

FISH VALUE CHAIN & MARKETING STUDY IN BERBERA DISTRICT, SOMALILAND



Contents

Acknowledgement	5
List of Acronyms and abbreviations	6
Executive Summary	7
Introduction	9
Objectives of the study	9
Methodology	10
Literature review	10
Qualitative methods	10
Sampling approach	12
Challenges	12
Research Findings	14
Status of Somaliland fishing industry	14
Fisheries governance and existing legal frameworks	16
Fish species in Somaliland seas	17
Preferred fish species	18
Seasonality of fish production and marketing	18
Stakeholders in the fishing sector	19
Fishing cooperatives in Berbera district	20
Equipment and facilities for the fishing groups	21
Skills and equipment gaps	22
Assistance from development partners	23
Average daily harvest	25
Average prices and profit margins	26
Effects of imported canned fish and red meat on the local fish production	27
Foreign fishing vessels in the Somaliland waters	27
Endangered fish species in the Somaliland waters	28
Fish processing and sanitation	29
End markets and main clients	31
Challenges facing producers and processors (mongers)	32
Roles of women and youth in the sector	36
Government strategy in fish harvesting and marketing	36

Conclusion and recommendations	37
Annexes 1: case studies	40
Case study: a fishmonger in Berbera town	40
Case Study: a youth fisherman in Berbera town	41
Annexe 2: Stakeholders in the fishing sector	42

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List of Acronyms and abbreviations

NEC-Fish	North East Coast Fish
FAO	Food Agricultural Organization of the United Nations
KIIs	Key Informant Interviews
FGDs	Focus Group Discussions
EEZ	Exclusive Economic Zone
GEEL	Growth, Enterprise, Economic & Livelihoods

Executive Summary

The fisheries sector is recognized as a vital economic driver for job creation and economic growth in Somaliland if it is well invested in and structured throughout the value chain right from harvesting to consumer. Candlelight with the support of Oxfam is implementing innovative fishery development for job creation project in Berbera district in Somaliland. Candlelight for Environment, Education and Health has commissioned Kabaal consulting to conduct fish value chain and market research in the Berbera district.

The purpose of the study is ***to better understand the fish value chain and marketing dynamics in the Berbera district.*** The study data collection covered Berbera districts and selected Hargeisa fish market and included desk reviews, Key Informant Interviews (KII), Focus Group Discussions (FGD) and in-depth case studies with relevant stakeholders in the fishery sector of Somaliland. The ministry of livestock and fishery development is mandated to regulate and promote the Somaliland fishery sector. Somaliland Fishery Law is the only legal framework for the fishery industry. FAO and other development partners work with the ministry of livestock and fishery development in reviewing and formulating policy frameworks. The ministry of livestock and fishery confirmed that the fishery policy and strategic plans are under review. The majority of the stakeholders have limited awareness of the national fishery regulations. On the other hand, the ministry issues license to foreign fishing vessels for limited periods with specified fishing equipment. However, all the respondents were

concerned about illegal foreign fishing activities that may destroy the natural habitats and exploit the fish species to extinction.

The fish species in the Somaliland waters are classified into pelagic (migratory) and demersal (sedentary). The Pelagic species include the tuna family (yellowfin tuna, frigate tuna, long tail tuna, sailfish tuna, skipjack tuna etc.) and Spanish mackerel. Besides, the common demersal species are scavengers, groupers, snappers, grunts, sharks, turtles, threadfin breams, lizardfish, goatfish, rays, and sea breams.

About 250 fishing boats of different capacities are currently operating in the Berbera district. The fishermen use embarked drift nets for catching the fish.

Six enterprises serve the fishermen and the fishmongers in the Berbera district with ice cubes and storage facilities. A kilogram of ice costs 1000 Somaliland shillings (0.12 USD) in Berbera town.

Despite that Somaliland society was historically nomadic pastoralists with plenty of red meat, fish consumption has been steadily growing in the urban areas due to the expatriates, diaspora returnees and media influences. The absence of a reliable cooling facility is a barrier to fresh fish consumption in Somaliland. Thus, canned tuna fish and red meat are readily available in the local markets.

80% of the fish stocks from the Berbera district end up in Hargeisa and Burao cities, and smaller quantities go to Boorama, Wajaale, Gabiley, Odweyne and Las Anod towns. The fishmongers

send the fish stocks on improvised Noah vans with large quantities of ice cubes. The fishmongers sell a kilo of fish at 13000 Somaliland shillings (1.5 USD); fishmongers resell it at 18000 shillings (≈2 USD) to the traders at the end markets, whereas the traders sell each kilo at 40,000 shillings (4.7 USD) to the individual customers and 29,000 (3.4 USD) to the hotels and restaurants.

In both the production and harvesting sites and end markets, fish vendors store the fish stocks in freezers of 500kg volumes. The fish vendors complained about access to the fish market in Berbera town.

Yellowfin tuna, long-tail tuna, sailfish tuna, sharks and kingfish are the most preferred fish species in the consumer markets for their high unit value and slow decomposition. The fish body mass and consumer preference determine the prices of the fish in the market.

The stakeholders have limited information about the marine ecosystem including the endangered fish species. The respondents, however, noted that the population of sharks, groupers, Bluefin, lobsters, sea cucumber and turtles are drastically dwindling in the Somaliland waters. They suspected of overharvesting of gulper sharks and damages in the fish ecosystem.

Women and youth play different roles in the fish value chain. 80% of the fisher folks in the Berbera district is young men below 30 years old. On the other hand, women mainly offer cleaning, net repairing service, and manage small scale businesses on fish. Moreover, several female boat owners invest in fish production.

The study respondents reiterated that the Somaliland fishing sector is struggling with the following challenges: artisanal practices, inadequate landing space and cold storage systems, access to affordable fishing gear and spare parts for the boat engines, absence of safety and communication facilities, seasonal fluctuations of the fish availability, poor transportation network, absence of external markets and inconvenient local marketplaces. The respondents also cited poor coordination among fisher groups, ineffective national regulatory frameworks, and a lack of reliable information about the marine ecosystem.

Few companies have emerged in the past two decades to produce, preserve, and market for commercial purposes. Those companies have either closed the businesses or manage only ice plants and cold storage facilities in the Berbera town.

Generally, the research recommends the establishment of fishery cooperatives, self-help groups and associations to enhance their collective actions and advocacy for their rights. The Ministry of Livestock and Fishery Development and development partners should invest in the regulations and promotion of the fishery sector; build skills of the artisanal fisher groups on fishing, processing, and marketing; ensure the sanitary standards of the fish stocks in transit from the production sites to the end markets; assist the graduates from the Berbera Marine and Fishery Academy with startup equipment and other necessary kits to put the theoretical concepts into practice, and undertake scientific research of the marine ecology in Somaliland including species at risk for extinction and practices of the foreign fishing vessels

Introduction

Somaliland has over 850 km coastal line; among the longest in East Africa. It is home to a variety of fish species including tuna, albacore, lobster, swordfish, shark, and many others. However, the sector is still largely artisanal and untapped and faces intractable challenges.

The fishery sector is recognized as a vital economic driver for job creation and economic growth if it is well invested in and structured throughout the value chain, right from harvesting to consumers. Although Somaliland National Development Plan II (2017 -2021), Somaliland National Vision 2030 and the Ministry of Livestock, Fishery and Marine resources have identified the fishery as a priority area for investment, the government commitments to regulate and support the fishing sector is constrained by limited resources. Responding to these challenges, Candlelight, with the financial support of Oxfam, is implementing an innovative job creation fishery project in Berbera district, Somaliland. Youth constitutes over 70% of the Somaliland population; the majority of them are unemployed.

The specific objectives of the project include:

1. Creating a greater inclusive economic freedom for youth through fishery development interventions.
2. Young men and women are accessing jobs and become self-employed through fishery value chain development interventions
3. Establishment/ strengthening of fisher organization.

Hence, Kabaalconsulting has conducted a fish value chain & marketing study in Berbera district in Somaliland in July 2021.

Objectives of the study

1. To assess the status of the sector in terms of employment, production, local consumption and probably export chains
2. Describe the existing domestic and international market channels and assess the challenges and opportunities posed by these markets.
3. Identify key market chain actors and analyze the cost, margins, and profits of different stakeholders in the marketing chain
4. Identify production and marketing constraints and recommend possible interventions to mitigate the observed constraints
5. Assess mode of transporting fish from landing sites to end markets, the various techniques used in the processing and/or preservation of fish and the challenges and opportunities related to transportation and processing of fresh fish in Berbera districts and other cities in Somaliland.

6. Identifying and quantifying the fisher folks (by number and gender), their organization, outputs and the opportunities and challenges that they face.
7. Assess enterprises involved in the fish subsector input and output businesses, their different margins, challenges and opportunities in Berbera and other cities in Somaliland
8. Provide substantive analysis on the potential of job creation in the fishery sector and share considerable recommendations on how the sector could have gender-sensitive job creation capacities.

Methodology

The study employs a qualitative approach and quantitative elements, where necessary, to understand the fish value chain and market dynamics in the Berbera district. We triangulated the data from diverse sources to understand more about the emerging findings and to ensure consistency and credibility of the findings and recommendations. Below are the steps:

Literature review

The consultants have reviewed a list of national policies, laws, and other relevant literature. Based on the findings of the literature, the consultants have designed a **Research Matrix** (RM) that outlines the research questions, tools for data collection (potential indicators) and the sources of information and additional details.

The study has employed Focus Group Discussions (FGDs), Key Informant Interviews (KIs), and case studies with relevant stakeholders in Berbera and Hargeisa cities. The consultants have recruited an organizer in Berbera town to arrange focus group discussions, Key Informant Interviews, and case studies with the relevant groups in the fishery sector.

Qualitative methods

We have conducted **nineteen** interviews, **three** group discussions, and **two** case studies as below:

- i. **Key Informant Interviews (KIs):**
 - a. **Key Informant Interview with the chairman of Somaliland fishery association in Berbera Town.** The consultants found out only one association for the Somaliland fishing groups. Hence, we interviewed the chairman of the fishery association in Berbera district.

- b. **Key Informant Interviews with fish producers in Berbera district.** The consultants have interviewed **three** fishermen and fishmongers (woman, youth, and man) in Berbera town.
- c. **Key Informant Interviews with public Institutions**
The consultants have interviewed **five** representatives from the relevant public institutions (two from the ministry of livestock and fishery development, Chamber of commerce, Berbera local council and Berbera Maritime and Fisheries Academy).
- d. **Key Informant Interviews (KIs) with fish traders in Hargeisa markets.** The consultants have interviewed **seven** fish traders in Hargeisa markets who have an in-depth understanding of the fish business dynamics.
- e. **Key Informant Interviews with development partners.** The consultants have interviewed three representatives from the development partners including Shuraako, GEEL project, FairFishing and United Nation's Food Agricultural Organization (FAO).

ii. Focus Group Discussions (FGDs), the consultants have conducted the following three focus group discussions:

- a. **A Focus Group Discussions for fishermen.** The consultants **discussed** with 7 fishermen as a group. Both fishermen (producers) and fishmongers were represented in the discussion.
- b. **A Focus Group Discussion for fisherwomen (individual fish fishermen or producers).** The consultants had a **discussion** with 9 fishermen and fishmongers as a group in Berbera town. The culture and nature of work discourage women to involve in fish production.
- c. **A Focus Group Discussion for youth fish producers.** The consultant **discussed** with 10 young fish fishermen (producers) and fishmongers who embark on the boats to the sea.

iii. Case studies:

- a. **A case study on a fisherman.** The consultants had a lengthy discussion with a fisherman for in-depth information about the fish production cycle. The respondent explained the process such as preparation, timing and duration, fish handling, preservation, and marketing.
- b. **A case study on female fishmonger.** The respondent narrates the whole process and the role of women in fish production, preservation, and marketing.

Sampling approach

Figure 1: Sample of interview participants in Berbera town



Purposive sampling was used for selecting research participants and locations. The KIs and FGDs participants were selected based on their roles and experience in the fish value chain and market dynamics. The sampling procedure ensures representation and inclusivity considering location, gender, age, and other socio-economic characteristics of interest.

Challenges

The field data collection was, by and large, very smooth. The respondents were responsive and willing to provide the necessary information. Women and youth have turned up in large numbers than expected. However, the field data collection has encountered the following minor hiccups:

- The interview with the chairman of the Somaliland Fishery Association was rescheduled for the evening because he was coordinating missions searching the body of a fisherman lost in the sea a day before the interview.
- The data collection tools were designed in the anticipation of more than one fishery cooperative and self-help group in the Berbera district. However, only

one loose association coordinates the fishing folks and liaises with other stakeholders. Hence, priority was alternatively given to the fish producers and fishmongers with their age and gender diversities.

- An interview with a medium scale fishing company has been scheduled for Thursday, 8th July. However, key informants from the major fishing companies have travelled to Hargeisa and Burao cities to escape the summer heat in the Berbera town for the weekend. Therefore, the interview was conducted in Hargeisa city.
- The fish traders in Hargeisa city were generally reluctant or too busy to provide detailed information about their businesses. In addition, some of them may have suspected a feasibility study of a competitor company. Hence, the consultants have met seven companies instead of three in the initial plan.

Research Findings

Status of Somaliland fishing industry

Before the collapse of the central government of Somalia in 1991, Berbera town had cold storage of 400tons capacity. Italy used to import large freights of fish from Somalia; 200tons were sent from Berbera every three months. North East Coast (NEC) fish was responsible for the regulation, motivation, training, equipping the fishermen with essential gears as well as the registration of daily fishing missions to the sea. In collaboration with the coast guards, NEC fish was responsible for the monitoring of the Somalia Exclusive Economic Zone (EEZ). NEC fish was also responsible for the quality and external marketing of the fish products. A motherboard (ship) was on standby at the port for rescuing the distressed fishermen and their properties from the sea.

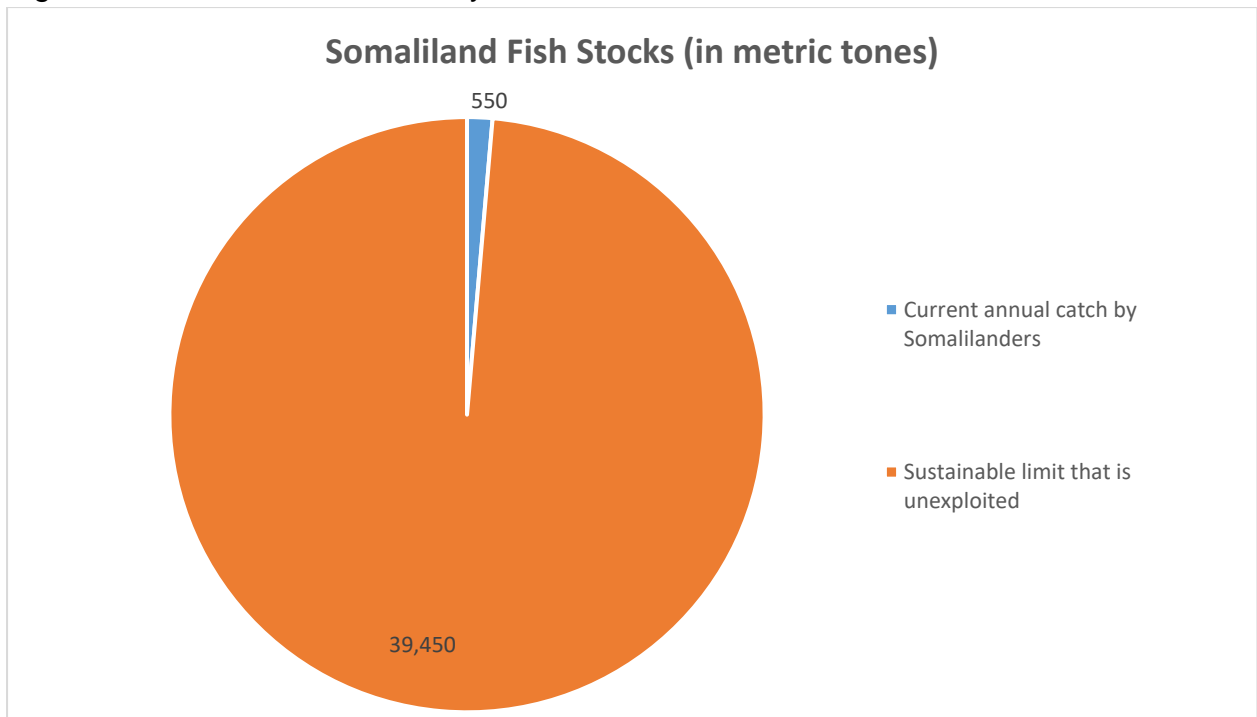
Since the proclamation of Somaliland independence in 1991, the private sector was managing the fishery business with minimum government interventions including regulations, investment, and technical support. An expert from the Berbera Marine and Fishery Academy estimated 2000 fishermen and fishmongers are currently involved in fishing activities in the Berbera district; women constitute about 3% of this figure. The Ministry of livestock and fisheries development, Sahil regional director (who happen to be a fisherman) confirmed a growth from 50 fishing boats in 2010 in Berbera district up to 500 in 2021.

Despite Somaliland's enormous marine resources, the consumption of fish is very low in Somali society. This is partly due abundance of red meat and limited investment in the sector – but also because fish does not form part of the traditional Somali diet. The situation is steadily shifting in the urban centres to fish dishes. Although the growing number of expatriates, diaspora returnees, increased understanding of the benefits of fish over red meat and social media have influenced the cultural transformation, the majority of Somaliland households still prefer red meat over white meat. One respondent in Berbera town narrated a case in which he brought a big fish in 1991 to a restaurant owner to purchase. However, the restaurant owner screamed, "Please take this away, and I will give you a free lunch". A large percentage of the fish stocks is now consumed in the hotels and restaurants in the cities. As a result, the current fish production capacity can merely satisfy the insatiable and growing demands for fish in the cities and big towns.

On the other hand, unlicensed foreign fleets (mostly from Yemenis and Egyptians) harvest fish from the Somaliland territorial waters. The foreign vessels use dangerous technology which may destroy the natural habitats of fish breeding. Though the Somaliland government has licensed some industrial fishing vessels, the government cannot monitor their activities in the sea and hold them into account. According to the research respondents, there is limited information on the status of the marine ecosystem. Several domestic fish species could be at risk of extinction.

The Somaliland coastline is rich with marine resources including vast swatches of unexploited fish. There is no consolidated data available but estimates from different sources indicate the existence of large unexploited resources in a pristine environment. Estimates suggest that the yearly sustainable catch available for Somaliland fishermen is around 40,000 metric tons, whilst the current yearly catch is 550 metric tons, and this leaves 39,450 tones for local consumption and export markets.¹

Figure 1: Fish catch vs availability



The fishing sector has an opportunity to grow, as currently less than 1% of the yearly sustainable catch is harvested; however, it is constrained by fundamental challenges which are beyond the capacity of the Somaliland government. The fishery sector lacks reliable data which could inform investors about the market trends and insights. The absence of infrastructure including impassible coastal roads, storage facilities² and unpredictable climate conditions puts fishing businesses at significant risk of losses. The traditional fishermen also lack boat maintenance skills as there are limited workshops with qualified technicians.

In Somaliland, the youth unemployment rate is 75%, the fisheries sector is a potential economic driver for job creation and economic growth. It is vital to building the capacity of the fishery sector to provide job opportunities. The Somaliland National Development Plan II (2017 -2021), Somaliland National Vision 2030 and the ministry of livestock and fishery development have identified the fisheries as a priority area for

¹Michael Smith (2013), Industry Analysis: Fishing in Somaliland for Shuraako. Available at <https://shuraako.org/sites/default/files/Industry%20Analysis%20Fishing%20in%20Somaliland.pdf>

² Interviewers prioritized this as very key obstacle to further their businesses into other cities in Somaliland and into the export markets

intervention, however, limited institutional and financial capacities³ make the Somaliland fishery industry underdeveloped

Fisheries governance and existing legal frameworks

The fishery sector is still at the early stages of development, and the legal and regulatory frameworks that ensure effective governance are still being introduced, developed and enforced. The legal frameworks governing the fishers are fragmented and exist in silos. The Somaliland government has introduced several legal frameworks including the Somaliland Fishery Law (Law No. 84/2018) promulgated and came into force on 3rd November 2019. The Law refers to the UNCLOS based maritime seas of the Republic of Somaliland - the territorial sea, the contiguous zone and the exclusive economic zone, the latter of which is all in the Gulf of Aden opposite Yemen. The maritime boundary to the west is that shared with the Republic of Djibouti and to the east is that shared with Somalia.⁴ Other laws include Registration & Licensing of Fishing Vessels (No. 1/08/2012); The Strategic Plan for the Somaliland Ministry of Fisheries and Marine Resources (208-2020); Somaliland Fisheries Policy formerly known as the Coastal and Marine Resource Policy of Somaliland (2000). The strategic plan and fisheries policy are not available in public domains and are in draft forms. According to the director of planning of the ministry of livestock and fisheries development, the policies are reviewed every five years

and the fisheries policy, and the strategic plan is currently being reviewed to update them. No other laws exist to regulate the fisheries sector, the existing laws contain serious gaps that weaken their full enforcement and further clarification on their application is needed. Although progress was made in developing policies and laws to regulate the sector, operationalizing these instruments has been a challenge due partly to limited resources, capacity constraints and political will.⁵

Although the ministry of Livestock and Fishery Development is mandated for the protection, regulation and development of the Somaliland fishery sector, the fishing community uses informal (customary) arrangements to mediate and administer issues arising in the fishery sector. The Fishery association has limited information about the legal frameworks. Thus, the clan leaders, the coast guards and the Berbera municipality play crucial roles in the regulations and conflict resolutions. For example, the Somaliland coast guards record the personnel and the equipment of sea-going fishing boats. The coast guards also assist the fishermen in carrying out rescue missions with the fuel support of the local government.

³ ISIR (2019), Somaliland 2019 Budget brief Pge 6. Available at <https://www.somaliland.com/wp-content/uploads/2019/02/Somaliland-2019-Budget-Breif-ISIR.pdf>

⁴ [Xeerka-Kalluumaysiga-Xeer-Lr.-84-2018.pdf \(somalilandlaw.com\)](https://www.somalilandlaw.com/Xeerka-Kalluumaysiga-Xeer-Lr.-84-2018.pdf)

⁵ Government Key Informant Interviewees

The Ministry of Livestock and Fisheries Development issues identification numbers and cards to the boats and fishermen, and licenses for the local and the foreign fishing companies and cooperatives. The ministry is also responsible for managing external assistance (i.e., aid projects). The coast guards ensure compliance with the regulations for every sea-going boat and its crew. In addition, the government collects taxes from fishing activities.

On the other hand, the Somaliland company law gives licenses to fishing groups operating as companies. However, the interview respondents complained about licensed companies that are inactive in the sector and most often benefit from development assistance intended for genuine fishery groups. For example, the fish market by FAO was handed over to two pseudo-companies that charge the fishmongers exorbitantly.

Fish species in Somaliland seas

The fish species in Somaliland waters are classified into demersal (domestic) and pelagic (migratory). The Pelagic species include the tuna family (yellowfin tuna, frigate tuna, long tail tuna, sailfish tuna, skipjack tuna etc.) and Spanish mackerel.

The main demersal species are scavengers, groupers, snappers, grunts, sharks, turtles, and seabreams. Of less importance are threadfin breams, lizardfish, and goatfish. Sharks and rays are also available in Somaliland waters, though sharks are reported in severe scarcity due to over-harvesting for their

Furthermore, the ministry issues license to big foreign vessels for a limited period of fishing in the Somaliland exclusive economic zone. Due to limited monitoring capacity, the ministry, however, is concerned that foreign vessels of all sizes are illegally encroaching into the Somaliland territorial waters. Illegal fishing has huge impacts on the marine habitats and sustainability of the fish species such as destroying coral reefs and using trawling equipment.

Despite small units of navy guards in the coastal towns, Somaliland is ill-equipped to monitor and protect its marine resources. Nevertheless, Somaliland charges 0.46 USD per kilogram of fish on the licensed foreign vessels. Although this is contested, the representatives of the Somaliland government argued that foreign vessels use fishing lines rather than trawlers and other banned equipment.

fins. Common shark subspecies are hammerheads, grey sharks, gulper sharks and shortfin Mako. The gulper shark (*indha tooshle*) is at risk of extinction due to overfishing and slow reproduction. The liver oil of the gulper shark is taken from the livers of different shark species. It is used to make medicine. It has been used to help treat cancer, skin conditions, and respiratory ailments, as well as to reduce recurrent aphthous stomatitis and prevent radiation sicknesses. The fishermen catch large quantities of a gulper shark, remove the livers, and throw the rest into the sea.

Pelagic fish species	Demersal species
Tuna family: boruto, yellowfin tuna, long-tail tuna, sailfish, and barracudas Mackerel and kingfish Sardines and scuds	Emperor, snapper, case, groupers, cobia, kingfish, catfish, whitefish, trevally, sharks, rays, crabs, sea cucumber, redfish, squid, trout, xudaar, bacroor and red emperor. Sharks (skipjack, gulper, hammerheads, frigate etc.) and Spanish mackerel

Preferred fish species

Yellowfin tuna, long-tail tuna, sailfish tuna, sharks and kingfish are the most preferred fish species in Somaliland markets for their high unit value and slow decomposition. The coral fish species are less preferred for their small body weight and rapid decay. Female respondents emphasized that yellowfin tuna is the most preferred in the end markets – Hargeisa and Burao cities. Youth discussion participants justified that tuna has more fillets, fewer bones and is tasty. Tuna is also easy to catch because it is accessible on the sea surface whereas demersal (domestic) species hide in the deep seas.

Seasonality of fish production and marketing

Figure 2: A female fishmonger in the Berbera town



The access to the sea and availability of the fish is determined by the southwest and northeast monsoons. During May and August (mid-September), the southwest

monsoon with the speed of 7 nautical miles per hour makes the sea cold and very rough for the small boats to withstand the strong currents. In this season, access to the pelagic fish species (the preferred) become scarce in the Somaliland waters; they may migrate to places with ambient temperatures. During September –April, pelagic fish species are abundant in the Gulf of Aden for ambient temperature and availability of prey.

Before the collapse of the central government of Somalia in 1991, the sea was closed from the fishermen and small commercial boats during May-August every year. However, fishermen are now coerced to risk their lives to the sea. During the field data collection, which coincided with the would-be closed season, a young fisherman had fallen off a fishing boat and drowned in the sea; his body was not accounted for by the time when the research team left Berbera town.

Fish traders in Hargeisa markets narrated that the shops are closed for about a month in the summer due to a reduction of fish supply from Berbera and other coastal areas.

The director of planning at the Ministry of Livestock and Fishery Development confirmed that limited quantities of ornamental fish are exported to Djibouti for decorations. People usually keep these colourful fish species with water in glass jars.

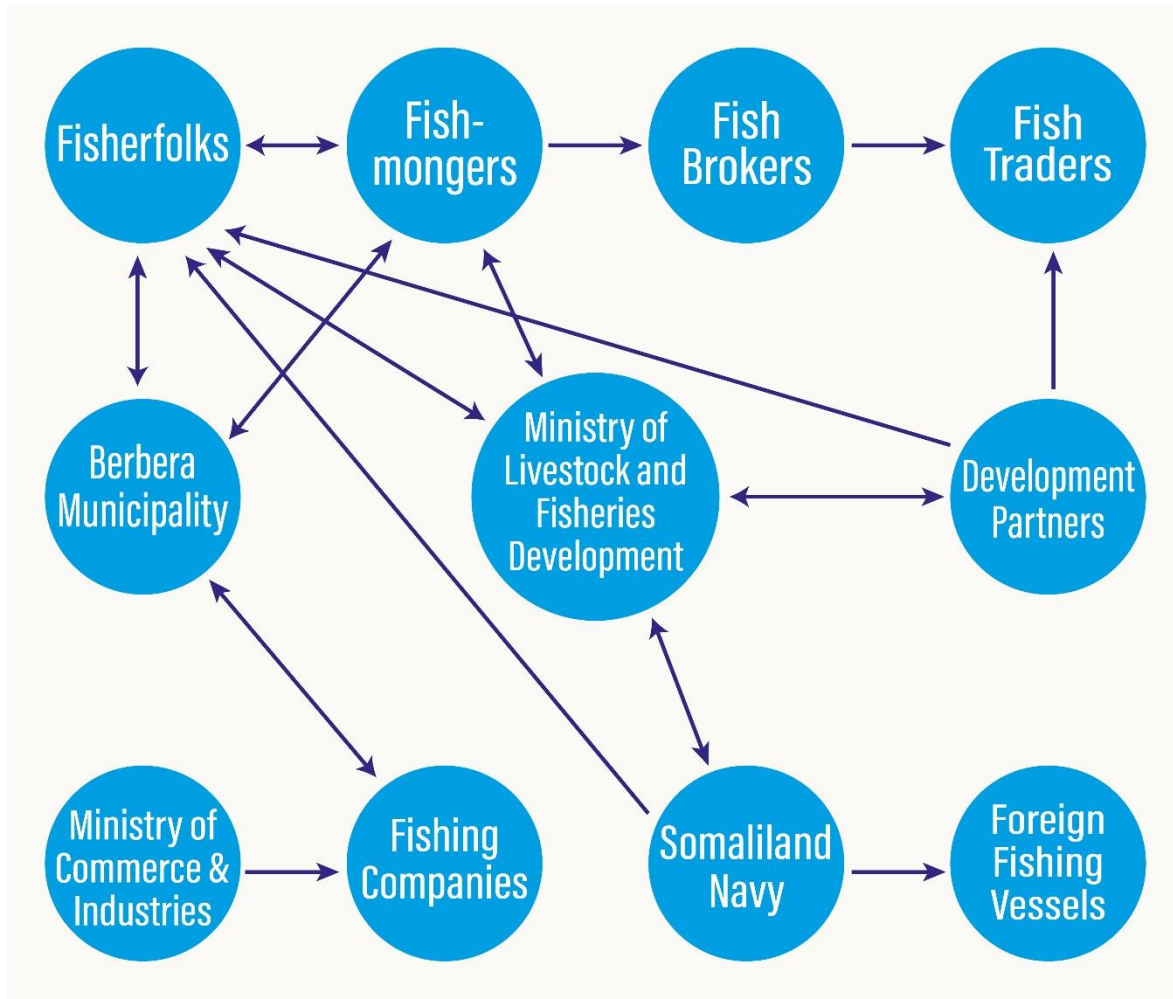
Stakeholders in the fishing sector

According to the field observations and interactions with the target respondents, the stakeholders are involved in one way or another, in fishery production, processing, presentation, transportation, marketing, technical assistance and regulations in Somaliland. See Annex 2 for more details on the stakeholders.

Fishermen catch the fish from the sea and sell it to the fishmongers and vendors at the landing sites. The fishmongers sell the fish to hotels, restaurants and households in the Berbera town and traders in other markets. There are also fishing companies that are involved in fish production, storage, and marketing of fish. The brokers facilitate fish trading between the fishermen, fishmongers, and traders across the fish markets. The Ministry of Livestock and Fisheries Development is the mandated public institution for the regulations and promotion of the fishing industry; the ministry of commerce and industries is responsible for the licensing of medium-scale fishing companies. The Berbera municipality is responsible for the licensing of fishmongers, inspects fish quality and disposes of fish wastes. Somaliland Navy monitors the foreign fish activities, verifies, and records the personnel and equipment of seagoing boats. Several development partners including FAO, Shuraako, GEEL and Fairfishing provide technical and financial assistance to the ministry of livestock and fisheries development, and fishing groups in Somaliland. On the other hand, both licensed and illegal fisher vessels harvest fish from the Somaliland exclusive economic zone. **Berbera Marine and Fishery Academy** trains students on fish and maritime science. The graduates and undergraduates impart knowledge to artisanal fishers.

The ministry of livestock and fishery development issues identification cards to the sea-going fishers, the fishing boats and other essential equipment whereas the Berbera local government gives trading licenses to the small-scale fish traders (fishmongers). Besides, the medium level fish traders are licensed by the Somaliland ministry of commerce and industry.

Fishing cooperatives in Berbera district



Somaliland Fishers Association is a loose forum for the fishermen in the Berbera district which operates as an information sharing and coordination platform for the fishing groups. The members of the association are mainly fishermen and fishmongers. The Fishers Association has 13 executive committee members which undertake day-to-day operations and represent the interest of fishing communities. For example, they liaise with the ministry of livestock and fishery Development, Berbera local council and other stakeholders on the priorities and the regulations of the artisanal fishing sector. They are also responsible for mobilizing rescue missions for stranded fishers and their properties in the sea. The line ministry recognizes and has registered the association as the official agent of the fishing groups. During the field data collection, the fishery association had series of internal consultative

meetings to reinvigorate and upscale the platform to provide better services for its members.

On the other hand, Fairfishing NGO, an international non-profit organization has established the female fishmonger association (self-help groups) as its policy of equal opportunities. This is an informal association in Berbera, Burao and Hargeisa. The association requires progressive skill enhancement on the association management and advocacy with other stakeholders.

Equipment and facilities for the fishing groups

The Somaliland artisanal fishery sector predominantly operates in the inshore areas. The fish producers use mechanized boats equipped with drift nets and lines for catching the fish. The fishermen use small and medium scale boats of 7m and 8.5m long equipped with 15 and 25HP Yamaha engines. The small boats with Yanmar engines are useful for the daily catch within few kilometres from the beach. The medium-scale boats (Volvo) can spend over a week in the sea and can sail up to 50km into the sea. In addition, individual fishers go to the sea on paddled canoes to catch a small quantity of fish.

The chairman of the Somaliland Fishery Association estimated 120 Volvo and 130 small boats operating in the Berbera district while the ministry of livestock and fishery development's records indicate 500 boats in the district.⁶ The ministry's records include both functional and obsolete boats. On the other hand, the youth respondents estimated 30 small scale fishmongers (processors) operating in the Berbera district. A significant percentage of the boats are in disuse for lack of maintenance. The boat owners have also complained about limited space in the docking pier and the absence of boat protection facilities from the strong winds.

The boats and fishing gears in Berbera local markets are relatively expensive. Therefore, the boat owners order the spare parts from Bossaso, Mogadishu or Dubai where the prices are comparatively cheap. The expensive prices of the spare parts and fish gear in Berbera town is due to a single trader selling these items. In most cases, the fishermen repair old nets than buying new ones because the prices are always high for the fishermen to afford.

Fishing boats are insulated or equipped with coolers to preserve the fish on the boats while in the sea. Fishers take sufficient quantities of ice flakes, packaged in 50kgs, depending on the fishing trip. The boat owners employ fishermen (4-5 per boat) for each fishing trip or lease the boat to fishers.

A large percentage of the fishermen were nomadic pastoralists with no marine experience. Due to limited skills in catching fish with lines, the artisanal fishers often use drift nets of 36mm thick; 9m wide; and 175m long on fishing boats. At any given

⁶ Sahil regional director of the ministry of livestock and fisheries development

time, a boat can carry four nets fastened on the sides. Boats shine lights onto the seawater to lure small fishes on which the big species predate.

There are various storage facilities in the Berbera district to store fish. The fishers store the fish in freezers of 500kg capacity whereas six established enterprises (The six major companies in the Berbera district are Red sea, Gamur, Zakia, Awa Ice, Fish centre and Haqabtira ice) have cold chains to rent for short time storage. In addition, the Fish centre enterprise constructed by Fairfishing and currently managed by the ministry of livestock and fishery development has a chilling room to freeze the fish to -40°C for indefinite periods. However, the chilling room is seldom used due to expensive and unreliable electricity in the Berbera town.

Even though the respondents from the line ministry⁷ and Berbera Marine and Fishery Academy cited short courses for the fishermen, the fishers, fishmongers and vendors insisted that they never received training on fish production, handling, hygiene, storage, and marketing. One respondent, however, recalled short training seminars, though he considered it inadequate.

Skills and equipment gaps

Figure 3: Fishing boats packed outside of the landing beach in the Berbera town



The fishers and other key informants have listed the following equipment and skill gaps for effective production and preservation of the fish stocks: iceboxes for preserving the fish in transit, processing tools (tables, knives, cutting boards, outfits etc.), quality weighing instruments, swimming, and lifesaving kits, GPRS for the rescue missions to

⁷ Ministry of livestock and fishery Development

easily locate stranded fishers, diving kits, affordable fishing gears for the poor fishermen. The fishers and fishmongers also emphasized the importance of expanding boat docking sites (jetty). Currently, the fish boats spend hours in the queue offloading the fish collections. Quality fish testing kits are considered essential for consumer safety. In addition, the skills and knowledge of the fishers should be enhanced on safety procedures, basic fish science and hygiene through Training of the Trainers (TOT). The fisherwomen emphasized that they lack adequate knowledge and skills on fish production, handling, and processing. They think additional skills would boost her business, and they would also share the skills among themselves. The respondents also reiterated the importance of organizing the fishers into a vibrant cooperative(s).

The small-scale fishmongers could not afford the acquisition of cooling facilities. Hence, they bring the fish stocks to the market with ice flakes during the trading hours and store them in the storage facilities at the night. The store facilities charge 1000-1400 Somaliland shillings⁸ a kilo per night. During the hot seasons when the temperature reaches up to 45°C, the ice flakes could quickly melt out, spoiling the fish stocks.

Assistance from development partners

Several institutions offer technical and financial assistance to the artisanal fishery production, handling, preservation, and marketing in the Berbera district. The Regional Director of fishery explicated that in 2015, the Somaliland Ministry of Finance distributed fishing gears while FAO sponsored fishing training in 2019. The Director of Planning at the Ministry of Livestock and fishery development confirmed irregular technical and material assistance to fishers from FAO, Oxfam and Fair fishing.

FAO has supported livelihood projects in Somaliland over the past three decades. However, the fishery sector was not a priority in the past few years. FAO has launched a 20 million fishery project to promote fish consumption, job creation, enhance the livelihoods of the local communities and contribute to national economic development. Furthermore, FAO has supported the development and the review of national fishery policies and strategic plans, and invested in the Berbera fishery jetty, trained fishing groups on boat handling and fish catching techniques and provided fishing boats. Moreover, FAO sponsors, from time to time, fish value chain studies in Somaliland and Somalia.

Growth, Enterprise, Empowerment and Livelihoods (GEEL) program⁹ has been supporting medium scale fishing companies in the Berbera district since 2016 on market system development. The Red Sea and Sakiya Ice enterprises are the primary beneficiaries of the GEEL interventions. The project enhances the access of the poor people to fish through a fish stock management system and solar system at the

⁸ Equivalent to 0.12 – 1.016 USD

⁹ https://www.usaid.gov/sites/default/files/documents/1860/Fact_Sheet_Somalia_-_GEEL_June_2020.pdf

Berbera jetty. In addition, GEEL promotes the establishment of fishing cooperatives for collective advocacy.

Fairfishing promotes fish consumption in Somaliland through the establishment of fish markets in Burao and Hargeisa cities, facilitating female fishmonger associations (self-help groups) and awareness-raising on social media. In addition, fishmongers and chefs have received skills in efficient fish filleting and improved fish tastes to attract more customers. The chefs were also trained on fish grilling and frying without using oils, and other advanced cooking methods. Traditionally, Somalis prepare fish with oil with minimum filleting. Fairfishing trains fishing groups on fish racks as a viable drying method. However, fisher folks preferred selling fresh fish instead of processing through drying. On the other hand, Fairfishing sponsors training seminars for fishers on safety in the sea, handling, proper cleaning, and equipment maintenance (e.g., net repairing). The NGO employs interns from the Berbera Marine and Fishery Academy to gain practical fishery skills. Fairfishing has also set up a large-scale ice producing plant in the Berbera town.

During 2017 and 2019m Shuraako Organization trained the staff of the mandated public institutions in Hargeisa and Berbera cities on the fish data collection methods for informed decisions including available fish stocks in the sea, safety, management, and seasonal variations. For instance, Shuraako trained the government on the estimations of the annual fish harvest through boat carrying metrics. Shuraako also provided computers to the ministry with the latest research protocols and research tools. On the other hand, Shuraako helped the ministry in co-creating fish development plans with local communities to foster collaboration and trust between them.

Berbera Municipality has organized an innovation contest in 2020 for youth (3 men and 2 women in each group) aimed at encouraging fishing businesses in the Berbera district. The local council awarded \$30,000 to the winners as start capital money for their fishing business innovations. On the other hand, the Director of Planning at the Ministry of Livestock and Fishery Development argued that the fishers received subsidized fishing gears payable on loan instalments. The ministry also contributes to the running costs of the Berbera Marine and Fishery Academy.

The Berbera Marine and Fishery academy and the ministry of livestock and fishery development mentioned that the fishers in the Berbera district have received training on basic fishing skills, hygiene, and marine ecology. Among the skills imparted to the fishermen and fishmongers include removing the visceral organs to avert early spoilage.

The fishing groups in Berbera district asserted that they rely on their resources and skill capacities, and have received limited assistance, if any, from external stakeholders. They mentioned the Fairfishing established storage facility currently managed by the ministry of livestock and fishery development and short training sessions by the fishery academy. Although, the interview participants argued that the training was not adequate and effective. The youth focus group noted external

assistance from FAO, the World Bank, and the Berbera local government, though traders which some of them are not involved in the fishing sector benefited rather than genuine fishing groups.

It seems the efforts of the development partners and government are less coordinated. Consolidating and harmonizing such efforts through coordination platforms are likely to reduce duplication of efforts and maximize the impact of the intervention.

Average daily harvest

The amount of catch per day depends on the skills of the fishermen, seasonality, equipment (e.g., quality and the number of nets), market demand and duration of the fishing trip. For example, fishermen use dilapidated and repaired nets through which big fishes can easily escape. Youth respondents estimated 8-9 hours for a day trip to the sea; they often leave 6:00 a.m. and may come back around 2:00 pm.

In high seasons, small scale fishermen can catch about 300 fish a trip whilst medium-scale boats can spend about a week in the sea to bring a full load of about 1500 fish. When the pelagic fish species are abundant in the Somaliland waters, the small boats often make morning and afternoon fishing trips. Fish species can detect nets on full moon nights which reduces the daily fish catch. In the lunar calendar, the moon is full and stay in the sky for the whole night. As a result, the moonlight helps the fish to avoid the nets.

The fishermen follow the instructions of the investors or market demand on the type of fish to catch. In the low seasons when the preferred fish species are scarcely accessible, the investors may not be able to recover the costs of the sea trip, let alone making profits. One of the respondents from the Berbera municipality raised a concern about the traders coercing the fishermen to risk their lives into the sea during summer when it is very rough.

Average prices and profit margins

Figure 4: A young man tending a fish center in the Berbera town



The different fish species may fetch different prices in the markets. For example, fishmongers purchase a kilo of long-tail fish, sharks, and yellowfin tuna with 15000 Somaliland Shillings (1.74 USD) and sell it to the fish vendors/traders with 18,000 to 20,000 Somaliland shillings (2.1 to 2.3 USD). A kilo of other fish species averages 13,000 Somaliland shillings (1.5 USD) at the landing sites, and 15,000 Somaliland shillings (1.74) when sending out to the end markets. Traders at the end markets sell a kilo of fish for 40,000 shillings (4.7 USD) to consumers. The whole fish reaches the end market/traders. Thus, the traders remove the viscera, head, tail, bones, and other inedible organs. Nevertheless, traders estimated 5000 - 10,000 Somaliland shillings (0.6 – 1.2 USD) profit per kilo. Hotels and restaurants purchase a large portion of the fish stocks (500-1000kg) per hotel per week. Individual households also consume a significant amount of fish stocks. The hotels and restaurants take the whole fish whilst only the fillets are sold to the individual customers. Hence, the price per kilo is higher (40,000 shillings \approx 4.7 USD) for the individuals than business entities (29,000shillings \approx 3.4 USD). The price of a kilo of kingfish, the most expensive, fluctuates between 50,000 to 60,000 shillings (5.8 to 7 USD) per kilogram.

To minimize the costs, some fish traders invest in fish harvesting through owning fishing boats and employing fishermen to catch the fish for their businesses. For example, a respondent in Hargeisa confirmed that his company owns nine fishing boats as an investment for receiving cheaper and regular fish supplies for his business. Such a company receives fish stocks on daily basis, except in the summer when the catch declines so that they expect fish stocks twice a week. A kilogram of fish costs 5000 shillings (0.6 USD) for the traders who invest in the fish harvesting infrastructures. Therefore, they can sell a kilo slightly cheaper (35,000 shillings \approx 4.1

USD)) with a good profit margin instead of 40,000 shillings (4.7 USD) by those who do not have harvesting assets.

The boat owners, mostly the fishmongers or traders, employ fishermen and cover the sea trip expenses and pay taxes to the local government. Therefore, the respondents estimated a profit margin of 2000 (0.23 USD) shillings per kilogram. For example, if a fishmonger sells 900 kilos of fish a day, s/he earns 1.8 million shillings (210 USD). However, this is not always the case. Women underscored that they make profits when the buying price is low but merely cover the rental and electricity bills when the price is high.

On the other hand, the fishermen and boat owners may share the returns; 2/3 for the fishermen, fuel, food, and other costs; and 1/3 for the owner of the boat and other equipment. This is when the boat is leased to the fishermen. However, if the boat owner employs the fishermen to catch the fish, the income is equally divided between the boat owner and fishermen; each side receives 50% of the profits. Furthermore, in the latter arrangement, the helmsman or navigator takes a share from both sides of the contract.

Traders at the end markets order fish stocks from the fishermen (producers) in the Berbera district, on average, three times a week. The fish stocks are ordered on a demand basis; the traders order second delivery only when run out of the previous stock.

Effects of imported canned fish and red meat on the local fish production

Historically Somali society despised fish for the abundance of fresh organic meat. Moreover, Somalis fear choking by the fish bones and being repelled by the strong smells. The culture is, however, steadily shifting to fish-eating. Both fish producers and traders affirmed that the demand for fish is exceeding the supply in the cities and big towns. The price of a kilogram of fish is cheaper compared to red meat. Yet, red meat is still a preferred choice in rural villages. Furthermore, canned tuna is convenient food in the villages and for travellers. The trend is steadily leaning toward white meat over red meat in the urban areas. The increasing prices of red meat and the health benefits of white meat encourage many consumers to prefer fish over red meat. Moreover, freshly butchered red meat is readily available in the local markets whereas access to the fish fluctuates between the seasons.

Some of the respondents justified that the red meat and the canned fish require a minimum cooling system for short term usage whereas fish needs constant cooling.

Foreign fishing vessels in the Somaliland waters

Although reliable statistics are not available about the number and nationalities of the foreign vessels fishing in the Somaliland waters, the respondents believe that large fleets are illegally overfishing with banned equipment. The Somaliland government

has licensed some industrial fishing vessels, but the government cannot monitor their activities in the sea and guard them within the legally binding fishing threshold. The Ministry of livestock and fishery development licenses a small number of Yemenis and taxes them 0.46% per kilo of catch. These licensed industrial fishing vessels are permitted to use lines and away from the inshore. However, local fishermen complained about large ships trailing trawlers and other banned equipment. The ships sometimes overrun the nets of the local boats and risk the lives of the local fishermen. Foreign fishing crews in the industrial fishing vessels also interrogate the locals and search the boats for any weapons for potential piracy.

The director of planning at the Ministry of Livestock and Fishery Development confessed that imported canned fish competes with the local production for its low production costs, superior hygiene, easy accessibility from the corner shops and readiness for use.

Endangered fish species in the Somaliland waters

The respondents have expressed concerns about several fish species that are in danger of extinction in Somaliland waters such as sharks, groupers, lobsters, sea cucumbers and turtles. A senior fisherman included emperor and whitefish in the above list. Although the Somaliland fishery law underscores the preservation of endangered species, the ministry does not have a clear strategy to protect at-risk species. It is also necessary to undertake thorough research to the status of the marine ecosystem and population size of the common fish species, particularly sedentary species in the Somaliland exclusive economic zone.

Yemeni fishermen are over-harvesting turtles from Somaliland waters both legally (licensed) and illegally due to ineffective coast monitoring. Local fishermen catch large quantities of non-target species in the drift nets. Overfishing of certain species and the use of inefficient equipment are the main causes of the extinction. The scarcity of the gulper shark may also have direct bearings on the fish shortage in the Somaliland waters.

The director of planning at the Ministry of Livestock and Fishery Development admitted the absence of reliable data to guide national protection strategy. Nevertheless, the ministry advises fishing groups to preserve endangered fish species such as sharks, lobster, sea cucumber, groupers, and turtles. Even though the ministry banned harvesting gulper sharks for its slow reproduction and scant population, the Somaliland House of Representatives has overruled the ministry and legalized harvesting of this species. However, the fishing groups have now realized that gulper shark is scarcely accessible in Somaliland waters. Consequently, several other fish species became very scarce at the same time. The fishing groups are confused about the relationship of the scarcity of gulper sharks to the other fish species in the sea. The respondents emphasized the importance of scientific research on this matter. The study should also cover migratory routes and seasonality of the tuna and mackerel species.

In the absence of reliable information, Fairfishing cited Bluefin tuna and gulper shark as the most at risk for extinction.

Fish processing and sanitation

According to the international standards, fish should be kept at -20°C for a maximum of five months storage, and frozen at -40°C and stored at -20°C for indefinite storage¹⁰.

There are six cold storage facilities in the Berbera town; five of these facilities are privately managed while the ministry of livestock and fishery development manages cold storage known as 'fish centre' and constructed by FairFishing NGO. The fish stocks could be stored in these facilities for three days. In addition, the fish centre has a chilling room for long term fish storage. Due to high electricity costs, and high demands of the local markets, the chilling room remains idle most of the time. In the end markets, the fish stocks are stored in small scale freezers. From time to time the frozen fish on the sides of refrigerators are rearranged to increase the fish's surface area to the freezer.

Along with the cold storage facilities, the six major companies¹¹ manage ice-making plants which provide ice flakes to the fishermen when going to the sea and transporting fish. A kilogram of ice costs 1000 Somaliland shillings (0.12 USD). When Fairfishing was managing the fish centre, the cost of ice and cold storage were adjusted to the fuel prices, but since then, all the companies are charging the same prices which reduces market competition.

The fishermen purchase large quantities of ice for the sea trips because each kilogram of fish requires a kilogram of ice, particularly for large boats staying several days in the sea. Ice plants are accessible only in the Berbera and Maidh coastal towns.

While in the sea, the fishermen inspect the health condition of the fish with their hands and throw damaged and frail samples into the sea. When a boatload of fish reaches the landing site, the fishmongers further inspect the quality by checking the eyes and the fins to determine whether it is fit for human consumption. The informally certified stock is cleaned with cold water and stored in freezers or cold storage facilities. The cooling facilities and cutlery are also cleaned for the new stock. The fishmongers who do not acquire freezers store the fish stocks in small refrigerators with ice.

The inspection unit of the Berbera municipality examines fish at the landing site and classify it into a) fit for ferrying to the end markets, 2) consumable in the Berbera town for short period and, 3) spoiled for discarding in the waste disposal containers. The inspectors collect the spoiled fish from the waste disposal containers in the morning and the evening to garbage sites outside of the town for smouldering it. The verification producers of the Berbera municipality inspection unit are unwritten but applied practically.

¹⁰ Berbera maritime and fisheries academy

¹¹ The six major companies in the Berbera district are Red sea, Gamur, Zakia, Awa Ice, Fish center and Haqabtira ice.

The municipality provides cleaning kits to the landing sites, sprays flies seasonally. The fisher folks confessed a training on hygiene and safe handling of the fish. The policy of the local government is food safety for the citizens of the Berbera district. The fishmongers own of 500kg capacity for temporary fish storage. High costs and frequent power cuts are major impediments to fish storage in the Berbera district.

The inspection unit of the municipality also examines the equipment, fish in stock and working environment of the fishmongers and the vans transporting the fish to other markets. The rule violators pay a fine of between 300,000 – 500,000 Somaliland shillings (35 – 58 USD) and get their business equipment confiscated. Any spoiled fish found in the business centres is destroyed. The inspection unit instructs the fishmongers that the fish should either be in the cooling facilities or on the frying pan.

Figure 5: Young men carrying fish on a wheelbarrow in the Berbera town



Manual fish filleting is commonly practised in Somaliland. The whole fish is sold to traders, hotels, and restaurants. However, the visceral organs and the head of large fish species (e.g., sharks, sailfish, cobia, and trevally) are occasionally removed in the sea or at the landing beach. On the other hand, the chairman of the fishery association narrated that the viscera of the domestic fish species are removed at the landing site to delay putrefaction. But the fishermen and fishmongers expressed reluctance of removing the viscera and heads because it would affect the price and may speed up the decay. When those organs are removed, the weight goes down by about 1/3. Hence, fishmongers prefer selling the whole fish. The traders in the end markets bear the costs of removing the viscera, bones, tails, heads, and the skin, and packaging it in plastic bags or sell the sliced fillets to the customers.

In certain instants, only the edible flesh (fillets) is packaged in plastic bags and sold to the customers at much higher prices – 60,000 Somaliland shillings (7.0 USD) a kilogram. Deep frying can prolong the period of keeping a prepared fish. Fishmongers

in Berbera town sell fried fish to travellers between the main towns of Somaliland. In the past, shark fillets were sun-dried and sold to the street goers to pick, but is no longer practised in Somaliland.

End markets and main clients

Fairfishing estimates suggest that Hargeisa absorbs 50% of fish supplies from Berbera, Buroa absorbs 30% while Borama, Wajale and other towns absorb the remaining supplies. Smaller quantities are also ordered from smaller markets such as Gabiley, LasAnod and Odweyne towns. The fish traders in the end market order fish supplies through established agents among the fishmongers in the Berbera town. The distance to the source, the population and the consumer attitudes are the main determinants of fish consumption. Although fishmongers arrange the transportation, the cost is charged to the traders in the end markets. On the other hand, female fishmongers sell their stocks to hotels in the Berbera town such as Damal, Mansoor and Berbera Beach; each hotel may order about 200 pieces of fish a day.

In the absence of standard fish transportation fleets, the fishmongers and the traders send the fish stocks on Noah vans whose walls and floors are insulated with sponges to control external heat reaching inside the vehicle. A sufficient quantity of ice flakes on the vehicles keeps the fish cargo cool for several hours. The women respondents affirmed that a kilogram of ice flakes is loaded with every 3kg of fish in transit. In the peak seasons, about 20 Noah vans ferry about 10,000kg of fish to Hargeisa city, the biggest market, every day, whereas, in the low season, the daily supply may go down to about 6,000kg a day. A kilogram of fish is charged 1,000 Somaliland shillings (0.12 USD) for the transportation from Berbera to Hargeisa.

To reduce spoilage of fish, the fishmongers often send the fish stocks to the traders in the end markets on loans. The respondents in the Berbera town complained about high default rates of loans owed by the fish traders.

Challenges facing producers and processors (mongers)

Figure 6: A fishmonger holding a fish in his shop



Fishing infrastructure and facilities

- All the respondents emphasized insufficient and unaffordable cold storage facilities for low-income fishing enterprises. Low fishmongers (processors) in the Berbera district use plaster freezers for storing the fish stocks. Electricity, space rentals and storage charges are expensive to the small-scale fishmongers. Unreliable power supply in Berbera town is another challenge for Fishmongers. In the seasons of abundance, boats often bring fish loads beyond the capacity of cold storage facilities. Hence, the boats should be docked until the previous stock finishes. The respondents recommended solar-powered cold storage facilities to allay the energy costs and power cuts. Furthermore, the cold storage facilities permit a maximum of three days for a fish stock to remain in the cooling system. The stock owners pay 500 shillings (0.06 USD) per kilogram per day of fish stored in the cold storage facility. Failure to sell within this period would force the fishmongers to discard the fish stock into the sea or garbage dumping pins.
- Berbera jetty can handle three boats at any given time. This results in long queues for access to the landing site which can cause the fish to perish if not unloaded and frozen on time an unhygienic landing site may contaminate the fish. According to Fairfishing, the sanitary practice in the Somaliland fishery industry is below standards in the fish value chain.

Figure 7: A dilapidated fish boat at the Berbera beach



Capacity and skill challenges

- Fishermen use artisanal skills in catching, handling, and preserving fish. They are considered among the poorest segments of society. Embarked drift nets are commonly used for fishing. The chairman of the fishery association reiterated that fishermen lack adequate skills in using lines and hooks. A respondent from the Berbera municipality was concerned about fishermen working for the companies without a contract. Despite the Berbera marine and Fishery Academy graduates, Somaliland suffers from the scarcity of fishery and marine expertise. Expensive and unsustainable experts are often recruited from abroad to fill the gap.
- In the high seasons, an influx of fish may go into the nets for the fishermen to haul up. To ensure the safety of the boat and the crew from overturning, the nets are cut and released into the sea. This is a big economic loss for the fishermen.
- The fishmongers use simple tools (knives, axes, gloves, overcoats) and inappropriate surfaces for processing and weighing the fish. The fishermen do not have the necessary processing tools (e.g., standard knives) to remove viscera from the fish while in the sea. Unhygienic processing practices can easily contaminate the fish. Moreover, fried fish on the streets does not meet the standard sanitary requirements and can easily get contaminated.

- Absence of standby rescue system for the stranded fishermen and missing properties in the sea. The fishermen (fish harvesters) do not have diving kits to search for missing properties (e.g., anchors) and drowned fishermen. Fishing groups now employ private boats for rescue operations and hire expensive kits from local vendors for inexorable incidents. The municipality occasionally contributes fuel for the rescue operations while the Somaliland navy or coast guard may tug tow the boats from the sea.

Fishing business challenges

- Spare parts of the boat engines are often imported from Dubai, Bosaso or Mogadishu. The engines have been used beyond the depreciation period. Only one enterprise in Berbera town sells spare parts and fishing gear at higher prices than the above markets with which local fishing groups do not have direct links. On the other hand, international standards were not observed in the design of the fishing boats; they lack in-built cooling systems and other necessary facilities.
- The fishing boats are operating in the sea without fish detecting instruments, GPRS, overcoats, life jackets, fire distinguishers, communication and first aid kits. Storms and cyclones may capsize the fishing boats far in the sea. When stranded in the sea, the boats do not have communication facilities to appeal for assistance whilst the rescue mission could not easily locate the distressed crew. On the other hand, fish detecting instruments (sonar and echometers) would help the fishermen to locate the target fish species; the fishermen now haul the nets into the sea and wait for their luck. The boats equipped with sailing canvas will enable the fishermen to sail to the shore if the engine fails.
- Poor transport infrastructure. The traders deliver fish on improvised Noah vans which do not meet the fish delivery standards compounded by poor road networks and other infrastructure. A significant percentage of fish stocks are lost before consumption due to poor handling and inadequate cooling system while in transit. The fishermen and fishmongers appealed for iceboxes of different volumes (e.g. 90kg boxes) for the safe delivery of fish to the end markets. Handling with bare hands during loading and offloading could contaminate the fish.
- There is limited information about the status of the Somaliland marine ecosystem i.e., coral reefs, sponges and seaweeds which is the main habitat of many organisms. Hence, this makes it difficult for investors, fishermen and other stakeholders to invest in the fishing sector.

Marketing challenges

- In the absence of an accessible designated and well-equipped fish market, the fishmongers sell their stocks in small rooms with freezers or household refrigerators. The fish cutting boards and weighing devices are below standards and mostly unhygienic. UN FAO has established a fish market in the Berbera town but was taken over by big companies that restrict the access of the small-scale fishing enterprises. The fish market is unsustainable due to informal agreement between parties, seasonality, and market demand dynamics.
- The Somaliland fishery sector currently supplies only the local markets and exports insignificant amounts of ornamental fish to Djibouti. Since Somaliland cannot meet Hazard Analysis Critical Control Point (HACCP¹²) standards, to export fish to neighbouring countries, Europe, or America. The fishery sector would flourish with the availability of large-scale processing (canning) plants and reliable external markets.
- Several medium level companies have come into the fishery sector over the past several years, but many of them have left the market in a short period. For example, the chairman of the Somaliland Fishery Association recounted that Horn Food has established 37 fish centres in Hargeisa and Wajale towns. However, all of them have been closed within few years. Pontus Marine and United Fish have invested in cold storage facilities and ice plants in the Berbera town but could not continue the businesses. The reasons for the companies' failures were not clear to the study respondents in the Berbera town. But evidence suggests that unreliable power supply could be the main reason.
- The respondents reiterated poor coordination among the stakeholders in the fishery sector and the absence of effective cooperation among the fishing groups. Traders employ vulnerable fishermen without written contracts and coerce them to risks when the sea is rough.
- Fishermen and fishmongers complained about inadequate access to social services such as health, education, and water. Since 2017, the Ministry of Fishery and Marine Resources was scaled down to a directorate under the ministry of livestock and fishery development.

Demand and supply challenges

- Fish traders in the end markets order fish stocks on credit from the fishmongers in Berbera town but may default to pay back. The fishmongers have little choice

¹² HACCP is a management system in which food safety is addressed through the analysis and control of biological, chemical, and physical hazards from raw material production, procurement, and handling, to manufacturing, distribution and consumption of the finished product.

to recover the bad loans from the fish traders. In many instances, fishmongers continue sending fish stocks to the traders because it is expensive for them to store the fish. Furthermore, the fishing groups in the Berbera district do not pre-financing and loans for fish production, preservation and transport.

- Cultural attachment to red meat and limited cooking skills. This discourages many people from eating fish and causes several companies to go out of the market within a short period.

Roles of women and youth in the sector

All the study respondents reiterated limited roles for women in the fishery industry. The main activities include fish filleting, running small restaurants, cleaning the business centres, and repairing the fishing nets. However, few women own fishing boats, recruiting fishing crews to catch for their businesses. Moreover, women manage six fish processing centres in Berbera town and about 13 retail shops. In the end markets, women often clean the business centres and equipment. Few women attend the counters of the business places. On the other hand, women constitute the main customers of the fish traders. Fish trading requires huge investment, risk-taking and strong muscles as the fish is often frozen and needs the ability to cut it into pieces. In Somaliland culture, women are not allowed to go to the sea for fishing. Nevertheless, Fairfishing affirmed that women in the neighbouring region of Puntland are involved in all stages of the fish value chain – from harvesting to consumption (from the hook to the fork). In addition, women should potentially be trained on first aid support and counsel the traumatized fishermen.

Comparatively, youth are involved in all stages of the value chain as the labour force. 80% of the fish producers are young men below 30 years; many of them displaced by the recent droughts. Young men also play significant roles in cleaning, processing, loading, offloading, and selling fish stocks. In the past, only unschooled youth were involved in the fishery sector, but unemployed secondary and tertiary graduates are now actively involved in the fish value chain. Moreover, there are few youth fish company owners and those who fry fish on the streets of the cities.

Government strategy in fish harvesting and marketing

The role of the government is to develop and approve fishery policy documents as well as provide capacity building, support fishermen with necessary fishing gears, manage fish storage centres with coolers, and regulate fish harvesting as well as, preservation and marketing through licensing eligible entities. The mandated ministry also liaises and guide the external service providers in the fishery sector.

Conclusion and recommendations

Somaliland fishery sector is dominated by artisanal small-scale groups. The fishery law is the policy guidance for the regulations and assistance to the marine and fishery activities in Somaliland. The respondents have emphasized compounding challenges at all levels of the fish value chain. The current assistance from development partners support was considered inadequate and misguided. Based on the study findings and suggestions of the respondents, the research team makes the following recommendations:

- Women play a very limited role in the fishery sector and are limited to cleaning, market vendors and processor roles. The sector is male-dominated and continues to exclude women at all levels. There is a need to understand more the needs and priorities of women involved in the sector and the fishery ecosystem to develop better interventions that increase women's participation.
- Enforcement of the existing fishery policies and formulating new legal frameworks that govern the growing fishery sector. As highlighted in several sections, fishery law is so far the only regulatory framework that needs enforcement at all stages of the value chain. Hence, there is a need to put in place the mechanism to enforce them to regulate the sector.
- Provision of technical, material and financial support to the fishery sector. Provision of affordable fishing gear and cold storage facilities of sufficient volumes. The access and the cost of cold storage are the major impediments in the artisanal fishery sector. Fishing gears and spare parts are often ordered from Dubai, Mogadishu and Bosaso due to limited and expensive local supplies.
- Training of fishing groups on modern fish production, handling, preservation, and markets techniques. Fishing groups should also be trained and sensitized on fish science, marine ecosystem etc. experts should be recruited who can impart both theoretical and practical lessons to the fisher folks.
- Fishing groups should be organized into inclusive cooperatives, self-help groups and associations to address the insurmountable challenges facing the sector. This will consolidate the voice of the fishing communities and increase their urgency to claim their rights from the government and other relevant stakeholders.
- Strengthening the governance of the existing fishery association to represent the fisher communities across Somaliland. The Somaliland fishery association is currently active and operational in Berbera, there is a need to expand their presence across Somaliland to deliver better services and advocate fishers' rights.
- Standard transportation facilities should be equipped with cooling systems. Currently, fish stocks are transported on Noah vans insulated with sponges by the local garages. The ministry should ensure and inspect the safety of the fish delivery system for improved food safety standards.

- Development partners and other stakeholders in the fishery sector should work with genuine fishing groups instead of pseudo-fishing companies that are set up to get funds. Fishermen and fishmongers have also complained about the diversion of assistance to sham entities.
- Educating Somaliland youth on fishery and maritime science through inclusion in the Somaliland national curriculum from the secondary level. This will generate a skilled labour force that is in short supply now and will contribute to the development of the fishery sector.
- Scientific research on fish species, which are at risk of extinction and implications on the food chain of other fish species and marine animals. Another study should be undertaken on the marine ecosystem particularly coral reefs, seaweeds as well as the implication of the foreign fishers on the sustainability of the marine resources.
- The Berbera Marine and Fishery Academy produces young people trained in theoretical scientific knowledge. The graduates lack the financial capacity to integrate into the fishery sector. Startup equipment would encourage those graduates into fishing activities.
- Establish stronger linkage and working relationship between the Berbera port authorities, DP World¹³ and stakeholders involved in the fishery sector which is currently absent or informal. This will create a space in which the stakeholders share information, attract investment, and provide both technical, financial, and in-kind support to fishers in the Berbera district.
- The ministry of livestock and fishery development and development partners should consider the establishment of a garage for boat maintenance. A similar service was available in Berbera before 1991. Such intervention should prioritize training local technicians to continue delivering the service when the project ends.
- Somaliland government should promote fish canning plants and explore external markets for the fish which is abundant in Somaliland waters most of the year. Somaliland government and big business enterprises should invest in the fishery sector including the standards to compete in export markets. Fish export would boost employment and generate foreign currency for the country.
- Fishermen should be trained on the weather forecast to avert risks of storms, cyclones and tsunami capsizing them in the sea.
- There is a high level of illegal fishing taking place in Somaliland waters which are endangering fish species, there is an urgent need to increase resources for the Somaliland navy or coast guard patrols to reduce illegal fishing.
- Although local consumption of fish is on the rise, there is a need to sensitize and create awareness on the

¹³ Is international company based in Dubai, United Arab Emirates currently managing Berber port

importance of fish consumption through health educators, local media, and health facilities.

- Educate people on the safety, cooking, and preparation methods to maximize the benefits of fish consumption and reduce disease outbreaks. The research did not establish any large contamination from fish consumption in Somaliland.
- There is an unreliable and expensive power supply in Berbera district which makes impedes the development of the fishery sector, hence exploring sustainable and cheaper alternative technologies for electricity would be important.
- Improve technology and infrastructure like road networks, electricity, fishing, and storage facilities (enhance cooling systems such as ice bags and build warehouses) to enhance general fish availability and consumption.

Annexes 1: case studies

Case study: a fishmonger in Berbera town

Fadumo Dahir, 48 years old, explains that female fishmongers invest in the fish production process. For a fishing trip, fishing groups take food, water and fuel, fishing gear, 20kg of ice flakes in coolers; a kilo of ice flakes costs 1000 Somaliland Shillings. The fishermen wash the fish stocks in the sea with tap water and store them in the cooler with ice. Five fishermen board the boat for each fishing trip. Boats go to the sea in the afternoon on stormy days and in the morning on normal days.

The availability of fish determines the duration of boats in the sea. For example, if they sail back to the beach if they get enough amount within two days; if not, they may remain in the sea for up to 7-10 days. The fishermen may come back with less volume in the circumstance of scarce food, fuel, or ice. Nevertheless, even if they fail to catch any fish, each fisherman expects payment of 20,000 shillings per day. On average, fishing boats go to the sea three times a month. In each trip, the fishermen sail up to Saylac to the west and Maydh and Heiss towns to the east. On the other hand, small canoes go for daily fishing within a few kilometers from Berbera town.

The daily catch averages 7000-9000 pieces of fish. However, during the summer, the fish becomes scarcely available in the Somaliland waters; some species may hide deep in the sea while others move out. Hence, the average catch goes down to 500 fish a day. Sailfish, kingfish, yellowfin tuna, whitefish

are abundant in Somaliland waters. Nonetheless, sailfish and kingfish are more preferred in the local markets. Yellowfin tuna is easily available in the winter but migrates out in the summer. Therefore, long-tail tuna, yellowfin tuna and whitefish are alternative targets in the summer.

The fishermen check the condition of each fish and store it in the coolers with ice flakes. The less preferred species are stores separately to sell at lower prices.

Foreign vessels with experienced fishermen compete with the local fishers. The big ships sometimes destroy the nets of local boats and put the lives of the fishermen at risk. Consequently, the fishing boats may come back empty-handed. Even though the foreign fleets have mixed nationalities, the majority are Yemenis.

On arrival at the beach, the traders examine, weigh, and load the fish on cooled vehicles. The fishmongers either sell the fish stocks directly to clients or store them in the cold storage facilities. The frail and spoiled pieces are discarded in a designated waste disposal container at the beach. The municipality collects fish wastes in the morning and the afternoon.

Fadumo sells the fish at the beach or sends it to traders in other cities. The surplus is stored in a Fairfishing storage facility or freezers in wholesale shops. High electricity costs and power cuts impede the fish traders in Berbera town. During the power cuts, fish traders discard the spoiled fish, which is a huge loss. "We clean the fish, tools and workspaces with special shampoo to ensure sanitation and

hygiene", Fadumo reiterated. The cooling facilities and fish stocks are also cleaned every other day.

The bulk of fish stocks from the Berbera district goes to Hargeisa, Burao, Borama and Wajale markets. For wholesale traders and hotels, fishmongers sell a kilo of fish for 15,000, whereas the retail price is 17,000 shillings. The fish traders at the end markets order the fish stocks from clients in Berbera town. Some traders from the end markets invest in fish production to maximize profit. Mrs Fadumo says, "The little profit from our business covers the basic family expenses".

In the seasons of abundance, the fish traders in Berbera town store large fish stocks, which increases the storage costs and may get spoiled over time. During this period, the price of a kilo of fish plummets. Moreover, the clients may take fish on credit but never pay us. The fish becomes scarce during the summer, and as result, the demand exceeds the supply.

Case Study: a youth fisherman in Berbera town

Farhan Jama Hashi, 33 years old, narrated that in preparation for a fishing trip, the fishermen take clothes, life jackets, food and water, fishing nets, hooks, floaters, anchors, fuel in jerry cans and 20-22 ice bags stored in the coolers.

During the summer, the sea is rough in the morning. Hence, "we go to the sea in the afternoons, and in the other seasons, depart soon after morning prayers. Furthermore, the sea becomes rough during the full moon, which forces the boats to come out of the sea." The

availability of fish and climatic patterns determine the duration of fishing boats in the sea. Nevertheless, a boat can remain in the sea, on average, for a week and a maximum of 9 days. Therefore, a fishing band makes three trips a month. In each trip, a boat can go into the sea for 15-30 miles in the normal seasons; and 70 miles in the fish scarcity.

In the favourable seasons, a boat can bring 800-1000kg of fish dependent on the capacity; in summer, the average catch per trip is about 500kg. Yellowfin tuna, long-tail fish, sailfish and kingfish are the primary targets for their market preference. The less preferred fish species, if still alive, are hauled back into the sea; and if dead, it is eaten by the fishermen. The fish stocks are cleaned with water and stored in the coolers to prevent spoilage.

The fishermen use creams and oils to treat skin rashes and other dermal problems for excessive exposure to salts. They also bathe with drinking water to solve the problem.

Farhan said, "Foreign vessels suspect local fishermen as pirates. Thus, we have to show them the fishing equipment and personal IDs.

"Upon return to the land beach, the fish stocks are handed over to the traders for inspection, cleaning and storage or selling to the customers. In the events of plenty, the traders may refuse to take the stock. Hence, we store the fish in cold storage facilities for 24 hours for a storage cost of 1400 shillings a kilo of fish. A kilo of fish fetches 12,000 shillings at the production. The fishermen discard unsold fish into the sea.

Annexe 2: Stakeholders in the fishing sector

- **Local governments (municipalities)** in the coastal towns and the end markets
- **Ministry of Livestock and Fishery Development** is the mandated public institution for promoting and regulating the fishing industry.
- **The Ministry of Commerce and Industry** is responsible for licensing the big and medium scale fishing companies and foreign fishing groups.
- **Somaliland Navy** (coast guards) have the mandate of monitoring the maritime activities in the Somaliland Exclusive Economic Zone (EEZ). More importantly, the coast guards should examine the license and fishing equipment of the foreign vessels.
- **Fishermen (producers)**, predominantly young men employed by the boat owners, the boat tenants, or the fish traders.
- **Fishmongers (processors)** are small scale traders in the coastal towns to purchase fish from the producers and sell it to the traders and hotels in the end markets. These businesspeople also run small scale restaurants serving fish dishes.
- **Brokers** at the fish production centers linking the producers (and mongers) to the potential fish traders in the end markets.
- **Fish traders at the end markets** purchasing fish stocks from the fishmongers in the coast towns and selling them to the consumers and business centers in their respective towns.
- **Development partners:** international and local organizations assisting the fishery sector. The key partners in the Somaliland fishery sector include Shuraako, Fairfishing, GEEL, FAO etc.
- **Service providers:** profit-making entities such as transporters, ice plants, cold storage facilities and enterprises trading on fishing gears and spare parts etc.
- **Berbera Marine and Fishery Academy** trains students on fish and maritime science. The graduates and undergraduates impart the knowledge to artisanal fisher folks.

