24
2005	751	9,956.83
2006	625	2,287.73
2007	1,480	67,432.81
2008	1,363	47,847.29
2009	2,087	64,919.03
2010	3,563	100,041.06

Source: DoF

Annex 8 Table 8: Artisanal and Industrial Shrimp Production.

Artisanal		Industrial	
Year	**Quantity (MT)**	**Year**	**Quantity (MT)**
2000	308.4	2000	365.6
2001	210..5	2001	326.6
2002	212.6	2002	141.9
2003	98.0	2003	364.8
2004	76.3	2004	131.6
2005	0.3	2005	126.2
2006	230.4	2006	130.8
2007	267.7	2007	152.3

Source: DoF. (Stat. Unit)

Annex 9 Table 9: Accrued amount in Dalasi from license fees for the past five years 2010 – 2015

Period	GRT	Accrued amount from license (GMD)
November- January 2010	70 to 700	2,659. 878
July – December 2010	50 to 450	1,943.776
January – June 2011	45 to 250	1,948.287
July – December 2011	70 to 580	2,610.013
January – June 2012	70 to 590	3,624.509
July – December 2012	70 to 450	3,501.614
January – June 2014	8 to 670	7,840.686
January – June 2015	90 to 350	7,739.208

Source: Ministry of Finance