3
Constraints and potential, with a focus on women

3.1 INDUSTRIAL SUB-SECTOR(FISH PROCESSING)

3.1.1 Potential for Employment Generation and Poverty Alleviation, particularly for Women

Though the local industrial fish-processing sector is relatively small, it has significant potential for employment generation and poverty alleviation, particularly for women. It should be emphasized, in this respect, that the fish processing industry tends to be "female-intensive", given that there is a preference for women in light processing/assembly types of work. Women currently account for between 46 and 80 percent of the workforce at the fish factories. The sector is, however, still in its embryonic state: as at July 2012, a total of 128 women were employed in the four operating factories (Table 9). An expansion of the sector is likely to stimulate an increase in female wage employment in the formal sector, with important corollary poverty alleviation effects (women pay school fees for their children, and buy clothes and food for the family from their wages).

The fact that most of the industrial catches are landed in foreign ports deprives the sector of valuable raw material that could generate employment for women involved in the sector. If only 10 percent of the industrial catch (this is a present licensing condition) were landed in Gambian factories, this would be another source of raw material for the sector. Consequently, more women could be involved in the fishing industry, even if not directly employed in the fish factories. These women could work as small scale retailers selling the part of the catch not destined to the EU market. This could form the basis of another type of trade and value addition for the women: for example, if they sold the fried fish in some sauce within the community.

Daily wages for women are in the range of GMD 75 to GMD 135 per day. With an average of GMD 105 in wages per day, weekly and monthly wages would fall at about GMD 735 and GMD 2,940, respectively. In some factories, the work week is at times (during the peak fishing season of certain fish species) seven days a week (Monday through Sunday), about 10 hours per day.

For local standards, these working conditions are decent, and salaries are comparable with salaries for relatively skilled jobs in administration. Family-work tradeoffs are eased by the extended family that cares for children and helps with housework during working hours. However, there are some aspects that need to be carefully assessed (Box 2).

3.1.2 Constraints Facing the Sector

The sector´s competitiveness is hindered by a number of structural constraints. Key issues are addressed below:

a) The poor availability, poor reliability and high cost of electricity

The supply of electricity from the National Electricity and Water Company (NAWEC) in The Gambia is insufficient, unreliable and expensive. According to the UPDEA (2009), the cost of electricity in The Gambia is amongst the highest in Sub Saharan Africa (about US$ 0.35 per kWh or GMD 10.40 per KWh, as at July 2012).[6] The price of electricity is estimated to account for an estimated 75 percent of operating costs. The cost of electricity thus hampers the international competitiveness of the fish processing plants - which are relatively energy-intensive - as the cold chain equipment needs to operate continuously 24 hours a day, seven days per week.

In addition to the cost, electricity pricing methods are also at stake: the progressive pricing system - the more you consume the more you pay - discourages the expansion/scaling-up of processing activities, par-

Table 9. Estimated earnings of Industrial Women Processors (GMD)

	Factory	Product Type	Employees		Wages/day		Total/Month
			Male	Female	Male	Female	
1	Rosamond Trade	Smoke cured	7	6	117-200	117-133	3,750
2	Kendaka Fishing	Fresh/Frozen	30	37	110-135	110 -135	3,185
3	International Pelican	Fresh/Frozen	40	45	100	100	2,800
4	Atlantic Seafood	Fresh/Frozen	10	40	80	80	2,240
5	West African Aquaculture	Tiger Shrimp	25 P	150 T*	-	75	2,100

Source: Factories and establishments visited (2012). Notes: T= Temporary Employment; P= Permanent Employment; T = Women employed on temporary basis - only during harvest time when the shrimps are processed for export. 1US$ = GMD30.*

Box 2. Addressing Women's Concerns in Fish Processing Factories

Discussions with women revealed some concerns that need to be addressed:

1. Women generally stand for 7-8 hours per day while sorting, washing, or performing other activities related to fish processing. This tends to have health implications for them (e.g. back aches).
2. Even if family-work tradeoffs are eased by the extended family, child care remains a problem for many female workers, who are responsible for raising their children. Very often the younger children are left to the care of older children while the mother is at work. This situation was perceived as difficult, especially for families where there were neither older children nor elderly women left at the house to take care of the child whilst the mother was at work.
3. Management still feels that hiring female workers can involve problems created by pregnancies, maternity leave and domestic obligations; all of which might lead to absenteeism. In many instances when women have to work later than normal, they are in a hurry to get home to take care of their husbands, which can impact their output. One manager acknowledged that marital status was assessed for recruitment purposes.

To tackle the last two problems, the factories may consider offering flexible work arrangements for the women to meet personal or family needs. This would contribute to reducing absenteeism and increase the ability to retain and motivate high-performing and experienced employees. In addition, the factories need to:

1. Conduct studies on risks and health problems faced by women working in the fish factories, and identify suitable protection measures.
2. Train the women (and men) fish processors in hygiene and good practices in fish handling and processing, to improve the quality and safety of fish products.
3. Train the women working in the shrimp farming sector in basic aspects of fish culture, handling, and processing.

Source: Interviews by the UNCTAD team with factory managers and women processors at the fish processing factories (refer to Annex 1).

ticularly for the small-scale woman operator using domestic cooling facilities at home.

Table 10 (below) provides the NAWEC tariff for electricity. The tariff for the fisheries sector, as at July 2012, was GMD 10.40 (US$ 0.35) per kWh, the same rate as for all industrial users. The rate for the agricultural sector was lower, at GMD 9.10 (US$ 0.30) per kWh. High electricity rates in the industrial sector (including fisheries) thus cross-subsidize energy consumptions for other categories of users (domestic (residential), governmental, and agriculture). Given the critical role of the fisheries sector in terms of poverty alleviation and food security, the Government may wish to change the current classification and categorise the fisheries sector (currently under category 3) as agriculture (under category 4) for electricity charges. Lowering the tariff for the fisheries sector so it is at par with the agriculture sector would give greater incentives to operators within the sector.

There is no subsidy on fuel for fishing and related operations within the industry in The Gambia. In particular, the country no longer waives taxes levied on gasoline and diesel-fuel (used for power generation). The prevailing bunkering prices for diesel fuel at Banjul port for fishing trawlers is US$ 1.55 per litre, similar to the commercial pump price; whereas the bunkering price for fuel for fishing vessels (local and foreign) in Senegal was US$ 0.80 in 2012. The huge differential in fuel prices between The Gambia and Senegal has two implications: that The Gambia has a lower international competitive advantage and that foreign trawlers may not choose to use the Banjul jetty facilities once they are completed (they are currently under construction).

Table 10. NAWEC Electricity Tariff, July 2012

Description	Customer Category	Band (kWh)	Tariff (GMD/kWh)
Domestic	1	0.300	9.10
		301-600	9.45
		601-1000	9.70
		Balance	10.40
Commercial	2		9.70
Hotel/clubs/industries including Fisheries	3		10.40
Agriculture	4		9.10
Area Council	5		9.70
Central Government	6		9.70

Source: NAWEC.

Lower cost of, enhanced supply of, and enhanced access to electricity are preconditions for industrial fisheries development in The Gambia. In addition to the measures mentioned above (lowering the electricity tariff for the fisheries sector and adding/restoring fuel subsidies), other areas of policy intervention include:

i) Divestiture and unbundling of the utility (NAWEC Electricity Company);

ii) Investment in generation-capacity expansion and transmission equipment, possibly channelled through public/private partnerships; and

iii) Increasing the share of renewable energy.

Table 11. Matrix of comparative data on landing fees, tariff prices and incentives (Gambia and Senegal)

Fees	The Gambia	Senegal	Remarks
Landing fees – vessel/GRT	US$ 21 per GRT *	US$ 37 GRT	
Pilotage	Less than 150 GRT US$ 15 per hour, or US$ 31 per hour, for more than 150 GRT	N/A	
Fuel prices for fishing vessels	US$ 1.55 per litre of diesel	US $0.80 cents per litre of diesel	For diesel, the Gambian local pump price is US$ 1.55 per litre. For the same, the Senegalese local pump price is US$ 1.2 per litre
Cost of water per gallon	Per trip of 18 tons = 4000 gallons @ 275.50 Euros Per trip of 40 tons @ 750.75 Euros	US$ 2/m3	
Electricity for the fisheries industry	US$ 0.35 kWh	US$ 0.35 cent kWh	No subsidy or discount in The Gambia & Senegal
Ice	US$ 120/ton	US$ 0.60/ton	
Tax levied on fish off-loaded - Sales Tax	No tax	18% VAT	
Incentives to the fisheries industry	Tax holidays and a duty waiver on fishing gear and equipment	Tax holidays and a duty waiver on fishing gear and equipment	

*Source: Njie, 2007. *US$ 1.00 = GMD30*

Box 3. Tackling energy constraints: Renewable Energy

It is within this context that a project is being designed under the Enhanced Integrated Framework (EIF) Tier 2[a] to produce electricity by means of wind-driven turbine technology in three coastal fish landing sites. The project follows the Batokunku experience, in which wind turbine technology produces electricity and now supplies the village of Batokunku, with the excess being sold to NAWEC and transmitted through its grid. It is expected that the project will improve the lives of 80 percent of the fisher-folk in the three landing sites targeted. The reduced electricity cost will decrease the sites' operating costs by reducing the cost of inputs - including ice - by 30 percent. This will improve the shelf-life of catches, and thus help meet international fish trading sanitary and phytosanitary standards. The turbines will generate approximately US$ 92,000 per year for the sustainable management of the sites. The project is also expected to significantly benefit women (who make up about 80 percent of fish processors and 50 percent of small-scale fish traders nationally), hence contributing to poverty alleviation within these coastal communities. This will, however, depend on whether women are able to reap the benefits of decreased inputs costs (for example, if they are able to purchase better quality fish at a lower price, or to purchase ice at lower prices).

Source: Focus group discussion and meetings with officials at the Fisheries Department and the Ministry of Trade, Industry, Regional Integration and Employment (Annex 1).

a This project is identified in the current DTIS report. It aims to provide electricity to three artisanal fish landing sites along the Atlantic coast through wind-powered generators. The aim of this project is to enhance the livelihoods of the inhabitants of the three coastal fishing communities, and other satellite settlements.

b) The need to import equipment and material

All equipment and material used in the factories, including packaging material, needs to be imported. The Government may wish to consider developing some local capacity, particularly for packaging material. However, the competitiveness of local packaging versus imports would need to be carefully assessed. Critical factors in this respect would include scale issues (size of demand), and the local availability of manufacturing technologies for packaging material conforming to EU and other importing-country standards.

c) High tax rates leading to a crippling tax burden:

It is felt that the fiscal system is excessively burdensome. Major areas of concern include:

i) The complexity of the tax system, with various taxes levied at the end of the year, which makes it difficult for operators to factor taxes into production costs for planning purposes;

ii) Relatively high tax rates - 30 percent of profits if declared, or 2 percent of turnover if profits are not declared (3 percent in case of late payment);

iii) The turnover tax, to be paid even if the business is not profitable. This tax is largely perceived as unfair and distortive, as it discourages investment in supply expansion;

iv) Policy inconsistency – Though The Gambia's tariff allows for duty exemption on plants and equipment used in the industry, there is evidence that requests for duty waivers supported by both the Fisheries Department and the Ministry of Trade have been rejected by the competent fiscal authorities.

d) The cost of credit

Fish processing plants in Gambia are frequently not in operation due to a lack of capital. Access to finance (availability and cost) - especially for Small and Medium Enterprises (SMEs) - is limited, despite a vibrant banking sector (there are more than 12 commercial banks in the country). Investment credit is hardly available, due to very high interest rates (30 percent in commercial bank lending) and collateral requirements. Furthermore, lending is mostly short-term (less than 1 month) while payments - for example for the export of sole fish - require longer periods (at least 45 days). Therefore, most Gambian enterprises prefer to use internal funds or retained profits to finance their business operations. On the other hand, banks complain about: a lack of bankable proposals from businesses, a lack of credit information, a lack of financial statements, the poor quality of applications, the difficulty in liquidating collateralized assets - and more importantly - about poor corporate governance.

According to the World Bank, in 2010 the share of domestic credit provided to the private sector was only about 16 percent of GDP. This is very poor in comparison with the Sub-Saharan African average of 65 percent of GDP (World Bank, 2010a). This situation is not likely to change without more aggressive government monetary policy support, which would reduce the high interest rate on borrowing, and even help establish development banks.

The situation is even more difficult for women who operate in the industrial fishing sector because most of them do not have the collateral to guarantee their access to credit from the banks. In addition, their operations are less capital-intensive since they are mostly engaged in processing the low value species not required in the EU and American export markets. Thus, it is uncommon for small-scale operators to seek bank loans to invest in their businesses. Small-scale women operators largely depend on credit from family members, friends, and on their meagre savings. They also access credit through credit facilities from village saving schemes, and other non-banking institutions. There are several national apex organizations, such as the National Association of Cooperative Credit Unions of Gambia (NACCUG) and The Gambia Women´s Finance Association (GAWFA). Other Micro Finance Institutions (MFIs) include Gambians for Self-Employment (GAMSEM), Reliance Financial Services, and village saving schemes like VISACA (Village Savings and Credit Association). These all offer credits to small-scale artisanal operators in various fields of endeavour such as: horticulture, fisheries, dairy and poultry production.

In view of the above - and in an attempt to improve the business climate and foster private sector development - the GOTG has started the implementation of the Growth and Competitiveness Project, financed by the World Bank. The objective of the project is to enhance the investment environment through business registration and tax administration reforms; and also to provide support for investment promotion and facilitation, among other things. It will provide technical assistance for the drafting of the legal framework and

regulations, and for the institutional and processing design, among other things. This will be done to ease the burden in accessing bank loans.

e) The costs of compliance with sanitary and phytosanitary (SPS) requirements

Compliance with EU import requirements is not considered a stumbling block per se. What seems to be excessively onerous is the continuous upgrading of these requirements (e.g. changes in acceptable residue levels), with repeated adjustment costs for the factories (passed on to upstream actors). The frequent repeated adjustments usually occur too fast, and are sometimes cumbersome for developing countries to catch up and cope with.

It should be stressed again that industrial processing factories source their fish supply from the artisanal sector. Fish handling and preservation techniques have posed potential problems at virtually all artisanal fish landing sites. Although a few landing sites have some minimum facilities, these are inadequate, whilst other important sites do not have any facilities at all. Therefore, landing site improvement should be a priority for the government, as this is a constraint directly affecting continued access to the main export market for Gambian fishery products -the EU market. Site upgrading is costly to design and implement, given the scattered physical locations of artisanal fish landing sites, and the diverse nature of the operations at these sites.

The Fisheries Department has pointed out a number of constraints which, if not addressed, could have some negative implications for the export and local fish markets. In this regard, landing sites should be upgraded to fully meet sanitary requirements, and allow for sanitation design and hygiene control at point of first sale to improve compliance with EU regulations. Official landing sites should be designated, and provided with: energy supply, adequate facilities for ice production and cold storage, fish handling and preservation equipment and facilities, and manpower training in operational and best practices. The sites must be fenced and paved to protect the catch against vehicular movement and the indiscriminate movement of people, animals, and other sources of contamination. If the rehabilitation and/or upgrading of artisanal sites is effectively implemented, The Gambia will improve its competitiveness and maintain access to markets in the EU and elsewhere.

The Fisheries Department - as the Competent Authority (CA) - needs to increase the number of qualified fishery product inspectors. It also needs to provide training for current industry official inspectors in the management and application of the Hazard Analysis and Critical Control Point (HACCP) system principles, and related sanitary controls. The absence of a competent and accredited laboratory in the country for official testing has meant delays and high costs (given the CA's limited budget), or inability to export. Though laboratories in The Gambia are in the process of seeking accreditation, this will take some time; as will the expansion of the scope of existing labs so as to cover all the tests on fishery products necessary in order to meet EU requirements. Meanwhile, the GOTG should provide the budgetary requirements for the CA to access official testing laboratories so that continued access to European and other markets can be guaranteed. It is also important to develop national SPS strategies based on regional efforts (regional laboratories).

f) The lack of adequate fish supply

The industrial fish processors are supplied by the artisanal subsector, which struggles to meet quality requirements for export markets. On top of that, factories often have difficulties securing fish supplies, and thus tend to operate below capacity.

It is important to note that whilst a lack of fish supply is claimed to impede fish factories from operating at sufficient capacity, a large amount of high value fish is – meanwhile - being sold to Senegalese traders for processing and export from Dakar. Therefore, it is not clear whether the problem is lack of supply or high production costs. What is clear, though, is that fishermen very often find it more remunerative to land their catch in neighbouring Senegal, where payment is made on the spot. 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 - or are late in - their payments.

Fish factories in The Gambia used to work in partnership with groups of artisanal fishermen: they provided them with credit, equipment and other resources; and the fishermen in turn supplied all their catch to the factory. The cost of the equipment and the borrowed credit was then deducted from the fish sales at the end of an agreed period (a fortnight, a month, etc.). This arrangement was mutually beneficial to both par-

ties, for it ensured a reliable outlet and market for the catch as well as a reliable source of supply of raw material for the factories. Over time, this linkage could not be sustained, due to a variety of reasons including: non-payment of money owed to fishermen or traders, poor financial management on the side of the factories, difficulties sustaining operations due to lack of funds by the factories.

The fish processing factories are indeed trapped in a vicious cycle: given the high operating costs (electricity, taxes, imported material/equipment, etc.), to remain profitable they are obliged to exert a downward pressure on suppliers (discounted prices, deferred payments etc.); which in turn might lead to a lowering of standards in handling and post-harvest conditions at landing sites, or to supply diversion towards other countries. Given these transmission mechanisms, it is imperative to address the different issues outlined above (costs of electricity, cost of credit, policy incoherence on tax matters) that hamper the operational efficiency of the fishing industry.

The upgrading of landing site facilities, and tighter post-harvest quality control (including through community mobilization/awareness and peer pressure), are also critical to the achievement upstream of internationally acceptable standards on SPS and quality assurance.

The completion of the Banjul fisheries jetty and its ancillary facilities (ice plant, cold stores, fish handling and transport equipment) will enhance the capacity of the industrial fisheries to receive and process the fish supply from industrial vessels. This should be given serious consideration, alongside listing of the Banjul site as a designated facility for export to the EU. Given its proximity to the fish processing establishment, the jetty would ease some of the problems arising from low post-harvest handling and transport practices. Furthermore, in addition to the industrial trawlers, artisanal canoes should also be allowed at the jetty. This would encourage the jetty to function as a key official landing site and point of first sale for fishery products control, to meet required hygiene standards.

A critical element in this context is establishing a strategic alliance between the Banjul Fisheries Jetty and The Gambia Ports Authority (GPA). The Dock Yard of the GPA - once rehabilitated and the slipway revitalized - will complement the activities of the Fisheries jetty. Indeed, it will be more prudent to have the GPA manage the jetty, with technical support on issues relating to fish and fisheries technology provided by the DOF. The GPA and the DOF signed a Memorandum of Understanding (MOU) to this end in 2001. The GPA has been mandated to manage and operate the Banjul Fisheries Jetty. With its expertise in operation of ports and harbours, the GPA will be better poised to address the overall daily activities of the jetty, and could possibly combine this with a revitalized dry-docking facility to service the industrial trawlers fishing in Gambian waters.

If the process is managed well, the dry-docking facilities could even be available to other fishing vessels plying other countries' waters in the sub-region, especially where those countries do not provide such services. The Banjul Fisheries Jetty could thus become the hub for dry-docking in the sub-region, and in the process the other facilities and ancillary services available at the jetty could be utilized by the visiting trawlers. In this way, all the catches of the foreign trawlers licensed to fish in Gambian waters would be landed in Banjul to provide the raw material requirement of the fish factories in the country. Some industrial fishing vessels of other flag states - such as Taiwanese, Panamanian and European vessels fishing in the high seas and elsewhere - may also land their catch in The Gambia, for onward export to these countries.

It is important to note that the Senegalese fisheries port is the immediate competitor, providing fish landing facilities and services for fishing trawlers operating in the sub-region. The idea of having a well-integrated fisheries jetty to provide immediate services to the fishing industry should also be one of the marketing strategies to be adopted by the GOTG and GPA, if the Banjul Fisheries Jetty is to compete effectively with the fisheries port of Dakar and become financially viable and sustainable. Moreover, Gambia and Senegal share the same fish stocks, and both export their products to the same international market. Now that the new jetty is about to become operational, the marketing strategy to be adopted is that of price competitiveness and operational efficiency, whilst at the same time not sacrificing profitability and viability. Not only should landing and bunkering fees be lower and more competitive in Banjul than what the Senegal fisheries port is offering; but Banjul should also provide the requisite ancillary facilities and services in the jetty area.

3.1.3 Designing a Sustainable, Socially Inclusive and Gender-Sensitive Strategy

Developing an effective national strategy for boosting the fishing industry will require a coordinated and inte-

grated approach to the various issues outlined above (energy, tax, credit, and infrastructure). If effectively designed and implemented, this strategy could contribute to expand the fish-processing sector in The Gambia, with significant job creation and poverty alleviation effects, particularly for women.

There are, however, some important concerns that should be taken into consideration.

a) Tackling sustainability issues

As a first consideration, the potential for the expansion of the Gambian fishing industry needs to be carefully weighed against sustainability issues. For example, there are concerns about the full and over-exploitation of some of the fish stocks (Mendy, 2009; Tobey et al, 2009). This is generally true of the state of the fisheries resources not only of The Gambia, but of the entire sub-region. This calls for a region-wide approach to address the issue of potential over-exploitation of the resources.

Over the last decade, artisanal fish landings in The Gambia - the source of raw material for the industrial sector - have gone up, whilst the catches of the industrial sector have dropped dramatically. The artisanal efforts (number of fishermen, fishing boats, out board motors, etc.) have risen and fishermen have ventured further out to sea in search of fish, catching lower value species. Similar situations prevail in Senegal and elsewhere in the sub-region, where the fisheries sector has been facing major problems in recent years due to over-fishing and the uncontrolled growth of fishing activities. This development has been encouraged by factors such as state subsidies, priority access to most of the coastal fishing areas, technological development - including motorization of the fishing crafts - and increased access to the more lucrative European and American markets.

One result of the fishing expansion is that many of the high value coastal demersal fish stocks (shrimps, cephalopods, sole fishes, etc.) are severely depleted and facing rapid decline; and unless effective fisheries management is introduced the entire demersal fishery will collapse and all the investments being planned for the fisheries sector will go down the drain. Unfortunately, very little is being done to redress the situation: traditional methods of local management have largely broken down and the present management regimes cannot cope with the new situation. Fish supply to the industrial sector will continue to decline unless the governments in the sub-region develop and implement an effective management regime for the sustainable harvesting of the resources. From a policy perspective, this calls for management and conservation of fish stocks through the development of long-term policies. Priority actions would need to include strengthening governance of the fisheries and reducing illegal fishing in order to maintain the productivity of marine and coastal resources. Technical conservation measures also need to be implemented (e.g. minimum mesh seizes, restriction of catches or closure of fisheries). Other immediate management measures and controls should include: the systematic reduction and regulation of fishing efforts of both local artisanal and foreign fishing vessels targeting demersal fish species; improved monitoring, control, and surveillance; and a critical review of bilateral fishing agreements, including the Senegalo-Gambian Reciprocal Agreement. In this regard, the negotiation skills of Gambian government officials working on access agreements, and of those in the Sub-Regional Fisheries Commission (SRFC)[7], need to be built.

These conservation measures will have to be implemented regionally - within the framework of the SRFC, through the harmonization of national policies in the areas of conservation and exploitation of living marine resources - as most demersal species are straddling and migratory fish stocks. It is also critical to raise awareness at the local (fishing communities) level, to promote effective forms of community-based management axed on peer-pressure. Particular areas known (either through scientific research or local knowledge) to be fish congregation areas, for example, could be co-managed (by government and local community-based organizations) in order to protect and/or rehabilitate them. This could involve setting up protected fishing zones with artificial reefs - or any appropriate locally available materials - to regenerate natural resources; with the community members providing labour and being heavily involved in order to facilitate local ownership.

b) Promoting a gender-sensitive and socially inclusive upgrading strategy

As a second consideration, it is important to stress that an expansion of the export-oriented fish-processing industry is likely to generate significant employment opportunities for relatively unskilled women downstream (in factory processing), with positive effects in terms of poverty alleviation. However, it may also unleash dynamics of social polarization and exclusion upstream in the chain.

As discussed, industrial fish-processing companies source their fish supply from artisanal fisheries through large scale (mainly men) dealers. Further enforcement of quality assurance and traceability requirements at the source will require focused, selective investment in landing sites and facilities designated for export to the EU. This selective upgrading and segregation of the export-oriented segment of the chain (serving mainly the EU market) may accentuate social cleavages: between the relatively empowered and the relatively disempowered, between large-scale dealers and small-scale traders, between men (who traditionally dominate the supply side of the export-oriented segment) and women (who are disproportionally present in domestic small-scale fresh fish marketing and distribution). Furthermore, while the fish species involved in the export and the domestic trades tend to be different, for those species that serve both the export and domestic markets there may be some diversion of supplies from the domestic to the export chain. Some corrective measures may be needed; for example by ensuring that facilities that serve the export-oriented sector can be effectively accessed by small-scale operators that serve the domestic market. Finally, if the processing plants are to be supplied by industrial trawlers through the Banjul jetty, measures should also be implemented to ensure that artisanal suppliers are not displaced. Two approaches might be envisaged. The first would consist in preserving dedicated facilities for pirogues at the fish landing pier at Banjul. The second is to create employment opportunities for artisanal operators in the industrial fisheries, by means of local content requirements. Specific policy interventions to empower artisanal operators, and particularly women post-harvest operators, are discussed in the following sections.

3.2 AQUACULTURE (COMMERCIAL AND ARTISANAL)

Though still in an embryonic stage, aquaculture is deemed to have huge growth potential in The Gambia. The development of subsistence, small-scale and commercial aquaculture is a stated Government policy, given the nutritional and economic potential of this sub-sector. Indeed, aquaculture represents an additional source of animal protein, contributing to food security while reducing pressure on wild stocks (particularly the shrimp and oyster stocks). It can also create new jobs and generate foreign income. The country is particularly well positioned for shell fish farming, and shrimp exports command a high price in Europe. Pilot aquaculture activities are currently being carried out by the Department of Fisheries, in co-operation with the Department of Agriculture, through an FAO Technical Cooperation Program (TCP) and a Taiwanese Technical Assistance program for the development of aquaculture in the country.

3.2.1 Commercial Shrimp Farming

Only one company (West African Aquaculture) is engaged in aquaculture on a commercial scale in The Gambia. It was established in 1988 as Scan-Gambia Shrimps Ltd, but collapsed in 1992 due to financial problems. Restarted and renamed West African Aquaculture, it is a hatchery, farm and processing establishment engaged primarily in the farming of the black tiger prawn (*P. monodon*) for export, mainly to the EU. In 2006, using only 50 hectares out of its original 200 hectares, the farm produced 50 tonnes of shrimp. Of the available 550 hectares only 40 hectares (10 ponds) were being used for production as at June 2012, with the hatchery producing 2.5 million post larvae (PL). The production cycle is 6 months (April-November). This means that there is an as-yet unexploited potential for significantly more of the available area to be put under cultivation. This could even serve as a model for production methods, which could potentially be adapted to the wider local context of the West African region.

The point was made that costs of production were too high for the business to be profitable. More specifically, the cost of energy was identified as a major constraint for commercial aquaculture development in The Gambia. Indeed, the industry is particularly energy intensive, given the energy requirements of the processing establishment (cold-chain infrastructure) and the ponds (pumping water from the estuary). While the price of fuel for power generation has increased by 900 percent over the last 10 years or so (from as low as D 5 per litre in the early 2000s, up to D 45/50 in more recent years), the export price for shrimps has increased by only 60 percent over the same period.

Aquaculture ventures are inherently risky financial endeavours. Uncertainties associated with: production yield, escalating prices of production inputs and market price variability, or failure to meet stringent standards for safety and quality -make commercial shrimp farming in The Gambia extremely risky. The slightest mistake can put a shrimp farm out of business, with significant non-recoverable costs, as the venture involves capital-intensive projects with big sunk costs

(land lease/acquisition, pond construction, hatchery and processing factory, and water pumps). If commercial aquaculture in Gambia is to become viable, the issue of escalating energy costs needs to be addressed. Also, hazard mitigating measures (price hedging, strict enforcement of hygiene and quality standards, careful environmental impact assessment, etc.) would need to be implemented.

Notwithstanding these obstacles, the commercial potential for the sector remains significant. In particular, commercial shrimp farmers in The Gambia would have some strategic advantage over their competitors, including from Asia. There are two main sources of comparative advantage. First, given the lack of significant industrial activity within the estuarine areas, and upstream along the River Gambia, shrimps could thrive in relatively clean waters with no use of antibiotics. Second, shrimps grow faster and bigger than elsewhere, given the unique climatic conditions and location; which enhances the quality of the product in terms of texture and shape. Specifically, there is significant potential for a product differentiation strategy (antibiotic-free shrimp with unique characteristics in terms of texture and size) with a focus on high-value niche markets (e.g. gourmet restaurants in Europe). Market access barriers (compliance with EU seafood import requirements) are significant, but can be met - West African Aquaculture has been re-listed and can resume exportation to Europe. This provides a great opportunity to break into the upscale market. Other market entry barriers - such as access to distribution channels by new entrants and the abuse of market power by incumbent firms - would also need to be addressed. This can be done by creating business links through chambers of commerce and trade facilitation initiatives, in collaboration with The Gambia Investment and Export Promotion Agency (GIEPA), The Gambia Chamber of Commerce, etc.

Commercial shrimp farming appears to have significant potential for employment generation and poverty alleviation in rural communities, particularly for women. At harvest, local women form the bulk of the workforce in processing and packaging for export, with important spill over effects for the local village economy. For example, shrimp processors at West African Aquaculture (86 percent of the industry workforce) were reported to be all women, while the daily management staff and shrimp harvesters (14 percent of the workforce) were men. It should be stressed that the female shrimp processors were employed during harvest period on a temporary basis; men (the daily management staff and shrimp harvesters) were employed on a permanent basis. Workers earned salaries between D 75 (processors) and D 100 (harvesters) per day (relatively good salaries for local standards). The workforce was entirely drawn from the local village, with significant impact on the local community.

However, these socio-economic impacts need to be carefully weighed against environmental impacts and related social costs. Industrial shrimp farming projects tend to involve large-scale destruction of coastal environments, especially ecologically important mangrove forests that support a high diversity of marine and terrestrial life. Other vitally important wetland habitats and economic activities - particularly women's vegetable gardens and other subsistence farming areas - may also be adversely affected due to salt water leakage and seepage and consequent dryness. The development of commercial aquaculture should therefore be carefully planned, and due attention given to possible negative spill over effects and trade-offs. Strict adherence to environmental laws and regulations - especially the development of participatory Environment and Social Management Plans (ESMPs) - will be crucial if the Gambian process is to avoid the pitfalls and environmental catastrophes of other countries where the industry became the victim of its own success.

Clearly, in view of the above, foreign capital and expertise are needed to stimulate commercial shrimp farming in The Gambia. There are a few potential commercial shrimp aquaculture sites free from conflicting uses in the country, but their viability (including environmental) must be reviewed before any investment is made towards their development.

3.2.2 Oyster Culture

The Department of Fisheries conducted studies in the 1980s on the West African mangrove oyster (*Crassostrea gasar/tulipa*) which indicates great commercial potential. The competitive advantage enjoyed by this species that thrives in the Gambian estuary is: i) the fast rate of growth (relative to other commercial species harvested elsewhere); and ii) a relatively unpolluted environment (oysters thrive in the marine and brackish waters of the river and its estuarine areas, which, due to the virtual absence of polluting activities upstream, are relatively much cleaner than many estuarine areas elsewhere). However, market outlets/niches need to be adequately identified.

The commercial expansion and/or upgrading of the industry will involve a shift in current harvesting from the

wild towards oyster aquaculture, for a number of reasons: conservation purposes, as the fisheries stock is already fully exploited/over-exploited; environmental reasons, to avoid more extensive damage to the fragile mangroves ecosystem; and commercial reasons, as oysters harvested from the wild tend to be smaller and less homogeneous than oysters potentially cultured in trays and on racks.

The development of oyster aquaculture is likely to generate significant employment, particularly for poor women from marginalized communities. Two strategies merit further exploration with a view to identifying possible niche products for horizontal/vertical value-addition:

a) Traditional Ethnic Foods of Value for the Gambian Diaspora

Limited quantities of oysters are currently exported, mainly for family use in the diaspora in the UK and the United States. This trade targets Gambians and others from the diaspora who have an occasional preference for traditional foods. There appears to be significant potential for expanded demand in this sector, especially after The Gambia has satisfied the sanitary requirements stipulated for oysters and other bivalves.

b) Certified Environmentally Friendly and Fair Trade Oyster Aquaculture

Consumers in high-income countries (and tourists in The Gambia) are increasingly willing to pay for symbolic product attributes based on intangible assets and values -typically associated with the conservation of biodiversity, or with empowerment of women/marginalized communities. Environmentally friendly/fair trade oyster products may appeal to customers in high-lucrative niche markets, if food safety requirements are fully met. A key strategy is to build on the work that is being done by the TRY Oyster Women's Association (TOWA) and on activities carried out within the framework of the USAID-funded Gambia-Senegal Sustainable Fisheries Project (Ba Nafaa).

Of paramount importance is the determination of the status of oysters and oyster harvesting grounds, in relation to occurrence of microorganisms of public health significance that could impede or enhance the marketing of oysters in niche markets. It would also be critical to seek strategic alliances between TOWA and large off-takers; for example, traders, specialized wholesalers and retailers in targeted export markets. By linking small producers to a guaranteed buyer who will also supply inputs, know-how, equipment and finance; an off-taker-driven supply chain would help potential oyster farmers integrate into global supply chains and reach global markets. These alliances could provide the framework for the strict enforcement of SPS measures and private food safety standards. The commercial viability of this strategy is to be further studied. In particular, stringent sanitary requirements are constraints to be overcome if oysters are to be exported in the future and/or supplied to local top resorts on a significant scale.

If the process is commercially viable and well managed - with scientific certification that the waters and oysters are clean and free of pathogens - it could open a lucrative market for women oyster harvesters and for other members of local communities. Investment in this venture will, of course, require capacity building for the operators in all aspects of the endeavour –from farming techniques to management of the entire value chain.

3.2.3 Rural Fish Pond Culture

The Fisheries Department - in collaboration with the FAO and the Taiwanese mission in Gambia - is conducting rural fish pond culture trials in the irrigated rice fields in the Sapu swamps, in the Central River Region (CRR). Efforts concentrate mainly on the culture of the Nile tilapia (*O.niloticus).* The project established twenty earthen ponds of 286 square meters average size. It is also conducting the polyculture of the tilapia and the freshwater catfish (*C. anguillaris*), and both systems have shown promising results. A total of 383 kg of fish was harvested from 15 ponds, and fish harvests were sold on the spot at the pond site. Customers scrambled to buy this relatively cheap fish; and in fact to ensure that all customers got some fish, no customer was sold more than 2 kg. The total amount of cash brought in was D 14, 491, excluding fish consumed by farmers during communal work on the farm.

A Fish Farmers' Association has been formed, which includes both men and women. The implementation of the project has generated significant interest and requests for expansion, particularly by the beneficiary farmers, especially in reference to the cultivation of the fresh water catfish (*C. anguillaris*). In view of this development, the women rice farmers should be encouraged to put more of their plots under fish cultivation to increase the total yield of their land. The Ministry of Agriculture[8] could pursue the possibility for the expansion of this scheme to include more women farmers in the CRR and other parts of the country.

Box 4. The TRY Oyster Women's Association

Established in 2007, the TRY Oyster Women's Association (TOWA) - a community-based non-profit organization - brings together the women cockle and oyster harvesters within the Tanbi National Park and periphery communities. Its objective is to raise the standard of living of these low-income women, who often come from marginalized communities. The TOWA comprises over 500 members from 15 communities. It has been allocated the exclusive rights to harvest cockles and oysters from the Tanbi National Park, and is responsible for the co-management of the fishery in partnership with other stakeholders - including governmental and non-governmental organizations and local authorities.

In view of the over-exploitation of the oyster populations within the Park, TRY-affiliated women are adopting sustainable harvesting practices to ensure that the Park remains a healthy mangrove ecosystem. They are closing harvesting grounds, enforcing closed seasons, and introducing new harvesting methods different from their previous methods of chopping and hacking oysters from mangrove roots and branches. This is done in an attempt to increase their productivity and income, as well as out of concern for the preservation of the ecosystem. The Association has created diversified sources of income for the daughters of the harvesters, and created micro-credit facilities for them to engage in batik making, soap making, etc. These initiatives aim to encourage young women to engage in alternative income-generating activities, in order to decrease the exploitation of the oyster stocks, and to provide a more diversified (and thus more resilient) income base for the livelihoods of community members.

In collaboration with the relevant government agencies, TRY-affiliated women harvesters also help to police the mangrove environment and report any illegal harvesting of the mangroves. They are also experimenting with oyster culture (based on knowledge gained from neighbouring Senegal) to help relieve pressure on wild stocks and limit the harm to mangroves.

Source: Interview with TRY Oyster Women's Association

Box 5. Women as a Target Group for Rural Fish Pond Culture

The pilot operations of the Fisheries Department at the Sapu rice fields in the Central River Region (CRR) point to the nutritional and economic potential of fish pond aquaculture. Major benefits include the supply of fish protein for the family, and accrued income from the sale of surplus fish. Women in the CRR are rice growers, and - especially in the Sapu area - are heavily involved in irrigated rice farming. Fish culture could be introduced either in combination with rice or alone as a single crop in rice paddies, and women could be the target for this program. There are a number of reasons which make women a good target group for fish farming development in the CRR: (i) because of their children and their crops women are less likely than men to be away from home for long periods, therefore they can give continual attention to pond husbandry if the ponds are close; (ii) because they are accustomed to a daily routine, women are more likely to provide the constant attention required for good husbandry, and can use a variety of by-products (such as kitchen wastes, weeds and crop residues) for composting; (iii) because a typical rural fish pond does not provide full employment, women can accommodate fish farming tasks to other duties (tasks which require greater labour inputs can be scheduled appropriately around others as the fish are not at risk if harvesting is delayed); and (iv) because of their responsibility towards the family, women give priority to family needs.

Source: Information gathered through interviews with officials from the Fisheries Department and other stakeholders (Annex 1).

3.3 THE ARTISANAL SECTOR (HARVESTING AND FISH-PROCESSING)

3.3.1 Constraints and Opportunities

As discussed earlier, the artisanal sub-sector is a prioritized area of policy intervention in the current Fisheries Policy (2009-2013), as further elaborated in the Fisheries Strategic Action Plan (2012-2015). The many constraints and inadequacies in the artisanal fish supply chain include: the lack of infrastructure and facilities, inadequate financing, and a need for technical support in terms of training and the application of best practices.

In terms of infrastructure and facilities, major shortfalls include: i) a lack of appropriate transport (insulated containers and handling equipment); ii) inadequate means of preserving the fish during long journeys; and

iii) a lack of cold storage facilities and adequate ice supplies in many landing sites along the coast and in inland areas. These all have resulted in losses due to spoilage, and consequent losses in financial resources. Financial constraints include: i) an inadequate access to credit and financing facilities by operators; and ii) high interest rates on borrowing. Technical constraints essentially relate to: i) a lack of technical know-how with regard to fish handling and preservation by operators; and ii) a lack of technical training in management (record keeping and business planning).

These constraints must be addressed systematically to fully unleash the socio-economic potential of the sectors in terms of food security, employment generation and poverty alleviation.

Identified opportunities that can be leveraged to upgrade the artisanal sector include:

a) The fishery potential of pelagics: In terms of the resource base, whilst the demersal stocks are believed to be over-exploited, opportunities for sustainable exploitation of resources exist in the still relatively abundant pelagic species. Estimates of potential sustainable yields for groups of species are within the range of 50,000 to 60,000 tonnes of small pelagics (excluding about 10-15,000 tonnes of bonga). Investment could be directed at the pelagic fishery to supply both local and international markets; taking into account particularly the sub-regional markets, which do not require regulations as stringent as those of the EU and US. There is a huge market potential for smoked and other forms of cured product to increase the exports to Guinea, Nigeria and other traditional markets in the sub-region. New markets and products need to be developed to absorb the potential of this fishery.

b) Community Fisheries Centres (CFCs) and the Banjul Fisheries Jetty: The CFCs and the Banjul fisheries jetty (and associated facilities) are key existing infrastructure facilities that could be leveraged to improve fish handling and processing, particularly for women operators. Established at 15 fish landing sites along the coast and inland, only 4 CFCs are equipped with ice-making facilities and cold stores, and upgraded smoking/drying facilities. With an expanded/upgraded infrastructure at these and other CFCs, artisanal fish processing and marketing (female-intensive activities) would be enhanced. In addition, as discussed, the completion of the Banjul fisheries jetty is expected to encourage local landing of industrial catch and value-addition through local processing.

c) Scaling up renewable energy pilot projects: There are constraints related to lack of ice and other cold-storage facilities at virtually all artisanal landing sites; as the cost of electricity, where available, is high. In light of these obstacles, the Government may be interested in replicating the wind-driven turbine technology being designed under the EIF Tier 2 where appropriate - along the coast as well as at inland CFCs where women are equally constrained in accessing fresh and high-quality raw materials. Upgraded fish-drying facilities and improved smoking kilns - preferably with alternative forms of fuel - will ease the drudgery of fetching and splitting firewood to produce smoked fish.

d) The availability of credit schemes/institutions: In terms of potential financing mechanisms, there is an established network of microcredit/saving schemes and infrastructures. Major stakeholders that can be leveraged to mobilize resources include: credit unions (such as the NACCUG), recognized microfinance institutions such as Reliance Financial Services and GAWFA, as well as community-based organizations and village bank networks (VISACAs) with a track record in savings and credit delivery.

e) Strengthening small scale fisheries organizations: There is significant potential for cooperative development based on existing associations (fisheries associations, community-based organizations, collective hiring of vehicles, etc.). In particular, the creation of an apex organization to assist women artisanal operators will be one way of addressing their individual group constraints. For example, the women artisanal operators in the various specialties (fish smokers, fresh fish vendors, fish driers, etc.) could be formed into an apex organization; and assistance by way of credit could be provided to each group as and when necessary. Important progress in this direction has been made under the FAO's Sustainable Fisheries Livelihoods Programme Post-Harvest Fisheries Project (SFLP/PP3) interventions. The SFLP/PP3 initiative clustered fish post-harvest operators into legalized, village-based groups (Fisheries Post Harvest Operators (PHO) CBOs). These village-level associations have then been clustered horizontally into four Local Government Area Apex Groups (LGA PHO Apex groups); themselves grouped into a National Fisheries Post Harvest Operators Platform (FAO-IFAD, 2012). It is important to consolidate and expand this network, with due attention to gender dynamics.

Box 6. Access to Credit by Artisanal Women

A financing mechanism worthy of emulation is the credit component of the Gambia Artisanal Fisheries Development Project (GAFDP). US$ 1.1 million were disbursed under this credit facility between 2005and 2011. The funds are disbursed through the Social Development Fund (SDF), which lends on to Micro Finance Institutions (MFIs) - such as GAMSEN, Reliance Financial Services, and village saving schemes - at a rate of 15 percent. The micro finance institutions then lend to artisanal fisheries operators at 20 percent, gaining 5 percent to cover administration costs and other charges. The grace period of these loans is three months, payable between one to three years depending on the amount of the loan. A total of 4,373 operators (58 percent of whom were women) benefited from the scheme; and they included fishermen, women fish processors and traders, boat builders and outboard engine mechanics. This surpassed the project's appraisal target of 20 percent of women beneficiaries. The total repayment rate so far is about 35 percent, but the recovery rate for the women is more than 95 percent.

Experience in the artisanal fishing industry has shown that women are by far better at repaying loans than their male counterparts. Consequently, they ought to have a fairer chance to access government administered loan schemes than the men. The GAFDP credit component has contributed to improving women's access to credit. More credit schemes specifically aimed at the women fisher folk will further enhance their capacity in the fight against their marginalization in the sector.

Source: Interviews with GAFDP and SDF representatives (refer to Annex 1 for methodological details)

3.3.2 Gender-specific Concerns and Corrective Measures

Women operators are the most vulnerable group in the artisanal sub-sector, and have yet to be adequately empowered to enhance the effectiveness of their operations. Even though they play a very active role in the sector, they tend to have less access to resources than men.

Observations at the landing sites of Gunjur and Brufut, for example, have evidenced women's unequal access to productive assets. There were perceivable inequalities between women smokers and men smokers in terms of access to CFC-managed facilities. Women occupied units in need of rehabilitation, for which they paid a rent with no service provided. Women fish driers, who transform fish that would otherwise be thrown away, were also faced with similar problems. The overall tendency seems to be that women tend to receive "diminished" assets, while sectors that attract investment tend to "defeminise". This imbalance, if not redressed, may negatively affect the overall prospects for sector development, as women account for about 80 percent of fish processors and 50 percent of small-scale fish traders. Corrective measures and actions need to be taken to address this marginalization of the women involved in the sector.

The integration of gender considerations into the design and implementation of fisheries infrastructure projects is, therefore, a critical issue; particularly where the rehabilitation and expansion of fisheries infrastructural facilities at both landing sites and markets is concerned. The objective is to ensure that facilities used by women are upgraded, or that upgraded facilities are assigned to women. Concrete measures may include quotas, informal complaints procedure, etc. Community mobilization in the identification and enforcement of suitable measures is critical in this context, as the whole process should be endogenous, from within the community. To this end, due mechanisms should be put in place to ensure that women are fairly represented. These should include community sensitization about the socio-economic implications of women´s marginalization in the fisheries sector. Community leaders, in particular, should be mobilized to support women's access to resources.

In a similar vein, measures should be implemented to avoid the excessive segregation - or dual structure - of the supply chain according to the range of markets served (export and local/regional). Indeed, the development of the export industry may result in the creation of a dual structure in the fisheries sector, with some diversion of investment from the domestic segment (domestic marketing and distribution of fresh fish and traditionally processed products) to the export-oriented segment (particularly fresh and frozen fish products serving the EU market). This dual structure of the chain is a potential source of disadvantage for small-scale women operators (driers, smokers, retailers), who mainly operate in the domestic segment. It may also be to the overall detriment of local people. Prioritized investment should, thus, continue to include domestic facilities and not only focus on export-

oriented ones. Particular attention should be paid to infrastructure catering for small-scale operators (and indirectly women) who play a critical socio-economic and nutritional role in their communities and in the larger Gambian society. This infrastructure includes: ice plant and cold storage facilities to market high quality fish products at main urban/inland markets; fish handling and processing equipment; improved processing techniques; packaging material at landing sites; and well-equipped dedicated fish markets.

Parallel action should be taken in favouring women's access to credit, to further deepen and strengthen the GAFDP experience. Affirmative actions taken to redress power imbalances may include target percentage of credit to be disbursed to women and dedicated lines of credit for women operators. Alongside credit, specific training should be delivered to women post-harvest operators covering three key areas: technical training on post-harvest handling and processing techniques; business education (record keeping and business plans); and the related fields of market information, market intelligence (how to use market information) and marketing (how to establish marketing links).

Finally, it is important to identify and invest in niches or products that can generate value-added for women (the Diaspora market, oyster harvesting, and specialty smoked products).