Sole Fishery Value Chain Assessment (SFVCA)

Fafanding S. Fatajo, James Tobey and Ousman Drammeh

Gambia-Senegal Sustainable Fisheries Program (Ba Nafaa)

August, 2010

USAID
FROM THE AMERICAN PEOPLE

REPUBLIC OF THE GAMBIA

COASTAL RESOURCES CENTER
University of Rhode Island

WWF

This publication is available electronically on the Coastal Resources Center's website at http://www.crc.uri.edu. For more information contact: Coastal Resources Center, University of Rhode Island, Narragansett Bay Campus, South Ferry Road, Narragansett, Rhode Island 02882, USA. Tel: 401) 874-6224; Fax: 401) 789-4670; Email: info@crc.uri.edu

Citation: Fafanding S. Fatajo, James Tobey and Ousman Drammeh, 2010, Sole Fishery Value Chain Assessment, Coastal Resources Center, University of Rhode Island, pp.33.

Disclaimer: This report was made possible by the generous support of the American people through the United States Agency for International Development (USAID). The contents are the responsibility of the authors and do not necessarily reflect the views of USAID or the United States Government. Cooperative Agreement # 624-A-00-09-00033-00.

Cover Photo: Coastal Resources Center

Table of Contents

List of Figures

List of Tables

Abbreviations and Acronyms

AFDP	Artisanal Fisheries Development Project
BADEA	Arab Bank for Economic Development
CCLME	Canary Current Large Marine Ecosystem
CFC	Community Fisheries Centers
CMC	Central Management Committee
CSFFP	Codex Standards for Fish and Fishery Product
DOF	Department of Fisheries
EEZ	Exclusive Economic Zone
EU	European Union
FAO	United Nations Food and Agriculture Organization
FGD	Focus Group Discussion
GAFDP	Gambian for self Employment
GAMSEM	Gambia Artisanal Fisheries Development Project
GDP	Gross Domestic Product
GMD	Gambian Dalasis
NM	Nautical Miles
PMFR-FAFS	Plan for the Management of Fisheries Resources: Focus on the Artisanal Fisheries Sub-Sector
SDF	Social Development Fund
SFLP	Sustainable Fisheries Livelihoods Program
VISACAS	Village Savings Credit Associations

1.0 Introduction

The Government of The Gambia accords high priority to the development of the artisanal fisheries sub-sector because of its important role in providing much needed protein and employment opportunities, and to help reduce poverty, malnutrition and rural-urban migration.

The policy objectives of the fisheries sector are linked to key national development objectives as outlined in the Poverty Reduction Strategy Paper and the Gambia Incorporated Vision 2020, which are blueprints for eradication of poverty and the attainment of national social and economic development. National development objectives include increased food self-sufficiency and security; a healthy and productive population; enhanced employment opportunities for nationals; increased revenue generation and foreign exchange earnings; the attainment of national social and economic development; and the integration of women in the development process as equal beneficiaries and partners. The organization of fisherfolk communities into strong and viable interest groups and their active involvement and participation in all stages of the development process as equal partners and beneficiaries is key to the attainment of the sectoral policy objectives.

Sole fish is one of the most important commercial species that are caught year round in Gambian waters by artisanal fishers. The purpose of this value chain assessment is to gain a better understanding of the artisanal sole fishery and to identify opportunities to improve cooperation and effectiveness across sub-sector participants in order to increase wealth and equity. The value chain approach helps to enhance the competitiveness of sectors, identify and understand both the major opportunities for upgrading and the driving constraints to market growth, and to generate recommendations for priority actions that can result in increased benefits for sole fishery sector participants.

1.1 Methodology

This VCA was prepared based on a literature review, a survey instrument applied to fishermen, Focus Group Discussions (FGD) and key informant discussions (see Appendix A). Stratified random sampling was used to ensure that sole fishers in the catching and landing sites were equally represented in the survey. Fifty six (56) fishers were interviewed in 7 landing sites. Fish traders and processors were also interviewed. Data was collected on type of gear used, off-loading methods, transportation, costs and pricing, processing, exports, marketing, and opportunities and constraints in the sub-sector.

Table 1 lists the 7 landing sites where interviews with sole fishers were conducted and Figure 1 shows their geographic location. These are the major sole fishing and landing sites in the country.

Table 1. Sole Fish Survey Sites

No	Community Fishing Center/Site	Location	Number of Respondents
1	Brufut	Western Region	8
2	Tujereng	Western Region	8
3	Sanyang	Western Region	8
4	Gunjur	Western Region	8
5	Kartong	Western Region	8
6	Albreda	North Bank Region	8
7	Tendaba	Lower River Region	8
Total			56

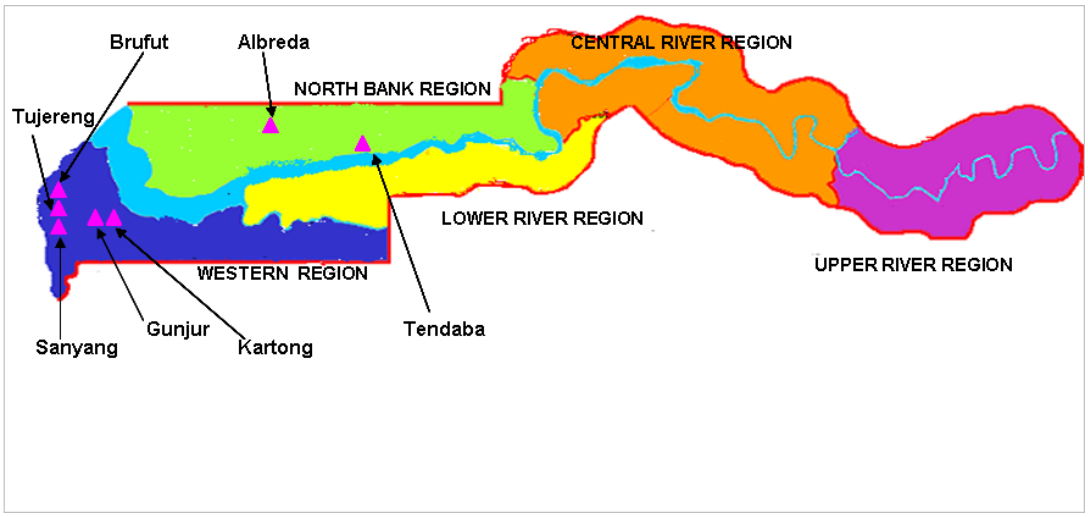

Figure 1. Location of landing sites surveyed for Sole Fishery Value-Chain Assessment

The survey instrument was pre-tested to detect inconsistencies and unclear language. It was then administered in November-December 2009 to fishermen in privacy so as to reduce outside influence that might lead to bias of response. Callbacks were made on respondents who were not available during the first visit, giving a hundred percent completion rate.

Figure 2. Focus group discussion with women processors

2.0 Overview of the Sole Fishery in the National Context

The seas of The Gambia are located where two major oceanic currents converge along the coast of West Africa. One is the highly productive upwelling zone of the Canary Current Large Marine Ecosystem (CCLME). Cold and nutrient rich water flows southward starting from the seas of Mauritania and Senegal, attaining maximum effect on the Senegambia plateau in March/April. The other is the eastward-flowing warm Guinea Current. The effects of these currents coming together and the effects of the trade winds which blow dominantly from the Sahara Desert westerly out over the

Atlantic create intermittent upwelling along the coast of The Gambia. The upwellings, combined with the outflow of The Gambia River, provide the nutrients that fuel a bountiful marine ecosystem.

The territorial sea of The Gambia extends to 12 nautical miles with an Exclusive Economic Zone (EEZ) extending to 200 nautical miles. Under current provisions, only artisanal fishermen are allowed to operate within the first seven nautical miles of territorial waters. Only fishing vessels of 250 gross registered tons or less may operate between the 7 nautical mile limit and a 12 nautical mile limit. There are no restrictions beyond the 12-mile limit (Fatajo and Bah, 2004).

In The Gambia, there are two fisheries: industrial and artisanal. In 2007, a total of 32 industrial fishing vessels operated with a license in Gambian waters; 15 were shrimp trawlers and 17 were fish\cephalopod trawlers (FAO, 2007). All industrial vessels operating in Gambian waters are foreign owned and foreign fishermen dominate. These vessels land their catches in foreign ports where the fish is processed, packaged and labeled as products originating from those foreign ports. The absence of a deep water port is the reason that the industrial fleet does not land their catch in The Gambia as is required by fisheries licensing regulations. A deep water landing dock in Banjul is now under construction as part of the Gambia Artisanal Fisheries Development Project supported by the African Development Bank and BADEA (Arab Bank for Economic Development). When the construction of the fisheries port is completed and becomes operational, all licensed fishing vessels will be obliged (by law) to land their catches at the port.

An important feature of fisheries management in The Gambia is its bilateral maritime fishing agreement with Senegal. The Gambia and Senegal have had a bilateral fishing agreement since 1982. The agreement is reviewed every two years, and is due for another review in 2010. According to the agreement, artisanal fishers can fish in either country provided they abide by the laws of the country where they are fishing and land their catches in the country where they are based. For industrial fishing vessels there is a limit on the total maximum tonnage of fishing catch capacity (3000 tons) allowed to each country. Since The Gambia does not have an industrial fleet, only Senegal vessels are presently benefitting from the agreement.

The artisanal fishing sector is the dominant fishery in The Gambia. Total fish caught from both the artisanal and industrial sub-sectors were estimated at nearly 40,000 tons in 2006 (FAO, 2007). Out of this, the artisanal fishery contributed approximately 37,000 tons (93 %) with about 3,000 tons (7%) from the industrial fishery.

Sole is one of the most important high-value species of the artisanal fisheries in The Gambia. They are found in both maritime and brackish riverine waters. The sole fishery in The Gambia occurs along the entire coast of the country and in the River Gambia. Sole is harvested all year round and artisanal fishers use bottom gill nets. 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. Small amounts of sole landings are also sold to hotels and restaurants in the country.

In 2006, the harvest of sole accounted for 1,559 Mt out of the 40,000 total fish harvest, or less than 5% of the total mass of commercial fish caught and landed in The Gambia. Trends for sole fish catch from 2004 to 2008 are shown in Table 2 below.

Table 2. Artisanal and Industrial Catch of Sole Fish (1981-2009)

Year	Artisanal Catch (Mt)	Industrial Catch (Mt)	% Total Catch Artisanal	% Total Catch Industrial
1981	168.2		100%	0%
1982	20		100%	0%
1983	77.8		100%	0%
1984	40.3		100%	0%
1985	6.9	0.1	99%	1%
1986	25.9	1521.6	2%	98%
1987	14.9	418.3	3%	97%
1988	84.5	285.7	23%	77%
1989	20.3	509.3	4%	96%
1990	211.2	1369.4	13%	87%
1991	113.9	2158.3	5%	95%
1992	95.4	546.3	15%	85%
1993	188.4	376.4	33%	67%
1994	211	29.2	88%	12%
1995	858.5	811.1	51%	49%
1996	541	973.4	36%	64%
1997	307.3	466	40%	60%
1998	441	29.7	94%	6%
1999	733.7	490.9	60%	40%
2000	725.1	471.7	61%	39%
2001	2262.4	1600	59%	41%
2002	2285		100%	0%
2003	614.1	1139.3	35%	65%
2004	842.2	462	65%	35%
2005	2190.1	371.3	86%	14%
2006	1371.3	188.1	88%	12%
2007	1425	310	82%	18%
2008	954	242.5	80%	20%
2009	1230	266.7	82%	18%
2010				

Source: Department of Fisheries, Statistic Unit, 2009

None of the industrial catch is landed in The Gambia, for lack of a suitable port. Catch data from foreign industrial fishing boats is collected by onboard vessel observers who are legally appointed by the Director of Fisheries under the Fisheries Act of 2007 (Sections 78, 79 and 80). The observers transmit daily (by radio) catch data to the Fisheries Department.

The artisanal sector provides direct employment to 1,410 head fishermen and 4,694 assistant fishermen (Gambia DOF, 2006). Of this amount, there are approximately 475 sole fishermen, or about 10% of all fishermen (Gambia DOF, 2006). According to the Department of Fisheries, about 200,000 people derive their livelihood from fishing and related activities.

The 2006 FRAME survey (Gambia DOF, 2006) results revealed that of the 1,410 head fishermen operating in the artisanal fisheries, 805 (57%) are Gambian nationals and 605 are foreigners (43%). In the coastal area, foreign nationals, mainly Senegalese form the majority with 249 head fishermen compared to 167 Gambians (Gambia DOF, 2006). About 36% of the boat owners are Gambians, 62% Senegalese and 2% are other nationalities. In the case of the crew, about 41% are Gambians, and 59% are Senegalese.

Sole fish, like most of the artisanal fishes, are mainly caught from planked canoes of the Senegalese type using a small outboard engine. Fiberglass fishing canoes have recently been introduced in coastal artisanal fisheries but they are very few. Typically fishermen use bottom set gillnets, set overnight and catches collected daily, although some fish are also caught with baited lines. Boat and gear in the artisanal sole fishery have the following characteristics:

Canoe
Length of boat: 7-11m
Depth of boat: 1-1.5m
Material: wood (planked)
Engine: 15h.p outboard engine

Gear
Total length of net: 600-700m
Net width: 1-1.5m
Nets are separated into sets of about 40m each and placed in different locations at sea. The average depth of the sole fish net is about 1.5 meters?
Approximately 20kg of lead is attached to the ground rope of each set. Anchors also attach to each set.
Mesh size of net: Mesh sizes range from 36mm to 42mm along the coastal area and 50 mm along the estuary (river).

Source: PMFR-FAFS, 2008.

Figure 3. Sole fish nets

2.1 Sole Species and Migration Patterns

Sole is a flatfish found in tropical and subtropical waters, mainly in shallow coastal waters and estuaries. The fishery for sole in The Gambia occurs along the entire coast of the country and in the River Gambia. Tendeba is the most upriver location of capture. There are several species of sole in the country; however, the most common species are the black and red soles. The red sole is usually found in shallower waters than the black sole. The red sole is usually longer and leaner in size than the black sole. A third species locally referred to as "trippo" (has teeth and a hard skin) has a rare occurrence in Gambian waters, and is mainly found in colder waters further north. Some local fishes claim that there are two other species but these have not been properly identified as yet.

Usually, the sole fish appear in Gambian waters in January. They migrate from the deeper and cooler waters into warmer shoal water where the females release their eggs in sandy areas locally known as "pass" or in rocky areas. They migrate from the waters of Guinea Bissau and the Casamance region of Senegal to the coastal waters of Gambia (first appearance is in Kartong, then Gunjur, Sanyang, Tanji, Brufut and Bakau). The movement back to deeper water occurs in August.

The average length of those being currently captured and landed, in the months of November/December 2009 (at the time of the SFVCA) is about 30cm.

Figure 4. Left picture: Red Sole; Right picture: Black Sole

Figure 5. Trippo

3.0 Value Chain Components

The sole capture fishery in terms of fishermen, boats, and gear was described above. We now review other elements of the value chain, including industrial and artisanal processing, Community Fisheries Centers, and sole fish traders.

3.1 Industrial Processing Plants

With no deep water port for the industrial fleet to land, industrial seafood processing plants rely exclusively on the purchase of fish from the artisanal fishery for processing and export. Presently, there are 5 major processing plants (International Pelican Seafood Ltd., Kendaka Fishing Company, National Partnership Enterprise, Atlantic Seafood Company, and Rosamond Trade), three of which are presently exporting to the EU. Two plants (National Partnership Enterprise and Kendaka Fishing Company) are temporarily closed due to lack of raw material (fish) and high operating costs. Later in the same year, only one firm remained open (Atlantic Seafood Company). It is hoped that the new deep water port in Banjul under construction will reduce the problem of lack of raw material supply and need to operate below capacity. Lack of fish for processing is an annual problem, but is most severe during times of religious holidays. The Senegalese dominate the coastal fishery, so the amount of fish from the artisanal fishery available for processing drops significantly when most of the Senegalese fishers return to Senegal for Ramadan and Tobaski (religious holidays) causing closures of most processing plants.

Figure 6. Atlantic Sea Food Company

A national institution called NAWEC is responsible for the provision of electricity in the country and the price is determined based on the quantity of kilowatt consumed. The Gambia has one of the highest kilowatt hour costs of electricity in Africa. The major expenditure item of industrial fish processing factories is electricity and is adversely affecting the economic viability of the industrial fishery. Recently, a policy was released by the Government of The Gambia to reduce the cost of electricity by 25%. This policy has been applied but electricity still remains the greatest cost facing the fishing industry. Financing costs are also high; the interest rate on commercial loans is 27%.

According to the Department of Fisheries, the processing plants provide permanent and part-time employment to between 1,500 to 2,000 people; mainly women. Table 3 shows employment at three operating processing plants at the time of the SFVCA survey (Atlantic Sea Food Company, National Partnership Enterprise, and International Pelican Sea Food Ltd.). Together, the three plants are operating at about 14% of full capacity, and this is not cost effective. According to plant managers, the reason is lack of raw material, which in this case is sole fish.

Table 3.Average Number of Employees at Three Operating Processing Plants in the Country as of December 2009.

Variables	Average Number Currently Employed	Number employed at Full Capacity
Gambians Employed	27	223
Senegalese Employed	1	2
Other Nationals Employed	6	24
Total	34	249
Percentage	13.70%	100%

Source: Department of Fisheries, Statistical Unit and own calculations during SFVCA 2010, Field Survey

Analysis from the SFVCA survey (Table 4) indicates that 226 Mt of sole fish were processed and exported in 2008 by the following exporters: Atlantic Sea Food Company (94%), Momodou Sow (2.5%), Musa Kaire/Barra Fishing Company (2.2%), Mawdo Ngum (1.3%), and International Pelican Sea Food Ltd (0.10%). Atlantic Sea Food Company ships primarily frozen sole fish to Netherlands, Spain and South Africa. Musa Kaire/Barra Fishing, Momodou Sow, and Mawdo Ngum ship fresh sole to Senegal.

Located in Banjul, the Atlantic Seafood Processing Plant is the most active industrial seafood processing company. This firm presently ships by boat approximately 70 frozen containers of fish per year, mainly sole and cuttlefish. Maximum capacity of the plant is about 6 tons/day for cuttlefish and 3-4 tons/day of sole filets.

Table 4. Sole Fish Exports (2008)

Processing Plant/Exporter	Quantity (kg)	Value (GMD)	Value ($US)	Destination
Atlantic Seafood Company	31,461	1,630,540	$60,390	Spain
	139,744	1,571,090	$58,189	Netherlands
	13,348	902,605	$33,430	Rotterdam (Holland)
	8,579	1,076,950	$39,887	South Africa
	8,379	543,335	$20,124	Holland
International Pelican Seafood Ltd	231	7,701	$285	U. K.
Musa Kaire/Barra Fishing Co.	5,000	250,000	$9,259	Senegal
Mawdo Ngum	2,870	143,500	$5,315	Senegal
Momodou Sow	5,550	205,205	$7,600	Senegal
Total	**226,376,000**	**6,331,765**	**US$234,510**	

Source: Department of Fisheries, Statistical Unit and own calculations during SFVCA 2010, Field Survey

According to officials at Atlantic Seafood Company, most of the fish the company exports abroad is sold before arrival. However, fish exported to Rotterdam, Holland is kept in cold storage from where it is sold. This marketing system allows the company to provide a more constant supply to buyers who are mainly wholesalers, but it is also more costly to keep the fish frozen. If and when the sole fish sub-sector gets certified as sustainably harvested by the Marine Stewardship Council, then the Atlantic Seafood Company (according to the company) will also be able to sell the fish to retailers, opening up a larger market and more competitive prices.

The types and quantities of fish processed and exported by fishing companies depend on the season and international prices, but sole is currently the most important industrially processed and exported fish from The Gambia.

Figure 7. Processing sole fish for export at Atlantic Seafood Company

Figure 8. Packaged and frozen sole fish ready for export by ship

3.2 Artisanal Processing

Artisanal processing constitutes small family or women-owned business enterprises with rudimentary technologies of processing and is located close to the beaches or areas of towns around the landing sites. Sole fish was observed salted and dried, but no smoking of sole fish was found during the value chain assessment. The women processors stated that they generally buy the sole that is not accepted or is rejected by the fish buying agents who supply the fish factories at cost (20 GMD per kilogram). These processed sole fish, mainly in a dried form, are sold in the local market but some are believed to find their ways into Senegal. It was not possible during the assessment to determine the quantity of Sole fish processed by the women processors. All the women processors interviewed during the assessment are Gambians.

Figure 9. Left picture: Sole fish being prepared; Right picture: Sole fish being salted

Figure 10.Sole being dry

3.3 Community Fisheries Centers

The Artisanal Fisheries Development Project (AFDP) implemented between 1979 and 1982 with funding from the European Union under the Lome Convention introduced a network of Community Fisheries Centers (CFC) and provided institutional and infrastructure support services with the goal of strengthening the artisanal fisheries. The role of Community Fisheries Centers in the conservation and management of fisheries resources is delineated in the Fisheries Act, 2007, Section 15, Sub-sections (1) and (2). The Government of Gambia and other external assistance has continued to support the CFCs up to the present time.

Another EU funded project was launched in 1987 with a focus on six coastal fishing villages: Brufut, Tanji, Batokunku/Tujereng, Sanyang, Gunjur and Kartong. At almost the same time, the Government of Italy provided support to establish CFCs in eight inland fishing villages: Barra, Albreda, Jurunku and Salikene (North Bank Lower River Stratum) and Bintang, Kemoto, Tankular and Tendaba (South Bank Lower River Stratum). In 1993, the Government of Japan funded the development of artisanal fisheries in the coastal fishing village of Bakau. By 1996, CFCs were established in all the 7 fishing villages located along the South Atlantic coast and 11 CFCs were established in the major inland fishing villages along both banks of the River Gambia.

Figure 11. Tanjeh Community Fisheries Center (one of the 4 largest CFC in the country)

Despite donor support, most of the fish landing sites and markets are today not equipped with modern infrastructure facilities, which are of necessary if the livelihoods of the value chain participants are to improve. Facilities such as fuel stations, access roads, water supply and sanitation facilities, ice plants/chill and cold rooms, jetties/wharfs, fish marketing halls, fisher meeting rooms, and offices are not in place at most of the CFC sites.

The Government gradually devolved management responsibility of the CFCs to the communities and fishing sector. The CFCs are now managed and operated by the communities and fisheries stakeholders, with the Department of Fisheries extension staff providing guidance, training, and technical assistance. For example, the Barfut CFC has 3 permanent and full-time DOF extension staff assigned to provide assistance. The CFCs are all structured with a Central Management Committee (CMC), Sub-Committee, and Management Committee. The CMC meets every 6 months. The Sub-Committee meets every 2 months. The Management Committee is appointed by the Sub-Committee and reports to the Sub-Committee. The Sub-Committee reports to the CMC. Presently, the four largest CFCs (Gunjur, Tanji, Brufut, and Bakau) are restructuring to give the Management Committee more independence in decision making.

The CFCs promoted the organization of the artisanal fishery into user group associations (e.g. fishers, fish traders, fish smokers and fish dryers) following the traditional model of the "Kafo" (a group of people in the same trade with the same common objective) to address common concerns and pursue common interests. The members of the Sub-Committee comprise representatives of the different user groups, a representative of the Village Development Committee, and the Village Head (Alkalo) as Chairperson. The inclusion of user groups representatives in the Sub-Committee was a deliberate move to ensure that fisherfolks are in the majority and that decisions made do not go against the interests of the fisherfolk.

The Management Committees employ people from the community, including a secretary, a watchman, a cleaner and a pump mechanic. Some CFC services are provided free of charge, but facilities such as fishermen lockers, smoke houses, fish drying platforms, fish boxes and stores for processed fish products are rented to users and charges are levied against certain other services (e.g. water). In the CFCs that have ice production and chill room facilities (Bakau, Banjul, Tanji and Gunjur), ice is sold and fishers are charged for storing fish in the chill rooms.These fees and service charges are collected and used for the maintenance and expansion of the facilities and part of the profits generated are used to support other development activities in the villages. Each Management Committee operates a bank account into which excess monies are deposited and withdrawn. Before Management Committee meetings, user groups discuss their own agenda and proposals involving

finance of the CFC and expenditures on repair and maintenance, which they submit to the Management Committee through their representatives. Representatives report back to the groups on major decisions and actions taken. The Management Committees also act as guarantors of loans issued to fisherfolk. The loans are channeled through the user group associations to individual members and peer group and other social pressures help guarantee satisfactory and timely repayments of loans. The funding level of the revolving funds is about 300,000 Dalasis (about US$9,000) per CFC (Njie and Mikkola, 2001). The Management Committee of the Tanji CFC administers a revolving loan fund managed by a credit union called NATANGEH; loans are issued to fisherfolk as well as to other citizens of Tanji for non-fisheries purposes, e.g agriculture.

3.4. Fish Inspection and Certification

Inspection and certification of fish processing establishments is vested in the authority of the Fisheries Department with final approval granted by the Minister upon recommendation of the Director of Fisheries. The Fisheries Department does not have a laboratory for fish inspection and control services for CFCs and industrial processing plants. The Department's inspection service collaborates with the Department of Livestock Services for microbiological analysis of fish product samples from industry. Private laboratories have also been relied upon in the past for microbiological analysis of fish samples. For hygiene and water quality monitoring of fish processing plants, the Fisheries Department relies on the services of the Water Quality Laboratory of the Department of Water Resources.

DOF is in the process of establishing its own fish and water quality inspection capacity. A laboratory structure has been built, but it is not yet equipped and operational. When ready, the capacity of the Department to inspect and certify fish products and exports will be greatly enhanced.

3.5. Sole Fish Marketing and Value Chain

High value fish species such as sole fish, shrimps, lobsters, cephalopods, seabreams, and groupers are purchased by fish buying agents (banabana) who supply hotels, restaurants and fish factories for processing and export. Little sole fish is sold and consumed by Gambian residents, as it is not a preferred species.

Bah (2008) observed that there are several direct and indirect linkages between producers (fishers), fish traders and consumers, as shown below:

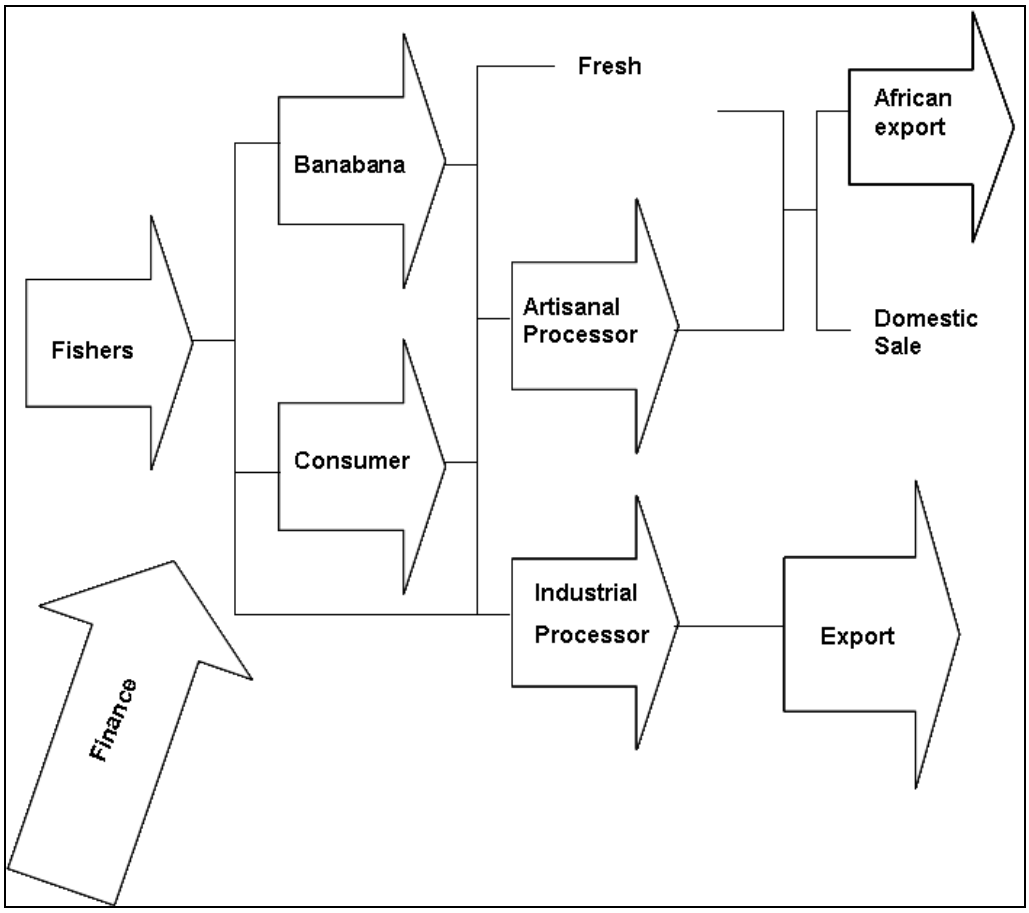

Figure 12. Direct and indirect linkages between producers (fishers), fish traders and consumers

The following prices for a kilo of sole fish were observed in the sole value chain:

Banabana purchase price of sole at fish landing site:	20 GMD (US$0.75)
Price of dried sole at Brufut landing site:	10 GMD (US$0.37)
Processing plant purchase price of sole:	35-40 GMD (US$1.30 - $1.48)
Hotel/restaurant purchase price:	75 GMD (US$2.78)
Price of sole plate at hotel:	225-380 GMD (US$8.30 - $14.07)

3.6 Sole Fish Traders

In all the sites, all landed catches of sole fish are weighed and recorded and stored on ice in old domestic freezers before being supplied to buying agents representing different fish factories, or to agents who supply to hotels and restaurants. These products are usually transported in insulated vehicles to their respective destinations.

Figure 13. Left picture: Sole after being prepared; Right picture: Containers use for storing Sole

At the landing sites, traders (banabanas) determine the price. The price of fresh sole fish at the landing site has been consistently about 20 GMD per kilogram (US$0.75) for the past 2 years. This suggests that the price of landed sole fish is not dictated by market forces of supply and demand, but that the buyers are able to fix the price below what the price would be in a competitive market. Many of the fishers' operating costs are financed by the banabanas and as part of the agreement are obligated to sell their catch to them at a price dictated by the banabana.

Banabanas who buy at 20 GMD then sell for 35-40 GMD to industrial processing plants. Banabanas are reluctant to reveal the price of a kilo of sole fish they sell to the factory and or other retail and wholesale outlets. Sometimes, fish processing plant operators buy fresh sole directly from the fishers.

Focus Group Discussions were held with women sole processors as well as men fishers and traders. They revealed that prices of sole fish are generally determined by the banabanas. The pricing power of the banabanas is due to the fact that sole fishers rely on credit provided by the banabanas to purchase fishing materials and also for family support. An explicit arrangement of such credit is that the fisher will sell fish caught to the banabanas at a price set by the banabanas. As a result, fishermen do not have the opportunity to negotiate a higher price with other buyers. FGDs revealed that sole fishers view the market for sole fish (the sale of their caught fish at a reasonable price) as one of the main problems for sole fishers. If the fishers were able to avoid the banabana intermediary buyers, their value chain net benefit would be much improved.

Banabana key informant and focus group discussions also revealed that payment for raw sole fish on the part of the processing plants is often late and this is affecting the entire sole fishery. The banabanas were of the opinion that the operators of the processing plants just do what they feel like, i.e. making payments at their own convenience thus disrupting the smooth running of their businesses.

3.7 Formal and Informal Credit and Cash Advances

About 30% of the sole fishers interviewed during the SFVCA responded that they finance their investments themselves, and the other 70% reported that they finance their investment by obtaining loans from banabanas, Senegalese fish traders (see discussion in next section on illicit fish trade to Senegal), family members, friends, neighbors and from Banks in The Gambia and Senegal. Of the 70% financed externally, the majority is through banabanas. Fishermen are reluctant to sell fish to Gambian fish processing companies because the companies do not pay on receipt. They buy on credit and often default on payment or are late in payment.

The SFVCA revealed that the sole value chain actors are highly dependent on informal (friends, relatives and neighbors) sources of finance that are unreliable, inadequate and costly. The value chain participants reported that depositing and saving their money with formal bank accounts is difficult and time-consuming because of the lack of banks in the rural areas. This may change in coming years now that a few commercial banks have begun to develop fish sub-sector specific loan services and to bring them closer to rural fish landing sites and communities.

Few of the financial activities are done through the informal credit groups who may take advantage of the sole fishers, because the lenders know they would accept any condition. There are however quite a number of formal credit groups such as VISACAS, SDF and other micro finance institutions through which the DOF makes credit available to fishers. The Gambia Artisanal Fisheries Development Project (GAFDP) has been geared towards the development and promotion of the fisheries sector in order to diversify the economic base of the country, which has been heavily dependent on agriculture. To make a significant contribution to the socio-economic development of The Gambia, one of the critical areas of the project has been focused on credit (Department of Planning, 2007). Table 5 shows GAFDP loans provided to fishers in 2007.

Table 5. GAFDP Program Credit Provided to Fishers in 2007

Agency/Institution	GMD	US$
GAMSEM	1,890,946	$70,035
Reliance Financial Services	382,000	$14,148
VISACAs	4,101,550	$151,909
Total	**6,374,496**	**$236,092**

Source: SFVCA 2010, Field Survey. US$1 = 27 GMD

The Appraisal Report of GAFDP has indicated serious constraints in increasing meaningful Gambian participation in the fisheries sector mainly due to lack of adequate credit systems. This can be addressed by setting up a line of credit through the Social Development Fund (SDF) to provide credit to artisanal fishery value chain actors -- fishermen, fish processors, fish traders, and in particular women active in fish processing and fish marketing businesses.

Sole fishers reported depending on processing companies and traders who provided them with inputs such as fuel and gear at very high cost. They explained further the difficulties they have in diversifying their marketing outlet because the main condition of credit/pre-financing is to sell the harvest to credit provider/pre-financier. Assistance with credit mechanisms would improve the efficiency of the value chain. One important social safety net that women apply is commonly known as “Osusu,” the local credit mechanism of the women, which the women believed is working well. The “Osusu” is a traditional scheme in which women make savings and lend to one another at reasonable rates of interest. Loan repayments are always very high.

3.8 Market Destination for Sole

As noted before, a wide variety of markets are linked to the capture fisheries value chain. The two main markets are the export markets for industrially processed fresh and frozen sole and the domestic market for fresh and dried sole. In 2008, about 226 metric tons of sole fish was exported and 639 metric tons was sold in the Senegambia (Senegal and Gambia) market. Details are found on Table 6 below. The 226 metric tons sold internationally was valued at about 6,331,765 GMD (or US$234,510).

Some of the sole harvested in The Gambia are exported to Europe, USA, and the African continent by the factories, and individual exporters. A much larger portion of the catch is marketed in the

SeneGambia market, that is, in Gambian hotels and restaurants and in Senegal for processing and export by Senegalese fishing companies.

Sole fish is a high value fish and is not preferred by most Gambians, thus we would expect that apart from sales to hotels and restaurants, most of the catches are to be marketed internationally to bring foreign exchange in the country. But the information on Table 6 is completely different, and one of the explanations is the proximity to the Senegal market which is assumed to take large chunk of what is presumed to be marketed locally. There exists a thriving illegal cross border trade in high value fish species including sole fish which represents a significant economic loss to the country in terms of foreign exchange earnings if the products were exported from The Gambia, and also in employment generation had the products been processed in local fish factories. The illegal cross border trade in fishery products is described in the Medium-Term Plan Sectoral Study on Fishing and Marine Resources Development (Drammeh, 2004). Given that sole fish is not preferred in The Gambia, yet the data on the domestic market shown in Table 6 is large, it can be concluded that the illicit trade to Senegal is also large and a dominating feature of the sole fishery. It also suggests that the data on sole fishery landings in Senegal are over-reported. Sole fish caught in The Gambia are both recorded in The Gambia and in Senegal.

Table 6. Final Market Destination of Sole, 2004 to 2008

Year	International Market (Mt)	Domestic Market (Mt)	% Marketed at the Domestic Markets
2004	52	1252	96
2005	110	5793	98
2006	117	1443	92
2008	226	639	74

Source: Department of Fisheries, Statistical Unit and own calculations during SFVCA 2010, Field Survey

The illicit trade operates in the following manner. Senegalese fish traders from southern Senegal (Casamance) obtain a permit ("Laisser Passer") to transport fish, purportedly from the Casamance, through Gambian territory to northern Senegal (Dakar) for processing and export. Arrangements are made with fishers (also Senegalese nationals) to buy the fish at a higher price than offered by Gambian factories. They then enter Gambia at odd hours (with empty trucks) and collect the products and use the Laisser Passer for safe conduit through Gambia. The fish are registered as landed and sold in the domestic market by the Department of Fisheries, but they are actually landed in The Gambia with a final destination in the international market.

The practice of Senegalese buyers buying fish in The Gambia and transporting to Senegal is contrary to the Fisheries Regulation 2008 that states that high value fish species should be processed in Gambian factories and not exported on ice to another country. However, when processing plants in The Gambia are not operating there are few other options for selling sole fish. The last thing anyone wants is to see happen is to allow the fish to rot. Currently, the sale of fish to Senegalese fish traders is done in the open. Senegalese trucks can be seen parked at the landing sites waiting to buy the sole because only one company (Atlantic Seafood) is buying sole.

When Gambian fish factories are operating, the Gambian factory owners lobby hard for strict enforcement of the regulations. These are the times of increased surveillance activity by the Inspectorate Division of the Fisheries Department supported by security agents (mainly Police officials). Products are confiscated and sold to Gambian factories and proceeds from the sale of confiscated products are paid to the National Treasury.

Another reason that sole fish is sold to professional Senegalese fish buyers is that the artisanal fishermen in The Gambia who are of Senegalese origin are in the habit of demanding payment (for raw products) in CFA franc, which Gambian fishing companies are unable to do.

4.0 Sole Fishing Costs and Earnings

4.1 Fixed Costs

Fixed costs include fishing canoe, gear, and engine. They are costs incurred whether the fisher is fishing or not. Annual fixed costs are estimated using a straight line annual depreciation of capital investments (Table 7).

Table 7. Average Annual Fixed Costs of Sole Fishing Boats

Boat, gear and engine		Current Cost New (GMD)	Estimated Life (years)	Annual Cost* (GMD)
Bottom gillnet		30,559	4	7,640
Canoe		36,539	5.3	6,894
Outboard	Yamaha, 15 HP	43,833	6	7,306
	Johnson, 12HP	47,500	3	15,833
	Suzuki, 15 HP	46,000	4	11,500
	Average	137,333	4.3	11,546
Total (based on average outboard cost)		**204,431**		**26,080**

Source: SFVCA 2010, Field Survey
*Current cost new divided by estimated life

4.2 Variable Costs

Variable costs refer to operating costs, including labor, fuel and lubricant (oil), food, ice, twine, line, repairs (net mending) and maintenance. Labor is the most important item/component of the variable costs as shown on Table 8 below.

The artisanal marine sole fishery is characterized by sharing systems, as opposed to fixed wages. We observed during the assessment that, there is no one standard sharing system. The percentage that the canoe owner and crew receive varies. However, the most common is 30% to the crews and 70% to the owner. About 74% of fishermen are sole owners of the canoes they use in fishing operations followed by joint ownership/partnership with 14% (Gambia DOF, 2006). Thus, the 30% of the value of fish sales represents the boat's labor cost and is dependent on the success of the fishing effort. The value for labor below is based on the calculation in Table 10.

Table 8.Average Annual Variable Costs

Variable	Cost (GMD)	Percent
Labor*	255,360	53%
Fuel and lubricant	167,851	35%
Food	35,437	7%
Repairs and maintenance	20,368	4%
Ice	6,384	1%
Total	485,400	100%

Source: SFVCA 2010, Field Survey

*Labor cost is exactly the same as what was paid to the crew

4.3 Return on Investment and Income

Table 9 shows the average yearly sales value for the fish. Income from the sale of fish is a function quantity of sole that is landed and its price. Table 9 shows that total annual value of sole fish is about 851,200 GMD at a price of 20 GMD per kilo.

Table 9. Average Annual Landings and Sales (GMD)

	Average catch per trip (kgs/trip)	**Average trips/year**	**Total average catch per year (kgs/year)**	**Annual boat income/year (20 GMD/kg)**
Bottom Gillnet	140	304	42,560	851,200 GMD / US$31,526

Source: SFVCA 2010, Field Survey

One way to compare capital investments is through the internal rate of return (IRR). Using Microsoft Excel, the IRR for an investment in sole fishing is 10%. This is a competitive rate on most investments, but interest rates in The Gambia are high and this return on fishing does not reach the commercial bank interest rate on a savings account (15%). The numbers to calculate IRR are shown in appendix B.

Table 10 shows calculations for crew income and owner. Based these calculations, on average, a crew member earns the equivalent of US$2,364 annually, and the owner earns US$12,582. Crew income is above average per capita income, but is still relatively small. It was learned during the focus group discussions that remittances from household members living abroad or within the country in urban areas is an important source of support in addition to fishing income.

In addition, it was found that nearly half (45%) of the fishermen have other sources of livelihood outside of the capture fishery (Table 11).

Table 10.Average Annual Income of Boat Owner and Crew

Variable	**Value (GMD)**	**Value (US$)***
Average annual fish sale income/year (see Table 9)	851,200 GMD	$31,526
Share of crew (30% of fish revenue). Variable labor cost	255,360 GMD	$9,458
Average crew size (does not include the head)	4	
Average annual income of crew member	44,631 GMD	**$2,364**
Average annual fixed costs (Table 7)	26,080 GMD	$966
Average annual variable costs (Table 8) plus crew labor cost	485,400 GMD	$17,978
Total average annual fixed and variable costs	511,480 GMD	$18,943
Owner's net profit (fish sales less variable and fixed costs, including labor's share of fish sales)	**339,720 GMD**	**$12,582**

Source: SFVCA 2010, Field Survey
* 27 GMD = US$1

Table 11.Other Sources of Livelihoods for Sole Fishers

Livelihood Activities	Number	Percentage (out of 56 total fisher survey sample)
Agriculture in general	14	25
Petty Trading	7	12.5
Driving	2	3.6
Net Making	2	3.6
Total number of fishers with another source of livelihood (out of 56 total surveyed)	25	45

Source: SFVCA 2010, Field Survey

5.0 International Trade Related Incentives

As noted earlier, the Government of The Gambia has classified fisheries as a priority area for investment. The Government provides investment incentives and subsidies in the form of a duty waiver on exports of fishery products and on import of fishing and fishing related equipment and capital assets. There was a fuel subsidy but that was removed in 1994. By contrast, Senegal maintains a fuel subsidy as well as for fishing related equipment, machinery and capital assets.

Customs duties are The Gambia's main trade policy instrument. The Gambia's applied MFN tariffs were restructured in 2000; six rates ranging from zero to 18% replaced 30 rates ranging from zero to 90%. The simple average of applied tariffs dropped from 13.6% to 12.7%, a relatively modest reduction, partially explained by the fact that the number of zero rates declined from 28% to 16% of all tariff lines. Tariffs are moderately dispersed; the coefficient of variation is 0.53. The modal rate of 18% covers virtually all-agricultural products, and a number of manufactured products, including both consumer and capital goods, (Fatajo and Bah, 2004).

Table 12.Tariffs Before and After 2000 in The Gambia

Year	Rates	Range (%)	Simple Average of Applied Tariff (%)	Number of Zero (%)
Before 2000	30	0-90	13.6	28
After 2000	6	0-18	12.7	16

Source: Fatajo and Bah 2004

Weaknesses in customs administration hamper the precise recording of exemptions. Data available indicate that the value of exemptions could be as high as 16% of the value of merchandise imports in some years. The habitually high total value of waivers granted, lapses in recording procedures, and the discretion over the granting of customs duty concessions are liable to compromise the transparency and predictability of The Gambia's tariff regime. Such discretion is also at odds with attempts to streamline the incentives system, as evidenced by the adoption of the Investment Promotion Act. Agriculture is the most tariff-protected sector, with an average tariff rate of 14.4%. The fisheries sub-sector is protected by tariffs averaging 17.6%. Most of the main cash and food crops are protected by the maximum tariff of 18%, with the notable exception of rice, which is zero-rated on account of its role as a staple food. Certain sub-sectors (notably fisheries, groundnuts, horticulture and cereals) are eligible for duty concessions under the Investment Promotion Act, (Ibid).

6.0 Recommendations

Sole fish is a high value fish primarily destined for processing and export. The processing plants are therefore a critical element in this fishery. However, processing plants in The Gambia are frequently not in operation due to a lack of capital, and inability to compete with Senegalese processing plants and generate profits. Given the structure of electricity and other costs in The Gambia, this situation is not likely to change without more aggressive government monetary policy support to, for example, reduce the high interest rate on borrowing, further reduce the high production costs (electricity), and establish development banks.

The other problem that processing plants in The Gambia mention is lack of supply of fish to operate at sufficient capacity. Whether the problem is lack of supply or high production costs is not clear since lack of fish is identified as a problem at the same time that a large amount of sole fish is being sold to Senegalese traders for processing and export from Dakar.

Aside from these deeply embedded constraints facing processing plants, there are some actions that, based on the findings in this value chain, would improve benefits to sole fish value chain participants:

- Develop credit schemes for artisanal sole fishers to avoid borrowing from banabanas and processing plants who then dictate the price of landed sole fish
- Establish a program to license fish traders (banabanas) to bring increased order and regulation to this component of the value chain
- Create a Sole Fisher Association to better coordinate the fishery and negotiate with banabanas and processing plants
- Assess the sanitary and health safety conditions of sole fish used by artisanal women processors for salting and drying
- Upgrade artisanal sole fish processing technology, including the use of appropriate drying racks
- Improve the cold chain (storage and transportation), packaging materials, transportation logistics, and better communication throughout the value chain

References

Bah M. and Fatajo F. (2003), Base Line Survey on Socio-Economics Status of the Target Beneficiaries of The Gambia Artisanal Fisheries Development Project

Department of Fisheries (2007), Catch Assessment Survey Report, Gambia Artisanal Fisheries Development Project Department of Fisheries, Department of State for Fisheries, Water Resources and NAM, Banjul, The Gambia

Department of Planning (2007), Annual Monitoring and Evaluation Report 2007. Activities for Artisanal Fisheries Development Project, The Government of Gambia, Banjul

Drammeh, O. (2004), Medium-Term Plan Sectoral Study on Fishing and Marine Resources Development, Department of Fisheries, August 2004.

Fatajo Fafanding, and Bah Matarr Bah (2004), Study to Determine and Analyze the Impact of Trade Polices on Fisheries Resources Management and Evolution of Cost and Earnings of Artisanal and Industrial Units Exploiting the Resources in The Gambia

FAO (2007), National Fishery Sector Overview, Fishery Country Profile – The Gambia. Website: http://www.fao.org/fishery/countrysector/FI-CP_GM/en.

Gambia DOF (2006), The 2006 Fishery FRAME Survey Report, Gambia Artisanal Fishery Development Project, Department of Fisheries, Department of State for Fisheries and Water Resources, Banjul, Gambia, 70 pp.

Njie. M., and H. Mikkola (2001), Social, Economic and Policy Aspects of Fisheries: A Fisheries Co-management Case Study from The Gambia

PMFR-FAFS (2008), Plan for the Management of Fisheries Resources -- Focus on the Artisanal Fisheries Sub-Sector, Department of Fisheries 2008

Appendix A: Questionnaire used for the Sole Fisheries Value Chain Assessment

For the Fisherman (Boat Owner, Crew, Seller and Buyer)

Fishing Unit Owner ☐

Trader\Middleman ☐ **Crew Member** ☐

Buyer:-

Company Owner\Processor **Restaurant Owner** **Hotel Manager** **Individual**

☐

Site: ---------- Date:-----/------/-----

Part 1: Information on the Respondent

1. Sex: Male ( ), Female ( ),

2. Age: ( ),

3. Marital Status:
   Married----------
   Single ----------
   Divorced--------
   Widowed--------

4. Number of household members: ----------
   Number of dependent members: ----------

5. Ethnic group:
   Mandika ----
   Serrel-------
   Jola ---------
   Fula ---------
   Wolof -------
   Other --------

6. Nationality:
   Gambian --------
   Senegalese ------
   Other ----------

7. Education:
   Grade 1 – 6 ---------
   Grade 7 – 9 ----------
   Grade 10 – 12 ---------
   Koranic school (Darah/Karanta) --------
   Non formal education----------
   None ------

8. Do you live in this village/town as a full time resident? a) Yes ( ), No ( ), b) If yes in "a" above, how long?---------- Total years full time residence in The Gambia……..

Fishing Unit Owner:……..

Fishing Site:……. **Date:----------**

Part 2: Fishing Equipment Information

Type of Canoe	----------
Length of Canoe	----------
Total cost (GMD)	----------
Date & place of construction	----------
Outboard engine type	----------
Horsepower	----------
Date and place of purchase	----------
Cost and source of funds	----------
Type(s) of fishing gear used	----------
Date and place of purchase	----------
Cost and source of funds	----------
Number of crews on board	----------
Share system (%)	Fishing Unit------- Crew-------- Canoe Owner----------

Canoe Owner\Skipper:……

Fishing Site:……..…… **Date:……**

Part 3: Daily Catches of Sole Fishes

Fishing area (if available) ---------- Weather observation(that is, if affect your catches) ----------	Time out: ---------- Time in: ----------
Expenses : Fuel (including oil) ------ litres Food :---------- Ice :----------kg Water:……litres **Repairs and Maintenance:** Spare parts/repairs ---------- Twine/rope ---------- Other :----------. e.g. engine, boat maintenance	 Cost ---------- Cost ---------- Cost ---------- Cost ---------- Cost …… Cost:…… Cost …… Total cost (GMD)----------
INCOME: Sole Catches Daily average? Daily average during different times of the year By-catches----------	Weight(kg) Value (GMD) ---------- ---------- ---------- ---------- Total value ----------
Catches given out to friends, relatives, etc. Species ---------- ----------	Weight(kg) Value ---------- ---------- ---------- ----------
Extra earnings Source ----------	Amount ----------

Additional Information

How long have you been fishing?.....

How has sole fish abundance changed over this time? .....

What are the different kinds of sole?.....

When are the different kinds of sole most abundant?.....

Do you fish for all species in the same location with the same gear?.....

What is the biggest problem facing the sole fishery?.....

What would you like to see changed?.....

Are you a member of any CFC management committees?.....

What benefits do you get from the CFC?.....

.....

Are you aware of the new jetty being constructed?.....

If industrial sole fishing boats land there how do you think that will affect you?.....

.....

What are the periods of time during the year that you do not fish?.....

.....

When not fishing, how do you provide for yourself and family?.....

.....

Do you have problem with other sole fishers?.....

Do you have problem with fishers of other species? .....

.....

When you problems with other fishers, how are they resolved?.....

Buyer :……

Site :……..…… **Date:……**

Part 4: Marketing and Distribution

1. How often do you get your fish supplies?----------

2. Where do you get your fish supplies from?----------

3. How many kilos of sole fishes do you buy in a day? **Quantity(kg)** **Value (GMD)**

…… ……..

4 Do you use ice? Yes No

☐ ☐

Quantity(kg) **Value**

If yes: ……..

……

If no, why not:

5. What other fish species do you buy per day?
(Specify whether smoked, dried or fresh)

Species	**Quantity (kg)**	**Value**
.....	----------	----------

6. Who do you supply your Sole Fishes?
7. Who do you sell your other fish species?
8. What is the lowest price you buy per kg of sole fishes? D----------
9. What is the highest price you buy per kg of sole fishes D….....
10. What type of transport do you use for distribution?
11. Cost of transportation for marketing? D
12. How much is the lowest price you sell your sole fishes per kg? D
13. How much is the highest price you sell your sole fishes per kg ?D
14. How long have you been a fish buyer/seller?
15. Is buying and selling fish your only employment?
16. What is the biggest challenge facing you in your job?
17 What in your work would you like to see different in order to make you better off?
18 Do prices vary over the year? Explain.
19 What are the reasons for this variation in price?
20 Any other constraints with marketing:

Questionnaire for The Gambia Sole Fisheries Value Chain Assessment

Name of Fishing Company:……

What is your position in the company (plant manager, owner, share holder)?…interview manager and/or owner

Fishing Site:…….…… **Date:……**

Part 5: Processing Plant

1. No. of Employees:

Currently	**Full capacity**
Gambians:----------	Gambian.....
Senegalese:……..	Senegalese.....
Others:……..	Others.....

Who owns the plant and nationality?.....

Where does the owner reside?

2. On-Shore Facilities

3. Source of Sole Fishes supply

4. Processing Cost

5. Market Outlets
Av. Quantity (tons)

Av. Cost\ ton:…….. Domestic:----------

Av. Wages\person (which? laborers/managers/accountants):……..…….. Export destination:……..

Av. Cost of Packaging Materials:…… How frequent do you export sole fishes?.....

6. Processing method .

7. Quantity Processed per week

8 Describe the different kind of products you package……..
9 How are workers paid (per hour, per kilo of fish processed?)……
10 How do you get the product to export market (e.g. freezer truck to dock)……
11 Where does the product ship from?……
12 What is the name of the shipping line?.....
13 Length of time from packaged product to arrival at destination:……
14 Name of purchasing company:……. ……. Port of arrival……
15 Average revenue generated from exports\month:……
16. Operating Cost
What are 5 largest expenses?.....

- Electricity per month:……..…at full capacity
- Water per month:…….
- Fuel cost (oil/diesel/gasoline?) per month:……..
- Freight cost per shipment:…….
- workers

Other questions:

18. Does the company have staff who buy directly from fishers? a) Yes ( ), b) No ( )
19. Do you have agreements with specific fish buyers to purchase soles fishes? a) Yes ( ), b) No ( )
20. How many tons?
…….....
21. How is the price that you buy from the buyers determined? …….....…….

22. What level of capacity are you operating at?
23. Do you close during part of the year? a) Yes ( ), b) No ( )
24. What part of the year?.....
25. Why do you close down?
…….....……..
26. When closed do you still have costs to cover (security, maintenance, rental fees, etc)
27. What type of arrangement do you have with the purchasing agent? ……
28. Do you have annual agreement to provide certain amount of fish? a) Yes ( ), b) No ( )
29.a) Payment on arrival? ……. b) Prepayment?.....
30. What are insurance costs on the shipment?.....
31. Do you have HAACP plan?..... Describe
it……..
32. Have your plant ever been inspected by the Government of The Gambia? a) Yes ( ), b) No ( )
33. What do you do with waste product?
34. What is the percentage of processed/packaged fish to waste?
35. Who makes contacts with foreign buyers and decisions on export strategy?
36. Have you or the owners ever been to seafood trade shows?
37. Do you think the jetty being constructed will help?
38. What impact do you expect it will have on your sole product purchase price, on amount of product available, and on your profitability (revenues less costs)
39. How do you see the international market for seafood?
40. Where do you see future opportunities for exports?
41. Do you feel the sole fishery resources are well managed?
42. Why or why not?
43. What needs to be done to improve the fisheries sector?
44. Over the years have you seen any changes in the abundance of fish product available to buy for processing?
45. How do you get your information on global markets and fishing prices?
46. Why do you think Senegal is more cost competitive in seafood processing/exports than The Gambia?
47. Do you file income taxes?..... How often? ……What percentage is tax on income?.....
48. Do you pay export taxes? ……..What percentage of value of product?.....
49. What are the 3 greatest challenges and do you have any ideas for how to resolve them?
50. How is price of sole fishes determined? ……..
51. How much and how often do you buy sole fishes?.....
52 How do you buy (whole fresh, filets, on ice?)……
53. Do you have a savings account? a) Yes ( ), b) No ( )
54. Do you have a current account? a) Yes ( ), b) No ( )
55. Have you taken loans? a) Yes ( ), b) No ( )
56. Where have you taken the loan from?

Appendix B: Calculation of the IRR

Month		
0	-204,431	This is the initial cost of the business (boat, net, outboard)
1	30483	Monthly net income (annual sales less annual variable costs, including labor costs, divided by 12)
2	30483	
3	30483	
4	30483	
5	30483	
6	30483	
7	30483	
8	30483	
9	30483	
10	30483	
11	30483	
12	30483	
IRR	10%	