European Commission

VCA4D
VALUE CHAIN ANALYSIS FOR DEVELOPMENT

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Fisheries value chain analysis in The Gambia

Value chain analyses assist in informing policy dialogue and investment operations. They help the understanding of how agricultural development fits within market dynamics. They permit an assessment of the value chains' impact on smallholders, businesses, society and environment.

The European Commission has developed a standardised methodological framework for analysis (https://europa.eu/capacity4dev/value-chain-analysis-for-development-vca4d-/wiki/1-vca4d-methodology). It aims to understand to what extent the value chain allows for inclusive growth and whether it is both socially and environmentally sustainable.

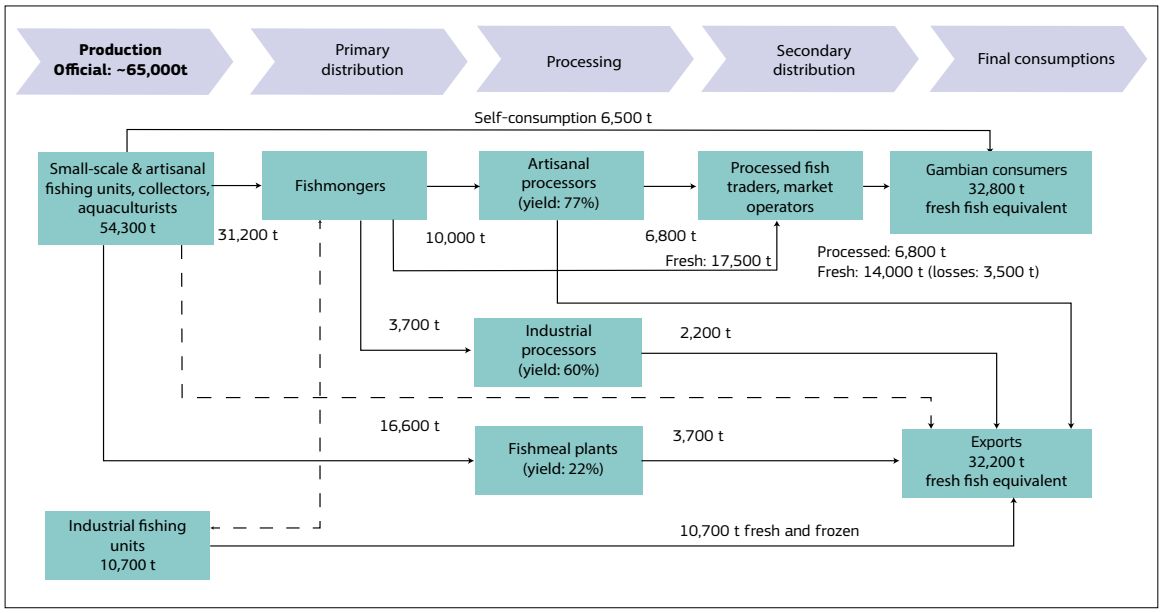
The value chain context

The Gambia has a continental shelf area of 4,000 km² and an Exclusive Economic fishing Zone (EEZ) of 10,500 km². Although the leading producers of fishery products in the region are Senegal, Mauritania, Ghana and Nigeria, The Gambia is both fish abundant and rich in diversity (over 500 species, mostly of demersal and pelagic).

Both marine and inland fishing is practised in the country. Large foreign industrial vessels operate through fees and agreements in distant waters within The Gambia EEZ, while both artisanal and industrial motorised boats operate in coastal domestic waters and on The Gambia river. Over the last 10 years, the artisanal sector has accounted for more than 80% of the total domestic and official landings (Figure 1), fish being the top source of protein in the population's diet.

The European Union intervention

Following the democratic transition of the country since 2017, the European Union (EU) and The Gambia are revamping cooperation. One step has been the signature of a Sustainable Fishing Partnership Agreement (SFPA) in 2019. This 6-years agreement foresees a financial contribution from the EU of € 3.3 million (€550,000 per year), half of which is dedicated to the support of the national fisheries policy; the SFPA allows EU vessels to fish a maximum of 3,300 t of tuna (and a small demersal component) per year, with European ship owners paying an additional fee per t of catch.



The Gambia is also a target country of the 'Improved regional fisheries governance in Western Africa (PESCAO)' project under the 11th EDF Regional Indicative Programme with ECOWAS. Additionally, a €5.3 million Climate Resilient Coastal and Marine Zone Project for The Gambia was signed with the Government in 2018.

Figure 1 : Flow chart of the fisheries VC in The Gambia

Functional analysis

Landings and main activities

Industrial offshore marine fishery in The Gambia's EEZ is regulated by **bilateral fisheries agreements** with their relative fees and conditions (EU, China, Senegal, etc.). Catches are not landed on the Gambian territory (also due to the lack of proper infrastructure) and are unknown and therefore they are excluded from the following analysis. Currently, the Gambian fleet does not have the technical capacities to engage in this type of fishing, yet this represents an opportunity for future developments of the sector. Improved scientific information about fish stocks would also be an asset for the Gambian Government for better negotiating agreements and sustainable fisheries management.

Coastal marine and inland fishing activities are both artisanal and industrial. The average annual official landings in the country is **65,000 t** (65% corresponding to artisanal marine captures, 15-20% to industrial marine captures, and less than 15% to artisanal inland captures including aquaculture). In terms of volume, artisanal fishing mainly catches small pelagic species (shad known locally as bonga, sardinella and mackerel), demersal (sole fish…) and large pelagic species (catfish, threadfin, etc). Industrial fishing vessels target shrimps and demersal species.

The bulk of landings consists of small pelagic — **bonga and sardinella. Shellfish (mainly oysters)** remains a marginal, yet interesting activity from a sustainable development perspective. Fish processing is dominated by artisanal smoking and drying. Export-oriented activities (fishmeal, fresh or processed fish) represent roughly half of the landings fresh fish equivalent (Figure 1).

Fishing activities and landing sites

Artisanal marine fishing is dominated by foreigners, mainly Senegalese, while inland fishery remains in the hands of Gambians. **Artisanal fishers are classified based on their catching gear and methods**. The main ones are **encircling gillnets** (27% of the national captures), mainly used in shallow waters; **bottom gillnet** (22%) targeting a wide range of demersal; purse seines (19%) employed in pelagic fisheries and targeting mainly sardinella; **stow nets**, used for shrimps only in the estuary, using planked canoes without engines.

The **industrial fleet** consists essentially of foreign vessels flying the Gambian flag and benefitting Chinese owners. Around 80% of the **shrimp trawlers** (targeting also cephalopods) and 70% of the **demersal trawlers** (16% of the national captures) operate under the Gambian flag.

There are around **130 landing sites** unevenly distributed across the country along the Atlantic coast and the river Gambia. Landing sites feature minimal infrastructure and host numerous artisanal processing facilities (i.e. smokehouses and drying racks). Fish handling and processing takes place under **appalling hygienic conditions** in landing sites, due to the current decrepit conditions of cold storage, ice production, and sewage infrastructure. Losses due to waste are high.

Processing

Artisanal fish processors, concentrated at the landing sites, process mainly small pelagic and some demersal fish. Artisanal fish processing consists of **smoking and sun drying in racks** and **hot-smoking in open ovens** fuelled by local wood and palm tree branches. **Processing of oysters** is performed by the women of the diola community particularly, who harvest them in the wild. **Industrial fish processors**, concentrated mostly around Banjul due to better access to water, electricity and services, mainly freeze high value demersal fish for export. There are also **fishmeal plants** located in major landing centers, also export-oriented, which supply comes from mainly from artisanal fishers.

Distribution and trade

The fresh and processed domestic fish market is fully supplied by the artisanal sub-chain and marketed in the country's cities and rural areas via fishmongers, fish traders, and other market operators (Figure 1).

Exports of Gambian fish are quite diversified. Fresh fish counted less than 10% of fish exported (mainly to Israel and the USA). The first importers of frozen fish (70%) are Korea and Vietnam followed by European countries. Fishmeal importers are from Vietnam and Tunisia. The United Kingdom is the main importer of smoked and dried fish. A large part of processed products such as sharks and rays is exported to neighbouring West African countries, particularly Ghana.

Governance

The Department of Fisheries of the Ministry of Fisheries and Water Resources is responsible for the implementation of the **fisheries policy** (approved in 2006) and for the coordination of the VC activities in agreement with the professionals' organisations, although these are yet not very dynamic. They have inadequate organisational and administrative capacities and are in need of strengthening and training in finance, advocacy, resource mobilisation, management and technology.

With the democratic transition, fishery has received new attention and is among the 8 priorities of the Gambian National Development Plan 2018-2021.

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Economic analysis

Financial viability for the actors

Fisheries activities are profitable for all gear fishers except purse seine fishers. These register a negative annual net operating profit (NOP), due to an income sharing system more favourable to the crew members employed on-board and to the costs of capital equipment. This raises a serious problem of renewal of capital equipment, aggravated by the high cost of engines, dugout canoes and fishing nets as no subsidies or taxes cuts are provided. A stow net fisher features the highest NOP (GMD 1.6 million or €29,000). For an encircling gillnet and bottom gillnet fisher, the NOP results of GMD 20,000 (€360) and 795,000 (€14,500) respectively in spite of the high cost of fishing materials. An oyster female processor gets a NOP of GMD 2,700 (€50) from the activity.

For a drying processor, the NOP is GMD 16,000 (€290). **An artisanal smoking processor registers in average a negative NOP** due to low financial assets and high competition with other actors for fish supply. These processors, mainly women have few alternatives, but the financial losses are low and the activity may provide cash. An industrial processor gets a NOP of GMD 78 million (€1.4 million) from freezing activities and GMD 63 million (€1.1 million) from smoking processes. The NOP of a fishmeal plant is estimated at GMD 12 million (€221,000).

All fish traders register a positive NOP: GMD 1.9 million or €35,500 for a retailer, GMD 680,000 or €12,500 for a medium-size fishmonger and GMD 7.5 million or €14,000 for a large fishmonger.

Effects within the national economy

The **total value added (VA) of the fisheries VC** is GMD 2.8 billion or **€51 million**: GMD 2.5 billion of direct VA and GMD 0.3 billion of indirect VA resulting from the use of local intermediate goods and services supplied by actors outside of the VC. This total VA represents **6.5% of The Gambia's GDP and 33% of the agricultural and fisheries GDP**.

Fishers and processors, and workers to a lesser extent, are the main beneficiaries of the VA generated (Figure 2). The difference between the value of export of fish and imports of intermediate goods by the VC indicates a surplus of around GMD 2.6 billion (€47 million) and a **positive contribution of the VC to the balance of trade**. The VC gives also a **positive contribution to the public finances**, estimated at GMD 101 million or €1.8 million. This amount corresponds to the value of the taxes collected by the State and local councils since the State does not provide any subsidies to the VC actors. **Revenue generated from fisheries agreements** also contribute to the public finances with up to GMD 81 million (€1.5 million) per year.

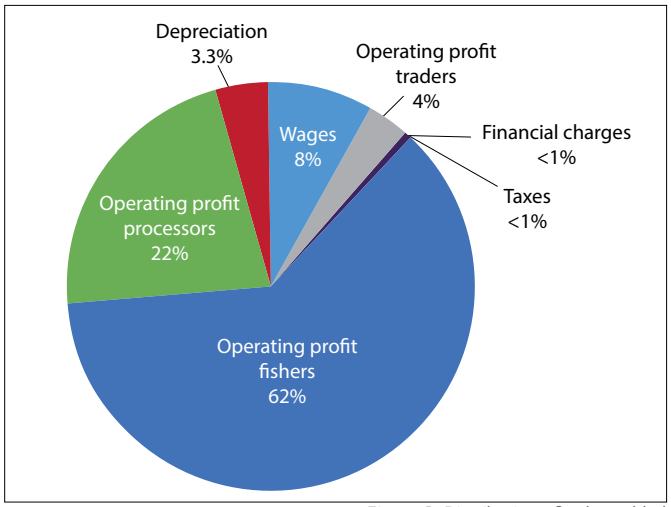

Figure 2: Distribution of value added

Viability in the international economy

The Domestic Resource Cost (DRC) is below one (0.09) meaning that the VC is viable in the international economy and has a comparative advantage as it uses fewer domestic factors of production than the economic value it generates. The Nominal Protection Coefficient (NPC) of 0.88 indicates that **there is no protection for the VC actors through fiscal policies**.

Growth inclusiveness and employment

Fishers generate the main part of the direct VA (67%) and benefit from 70% of net operating profits of the VC, whereas processors and traders benefit from respectively 26% and 4%. Traders' activities remain informal with a low level of investment. Fishers are the main wage providers in the VC (59%), followed by processors (39%). The **incomes of many fishery workers are much higher than the guaranteed minimum professional wage in the formal sector**.

The number of self-employed fishers, processors and traders in the VC is estimated at 41,000. Around 158,000 workers are involved in the processing and distribution of fish and 1,500 workers are employed by 14 fish processing and export companies. **Overall, 200,000 people derive their livelihoods from the VC activities.**

WHAT IS THE CONTRIBUTION OF THE VALUE CHAIN TO ECONOMIC GROWTH?

All activities for the key actors are profitable in average except for purse seine owners (revenue-sharing system more profitable to crew members, low selling prices) and artisanal processors (low profit or even financial losses). This and the fact that fishers do not benefit from tax cuts on fishing materials raises a problem of equipment renewal within fishing units. At the national level, the Gambian fishery value chain is economically sustainable creating value added and a substantial contribution to the GDP. Its integration into the national economy is quite high (86%) meaning that the few intermediate goods and services that the value chain purchases contribute to the growth of domestic supplying sectors instead of being largely imported. The VC is also a contributor to the public finances and the balance of trade. It has a comparative advantage in the competition with neighbouring countries in the international markets.

Social analysis

The table provides an image of the main social issues or risks and positive consequences linked to the VC activities in different strategic domains. Figure 3 sums up the situation for the six domains.

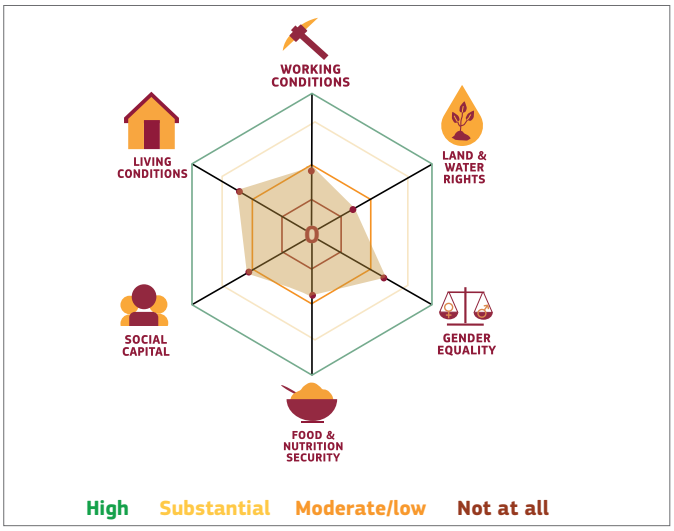

Figure 3: Social profile

IS THIS ECONOMIC GROWTH INCLUSIVE?

10% of people derive their livelihoods from the fisheries value chain activities in this very small country of 2 million inhabitants. The incomes of the fishery workers are higher than the formal minimum professional wage. Nevertheless, the value chain can be considered weakly inclusive because there are vulnerable groups as somes categories of artisanal fishers, artisanal smoking processors or the oyster processors. Nevertheless, oyster harvesting and processing remains a crucial activity for marginalised people. Moreover, many jobs in the production and the processing are either precarious or informal. Children on-board of small-scale fishing units are exposed to accidents and women involved in arduous work (mainly in processing) have low income and are more vulnerable to poverty.

IS THIS VALUE CHAIN SOCIALLY SUSTAINABLE?

The social sustainability of the value chain faces various constraints as The Gambia does not maximise the social benefits from the fisheries resources. Apart from gender equality, other social indicators are weak. The overall social profile reflects the shortcomings of the governance system in the fisheries value chain (and in the country more in general). The failure of the control system of foreign boats to access The Gambia fishing areas and many facilities granted to the processing industries are done at the expense of the concerns and needs on the local population. This poor governance causes a shortfall of foreign exchange for the country and a decrease of the income of national actors leading to difficult living conditions and food and nutritional insecurity of the population. Despite the many opportunities in the sector in terms of job creation, provision of animal protein and income, its social sustainability is still too low.

Working conditions	• International regulatory provisions not well applied in employment contracts. • Many day labourers and informal jobs in the industries and artisanal fishing. • No social security coverage for the majority of workers in the VC. • Strong presence of children for labour and high risk of accidents. • Low attractivity for youth to invest in fisheries.
Land and water rights	• The presence of fishing fleets under fishing agreements in Gambian waters has led to a competition for fish with the national fleets. There is asymmetry of operation between foreign vessels and national fleets. • Fisheries policies in line with VGGT, but weak consideration of it by investors and institutions. • Lack of information and transparency on fisheries investments in the country (in particular the establishment of fishmeal factories and the licensing conditions for foreign fishing vessels). • Lack of participation of professional organisations and of prior community consent in decision-making (granting of operating titles and investment priorities) make most decisions unpopular.
Gender equality	• Presence of women at all segments of the VC, some having their own fishing unit. • Financial constraints for women in terms of access to credit. • Highly gendered division of labour, women involved in decision-making mainly as processors or traders. • Important positions of women in organisations at landing and processing sites.
Food and nutrition security	• The fisheries VC is the main supplier of animal protein to the diets of many households. • Relative availability and accessibility of fish compared to meat. • Rising prices of fish in the local market due to the decrease in catches (depending on the seasons but also the presence of Senegalese fishers in The Gambia) • Increasingly limited access to the fish for women processors due to the competition with fishmeal factories.
Social capital	• Weak negotiation capacities of the producers' organisations. • Low access to information by the VC actors. • Voluntary participation of VC stakeholders (processing plants or fishers' associations) in the rehabilitation or construction of roads, schools, health centres and scholarships funding.
Living conditions	• Access to primary and secondary health facilities for most of fishers' households. • Buildings with a sheet metal roof as dominant type of housing for most. • No access to safe drinking water for most. • Low rate of access to secondary education for the VC actors' children. • Few professional training opportunities in the fisheries VC.

Environmental analysis

Impacts of fresh fish

The impacts from fisheries mainly depend from the type of production unit. Fishing units not consuming fuel (for example stow nets) have the lowest impacts per t of fresh fish. Comparing fuel users, **the impacts of demersal fishing activities are higher** than those of pelagic fishing, mainly due to the associated fuel use intensity (FUI). **The impacts of industrial fisheries are considerably higher** than those of artisanal landings due to the access to the fishing zones, the status of targeted stocks limiting economies of scale and even the skipper effect limiting the performance of industrial vessels (Figure 4).

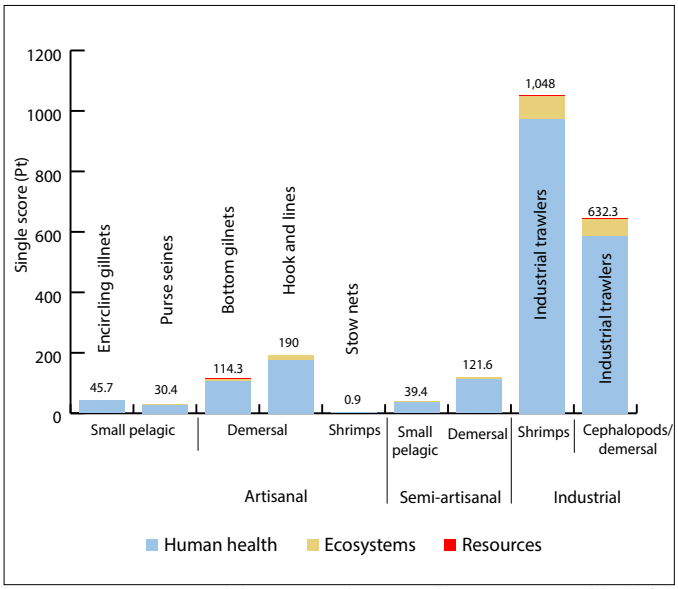

Figure 4 : Environmental damages on the areas of protection per t of fresh fish

Impacts of processed fish

Impacts are higher for artisanal processing (except for the shellfish sub-value chain) than for industrial processing per t of processed fish. This is due to the **biomass combustion and the weight losses such as residues and water evaporation** associated with artisanal processing. Moreover, it depends on the impacts already incorporated in the fish that is processed: artisanal units process fish from high-impact fisheries (mainly demersal) while industrial freezing processors produce a minimal amount of residues; and fishmeal plants benefit from economies of scale and process fish from low-impact fisheries (small pelagic) (Figure 5).

Contributing factors to environmental impacts

The environmental impacts of the whole VC are mainly due to the energy used. **For most fishing activities, fuel consumption linked to the use intensity of the various sub-fleets is the main contributor to impacts**. The impacts of fish processing are determined mainly by the impact of the supplied fish and thus the associated use of fuel at the fishing stage. Concerning fishmeal production, the environmental performance is also mainly affected by the fishing stage, and thus by the fuel use intensity of the fishing units. Only for **shellfish processing, the main driver for impacts is the combustion of wood as energy used**.

The Gambian fishing and processing activities, including transport of fish products, **affect predominantly the area of protection of human health** (Figures 4 and 5). These damages are driven by inefficient fuel (liquid fossil fuels, wood, other biomass) consumption. Transport of fish products has a relatively minor contribution to overall impacts, even including the production of ice used in transport of fresh fish. Current impacts are probably higher due to the poor condition of Gambian roads and vehicles.

Status of fish stocks

There is a lack of proper stock management, as well as poor Monitoring Control and Surveillance (MCS). Stocks are fully exploited or over-exploited as in the case of bonga, sardinellas, white groupers (demersal) and pink shrimp. For these, the FAO recommendations are to reduce landings and at least not to exceed the 2016 catch levels. These recommendations are not well respected for white groupers, cuttlefish and shrimps. For these two last species, the contribution of industrial fleets to excessive catches is non-negligible.

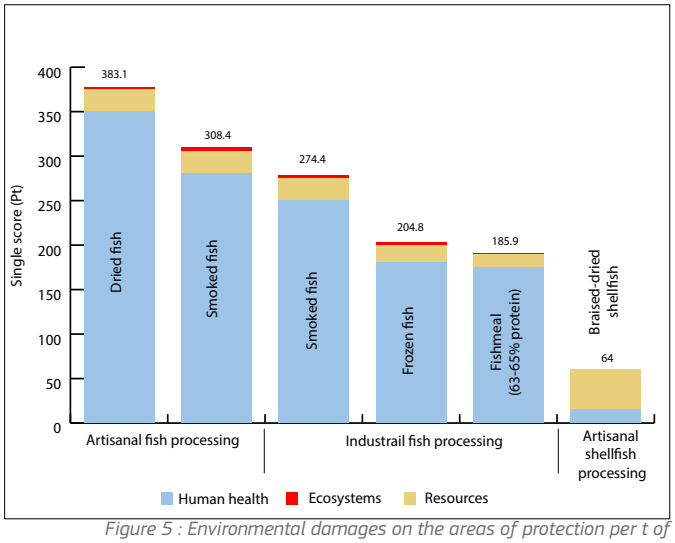

Figure 5 : Environmental damages on the areas of protection per t of processed fish

IS THE VALUE CHAIN ENVIRONMENTALLY SUSTAINABLE?

Small pelagic fisheries, artisanal shellfish collection and processing, and the fishmeal industry are the least inefficient activities in the whole value chain. Industrial fisheries do not benefit from economies of scale, and their impacts are rather higher than those of artisanal landings per t of fish. Artisanal processing is also inefficient as it is affected by the high inefficiencies of the artisanal fisheries and poor processing infrastructure. The value chain is generally inefficient, and is not environmentally sustainable, especially due to the lack of management and monitoring.

Conclusions

Main findings

The fisheries VC in The Gambia is an important contributor to the country's economic growth, employment creation and public finances. However, the negotiating capacities of professional organisations are rather weak and actors in the VC do not have easy access to information to perform more efficiently. With a poorly controlled EEZ, uncontrolled fishing authorisations, unsupported national stakeholders, and numerous advantages granted to foreign investors without considering the concerns of the national population, the VC is not yet socially viable to meet the expectations of the local population. These shortcomings have repercussions on the living conditions of the actors, which are currently quite difficult. Without corrective measures, Gambian nationals, especially women, will be increasingly marginalised in their own country by foreign investors and economic operators and their living conditions will be even more difficult. As for the environmental impacts, the VC cannot be considered sustainable due to the lack of proper stock management as well as poor Monitoring Control and Surveillance. Pelagic and demersal, artisanal and industrial fisheries, as well as both artisanal and industrial processing, are rather inefficient. Measures aiming to improve the fuel use intensity and waste management of both the fisheries and the processing activities can lower their environmental impacts.

Recommandations

The following recommendations are made to further develop the fisheries VC in The Gambia in a sustainable and inclusive way.

- **Improve the attractiveness of the VC for Gambians.** Gambian fishers are absent in the most valuable fishery activities (sole, cuttlefish) due to the high cost of fishing materials, the size of fishing canoes and the know-how of the fishers. Combined actions like the creation of mutual credit services and fishing techniques training are required. The Gambian State must work also towards making the fisheries VC compliant with national and international rules, e.g. ensuring the application of regulatory provisions in contracts and regulating working conditions and remuneration in the informal sector.
- **Develop fish landing infrastructure.** The rehabilitation of the existing fish landing sites (mainly Brufut, Bakau, Tanji, Sanyang, Kartong) is needed as well as the building of new ones in fishing centres. The competitiveness of the Banjul jetty and dockyard to attract fishing vessels to land their catches in the country is subject to the provision of various services (dry-docking, maintenance and repairs, additional investments in the sub-sector). With adequate fish supplies from vessels landing their catches at the jetty, the factories would be able to operate optimally, thereby increasing employment, local consumption, fish sales and foreign exchange earnings.
- **Support artisanal fish processing.** Artisanal fish processing plays a vital role for food security, employment opportunities and livelihoods to women. Actions are needed to facilitate women's access to raw materials and proper processing equipment and funding. Also, construction of shelters and improving the quality of the artisanal process may reduce infections and consequent health issues, and products' losses helping them to be operational also during the rainy season.
- **The establishment of additional fishmeal plants shall be discouraged** and their production be allowed only in periods of high production to avoid food security problems for the local population.

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Agrinatura (http://agrinatura-eu.eu) is the European Alliance of Universities and Research Centers involved in agricultural research and capacity building for development.
The information and knowledge produced through the value chain studies are intended to support **the Delegations of the European Union** and their partners in improving policy dialogue, investing in value chains and better understanding the changes linked to their actions. VCA4D uses a systematic methodological framework for analysing value chains in agriculture, livestock, fishery, aquaculture and agroforestry. More information including reports and communication material can be found at: https://europa.eu/capacity4dev/value-chain-analysis-for-development-vca4d-

This document is based on the report "Fisheries Value Chain Analysis in The Gambia" 2020, by Angel Avadi (CIRAD), Moustapha Deme (ISRA/CRODT), Adama Mbaye (ISRA/CRODT), and Joseph Ndenn. Only the original report binds the authors.