

# FINAL REPORT

**Third South West Indian Ocean Fisheries**

**Governance and Shared Growth Project (SWIOFish3)**

**P155642**

**Development of a Marketing Intelligence Plan For  
The Small-Scale Fisheries Sector**

**04<sup>th</sup> July 2023**

### ***Disclaimer***

The contents of this Report are presented from information collected and compiled from multiple sources and represented in conclusion of these facts.

Responsibility for the interpretation of these information and views expressed have been validated by stakeholders in the sector for this final submission.

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## I. EXECUTIVE SUMMARY

### EXECUTIVE SUMMARY

This final report for the consultancy for the Development of a Marketing Intelligence Plan for the small-scale fisheries sector describes the modus operandi for collection of marketing statistics to determine development of strategic planning and the set-up of a marketing information management system as an internal tool for monitoring and sharing market information with stakeholders in the small-scale fisheries sector for the purpose of business planning.

The market information directing the course of the research were specific to identifying market trends in the global markets where Seychelles traded exports of fish and fish products, potential new markets and the domestic market trends. A second component of data gathering focused on competitor intelligence in the international fisheries trade market to identify main competitors competing with Seychelles processors by distinguishing factors which established their competitive advantage over local processors. The third component of data gathering addressed product intelligence by comparing the different categories of fish and fish products exported by competitors to determine the feasibility of the small-scale fisheries sector capacity for developing similar products to increase their competitiveness in the export markets. Similar evaluations were also conducted in the domestic market to gauge where competitions exist. The SWOT analysis provided a review of internal factors in relation to addressing strengths, weaknesses, opportunities and threats impacting the small-scale fisheries sector.

The main markets identified for research were Europe, Asia, the Middle East and the United States. Selection of the markets were based on their current status as trading export markets for Seychelles fish and fish products, whilst the Asian markets specifically Singapore, China and Japan were selected as new prospective markets. Evaluation of the Asian markets were based on their indicative potential for expansion of exports into niche markets specifically in the high-end food commodity category which held more lucrative returns potential for the small-scale fisheries sector.

The market information findings provided a collective set of data to establish a marketing information system that gives a comprehensive status appraisal of the small-scale fisheries

sector that is relevant for strategic development and inclusive of recommendations for the implementation of a marketing strategy for the sector.

Review of the current actors competing with Seychelles in the international markets showed significant competition were from low-cost countries like Sri Lanka, Mauritius, India, Chile, China and Papua New Guinea. Competition was also from key markets in the EU with countries like Spain, Portugal, Norway, France and other non-EU countries such as Australia occupying a stronghold for fish and fish products in the main existing export markets targeted by local processors. The competitive advantages of these countries were mainly due to their supply chain capacity permitting export production in volumes. Other factors for the strong competition related to efficiency in the distribution chain with fast networks, cold-chain management, technology and mechanised systems in harvesting and production process, low production costs associated with processing translating to competitive pricing for products, use of sustainable labels branding and cross-sectional marketing partnerships with major companies especially in the EU supporting smaller island states to push into the mainstream markets.

Seychelles being a small market with seasonal fishing activities operating during the favourable northwest monsoon does not have the ability to compete with these major players because its' supply chain does not meet the core 3 Cs of marketing namely, consistent volume, consistent supply and consistent price enabling competition to this scale. Instead, it has been identified that Seychelles competes in high-end niche markets supplying premium fish products. These markets for luxury commodity food products exist in the EU, Japan, United States, UAE, China and Singapore as a result of urbanisation, increased disposable income, growth in gourmet and luxury food retail chains, and cultural preferences for quality products especially evident in the Japanese and Chinese markets, and some areas in Western Europe, and the United States. Tapping into these markets proves feasible for local processors to compete from an exclusive positioning within the supply chain.

The product categories featuring in the international markets bestselling lists were mainly fresh and frozen fish (either in fillets or loins) combining an average of 7.17<sup>1</sup> percentage

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<sup>1</sup> Frozen Fish and Seafood Market by End-user, Distribution Channel and Geography - Forecast and Analysis 2023-2027. Published: Feb 2023 at [www.technovio.com](http://www.technovio.com)

market share whilst value-added products in the form of processed fish in preserved, dried, salted, brine and smoked occupied the remaining top traded categories. Other forms of value-added fish products on sale were fish pellets, milt, roes, oils and fat. Seafood products ranged from sea cucumber, prawns, molluscs, crabs and lobsters mainly sold in the Asian and Western markets with the United States importing a high proportion of prawns. Sea cucumber had high prevalence in China, Japan, Singapore, EU markets, and in the pharmaceutical sectors in UAE and the United States due to its medical properties. A high proportion of recycled fish waste (pellets) feature as feeds for the large-scale intensive aquaculture farms in many countries from Africa – Nigeria, Morocco, Benin or Latin America – Peru, Chile, Ecuador and others such as Israel, Singapore, China, Vietnam and the EU. The targeted fish species from Seychelles which are tuna, bonito, swordfish, snapper and grouper were also top exported product categories. From the value-chain perspective, local processors have an opportunity to diversify into selective niche markets through product differentiation if they engage in innovative product development other than the reliance on the same targeted species mentioned. Some of the variety of existing products being exported by competitors range from tuna jerky, rillettes, fish paste, crab meat in brine, smoked sea cucumber and pet food. The possibility to diversify products from other non-targeted fish species which holds potential to maximise income and improve market shares in the respective export markets identified or beyond remains an untapped potential with local processors. For example, in Europe and the UAE, there is growing popularity in cosmopolitan lifestyle and ethnic foods due to large concentrations of immigrant settlements driving demand for new products. Some sub-cultural communities have preferences for fish species like mackerel, scorpion fish and sardines which though considered of low value and have lower profit margins, are consumed and in high demand from these demographic groups. Tapping into developing the value-chain to expand market position through differentiation is present, since the similarities of these fish species to those found in Seychelles positively justifies the opportunities for local processors to consider exploiting in order to improve profitability and competitive edge.

Consumer market trends were indicative of increasing consumption of fish and fish products worldwide. Key factors driving consumption were related to growing trend in healthy

lifestyles, corporate lifestyle in Western countries wanting convenience, institutional packed food in schools, hospitals and prisons, gourmet food, high-end retail food chains and economic factors such as high salaries in the targeted markets including some previously referenced. The patterns showed remarkable differences specific to each market as for example, fresh fish consumption being more common in Southern Europe, while processed fish mainly tuna is consumed the most in Northern Europe. Fish species like swordfish is popular in the UK and southern Spain but oily fish like mackerel are favoured in northern areas. Americans prefer consuming prawns and canned tuna whereas in China, Japan and Singapore the main fish species consumed (with similarities of those harvested in Seychelles) were sea cucumber, crabs and grouper. Japan has penchant for aesthetics in their food, and the more creative the preparation the higher the perceived quality and value. The UAE has preferences for tuna, bourgeois, rabbitfish and grouper either fresh or processed while Israel consumers prefer tuna, grouper and snapper. Asian countries prefer mostly fresh fish with processed fish products falling second, while UAE consumers have preference for processed and preserved fish products and innovative flavours. Other consumer trends were the growing interest in ethnic cuisine in many European countries creating a surge in the ethnic retail markets, gastronomy inspired by high-end fast-food business and conscious buyer behaviour for purchasing from sustainable brands. One of the significant consumer trends that has impact on how well Seychelles can fully optimise its access and expansion in the niche markets is related to the certification brand. Consumer patterns worldwide revealed that an increasing number of fish traders, wholesalers and retail chain supermarkets have preference to buy from sellers endorsing eco labels from the Marine Stewardship Council (MSC) and the growing trend in environmental sustainability has spurred many of these international companies to form consortiums. There is greater competitive advantage to have certification for fish products and better selling opportunities for local processors when Seychelles starts this process. There are some initial programs through FITI that processors can engage in the interim until they achieve full certification from the MSC. The latter, combined with the Seychelles fish brand will provide a more marketable product positioning, access and expansion into international markets.

The domestic market revealed some good potential to develop, as consumer trends showed fish are regularly consumed with fresh fish being preferred by most adults. There is a niche

existent for families and the tourism industry, mainly in the value-chain for convenient ready prepared or pre-cooked fish products, children fish products; and in the circular economy targeting aquaculture and agriculture in the form of fish feed and fertiliser from fish waste. Other potential favouring artisanal and semi-industrial fishermen are that the local population has expatriates and many of these communities consume fish species that are not commonly eaten by Seychellois. This is a potential sub-group that can be targeted for the lesser-known fish species considered of low value. The current practice of fishing in volume to balance price and income stability can influence returns from harvesting other fish species.

The price value of fish in the local market fluctuates, though overall there is a range of between SCR30 to 140 per kg for fish like job, bourgeois, carangues following from lowest price to highest depending on the seasonality. The volatile price markets still present some challenges for fishermen as there is no guide price at the moment to benchmark, and competition is not always fair due to some fishmongers setting low buying price and applying high markup at point of sale. It was noted though that fish prices on the other islands Praslin and La Digue did not ensue this fluctuation as price for a packet of 6-8 fish cost SCR100. An interesting find was that most respondents from a survey taken spent this amount at a minimum per week with a maximum of SCR1, 500 per week on fish depending on the family size. Therefore, showing there is a stable local market for artisanal fishery.

A major concern for some fishermen related to selling opportunities limitations on the local market that is saturated by fishmongers, thereby blocking previous selling outlets from buying directly from the fishermen. The potential to increase selling points have been identified through the opening of a wholesale fish market which presents a common place for sales of fish to individuals and businesses, either in retail or wholesale form and tapping into other seafood products such as mud crabs, rabbitfish harvesting which can be sold to the tourism niche and locals alike. These remain untapped potential to explore from the review undertaken in this study. Another point that highlighted the search were the low employment rate of young people in the sector, some non-compliance practices by some operators, limited specialists in the field that can develop human resource and capacity building to improve the sector. There has been some capital investment and support given by the Government focusing on developing the sector and gradual improvements manifested in the allocation of land and cold storage facilities at the industrial zones are some examples.

Illustrative analysis of methods and processes for collection of market intelligence required, for consistent monitoring and updating of market information to share with the sector stakeholders, and for strategic planning to guide the operational modalities of the market intelligence unit which are presented in detail to show how the final report has been collated.

## **II. BACKGROUND AND OBJECTIVES**

Conclusion of the final findings for the consultancy ‘Development of a Market Intelligence Plan for the small-scale fisheries sector’, SWIOFish3 Project commissioned by the Department of Fisheries, comprised a total of 7 months collecting information from field research. The study was based on a combination of focus groups, one-on-one interviews, and desk research of online databases, websites, trade journals, research studies and publications from the fisheries industry in Seychelles and international authorities and agencies. Validation of the findings was undertaken in a workshop on the 14th of April 2023 with stakeholders and representatives from the small-scale fisheries sector. The review and contributions presented from the validation workshop have been incorporated in this final report.

The process of information gathering comprised of several phases to provide a complete assessment of factors shaping the small-scale fisheries sector. Phase one entailed a SWOT analysis to obtain information on the internal features in relation to export of local processors, artisanal fishery activities, local pricing, supply chain and other potential influences sustaining export potential and domestic market development.

Phase two concentrated on competitor analysis in the current markets where fish are exported from Seychelles. The evaluations identified the main competitions in these markets based on factors such as market share, pricing, supply and value-chain management, from which comparisons are undertaken with Seychelles to determine where gaps exist in order to gauge how the local processors leverage their own products against competition in the respective markets.

Phase three comprised reviewing the different products currently marketed by competitors in target export markets and prospective markets to understand the categories of fish and fish products being produced and sold to consumers. A comparative analysis of these fish



products with those processed by local processors was undertaken to evaluate the position of local processors to compete with these other value-added products using criterion such as, innovation, technology, packaging and certified labels that drive competitive advantage.

Phase four derived an analysis of market trends to identify existing consumer patterns and trends in the fisheries sector in international markets. These data were compared by region, cultural and demographics in order to ascertain patterns driving demand for fish in the respective global markets and evaluate where opportunities were present for Seychelles fish products.

The domestic market was evaluated through a consumer behaviour survey which formed the basis to determine local trends in relation to consumption patterns of fish and fish products, and verified how adaptive the local artisanal fishery accommodated consumer trends and if potential products currently being processed were feasible for the local market or whether new products were in demand. The assessment of factors such as price of products, quality, innovation and supply were criterion applied for the analysis.

The compiled information for each phase of the marketing research is detailed with reference to their significance in the implementation and approaches to unify the management of the intelligence for information sharing with stakeholders.

The order of the contents presented in each section of this report follows the below format:

1. Summary of Findings – the summary provides a detailed description of the SWOT analysis which was used to determine internal mechanisms within the small-scale fisheries sector. The intelligence assessed the impact of these mechanisms on the sector testing strengths, weaknesses, opportunities and threats.
2. Competitor Analysis – the intelligence collected describes the direct and indirect competitors in the markets, where Seychelles currently exports its products, and illustrates prospective new markets for Seychelles fish and fish products. The information evaluates how Seychelles fish exports can be differentiated on these selective markets to be competitive to gain consistent market share and competitive advantage.
3. Product Analysis – evaluation of the categories of products marketed by Seychelles were compared to that of competitors trading in the existing selective targeted markets and new

potential markets. The information identified some new products that may be of potential for Seychelles to diversify into to leverage its export capability and also become more competitive in these markets.

4. Market Trends – an assessment of the current consumer patterns for fish and fish products in the selected export markets and new markets were undertaken to identify customer demands, expectations, and cultural preferences so that exporters from Seychelles can tap into niche markets with opportunities to sell their products.

5. Domestic market – information on the artisanal fishery collected, was used to assess local market development and consumer behaviour to determine trends and opportunities.

6. Recommendations – the final intelligence data identified some proposals for consideration and implementation.

7. Conclusion – a summary of the research with proposed way forward is provided in the concluding remarks.

### **III. SUMMARY OF FINDINGS**

Market information from the concluded analyses revealed the following findings.

#### **Information Access to markets:**

Market data and monitoring of market trends, or other factors that influence shifts in the fisheries sector such as, product, competitor and new trading markets information that is required for developing strategic plans for the sector is not available to share with stakeholders, except for pricing invoices which are provided to SFA by some processors. However, the frequency of these submitted invoices to SFA varies and needs to be consistent. The lack of updated market data to assist in strategic planning is problematic.

#### **Strategic Focus:**

A clear strategy that harmonises all the national objectives for the sector is lacking. Initiatives being implemented in relation to expansion of the sector are fragmented and monitoring of performance is not adequate due to limited market information to support decision-making. This has caused gaps in compliance with standards and best practices, misinformation, lack of education and sensitization and general frustration among the small-scale fisheries actors as a consequence.

#### Processing Operational Capacity:

There are eleven small-scale processors currently engaged in processing activities in the sector and their operation levels are medium scale and not intensive. Ten of these processors engage primarily in export-oriented fish products. Due to their medium operation, their capacity to operate at volume scale as required for an international market is low. As such, they are unable to meet the core 3C's of international marketing, namely, Consistent volume, Consistent quality and Consistent price. Retaining a strong position in a competitive export market is limited for these processors as a result of low volume in their operational outputs.

#### Fishing Seasonality on Supply Chain:

Fishing activities are seasonal between the months of October to July when sea conditions are favourable. The remaining months are periods of inactivity. Since fishing is restricted to these seasons, the volume capacity to meet export demand is low. Therefore, export of products in volumes to sustain an export supply chain is not feasible for the small-scale fisheries sector. Other fishing activities for crabs and sea cucumber are also seasonal and attaining a constant flow of supply remains problematic.

#### Fisheries Policy Stock Management control:

The recent stock control management measures on targeted fish species for example, tuna, job fish and bourgeois; seasonal permits for sea cucumber harvesting have further exacerbated the sector, presenting challenges to maintain the supply chain for export and domestic markets. From the validation workshop, the issue of overfishing was raised as the fishermen stated that more focus is on quantity to cover expenses as their fish is charged at low price when reaching onshore, and they obtained better prices from the processors for the smaller fish harvested rather than the big fish, which is an area to further investigate. There were concerns raised as well in relation to size of fish caught which they have to release according to regulations in place, stating that previously they would gain an income from the small sized fish, but nowadays they earn no revenue if their catch comprises of smaller fish which they have to release. It is important to note that this co-management plan by the Government was implemented in consultation and agreement with the fishermen. However, it is proving challenging for some of the fishermen in the sector.

#### Inconsistent Harvested Catch:

There are fluctuating trends in the number of catches recorded, which means harvested catch supply level is also inconsistent given the seasonality of fishing activities taking place at intervals during monsoon periods. This translates to an uneven balance in the export supply chain not being constant to meet required export market demands.

#### Catch Data on Artisanal Fishing:

Artisanal fishery supplying the local market is experiencing similar shifts in the number of catches, though in general the real data for this fishing activity is not available to make a comparative analysis. Fish supply enters the domestic market via fishmongers, the fishermen selling directly to consumers at the markets and through some unregistered operators.

However, there is no available data to confirm the actual percentage share of fish supply entering the domestic market as SFA records the catches from registered vessels only while data from unlicensed artisanal fishermen catches is problematic to obtain.

#### Pricing:

Variation in pricing of fish is offset by climatic conditions, where the price is higher during south-east monsoon and lower in northwest monsoon seasons. This elasticity in supply and price has an impact on processing output and influences the price value of fish during scarce months. There is much conflict between the fishermen and processors on pricing structures of harvested fish and a policy to address this is needed.

#### Niche Market Capacity:

The relative low capacity for Seychelles to export in volumes justifies the need for the small-scale fisheries sector to focus attention on exclusive products targeting niche markets and high-end consumers who are more suitable to purchase high value fish products.

#### Fish Quality:

Grading of fish is not undertaken at harvesting point though there are established guidelines by the SFA on fish handling. Some concerns raised in the validation workshop were related to post-harvest handling by some fishmongers and unlicensed operators lacking the knowledge and devalue the fish quality sold to other outlets such as the hotels.

#### Unlicensed Operators:

The presence of unlicensed operators (fishmongers) entering the sector being unregulated is a concern, as conformity to standards are not followed, leaving open some malpractices in fish handling, hygiene during storage and transportation, traceability issues resulting in low-quality fish to enter the consumer market. Immediate action to redress this practice is needed.

#### Product Diversification:

The diversification of fish products on the domestic market and those exported comprise of four value-added categories (smoked fish, processed tuna, fresh catch, canned tuna – the latter from industrial processing)<sup>2</sup>. Optimal value-addition processing is limited. Opportunities available for product diversification are not being exploited by those in the sector and indicate a lack of innovation. A push to encourage processors and new businesses to manufacture new products for both domestic and export market consumption, and introduction of services specific to the sector are significant steps for expansion of the sector.

#### Limited Capacity value-chain:

Notable limited capacity is also identified in the value-chain of products currently being processed for export. Two out of the eleven processors process by-catch while others obtain supply from semi-industrial and artisanal vessels. These products being traded are fresh tuna,

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<sup>2</sup> Merchandise Products, National Bureau of Statistics Report 2021

tuna loins and fresh fish fillets to established markets in the EU, USA and more recently Israel. Competition for the same resources and market share have overcrowded the limited raw resources available for a small island state like Seychelles and many are feeling the crunch with new emerging businesses experiencing failure. The majority of the individuals in the sector are targeting premium markets in the EU and the USA for priced tuna as it brings quick returns on investment (ROI). As much of the focus is placed on these specific products, the sector is restricting its potential in the value-chain development with innovative products through the use of other fish species that are of commercial value.

#### Innovation and Product Differentiation:

In relation to prospective innovative approaches, it is evident that the sector is lacking the level of expertise or knowledge to develop other value-added products as currently only a limited number of value-added products being processed range from fish fillets, fish cubes, fish balls and burgers, which are available on the domestic market and some of which are exported, mainly fish fillets and fresh fish to the mentioned markets in the EU, the USA and Israel. Other seafood products processed for export are sea cucumber in its desiccated form to the Chinese market where it is reprocessed. Bycatch products are processed for domestic and export markets, but a relative proportion of bycatch are processed in overseas low-cost production countries like the Ivory Coast to be reprocessed into dried and salted fish for export in Canada and regional countries in Africa and Mauritius as well as the local Seychelles market.

#### Business Environment:

The local business environment in the small-scale fisheries sector is dominated by Micro, Small, and Medium Enterprise (MSME) and small, and medium enterprise (SMEs) operators. This means that their capacity to operate a large-scale manufacturing business is insufficient for processing large volumes of products. At present there are 15% of the total population employed in the fisheries sector<sup>3</sup>, with the sector having a total GDP contribution of 5.47%<sup>4</sup>. The size of these enterprises poses a restriction on the level of activities they can and are able to engage into and operate. A scale-up to large-scale processing factories may increase capacity for the sector but careful planning in resource management needs to be developed if this approach is undertaken given the size of the country and to also balance the conservation management policies with economic development.

#### Employment Pattern:

Employment in the small-scale fisheries sector is a major issue that needs immediate attention. At present, most workers are from the upper forty age group with few young people joining the sector, leading to an ageing workforce in the sector. The retention rate of young people entering into the fisheries sector is low as most are leaving to join the hospitality industry leaving occupancy to foreign workers. The high intake of foreign workers in the

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<sup>3</sup> <https://tradeportal.sc/fisheries-and-aquaculture-sector/> Information obtained on 13.03.2023

<sup>4</sup> Ibid. <https://tradeportal.sc/fisheries-and-aquaculture-sector/> ‘ Fisheries is the second most important sector after tourism, contributing 16 % to the GDP’.

sector is an indication that school leavers/graduates from the Seychelles Maritime Academy are not following career paths in the fishing sector, and should this trend continue in the foreseeable future, the small-scale fisheries especially the artisanal sector may become obsolete, and semi-industrial fishing will be dominated by foreigners. The impact will be reflected in the pricing of fish increasing as employment of foreigners bear additional costs for processors to provide accommodation, work permit fees which will be absorbed in the price of fish products sold on the market. More young people need to join the sector to improve the capacity of the local workforce, and improve specialised roles associated with fisheries such as technicians, food technologist and fish scientist.

#### Entrepreneurship Support:

There are growing interests from local entrepreneurs to venture into fishing and related value-added services. However, the ease of doing business in Seychelles presents certain barriers for new start-up companies. The Enterprise Seychelles Agency provides some support in the form of training to entrepreneurs facilitated by the Seychelles Fishing Authority in areas of packaging and labelling, as well as information on accessing loans and securities services. However, most services for the fisheries sector are coordinated by the Seychelles Fishing Authority for technical support, marketing and financial planning where possible. There is room for improvement in the services to assist entrepreneurs starting in the sector with capacity building and their employees, and in areas of post-harvest fish handling to ensure quality fish reach the local market.

#### Services and Facilities:

Ancillary services in the fishing sector are limited. Storage and warehouse chiller facilities are few. Ice plants are not automated, ice dispensers and ice are manually filled into bags currently being practiced at the SFA port, posing risks of contamination and health hazards. Moorings and repair warehouses for damaged fishing vessels are few, and current infrastructure is not adequate. Such services that need to be in place to modernise the services supporting the development of the sector need reviewing and upgraded.

#### Environmentally Friendly Packaging Materials:

Packaging materials for processed products are all imported, an indication to establish a packaging manufacturing facility locally as part of a value-added service, that can produce environmentally friendly packaging conforming to international standards and reduce the need for imports of these products that mostly are single-use and threaten the ecosystem is needed. A feasibility assessment has to be undertaken to review the cost-benefit of having a packaging factory set up locally, so that costs for importing these materials can be reduced, providing an additional benefit in costs for the processing businesses.

#### Policies and Technical Assistance:

Legislative frameworks supporting development of the small-scale fisheries sector have been implemented in various agreements with the EU, WTO, regional agencies such as IOTC, AfCTI, SADC and COMESA, which objectively facilitates trade between member countries through customs and excise duty rebates, preferential trading terms and most favoured nation

privileges for export of fish products. Support in technical and capacity building for value-added product development also features in the EU-EPA programme. These legislations suggest that the Government is focused on pursuing economic cooperation to drive international trade. By opening access to these key markets through these trade agreements, the small-scale fisheries sector can mutually benefit from revenue gains and knowledge enhancement to become profitable and successful in the export markets.

Some additional policy steps can also be undertaken to optimise the current agreements and also pursue new ones with other international organisations and non-governmental organisations for technical assistance, trading opportunities for forward looking nations (FLN) status from Seafood Global Alliance, Sustainable Fisheries Partnerships, and the Marine Stewardship Council to elevate standards, knowledge, and reinforce the efforts by the Government to promote the small-scale fisheries sector.

#### Financial Schemes:

The loan schemes for small-scale fisheries sector have attractive incentives to assist new business ventures and expansion of current operating ones. Existing funding for fishing is managed by the Development Bank of Seychelles (DBS) under the Blue Fund and the Fisheries Development Fund which are both of low interest rates. Nevertheless, capital investment in the sector is still low which suggests that few processors are making use of these funding schemes. From field research conducted with stakeholders, the general view was that capital investment costs are too high for equipment and the securities required to qualify for a loan are not favourable, which may justify the low borrowing rate from these schemes. A review of the loaning schemes that offers some form of subsidy for a periodic time for investment in the sector may be a positive step towards encouraging more processors and new start-ups to enter into this fishing sector and expand its potential.

#### Product Development Facility:

The product development laboratory at the Seychelles Fishing Authority port in Victoria is currently experimenting on new products such as, the use of fish skin for leather, recipes from lesser-known species and created an App called Fish Bites<sup>5</sup> with the aim to increase awareness, educate consumers and to encourage research and development from the small-scale sector. However, the facility is under-utilised and needs to generate more interest from entrepreneurs to use the facility to research new innovative products. More effort to boost innovation needs to be addressed as it is important for the growth of the fisheries export and domestic market.

#### Work Conditions and Well-being:

Working conditions and general wellbeing comfort on some semi-industrial vessels are of poor standard. Field observation identified lack of adequate sleeping quarters, lack of toilet facilities, storage of amenities such as water tanks, gas cylinders and fishing gears equipment were lacking creating risky and hazardous working environment for workers. Compliance to

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<sup>5</sup> The Fish Bites App was officially launched in November 2022 during the Fisheries Week. Article from the Seychelles News Agency, November 22<sup>nd</sup>, 2022.

International Labour Organisation (ILO) best practices for fishery<sup>6</sup> which is also a critical requirement for the Marine Stewardship Council (MSC) certification, needs to be better monitored and enforced by SFA to ensure compliance and safety of those employed in the sector.

#### Monitoring and Compliance:

There is disparity in the application of standards because of unlicensed operators and fishmongers operating in the sector. Guidelines relating to harvesting and handling of fish are not followed, creating illegal practices across the supply chain. There is few monitoring being undertaken to ensure compliance and testing of fish at harvest point and landings, and they are randomly or irregularly undertaken. Fish catch landed from semi-industrial fishing in the districts such as Belombre are not tested, and reliance is placed on the individuals to comply with procedures. Further drawbacks were recorded in relation to sanitary practices for fresh fish on sale locally at the markets in Victoria and in the districts. It was evident that display of fish in some of these markets and roadside stalls were not adequate and does not comply with the Codex Alimentarius and Public Health. From the field observations and research, it is apparent that staffing for undertaking the monitoring and enforcement is under resourced from the mandated agencies.

#### Communication:

There are communication gaps that exist between different levels of stakeholders and the Department of Fisheries. Information does not always reach fishermen from their respective associations, and this became apparent during the validation workshops. Reliance is placed on respective representatives to relay information from the ministry and the website. Other means of communication from the respective authorities, educating and sensitising stakeholders are missing. This results in continued underrated practices because some stakeholders are unaware of their importance in meeting customer expectations, including the effects of low quality on price of their products.

#### Grading of Fish for Quality:

At present, there are no compulsory requirement to grade fish that are harvested. As such, prices are not reflective of the quality of the catch, which gives an uneven balance in fair pricing of fish that mutually benefits both the fishermen and the processors. It also impacts the type of fish that are entering the market for sale. The Seychelles Fishing Authority may have to consider investing in new technologies to test fish quality and implement a grading system for harvested fish. This system will be of great value for the setup of the wholesale fish market that is in progress. This will ensure that the quality of fish entering the market whether for sale directly to consumers locally or for export are standardised in terms of quality and grade, and to ensure consistency in practices and for brand position in the export market.

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<sup>6</sup> C188 – Work in Fishing Convention 2007 (No.188)



### Selling Points for Fishermen:

Semi-industrial fishermen are experiencing a reduction in the selling of the catch harvested to the outlets compared to previous years where they were able to sell to the hospitality industry and at fish processing factories. This occurrence is due to the increase of fishmongers operating in the sector, selling directly to hotels, and also a result of less order demands from established buyers. It was also noted in the validation workshop by some fishermen, that they obtain better price value selling to fishmongers compared to processors as the latter command the price for fish and buy at lower value. The inability to negotiate price with processors creates loss in revenue for the fishermen. The opportunity to create sale points for selling fish is low and needs addressing to retain competitiveness and continuity in the sector. The project underway to have a wholesale market as mentioned may address this issue, as a collective point where trade can take place between the fishermen, retailers, wholesalers and distributors.

### Information Sharing and Engagement:

There are no communication platforms or program initiatives to sensitize and disseminate information on studies, services and best practices updates or feedback in place except for the Fish Bites App which has recently been launched to engage consumers to eat lesser-known fish species and share recipes. There is a need to implement other information platforms that are easily accessible even offline. Stakeholders in the sector that are registered members of the SFBOA get support through their membership such as, representation in key meetings and events. Engagement of members is low. There is a need for conformity to harmonise information sharing and proactively engage members from the associations. A program to unify all the fishermen association under one umbrella is needed to support growth of the sector, as currently the groupings for a concerted voice advocating for the sector is fragmented.

### Technology Use:

Use of modern technology in processing, packaging, handling and mechanisation of processes are also limited. Few factories use mechanised systems such as conveyor belt and rely on traditional methods which are labour intensive. Investment in these areas are requirements that will help achieve better economies of scale.

### Renewable Energy:

Investment in renewable energy resources to reduce costs associated with processing production is not being optimised, and it is an area of opportunity for development that may help lower production costs.

### Equipment Cost:

Equipment costs are high and a tax credit facility or concessionary tax to help lower financial burden associated with such costs are not available through the financial schemes in place. This discourages capital investment in the sector to be technologically innovative.

### Local Knowledge Expertise:

Local expertise in fisheries food sciences and other technical skills are limited, leading to reliance on foreign consultants and workers. This restricts the potential for developing products, systems, and growth of local skills and human resource in the sector. A needs assessment and partnerships with training institutions and employment services have to be considered for future planning in the sector.

#### Certification:

Lack of certification for exported products reduces Seychelles' competitiveness in the export market, primarily due to eco-labels conveying a positive sustainable practice to consumers which are highly valued in overseas markets. As such it will increase position and brand of all fish and seafood products from the country if Seychelles is associated with a sustainable label.

Current harvesting and processing practices are not aligned with requirements of the MSC certification thus restricts selling potential and brand strength of exported products.

#### Young People and Fisheries Future:

A high percentage of the workforce in the sector are foreigners with the exception of artisanal fishing as this is reserved for Seychellois. A lack of young people joining the fishing sector is a matter of concern as reliance is placed on foreign labour which adds to costs of operations. Youths have to be encouraged to take up the profession, and the low retention rate of those employed in the sector needs addressing, to find out why graduates from the Maritime Academy are not working in the sector, and employment schemes needs to be undertaken to attract local young labour in the sector.

#### Supply Chain:

The contribution of artisanal fishery supply to processing plants stands at 20% according to processors. An indication that much of the supply for processing is from semi-industrial and industrial fishing landings of by-catch which are used for processing export products. Artisanal fishery caters for domestic market supply, but coastal fishing is moving farther off the coast requiring further use of under-exploited species to be harvested and exploited.

#### Production Costs:

Cost of production in Seychelles is high as reliance is on imports for raw materials (additives, packaging materials, equipment). Other costs for electricity and transportation are also high which makes Seychelles fish expensive when all these processing costs are added to the final end product. This is also reflective in fishing activities at harvest level where fishermen stated in the validation workshop that their costs for an eight-day trip at sea is on average an expense of SCR15,000 to SCR20,000<sup>7</sup>.

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<sup>7</sup> Fishermen from the validation workshop held on 14th April 2023.

#### Licence Issuance:

There are irregularities in fish licence permits that regulates artisanal fishery with SFA having no framework or policy in place to monitor standards, record data from this activity as with exports. This leaves open gaps for unlicensed operators to enter the market and resell fish into the market that do not conform to fishery standards and impacts on the whole value and supply chain as quality is low.

#### Market Data:

Information that measures the capacity of the sector to engage into value-addition processing from current supply chain is unavailable. It is problematic to develop products without proper market research and may explain the reluctance of processors to engage into value addition.

#### Size of local market:

The local market is small placing limitations on the number of value-added products that can be developed. Other factors limiting potential are related to costs of production, labour, transport, storage and short-shelf life. Processors in the validation workshop, stated that adding a markup of 30%<sup>8</sup> on total value of the final VA products will increase the price of fish which are already high in the local market. A need to provide relief schemes to processing activities needs further consideration by policy makers.

#### Legislative Irregularities

Disparity in the law on SFA issuing licences to demersal species fishing. Although there are mechanisms directing the regulatory process, enforcement for compliance by fishermen and fishmongers is not proactively undertaken. To note that these loopholes are currently being revised and addressed by the Ministry of Fisheries and the Blue Economy through the review of the Fisheries Act 2014.

#### SBS Mandate:

FIQCU Act is specific to export and SBS has no authority on enforcement in the domestic fishing operations. The responsibility lies with the PHA.

#### Wastage:

The circular economy practices are being promoted and encouraged, and to date processors have engaged in producing animal feed from fish carcass.

#### Seychelles Fisheries Brand:

The existing fish brand is not being used for exported products. Marketing of fish exports under the fish brand is low and more effort to position the brand is needed to give Seychelles competitive advantage and harmonise export trade.

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<sup>8</sup> Processors from validation workshop held on 14<sup>th</sup> April 2023.

### Niche Markets for Luxury Food Commodity

There is demand in the high-end markets in Europe, Japan, Singapore and China for luxury food commodity namely, for fresh tuna and sea cucumber that holds lucrative opportunities for fish and fish products from Seychelles.

### Consumption Demand for Fish as a Healthy Choice

Both the international and domestic markets show fish consumption is high and demand continues to increase in popularity as a healthy choice. Thus, proving a favourable strength for the small-scale fisheries sector.

### Shifts in Market Trends in Ethnic Foods

Shifting market trends towards ethnic foods and cosmopolitan cuisine have grown in Europe holding greater opportunities in this growing market where local processors have potential to export less popular known fish species and innovative value-added fish products. Similar potential exists in the domestic market in the tourism sector and the multi-ethnic foreign residents.

### Pricing

Fluctuations in pricing of fish in the domestic market is volatile and a benchmark for price is needed to make sales more competitive for both the fishmonger, processors and fishermen. In the international markets prices are driven by demand and dependent on consumer purchasing power, although in high-end markets exclusive products are less sensitive to price therefore favourable for processors selling into these markets.

From the findings there are indications of some constraints requiring corrective actions to boost the sector. There are also some very positive enablers present where focus can be applied for strategic development and funnel fundings for implementation of projects geared towards the small-scale fisheries sector. The following recommendations are proposed in light of these findings.

## **IV. RECOMMENDATIONS**

### Competitive Positioning with Certification:

Initiate MSC certification to encourage sustainable practices in the sector and for processors and fishermen to achieve certification as per the Sustainable Development Goals targets. Certification from the Marine Stewardship Council eco label will open opportunities for trade as more countries are moving towards sustainable products. Seychelles will gain better competitive positioning in international markets for its exported products.

#### Certification Endorsement:

Best practices in workforce well-being, consistent standards, and compliance by all stakeholders. Normalisation of fishing activities to redress unlicensed operators conducting business. This is because the process of certification requires registration of all stakeholders and those without valid licences will have to be enforced by the authorities.

#### Compliance Enforcement:

Reinforce compliance measures for working conditions of workers and enforce monitoring to ensure best practices are adhered to as this aspect is also critical for achieving MSC certification for exported fish products.

#### Fishing Mooring and Landing Sites:

Modernisation and upgrading of mooring and landing sites, automated dispensing ice plants and other amenities such as a grocery store/supermarket servicing the fishing activities at the SFA Port.

#### Capacity Building

Source and implement training and technical assistance in fish handling, labelling, quality and standards to keep stakeholders updated on new developments in fisheries that align with the Marine Stewardship Council certification to improve the brand position of Seychelles fish products on the export market.

#### Tax Credit Facility:

The VAT exemption for capital investment introduced by the Government to continue as a means to promote investment in processing and help reduce some of the costs associated with operations in the sector.

#### Facilitation Services for Business Ventures:

Extend stronger support to entrepreneurs entering the sector through an advisory and facilitation service that covers areas of business planning, financial planning, marketing, technical development. The services can extend to a business incubation center for a periodic time for start-ups to encourage active interests and investment in the sector and improve success rates of new businesses in the sector.

#### Youth Employment in Fishing:

Undertake a working scheme programme with the Ministry of Employment to get the young labour force in the sector which can bring further new developments in fishing. Introduce incentive schemes such as work experience programs to engage youth interests in the fishing sector with partnership from the fishermen, processors and others in the fishing business.

Work in collaboration with the Ministry of Education to incorporate fisheries related academic and vocational subjects in the curriculum at secondary level to create a future pool of workforce with technical skills for the sector.

#### Selling Points for Fishermen:

The concern to achieve fair pricing for harvested catch from fishermen can be offset by introducing a fish average price or price index guide to encourage competitive sales and fair trading between parties for mutual benefits of the fishermen, processors and consumers buying the fish products. This will help minimise the disparity and conflicts between the harvesters and processors when negotiating pricing, which is elastic depending on seasonality.

#### Fishing Advisory Committee:

Implement an advisory committee with members in the industry represented on national Boards focusing on the sector for their inputs in national decision-making and planning within the sector.

#### Wholesale Fish Market:

The Government with private partnership to initiate operation for a wholesale fish market that captures fisheries trade on the domestic market and export. The market will be a centralised trading point, where fish are graded, quality assessed and harvested catch data are collected for intelligence. The convergence of all traders in the sector can then be effectively monitored, licenced and offset unregulated practices. It will also provide a selling point for fishermen with traders, retailers, hospitality industry and consumers to purchase fish at wholesale or retail price using the price index or operate as an auction model to make pricing more competitive by giving equal bargaining power to the parties. Note that the project is currently in development by the Department of Fisheries and stakeholders responded positively to its implementation.

#### Technological Investment:

Encourage the use of, and introduce new technologies in fish processing, for example, ultra-low freezing technology for packaging products to reduce costs for chiller storage. Use of mechanised systems in processing to help with efficiency and reduce labour intensive operations in the processing factories will help lower production costs. Renewable energy solutions adapted for electricity supply to the processing plants will help in lowering electricity costs, or the Government can address the cost of electricity tariffs by introducing rebates to the sector engaged in processing to support its development.

#### Networking and Affiliations:

Increase participation of the sector in international events to build on networking relationships, gain exposure with key players in the industry and promote partnerships, affiliations and joint ventures where possible for export products and similar initiatives to engage partnerships within the local market.

### Marketing Strategy for Fisheries:

Develop a marketing strategy to support export activities, targeting niche markets in targeted countries to increase export potential, and for promotion of domestic fish activities to improve opportunities of artisanal and semi-industrial fishermen. The marketing strategy has to align with intelligence data collected from the marketing intelligence unit.

### Seychelles Fish Brand:

The brand for marketing exports should be encouraged and promoted internationally to attract positioning in the key markets as part of the Seychelles label.

### Communication, Information Sharing and Engagement:

Communication platforms to directly share information with stakeholders online or offline through use of technology. Applications such as Telegram can be used to share updates on policies, research studies and general engagement with the stakeholders with developments in the sector, to ensure there is optimal reach rather than reliance on websites as is currently the case.

### FIQCU Mandate:

A review of the authority's mandate to extend to the domestic market to be considered as part of a national standard for fishing to ensure fish products entering the domestic market is of same standard as exported products.

### Training for fishing entrepreneurs:

Capacity building fishermen – technical training including their employees, and post-harvest handling to maintain quality of catch landed and entering the market. Other areas of training in business planning to also be considered, for example, financial planning, marketing.

### Licences for demersal fishing:

Regulations for SFA licenses to demersal species fishermen to sell to commercial buyers to comply with traceability chain of custody and to disable unlicensed fishmongers operating in the sector. To offset unregulated fishmongers entering the sector, issuing of licences by SFA to operate a fishing related activity should include basic requirements for storage facilities that meets necessary standards to be in place.

### National Standard for small-scale fisheries:

Government to implement a policy to have a mandatory national standard for all businesses entering the fisheries sector. The national standard for the fisheries sector will envelop all fishing related activities inclusive of local market to transpire into actionable plans.

#### Intelligence unit on marketing:

Market data that captures the level of supply chain to sustain value-addition is required to formulate strategic decisions on the feasibility of the market to absorb new Value Addition products.

#### Processing Licences:

SFA to consider how many licences are issued for processing as the market is saturated.

#### Funding Programs:

Government and development organisations like the EU, takes action to safeguard the supply chain, and identify options to support the industry by re-orienting funding programs, and flexibility with funds for investment and development of services and products for marketing fish and fish products.

#### Partnerships and Affiliations for Market Access:

Mobilise resources for market development and coordinate activities to ensure market access through partnerships with private sectors to maximise export earnings. Seychelles to consider membership with ESCAP, INFOFISH, IFAD, USDA and CFC international agencies to benefit from training programs, technology transfer, conferences and trade transactions accessibility and opportunities. The EPA also has technical assistance for capacity building in key areas like product development, market access.

#### Advocacy:

Re-orient research funds and identify solutions to support advocacy for the sector.

#### Trade Facilitation Events:

Trade facilitation to increase through continuous active participation in international expo events, conferences, seminars, membership with international fishing and trading organisations to increase visibility of Seychelles fish brand. Business visits to various value-added centres for exchange programs, short workshops for processors and fishermen in the trade to explore and learn about fish handling, processing best practices, HACCP etc for example, Malaysian Seafood Exposition (MISE) must be proactively pursued to increase networking, promotion of fish products and services.

#### Education and Sensitisation:

Streamlining the SDG 14 targets in national policies to manage sustainability in the sector through pro-active sensitization and education. A themed promotional campaign addressing fishing activities to be implemented to ensure change in behaviour, mindset and cultural advocacy to secure future of the sector over the long-term.



### Engagement in Sustainable Fishing:

The Government needs to review technical and financial capacities of local businesses to operate industrial fleets and engage in sustainable fisheries management to provide equal opportunities for local fishermen to develop the sector and promote this area.

### Onshore Processing from Landings:

National policy should promote negotiations with industrial seiners to bring their landings in Seychelles and have onshore processing done in the country to increase supply of raw materials for value addition, to create improved export capacity and job creation for the sector.

### Facility Upgrade:

Upgrade of facilities for fish handling at the port. Ice plant needs to have automatic handle to dispense ice instead of fishermen having to enter inside the plant. Sanitary measures are not observed with appropriate gear being worn for entering the ice plant not being complied. This is a critical protocol as the ice is used for preservation of the fish and at the moment, cross contamination risks are high. Thus, needs to provide a modernised facility to eliminate contamination risk. Cleaning and water taps need to be increased to accommodate for handling by several fishermen at a time, so that fish quality degradation is not affected on arrival. Additional water outlets for such needs to be installed.

### Value-Addition Opportunities:

Seychelles has to engage in more diversified fishing activities through product development to increase its opportunity to access external markets not just in Europe, USA but in neighbouring regional countries. For example, dried fish has export potential in Nigeria, West African countries like Ghana, Gambia, and South Africa as well as in Europe and USA/Canada where there are large communities of Africans. Stock bases for soups, seasoning can be developed from left over bones, heads and skins. Fish meal and pellets used for aquaculture feeding can be another option to optimise use of fish and maximise income opportunities. European markets have preference for gastronomic cuisine and prepared foods. Introducing pre-packed frozen meals, like sushi, fish rilletes, fish paste, briny fish, surimi which is popular in Japanese market, fermented fish used in Asian cooking, fertiliser etc are additional value added products for export. Other products from oily fish are biodiesel.

### Unified Consortium:

The sector stakeholders need to strengthen their consortium through a unified approach to negotiate tariff reduction and transportation costs reduction with shipping companies and airlines. Co-operation of fishermen's association/group in the area of:

- (a) Collective marketing of product to ensure fish are delivered at market value prices.
- (b) Collective procurement of inputs such as fish bait, and ice to reduce production cost.

#### Renewable Energy Options:

Adoption of renewable energy options should be encouraged to facilitate processing activities and support from the Government to initiate programmes leading to this must be undertaken for cost reduction and proliferation of processing operations and output. The lower production cost will make Seychelles fish products more price competitive for marketing in export markets.

#### Intelligence and Information Sharing Data:

For expansion of markets and maintenance of favourable prices – specific information on consumers, marketing channels, utilisation of fish and fish products should be regularly provided by the relevant authority. The marketing unit has to oversee this data management for business planning and commercial development as needed.

#### Marketing Information:

A system should be in place to gather marketing information for sharing among the key sector owners, partners and affiliates. For example, have an APP developed where fishermen can subscribe and have regular updates sent to them. The internalisation of this system must be managed by the Marketing Unit within the Department of Fisheries. This will address the shortfall of available data and accessing information that will provide insight into how the fishing industry is doing and nurture a mind-set culture of innovation, as marketing information will be a base to re-think ways to reach consumers by understanding market trends, and price fluctuations, as well as index prices for fish species to guide how pricing is negotiated and sold. (For example, weekly price index for targeted species like tuna, bourgeois, job) and non-targeted species can feature and standardise pricing issues in the sector. The APP can be integrated with economic intelligence to track trade performance.

Marketing Information system to be used to model marketing campaigns both for overseas and domestic market. Run reports on marketing performance to ensure targets are achieved.

#### Marketing Strategy for small-scale Fisheries:

The Seychelles fish brand must be incorporated for all export orientated fish products to harness marketing and promotion of local fish products. All processors should use this brand alongside their own company logo to give them more brand exposure.

#### Certification:

Certification with Marine Stewardship Council or the Friends of the Sea certification in the interim of preparing for the Marine Stewardship Council should be actioned to add value to exported products but also on the local market to make stakeholders more aware of following best practices.

### Trade Agreements:

Steps to maximise opportunities from trade agreements to access markets must be Intensified.

### Artisanal Fishery Monitoring:

Monitoring for fish landings in artisanal fishery must be done regularly to maintain quality of catch and training provided if lacking. Public Health intervention is critical.

### Ease of doing Business:

Some of the main institutional barriers to opening a business and running it<sup>9</sup> should be addressed to make it more accessible for entrepreneurs to enter the sector.

## **V. PROPOSED WAY FORWARD**

There are some positive initiatives undertaken by the Government exemplified in the financial schemes available, policies and legal framework in place. The issue is mainly with enforcement of some legislations to ensure compliance, intensified engagement with stakeholders in the industry to ensure the services available are fully optimised and facilitate empowerment of those in the sector to drive capacity and enable development.

The research has identified potential niche markets for premium fish products from the Seychelles in the high-end commodity consumer markets. Concentration of these niches are found in Europe, the United States, the Middle East and Asia where there is a growing trend in gourmet cuisine, healthy lifestyle and well-being, and cultural preferences for seafood such as sea cucumber in China and Japan. Creating the right environment for the export trade to flourish and achieve the level of income and profitability is possible with a conducive framework in place as per the recommendations.

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<sup>9</sup> World Bank at <https://www.worldbank.org/en/country/seychelles/overview> - Oct 2021)

## VI. ABBREVIATIONS AND ACRONYMS

Abbreviation	Full Names
AAMS	Advance Africa Management Services (consulting company)
ACP	African, Caribbean and Pacific (group of countries)
AfCTI	African Commercial Trade Initiative
COMESA	Common Market for Eastern and Southern Africa
CFC	Common Fund for Commodities
DBS	Development Bank of Seychelles
DG SANTE	EC Directorate-General for Health and Food Safety
EC	European Commission
EDF	European Development Fund
EEZ	Exclusive Economic Zone
EFTA	European Free Trade Agreement
EPA	Economic Partnership Agreement
ESCAP	Economic and Social Commission for Asia and the Pacific (of the UN)
EU	European Union
FAO	Food and Agriculture Organisation
SFBOA	Seychelles Fishermen and Boat Owners Association
FIQCU	Fish Inspection and Quality Control Unit (of the SBS)
FiTI	Fish Transparency Initiative
FOS	Friend of the Sea (an international NGO)
GFSI	Global Food Safety Initiative
GoS	Government of Seychelles
GSCP	Global Social Compliance Programme
GSSI	Global Sustainable Seafood Initiative

H&G	Headed and gutted
HACCP	Hazard Analysis and Critical Control Points
HR	Human Resource
IFAD	International Fund for Agricultural Development
ILO	International Labour Organisation
IOTC	Indian Ocean Tuna Commission (a RFMO)
ITC	International Trade Centre (of the United Nations)
IUU	Illegal, Unreported and Unregulated (fishing/aquaculture)
LDC	Least Developed Country
MFBE	Ministry of Fisheries and the Blue Economy
MFBE	Ministry of Fisheries and Blue Economy
MFN	Most Favoured Nation
MIP	Market Intelligence Plan
MSC	Marine Stewardship Council
NOAA	National Oceanic and Atmospheric Administration (of the USA)
PHA	Public Health Authority
PICT	Pacific Island Countries and Territories
RFMO	Regional Fisheries Management Organisation
RFVS	Responsible Fishing Vessel Standard
SADC	Southern African Development Community
SASSI	South Africa Sustainable Seafood Initiative
SBS	Seychelles Bureau of Standards
SDG	Sustainable Development Goals
SFA	Seychelles Fishing Authority
SFP	Sustainable Fisheries Partnership (an NGO)
SFPA	Sustainable Fisheries Partnership Agreement (with the EU)
SIB	Seychelles Investment Board

SIDS	Small Islands Development States
SME	Small & Medium Enterprises
SPS	Seafood Processing Standard
SWOT	Strengths, Weaknesses, Opportunities and Threats (Analysis)
TOR	Terms of Reference
UAE	United Arab Emirates
UK	United Kingdom
ULT	Ultra-Low Temperature (freezing)
UN	United Nations
UNCLOS	United Nations Conventions of the Laws of the Sea
UNESCO	United Nations Educational, Scientific and Cultural Organisation
USA	United States of America
USDA	United States Department of Agriculture
VA	Value Added
WTO	World Trade Organisation

## **VII. MEASUREMENTS, NOMENCLATURE AND EXCHANGE RATES**

All units of measurements used in this report are metric and those from statistical data sourced online have been written as ‘tons’ and should be interpreted as metric tonnes unless otherwise stated. The term billion has been used and should be interpreted to mean it is equal to 1,000 million. The abbreviation ‘MT’ is used throughout for consistency.

The Anglophone system is used for numerical separators, expressed by a comma (,) and to distinguish decimals, a full stop (.) is used as for example, 1,000.00.

Currencies are written in their short form as:

EURO €

Seychelles Rupee SCR

United States Dollar USD

Harmonised System Nomenclature

The Harmonised System (HS) Classification, also called the HS Nomenclature, is the World Customs Organization's Harmonized Commodity Description and Coding System. It is an international customs classification system which allocates a unique 6-digit HS code to each group of products. It has been used to describe export statistics. As the EU is the world's largest exporter of fish and seafood products, the HS is used for the purpose of guiding the EU's common customs tariff, used in trade statistics in the EU, and between EU and global trade. Of relevance to this research some of the HS codes are used to define the product type from the statistics presented for specification and clarity. These codes are the same used in the 11<sup>th</sup> EDF Report 2021<sup>10</sup>.

Most relevant HS codes that are applicable and used in this report are stated below as:

**0302:** Fish, fresh or chilled, excluding fish fillets and other fish meat of heading 0304

**0303:** Fish frozen, excluding fish fillets and other fish meat of heading 0304

**0304:** Fish fillets and other fish meat (whether or not minced), fresh, chilled or frozen

**1604:** Prepared or preserved fish; caviar and caviar substitutes prepared from fish eggs

**1504 10:** Fish-liver oils and their fractions

**1504 20:** Fats and oils and their fractions, of fish, other than liver oil

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<sup>10</sup> Identification of Export Potential for Fisheries & Aquaculture Products Assignment, Long term technical assistance to support the Economic Partnership Agreement (EPA) implementation in Seychelles, March 2021, p6.

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## 1. INTRODUCTION

<b>PROJECT TITLE:</b>	<b>Development Of a Market Intelligence Plan For The Small-Scale Fisheries Sector - Third South West Indian Ocean Fisheries Governance and Shared Growth Project (SWIOFish3)/P155642</b>
<b>Project Phase</b>	Deliverable 5: Final Market Intelligence Plan
<b>Report date</b>	30 <sup>th</sup> June 2023
<b>Reporting period</b>	September 2022 to May 2023
<b>Consultant</b>	Ms. Sharon Gappy

This report is the fifth reporting output for this consultancy. It is based on a combination of fieldwork and desk research completed over seven months following from:

- An Inception Report submitted and approved in October 2022.
- An Interim Report integrating a capacity building plan submitted in December 2022.
- A Draft Technical Report on operational modalities of the marketing unit submitted on 9<sup>th</sup> February 2023.

The modalities of this report were constrained by availability of some stakeholders to meet with the consultant for interviews, and torrential rainfall delaying the field surveys on Praslin and La Digue.

The contents of the report are presented in a two-part format, divided into an international market assessment and domestic market assessment section. The flow of the report is as follow:

- Outline of methodologies
- Market Trend Assessment
- Competitor Analysis
- Product Intelligence
- SWOT Analysis
- Domestic Market Assessment
- Conclusions
- List of international distributors/suppliers
- Country code listing
- Terms of Reference for the assignment
- Bibliographies and Resources

## 2. METHODOLOGY

The methodological approaches used to collate marketing data were a combination of qualitative and quantitative data. A survey on consumer behaviour addressed trends in the domestic market through closed and open-ended questions, short interviews with local processors, semi-industrial and artisanal fishermen were conducted to obtain qualitative data to gain perspective on the field ground on issues surrounding the small-scale fisheries sector.

A SWOT matrix was applied to verify internal strengths, weaknesses, opportunities and threats that defined the performance of the small-scale sector against market requirements. In this way challenges and enablers in the current business environment could be determined for best solutions.

Market trend assessment was conducted by reviewing online databases, journals, market studies and statistical reports in international markets specialising in the fishing industry. Focus was placed on purchasing trends, market size, pricing and clustering data to identify the status of the business environment.

Competitor analysis centred on market share, export volume, supply chain management, products, unique selling point (USP) of countries that are directly and indirectly sharing market positions with Seychelles in export markets.

Product assessment compared categories of fish species, value-added fish products, innovative products availability in the export markets and locally to substantiate product differentiation in the markets and assess the relationship between market preferences and products.

The combined assessments illustrate the processes used for structuring market intelligence. The integration of a data unit to systematically engineer the information for planning and strategy development is indicated using formulaic explanations, models and charts.

### Defining the purpose of a market intelligence plan

The market intelligence plan is a comprehensive analysis of the status of a business and its competitors to collect information on their performance, brand, sales and revenue, market share, product and competitor comparison analysis to evaluate how a business can compete in the same marketplace with similar products or diverse products to win a position in the market. In this case, the business is the small-scale fisheries sector, and the output is fish and fish value-added products. This helped to determine the performance of the small-scale fisheries sector in the respective markets and appraise opportunities for further development using key data for decision-making and implementation of a marketing strategy for the sector.

## 2.1 Terminologies

The TOR for the assignment focused on the small-scale fisheries sector which primarily covers fish processors and artisanal fishermen. Resources harvested from the sector are wild catch from semi-industrial fishing vessel and artisanal fishing using traditional methods of fishing with traps, nets and hook and line.

## 2.2 Market Data

Sources of data used for compiling the market assessments are primarily from analysis of data obtained from the International Trade Centre (ITC) Trade Map website accessible at (<http://www.trademap.org>), Market Trends and Reporting Articles from Statista accessible at (<http://www.Statista.com>), the Centre for Business Innovation (CBI) EU accessible at (<http://www.cbi.eu>), Articles and Reports from the Global Seafood Alliance Organisation (GSAO) accessible at (<http://www.seafoodalliance.org>) and FishSource accessible at (<http://www.fishsource.com>). The OECD and EU Commission, FAO, Trading Economics and Marine Stewardship Council databases were additional resources supporting the reviews in this report.

These above-mentioned data libraries provide statistics, scientific studies and articles on the fishing industry that guided the research for export of Seychelles fish and seafood products. The International Trade Commission (ITC), Government of Seychelles Trade Portal, Trend Economy, World Bank, Statista and Trading Economics website publishes statistics in the form of tables, graphs and maps with indicators addressing export performance, international demand trends, alternative and competitive markets, and a directory listing of companies trading in exports and imports of fish and seafood. The ITC covers data across 220 countries and uses the Harmonised System (HS) coding to segregate products. The statistic from both sources gives insight into the trade status of importing and exporting countries.

It was important to review importers status in the competitor and product intelligence to obtain information on the diversity of products supplied to specific importing countries to match products to suppliers. In relation to exports, the condensation of countries buying from an exporting country in the form of imported products, concentrated focus on export potential raising interest in the various categories of fish and seafood products that can be developed for export with potential markets.

## 3. PROJECT SCOPE

The main objectives of the consultancy are to achieve the outcomes described as follow:

**Outcome 1:** To develop a market intelligence plan for the small-scale fisheries sector.

**Outcome 2:** To establish a marketing unit within the Department of Fisheries.

**Outcome 3:** Lead and support marketing activities by the fisheries administration.

#### **4. DELIVERABLES**

As per the TOR the key deliverables of the consultancy were:

- i. An inception report that includes a detailed work plan, stakeholder mapping and agreed data collection methods.
- ii. Interim report focusing on progress in capacity building and outlining a handover strategy for transferring roles and responsibilities of the marketing specialist to local counterparts.
- iii. Draft market intelligence plan (validated by partners and stakeholder representatives).
- iv. Final market intelligence plan (validated by the Ministry).
- v. Draft technical report on the establishment and operational modalities of the marketing unit.
- vi. Final technical report on the establishment and operational modalities of the marketing unit (validated by the Ministry).

## 5. SWOT ANALYSIS MATRIX

Strengths	Weaknesses	Opportunities	Threats
<b>Marketing</b>			
Quality of raw resources and final export products are high, meeting EU and other international standards	Value-addition products need to be more diversified both for export and domestic market	Untapped markets to exploit, new value-added products to exploit into the markets	Seasonal fishing activities constraints supply chain to be consistent to meet export demand.
Infrastructure/facilities for the processing sector are export oriented meeting international standards (FIQCU,PHA, SFA).	Other marine resources such as, crab, sea urchin, shellfish are under-exploited for export.	Preferential rates for trade in some markets and duty-free entry with EU states.	Direct access to some markets by air are limited – airlines such as Turkish have changed schedule to seasonal flights.
Product development and Quality Assurance Department and Fisheries research Department at SFA are operational.	Disparity between standards as domestic market falls in PHA jurisdiction rather than SFA.	Fish brand exists to position in markets.	Renewable energy sources are limited and impact costs of production, product price sensitive.
Under-exploited stocks are being researched and developed into new recipes, with potential to export.	No certification for eco labelling to promote fish products in export market.	Certification for eco label to boost trade in export market to elevate competitive positioning.	Fish handling practices and processes lack proper expertise and affect fish quality.
Reliable transportation networks for distribution internationally and domestic.	Import of production materials incur high costs for processors – packaging, equipment, additives.	A unified association for stakeholders in the sector to promote products.	Lack of marketing strategy for the sector.
Seychelles Fish Brand.	Cheaper imports into the markets compete directly with local products.	A communication platform that promotes information sharing of studies, advice and better	Lack of innovation.

		engagement between the sector and other parties locally and internationally.	
<b>Strengths</b>	<b>Weaknesses</b>	<b>Opportunities</b>	<b>Threats</b>
Exporter rank at 76 in the world.	Limited investment in value-chain infrastructure.	Programme of training to empower youths to join the sector.	Use of technology such as mechanised machinery for handling, packing and use of ultra-low temperature (ULT) technology to develop export of frozen fish and innovative opportunities is still limited.
Value-chain products exists for development. <sup>11</sup>	Fish brand is not endorsed by sector, there is low engagement.	Use of digitalise services to promote marketing of fish products overseas.	Exports of fish are focused on fresh and chilled tuna fillets/loins. Other value-added products with high market potential are not being developed or exploited from this highly priced fish in the high-end markets.
<b>Marketing</b>			
SFA and Department of Fisheries coordination and promotion of economic cluster focusing on value-chain fish products at Ile Du Port between local and foreign investors.	By catch landings are not all carried out in Seychelles. Limits processing capacity for raw resources for value addition.	Set up a wholesale fish market on an auction model or a price index model to make the sector competitive.	Packaging materials used for products are not environmentally friendly and a shift to utilise more eco-friendly materials with less carbon footprint is desirable

<sup>11</sup> Advanced Africa Management Services 2018: A value chain study of the Seychelles small-scale fisheries sector.

			especially for the export market and if MSC certification is to be achieved.
<b>Strengths</b>	<b>Weaknesses</b>	<b>Opportunities</b>	<b>Threats</b>
Land allocation in Zone 14 (Ile du Port) and Zone 6 (Providence) for processing plants.	Operating hours of the FIQCU is weekdays only due to understaffing to operate weekends limiting distribution supply.	Promote full utilisation of by-products from processing into cottage industries so that waste is also recycled to maximise income from the sector (circular economy).	Training in product development is limited – food technologist for R&D.
-	Sales outlets are limited – unlicensed middlemen directly distributing to established outlets in the hospitality sector.	-	Adaptability and unwillingness of the stakeholders to change and shifts in the market they need to consider.
<b>Financial Support</b>			
Attractive loan schemes from FDF and Blue Fund at low interest rates. <sup>12</sup>	Cost of borrowing is still high for capital investment in relation to collateral contribution.	Introduce tax credit facility for investment in equipment for processing plants that will help reduce capital costs and loan amortisation.	Loan repayments outstanding.
SME Schemes encouraging investment from Seychellois in the sector.	Financial planning advisors/advisory service for fisheries is limited.	Create advisory/business facilitation centre for fisheries related investment/projects.	-

<sup>12</sup> Development Bank of Seychelles (DBS) website at <https://dbs.sc>



SFA Fisheries Incentive Scheme favourable subsidies to registered fishermen covers ice, insurance, sickness benefits, fuel as examples.	-	-	-
<b>Strengths</b>	<b>Weaknesses</b>	<b>Opportunities</b>	<b>Threats</b>
<b>Policy and Institutional Framework</b>			
Sustainable Fisheries Management Plans aligns with certification criteria with MSC/FOS eco labels.	Employment of young people in the sector is low, an ageing population of artisanal fishermen need to be replaced to maintain continuity.  Reliance on foreign workforce due to poor intake of SMA graduate.	Business incubation service for new start-ups businesses	Encourage sustainable job opportunities in the value-chain to grow revenue from auxiliary services.
Trade agreements supports entry into international markets.	Ethical ILO standards Work in Fishing Convention and Work in Fishing Recommendation, 2007 (No. 199) are inconsistent on some vessels.	Automated services to modernise facilities and bring in more efficiency.	Ease of doing business in Seychelles presents barriers.
Standards and quality guidelines available to start certification process at SFA.	There are no Seychellois owned industrial fishing vessel, a need to encourage retention of a percentage share of income generated from this type of fishing by Seychellois nationals to flow into the local economy.	Set up of a business advisory committee through collaborative partnership to help promote services and products, consultations for policy development.	Low intake of youths employed in the sector

Strengths	Weaknesses	Opportunities	Threats
Technical support with international bodies, NGOs for capacity building	Registration with the fisheries association SFBOA is not mandatory and many small-scale fishermen are not registered and operate independently or in district associations with no concerted consortium for advocacy	Ongoing capacity building programme on new technology in the sector – processing, handling, value addition/product development, innovation	Not all catches from industrial seiners are landed in Seychelles and maximising landings from these vessels to be encouraged to provide raw resources for processing.
Established compliance guidelines aligned with international best practices – UNCLOS, IOTC, FAO, SWIOFA		Set up a business facilitation centre specific for the small-scale fisheries sector to assist with support in marketing and promotion, labelling standards, networking with distributors locally and internationally.	Infrastructural development for landing and berthing of industrial seiners at the fishing ports must be implemented to capture bycatch for processing by locals to support development and further expansion of the small-scale fisheries manufacturing potential.
GoS committed to boost sector – Fisheries National Policy and Strategic Plan, National Biodiversity Strategy and Action Plan (NBSAP) 2015-2020 focus on the Blue Economy <sup>13</sup> .	Compliance to health and hygiene in fish handling not consistent	Creation of enabling environment for the sector to export fish	Funding to implement the projects

<sup>13</sup> Seychelles Fisheries Sector Policy and Strategy 2019, page 6.

Strengths	Weaknesses	Opportunities	Threats
Keen interest from entrepreneurs with SFA receiving 10 applicants on average per year into fishing ventures.	Monitoring by SFA to ensure compliance to standards inconsistent.	Transferring of sanitary standards to SFA so it is managed through fisheries best practices	Staffing availability to monitor
Artisanal fishery reserved for Seychellois ensuring domestic supply.	Ancillary services specific to fishing operations/activities that may create job opportunities are limited.	Enhance fisheries courses/curricular subjects to get youths interested to take up careers in the sector.	Youths' engagement and interest to pursue fisheries subjects and work in the sector with support from respective ministries – Education and Employment.
Processors have consortium via association AFPES, and SFBOA for fishermen and boat owners. Districts have associations for artisanal fishermen.	Grading of fish not undertaken to encourage quality catch.	Continuity with partnerships for familiarisation visits, participation and collaboration with stakeholders and international NGOs programmes.	
		Knowledge transfer is applied to enhance development of products.	
<b>Technicalities</b>			
Port facilities and services are present for berthing, landings, handling/cleaning.	Improvement to modernise the current facilities – automated ice dispenser, conveyor belts for cleaning, fish cleaning area, docking.	Efficient system for handling, cleaning and grading of fish harvested to ensure improved quality on domestic market.	Climate variability have affected the location and distribution of demersal fish species targeted by artisanal fishermen, leading to coastal fishing

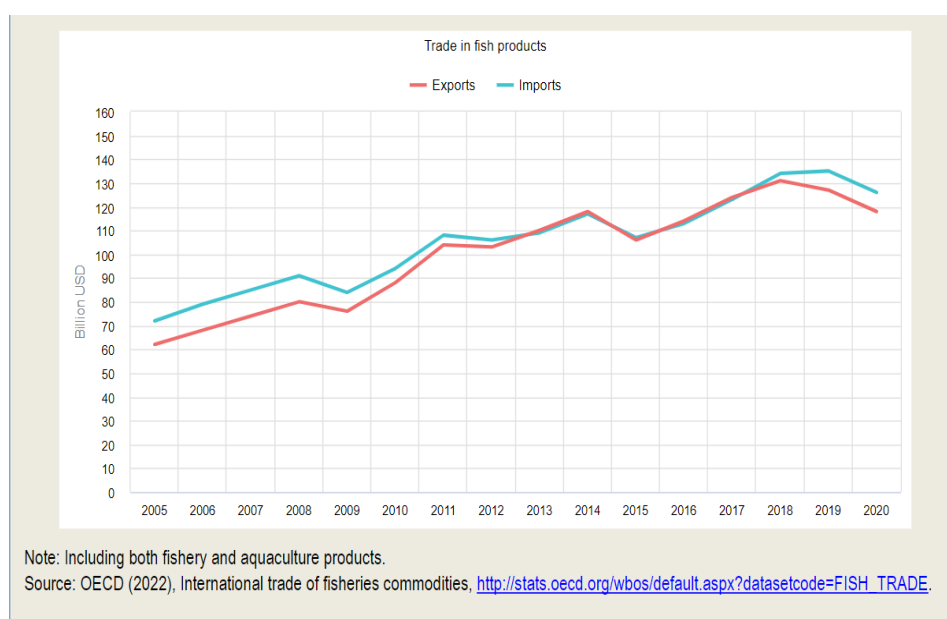
			moving farther offshore on the Mahe Plateau.
<b>Strengths</b>	<b>Weaknesses</b>	<b>Opportunities</b>	<b>Threats</b>
Quality control for exported fish by FICQU to meet international EU standards.	No grading of fish is done except for quality control by FIQCU for exported fish.	Grading will determine price and assure fair pricing for selling fish and standards are consistent.	Land reclamation projects have changed the concentration of fish locations.

## 6. MARKET TREND ASSESSMENT

Market trend assesses the current trends in international markets. Criterion used are consumer demands, consumption patterns, cultural, social, economic and demographic patterns in the global market to establish drivers of demand and the relationship between these factors to determine opportunities for entry and positioning into the markets.

Review of OECD Database and FAO statistics report on the global fish trade identified upward growth in 2020 as outlined in the graph below.

**International Trade of fishery products 2005-2020**



Following from this overall upward trend in the fisheries industry, consumption patterns for fish globally have relatively increased to reach an average annual rate of 3.0 percent since 1961, compared with a population growth rate of 1.6 percent. On a per capita basis, consumption of aquatic food grew from an average of 9.9 kg in the 1960s to a record high of 20.5 kg in 2019, while it slightly declined to 20.2 kg in 2020. Projections indicate an increase to 16.3%, or an additional 25 MT, to reach 180 MT by 2029<sup>14</sup>.

Factors attesting this rise are attributed to rising incomes and urbanization, improvements in post-harvest practices and changes in dietary trends. The popular health driven diets favouring fish and light eating during the 80's and the 90's, and the perceived health benefits of a fish protein diet compared to meat have increased the demand for fish products (EU Commission)<sup>15</sup>. In developed countries, lifestyle changes veered towards healthy eating and wellbeing have accelerated and in most Western countries there is a high interest in pescetarian diets, where meat is not consumed<sup>16</sup>. Other factors are attributed to busy

<sup>14</sup> OECD/FAO (2020), "OECD-FAO Agricultural Outlook", OECD Agriculture statistics (database), <http://dx.doi.org/10.1787/agr-outl-data-en>

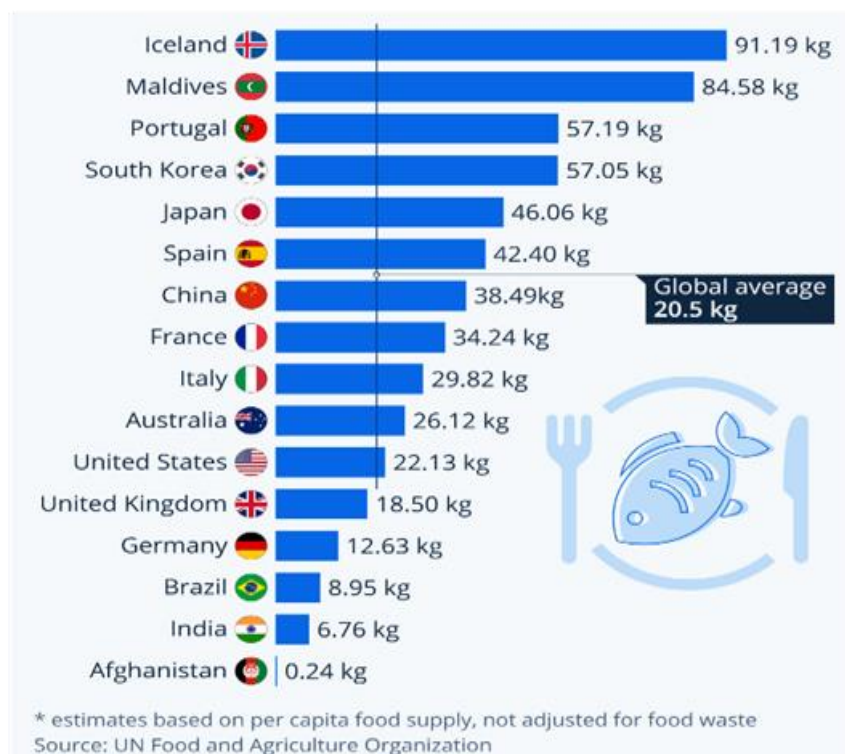
<sup>15</sup> The State of World Fisheries and Aquaculture (SOFIA) 2022 Publication

<sup>16</sup> Source: <https://foodinstitute.com/focus/ai-predicts-3-food-trends-for-2023/>

lifestyles and long working hours in corporate developed countries influencing consumer preferences to consume ready to cook food or pre-cooked products to suit their lifestyles. There is a growing niche of fast-food gastronomy (diners, ready to eat lunch) that have started to take off in many industrialised countries. Consumers are also veering to adoption of international flavours preferably ethnic and Asian cuisine as world travel have exposed people to other cultures making people more cosmopolitan. The healthy food retail business and wellbeing lifestyles have also caught on in Western countries and fish and seafood diets are more favoured because of its nutritional benefits (lower fat content and rich in vitamins). Other communities in lesser developed countries rely on fish and seafood for their livelihoods and food security hence, the overall demand for fish consumption growing worldwide. Other rising trends relate in the development of institutional packed seafood products for places like prisons, schools, airlines and hospitals becoming popular.

FAO 2019 statistics reported the global average for fish consumption at 20.5kg per capita with Northern Europe recording the highest consumption rate for 2019 as illustrated in the graph.

Graph A: Illustration of consumption of fish and seafood in some selected countries worldwide.



Using the variable of product consumption per capita to identify which countries consume the most fish, table 1 shows the top seven, Norway, Japan, China, EU, USA, Canada and Russia. Note this is combined with aquaculture sourced fish and seafood. Norway is first, followed by Japan and China occupying the second and third position of highest consumption, while the

remaining EU countries and USA are fourth and fifth. All these countries are selected target markets for Seychelles fish products and from this first evaluation, the high consumption per capita indicates a potential for exporting and increasing value of market share in existing ones like the EU and USA.

**Table 1:** Fisheries and aquaculture products consumption in major world economies (2019)  
**Quantity in live weight (kg/inhabitant/year)**

Norway	54.56
Japan	46.74
China	40.42
EU-28	23.97
United States	22.9
Canada	22.33
Russia	20.74
<b>WORLD AVERAGE</b>	<b>20.66</b>
Brazil	9.04
India	7.63
Turkey	5.09

**Source:** OECD forecast [https://stats.oecd.org/Index.aspx?datasetcode=HIGH\\_AGLINK\\_2019](https://stats.oecd.org/Index.aspx?datasetcode=HIGH_AGLINK_2019), Eumofa elaboration of Eurostat and FAO data.

The highest prevalence of fish consumption from the major world economies is Norway, Japan, China, the EU and USA. This is an indicator to possible entry or strengthening positioning of products from Seychelles.

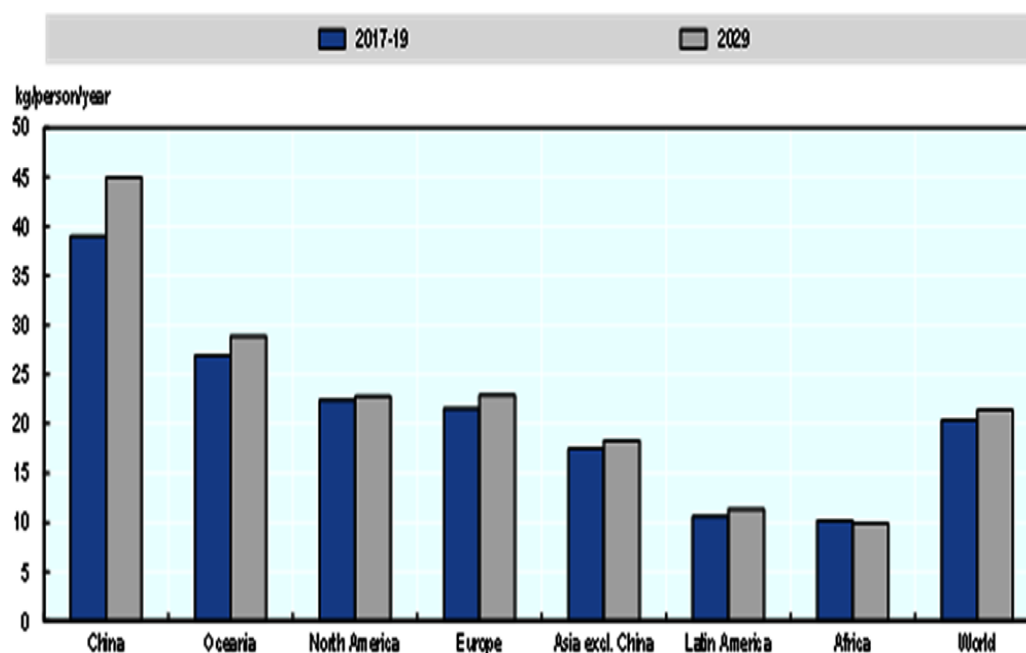
Brazil, India and Turkey have lower prevalence. Note that India is one of the largest producers/exporters of fish, but consumption is low possibly due to many Indian communities being vegetarians which explains the low consumption. In summary, fish and seafood is a highly consumable food commodity worldwide as mentioned above.

### **Projected trend world outlook by country**

According to the OECD-FAO Agricultural Outlook, the projected statistics by country for fish consumption per capita for 2029 is expected to rise to 21.4 kg per capita<sup>17</sup> although variations in trends in terms of quantity and product category between countries is expected as per graph below.

<sup>17</sup> OECD Report 2022, International Trade for Fisheries.

Graph B: Illustration of world fish consumption – projections to 2029



Source: OECD/FAO (2020), OECD Agriculture statistics database, <http://dx.doi.org/10.1787/agr-outl-data-en>

The global trend pattern provides the basis for assessment of the main markets to characterize demographic, cultural preference and social factors to distinguish specifics of the markets. A descriptive review of these factors is addressed below.

## 6.1 European Union Market Trend

In Europe fish is an important source of protein and a crucial component of a healthy diet. The average person living in the EU, consumes 24 kg (live weight) of fish or seafood per year which is 3.3 kg more than in the rest of the world. The pattern of consumption varies across different European countries as indicated in Table 2. The reported data from 2019 shows Portugal consumes 59.9kg of fish per person per year while the Czech Republic consumption is 6 kg per person per year. Table 3 refers to the species of fish most consumed in the EU and by harvest methods. As shown, three quarters of the fish and seafood consumed are from wild fisheries, while the remaining quarter comes from aquaculture, indicating cultural preference for wild caught fish and seafood.



**Table 2: Consumption of fisheries and aquaculture products in the EU (2019)<sup>18</sup>**  
(quantity in live weight (kg/inhabitant/year))

Portugal	59.91
Spain	46.02
Denmark (**)	42.56
France	33.26
Lithuania	32.84
Italy	31.21
Ireland	25.50
Sweden	25.16
Cyprus	24.34
EU-28	23.97
Finland	23.77
Belgium	23.31
Croatia	20.82
Netherlands (*)	20.60
Greece	20.37

**Source:** Eumofa data obtained from Eurostat

<sup>18</sup> (\*) Data are provided by the following National sources: BMEL-Statistik (Germany), CZSO Czech Statistical Office (Czechia), Estonian Institute of Economic Research (Estonia), Centrālā statistikas pārvalde (Latvia), Dutch Fish Marketing Board (Netherlands) and Statistics Poland (Poland).

(\*\*) Estimates for Denmark were not confirmed by the National contact point.

(\*\*) OECD forecast was used for the UK.

NB: Given the significant relevance of imports of frozen fish likely used as fishmeal in the Maltese bluefin tuna fattening industry, and given the increasing imports of live tuna for fattening purposes, available data and information for Malta do not allow to produce precise estimates. However, annual per capita apparent consumption can be estimated between 30-40 kg LWE.

**Table 3: Main species consumed in the European Union (2019)**  
(quantity in live weight (kg/inhabitant/year))

Main commercial species	Per capita (Kg)	% Wild	% Farmed
Tuna (mostly canned)	3.10	99%	1%
Salmon	2.36	19%	81%
Cod	2.11	100%	0%
Alaska pollock	1.67	100%	0%
Shrimps	1.47	49%	51%
Mussel	1.23	20%	80%
Hake	1.02	100%	0%
Herring	0.98	100%	0%
Squid	0.62	100%	0%
Surimi	0.59	100%	0%
Sardine	0.58	100%	0%
Swordfish (fillets)	0.57	100%	0%

**Source:** EUMOFA elaboration of Eurostat and FAO data.

The most popular species consumed are tuna, salmon and cod. This may explain the local processors exporting patterns to focus on tuna in the EU market as it is a product that sells well due to its higher consumption therefore, of high demand in the EU supply chain. Other fish species consumed is swordfish and sardine which are also available in Seychelles.

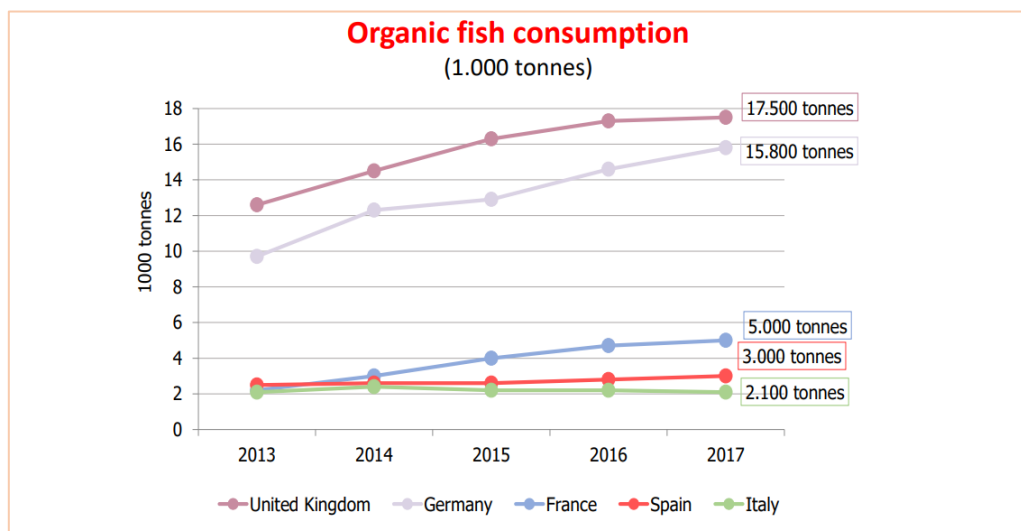
Graph C: Comparison of fish from wild and aquaculture harvest by percentage in the EU.



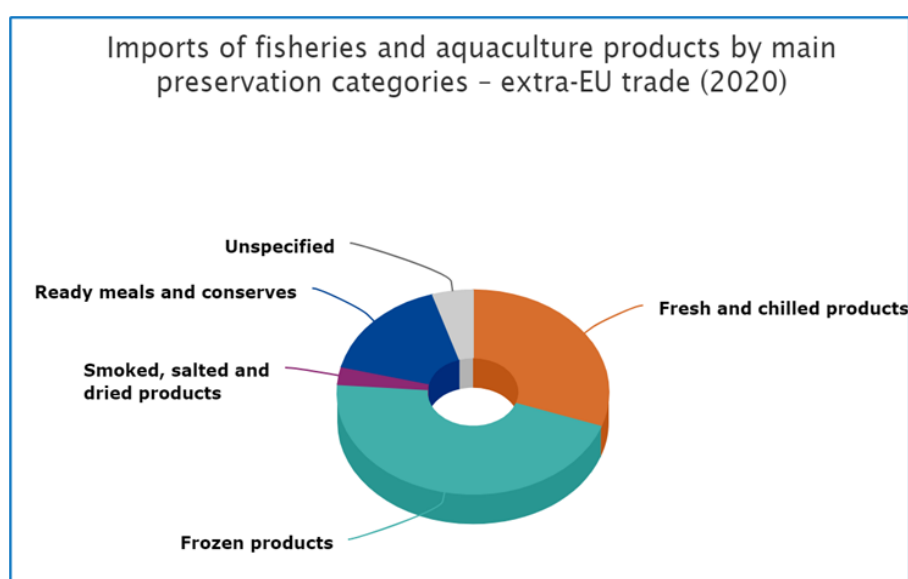
**Source:** EC.europa.eu

This pattern is substantiated by the below graph indicating gradual rise in consumption patterns for organic fish by country up to 2017 with UK and Germany recording highest growth.

Graph D: Consumption of organic fish by country<sup>19</sup>



Another factor to test trends was from economic activities using imports pattern. As shown below, the import of frozen fish and seafood are substantial in proportion to smoked, salted and dried products. Fresh and chilled products are reasonably high in quantity followed by ready meals. It is clear that there is a preference for frozen and fresh/chilled fish and seafood to the EU based on consumption demand. Smoked fish, salted or dried fish account for a small number of imports, which may mean that it is not consumed as much in the EU but has a small niche as shown in the pie chart Graph E.



<sup>19</sup> European Commission, Europa.eu research paper: The EU Fish Market, Edition 2018.

It is deduced that there is a high demand for frozen and chilled products, followed by processed products in the form of ready meals. Smoked fish, dried and salted fish have a lesser demand in the EU market. Market potential in the EU veers towards fresh, chilled and value-addition fish products.

### Household Expenditure for fish in the EU

Disposal income has been used to verify purchasing power of consumers to see how this influences consumer behaviour. The results showed that in the EU the total nominal household expenditure for fishery and aquaculture products in 2020 reached €64.1 billion. Spain registered the highest level of expenditure with €13.6 billion, followed by Italy (€12.3 billion) and France (€9.2 billion). On average, expenditure for fishery and aquaculture products represents 6% of the total consumption budget for food products in the EU. The highest ratio is observed in Portugal (16%) and the lowest in Hungary (1.6%). This explains the level of consumption is relative to spending on fish and seafood. For comparison, at the EU level, expenditure for meat products and for fruits and vegetables represent 23% and 22%, respectively, of total food expenditure<sup>20</sup>. Nominal household expenditure for purchasing fish and seafood in 2020 in the EU are represented in Table 4 below. Thus, indicating that this market spends on fish and has purchasing power. The potential for Seychelles is positive as consumers will buy the fish.

**Table 4: Household expenses for fish and seafood in the EU - 2020<sup>21</sup>**

	Meat	Fish	Fruits, vegetables, potatoes
EU-28	245 018	64 104	235 071
BE	8 494	1 806	5 510
BG	1 482	214	1 271
CZ	4 210	430	2 597
DK	4 101	835	3 343
DE	36 401	6 167	38 448
EE	498	119	442
IE	2 473	374	2 395
EL	4 246	1 042	6 066
ES	27 482	13 608	22 927
FR	38 543	9 183	33 675
HR	1 407	296	1 120
IT	35 001	12 277	34 044
CY	325	113	423
LV	710	147	562
LT	1 174	395	1 020
LU	475	147	317
HU	2 695	170	1 863
MT	154	58	163
NL	9 190	2 048	10 001
AT	3 986	769	3 909
PL	10 704	1 140	11 697
PT	4 750	3 836	4 591
RO	12 364	1 667	7 936
SI	960	90	875
SK	2 485	410	1 480
FI	2 457	600	2 346
SE	4 983	1 800	5 510
UK	23 268	4 363	30 540

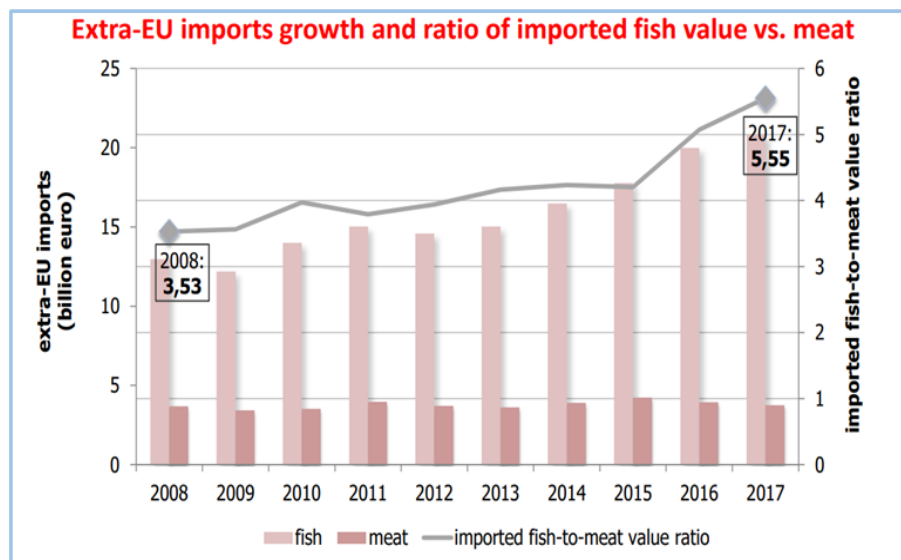
**Source:** Eurostat Data

<sup>20</sup> OECD forecast <https://stats.oecd.org/>.

<sup>21</sup> Country Codes for the EU Member States: Annex

The data shows there is a moderate prevalence in consumption within the EU per household spending. This corresponds to the value of fish imports growth compared to meat<sup>22</sup> illustrated in Graph F below for 2017 indicating yearly incremental increase.

Graph F: Import growth



## Pricing

Investigation in the price of key products namely, tuna, sea cucumber and swordfish that are of significant value in export markets show indicative pricing for 2019 and 2023 market value. Trend economy ITC, and Eurostat are sources for comparative assessment of price. The latter, changes daily due to fluctuations in monetary exchange. This report used data compiled from the EU Centre for Business Intelligence statistical report to illustrate the guide price. The price of tuna loin also determines the competitiveness of exporters, and the cheaper the price, the more competitive a product can be.

Transportation costs are also reduced when loins are transported instead of the entire frozen tuna, because loins only make up around 60% of the weight. They are also more convenient since they can be transported in shipping containers instead of bulk reefers. Consideration for exporters on these issues is important to improve competitiveness. The price breakdown for tuna loins can be found below<sup>23</sup>:

Raw materials 65-70%

Importer 12-15%

Shipment 5%

<sup>22</sup> European Commission, Europa.eu research paper: The EU Fish Market, Edition 2018.

<sup>23</sup> Centre for Business Intelligence, CBI (EU), Ministry of Foreign Affairs, Netherlands.

Processing 10-15%

The Free on Board (FOB) price for skipjack loins per tonne is \$4,650 and \$6,850 for yellowfin loins. An FOB price means that the buyer has to bear all costs and risks of the goods from the port of shipments.

CFR stands for Cost and Freight, a legal term used in international shipping, where the seller assumes the responsibility for the delivery of the tuna loins. Table 5 shows the CFR prices per kg inclusive of the price breakdown variables.

**Table 5: CFR prices of tuna loins (January to September 2019)**

	CFR price per kg (€)					
	January	March	April	May	July	September
Skipjack loins	5.0	4.9	5.3	5.3	4.3	5.3
Yellowfin loins (double cleaned)	6.0	6.0	6.3	6.3	5.3	6.5
Yellowfin loins (single cleaned)	6.0	5.5	5.7	5.7	5.0	6.0

Chinese tuna loins are considerably lower in price due to the cheap labour and lower operating costs. For potential exporters, the marketing strategies of China can be learned to promise cheap tuna loins. However, to sustain growth, Ecuador's formula of a more structured supply chain, which also puts a huge premium on sustainability combined will help Seychelles position its brand in international markets.

Sea Cucumber price

Sea cucumber is a premium product with large popularity in China, the largest producer of this seafood and its related products. The Chinese Sea cucumber farming industry showed an overall stable trend in 2017. Farm-gate prices have continued an upward trend in the past two years. Production volumes and stocked amounts have also increased significantly.<sup>24</sup>

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<sup>24</sup> 03/04/2018 : Globefish Article by Liu Xueguang – FAO Market Report

**Table 6: Price for sea cucumber**

	CFR price per kg (USD) by region			
	70	80	120	140
Sea Cucumber				
Fujian	10	11.83		
North China	70	83	17.75	20.71
Maldives	172.2	196.8	478.8	558.6

The price in Fujian is cheaper than in North China, but in kg the total amount in price is more favourable in North China than in Fujian. Maldives price is much higher in comparison but note that China is from farmed aquaculture whereas Maldives is from wild harvest.

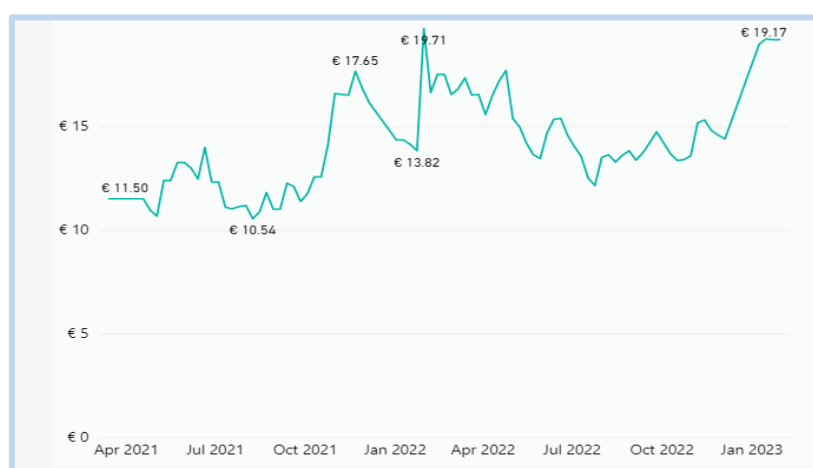
**Table 7: Price for Swordfish bycatch – FAO statistics 2023**

Common name	Preservation	Product form	Grading	Price per kg	% change 1 week	Market	Origin
Surmullet	Fresh	Whole		€ 18.95	2%	Spain	Spain
Swordfish	Fresh	Whole		€ 25.00	2%	Spain	Spain
Swordfish	Frozen	Whole		€ 11.00	-4%	Spain	Spain

The price for swordfish bycatch fetches good price on the market for both fresh and frozen although the fresh variety is higher priced. (Note that Spain consumes fresh fish more than frozen fish and the supply is also from Spain.)<sup>25</sup>

<sup>25</sup> FAO – Globefish European Price Dashboard 2022-23. <https://www.fao.org/in-action/globefish/prices/en/>

Graph G: Price variation annual value



The price for tuna and tuna like species (bonito) at market value per kg. FAO Price Dashboard<sup>26</sup>.

The price has rose from €15kg in 2022 to €19.17kg in 2023. Price fluctuations for this species fluctuates across the yearly total and may be due to competition but remains reasonably in the price margins of €10 kg average<sup>27</sup>. Monitoring of these pricing trends are very important for collection of intelligence to formulate export strategy and revenue forecasts by stakeholders to remain competitive.

## 7. COMPETITOR ANALYSIS

This analysis aimed to identify Seychelles' direct and indirect competitors. These were countries exporting similar fish and seafood products as Seychelles in targeted EU, USA, UAE, Israel and Asia markets are compared. Assessment of variables considered were production amount/volume, export yield/volume, market share, revenue, supply chain distribution. The results are discussed below.

### Main competitors by production and exports

Market data shows China as the world's top processor of fish and fish products, with exports in 2019 recorded at USD\$20 billion compared to USD\$17.9 billion imports in the same year. China's fish processing is mainly from aquaculture farming grossing 78% of its total processing with only 22% of processing from wild capture. The European Union leads the world as top exporter of fish and seafood products by percentage market share based on data from Statista.

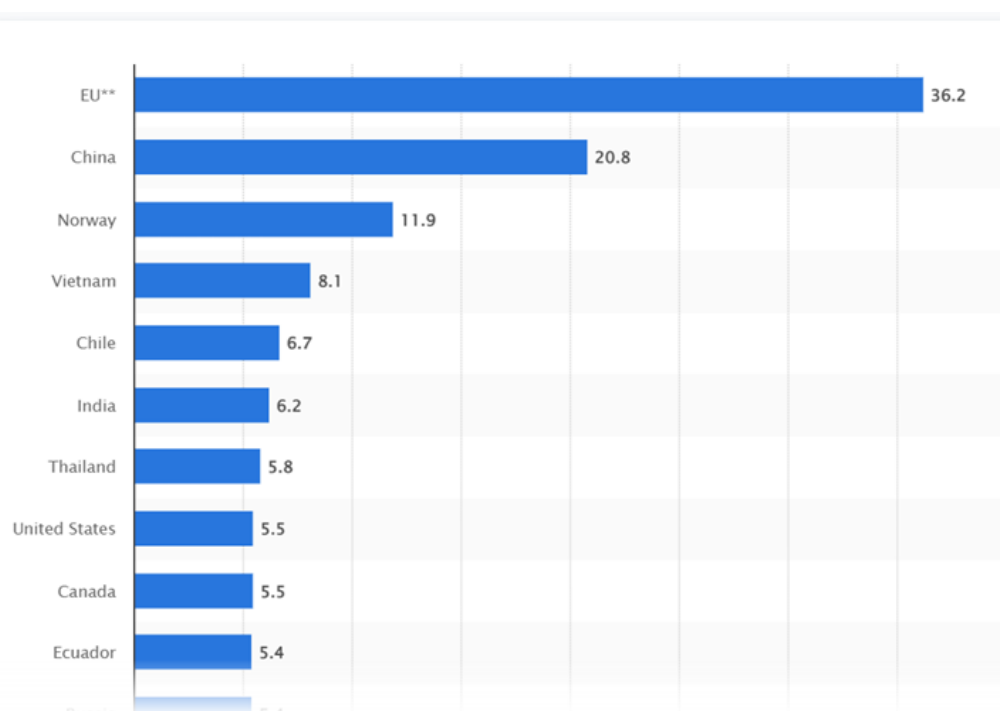
Other leading exporters by market share in 2020 is presented in the graph below.

<sup>26</sup> FAO – Globefish European Price Dashboard 2022-23. <https://www.fao.org/in-action/globefish/prices/en/>

<sup>27</sup> Ibid.



Graph H: Lead exporters of fish and seafood worldwide in 2020 (in billion USD\$)



**Source:** Statista.com

The initial comparison for competition will be based on countries that are exporting similar fish products to the EU and those countries that the EU imports from inclusive of non-EU countries in the fish trade. The results are provided in terms of value and percentage total of trade to the EU. The current value for the EU is EURO in thousands.

### Competitors by country in the EU Market

Competing countries exporting to the European Union by market share percentage in 2020 are presented in table 8. Fish exporters to the EU by country shows fisheries from wild capture and aquaculture products between EU Member States and non-EU countries – main suppliers in 2020<sup>28</sup>.

<sup>28</sup> Data sourced from European Commission (EC) at [https://oceans-and-fisheries.ec.europa.eu/facts-and-figures/facts-and-figures-common-fisheries-policy/external-trade\\_en](https://oceans-and-fisheries.ec.europa.eu/facts-and-figures/facts-and-figures-common-fisheries-policy/external-trade_en)

**Table 8: The value of EU-27 imports from main suppliers (in thousand EUR and % of total)**

Main suppliers	Value	%
Norway	6 410 680	26.5%
United Kingdom	1 739 687	7.2%
China	1 519 346	6.3%
Morocco	1 296 956	5.4%
Ecuador	1 240 983	5.1%
Iceland	1 017 935	4.2%
United States	839 043	3.5%
Vietnam	793 311	3.3%
Greenland	623 518	2.6%
India	605 972	2.5%
Russia	582 644	2.4%
Other non-EU countries	7 536 826	31.1%
Total	24 206 902	100%

The top 12 countries exporting fish and fish products to the EU, show Norway exporting 26.5% of fish products, followed by the UK (7.2%), China (6.3%), Morocco (5.4%) and Ecuador (5.1%). Non-EU exporters are Vietnam exporting 3.3%, Greenland 2.6%, India 2.5%, followed by Russia 2.4% and others at 31.1%. Small Island States like, Papua New Guinea, Mauritius and Sri Lanka also exports with a small share percentage of between 1.6% to 3%.

Table 9 shows other EU countries importing fish and related fish products from non-EU countries<sup>29</sup>.

**Table 9: Value of EU-27 imports from main suppliers (value in thousand EUR and % of total)**

Main Member States importing from non-EU countries		
Country	Value	%
Spain	4 267 911	17.6%
Sweden	4 047 063	16.7%
Denmark	2 856 808	11.8%
Netherlands	2 843 950	11.7%
France	2 559 115	10.6%

<sup>29</sup> Data sourced from Eumofa elaboration of Eurostat data.

<b>Main Member States importing from non-EU countries</b>		
<b>Country</b>	<b>Value</b>	<b>%</b>
Italy	2 140 118	8.8%
Germany	1 765 928	7.3%
Poland	915 461	3.8%
Other Member States	2 810 550	11.6%
<b>Total EU-27</b>	<b>24 206 902</b>	<b>100%</b>

**Source:** EUMOFA elaboration of Eurostat data

Spain imports the highest fish products from non-EU countries totalling 17.6%, followed by Sweden importing 16.7%, Denmark 11.8%, Netherlands 11.7% and France 10.6%. Other member states combined, imports 11.6% of fish from non-EU territories. Italy, Germany and Poland import the least at 8.8%, 7.3% and 3.8% in descending order respectively. The data is an indication that fish and fish products have high consumption value in these countries opening possibilities for Seychelles to trade fish products within these markets.<sup>30</sup>

It is also indicative of countries where currently local processors are exporting fish products such as, France, Germany and Spain. The component of countries within these percentages will be later explored to identify where the main suppliers of fish from the non-EU markets are from and where Seychelles can have some trading advantage though not in volume but in exclusivity of products.

Indicative countries that trade with the EU for both exports and imports are listed below. Note the lowest in the list of countries is Lithuania followed by Slovakia for the least total. The remaining countries are indirect competitors. Interestingly, EU also exports fisheries products to these countries below, which also makes EU a direct competitor for some potential markets for Seychelles fish products due to fish commodity extra-trade between the member states.

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<sup>30</sup> Ibid. Eurostat Data from EUMOFA

**Table 10: Imports and exports of fisheries and aquaculture products - extra-EU trade (2020)****(Volume in tonnes and value in thousand EUR)**

<b>Member State</b>	<b>IMPORTS</b>		<b>EXPORTS</b>	
	<b>Volume</b>	<b>Value</b>	<b>Volume</b>	<b>Value</b>
<b>Belgium</b>	<b>136 958</b>	<b>820 953</b>	<b>19 599</b>	<b>64 228</b>
<b>Bulgaria</b>	<b>14 076</b>	<b>29 531</b>	<b>2 901</b>	<b>14 349</b>
<b>Czech Republic</b>	<b>14 632</b>	<b>50 036</b>	<b>1 775</b>	<b>10 316</b>
<b>Denmark</b>	<b>932 574</b>	<b>2 856 808</b>	<b>515 222</b>	<b>1 451 647</b>
<b>Germany</b>	<b>483 368</b>	<b>1 765 928</b>	<b>137 911</b>	<b>519 163</b>
<b>Estonia</b>	<b>8 199</b>	<b>36 935</b>	<b>71 061</b>	<b>64 701</b>
<b>Ireland</b>	<b>185 796</b>	<b>272 106</b>	<b>220 799</b>	<b>286 661</b>
<b>Greece</b>	<b>121 247</b>	<b>317 230</b>	<b>17 233</b>	<b>77 220</b>
<b>Spain</b>	<b>1 130 662</b>	<b>4 267 911</b>	<b>446 704</b>	<b>1 041 232</b>
<b>France</b>	<b>563 796</b>	<b>2 559 115</b>	<b>138 192</b>	<b>507 720</b>
<b>Croatia</b>	<b>13 258</b>	<b>24 991</b>	<b>22 434</b>	<b>95 060</b>
<b>Italy</b>	<b>442 809</b>	<b>2 140 118</b>	<b>52 405</b>	<b>227 226</b>
<b>Cyprus</b>	<b>7 570</b>	<b>32 005</b>	<b>4 655</b>	<b>25 416</b>
<b>Latvia</b>	<b>24 844</b>	<b>53 728</b>	<b>46 310</b>	<b>77 414</b>
<b>Luxembourg</b>	<b>71 113</b>	<b>194 376</b>	<b>36 166</b>	<b>102 599</b>
<b>Lithuania</b>	<b>313</b>	<b>4 678</b>	<b>130</b>	<b>1 137</b>
<b>Hungary</b>	<b>3 217</b>	<b>10 195</b>	<b>1 434</b>	<b>5 113</b>
<b>Malta</b>	<b>30 875</b>	<b>43 556</b>	<b>10 540</b>	<b>132 725</b>
<b>Netherlands</b>	<b>669 698</b>	<b>2 843 950</b>	<b>575 080</b>	<b>1 193 059</b>
<b>Austria</b>	<b>7 848</b>	<b>48 209</b>	<b>2 071</b>	<b>22 959</b>
<b>Poland</b>	<b>267 027</b>	<b>915 461</b>	<b>106 386</b>	<b>383 327</b>
<b>Portugal</b>	<b>150 703</b>	<b>531 874</b>	<b>46 390</b>	<b>203 354</b>

**Source:** EUMOFA elaboration of Eurostat data.

The main customers of the EU in ascending order, are UK, USA, China and Norway occupying top four positions of countries where the EU exports fish products. Nigeria, Morocco and Egypt are the only three African countries that are the EU's main customers with Nigeria's market share holding 3.2%, and it is higher than Canada at 1.7%. Other non-EU countries also hold considerable share with a combined percentage of 26.8, illustrated in Table 11.

**Table 11: Main countries where EU exports fish and seafood products 2020****(Value in thousand EUR and percentage of total)**

<b>Main customers</b>	<b>Value</b>	<b>%</b>
United Kingdom	1 683 325.82	24.2%
United States	644 177.67	9.3%
China	577 743.42	8.3%
Norway	560 139.51	8.0%
Switzerland	499 387.06	7.2%
Japan	341 056.65	4.9%
Nigeria	221 846.92	3.2%
Morocco	160 970.32	2.3%
Ukraine	147 749.09	2.1%
Egypt	137 146.36	2.0%
Canada	121 601.00	1.7%
Other non-EU countries	1 868 265.15	26.8%
<b>Total</b>	<b>6 963 409</b>	<b>100%</b>

**Source:** EUMOFA elaboration of Eurostat data.**Competition by processing volume (wild capture and aquaculture)<sup>31</sup>**

The EU is the fifth largest fisheries and aquaculture producer worldwide, accounting for about 3% of global production. 78% of this production comes from fisheries and 22% from aquaculture.<sup>32</sup> Meaning that most fish that are exported and processed are from wild capture fishing. Spain, Denmark and France are the largest producers in terms of volume in the EU. However, countries like China, Indonesia, India and Vietnam are the largest producers in the world as shown in table 12 below<sup>33</sup>.

<sup>31</sup> Note that aquaculture production is mentioned in the evaluation as some statistics combine with wild capture.

<sup>32</sup> FAO estimates for non-EU countries. Source: EUMOFA elaboration of Eurostat and FAO data.

<sup>33</sup> Ibid.

**Table 12: Main global producers of fish and seafood products - 2019**

<b>Main world producers (2019)</b> <b>(catches and aquaculture)</b> (volume in 1000 tonnes live weight and percentage of total)				
<b>Country</b>	<b>Catches</b>	<b>Aquaculture</b>	<b>Total production</b>	<b>% Total</b>
China	14 169	64 423	82 593	38.66%
Indonesia	7 524	15 893	23 418	10.96%
India	5 477	7 800	13 277	6.22%
Vietnam	3 429	4 455	7 884	3.69%
EU-28	4 824	1 366	6 191	2.90%
United States	4 803	490	5 293	2.48%
Russia	4 983	248	5 231	2.45%
Peru	4 851	153	5 005	2.34%
Philippines	2 056	2 358	4 414	2.07%
Bangladesh	1 895	2 488	4 384	2.05%
Japan	3 230	943	4 174	1.95%
Norway	2 472	1 453	3 925	1.84%
Chile	2 376	1 407	3 783	1.77%
South Korea	1 366	2 406	3 773	1.77%
Myanmar	1 951	1 082	3 033	1.42%
Thailand	1 542	964	2 506	1.17%
Others	26 563	8 167	34 731	16.26%
<b>Total</b>	<b>93 519</b>	<b>120 103</b>	<b>213 623</b>	<b>100%</b>

**Source:** Eurostat data

China, Indonesia and India have the highest catch volume worldwide as producers of fish and fish products. While others combined to 28.18% of total world catch. From the data it is clear that Asian countries have the highest prevalence catch in terms of volume, followed by Russia, Europe (EU states, Norway), the USA, and Latin American countries.

Countries yielding the highest volume of catch recorded for 2019 among the top producers are presented in table 13.

**Table 13: Total catch of the world's top fish and fish products producers (2019)**

<b>Total catches of world's main producers (2019)</b> (volume in 1000 tonnes live weight and percentage of total)		
<b>Country</b>	<b>Catches</b>	<b>% of total</b>
China	14 169	15.15%
Indonesia	7 524	8.05%
India	5 477	5.86%

<b>Total catches of world's main producers (2019)</b> (volume in 1000 tonnes live weight and percentage of total)		
<b>Country</b>	<b>Catches</b>	<b>% of total</b>
Russia	4 983	5.33%
Peru	4 851	5.19%
EU-28	4 824	5.16%
United States	4 803	5.14%
Vietnam	3 429	3.67%
Japan	3 230	3.45%
Norway	2 472	2.64%
Chile	2 376	2.54%
Philippines	2 056	2.20%
Myanmar	1 951	2.09%
Bangladesh	1 895	2.03%
Thailand	1 542	1.65%
Others	26 563	28.40%
Total	92 145	100%

NB: FAO estimates for extra-EU countries. **Source:** EUMOFA elaboration of Eurostat and FAO data.

### Competitors by total revenue turnover

The fish processing industry in the EU is generally profitable. Overall, turnover in 2018 was roughly €30 billion, with Spain, France and Poland as the main contributors<sup>34</sup>.

<sup>34</sup> Eurostat and STECF, *The EU Fish Processing Sector – Economic report (STECF-19-15)*, Publications Office of the European Union, Luxembourg, 2019, ISBN 978-92-76-14666-7.

**Table 14: Indicative Turnover of fish processing in the EU - 2018<sup>35</sup>**

Turnover (2018) (million EUR)	
Spain	6 930.5
France	4 823.4
Poland	3 434.4
Germany	2 771.7
Italy	2 721.7
Denmark	2 509.1
Portugal	1 353.5
Netherlands	1 039.2
Slovenia	751.6
Lithuania	709
Belgium	674.3
Ireland	507.1
Finland	402.4
Latvia	209.4
Greece	181.4
Estonia	136.3
Romania	106.3
Czechia (Czech Republic)	96.4
Croatia	87.4
Slovakia	72.2
Bulgaria	65.2

<sup>35</sup> **Sources:** Eurostat and [STECF, The EU Fish Processing Sector – Economic report \(STECF-19-15\), Publications Office of the European Union, Luxembourg, 2019, ISBN 978-92-76-14666-7.](#)



<b>Turnover (2018) (million EUR)</b>	
Austria	44.9
Slovenia	11.9
Hungary	7.2
<b>Total</b>	<b>29 646.5</b>

According to the International Trade Centre, (ITC),<sup>36</sup> in 2021 the top exporters of frozen fish products were those listed in table 15 which are direct competitors with Seychelles in terms of value of total exports by revenue and by percentage value for frozen fish. Note that the species of fish exported by category is defined in the product intelligence analysis discussed later in the report.

**Table 15: Top 15 Exporters of Frozen Fish (HS 0303, 0304)<sup>37</sup>**

<b>Country</b>	<b>Value (in USD\$)</b>	<b>Percentage Value</b>
Russia	US\$2.41 billion	9.9% of frozen whole fish
China	US\$2.36 billion	9.7%
Norway	US\$1.74 billion	7.1%
United States	US\$1.73 billion	7.1%
Chile	US\$1.6 billion	6.4%
Taiwan	US\$996.6 million	4.1%
Spain	US\$872.2 million	3.6%
South Korea	US\$851.7 million	3.5%

<sup>36</sup> International Trade Centre of the United Nations at [www.trademap.org](http://www.trademap.org)

<sup>37</sup> The HS Code for fresh frozen fish excluding fillet, and fresh frozen chilled whole fish as per EU nomenclature system.

Table 15 (continued from previous)

Country	Value (in USD\$)	Percentage Value
Netherlands	US\$834.4 million	3.4%
Denmark	US\$576.4 million	2.4%
Japan	US\$541.8 million	2.2%
Greenland	US\$521.6 million	2.1%
Iceland	US\$432.7 million	1.8%
Indonesia	US\$432.7 million	1.8%
Vietnam	US\$399.4 million	1.6%

**Source:** International Trade Centre (UN) at [trademap.org](http://trademap.org)

Among the top exporters, the fastest-growing frozen whole fish exporters since 2020 were: Iceland (up 61.4%), South Korea (up 38.3%), Norway (up 29.5%) and Vietnam (up 23.6%)<sup>38</sup>. The top 5 most valuable exporters of frozen fish are Russia, mainland China, Norway, United States and Chile. Collectively, that cohort of top international suppliers collected 40.3% of the world's total for exported frozen fish sold during 2021<sup>39</sup>.

#### Frozen Fish Supply Trade by Region

For research purposes, the 4-digit Harmonized Tariff System code prefix is 0303<sup>40</sup> for frozen fish excluding fish fillets. Among continents, the total net worth percentage of sales for frozen fish exports in 2021 totalled \$8.5 billion or well over a third (36.6%) of the global total. The top regional areas are illustrated in ascending order<sup>41</sup> in table 16.

**Table 16: Frozen fish market sales share in 2021**

Regional Area/Country	Market Share Sales Total (%)
EU	36.6
Asia	32.5
Latin America & Caribbean (excludes Mexico)	8.7
North America	9
Africa	7.9
Oceania (Micronesia, New Zealand, Papua New Guinea)	5.3

<sup>38</sup> Eurostat and STECF, The EU Fish Processing Sector – Economic report (STECF-19-15), Publications Office of the European Union, Luxembourg, 2019, ISBN 978-92-76-14666-7.

<sup>39</sup> Eurostat and STECF, The EU Fish Processing Sector – Economic report (STECF-19-15), Publications Office of the European Union, Luxembourg, 2019, ISBN 978-92-76-14666-7.

<sup>40</sup> International Trade Centre (ITC) at [www.trademap.org](http://www.trademap.org)

<sup>41</sup> Ibid.

Four major suppliers posted year-over-year declines in their exported frozen fish products were namely Indonesia (down -18.2%), Japan (down -6.4%), Taiwan (down -0.8%) and mainland China (down -0.6%).<sup>42</sup> Whole frozen fish represents profitable business, with worldwide sales from frozen fish exported by all countries recording a combined total revenue of US\$24.3 billion in 2021. The overall value of frozen fish exports rose by an average 3.7% for all exporting countries since 2017 when international shipments of frozen fish were valued at \$21.6 billion. From 2020 to 2021, there was a downtick in the value of globally exported frozen fish falling by -10.4%<sup>43</sup>, possibly due to border closures from Covid-19.

The following countries posted the highest surpluses of net exports for frozen fish during 2020<sup>44</sup>. Net exports are defined as the value of a country's total exports minus the value of its total imports. Thus, the statistics below present the surplus between the values of each country's frozen fish exports and its import purchases for that same commodity.

**Table 17: Net Export Surplus 2020**

Country	Net Export by %
Norway	US\$1.7 billion (net export surplus up 32.2% since 2020)
Russia	\$1.6 billion (down -4.7%)
Chile	\$1.5 billion (up 1.5%)
United States	\$744 million (down -4.2%)
Taiwan	\$714.7 million (down -3%)
Greenland	\$521.5 million (up 9.2%)
Iceland	\$428.5 million (up 65.1%)
Netherlands	\$389.9 million (down -14.7%)
India	\$369.5 million (up 0.4%)
Faroe Islands	\$323.2 million (up 15.7%)
Indonesia	\$282.9 million (down -28.7%)
Morocco	\$281.7 million (up 19%)
Mauritania	\$279.1 million (down -16.3%)

<sup>42</sup> Eurostat and STECF, The EU Fish Processing Sector – Economic report (STECF-19-15), Publications Office of the European Union, Luxembourg, 2019, ISBN 978-92-76-14666-7.

<sup>43</sup> ITC – Trade Map and World Top Exporters statistical reports 2019 and 2021.

<sup>44</sup> Data Source: Trade Map provides statistics for international business development, running reports on monthly, quarterly and yearly trade data. Import & export values, volumes, growth rates, market shares. Accessed at <https://www.trademap.org/Index.aspx> and <https://www.worldstopexports.com/frozen-fish-exports-country/>

Norway, Russia and Chile generated the highest surpluses in the international trade of frozen fish confirming their strong competitive advantage in the global market.

The following countries posted the highest negative net exports for frozen fish during 2020<sup>45</sup>. Net export is the deficit between the values of each country's frozen fish import purchases and its exports for that same commodity.

**Table 18: Net Export Deficit 2020**

Country	Net Export %
Japan	US\$2.6 billion (net export deficit up 21.6% since 2020)
Thailand	-\$1.8 billion (up 0.5%)
China	-\$1.1 billion (down -25.7%)
Nigeria	-\$707.6 million (down -15.5%)
South Korea	-\$524.9 million (down -8.4%)
Ivory Coast	-\$521.8 million (down -8%)
Ukraine	-\$417.9 million (up 14.8%)
Egypt	-\$334.3 million (down -31.2%)
Italy	-\$319.1 million (up 14%)
Portugal	-\$199.3 million (down -8.6%)
Ghana	-\$176.5 million (up 23.3%)
Malaysia	-\$176.3 million (up 38%)

Highly populated Japan incurred the highest deficit in the international trade of frozen fish. In turn, this negative cash flow highlights Japan's strong competitive disadvantage for this specific product category but also signals opportunities for frozen fish-supplying countries that help satisfy the powerful consumer demand for fish. This is a potential opportunity for Seychelles to tap into the Japanese market for frozen fish.

General market information has identified the top 100 countries competing with local processors in the global market fish trade for whole frozen fish exports (which are primarily exports from local processing). The countries listed are considered based on total market share from data available in 2021, (Listed in Annex 9) combined as the direct and indirect competitors with Seychelles. Most operate large multinational companies, but benefits can be gained by networking and establishing joint ventures, alliance and partnerships with these exporters to sell to export markets where Seychelles may not have the access to trade.

Focusing on the top 100 most valuable exporters of frozen fish, the fastest economies from 2020 to 2021 are Curaçao (up 30.314%), Saint Helena (up 6.528%), Seychelles (up 1.706%),

<sup>45</sup> <https://www.worldstopexports.com/frozen-fish-exports-country/>

Kiribati (up 1.652%), Uganda (up 538.1%), Tanzania (up 406.7%) then Armenia (up 333.3%)<sup>46</sup>. Note that Seychelles is mentioned as a growing market for frozen fish meaning export potential is viable. This growth can be further exploited with additional value-added fish products to niche markets.

In 2021, according to Trend Economy<sup>47</sup>, Fish, frozen, excluding fish fillets and other fish meat of heading HS 03.04 accounted for a substantial share of total exports from smaller territories listed in table 19.

**Table 19: Total Exports by % and Revenue from smaller territories 2021**

Countries	Total Exports by % and Revenue
Maldives	52% (\$78 million of \$151 million)
Samoa	16.9% (\$4.87 million of \$28 million)
Mauritania	8.54% (\$279 million of \$3.26 billion)
Fiji	7.5% (\$61 million of \$815 million)
Iceland	7.24% (\$432 million of \$5.97 billion)
Senegal	5.74% (\$298 million of \$5.2 billion)
Mauritius	2.8% (\$46 million of \$1.67 billion)

Note the volume of exports from Maldives, Fiji, and Mauritius is substantial meaning they pose as direct competitors. Other indirect competitors are countries importing frozen fish excluding fish fillets and other fish meat of heading HS 03.04. from Seychelles competitors. The data set is for the annual year 2021.

**Table 20: Indirect competitors import by % and Revenue**

Country	Import by % and Revenue
China	16% of the world imports (\$3.5 billion)
Japan	14.2% (\$3.11 billion)
Thailand	8.62% (\$1.88 billion)
Korea	6.28% (\$1.37 billion)
USA	4.48% (\$982 million)

Regional competitors for frozen fish excluding fish fillets and other fish meat of heading HS 03.04 for the same year also accounted for a substantial share of total import percentage and revenue as shown below.

<sup>46</sup> <https://www.worldstopexports.com/frozen-fish-exports-country/>

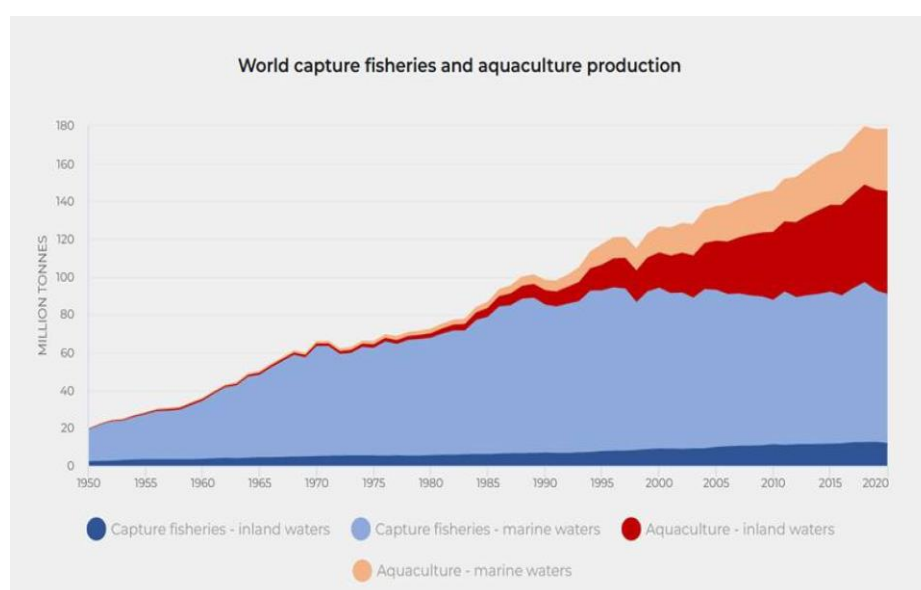
<sup>47</sup> [https://trendeconomy.com/data/commodity\\_h2/0303](https://trendeconomy.com/data/commodity_h2/0303)

**Table 21: Regional indirect competitors import by % and revenue**

Country	Import by % and Revenue
Mauritius	3.61% of Mauritius's total imports in 2021 (\$186 million of \$5.14 billion)
Benin	3.57% (\$113 million of \$3.18 billion)
Congo	2.21% (\$52 million of \$2.35 billion)
Zambia	1.69% (\$119 million of \$7.09 billion)
Togo	1.4% (\$40 million of \$2.86 billion)
Nigeria	1.35% (\$703 million of \$52 billion)

There is a strong trading position for frozen fish from African countries, although it must be noted that Nigeria, Congo and Benin have an intensive aquaculture farming which may account for the figures<sup>48</sup>. According to the EU Commission, the total fisheries and aquaculture production reached a record 214 million tonnes in 2020, comprising 178 million tonnes of aquatic animals, with consumption for humans reaching 20.2 kg per capita, as per graph below illustrates in production levels<sup>49</sup>. Seychelles has a large marine ecosystem and from the table it is potentially promising for the small-scale processing sector to exploit natural marine resources as this seems to be in greater demand and value.

**Graph I: Fishery production 2020**



<sup>48</sup> Ibid. Statistics from Trend Economy by commodity at <https://trendeconomy.com>

<sup>49</sup> European Commission: [https://knowledge4policy.ec.europa.eu/publication/state-world-fisheries-aquaculture-sofia-2022\\_en](https://knowledge4policy.ec.europa.eu/publication/state-world-fisheries-aquaculture-sofia-2022_en)

From the global market assessment, a breakdown of the main competitors with Seychelles is provided for selective countries only. This is based on current targeted export markets and prospective markets for local fish and seafood products but also feasible as focus to market these products need to be selective to achieve good performance results and measurable outcomes by focusing on a minimum of six markets as it is more realistic. Further development into other markets may require additional analysis to ensure success rate.

Main competitors selling in the EU, USA, Israel and potential new markets in China, Japan and UAE are described. The unique selling point (USP) is given to distinguish their competitive advantage in the respective export markets. The breakdown is detailed in the following page.

### Competitor Intelligence Breakdown Analysis

Exporting Country	Species Name	Product Category	Import Country	Positioning in Market	Unique Selling Point (USP)
Spain	By-catch species Swordfish, & tuna-like species	fresh and chilled	EU, USA	Top exporter, Southern Europe market for fresh fish preference	Established EU market and top exporter of tuna, bycatch and tuna like species.
Greece	By-catch species Swordfish, & tuna-like species	fresh and chilled	EU	Top ten exporter of bycatch & tuna like species	Established EU market
Mauritius	Tuna Swordfish (bycatch)	Fresh loins and frozen	EU	Top ten exporter of bycatch	Price advantage - Low price, low production cost, volume supply consistent
Morocco	Swordfish(bycatch)	Fresh and chilled	EU	Lead exporter of bycatch in EU	85% share of EU market delivery.
India	Swordfish(bycatch)	Fresh and chilled	EU	Among top ten exporters of bycatch and processed products in the EU.	1.6% share of EU market delivery Price advantage: low production cost and low price.
Portugal	By-catch species Swordfish, & tuna-like species	Fresh and chilled	EU, USA	Multiple exporters of bycatch and tuna & tuna like species.	Established EU market.
Chile	Swordfish (bycatch species)	Fresh and chilled	EU, USA	Top exporter of bycatch	1.5% share of EU market. Structured supply chain



Exporting Country	Species Name	Product Category	Import Country	Positioning in Market	Unique Selling Point (USP)
Sri Lanka	Swordfish(bycatch) Tuna	Fresh and chilled	EU	Among top ten exporters of bycatch and tuna in the EU.	6% share EU market delivery.  Price advantage: low production cost and low price.
Mozambique	Swordfish (bycatch species)  Other species (mullet, tilapia)	Fresh and chilled	EU	Niche markets	3% share of EU market for swordfish. Niche African communities in EU for low-cost fish
China	Sea cucumber  Other species	Dried, processed. Preserved fish. Dried fish. Prepared fish.	Japan, Singapore, South Korea, Western Europe	Lead processing country in the world.	Price advantage: low production cost and lower price.  Multiple products for all niche at low-cost production.
Australia	Other species  Crab	Fishmeal Fish oil Roe and Milt Dried fish Preserved fish	Japan, China, Singapore.	Potential for future entry – niche population of ethnic communities.  Import requirements stringent and blue labelling is desirable.	Niche market in Asia.  Multiple products including fish meal used in fish farming.

Exporting Country	Species Name	Product Category	Import Country	Positioning in Market	Unique Selling Point (USP)
Alaska	Sea cucumber Crab Lobster	Dried and fresh Preserved fish Prepared shellfish Smoked product	Japan, China	Niche exclusive and premium chain outlets.	Quality harvest, exclusive niche in high-end consumer.  Cold chain supply efficient.
Ecuador	Tuna	Fresh loins Frozen	EU, USA	Top exporter in EU.	Structured supply chain, consistent volume.
Papua New Guinea	Tuna	Fresh loins Frozen	EU	Top exporter in EU	Onshore processing, and joint partnership with Dutch distributor Pacifal. 12-17% world market. Distribution chain is efficient.

**Source:** Data from Globefish FAO Market Trend Report, OECD and Economic Trend IMF, 2021-22 and Norwegian Fish Council 2022

## 8. PRODUCT INTELLIGENCE

Product Intelligence identifies the variety of fish product categories available and compared across markets. The criterion for assessment is value-addition, innovation, supply chain in order to obtain insight on the performance and consumer's response to these products. Fish species that are in high production and of highest position for exporters and importers (i.e.: merchandise products) are discussed.

In Seychelles, production indicators for processed fish products from 2017 to 2021 show that the main productions were smoked fish, fresh fish and canned tuna. Fresh fish in the fourth quarter of 2021 totalled 1,277 MT compared to smoked fish which were 894 Kgs in the same quarter with canned tuna production highest for the quarter at 10,300 MT. The below table shows data collected by NBS, 2021 Report on Merchandise Products.

**Table 22: Merchandise Products from Seychelles**

	Quantity	Annual					Quarter							
		2017	2018	2019	2020	2021	2020/Q1	2020/Q2	2020/Q3	2020/Q4	2021/Q1	2021/Q2	2021/Q3	2021/Q4
LIVESTOCK SLAUGHTERS														
Cattle	(Nos)	52	45	37	104	136	36	16	33	19	50	22	41	23
Pigs	(Nos)	5,514	5,414	6,827	7,536	9,376	1,759	1,561	2,035	2,181	2,138	2,018	2,621	2,599
Chickens	(Nos)	417,001	398,020	471,110	628,745	885,208	162,001	138,312	127,861	200,571	198,758	217,119	230,691	238,640
OTHER PRODUCTION														
Eggs	(Nos)	32,992,857	32,280,714	36,940,726	35,832,706	36,846,052	9,534,919	8,880,915	8,917,127	8,499,745	7,899,889	9,277,534	10,235,285	9,433,344
FISH														
Canned Tuna	(Tonnes)	40,480	51,077	45,812	52,043	49,937	12,084	13,998	14,169	11,792	13,823	12,384	13,430	10,300
Other processed Tuna	(Tonnes)	-	-	-	-	-	-	-	-	-	-	-	-	-
Fish catch <sup>(1)</sup>	(Tonnes)	5,423	5,998	6,420	3,507	4,744	1,099	778	646	985	1,184	1,446	837	1,277
Smoked Fish	(Kgs)	27,933	18,010	22,459	19,477	10,193	8,452	2,699	2,535	5,792	583	2,853	5,863	894

Source: National Bureau of Statistics - (from production returns)

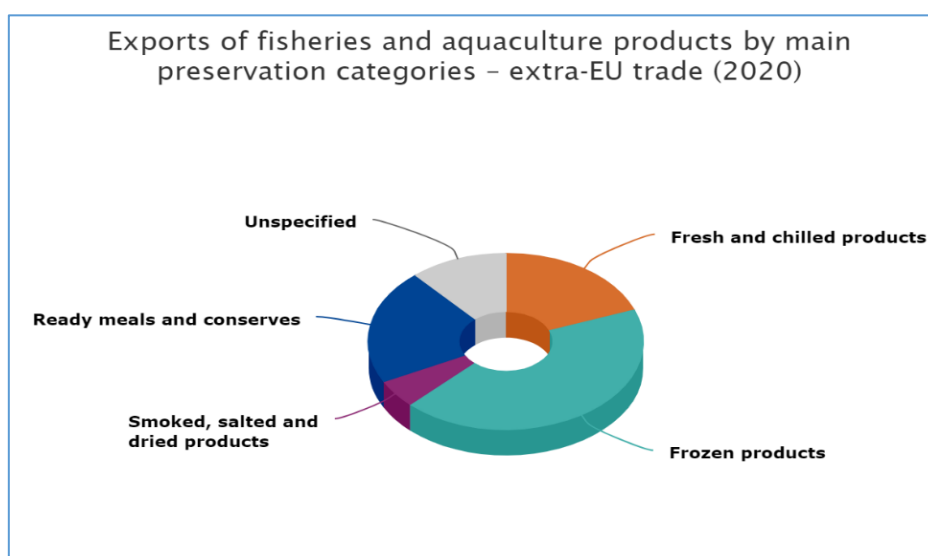
<sup>(1)</sup> These figures do not include fish landed at the Yacht Club and Marine Charter, nor do they include fish landed on Sundays and Public holidays

In summary, Seychelles produces mainly smoked fish, fresh fish, canned tuna and other processed tuna for the export market. Fishmeal and bait are also being processed in the domestic market.

Data compared from cross-referencing products available for export and imports in other targeted countries that export demersal fish species indicate that the supply balance of fish and seafood is high from the European Union. The EU production and imports, leads to a total of 14.53 million tonnes (live weight) available for human consumption in 2019. In the same year, the 'apparent consumption', obtained by subtracting exports from this figure, was 12.30 million tonnes. The production categories are shown below in terms of type of products that are exported and imported from and to the EU.<sup>50</sup> Frozen, fresh and chilled fish products and ready meals are top exports from the EU. Smoked, salted and dried products comprise a smaller proportion of processed products (Graph J).

<sup>50</sup> EC.europa.eu

Graph J: Fish products by category



Fish and seafood products processed from non-EU countries but consumed in the EU are listed in Table 23. The products selected have similarity to fish and seafood produced in Seychelles. Other fish products, other than frozen and fresh chilled fish and seafood are compared for their value-addition and innovation as differentiated products selected from countries like Australia, Papua New Guinea, Mauritius, Sri Lanka, Morocco, India, and Chile competing with Seychelles processed exports in the selected markets mentioned above.

**Table 23: Fish and Seafood production from non-EU countries**

Country	Product	HS Code
Australia	Livers, milt & roes of fish, dried, smoked, salted or in brine.	030520
	Smoked fish including fillets.	030541
	Fish: salted or in brine, not dried or smoked, other than edible fish offal	030569
	Smoked fish, whether or not cooked before or during smoking includes fillets but excludes edible fish offal.	030549
	Flours, meals & pellets of fish, fit for human consumption.	030510
Mauritius	Tuna fresh, chilled fillets.	030487
	Swordfish (bycatch)	
Lea Papua New Guinea	Tuna sausage	0305
	Tuna salami	
	Tuna loaf	
	Pet food	

Country	Product	HS Code
Chile	Fresh fish fillet from bycatch species (swordfish, dorado)	
Sri Lanka	Salted fish Dried fish Dried Shrimp Preserves Condiments (fish based e.g. Balichow) Fresh whole fish & fillets (bycatch swordfish)	0305     030487
Morocco	Fresh fish fillet (bycatch swordfish)	030487
Philippines	Fermented fish (Bagoong) Fresh (Mackerel) Dried fish Surstrommy (Swedish version fermented fish)	0305
Alaska	Fish oil Fertiliser Fish feed Surimi Salmon fillets/steaks Briney fish Smoked Salmon Canned Salmon Salmon jerky Salmon Rilletes Biodiesel (from pollock) Pet snacks (dogs, cats)	0303, 0305, 030481
Mozambique	Fresh fish fillet (bycatch tuna like species)	030487
Vietnam	Frozen fillets (bycatch dorado/mahi mahi)	0303454,030489
Indonesia	Frozen fillets (bycatch dorado/mahi mahi)	0303454, 030489
China	Frozen fillets (bycatch dorado/mahi mahi) Shrimps Crabmeat Fish oil and paste Fish sauce Pre-cooked frozen meals Sea Cucumber	0303, 0304, 0305

Country	Product	HS Code
India	Salted fish Dried Fish Shrimps Fresh fish (bycatch swordfish)	0305, 030449, 030455, 030454

**Source:** Trend Economy, 2021 Report; Seafood Source and ITC Trade map.

The range of products per country is varied, with some innovative value-added products being exported such as tuna jerky, rillettes, brine, sausages, salami, fish paste and fish oil. Note that locally only one processing factory (Indian Ocean Tuna) produces fish oil. Pet food and fish feed from recycling fish waste are potential products for local processors to also consider as potentials as there are market opportunities like in aquaculture farming for such products. Other opportunities in value-addition rests in developing similar products to the EU for niche markets as represented in the differentiated categories listed in the table above.

Although, there is competition from regional countries and other Small Islands States (SIDS) (Papua New Guinea, Sri Lanka) for these products, positioning Seychelles will require a good brand and marketing campaign, as the small-scale fisheries cannot supply in volumes.

In terms of EU countries intra-trade (countries within the EU that trade within member states) the following products have been identified according to product similarities with Seychelles.

**Table 24: Intra-trade EU countries**

Country	Product	HS Code
Norway	Mackerel King Crab (note that spanner crab is the alternative) Shrimps	030520 030542 030510
Spain	Fresh fillets, chilled (bycatch swordfish) Black Scorpion Fish Red Scorpion Fish Demersal Percomorphs nei Red Scorpion fish Wahoo Frigate and Bullet tuna Skipjack Tuna Albacore tuna Yellowfin tuna Sailfish (billfish) Blue Marlin (billfish) Black Marlin (billfish) Striped Marlin	030455

	Shortbill Spearfish	
Country	Product	HS Code
Germany	Mackerel Frigate and Bullet Tuna	030520
UK	Mackerel Wahoo Frigate and Bullet tuna Kawakawa Albacore tuna Yellowfin tuna Skipjack Sailfish (billfish) Black Marlin Blue Marlin	030520
France	Dogtooth tuna Kawakawa Skipjack Tuna Albacore tuna Yellowfin tuna Sailfish (billfish) Blue Marlin (billfish) Black Marlin (billfish) Striped Marlin	030520
Portugal	Wahoo Frigate and Bullet tuna Skipjack Tuna Albacore tuna Yellowfin tuna Sailfish (billfish) Blue Marlin (billfish) Black Marlin (billfish) Striped Marlin	030520
Italy	Frigate and Bullet tuna Black Scorpion fish Red Scorpion fish	030520
Cyprus, Greece, Turkey, Maldives	Frigate and Bullet tuna	030520

Country	Product	HS Code
Malta	Black Scorpion fish Red Scorpion fish Frigate and Bullet tuna	030520
Croatia	Black Scorpion fish Red Scorpion fish Frigate and Bullet tuna	030520
Portugal, Spain, France, Ireland, UK, Poland, Lithuania, Ukraine, Cyprus, Italy	Tuna like species	030520/0304

**Source:** FAO Fisheries Statistics, Yearbook 2019

The table above indicates the fish species that are common to the Seychelles and consumed within the EU countries. Black and red scorpion fish though not commercially utilised locally, shows the supply chain has commercial value in niche markets in Malta and Eastern Europe meeting demand for consumer preference for these fish species. It is also important to note that Seychelles' competitors in the supply chain exporting fish in the categories of mackerel, tuna, sailfish and marlin to the EU for processing or as fresh fish or frozen fillets are Mauritius, Sri Lanka, Maldives, China, Taiwan, Indonesia and Mozambique.

Other countries exporting to potential new target markets in Japan and Singapore is Australia, as indicated in Table 25 below. Both countries also import fish products from Australia (table 26), meaning the supply chain from Australia to the Asian markets competes with Seychelles own production.

**Table 25: Products exported by Australia in 2021**

Country	Product	HS Code
Japan	Livers, milt & roes of fish, dried, smoked, salted or in brine. Smoked fish including fillets.	030520 0305549
Singapore	Flours, meals & pellets of fish, not for human consumption. Fish, frozen chilled and dried.	030520



**Table 26:** Target Countries consuming Australian exports 2021<sup>51</sup>

Importing Country	% Share	Value in USD\$ (thousand)
Hong Kong	57	1.8 million only
Japan	39	883
Singapore	2.1	136

Another country exporting to targeted markets in Japan, EU, and USA is Norway although only some fish species are similar to that harvested in Seychelles. Norway exports shellfish like crabs (though not of same species as the local spanner crab). It is selected to illustrate the country targeted like China, UK, Japan, and USA which are the main markets for Seychelles fish products but also in terms of products, the potential of shellfish and mackerel export from the small-scale fisheries is also apparent.

**Table 27: Fish and Seafood products by category produced by Norway in 2021**

EXPORTED PRODUCTS				
Product	%	Total Value EURO (million)	HS Code	Country of Destination
Mackerel	15	60.1	030520	South Korea Japan Poland
King Crab	32	7.7	030542	USA Canada Netherlands
Snow Crab		2.4	030563	Indonesia USA Netherlands
Trout	25	44	030549	USA  Thailand Lithuania
Herring	15	55.9		Poland  Lithuania Cameroon

<sup>51</sup> Trend Economy, <https://trendeconomy.com/data/h2/Australia/0305> HS code commodity categories

EXPORTED PRODUCTS				
Product	%	Total Value EURO (million)	HS Code	Country of Destination
Shrimps	40	10.9	030510	Iceland Sweden UK

**Source:** Norwegian Seafood Council November 2022

USA, China, UK and other EU countries imports of these fish products are high. These countries are also targeting markets for Seychelles products.

### Value chain

In terms of product development in the value-chain, research indicates predictable demand in the consumption patterns of fish and seafood worldwide and in the supply chain. The consumption of fish products has been steadily growing, with new products and further refined old products entering the market, as for example, fishmeal, oils, eggs and fats have entered the scene to fulfil ever more diverse market needs, and, most importantly, have enabled better exploitation of the overall catch.

Countries like Iceland and Norway have invested considerable amounts of money to widen the markets and the goods on offer. These efforts included the making of otherwise relatively unknown fish species more widely available, and various initiatives have been launched to make fish-based foods more known in areas where it is not a common dish<sup>52</sup>, have been useful to help the industry gain its competitiveness. The local small-scale sector has taken a similar approach and with the proper marketing and promotion, backed by national support the same can be achieved and unknown fish species that are in stock and under-exploited can find its place in the export market. As such, marketing product development and innovation is priority.

However, it is to be noted that given the long and complex supply chain existent in fisheries export and marketing, there needs to be a guarantee on timely delivery with excellent quality of product. Meaning that even though the number of fresh fish of the total fish exports is low, (less than 10% of the global total exported from mainstream suppliers), the standards set for the food chain will have to be of the highest level for local processors to compete. The cold chain must not be broken for the products, and after the catch the fish must be processed rapidly in order to maintain all the desired characteristics of a high-quality fish product. This will require accelerated efforts in training and other capacity building on managing the cold

<sup>52</sup> Norwegian Food Council 2022 Report

chain process, infrastructural development favouring innovative technologies such as ultra-low temperature processing of tuna and other fish meat targeted for export. Essentially, meeting these requirements in international standards will equip local exporters to meet the export demand with high-quality, exclusive and premium fish and seafood.

### Consumer behaviour in export markets

The identified consumption patterns of most consumed fish and seafood products in the selective markets were cross referenced and compared, and summarised as follows.

### Summary of fish and fish products of relevance for identified targeted export markets

Species Name	Product Category	Main Market	Niche	Market Specification
Tuna (Yellowfin, Skipjack, Bullet)	Fresh loins, fillets	EU	UK, Spain, Portugal, France	For canning processing
		UAE	Immigrant population	High end retail stores, restaurants, consumers high buying power.  Processed by other companies.
		Israel	All population	Premium quality.
		China	Middle-class and urban population	High consumption demand.
		Japan	All population	Food service/sushi and sashimi premium quality.
	Prepared, preserved.	EU	UK	Ready meals/packed food.

		UAE	Immigrant, tourists	Retail supermarkets, grocery stores.
		China	All population	Retail, food service
		Israel	All population	Retail, food service
Swordfish (by-catch tuna species)	Fresh or chilled	EU	Southern Europe and UK	Low volume, growing popularity in the UK.
	Frozen			
Mahi Mahi (Dorado)	Frozen Fillets		Western and Eastern Europe  Spain and Italy top importer	Processed
Tuna-like species - Frigate tuna, longtail tuna and bonito or Kawakawa	Whole, small size	United States	Southern states	Chunk-light tuna (canned) production/processing.  Tariffs on tuna-like species are lower than on principal tunas (Yellowfin, Skipjack, Albacore): 10% versus 12.5% duty.
Barracuda	Fresh - Whole (gilled & gutted)	United States	Southern states	WTO agreement MFN preferential trading.  Processing  Smoked served as light snacks.
	Fillets, Steaks			
	Smoked			

Species Name	Product Category	Main Market	Niche	Market Specification
Sea Cucumber	Dried	China and Singapore	Ethnic population	Processed into other products
	Preserved	Japan and EU	Ethnic population in UK, France, Italy, Netherlands	High-end restaurant, retail and gourmet cuisine. Ethnic retail supermarket stores
	Salted (brine)	China and Singapore	Ethnic population	Processing
	Fresh Skin	EU, USA	Medical	For pharmaceutical use (skin contains several chemicals used in anti-cancer treatments) <sup>53</sup>
Other species	Fish Meal	EU, China, Israel	Aquaculture farms	Animal feed
<b>OTHER NEW PRODUCTS</b>				
Other species	Fish oil	UAE, EU, Israel	Other industries	Animal feed and pharmaceutical products
<b>OTHER NEW PRODUCTS</b>				
Other species	Fish Livers/glands	UAE	Pharmaceutical business	Processed as base
Mackerel	Fresh or chilled	EU, Israel	UK, Southern Europe, Israel	Processed or prepared
	Smoked			

<sup>53</sup> National Library of Medicine, National Center for Biotechnology Information – USA Government.

Other New Products				
Crabs	Fresh or chilled	EU, USA, UAE, Israel, Singapore, China	High consumption in all markets	Processed, prepared ready meals, surimi
Prawns	Fresh or chilled		USA top consumer and China	Processed, prepared
Lobster	Fresh or chilled	UAE, Israel	High end markets food service	Prepared, processed.
	Preserved (brine)			Premium product in retail, restaurant.

The common species listed – tuna, bonito, sea cucumber, barracuda, mahi mahi, swordfish are presently on the export list of local processors targeted for the UK, Spain, France, Portugal, Italy, USA, Canada, Poland, Croatia, Russia, Sri Lanka, Reunion, Netherlands, Mauritius, Senegal, Ghana, Ivory Coast, Australia, Israel, Japan, Hong-Kong, Singapore and the UAE. The main categories of fish products are exported fresh chilled and frozen whole. Sea cucumber is exported dried only to markets in Hong Kong and Singapore<sup>54</sup>.

Given that most of the exported fish products are not given added value locally, the evaluation has indicated that the targeted countries do have opportunities for these fish products to be processed into value-added products for example, in preserved, smoked, brine and prepared ready meals for the markets. This is evident in the Northern European markets where there is a preference for prepared and canned fish products. In relation to sea cucumber, and other fish species of high value such as bourgeois, China also offers potential as it is the world's largest consumer of fish.

In the UAE and China innovative products such as, variety flavoured fish products mean there are opportunities for local processors to consider product development rather than the continuous reliance on exporting fresh and frozen fish, and dried sea cucumber. Other markets for sea cucumber exist in Europe in ethnic communities as well as in mainstream population with the growing trend in healthy eating as sea cucumber is valued as a high protein nutritious food. Furthermore, in the Western countries it is being used in pharmaceutical companies for treating diseases relating to blood clots and some cancers due to the presence of Fucosylated Glycosaminoglycan – a chemical found in the skin of sea

<sup>54</sup> Department of Fisheries Export Data 2006-2023.

cucumber. Thus, the potential to promote this in the medical sphere has potential other than in the food industry.

Barracuda is exported to Senegal only from Seychelles, but from the study there is potential in USA market for the species as well which can offer further export opportunities. Other fish species – Bourgeois (all species), Grouper (all species), Job (Gris and Green), Capitaine Blanc and Capitaine Rouge, Galate, Carangues are routed to Ghana, Ivory Coast, Mauritius, Reunion, Sri Lanka, India, Canada, Australia, and Croatia<sup>55</sup>. Some of these importing countries, Sri Lanka, India, Ivory Coast, and Ghana are reprocessing these fish for export into the same targeted markets as Seychelles. This gives them advantage to reign market share over Seychelles for these fish species. For example, Sri Lanka has 6% and India 1.6% market share for tuna and swordfish in the EU. A strategy to retain onshore processing of these catches has to be implemented to increase commercial development of the local sector, not just in relation to increase revenues from export but to create job opportunities for local workers. This strategy has been used by Papua New Guinea's Government now holding 12-17% market share of the world's total fish export for tuna and swordfish<sup>56</sup>.

High value seafood products like crabs and lobster can be exploited despite being seasonal as in Alaska and Belize targeting exclusive markets, in Japan, China and Singapore as well as value added products. Other identified products from fish waste, oil, fish meal, roes have been identified as prospective export products. The onus on sustainability to use all parts of the fish harvested tallies well in this respect.

Nevertheless, one factor that arose from the product analysis that has to be considered is in relation to aquaculture production. A few of the competitors identified and countries in the targeted markets import fish farmed from aquaculture and are also aquaculture producers. This may explain the high volume and consistency in the supply chain from these countries, for example, Vietnam, Indonesia, Philippines, China, Israel, UAE, Chile, Mozambique., Sri Lanka and India – which are among the top world exporters of fish and seafood. UAE has invested heavily in developing its aquaculture sector and all these compounded will have an effect on export from Seychelles in the form of lower demand as domestic production from these countries will take precedence to reduce imports. The growth of aquaculture is being spurred as a result of sustainable management of fish stocks and marine conservation by several NGOs and the United Nations Sustainability Initiatives Goals for food security. As Seychelles mainly exports wild harvested catch and considering the 30% quota on yellow fin tuna by IOTC and established stock management measures already implemented by the Fisheries Authority on exploited fish stock, there may be an impact on export capacity which needs to be assessed further by the policy makers.

However, on another note, the issues of environmental pollution, stock depletion in some countries may alternatively, be advantageous to Seychelles. China for example, has recently

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<sup>55</sup> Ibid.

<sup>56</sup> Centre for Business Intelligence, (CBI), EC 2022

implemented policy changes to its fishery sector due to these environmental issues, which has affected its trading output and as a result imports will increase for fish and seafood products<sup>57</sup>. There is also a keen preference among consumers to eat fish from wild catch as mentioned above and though in small volumes Seychelles can benefit from its export. But in the foreseeable future, as the aquaculture projects gain momentum the possibility remains open and promising for higher volumes of fish exports under the Seychelles Fish Brand.

In general, the competitor, product and market trend analysis has concluded that local processors have to engage in product development with new innovative products. By giving value addition to the fish products the exports will become more marketable as a brand. Furthermore, having certification for eco labels will reinforce Seychelles fish products reputation and give increased exposure to trading opportunities especially in the EU and USA markets as these are increasingly important in the industry because consumers are very conscious and ethical in their food consumption amid rising concerns about the environment.

### Value-Chain Opportunities

This part of the research outlines areas where product development can be focused based on the findings discussed. Value chain is the term used in marketing addressing research and development (R&D) where products are innovated to create a new one for the market based on market demand and trend patterns. The value chain is important to retain competitiveness in the market, improve share of the market and grow revenue as well as retain customer loyalty and target new customers with the innovative product. From the review of the small-scale fishery sector, there is very little and limited innovation happening. This applies to both export and domestic markets. The variety of products that have undergone some level of value addition range in the categories of burgers, sausages, fillets and chunk fish (canned tuna is excluded as this is industrial). Yet, findings from international market trends and the domestic consumer behaviour survey (discussed in the Domestic Market Development section of this report), show there is a demand for new innovative products to be available.

The opportunities for development exist and more focus towards testing products, quality assurances (most likely under the ISO 17065 – C188 2007, No.188) from the Assurance Services International (ASI) certification and standards accepted by the Marine Stewardship Council.

An outline of some of the products arising from the findings in the product intelligence and those reported in the AAMS 2018 and 11<sup>th</sup> EDF Report, 2021 is provided to further illustrate the value-chain significance in creating opportunities for the local processors in some key markets.

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<sup>57</sup> Seafood Alliance Organisation and Marine Stewardship Council 2022.



<b>Value Chain Product</b>	<b>Species</b>	<b>Potential Market</b>
Tuna Jerky	Tuna (All species) (Grade B or C)	USA, EU, Singapore, China, Japan.
Tuna Candy	Tuna	USA, UAE, Japan Singapore, China.
Rillettes	Tuna, Bycatch	EU, Japan, Australia, New Zealand.
Pate	Mackerel	EU, USA, UAE, Australia, New Zealand.
Fishmeal	Leftover from processing	EU, China, UAE, USA, Chile, Sri Lanka, Ecuador, Mexico, Nigeria, Zambia.
Fish oil	Leftover from processing	UAE, EU, China, USA, Chile, India, Sri Lanka.
Salted, Smoked or Brine Frozen (pre-packed)	Sea Cucumber	Singapore, China, Japan, EU.
Frozen Crab Meat	Spanner Crab	EU and Singapore.
Pet food	Tuna based from discarded processing waste (Grade B or C)	Regional
Fish stock/paste	Bycatch	Regional

Chile, Ecuador, Mexico, Nigeria and Zambia have large aquaculture farming activities where fish meal can be exported. Fish oil is used in fish feed and pharmaceutical production with some multinational companies based in Chile and India. New Zealand and Australia has immigrant communities from Eastern Europe, Africa, and Asia where mackerel is a staple cheap fish to buy. As such there are niches for these products. Caviar from fish roe is a luxury food and high-end niche markets in the EU, Japan, USA, Australia, Russia, Canada exists. Emerging markets in Africa where there are niches from upper middle class for example, Nigeria, Angola, and Namibia creates opportunities as they have disposable incomes to spend on luxury food. According to FAO<sup>58</sup>, the African market is expected to grow by 23% by 2025

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<sup>58</sup> Globe Fish Report, Market Trends FAO 2023.

faster than other world economies. The benefit to Seychelles exporters to market products is free movement of goods under the SADC, COMESA and FTA Agreements.

Cultural preferences in relation to consumer responses to fish consumption vary according to type of consumer, e.g., rural versus urban consumers, and poor versus non-poor households. Fish trade is often differentiated through market destinations, i.e., certain fish species are intended exclusively for domestic consumption while other species are intended for the international market. The effects of these factors (i.e., fish types/species, ecological source and behavioural/cultural responses of consumers) constituting the demographic factors influencing market demands are often useful to stakeholders in the fishery sector (fishers, fish farmers, traders and consumers) in assessing market sensitivity to new developments in the sector and it is a key component used for product analysis information.

Notable for the small-scale fisheries sector, the products identified using the fish species mentioned are investment ready for export – in niche markets given the seasonality of fishing activities. However, for bycatch processing as highlighted in previous research (AAMS Value Chain Development, 2018 and Pre-feasibility on Value Chain Potential, 11<sup>th</sup> EDF Report, 2021) the landings from industrial seiners must be done in Seychelles for significant capacity volume to be processed for export. All of the fish products can be marketed under the Seychelles Fish Brand.

### Exploratory summary of market demographics

The selective markets from the assessments concludes drivers of demand for fish are based primarily on consumer preferences, purchasing power and value-addition. For example, the Japanese market high demand for sea cucumber and premium quality fish offers potential as local exports are expensive in relation to other processing countries like China where the labour cost of production is lower than in Seychelles. UAE has consumers that are well paid and have a high GDP per capita which means that consumers are able to afford products from Seychelles.

There is a market for swordfish in Europe, however European tuna fleets bring in by-catch species, but some companies have fleets that target tuna by-catch species specifically. The increased focus on IUU fishing and fisheries management can help Seychelles become a preferred supplier to the European market if it can provide sustainable and consistent product. Spain's processed seafood market is dominated by private label products.

Portugal's high imports from non-European countries presents an opportunity, to enter the European market for swordfish.

The European ethnic market is a good market for exporters to explore, considering the growing multicultural and diverse population of Europe. This is a useful trend to monitor in the long term, as European society becomes more exposed to multiculturalism and

consumers pay more attention to new products and cuisines that come in this process. This trend could bring niche products into the mainstream. The same applies to markets in the USA, Australia, Canada for future potential.

In France there are large, concentrated communities of African origins, Zaire, Senegal, Algerians, Moroccans and Tunisians. The cultural tendencies to consume dried and salted fish offers opportunities into these niches. The UK has a large ethnic community populating its three largest cities, London, Birmingham and Manchester. A growing number of these communities exist in Wales and Scotland from Asian, African, Eastern European, Middle Eastern, Chinese and Afro-Caribbean. Germany and the Netherlands feature similarities in their ethnic population group. The size of ethnic populations in Europe and the demand for ethnic foods explains the large markets for ethnic foods in the UK, France, and the Netherlands. Of the total European Union population of 510 million, about 20 million (4%) are members of diasporas of non-European origin. European countries with the highest number of such diasporas are those mentioned including Italy and Spain<sup>59</sup>.

### **Specificities of Ethnic Markets Retail<sup>60</sup>**

In terms of products, a large share of the fish available in ethnic retail outlets is frozen whole fish. Most whole fish (over 400 grams per fish) is sold as Individually Quick Frozen (IQF), often one fish per package. Smaller fish (between 50–400 grams) is sold with more than one fish in a package, whether in an Individual Wrap Package (IWP) or not. Small fish can also come in (“clean”) blocks of 250–500 grams, and sometimes 1 kg.

The range of (frozen) fillets and steaks available in European ethnic supermarkets is limited, as there is a preference among the ethnic population for buying whole fish. However, the younger generation, have greater preference for convenience products, such as fillets and steaks. But these are also available through other channels, such as mainstream supermarkets and fishmongers. Other product groups available in ethnic supermarkets are frozen seafood and canned fish products. Both product groups do not differ very much from mainstream retail in terms of species. The main difference for frozen seafood is packaging sizes; shrimp usually comes in larger packages than in mainstream supermarkets.

Dried fish is a product group that is rather unique to ethnic retail stores, as dried fish is not a common product in mainstream retail supermarkets. Although sales of dried fish, including frozen dried fish, might be a bit higher than canned fish in European ethnic retail channels, this is a rather small product group in terms of market size.

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<sup>59</sup> CBI, EU 2020. Niche Market in Europe. [www.cbi.eu](http://www.cbi.eu)

<sup>60</sup> CBI Market Information

## Other Market Influencers –Trading Patterns

Other market characteristics of significance in collecting intelligence is determining the conditions in the distribution network that facilitates trade and measuring these to Seychelles. The results revealed that European imports of tuna loins from the African, Caribbean and Pacific Group of States (ACP) and the eight Least Developed Countries (LDC) are duty-free. Major buyers of tuna loins include Spain, Italy, France and Portugal. These countries maintain steady delivery volumes because they benefit from duty-free trade with European buyers throughout the year. Deliveries under the Autonomous Tariff Quota (ATQ). The ATQ enables EU processors to import raw material from non-EU countries duty-free for further processing. Volumes of pre-cooked loins outside the quota are automatically subject to 24% import tax when entering the EU. The current quota for 2019-2020 is 30,000 tonnes as per Council Regulation (EU) 2018/1977.

Local exporters must also consider that 11 out of the 15 main trading partners already export at zero tariffs via unilateral arrangements, such as the Generalised Scheme of Preferences (GSP+), free trade agreements and economic partnership agreements. For example, all shipments from Ecuador and Papua New Guinea to Europe are duty-free any time of the year, as long as they meet rules of origin. Production of tuna and tuna-like species, both wild and farmed, amounted to just 418,155 tonnes. This means that there are opportunities for exporters to Europe to enter this market as providers of pre-cooked, frozen tuna to the European canning industry. Seychelles already benefits from the zero tax on its exports to the EU as part of the EPA<sup>61</sup>. Pre-cooked frozen tuna loins are fillets commonly used as raw material, classified under the following Harmonised System (HS) codes:

- 16041426 for skipjack;
- 16041436 for yellowfin;
- 16041446 for other kinds of tuna loins, which are preserved and prepared whole or in pieces, excluding skipjack and yellowfin. This excludes products in vegetable oil or minced. This HS code may include bigeye or albacore loins.<sup>62</sup>

In general, the distribution network for local exporters by comparison has similarities enabling trade. This has been identified through the memberships Seychelles has with trade organisations at regional and international levels, facilitating access to trading zones, preferential trading arrangements and duty exemptions on export products. A brief outline is described illustrating the major advantages.

### A. European Union

The European Partnership Agreement (EPA) permits a zero duty tariffs with proof of a certificate of origin for export in the EU. This gives local exporters an advantage over countries

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<sup>61</sup> European Partnership Agreement

<sup>62</sup> Centre for Business Intelligence, (CBI) EU.

as the importer also does not pay duty tariffs on products from Seychelles. This means that there is an advantage over countries that have to pay duty tariffs on their exports to the EU.

Another favourable term is that Seychelles is listed as a 'Standard GSP', 'GSP+' or 'EBA' (Everything But Arms) with regard to the European Generalised Scheme of Preferences (GSP). However, getting this benefit requires proof that the product exported originates from the country from which it is exported. This fact needs to be proven. The Registered Exporter System (REX) was introduced by amending Regulation (EU) No. 1063/2010 in the context of improving the GSP Rules of Origin (RoO) in 2010.

#### **B. Common Market for Eastern and Southern Africa (COMESA)**

Seychelles became a member of COMESA in June 1993 when it was still the Preferential Trade Area (PTA) for Eastern and Southern Africa. In November 2007, The Council of Ministers agreed to allow Seychelles to join the FTA, and the subsequent COMESA FTA regulations were published in Seychelles on 25 May 2009 with effect from 11 May 2009. This treaty favours economic development and promotion among member states and Art. 45 establishes liberalization and trade development in areas of a common market tariffs where taxation on goods, non-tariff barriers are removed among member countries. This means that a common tariff system for all trading countries exists and there is no double taxation on products movement within COMESA. As a free trade area excise duties are removed for exports and imports between these countries.

Art. 62: sets trade promotion and information sharing on market intelligence and trade, export opportunities and development between member states. It also mentions product adaptation and diversification of export base to new markets with member states under section (d). As such, promoting trade opportunities within the COMESA region with new member countries. Some East African countries have potential such as, Nigeria given there is a wealthy pool of people in this market.

#### **C. Southern African Development Community (SADC)**

Seychelles formally acceded to the SADC Free Trade Area (FTA) in 2015. The agreement gives most favoured nation access privileges for exports and imports of goods within the member countries.

#### **D. Indian Ocean Commission (IOC)**

The Indian Ocean Commission is an intergovernmental organization that joins Comoros, Madagascar, Mauritius, Reunion and Seychelles together to encourage cooperation. It was started in 1984 under the General Victoria Agreement. The original aim of IOC was to encourage trade and tourism. Seychelles currently gives preferential rates to imports of goods originating from member states of the IOC in the form of a 5% reduction on the trade tax rates to selected products.

#### **E. Tripartite FTA**

The establishment of a Free Trade Area (FTA), encompassing the Member/ Partner States of the three Regional Economic Communities (RECs), established trade liberalisation within their three RECs. The Tripartite FTA cover negotiations on tariff liberalization, rules of origin, dispute resolution, Customs procedures and simplification of Customs documentation, transit procedures, non-tariff barriers, trade remedies, technical barriers to trade and sanitary and Phyto-sanitary measures. Secondly, it encourages trade in services, intellectual property rights, competition policy, and trade development and competitiveness.

#### **F. Other Preferential Trade Agreements (PTAs)**

Seychelles signed the Cotonou Partnership Agreement (CPA) in 2000 together with 77 African, Caribbean and Pacific (ACP) countries with the member states of the EU. The Agreement provided non-reciprocal preferential market access to the EC for goods originating from these countries. This has been formalised in the form of the EPA with the European Commission.

#### **G. World Trade Organisation**

Seychelles has bilateral trade agreement with the World Trade Organisation through its membership since 2015, concluding bilateral agreements with a number of WTO members, namely, Oman, Mauritius, Canada, South Africa, Switzerland, European Union, Thailand Japan and the United States. This gives enhanced and differential treatment for negotiations relating to trade with the USA and other members within the group.

Article XII has provision for achieving a level playing field, and a fairer multilateral trading system. In general, preferential rules of origin are applied which means there is reciprocal trade between Seychelles and member states in the WTO. As such, the agreement offers preferential market access by lower import tariffs on fish fillets at 0.75% under the most-favoured nation (MFN) applied tariffs.

#### **H. African Continental Free Trade Area (AfCFTA)**

The agreement favours free trade area in the African continent by liberalisation of trade and boosting intra-Africa trade between members. This means preferential treatment and most favoured nation treatment Part IV Article 4, are given to members. Articles 12, 13 related to tariffs and preferential agreement for trading partners.

All of the mentioned agreements are conducive for the export trade and are favourable for development of the fisheries sector.

Other trade tariffs are in the form of Most Favoured Nation (MFN) which provides some preferential relief on taxation of goods from certain countries. A breakdown of these is defined below.

### Average Most Favoured Nation (MFN) Trade Tariffs in Selected Markets<sup>63</sup>

The table is an indicative guide of average trade tariffs in the targeted markets for 2022.

Country	MFN Tariff Rate %
China	19.58
EU	12.2
Israel	15.37
Japan	19
Singapore	0.3
Switzerland (Europe)	38.8
Turkey	53.3
United Arab Emirates	5.86
United Kingdom	11.28
United States	5.2

### Average of Preferential Tariffs in selected markets 2022<sup>64</sup>

Country	Preferential Tariff Rate %
China	15.94
EU	5.7
Israel	14.67
Japan	14.77
Singapore	0.23
Turkey	51.8
United Arab Emirates	8.33
United Kingdom	4.61
United States	3.9

One of the constraints that may affect the distribution of export in volume lies in the policy for the Management of Bycatch 2018 where there are still delays in its implementation to support and facilitate the increased onshore processing for the local processors that

<sup>63</sup> International Trade Centre, UN (ITC) [www.macmap.org](http://www.macmap.org)

<sup>64</sup> Ibid.

translates to greater export outputs. This legislation has to be considered of critical importance to action.

### Certification

Another key component characterising general demand in the market relates to sustainable labels. Market assessment has revealed that in many Western countries, eco labelling such as the Marine Stewardship Council (MSC) blue label is highly valued by consumers and traders following the recent upsurge in environmentally sustainable practices. Local exports do not carry certified labels. From the SWOT analysis it was evident that this was partly due to the requirements for achieving certification being underrated in relation to practices, standards and quality in the small-scale fisheries sector. Mitigation of these issues shall provide a starting point for the sector to be certification ready. The Marine Stewardship Council has a temporary In-Transition to MSC Program for fisheries that are not yet ready to enter into the full assessment of the MSC standards. This could potentially be a course of action for the Government to consider undertaking as it phases implementation of the right standards to full certification, through Fisheries Initiative Programs which has started implementation already.

Nevertheless, from the findings there is interest from the Government and stakeholders from the small-scale fisheries sector to obtain certification for their fish products. This is a positive outcome and from a marketing point of view, certification is a must to reinforce the Seychelles fish brand. More importantly, having a certified label associated with exported products will give a better competitive advantage for local exports in the international markets. The main reasons are that consumers influence how a product develops in the consumer market and worldwide the movement towards safeguarding the environment and sustainable practices are growing. The UN Sustainable Development Goals 2015 have prioritised sustainable sources to ensure food security in the future and fisheries is one major industry where this is most apparent. For trade in many international markets, the requirement to have sustainable seals is becoming very common and compulsory.

The EU Centre for Business Intelligence reported that European retailers and importers, especially from northern and western Europe, usually require sustainability seals on seafood products. For tuna loins, this means that the Marine Stewardship Council (MSC) is an important certification for sustainable wild-caught tuna. Buyers want safety and sustainability seals from the MSC helps secure your reputation as a reliable and trustworthy exporter among European importers. It is also a worthwhile investment now that sustainability plays a huge role in trade.

Companies in Northern Europe and North America began making commitments to sustainable seafood in the early 2000s, and these commitments have expanded globally over time. There are many sustainability certifications but the Marine Stewardship Council (MSC) is the main ones to which European retailers have committed for wild-caught seafood.



However, this is gradually changing. The Global Sustainable Seafood Initiative (GSSI), a public-private partnership on seafood sustainability, developed a Global Benchmark Tool that recognises seafood certification schemes that successfully complete a rigorous and transparent benchmark process, underpinned by the FAO Code of Conduct for Responsible Fisheries. As a result, there is a gradual shift in retailers from a commitment to selling seafood with specific eco-labels such as MSC, to a commitment to selling seafood which is certified by any GSSI-benchmarked standards, including standards such as GLOBALG.A.P.

In the financial year 2019/2020, around 887,000 tonnes of MSC-certified seafood were sold on the European market, compared to about 787,000 tonnes in 2018/2019. In 2019/2020, 14,640 MSC-certified seafood products were available on the European market. North-western Europe still accounts for the largest share of the European sales of MSC-certified fish and seafood. In 2019/2020 there were 6,260 products available on the North-western European market, a 6% increase from the previous year. However, after Germany, France has now become Europe's second-largest market for MSC products, both in terms of volumes and number of products on the market, taking over from the UK<sup>65</sup>.

The main factor leading to the development of MSC and ASC is the commitment that international retail groups have made at the corporate level. While their commitments originated from consumer demands in North-western Europe, they currently often require their group companies in other markets to meet the same targets. As a result, we expect that the majority of fish and seafood sold in Southern European retail and institutional food service (for example schools and hospitals), just like in North-western Europe and the Nordic countries, will be sustainably certified in a number of years.

A study conducted by the Marine Stewardship Council in 2021 revealed that consumers are switching to sustainable seafood, with 61% believing that in order to save the ocean, we must consume fish and seafood only from sustainable sources. There is an interesting trend in switching brands and products for environmental reasons or switching to another species or reducing seafood consumption altogether. There is also a high interest and demand for more information on sustainability and traceability of fish and seafood products. Two-thirds of people from the study agreed that claims about sustainability should be labelled by an independent organisation which is what the MSC as an organisation clearly fulfills.

Awareness and trust in independent labels are increasing. For more than 20 years now, the MSC has connected fishers, business and consumers who care about the future of our oceans. Today, more than 17% of the world's wild marine catch is MSC certified sustainable across 36 countries. There has been a substantial increase in fisheries engaged in the MSC program, and the number of products with the MSC blue fish tick has doubled in the past five years (18,735).

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<sup>65</sup> Centre for Promotion of Imports from developing countries, CBI EU, Ministry of Foreign Affairs, Netherlands 2022 and Marine Stewardship Council [www.msc.org](https://www.msc.org)

Retail sales of MSC-labelled products have now reached USD\$10bn. All of which demonstrate the growing consumer demand for sustainable products<sup>66</sup>.

Since 2018, awareness of the MSC blue fish tick has increased significantly and some country data shows<sup>67</sup>:

- Australia, 27% to 38%.
- China: 39% to 56%.
- Singapore: 26% to 33%.
- Japan: 12% to 19%.

This is also true for other credible, independent third-party labels with growing awareness of ASC, FSC and Fairtrade. Closer to home is the South African Sustainable Seafood Initiative with partners such as, Ocean Basket and Tasty Fish.

There is conscious consumerism worldwide and the need to affiliate with sustainable labels is critical for local exporters to improve their chances of trade within the targeted markets especially in the EU where there is a good platform in favour of Seychelles through the support of the EPA. To ease market entry into Europe, Seychelles can opt for a Fishery Improvement Project (FIP) in progress in the interim for a sustainability certification which will help to find buyers and gain market access in Europe.

Of further interest, the issue of sustainability is driven by young shoppers being most likely to take action. Seafood consumption trends for 18-34 old are growing. This is an age bracket where people are becoming more independent, mobile, are seeking new experiences and understand that their values dictate their purchase choices. This could be anything from reducing their consumption to switching from one brand or product to another or substituting the type of seafood they eat. This age group is active on social media –and they become ambassadors and advocates.

### Labelling and Standards

Under a new rule (Directive No. 1379/2013), tuna loin packaging must indicate how the product has been processed (pre-cooked and frozen) and the labels must be provided on the product or in the commercial document accompanying the goods aligned with traceability policies. Additional information on labelling, is provided in the EU Pocket Guide relating to the EU's new fish and aquaculture consumer labels.

### Food Safety Certification

Food safety regulations of the European Commission are stringent in legal food safety standards. Most European buyers will have additional food safety requirements when

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<sup>66</sup> Marine Stewardship Council

<sup>67</sup> Ibid.

importing fish products from developing countries. In the retail, foodservice and wholesale markets, European buyers will require that processing facilities are certified by a third party. The most commonly required standards are British Retail Consortium (BRCGS) and International Featured Standards (IFS). Seychelles Bureau of Standards, FIQCU is the competent authority in Seychelles for this level of food safety certification for the EU, the USA and other countries where Seychelles exports fish and fish products.

The industry in the EU is working on harmonising food safety standards and increasing mutual acceptance through benchmarking third-party food safety schemes by the Global Food Safety Initiative (GFSI). As more schemes are getting benchmarked by the GFSI, it is likely that retailers and other distributors will accept multiple schemes, reducing pressure on suppliers to have multiple third-party food safety schemes in place.

### Social Compliance Certification

In the United States supermarkets have their own social compliance audits and certificates. European supermarkets often require their suppliers to be certified for social compliance by a third party. Like food safety certification, social compliance certification is mainly relevant for processing establishments. These certificates relate to the rights, health and incomes of the people working in the facilities, and in the supply chain. However, given the complexities of the supply chain it is difficult at present to certify the complete supply chain according to these standards.

In Europe, the most widely accepted third-party social compliance accreditation schemes are Social Accountability International's (SAI) SA8000 Standard and the Business Social Compliance Initiative (BSCI). While SA8000 is a compliance tool, BSCI requires accredited companies to show that they are making continuous efforts to improve the situation where a shortcoming is found. The fewer shortcomings and the more progress, the better the BSCI rating. This certification is more commonly associated with labour rights in the fisheries sector around the world (such as the use of slave labour and human trafficking). Companies which take social responsibility seriously and work on third-party social compliance certification may increase trading chances as a preferred supplier in the European market. An example of a company known for its campaign for the welfare of its workers is Omarsa, an Ecuadorian shrimp exporter. Omarsa is a member of SEDEX, which enables its members to improve business practices and working conditions in the global seafood supply chain. Their corporate social responsibility (CSR) plan includes water projects for the communities near shrimp farms as well as livelihood projects. Ecuador holds a strong position in the EU market for its fish products as a result. Note that these standards are not yet fully developed, and most buyers will require an existing social compliance certification. An outline of these certification is provided below.

### Most important certifications requested by buyers in the fish and seafood sector<sup>68</sup>

Name	Type	Cost	Most used in European end-markets	Additional information
British Retail Consortium Global Standards (BRCGS)	Food Safety	The cost (and time) of the certification audit will vary depending on the complexity and size of the company as well as the certifier's rates and travel expenses.	Europe-wide, but focused on retail	Guidance steps on how to get a Food Safety Certificate.
International Featured Standards (IFS)	Food Safety	The average price for the 2-day audit for SMEs and 3-5 products is usually in the range of €3,000. Additional costs include annual re-certification.	Europe-wide, but focused on retail	The IFS website gives more information on certification or perform a self-assessment with the smartphone application IFS Audit Manager.
Name	Type	Cost	Most used in European end-markets	Additional information
Social Accountability International's (SAI) SA8000 Standard	Social	You first have to do a self-assessment, costing US\$300, after which the certification cycle can be free or costs	Europe-wide	Read this overview of aspects on which you will be audited to get SA8000 accredited.

<sup>68</sup> Adapted from CBI, EU 2021

		up to US\$1500/day for the auditor.		
Marine Stewardship Council	Sustainability	Anecdotal information from certified fisheries suggests the cost can vary from US\$15,000 to US\$120,000. Costs for Chain of Custody certification are significantly lower.	UK, Netherlands, Germany, Belgium	The MSC fishery certification guide and MSC's capacity building programme has comprehensive guidance
ASC	Sustainability	The cost (and time) of the certification audit will vary depending on the complexity and size of the company as well as the certifier's rates and travel expenses.	UK, Netherlands, Germany, Belgium	Aquaculture Stewardship Council shares information about ASC standards, group certification and ASC improver programmes.

Name	Type	Cost	Most used in European end-markets	Additional information
Global G.A.P	Sustainability	Use of the GGN standard is free, but there are audit costs as charged by independent certifiers.	Germany, Switzerland	GLOBALG.A.P. provides 5 steps to get certified

		There is a one-time registration fee for companies using the logo, topped by a volume-based fee.		
Best Aquaculture Practices	Sustainability	There is an application fee, an audit fee and a programme fee specific to each type of standard.	Europe-wide	BAP certification, showing timelines for the certification process.
Organic (EU standard)	Sustainability / organic	Average fees are around €750 for SMEs and the certificate must be renewed every year.	Germany, Spain, France, Italy, UK	Clarifies questions about EU rules for organic production, consult the EU's Frequently Asked Questions on organic rules.

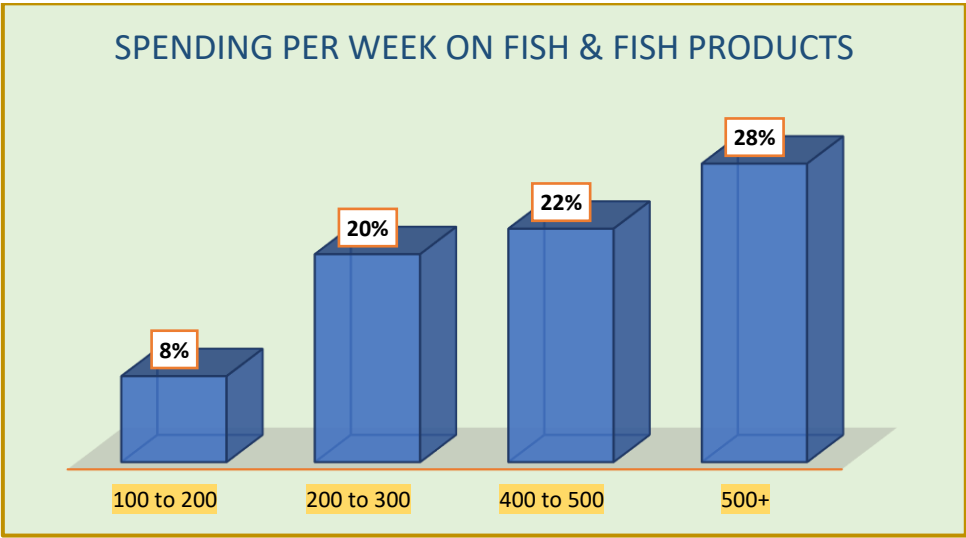
**Source:** Seafood-TIP 2022

### Domestic Market Development

The second phase of evaluation focused on the domestic market to understand its dynamics and identify trends from the local consumer's responsiveness to current fish and processed fish products available in the market. A consumer behaviour survey collated the information. The survey used questionnaire-based questions from 300 respondents randomly selected from the population.

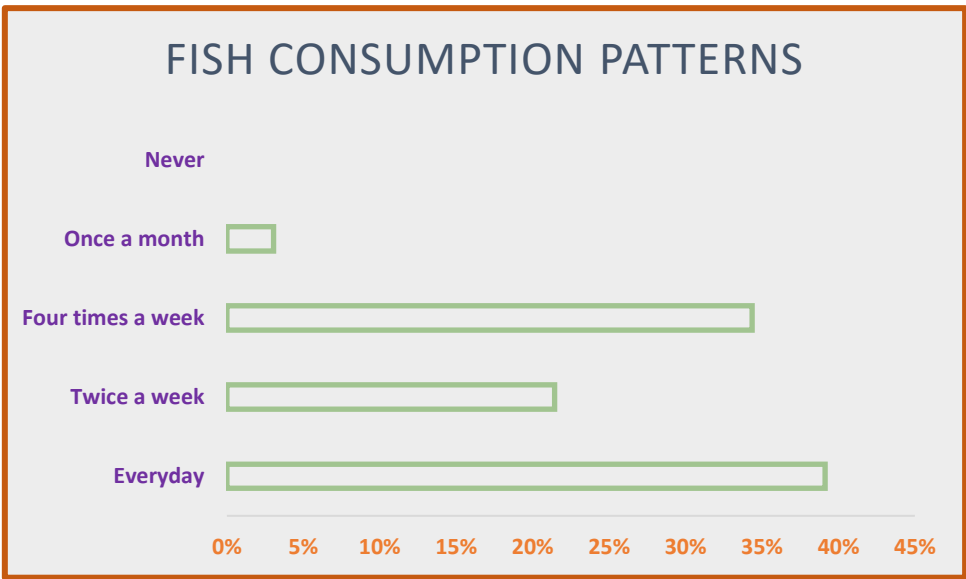
The results showed most people spent SCR500+ or more per week on fish and fish products translating to 28% of the total response, while 22% spent between SCR400-500, 20% spent SCR200-300 and only 8% spending less at SCR100-200 on fish. This indicates that spending patterns on average is below SCR500 weekly on fish and fish products with the total average being around SCR300-400 per week based on the results obtained. Graph K illustrates results.

Graph K: Average weekly consumer spending on fish



Consumption patterns within the population group identified that fish is eaten daily with the lowest consumption being twice a week. In general, most people interviewed consumed fish and fish products with only 3% on average consuming fish once a month. The high prevalence in fish consumption indicates a preference among consumers to eat fish on a regular basis.

Graph L: Fish Consumption in the domestic market



Disposable income for most respondents were within SCR8,000 to 16,000 brackets. Only 5% had earnings of SCR30,000 and upper bracket while 15% were on earnings at minimum wage bracket of SCR5,000 to lower earnings of SCR8,000. In general, most people were earning a reasonable salary permitting spending on products like fish. The pattern of disposable income is shown in Graph M.

Graph M: Disposable Income (monthly)



Assessment of buyer behaviour showed an interesting finding that most people have tendency to make their purchase when they are at the market or retail shop. Meaning that the decision to buy is done on the spot and not predetermined. This is indicative that people are impulsive buyers and most interesting for marketing fish and fish products with attractive packages, promotions and point of sale items that entice consumers to buy a product. It is especially important to encourage consumers to switch to other fish species unknown or less popular and to try out new products if value-addition is given to the species being targeted for product development. Indicative consumer buying behaviour is shown hereunder.

Graph N: Purchase Decisions



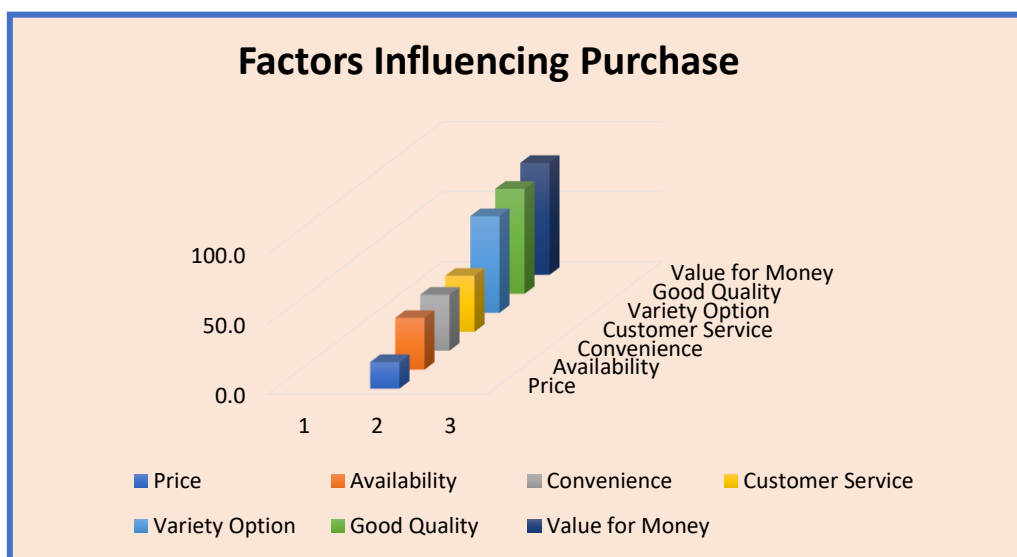
Note that shop was used as there is a frequency of fish being sold in retail outlets, supermarkets and grocery stores/corner shops around the country and it is inclusive of the fish markets and main market in Victoria as a 'shop' area. For respondents on Praslin the tendency was to purchase fish directly from the fishermen at the points by the roadside



districts. To note that a new fish market has been operational at Grand Anse Praslin since 2022, a new fishing market at Baie Ste Anne is due to be ready in 2023).

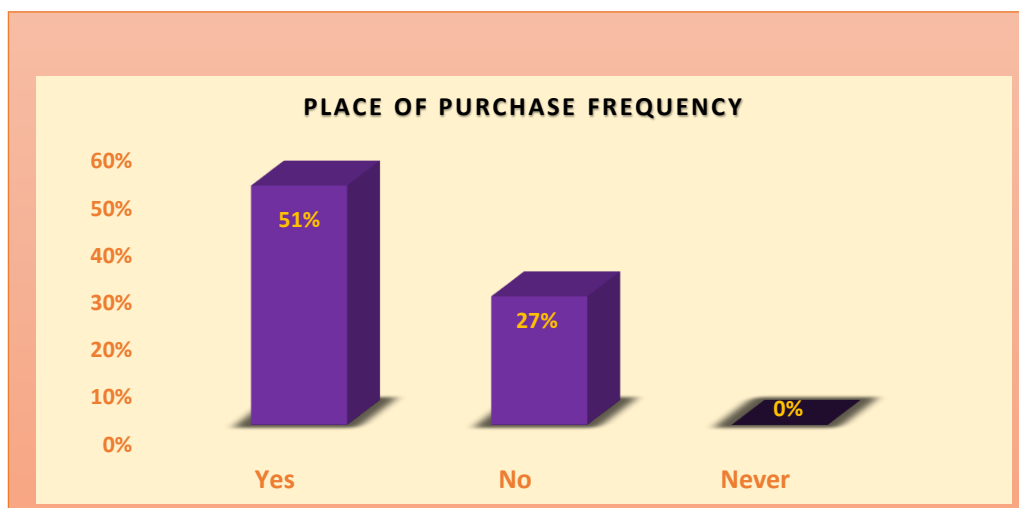
Buying patterns were influenced mainly by price, quality and variety according to the findings. Service, convenience and availability were the least factors that influenced what consumers buy. This means that for most consumers, price is important in their buying decision and quality which can be interpreted as consumers wanting value for their money and it does not matter where the fish or fish product is located provided it is of a good or reasonable price.

Graph O: Buying Patterns



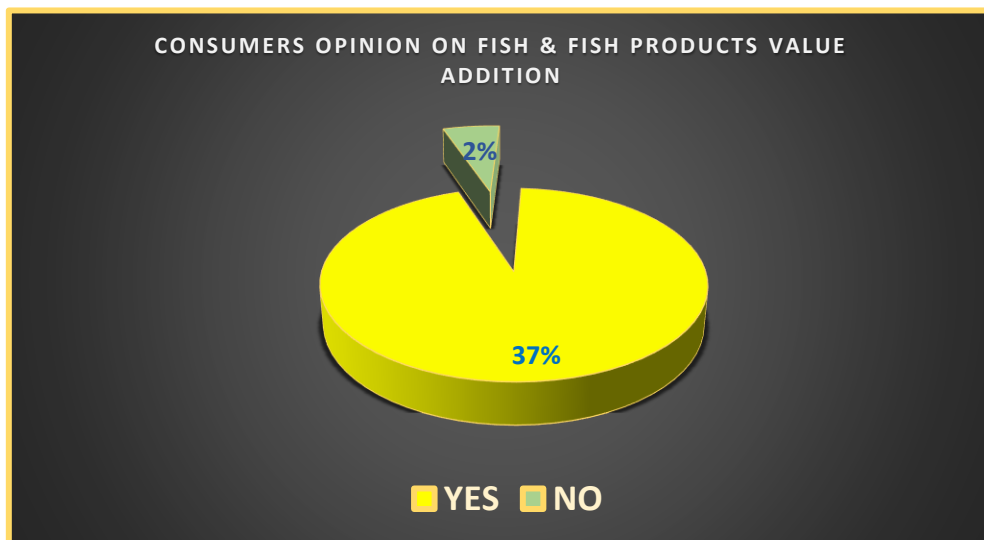
Consumers also preferred to buy their fish from the same place with 51% and 27% buying at different places. This indicates loyalty to a brand is a good insight on targeting products specific to demographic groups in the market and build on the already established trust among consumers. This means the level of satisfaction that the consumers are receiving from the fish products they are buying pull them back to the same vendor as returning customers. A good brand loyalty marketing campaign can make the most advantage of this loyalty trend.

Graph P: Location of purchase



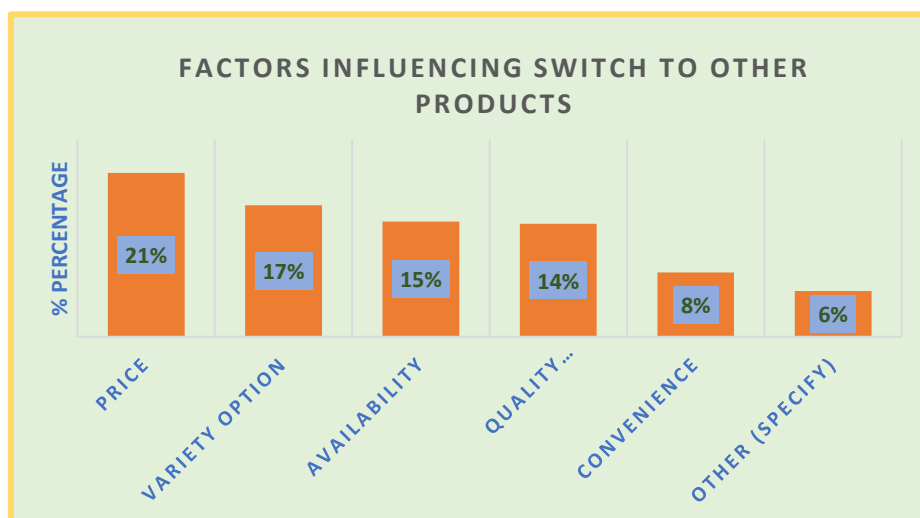
Most of the people were of the opinion that fish and fish products can be improved with 37% saying yes to fish being improved and only 2% thinking it should not. The percentage is very high and indicates that consumers want variety and want innovation or new products on the market to be made available.

Graph R: Value addition



In terms of switching to other fish or fish products, factors identified that will have an impact on the decision to switch was price first, followed by selection variety, availability of the fish product with quality (packaging) as fourth in importance and convenience.

Graph S: Price sensitivity to switch to alternative fish products



Most interesting is the fact that a high percentage of people are favourable to switch to a different fish product at 41% responding positively, and only 17% not favourable to switch with a small percentage of 7% responding to 'never' switching to a different fish product (Graph T). This shows that consumers preferences to the type of fish products have changed, and this may be due to the possibility of the mixed nationalities in the population, exposure

to international cultures, environmental issues which may have some influence in the resulting responses. This finding is well aligned with the Department of Fisheries strategy to encourage the local consumers to buy other fish species, and the ongoing product development initiative at the SFA Product Development and Quality Assurance Department.

Graph T: Consumer willingness to switch to other product



### Supply Chain Assessment

The artisanal fishery harvest composition, volume of catch and supply chain was assessed and compared with market demand generated from international trends. This sector does not have capacity to meet export demands and focus on the domestic demand is more attainable due to lesser demand and the type of fish species harvested. From the evaluations undertaken there is a demand for innovative products to be produced and made available other than those currently being retailed at the town market in Victoria, district markets and fish retail outlets. The issue to address is adaptability of the sector to shifting market trends and market research to identify customers to target their products.

### Value Addition Assessment

In terms of value-added products, market evaluations show that consumer demand for other products is present. This suggests there is market potential as addressed in the study from the AAMS<sup>69</sup> report for the domestic market. Additional potential from field research is listed below.

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<sup>69</sup> Advanced Africa Management Services, 2018 Report: Value Chain Study on Seychelles small-scale fisheries

Value Chain Product	Species	Domestic Market Potential
Dried	Rabbit Fish	Families
Crab meat – fresh or dried	Spanner Crab	Food service, hotels, families,
Shells and roes for seafood stock/paste		Food service, hotels
Pre-cooked prepared– marinade/ kebab	Deepwater Snapper	Families, tourists
Breaded – fish cakes, nuggets, escalopes		Children, tourists, adults
Smoked – plain salted/peppered/spicy	Mackerel	All consumers Food service, catering, hotels
Pate		As above
Prepared ready meals – stuffed		Families, tourists in self-catering (convenience food)
In oil and brine – for snacks		All consumers
Kebab, jerky, condiments	Tuna like species – bonito, carangue	All consumers Catering, hotel
Breaded – fish fingers, fish cakes, nuggets, escalopes	Mullet and other species of firm white flesh	Families with children
Meat frozen	Mud crabs	Locals and tourists (hotels & restaurants) other food service

Fish species like mackerel has a low mark up in the value-chain but can be enhanced with value addition as other species like mullet, mud crabs, carangue and bonitos, and less popular species. This will increase the revenue streams of artisanal fishermen and balance off the months of the year when fishing activities are reduced due to prevailing weather monsoon season. Rabbit fish may also be developed into a value-added product and can be exported to regional markets in the middle east at a later stage from aquaculture production but at this stage the domestic market has viability. Similarly, spanner crab meat in its frozen form is feasible for development in the domestic market and carries some potential for export as mentioned. The marketing component of this seafood can be angled from its sustainable

capture methods using selective gear without affecting the ecosystem and add weight to the Seychelles brand on international markets.

### Domestic fish price

There was no available data for pricing of fish to compare variations in the local market. From the interviews with semi-industrial fishermen and artisanal fishermen, the indication was that price of fish is unstable and not competitive and increased during south-east monsoon and decreased in northwest monsoon due to surplus. Price ranges quoted in kg:

Species of Fish	Southeast Monsoon Price SCR/kg	Northwest Monsoon Price SCR/kg
Bourgeois	100 – 140	80 – 90
Vielle (Grouper)	65-75	55-60
Job Blanc/Gris	40	30
Snapper	70	60
Carangues	55	65

Artisanal fishery price ranges from SCR 100 per packet on Praslin and SCR150-200 per packet on Mahe. Official data on these prices quoted could not be obtained and presented problems in determining a pricing strategy. Nevertheless, overall, the artisanal fishery segment has a good potential for development in the domestic market and should be encouraged so that revenue streams can be achieved, so that it mutually benefits the local economy, small-scale fishery fishermen and processors. However, this development of value addition needs to be at par with quality and standards, in relation to packaging, handling of the fish during landings to preserve quality.

However, as noted in the findings from the consumer survey, a high percentage of the population eat fish and the growing population rate may impact on the supply chain of species in the long-term. Therefore, the value-chain for developing fish products from artisanal harvested must be well managed to ensure supply is sustainable. This is especially important as much of the artisanal fishery catch are species that inhabit coastal reefs and reliance by the tourism sector on this ecosystem is also of value.

### Summary of findings from the domestic market analysis

Artisanal fisheries are mainly suitable for supplying the domestic market as reported in the 11<sup>th</sup> EDF study 2021. The AAMS 2018 study identified rabbitfish, spanner crab and deepwater snapper fish species with commercial potential for processing as value-added products. Additional fish species with potential have been identified with domestic development potential to be processed as value-added products and branded accordingly to make them more marketable to the market. Some of the species from artisanal fishery can be exported at a higher scale through aquaculture production which is at present underway and holds

export ready products for Seychelles in regional markets. These are mainly the rabbit fish, spanner crab and deepwater snapper, and are marketable under the Seychelles fish brand.

## 10. DATA MANAGEMENT AND MARKETING INTELLIGENCE

Market information presented in the table from the validation workshop proposes:

Key Data Collected	Frequency of Data Collection	Data Sharing Mode	Data Collection Source
Market Opportunity Niche in existent markets Market share	At least every month	Online Digital Services Marketing Information System	International Trade Centre, EUMOFA, CBI EU, NOAA
Product Prices Product category	Weekly	Dashboard Reports Telegram	Trading Economics, International Trade Centre
Competitor Market Research Survey	Quarterly	Newsletter Online Digital Services Marketing Information System	International Trade Centre, Statista, Euromonitor
New Markets with potential Consumer Behaviour Trends	Monthly/ Quarterly	Newsletter Online Digital Services Marketing Information System	International Trade Centre, Statista, Euromonitor, CBI EU, NOAA, Fish Source, Seafood Global Alliance

The validation workshop also concluded the following information to be made available to the processors by the marketing unit.

### A. How to Measure Value Addition

To measure the value of a product several methods are used. They are as follow:

(i) Calculating the profitability of the product using the simple equation:

Value = Benefits / Cost.

Measuring the profit consistently throughout the life of the product and charting changes in value over time.

Another common metric to demonstrate a product's value is market position. Evaluating the volume of the market for fish products against competitors gives insight of the way consumers view the product. This requires market research on competitor analysis.

#### (ii) Measuring Value by Utility

Consumers stay loyal to products that they can apply in their life in a meaningful way. Utility of a product can be measured through a number of quantitative research methods and competitor comparative studies.

#### (iii) Measuring Value through Customer Perception

A product constitutes a brand, so the way customers view fish products on the markets reflect how they view the businesses behind that product. Measuring customer perception of fish products, gives a good quantitative metric that can be measured over time and compared to competitors. A customer mapping exercise and opinion survey is used.

#### (iv) Revenue

Revenue used with other metrics like market share and customer satisfaction gives an indication of whether processors and fishermen are delivering value to the market.

#### (v) Customer Acquisition

Tracking the rate at which new customers are buying from a specific supplier, retailer or fishmonger. If the operators are delivering value consistently, this number should steadily increase.

#### (vi) Customer Retention

The number of customers the processor, supplier, retailer or fishmonger are able to keep is also a strong indicator of value delivery. If the operators are losing a large number of customers, this is a clear indication customer do not think highly of the fish product or find utility in it.

#### (vii) User Engagement

If customers are using the fish products, and buying frequently, it indicates about the value it delivers.

The research method is based on applying the Net Promoter System (NPS).

This is a form of survey that categorise customers into three simple groups: promoters, passives and detractors. Some questions used in these surveys are:

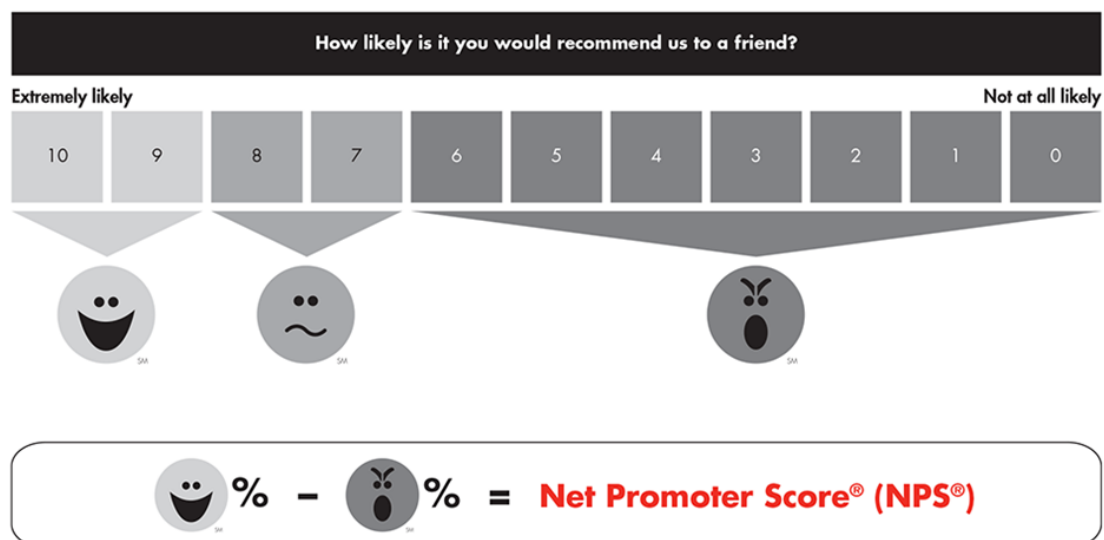
- On a 0-to-10 scale, how likely is it that you would recommend us (or this product or service) to a friend or colleague? What is the primary reason for your score?
- Why?
- What could we do better?

Customers' responses to the first question allow classifying them as promoters (9–10), passives (7–8) or detractors (0–6). The responses also enable the creation of a Net Promoter Score (NPS®) expressed as:

(% of promoters - % of detractors)

The score can be analysed by business, geographical region, channel or any other segment, and tracked from week to week to see how loyalty-building efforts are working.

#### Net Promoter Score—a simple calculation



#### B. [How to calculate how much Demand there is in the Market](#)

##### Methods for calculating market demand

Market demand can be determined by using these methods:

##### Search engine optimization tools

Search engine optimization (SEO) tools can analyse user searches and estimate traffic on website pages. This data can be useful to determine what consumers have an interest in. Businesses can enter keywords such as their brand name or product into search optimization tools and receive metrics of how often those words appear in searches, which helps estimate the consumer demand. For example, Fish Tech has a website and this is a good way to extract data from their website traffic.



## Social listening tools

Social listening tools are software that tracks user activity across the internet on social media platforms to discover what consumers are talking about. Social listening tool helps to track when a company brand, product or competition gets a mention or interaction online. This helps measure which demographic of consumers to market towards and where businesses should market their product or service.

## Demand curve graph

The demand curve is a representation of the relationship between the demand and the price of a product. The demand curve is used to determine pricing for a product and base it on the response from customers towards similar products. Since the demand curve graphs portrays the consumer needs and wants, it is a good predictive tool to estimate demand for other products in the same market.

Elasticity of demand is the measurement used to determine how demand for a product or service changes in relation to pricing. It predicts changes in demand for its product or service to develop a revenue projection and help with more efficient operations using mathematical expression to determine how sensitive the demand for a product is to changes in price.

As was pointed out in the validation workshop, when fish is in high demand but has a limited supply, the processors likely raise prices to increase the amount of profit per sale. Similarly, when fish is in plenty of supply to meet the demands of the market it has a lower price to help attract more customers and sell inventory. Elasticity of demand is a number that shows the percentage change in demand per 1% change in price and can be used to select the most profitable price points for a product.

Calculating elasticity of demand uses calculus and requires understanding the basics of supply and demand. When using the elasticity of demand formula, the final value can be negative or positive because it measures the opposite relationship between price and demand. You can calculate elasticity of demand and decide on a pricing strategy by dividing the percentage change of the quantity demanded by the percentage change of price over the same period of time. The formula used to calculate elasticity of demand is:

$$X = ((Q1-Q0) \div (Q1+Q0)) \div ((P1-P0) \div (P1+P0))$$

Each variable in the above equation represents the corresponding value in this list:

- "X" represents the elasticity of demand.
- Q0 represents the quantity of demand at the beginning of a period of time.
- Q1 represents the quantity of demand at the end of a period of time after a price change.
- P0 represents the initial price of a product at the beginning of a period of time.

- P1 represents the new price of a product.

#### Example 1 of elasticity of demand

Businesses will adjust the pricing of their product with the hope that they will either attract more customers or get a larger profit from each purchase. A business that has difficulty keeping up with the demand for one of their products might consider increasing the price to earn more per sale, while one that has difficulty attracting customers might lower the price of a product.

For example, when selling mackerel at SCR10 per kg, a fisherman sells 200 per week. After changing their price to SCR 8 per kg, the fisherman sells 300 per week. The fisherman can use the elasticity of demand formula to determine if its strategy of decreasing prices increased its average growth enough to balance out the lower profit per mackerel.

Using the example create the following list of values:

- Q0 is equal to 200, the initial number of products sold per week.
- Q1 is equal to 300, the number of products sold per week after changing the price.
- P0 is equal to 10, the initial price of the product.
- P1 is equal to 8, the decreased price point.

The equation with its data for bourgeois sales would be:

$$X = ((300-200) \div (300+200)) \div ((8-10) \div (8+10))$$

Next, add and subtract within a set of parentheses.

(300-200) is equal to 100, (300+200) is equal to 500, 8-10 is equal to -2 and 8+10 is equal to 18.

After simplifying, the elasticity of demand equation is:

$$X = ((100) \div (500)) \div ((-2) \div (18))$$

#### Simplify and divide

100 divided by 500 is 0.2 and -2 divided by 18 is -0.11.

The final equation is:

$$X = (0.2) \div (-0.11)$$

In this case, the elasticity of demand is -1.8.

#### Analyse the resulting variable

Once the elasticity of demand is calculated, understanding what the resulting number means is important. In the example, a 1% price decrease resulted in a 1.8% increase in demand for

mackerel. This means that decreasing the price brought in a higher proportion of sales/customers, and the fishermen's strategy of decreasing price is likely successful.

### Example 2

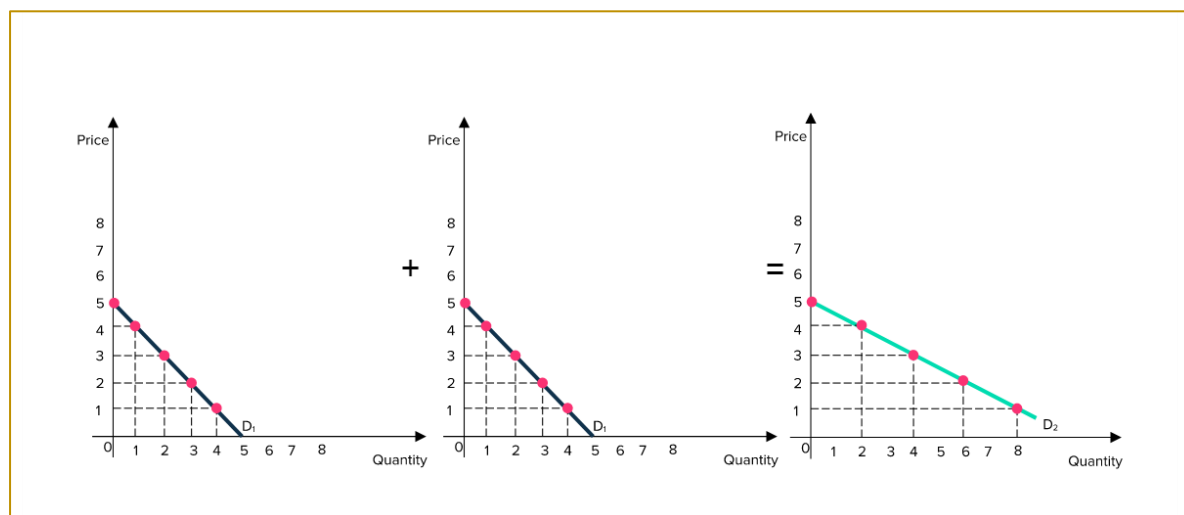
The law of demand, states that the quantity demanded of a good increase as the price of that good decreases is expressed mathematically as:

$$Q = f(P) \text{ or } PED = \% \text{ Change in Qty} / \% \text{ Change in Price}$$

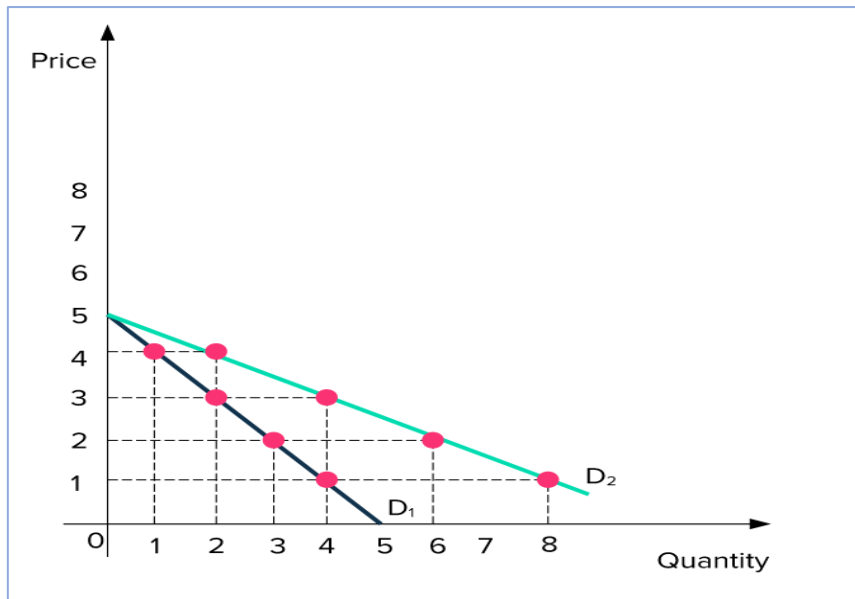
Where P represents the price of the good and Q represents the quantity demanded of the good. For example, the market for fish burgers has two consumers and their demand schedule is presented below.

Price (SCR)	Quantity of Fish Burgers demanded per consumer	Quantity of Fish Burgers demanded for both consumers
5	0	0
4	1	2
3	2	4
2	3	6
1	4	8

The demand curve graph for Fish Burgers A



The diagram shows two individual demand curves denoted by  $D_1$ , both of which combine to form the market demand curve, labelled as  $D_2$ . Note the market demand curve lies farther right than the individual demand curve. For clarity, below diagram puts both curves on the same graph.

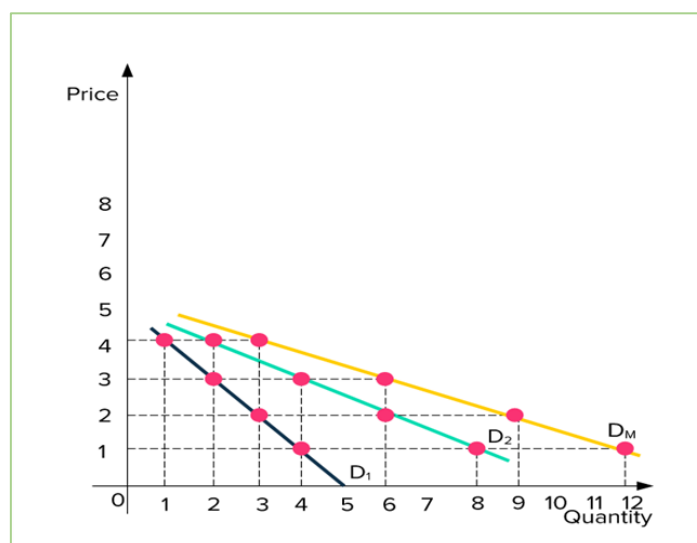


The market demand curve lies to the right of the individual demand curve. To calculate market demand, sum up all the individual demands in the market. An example, of this calculation:

Price (SCR)	Quantity for Consumer 1	Quantity for Consumer 2	Market Quantity
4	1	2	3
3	2	4	6
2	3	6	9
1	4	8	?

To calculate the market demand, sum up the quantity demanded for all the consumers in the market. In this case, there are two consumers. So, the market quantity demanded when the price of a fish burger is SCR1 is:  $4+8=12$

Plot all the curves on the same graph as shown below as DM.



### C. How to calculate how much fish goes to processors and how much goes to middle-men

#### Market Share Calculations

Calculate market share by the total number of units sold in a given period of time when compared to the entire market size of units sold. (Note data from the respective stakeholders must be provided to undertake this).

Formula for market share calculations:

$$\text{Market Share} = \frac{\text{Total Sales of the Company}}{\text{Total Sales of the Market}} \times 100$$

$$\text{Market Share} = \frac{\text{Total Number of Units Sold by the Company}}{\text{Total Number of Units Sold in the Market}} \times 100$$

#### Method to calculate market share

There must be some sales analytics on the total revenue from previous year (or any recent fiscal year or fiscal quarter) as well as metrics on sales for the entire market to figure out processors and middle-men market share.

##### A. To calculate market share by revenue

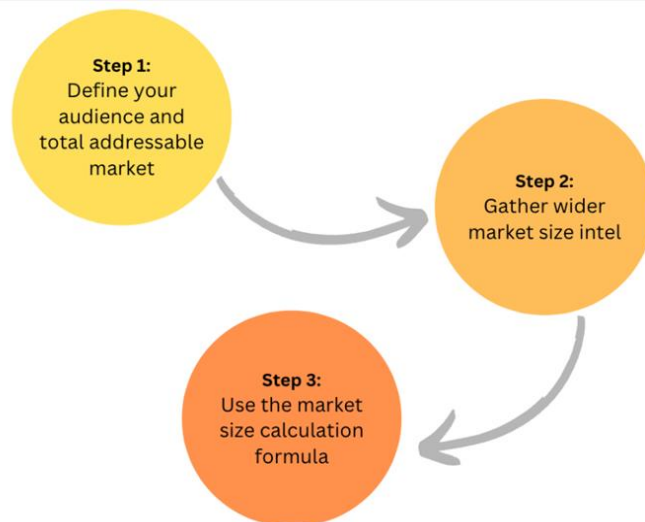
1. Select the fiscal period
2. Calculate the total sales per processor or fishmonger
3. Calculate the total market sales for the sector
4. Divide the processor's or fishmonger's total sales by the sector's overall market sales.

##### B. To measure market share by units sold

1. Select the fiscal period
2. Calculate the company's or processor total unit sales
3. Calculate the total units sold for the sector
4. Divide the company's or processor total units sold by the sector's total units sold

### D. The capacity of the local market, including how many processors should be allowed in the sector, given that Seychelles is constrained by the size of the population

Market size is the estimation of the total potential consumers of a product or service. How to determine the market size:



### Defining Target Customer/Audience

Any market size estimation starts with defining your target audience. The target audience is the potential customers of the product or service a business plans to launch or bring to the market.

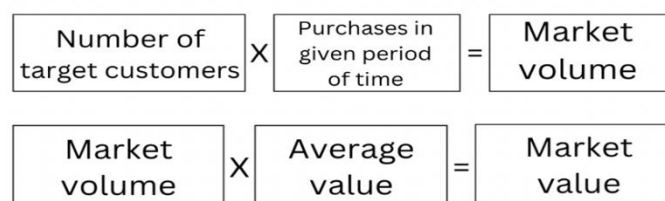
### Market Growth

Another factor to consider in calculating the market potential is market growth. Not only the present demand, but you need to look into the future growth of the market.

### Market Potential formula

To calculate market potential by value, the formula used is:

Market size x unit price = market potential



### **Method 1:** Using Market Volume and Market Value

The most common method to determine market potential is by calculating the market volume and market value. The market volume is the potential market volume determined with the help of the number of target audiences and the penetration rate.

Suppose if you have determined the number of your target audience as 10,000 people and penetration rate as 60%, your market volume will be:

Market volume = number of target audience x penetration rate i.e. 1000 x 60% = 600 people

To calculate the market potential in monetary terms, market value is calculated. If the market volume is 600 people and the average value of a product is estimated as SCR15 (if a product is fish bait etc.). Then, market value will be:

Market value = market volume x average value i.e.  $600 \times \text{SCR}15 = \text{SCR}9,000$

**Method 2:** Using an Average Selling Price

Another method to calculate the market potential is directly using the average selling price of the product or service.

In such a case, the market potential is:

Market potential = number of target customers x average selling price x average annual consumption

So, if the number of the target customer is 600, the average selling price is SCR15 per unit, and the average annual consumption is 1000 units

The market potential will be  $600 \times \text{SCR}15 \times 1000 = \text{SCR}9,000,000$

**Method 3:** Using Allocating Priority to Product/Service

Priority rate is the percentage of the people who are eager to purchase a given product or service. Allocating a priority rate to your product or service determines the potential revenue from the addressable market. For instance, if there is a very high demand for the product before it enters a market, give it a priority rate of 1. This assumes that the customer will buy the product 100% once it is on the market.

Suppose the demand for fish soup product (or service) is average to low. Give it a rate between 0.6 and 0.1. This means, when the product is launched, it is only 10% to 60% likely to be bought.

This method also takes into consideration the market capture. This is the average number of units a customer purchases at a time multiplied by the percentage share of the market.

Thus, after determining the priority rate, the market potential can be calculated:

Market potential = market size x market capture x average selling price x priority rate.

Estimating market size to be 10000 customers

Market capture:  $3 \times 0.01 = 0.03$

Average selling price = SCR10 per unit

Priority rate = 50% i.e., 0.5

Market potential =  $10000 \times 0.03 \times \text{SCR}10 \times 0.5 = \text{SCR}5000$

An example to calculate market size:

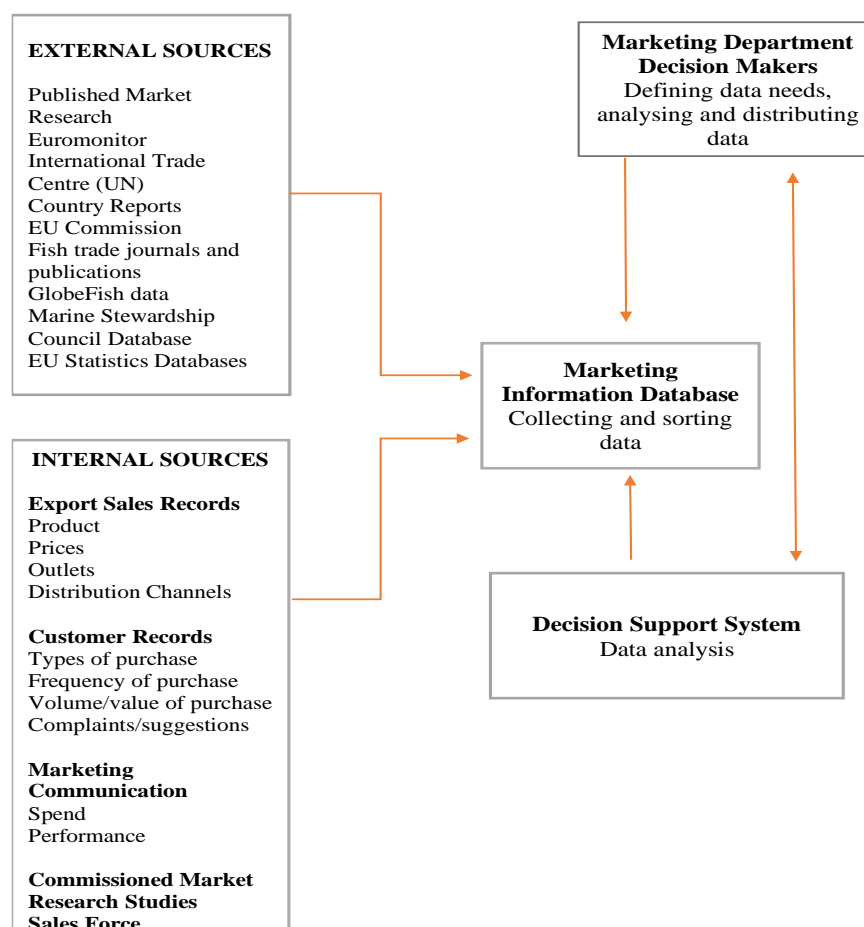
For sea cucumber product– you can reasonably expect people to buy 1 packet per month. If there are 500,000 target customers in the market, this means the total volume of market demand for sea cucumber is  $500,000 \times 12$  (months a year) = 6 million a year. If the average price of sea cucumber is US\$10 a packet, then market value is  $6 \text{ million} \times \text{US\$}10 = \text{US\$}60 \text{ million}$ .

Another calculation is estimating the percentage of market share the product will be able to command. For example, if data shows the sea cucumber industry as a whole is worth U\$1 billion annually, then Seychelles can realistically expect to capture between 1% to 5%. In terms of value, that equates to between U\$10 million and U\$50 million.

E. How will the marketing unit locate new market, niche market, opportunities in other countries, as well as the prices.

#### Data Collection and Analysis Methods

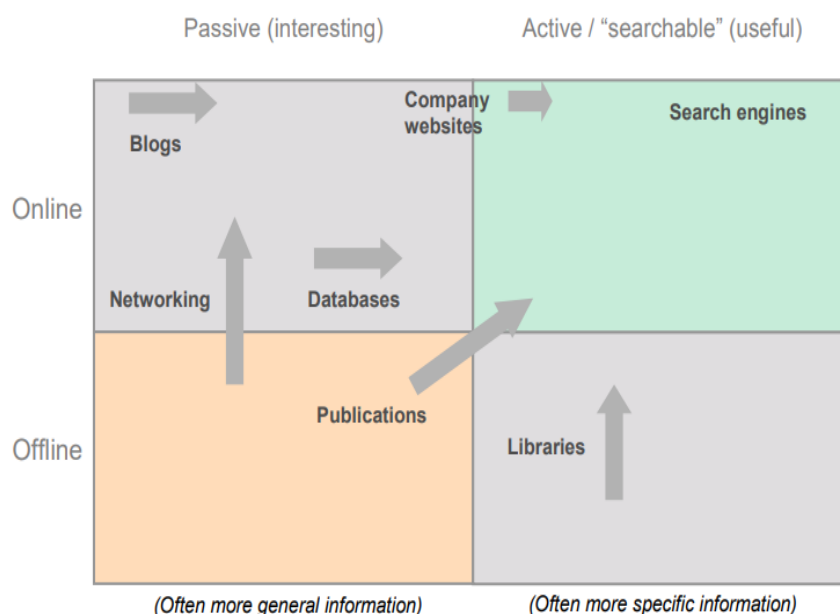
Marketing intelligence data collection can be internalised into the marketing information system to track performance, updates to stakeholders as well as test marketing effectiveness based on the key focus areas. The marketing information system model is outlined below.





## Methods to collect market intelligence online and offline.

**Figure 1 - Gravitation Towards Online, Searchable Information**



Means of gathering market intelligence vary according to the objectives of the intelligence. The key purposes of market intelligence, and the type of market intelligence used to meet these requirements are defined in Figure 2. These characterise the small-scale fisheries sector.

**Figure 2 - The Purposes Of Market Intelligence**

Purpose	Type of study that typically meets this purpose
Help enter new market, or expand presence in a market	Market entry and market expansion studies
Minimize the risk of an investment decision being wrong	Market assessment or acquisition studies
Keep ahead of the competition, obtain first-mover advantage over competitors	Competitor intelligence study
Give the customers what they want, expand market share	Needs assessment studies
Establish and maintain a distinctive corporate identity	Corporate positioning studies
Tailor products and marketing effort around customer needs	Segmentation studies

## Category of Market Research for Market Intelligence

**Market entry and market expansion intelligence** - information to inform decisions to invest in a new market, or to increase investment in an existing market.

Intelligence Category	Target Group	Source of data
Market Entry/Expansion (Investment in new market or expanding in existing market)	Potential buyers Distributors, agents and other intermediaries	Market Research Survey – Consumer Behaviour
	Competitor	Competitor analysis
	Industry Experts/Trade Specialists	Organizations such as, FishSource, Seafood Tip, Seafood Alliance, Conxemar
Market assessment	Competitor	Interviews
	Suppliers and distributors	Published information (annual reports and industry reports)
Competitor intelligence	Businesses/companies Company website Customer interviews Staff credentials	Sales figures and production data Articles or reports Advertising rates to calculate competitor's advertising budget Press analysis Technical data sheets, company vision and strategy, product innovation
Pricing research	Competitor	Statistical techniques eg, conjoint analysis and SIMALTO to calculate what prices the market would bear for different types of product. Websites, price lists of products to benchmark

However, do note that pricing models are complex. Definitions of 'product' in most markets have broadened to encompass service benefits and intangible brand benefits. The services associated with a product are sometimes priced separately as add-ons, and sometimes included as part of one 'all-in' price. Even the product benefits can be priced as part of one overall price in some cases, and as add-ons in others. Competitor pricing enables comparison of value for a product. If a product or service is more expensive than a competitor's, this is only cause for concern if incoming revenue, market share or profit is decreasing. The price must reflect the value to the market of the package of benefits offered. Every aspect of the product, associated services, and the intangibles such as brand should be charged for, if they are valued by the target audience.

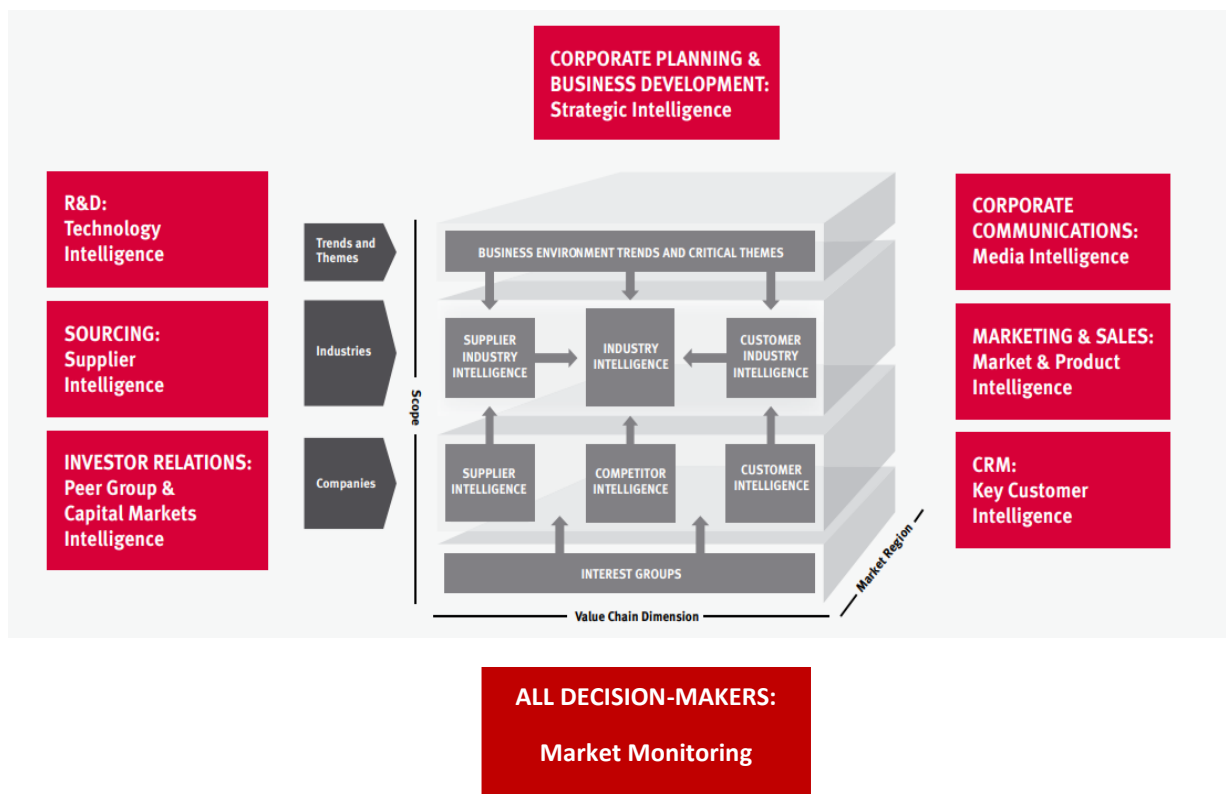
Intelligence on competitor profiles also uses models such as Porter's 5 Forces for a high-level assessment of the overall competitive environment in any markets. The factors that need to be assessed in the model are presented below.

**Porter's Five Forces Model for competitor profile analysis<sup>70</sup>**

<b>Supplier Power</b> Concentration of supplier Importance of volume to supplier Differentiation of inputs Impact of inputs on cost or differentiation Switching costs of companies in the industry Presence of substitute products Threat of forward integration	<b>Threat of Substitutes</b> Switching costs Buyer preference to substitutes Relative price performance of substitutes
<b>Barriers to entry</b> Absolute cost advantage Access to market inputs Government policy Economies of scale Financial requirements Brand identity Switching costs Access to distribution Expected competition	<b>Buyer Power</b> Bargaining leverage Buyer volume Buyer information Brand identity Price sensitivity Product differentiation Threat of backward integration Buyer's concentration vs industry Substitutes available Buyer's incentives

<sup>70</sup>Harvard Business School, Institute for Strategy and Competitiveness at <https://www.isc.hbs.edu/strategy/business-strategy/Pages/the-five-forces.aspx>

## Scope of marketing intelligence research and reporting



## Deliverables for market intelligence graph



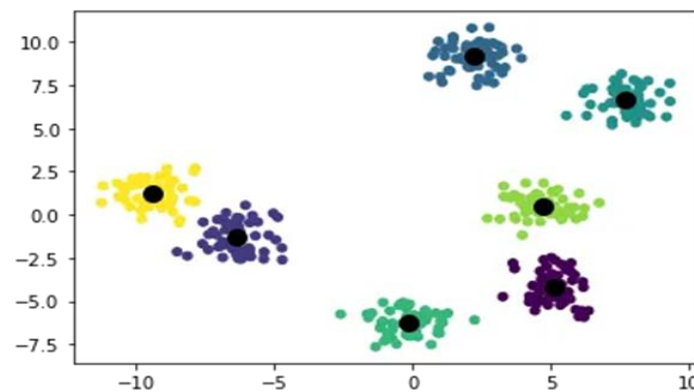
## Steps to compile intelligence using Clustering data

Clustering identifies similarity patterns of variables or attributes within a given set of data.

A commonly used algorithm is K-Means Clustering Algorithm. The k-means clustering algorithm is an iterative algorithm that reaches for a pre-determined number of clusters within a data set. Note this is an automated software system but a simplified version can be done in Excel.

Two assumptions are of main importance for the k-means clustering algorithm:

1. To compute the “cluster centre”, calculating the (arithmetic) mean of all the points belonging to the cluster followed by, each cluster centre being recalculated in the beginning of each new iteration.
2. After the cluster centre has been recalculated, if a given point is now closer to a different cluster centre than the centre of its current cluster, then that point is reassigned to the closest centre. Groupings appear as below (common patterns).



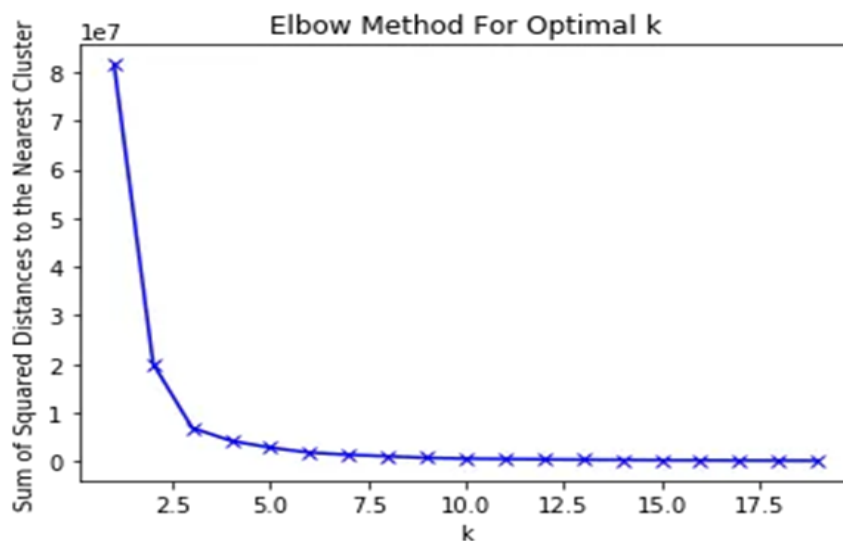
Python analytic tool integrates this calculation with a marketing spend dataset. An example showing a simplified method of clustering using analytical coding software to present how the data sets are displayed. The information is gathered from research of top 30 technology software marketing providers companies for the past 2 years.

Code input: `market.head(5)`

	DMA_Code	MEDIA	INDUSTRY	Audience Population	BRAND	Company	IsTop31	Spend_K	Division_Name
0	500	Int Display	Audio & Video Equipment & Supplies	892300	19.0	19.0	0.0	0.0	Northeast
1	500	Int Display	Building Materials, Equipment & Fixtures	892300	3.0	3.0	0.0	0.0	Northeast
2	500	Int Display	Business & Technology NEC	892300	23.0	23.0	0.0	1.1	Northeast
3	500	Int Display	Communications	892300	21.0	21.0	0.0	0.0	Northeast
4	500	Int Display	Computers, Software, Internet NEC	892300	207.0	207.0	0.0	3.9	Northeast

- MARKET: Designated Market Area (DMA) is a region where the population can receive the same television and radio station offerings, and may also include other types of media including newspapers and Internet content
- MEDIA: 10 Common Media Types including TV, Radio, Outdoor, Digital, etc.
- Audience Population: Population of TV/Radio Audience with age 12+
- Company/BRAND: Number of Companies/brands that advertise in this market
- Top 31: A subjective category made from Telecom industry on Market Importance. 0 means it is not Top 31 market, 1 means Top 31 market (assigned scaling numerical value). This is by normalizing, meaning dividing by a norm of the vector, and to rescaling by the minimum and range of the vector, to make all the elements lie between 0 and 1 thus bringing all the values of numeric columns in the dataset to a common scale.
- Spend K: Media Spend in Thousands of Dollars (000)

The resulting Elbow Method for clustering data into groups is shown below.



This is followed by:

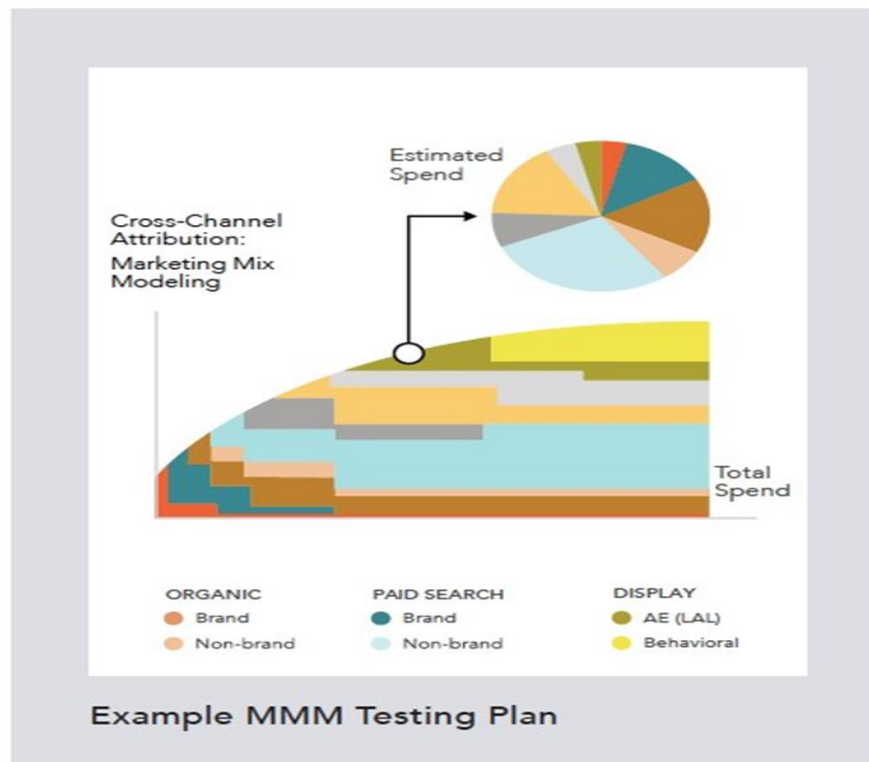
The common metric - Inertia, meaning sum of squared distances of samples to their closest cluster center. The commonly used **Euclidean distance** is applied. Data calculated appears in this format for dashboard reports (screenshot example).

### 3 Segments of Local Markets



## Marketing Mix Modelling (MMM)

Attribution models that look at aggregate data over a long period of time as a strategy to understand how each component of marketing is contributing to sales. By applying regression analysis to historical sales data, MMMs analyse the effects of changing different marketing activities. In context, export sales revenue for the past 13 years can be used for this to see whether there is a change when marketing is applied to export.



\$	Week 1	Week 2	...	Week 104
TV	30	-	30	30
Display	-	-	-	-
Digital Video	3	3	3	-
Out of Home	10	10	-	10
Print	5	5	5	5
Radio	1	1	1	1

**Example MMM Spending Matrix**

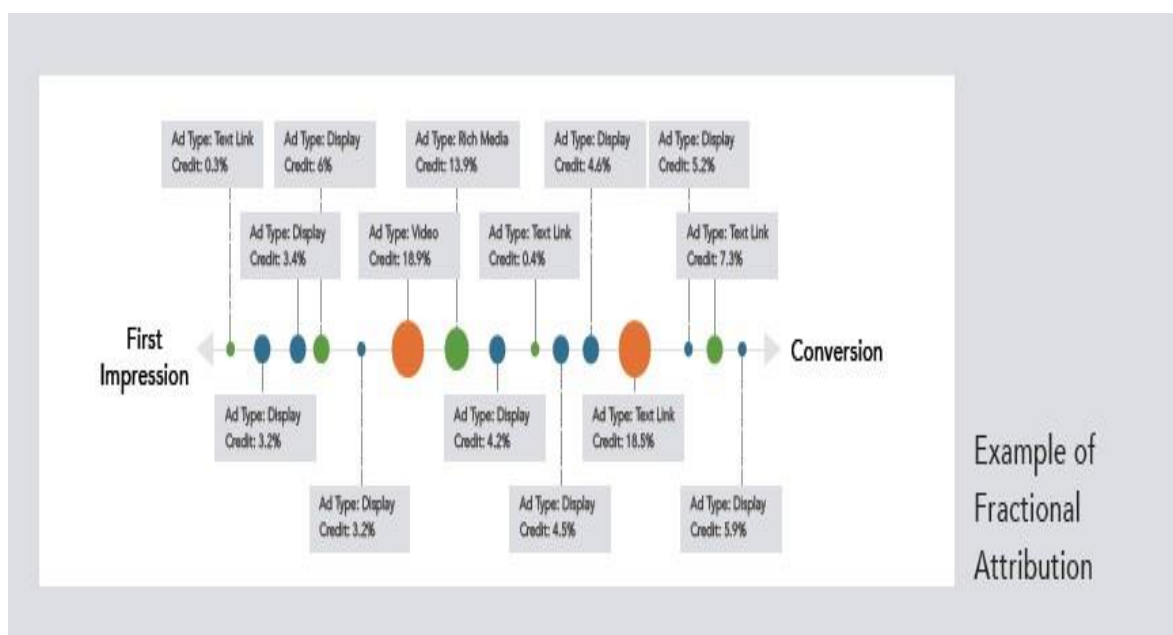


The analysis address when a consumer interacts with brand messages and how to alter and customize campaigns to meet the specific desires of individual consumers, thus improving marketing ROI through corrective corporate positioning.

### Digital Datasets

The approach used person-level data to link online advertising to offline sales, to measure branding as well as sales behaviour, to measure message impact, path to purchase, and message impact (combined with design of experiments). The method initially controlled for external factors, and eventually applied external factors to the person-level dataset.

### Total Marketing Measurement or Unified Measurement



### Key Performance Indicators (KPI) Tracking

#### Net promoter score

The method applies KPI to discover the level of customer satisfaction with the business. For tracking digital platforms (website, social media) Survey questions are used to focus analysis.

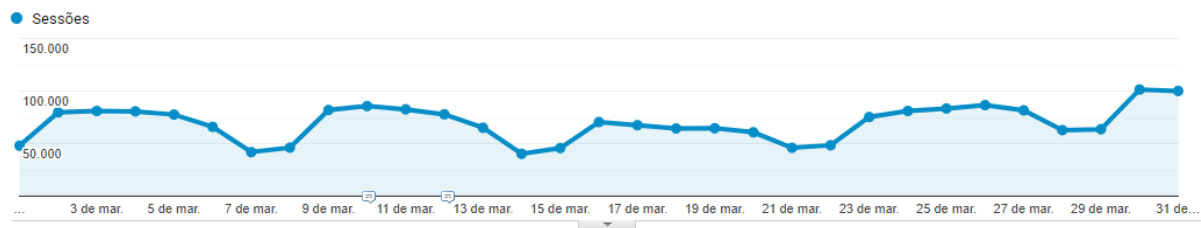
Depending on the rating chosen by the customer, it is arranged in three groups:

- who voted from **9 to 10** are **brand enthusiasts**;
- who voted from **7 to 8** are **satisfied**, but not so engaged and seeking better products, services, and offers;
- who voted from **0 to 6** are **dissatisfied customers** who may speak ill of the brand.

The calculation is done by subtracting the lowest level (0 to 6) from the highest level (9 to 10), resulting in the average rating of consumer satisfaction with the product/company.

Example of data<sup>71</sup>

## Monthly website traffic



Fundamental but straightforward metric, this KPI shows the monthly traffic volume on a website.

Google Analytics provides this tool free and includes details in the following:

- visitors in pages;
- visitors in product categories;
- visitors by price filters;
- visitors in landing pages;
- visitors on the blog (if it is integrated into the institutional website).

## Visits per channel

<input type="checkbox"/>	1. Organic Search	1.942.463 (89,97%)
<input type="checkbox"/>	2. Direct	137.529 (6,37%)
<input type="checkbox"/>	3. Referral	59.149 (2,74%)
<input type="checkbox"/>	4. (Other)	8.013 (0,37%)
<input type="checkbox"/>	5. Social	6.351 (0,29%)
<input type="checkbox"/>	6. Email	5.549 (0,26%)
<input type="checkbox"/>	7. Display	2 (0,00%)
<input type="checkbox"/>	8. Paid Search	1 (0,00%)

Visits per channel are so important as they show which channels this traffic was built through. This way, it is possible to know whether the visitors came via social media, organic search, or Google Ads. This measurement is directly done in Analytics, which presents this detail in its metrics.

<sup>71</sup> Data obtained from Google Reports 2023 and Survey Monkey 2023

## Average time on page

Landing Page ?	Acquisition			Behavior			Conversions eCommerce ▾	
	Sessions ? ↓	% New Sessions ?	New Users ?	Bounce Rate ?	Pages / Session ?	Avg. Session Duration ?	Transactions ?	Revenue ?
	53,352 % of Total: 100.00% (53,352)	73.50% Avg for View: 73.42% (0.11%)	39,214 % of Total: 100.11% (39,171)	49.45% Avg for View: 49.45% (0.00%)	3.93 Avg for View: 3.93 (0.00%)	00:02:39 Avg for View: 00:02:39 (0.00%)	59 % of Total: 100.00% (59)	\$3,886.44 % of Total: 100.00% (\$3,886.44)

Average page time is one of the ranking factors that Google's algorithms consider. If users spend a short time on a page, Google can understand, as if the page is not offering all the information the reader is looking for. In Analytics, tracking this KPI and checking the metrics individually by pages such as:

- homepage;
- product category;
- blog posts;
- landing pages.

Audience Network - can improve results for direct response campaigns and help reach audience through native, interstitial, banner and rewarded video, once the analytics have been analysed. This maintains engagement with customers and stakeholders and particularly very useful in international marketing for increasing visibility of the fish brand<sup>72</sup>. Performance dashboard template is provided as a generic starting point for measurement. As the fishing trade is dynamic, intelligence should be gathered on a consistent basis, and analytics run every quarter or twice yearly to ensure updates in the sector are recorded and aligned with marketing objectives. Other data such as pricing, fluctuates daily and must be monitored weekly to evaluate sensitivity to markets and reviewed on weekly average.

## 11. CONCLUSION

The market data from the assessments concludes a promising outlook for the small-scale fishery sector and generally the information collected may be used as the basis for a comprehensive strategy. It is of importance however, that continuous monitoring of the markets is undertaken to remain updated with shifts in market trends in order to optimise opportunities and become adaptable. Corrective actions from challenges is expected to grow the sector and overcome barriers identified.

<sup>72</sup> McKinsey.com

## 12. ANNEXES

### Annex 1: Overview of the small-scale fisheries sector

Fish catches from the small-scale fisheries activity are from semi-industrial and artisanal fishing. Fish is an important nutrition in the Seychellois diet contributing to 35-40% of protein intake and consumption of fish per capita in the domestic market is reported at 48kg to 65kg<sup>73</sup> per annum.

Fish that are consumed locally are mainly from the small-scale artisanal fishery. Artisanal fishing activities are mainly concentrated on supplying the domestic market with harvests sold at the local market in Victoria and in the districts or by the roadside across the islands of Mahe, Praslin and La Digue, while some are also supplied to the small hotels and guesthouses around the islands.

Artisanal fishery remains an open access fishery targeting a diverse group of species ranging from handline caught demersal and semi-pelagic fish, small semi-pelagic fish using encircling nets, small and juvenile demersal fish using traps, lobsters, octopus, and to a lesser extent tuna<sup>74</sup>.

### Annex 2: Contextual Analysis of the Small-Scale Fisheries Sector Performance

Catch statistics reported for artisanal fishery show an average of 2,658 MT per year between 2010 and 2012. There was an increase of 66% in catch recorded for 2013 representing 4,150 MT. A decreasing trend was experienced up to 2016, while 2017 saw a significant increase of 73% to reach a peak of 4,356 MT and has remained stable for the last three years. In 2020, the total artisanal catches decreased significantly by 22% to reach only 3,460 MT and according to the same SFA report this corresponds to a decrease in the average active boats operating in artisanal fishing.

The main categories of species groups landed for the year 2020 were carangues (33%), job (14%) and maquereau Doux (9%). During the previous year, the artisanal catches were dominated by carangues (24%), job (12%), bourgeois (11%) and maquereau doux (11%) respectively.

As Seychelles domestic fisheries operates under open access arrangements for local Seychellois, controls in the past over catch or effort were not enforced, leading to, high proportions of juveniles in catches causing declining trends and changes in species

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<sup>73</sup> Seychelles Fisheries Sector Policy 2019. PDF document obtained from the Ministry of Foreign Affairs website at mofa.gov.sc. The information has been adapted from a previous study by Lallemand P. (2014). Economic study on major trends in the tuna industry and its impact on the Seychelles economy over the 5 year period, 2009-2013. SF/215/50. Smart Fish Programme, IOC mentioned in the policy report. Updated information was not available to compare a difference in consumption during the time of data collection.

<sup>74</sup> Fisheries Policy and Strategic Plan 2019.

composition of catches. The Catch per Unit of Effort (CPUE) for most demersal species in the last 10 years indicated a reduction in fishing capacity. The declining trends are all indicators of unsustainable fishing. To address this, co-management plans were implemented, restricting catch size of Emperor Red Snapper (*Bourzwa*) and Job fish to above 30cm, and seasonal permits for sea cucumbers and lobster harvesting were efforts to control fish stocks to ensure the sector remained sustainable. Consequently, fishing capacity in relation to the artisanal fishery expansion is not feasible for these reason at this point. However, the AAMS value-chain study has identified some fish species with potential commercial value that can be exploited and targeted for domestic consumption given the small volume of catch from artisanal fishing, though capacity to supply to an export market is low and not achievable nor profitable. Artisanal fishery is thus more suitable to concentrate focus on supplying the domestic market given their economies of scale.

By contrast, the small-scale pelagic fishery offers the greatest opportunity for expansion. The quota limits on the yellow fin tuna allocated by the Indian Ocean Tuna Commission (IOTC) does not present major drawbacks to develop pelagic fishery for niche markets, and combined with reduced industrial activities and the relatively low base that the small-scale pelagic fishery starts from, suggests there is solid capacity for expansion as outlined in the fishery sector policy of 2019. The 2015 initiative to increase capacity in the small-scale pelagic fleet has achieved that purpose but is considered as economically fragile. Reported trend from the 2015 study on fish stock assessment indicated constant decrease of some species associated with changes in species availability, in market demands and socio-cultural preferences which is significant to determine and identify where the marketing strategy and branding efforts must align with fish stock availability.

### Targeted Species

The Fisheries Statistical Report (2020) indicated that semi-industrial longline fishery targeted pelagic species such as broadbill swordfish (*Xiphias gladius*), bigeye (*Thunnus obesus*) and yellowfin tuna (*Thunnus albacares*). For trips targeting swordfish and tuna, bycatch (species not targeted but captured) of billfishes (isthiophorid) such as marlins and sailfish and other species are also caught. Artisanal fishing vessels on the other hand, target demersal resources such as Lutjanids (snappers), serranids (groupers), lethrinids (capitaines), Scombridae (the Indian mackerel), Siganidae (rabbitfish), Lethrinidae (emperors), Sphyrinae (barracuda) and carangidae (carangues) that mostly supply the local market demand including hotels and restaurants with species such as groupers and snappers exported.

### Fishing activities trend

Over the last 10 years, the number of vessels active in the semi-industrial longline fishery has increased significantly from 4 vessels active in 2011 to 36 vessels active in 2019. The total fishing trips also increased significantly from 24 trips in 2014 to 397 fishing trips in 2019 with the average trip duration ranging between 10 to 15 days per trip. During the year 2020, however, the number of active vessels in the semi-industrial longline fishery dropped by 1

from 36 active vessel in 2019 to 35 active vessels in 2020. This number has increased again in 2021 to 41 active vessels. A total of 375 fishing trips targeting tuna and swordfish were conducted by the semi-industrial long line fishing vessels in the same year. This represents an increase of 23% in the number of trips targeting swordfish and tuna above the 306 fishing trips conducted in 2020 by 35 vessels .

In the period of March to May 2020, the total number of fishing trips recorded reduced to 23% in comparison to the previous year as a result of restrictions imposed by the PHA during the covid pandemic between March-May 2020. Fishing trips targeting tuna and swordfish experienced a rise of 26% in the first quarter of 2021 compared to the same period in 2020.

### Harvested Catch Trend

In terms of species composition, trend indicates swordfish was the main targeted species from the semi-industrial longline fishery. This trend shifted in 2015 with yellowfin tuna replacing swordfish as the dominant species caught by the semi-industrial longline vessels. Yellowfin tuna harvests has increased from 15 MT in 2014 to a record high of 1507 MT in 2019 whilst swordfish and bigeye tuna has increased from 47Mt and 33 MT in 2015 to 313 MT and 119 MT in 2019 respectively . In 2020, yellowfin tuna comprised of 86% of the total catch, while swordfish and bigeye tuna were at 9% and 4% of the total catch . Indications from 2019 also show the semi-industrial catches was dominated by yellowfin (75%) followed by swordfish (16%) and bigeye tuna (6%). During the first semester of 2021, similar observations were made where the fishery was dominated by yellowfin tuna (87%) followed by swordfish (6%) and bigeye tuna (3%). For the same period the previous year, the catch composition was made up of 83% of yellowfin tuna, 11% of swordfish and 4% of bigeye tuna. The below table from the SFA Annual Report 2021 presents fish catch by species category recorded for 2021.

The composition of harvested catch in 2021, show yellowfin tuna remained the dominant species caught in this fishery accounting for 89% of the total catch in 2021, representing a 23% increase in catch over 2020 and a 4% increase over 2019, leading to a record catch of 1,571.9 Mt. After a fall of 54% in catch in 2020, the Bigeye tuna catch decreased by a further 9.45% in 2021 to 49.8 MT and contributed to 2.8% of the total semi-industrial catch. Bigeye catch has decreased by 61% since it recorded its highest catch volume of 128 Mt in 2016. Swordfish which accounted for 9% of the total catch in 2020, decreased by a further 27% in 2021 to 98.5 Mt after a decrease of 57% in 2020. Marlin and sailfish catch increased by 96% and 483%, respectively, in 2021 .

Artisanal fishery harvest trend indicates the following species composition catch from 2019 to the 1st semester of 2021.

During the year 2020, decrease in catches were observed across all species group except for catches of bonito and carangues which increased by 13% and 9% respectively. Most significant decrease were observed in crab (-74%), Other Maquereau (-71%) and Bourgeois (-50%). The most important species groups landed for the year 2020 were carangues (33%), job

(14%) and maquereau doux (9%). During the previous year, the artisanal catches were dominated by carangues (24%), job (12%), bourgeois (11%) and maquereau doux (11%).

Most of the catch harvested from the semi-industrial fishing vessels are sold to processors for processing into value-added fish products with 90% of the total fish products destined for the export market. The remaining harvested catch are sold to retail outlets, the hospitality industry, fishmongers and members of the public in the domestic market. Since the majority of catch are processed and export oriented, the semi-industrial fishing activities have prospective opportunities in the export market for targeted fish species, tuna, job and bourgeois including other fish species such as, mackerel, spanner crab and sea cucumber as well as bycatch landed from the industrial seiners. The potential lies in the value-chain development with additional innovative products targeting niche markets in the EU, USA and Asia. New markets in Russia, UAE and Latin America may also hold potential for some of these fish products. The study undertaken by AAMS on the value-chain details potential products that have development potential for the export market, where Seychelles can exploit trade opportunities.

### **Annex 3: Market Landscape Enablers**

#### **National Strategy and Policy**

The fisheries sector grew in 2021, on account of positive performances in relevant production. Such result was supported by continued efforts by the government to diversify the economy, increase local production capacity, reduce importation of products whilst also exploring export opportunities in certain viable areas.

Renewed efforts to improve the contribution of the fisheries sector to the local economy, witnessed some key developments during that same year. The completion of the Central Common Cold Storage (CCCS) became operational in December 2021. The facility offers 12,600 tonnes of cold rental storage, where clients can grade, sort and store their fish at temperatures of minus 20 or minus 40 degrees Celsius .

Following numerous years of research and planning, the aquaculture sector was launched in October 2021, in line with the Seychelles Blue Economy strategy. Furthermore, the Aquaculture Regulations 2020 became operational on August 01, and complemented the existing Fisheries Act 2014. The aquaculture sector is anticipated to enhance the quality of fish and fish products and amplify export opportunities. The Fish Processing Zone, a dedicated area for processing fish into various pre-cooked and cooked forms, gained momentum in 2021 with the shortlisting of investors. Production at the zone is expected to start in mid-2023 and it is anticipated to increase export opportunities of value-added fish products as well as generate job opportunities as a result of the increased output from the fishing industry. Other positive developments were the development of the Fish Bite mobile application, providing a platform to share information about fisheries and the gateway to promoting the local cooking



fish recipes; the allocation of three new fish processing plants aimed at local fish processing. Exposure for processors at the Dubai Expo 2020 to promote products and attract potential investors. The monitoring of product quality across the country through various outlets and participating shops, this was a liaison between the fish processor, fishers and the eventual product sale to STC; Business advisory support for 25 investors venturing into the industry and; the public bazaars and fairs organised by the Fishing Authority on Mahe and Praslin to promote nine new fish recipes were achievements at national level to develop and promote local post-harvest processing and value addition, as well as providing technical and scientific support to promote the standardization and adoption of best practices throughout the sector, with the aim of allowing Seychelles to gain competitive advantages and further contribute to the country's overall economic growth. Other activities assisting development were in the form of training/workshops in the development of the post-harvest and value addition sector for staff and stakeholders under the GRO-FTP UNESCO Fisheries Training Programme in Iceland.

### Economic Performance

In terms of general economic performance, the fisheries sector fared reasonably well with price development indicators for fish from the Central Bank of Seychelles (CBS) reporting the following:

In Feb 2022 the Consumer Price Index (CPI) saw a month-on-month increase of 2.57% in prices. In March 2022, the CPI for fish fell by 4.4% but year on year comparison indicated the price for 'fish' was higher by 0.6%. April 2022 figures showed that the CPI for 'fish' price rose by 2.7% by comparison to the previous year where prices increased by 8.9%. In May 2022, compared to April there was a decline in the index price of 'fish' by 1.6% due to seasonal factors though year on year comparison showed that price rose by 10%. In June 2022, the price index for fish increased to 16% while year on year comparison showed an increase of 20% in fish prices. In July 2022, the index price for fish increased by 15% and compared to the previous year, the average price for fish was higher by 17% .

According to SFA Annual Report 2021, artisanal and semi-industrial fisheries, contributed SCR251.0m to GDP at market prices in 2021, indicating a 3.8% decrease from SCR261.0m in 2020. GDP at constant prices fell by 8% in 2020, from SCR232.5m in 2020 to SCR213.0m in 2021, following a 33% drop in 2020 over 2019. GDP contribution at market prices fell by 3.8% to SCR251.0m in 2021 after falling by 31% in 2020 compared to 2019. The fisheries sector contribution at current prices fell to 1.21% of the total GDP of SCR22.3b in 2021 compared to 1.29% of SCR21.2b in 2020.

NBS Quarterly National Accounts for quarter one of 2022, reported GDP at market price increasing by 28% in 2021 to SCR1,014m, following a 30% increase in 2020 to SCR792.8m. The combined contribution of the fishing sector and the manufacturing of fisheries products was 5.67% in 2021, up from 4.98% in 2020.



#### Annex 4: Key Issues Arising In The Small-Scale Fisheries Sector

The challenges recurring in the sector have been identified as:

I. Workforce capacity in the sector is a major issue with very few young people joining fisheries. The Seychelles Maritime Academy graduation rate in 2019 was 79% compared to 59% in 2020 and 2021 according to a study by MRAG consultants in 2021. Similar concerns were raised by the fishermen and processors interviewed attributing the low intake of youths in the fishing business a result of the drug culture among the youths who cannot maintain employment hours and requirements of the roles.

Praslin fishermen also raised the same issues which shows that the pattern is across the country. There were concerns from the artisanal fishermen that their sector will be absolute in the future if the trend continues as the sector is reserved only for Seychellois, they cannot employ foreigners and most of the fishermen were within the upper age groups of 40 years. Essentially, this will have a negative impact on the supply chain in the domestic market.

II. Commercialisation of value-added products will require additional supportive mechanisms in place for marketing initiatives. For example, the issue of status for the fish stocks that are being considered for value-added export product development is a vital component for expansion. Stock assessment is considered as an important starting point for developing a business case for commercialisation considering there is a need for biodiversity conservation in the fisheries sector, and a focus to increase export potential of fish products from Seychelles. A balance needs to be achieved to effectively launch a marketing strategy for the fishery sector. This is vital to ensure that export does not leak the current fish stock species to be overfished, through consequential returns from marketing.

III. The value of fresh and frozen tuna exported in 2019, according to the SFA dataset amounted to SCR 318 million equivalent to USD 22.72 million for a net weight of 1,848 MT. The data shows very little processing is done for exported fresh and frozen tuna with only 20% exported as loins, whilst 80% is exported whole (headed & gutted). The proportion of fresh or chilled tuna was 93% and 7% was frozen. Diversifying products from available resources is a step forward to boost value-addition to achieve greater returns and profitability by focusing on specific markets with demand for high-value fish products.

IV. Considerable increase of new entrants in the sector with limited experience and some unlicensed operators have also given rise to lower quality fish as these inexperienced individuals are not compliant to established standards followed by the licensed operators. This has impacted the supply chain resulting in a reduction of income and loss of markets for some fishermen that are unable to obtain contracts from established outlets (hotels, restaurants), as they are cut off by the middlemen/fishmongers selling directly to these outlets. Some processors are unable to compete with other countries due to the lower quality of fish, not meeting international market standards.

V. There is disparity in prices negotiated between fishermen and processors. From reviews obtained during the validation meetings, it was clear that the pricing for fish was an area of conflict because fishermen were not given the opportunities for negotiating their prices. The general feeling was that sales of catch harvested has to be offloaded and sold to maintain its quality, and processors dictating the price gave them no other choice but to accept lower value in revenue returns. Consensus from the fishermen were to have a fairer pricing system in place to mutually benefit all parties.

VI. The capacity of the processing plants to process the products by utilising modern and innovative methods in their operations, such as ultra-low temperature for processing tuna loins, the use of eco-friendly packaging materials and labelling to elevate product standards. Investment in mechanised equipment rests also on having a financial scheme in place that promotes this level of capital investment. Equipment incurs high costs, and the Government may have to consider introducing additional financial relief such as a tax credit facility, similar to the system in Alaska , to ease the costs of equipment associated with loan amortisation for this type of investment to encourage processors to modernise and increase production efficiency and other interested businesses to start processing activities.

VII. A high proportion of workers in the semi-industrial and the sea cucumber fisheries are foreigners. The poor uptake of local residents and young people is also attributed to the working conditions in the sector, relating to low salaries, long hours, risky and hazardous conditions at sea and poor living conditions.

VIII. While Seychelles has established a very developed MCS system over the past 15 years, some aspects still require improvement. The focus of MCS activities remains on industrial fishing vessels while the activities of small-scale fishing vessels are not consistently monitored to ensure compliance. Enforcement of laws and regulations is still weak and requires further improvements and capacity strengthening so that quality of fish products in the supply chain targeted for export is consistent.

IX. With its small population size, Seychelles needs to actively continue to leverage its research and development capabilities by undertaking high quality, state of the art initiatives with collaborative partners and projects for product development using new technology adaptation in production to strengthen market position of its brand.

X. Use of the research and development laboratory at the SFA must be intensified to produce new and innovative products identified for the export markets.

## Annex 5: Constraints And Barriers In The Small-Scale Fisheries Sector

The fishing sector has the potential to become the country's largest foreign exchange earning sector should all the necessary areas harmonise.

In Seychelles the demand for fish and fish-based products including seafood are being met through two main sources which are domestic production and importation from foreign countries. The domestic production is from artisanal and semi-industrial fishing while aquaculture fisheries are expected to contribute to demand in the future. Semi-industrial fishing provides mainly for the export market with a small percentage contribution to the domestic market.

The small-scale fisheries exports account for 20.4% for processed fish and 18.3% for non-fillet frozen fish in 2020 according to statistics from the OEC. This places Seychelles at a world ranking of 150 exporters combined with other exported goods. Increasing the value of fish products has potential to shift the total percentage of exports and increase market share through marketing of the products under the brand name. The latter is not being undertaken and should be encouraged to improve competitiveness.

Harvested catch from semi-industrial vessels are normally sold directly to processors or fishmongers trading as middlemen in the supply chain. The fish are either processed or retailed to the hospitality outlets, catering businesses or to consumers. The validation meeting with stakeholders presented a disparity in the conduct of trade between the fishermen, fishmongers and processors where price is concerned. Existing unbalanced negotiations and mutual benefits are volatile and sensitive leading to fishermen feeling undermined and perceived that they are not getting value for money for their catch. Speculative arguments of cartels between processors were raised but investigation is needed to establish whether there are price-fixing practices ongoing in the sector.

Concerns on quality of fish degradation happening as a consequence of inexperienced handling of fish catch at harvest points was a major issue pointed in the validation workshop highlighting the need for enforcement of compliance measures to ensure fish entering the market or sold to outlets are from authorised sources. As such, reduce the presence of unlicensed operators in the sector.

Lower quality catch has affected processors who are buying less for export, and this has affected prices especially during the north wind monsoon where there is excess catch. Competition from low-cost production countries like Sri Lanka, Mauritius, Thailand, Ecuador for example, have influenced the level of demand from targeted markets in relation to price. Thus, the focus is to direct exports to high-end luxury food commodities markets.

There is reduced access to sales points for the artisanal and semi-industrial fishermen in some cases, as a result of increased middlemen in the sector operating as fishmongers and upselling directly to established outlets in the hospitality sector which were previously targeted by the

fishermen. Artisanal fishermen are not significantly impacted by supply for local consumption, but rather by competing newcomers in the business.

Challenges in the development of fishing for both sub-sectors, are attributed to (a) the need to educate fishermen on best practices such as standardisation and handling of products (b) the need for quality stocks of fish of known origins, (c) the need for record keeping among fishermen and (d) the need for quality extension service provided by SFA for docking, landing, cleaning and storage of catches on arrival at the ports. This is inclusive of local artisanal fishermen groups active in the districts selling directly to consumers at the roadside and district markets across the country. Improvement in general practices has the possibility to provide means to diversify income for the individuals in the sector.

One distinguished characteristics of trading between fishermen and processors, is the implication that price is controlled by the buyer i.e.: processor.

Small-scale fisheries have labour shortages due to the long working hours at sea and occupational hazards which are highly risky, resulting in young people leaving the business. ILO estimates that fisheries are one of the most dangerous and risky occupations in the world. The covid-19 pandemic has affected the entire value-chain of fishing and those relying on it for their livelihood. The impact is indirect consequences on the fishing sector which has changed consumer demands, market access, logistical problems related to transportation and border restrictions. Falling production from reduced fishing efforts have led to lower supplies, access, and consumption of these foods. Decreased consumer demand and increased transaction costs have had a knock-on effect that has influenced the price of fish products in international markets and domestically. Other factors related to the pandemic were job losses of people employed in the supply chains, such as fish vendors, processors, suppliers or transport workers in overseas markets. Processing facilities closures due to reduced demand/lost consumer demand whilst locally closing of traditional selling markets for artisanal fishermen such as the hotels and guest houses have been consequential effects.

Measures taken to contain the spread of COVID-19 have caused disruption in all segments of both domestic and international supply chains. Protecting each stage of the supply chain was fundamental and maintaining the hygiene to keep the epidemic cross-contamination has been complicated on board fishing vessels, in fish landing sites, processing sites and markets.

Working conditions and the safety of fishers in both artisanal and semi- industrial sectors have been affected owing to having to work longer periods, which increases fatigue and stress.

Working and sanitary conditions of workers in the industry needs improving as some of the fishing vessels (semi-industrial) had limited and insufficient space and adequate areas for sleeping, storing food, water and gas with areas onboard being overcrowded. To note that for certification this is a core requirement in the process of achieving endorsement for sustainable fishing practices by the MSC and constitutes the essence of the Seychelles fish brand to comply with standards for marketing of fish from local sources.

Trade facilitation for the sector is not fully active with few exposures for the individuals in the business to optimise opportunities, to network, to gain access to distributors, and for wholesalers to trade in the targeted export markets.

Seychelles labour costs in processing is high, with few mechanised or automated systems in place making it a labour-intensive operation.

Most of the processors interviewed identified production costs as expensive, with electricity contributing to 30% of their expenses in processing facilities which is very high considering other variable costs for daily operations. This is because the Public Utility Corporation tariffs for businesses are much higher as it subsidises domestic household consumption.

Fish stock management is being practiced and scientific information on fish species is being monitored for targeted species although more needs to be done for non-targeted species. This would be an asset for the Government when negotiating agreements and sustainable fisheries management that can be included in the marketing planning for the future.

Industrial offshore marine fishery in Seychelles Exclusive Economic Zone is regulated by bilateral fisheries agreements with their relative fees and conditions for example, with the EU, Taiwan, Sri Lanka and Spain. Catches from industrial fishing landed in Seychelles comprise of only a percentage to the Indian Ocean Tuna canning factory and a proportion of by-catch which are purchased from the seiners by local processors for value-adding. Presently, Seychelles has fishing fleets licensed to operate industrially and is an opportunity for future development of the sector to retain resources that could supply the local processing plants, and manufacturers in the fish zone area such that the local economy generates some returns from having landing ports here on the island, rather than in overseas ports like Mauritius, Madagascar or Indonesia. The possibility to build landing sites infrastructure to encourage purse seiners to transship locally will be beneficial for the processing sector in terms of increasing their production volume capacity for export.

Fishing activities for both artisanal and semi-industrial centres around the coastal edges of the Mahe Plateau and 30-60 miles offshore. Targeted species from artisanal fishing consist of demersal (snapper, job) and pelagic (tuna, bonito and carangue), including fish trap or nets for species like cordonier, for domestic consumption. Whilst semi-industrial are demersal and pelagic species mainly bourgeois, tuna and job that are in high demand in export markets. Other pelagic species such as swordfish, kawakawa and bonito have good export value and with marketing in niche ethnic markets stands to contribute further to export revenues.

Fish processing is dominated by fresh tuna, job and bourgeois and by-catch in the form of fillets and loins from tuna and bourgeois. Other value-added products are salted fish, smoked fish, fish balls and burgers for domestic market. Export-oriented activities (fresh or processed fish) represent 60% of the landings fresh fish equivalent. From export statistics there are limited categories of processed products compared to competing countries trading in similar

markets to Seychelles. Processors have to start tapping into new opportunities to develop additional value-chain products for export.

Fish processing plants operate close to the landing sites inside the port areas. Fish handling and processing takes place near the same site. Most processing plants operate under good hygienic conditions.

The SFA port in Victoria needs upgrading of some of its facilities and infrastructure to modernise and improve standards for its ice plants, cold storage and water access facilities. Berthing and docking sites are not adequate to cater for the number of vessels using the facilities with long queuing and old-fashioned methods in place. Reviewing, monitoring, compliance and investment in infrastructure renovations to be at par with international requirements to meet criteria for certification with MSC and Sustainable Fisheries Partnership program under the United Nation's SDG 2014 .

There is low volume capacity to retain a constant export demand from the small-scale fisheries sector and focus should be redirected on using alternative species of commercial value in addition to current species targeted for export.

### Distribution and trade

The fresh and processed domestic fish market is fully supplied by the artisanal sub-chain and marketed in the country via fishmongers, fish traders, and the fishermen themselves direct selling to consumers. There are also processors who functions as retailers and fishmongers buying fish from artisanal and semi-industrial vessels and processing the fish for sale in the domestic market.

Exports of Seychelles fish are not diversified with focus placed exclusively on fresh fish (mainly to the UK, Israel and the USA). By-catch to Ivory Coast for processing, and canned tuna exported to Ecuador accounts to the main export total output. Salted fish comprise a small proportion. A large proportion of value-added products that are profitable are not being exploited due to lack of innovation, as most people are vying for premium products that sells quickly and gives quick ROI.

### Governance

SFA with the guidance of the Fisheries department is responsible for the implementation of the fisheries policy (approved in 2006) and for the coordination of the value-added activities in agreement with the partnerships forged with professional organisations. Presently, some implementations have been undertaken though there is room for improvement for the Department of Fisheries to become more dynamic. The organisational and administrative capacities in marketing will need strengthening and training in finance, advocacy, resource mobilisation, management and technology related to the sector should be prioritised to achieve national targets related to fishing. Expertise in some of the areas of product development is lacking.

## Fisheries agreements

The Sustainable Fisheries Partnership Agreement (SFPA) sets a capping for total amount of catch harvested by foreign EU vessels at 50,000 MT annually under the Sustainable Fisheries Partnership program which is similar to other countries like the Gambia . These terms provide protection from over-exploitation of fish resources and give scope for development of the local sector and should be optimised.

## Empowerment and facilitation

Most fishermen do not have a plan on how to implement and evaluate the results/performance of their business to permit adaptation to changes in the business environment and address sales numbers, weather conditions, successes and challenges, and filing of information to use in their year-end purchasing decisions. It is critical that they are educated and supported to become more business oriented and have a business plan in place as a road map to help them implement their business ideas and measure their success along the way.

## Marketing Information

Marketing information comprises of information about the supply, and demand for commodities. It includes information about the availability and costs of fishing inputs such as baits, lines, hooks and value-adding. It is also data on prices and quantities exchanged, duly processed and available to market actors (e.g., agents, traders). There is insufficient availability of such information from the sector to access.

A Marketing Information system that gathers intelligence from different sets of public and private sector service providers, to disseminate marketing information through various channels is not available. Such a system will provide a resource centre for data sharing and marketing planning, export strategy development and monitoring of market trends for trade.

## Annex 6: Consumer Behaviour Survey Questionnaire Sample

### CONSUMER BEHAVIOUR SURVEY QUESTIONNAIRE

Please complete the questionnaire by answering all the questions below. Your feedback will be used for research only and will remain strictly confidential. For enquiries contact Sharon @ 2538725

#### 1. Section 1: Status of respondents

Age ☐ 18-24 ☐ 25-30 ☐ 31-35 ☐ 36-40 ☐ 41-45 ☐ 46-50 ☐ 50+

Gender Male ☐ Female ☐

Number of people in household 1-2 ☐ 3-4 ☐ 5-6 ☐ 6+ ☐

#### Product Awareness

**Section 2:** How familiar are consumers with different fish products available for sale on the domestic market?

1. Are you the main person in your household who decides to buy fish product?

YES ☐ NO ☐

***If no, go to question Section 4***

2. Where do you mainly buy your fish product from this list? (Choose **ALL** that applies)

Amirantes Group ☐

By the roadside at district ☐

Marlu Seychelles ☐

Marine Investment Resources ☐

Oceana ☐

Ocean Basket ☐

Sea Harvest ☐

Fish Tech ☐

Fresh Seafood Seychelles ☐

Tropical Tuna ☐

Victoria Market ☐

Other Market (specify)



If other, why did you choose to shop elsewhere? .....

3. What makes you buy this particular product? (Select **ALL** that apply)

Value for money ☐ Variety option ☐ Good Quality ☐ Customer Service ☐  
Convenience ☐ Availability ☐ Price ☐

4. Where did you find out about this product? (Select **ALL** that apply)

Shopping in store ☐

TV adverts ☐

Social media ☐

Searching on the internet ☐

Word of mouth ☐

Other (specify)

5. How would you rate the product on a scale of 1 to 5 (1= Very Good and 5= Very Poor)

Amirantes Group ☐

By the roadside at district ☐

Marlu Seychelles ☐

Marine Investment Resources ☐

Oceana ☐

Ocean Basket ☐

Sea Harvest ☐

Fish Tech ☐

Fresh Seafood Seychelles ☐

Tropical Tuna ☐

Victoria Market ☐

Other Market ☐

6. Do you often buy this product?

Yes ☐ No ☐

7. Do you buy fish or other fish products from the same place?

Yes ☐ No ☐ Never ☐

8. On average how much do you spend on fish product?

100-200 ☐ 200 -300 ☐ 400- 500 ☐ 500+ ☐

9. For what reason do you buy fish or fish products? (Select **ALL** that apply)

Affordable ☐ Quality ☐ Convenience ☐ Availability ☐ Variety ☐

10. Do you think the product can be improved?

Yes ☐ No ☐

11. Would you recommend the product you buy to anyone?

Yes ☐ No ☐ Never ☐

12. What is your monthly income range?

Less than 5,000 - 8000 ☐

8,000 – 10,000 ☐

11,000 – 16,000 ☐

17,000 – 21,000 ☐

21,000 – 30,000 ☐

30,000 above ☐

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**Product consideration**

**Section 2:** This section focuses on consideration stage to verify how consumers evaluate different options of fish products available to them before they buy and choice for buying.

1. When buying this product brand, do you make the decision before you go in the shop or when you are in the shop?

Before going to shop ☐ When in the shop ☐

2. If there are other fish or fish products available to buy, will you choose a different fish/product?

Yes ☐ No ☐ Never ☐

Move to section 3 if answer is 'No'

3. If you answered **yes to Q2 above**, what factors will make you switch? (Select **ALL** that apply)

Price ☐ Quality (packaging) ☐ Convenience ☐ Availability ☐

Variety option ☐ Other ☐ (please specify)

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**Section 3: Product consumption**

1. How often do you eat fish or fish produce?

Everyday ☐ Twice a week ☐ Four times a week ☐ Once a month ☐ Never ☐

2. How many people in your household within this age group eat fish?

51- 60+ yrs ☐ 40-50 yrs ☐ 26-39yrs ☐ 15-25yrs ☐ 0-15yrs ☐

3. When do you mainly eat fish or fish products?

Weekdays ☐

Weekends ☐

Special Occasion ☐

.....

**Product Feedback**

1. Do you have any concerns, complaints or suggestions about how to improve the various fish products on the market?

You have reached the end of the questionnaire.

Thank you for your time!

## Annex 7: Structured Interview Questions Sample

Questions addressed during the interviews with fish processors and artisanal fishermen were as follows:

- Q1. What are the main challenges encountered in your operational activities?
- Q2. What are the main products processed/caught and where do you sell your products?
- Q3. How do you distribute your products? Which key markets do you target?
- Q4. What are the areas you think are most important to improve and how?
- Q5. Have you been affected by recent changes in the market? (Covid-19, economic recession, prices)
- Q6. Do you have any concerns about the supply of fish available ? Has it impacted on your business?
- Q7. Can you provide details on how you think the sector can be improved?

# **Annex 8: List of Fish Distributors, Wholesalers and Importers**

Country	Company Name
SPAIN	Grupo Calvo
	Bolton
	Hijos de Carlos Albo SA
	JEALSA
	Ubago
	Grupo Nueva Pescanova
	FRINSA
	Seamax Global (for selling mahi mahi)
	Grupo Nueva Pescanova
ITALY	Bolton Group
PORTUGAL	Cofaco
	Ramirez
	Coresa
	Conserveiros Reunidos
	Vasco da Gama
	Cofaco
	Ramirez
	Pescanova
UNITED ARAB EMIRATES	Basamh Marketing Co.
	Americana Group
	Century Pacific Food Inc
	Bolton Group
	Thai Union Frozen Products PCL
	Global Food Industries UAE
	Seafood International Sal
	Uhrenholt A/S
	Freshly Frozen Foods LLC
	Nomads Foods Limited
CHINA	Century Pacific Food Inc
	Fujian Anjoy Food Co Ltd
	Fujian Haixin Food Co Ltd
	Fujian Haiyi Food Drink Co Ltd

Country	Company Name
CHINA	Guangdong Ganzhu Canned Food Co Ltd
	Guangzhou Eagle Coin Enterprise Group Co
	Hai Pa Wang International Food Group
	Laurel Enterprises Corp
	Xiamen Gulong Canned Food Co Ltd
	Zhengzhou Pangge Frozen Food Co Ltd

**Annex 9: List of 100 Frozen Fish Exporters for 2021<sup>75</sup> and % share of export trade globally**

RANK	EXPORTER	FROZEN FISH EXPORTS (US\$)	2019-20
1.	China	\$2,377,464,000	-16.6%
2.	Russia	\$2,368,699,000	-5.1%
3.	Chile	\$1,530,570,000	-15.2%
4.	United States	\$1,480,334,000	-21.3%
5.	Norway	\$1,340,381,000	-8.5%
6.	Taiwan	\$1,004,552,000	-15.7%
7.	Netherlands	\$835,859,000	-11%
8.	Spain	\$780,431,000	-6.4%
9.	South Korea	\$615,678,000	-12.6%
10.	Japan	\$578,520,000	+10.8%
11.	Indonesia	\$529,046,000	+23.8%

<sup>75</sup> <https://www.worldstopexports.com/frozen-fish-exports-country/>. Data from multiple sources quoted: Forbes [Global 2000 rankings](#) - The World's Biggest Public Companies, International Trade Centre - [Trade Map](#) and Central Intelligence Agency, [The World Factbook Field Listing: Exports – Commodities](#).

RANK	EXPORTER	FROZEN FISH EXPORTS (US\$)	2019-20
12.	Denmark	\$495,541,000	0%
13.	Greenland	\$478,017,000	-9.2%
14.	India	\$404,204,000	-21.6%
15.	Mauritania	\$333,679,000	-15.7%
16.	Vietnam	\$323,106,000	-14.4%
17.	Senegal	\$298,576,000	+13.5%
18.	Canada	\$289,867,000	-6.7%
19.	Faroe Islands	\$278,697,000	-14.5%
20.	Morocco	\$272,852,000	+10.9%
21.	Iceland	\$268,042,000	-27%
22.	Myanmar	\$263,462.000	+50.7%
23.	Namibia	\$253,012.000	-17.8%
24.	New Zealand	\$240,977.000	-12.5%
25.	Portugal	\$223,494.000	-26.2%
26.	Argentina	\$184,565.000	-19.6%
27.	Germany	\$182,184.000	+13.9%
28.	Oman	\$178,383.000	+58%

<b>RANK</b>	<b>EXPORTER</b>	<b>FROZEN FISH EXPORTS (US\$)</b>	<b>2019-20</b>
29.	Ireland	\$174,364.000	+8.9%
30.	Pakistan	\$171,361,000	-48.9%
31.	United Kingdom	\$170,472.000	+5.5%
32.	France	\$154,531.000	-12.3%
33.	Philippines	\$151,008.000	+30.3%
34.	Turkey	\$144,018.000	+18.4%
35.	South Africa	\$141,879.000	+1.9%
36.	Thailand	\$129,958.000	+16.6%
37.	Papua New Guinea	\$127,427.000	-41.7%
38.	Micronesia	\$124,287,000	-5.8%
39.	Vanuatu	\$121,829.000	+15.1%
40.	Malaysia	\$117,898,000	+67.5%
41.	Sweden	\$110,679.000	+32.2%
42.	Australia	\$105,355.000	-20.3%
43.	Peru	\$100,792.000	-3%
44.	Brazil	\$99,099.000	-10.5%
45.	Hong Kong	\$92,172.000	-34.6%



<b>RANK</b>	<b>EXPORTER</b>	<b>FROZEN FISH EXPORTS (US\$)</b>	<b>2019-20</b>
46.	Kiribati	\$90,545.000	+13.6%
47.	Ecuador	\$89,898.000	-9.7%
48.	Nauru	\$88,562.000	+469.9%
49.	Uruguay	\$79,196.000	-22.6%
50.	Mauritius	\$75,866.000	-19.4%
51.	Maldives	\$72,074.000	+15%
52.	Sri Lanka	\$66,889.000	-22.4%
53.	Venezuela	\$63,676.000	+33.4%
54.	Singapore	\$63,384.000	-37.2%
55.	Panama	\$62,808.000	-12.9%
56.	Yemen	\$60,787.000	+52.1%
57.	Marshall Islands	\$58,175.000	-35.8%
58.	Mexico	\$52,202.000	-50.3%
59.	Estonia	\$47,733.000	-7.6%
60.	Guinea	\$47,607.000	-4.8%
61.	Iran	\$41,590.000	+51.9%
62.	Lithuania	\$36,460.000	+6.6%

<b>RANK</b>	<b>EXPORTER</b>	<b>FROZEN FISH EXPORTS (US\$)</b>	<b>2019-20</b>
63.	Bangladesh	\$32,947.000	+7.1%
64.	Poland	\$32,773.000	-15%
65.	Nicaragua	\$30,466.000	+20.2%
66.	Malta	\$29,803.000	-46.9%
67.	Suriname	\$29,468.000	+269.6%
68.	Guyana	\$29,005.000	-23.7%
69.	Latvia	\$26,482.000	+12.4%
70.	Greece	\$24,897.000	+136%
71.	Croatia	\$24,772.000	+11.3%
72.	Falkland Is (Malvinas)	\$22,758.000	-30.8%
73.	Cabo Verde	\$20,134.000	+115.1%
74.	Solomon Islands	\$19,265.000	-49.9%
75.	Cook Islands	\$16,665.000	+27.3%
76.	Seychelles	\$15,803.000	-73.8%
77.	French S./Antarctic Terr.	\$15,607.000	+203.9%
78.	Ivory Coast	\$14,451.000	+176.1%
79.	Trinidad/Tobago	\$14,207.000	+83.1%

<b>RANK</b>	<b>EXPORTER</b>	<b>FROZEN FISH EXPORTS (US\$)</b>	<b>2019-20</b>
80.	Sierra Leone	\$13,950.000	-48.3%
81.	Colombia	\$13,754.000	-42%
82.	United Arab Emirates	\$11,890.000	-70.5%
83.	Finland	\$11,660.000	+28.7%
84.	Tuvalu	\$11,137.000	-4.7%
85.	Italy	\$11,076.000	-31%
86.	Fiji	\$10,015.000	-89.2%
87.	Ghana	\$9,646.000	-72.8%
88.	Gibraltar	\$9,529.000	+86.9%
89.	Guinea-Bissau	\$8,688,000	-75.9%
90.	Belarus	\$8,622.000	+42.4%
91.	Kazakhstan	\$8,056.000	-23.8%
92.	Czech Republic	\$7,559.000	+4.9%
93.	Belgium	\$7,132.000	+6%
94.	El Salvador	\$6,523.000	+63.3%
95.	Br. Indian Ocean Terr.	\$6,056.000	+25.3%
96.	Madagascar	\$5,904.000	-7.9%

RANK	EXPORTER	FROZEN FISH EXPORTS (US\$)	2019-20
97.	Somalia	\$5,530.000	-32.7%
98.	Zambia	\$4,125.000	+21.9%
99.	Liberia	\$3,847.000	+468.2%
100.	Saudi Arabia	\$3,798.000	+71.1%

#### Annex 10: EU Country Codes

##### European Union (EU)

Belgium	BE	Latvia	LV
Bulgaria	BG	Lithuania	LT
Czech Republic	CZ	Luxembourg	LU
Denmark	DK	Hungary	HU
Germany	DE	Malta	MT
Estonia	EE	Netherlands	NL
Ireland	IE	Austria	AT
Greece	EL	Poland	PL
Spain	ES	Portugal	PT
France	FR	Romania	RO
Croatia	HR	Slovenia	SI
Italy	IT	Slovakia	SK
Cyprus	CY	Finland	FI
Sweden	SE		

Source: <https://www.destatis.de/Europa/EN/Country/Country-Codes>

## European Free Trade Association (EFTA)

Iceland	(IS	Norway	NO
Liechtenstein	(LI	Switzerland	CH

## United Kingdom

United Kingdom	UK
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## Annex 11 : Stakeholders Attendance for Validation Workshop

<b>Names</b>	<b>Organisation</b>
Mr. Louis Bossy	AFPES
Mr. Jean-Claude Hoareau	AFPES
Mr. Paul Morin	AFPES
Mr. Neven Cinoti	Oceana Fisheries Limited
Mr. Sime Bubicic	Oceana Fisheries Limited
Mrs. Nancy Onginjo	SFBOA
Mrs. Della Valmont	SFBOA
Mr. Marcel Pon-Waye	SFBOA
Mr. Julius Amiable	SFBOA
Mr. Ronny Valmont	SFBOA
Mr. Jean-Paul Ah-Kong	SFBOA
Mr. Daniel Monthy	SFBOA
Mr. Christopher Hoareau	FIQCU
Mr. Jan Robinson	Department of Fisheries
Mr. Christophe Bistoquet	Belombre Fishermen Association

Mr. Jerris Saunders	Belombre Fishermen Association
Ms. Belinda Saunders	Belombre Fishermen Association
Mr. Franky Hoareau	Belombre Fishermen Association
Ms. Sharon Sedgwick	Belombre Fishermen Association
Mr. Basile Saunders	Belombre Fishermen Association
Mr. Rodney Nicole	Belombre Fishermen Association
Mrs. Nella Victor	Belombre Fishermen Association
Mr. James Joubert	Belombre Fishermen Association
Mr. Neddy Labrosse	Roche Caiman Fishermen Association
Mr. Terence Labrosse	Roche Caiman Fishermen Association
Miss Margaret Ally	Seychelles Fishing Authority
Mr. Shariff Antoine	Seychelles Fishing Authority & Steering Committee Member
Miss Sheriffa Morel	Department of Fisheries & Steering Committee Member
Miss Audrina Dine	Department of Fisheries & Steering Committee Member
Miss Julie Barra	Department of Fisheries & Steering Committee Member
Miss Stephanie Radegonde	Department of Fisheries

## Annex 12: Terms of Reference and Scope of Service

### 1. Background

The development agenda of Seychelles is now firmly viewed through the lens of a blue economy, focused on the growth of ocean-based economies that are environmentally and socially sustainable. Reorientation of tourism and fisheries sector development, the two main pillars of the economy, is therefore a key strategy for meeting the goal of a blue economy. Since Seychelles is endowed with an extremely rich biodiversity, reconciling development with conservation objectives is a critical challenge. Therefore, in the fisheries sector, considerable focus is placed on improving opportunities for growth in post-harvesting and services, rather than increasing production in the harvesting sub-sector. Increasing employment and returns from the enhancement and diversification of seafood value chains, and full utilisation of the catch, are key policy objectives of the Ministry of Fisheries and Seychelles Fishing Authority.

Prior to the COVID-19 pandemic about 400 tons of demersal fish were caught monthly by the artisanal fishermen, with about 50% of those catches sold to hotels, restaurants and exported, while the balance was consumed locally. With regards to the semi-industrial fishery, about 100 tons of tuna were caught monthly with 90% of the catch exported. The majority of demersal fish product is exported frozen due to historically established markets by local suppliers and also for a higher premium. There are seven licensed and certified fish processing facilities, engaged to varying extent in the domestic and export supplies of fish, with three having previously concentrated exclusively on exports of fresh tuna from the semi-industrial fleets and bycatch from the purse seine fishery. The fish processors hold a combined cold storage capacity of around 1,200 tons.

The impact of COVID-19 varies among fisheries and the situation is rapidly evolving. Fish and fish products that are highly dependent on international trade suffered quite early in the development of the pandemic from the restrictions and closures of global markets, whereas fresh fish were severely impacted by the closure of the food service sectors (e.g. hotels, restaurants and catering facilities, including school and work canteens). The processing sector has also faced closures due to reduced consumer demand. This has had a significant impact on the sector. The downturn in the local tourism sector, compounded by the disruptions to trade with international markets, has resulted in non-availability or restrictive market opportunities for Seychelles' fishers and processors. The restrictions caused by the pandemic resulted in logistical difficulties for international seafood trade, particularly in relation to transportation and border restrictions. The exporters, in particular, suffered from increased air freight costs and cancellation of flights.

There are still many uncertainties facing the sector, particularly with regards to the duration and severity of the pandemic, but a prolonged market downturn is likely to introduce long-term transformations to the sector. For example, there are several proposed value-addition projects in the pipeline that will require access to external markets. Also, regardless of the

increased air freights, and slowdown in market demands constraint with competition from other external suppliers, there is potential to export frozen fish and fish products by sea. This may result in the absorption catches usually destined to hotels and restaurants and will further ensure consistency in the sale of catch to local processors and render the fishers' businesses profitable.

Fish exported from Seychelles, especially the flagship red snapper known locally as 'bourgeois', has gained popularity on the international markets. The potential for increasing earnings from exports stems from improved value addition prior to export but also from capturing market share for sustainably caught fish. Hence, a coordinated marketing strategy combined with entering key domestic fisheries in internationally-recognised fishery improvement projects and assessments against certification schemes (e.g., Marine Stewardship Council) is viewed as a vital development pathway.

Developing market intelligence is one of the most important elements for effective strategy implementation. In order to become competitive, the sector needs to be customer-centric and understand market demands and consumer opinions through collect real-time data collection. The Seychelles Tourism Board has over the years consistently and persistently marketed Seychelles abroad as a favoured niche tourism destination with success. A similar strategy now needs be developed for the marketing for export of Seychelles fish, as affirmed in a study on the development of Seychelles' seafood value chains in 2018 that recommended development of a market intelligence plan and marketing and branding strategy. The creation of a seafood brand for Seychelles is underway and is expected to be completed in 2021.

The Ministry of Fisheries and the Blue Economy (MFBE) is now recruiting consultant to develop the market intelligence plan.

1. Objectives of the assignment
2. Tasks of the assignment

The consultant will undertake the following tasks and activities:

- Conduct a SWOT analysis of existing processors and their ability to market Seychelles fish with the aim of increasing fish exports from Seychelles
- Develop the market intelligence plan. The plan will:
  - o Define what intelligence is needed and its data requirements and sources, and
  - o Will outline how data are analysed, and how often, to create intelligence (data analysis guides, spreadsheets or analytical routines will be included).

The market intelligence plan will address the following key aspects of market intelligence:

- o Competitor intelligence – gathering and analysis of competitor's data using available databases and public records;



- o Product intelligence – gathering data and analysis related to competitor products or similar products in the market, and
- o Market understanding – knowing the potential market share of Seychelles’ fisheries sector products, trends in the market, size of the market and identification of target markets for different fish and fish products.

Determine the format that intelligence will be packaged for both technical and non-technical users and establish the mechanisms for sharing intelligence

Set up a marketing unit within the Ministry focusing on:

- o Identifying and sourcing of market intelligence
- o Develop operational modalities for the marketing unit, including staffing requirements and capacity development
- o Support the Ministry in recruitment of the unit, providing capacity building (mentoring, training sessions) in marketing and trade relating to fisheries
- o Defining outputs and reporting requirement of the marketing unit
  - Lead marketing activities to promote the Seychelles fish and fish products to consumers, among relevant public and private sector institutions as well as participation in overseas trade shows if requested by the Ministry
  - Provide support to MFBE and SFA on projects associated with this consultancy, including the work for developing the Seychelles fisheries’ brand.

### 3. Key deliverables

The key deliverables for this assignment are:

- i. An inception report that includes a detailed work plan, stakeholder mapping and agreed data collection methods
- ii. Interim report focusing on progress in capacity building and outlining a handover strategy for transferring roles and responsibilities of the marketing specialist to local counterparts
- iii. Draft market intelligence plan
- iv. Final market intelligence plan (validated by the Ministry, partners and stakeholder representatives)
- v. Draft technical report on the establishment and operational modalities of the marketing unit

vi. Final technical report on the establishment and operational modalities of the marketing unit (validated by the Ministry)

#### 4. Duration

The consultant will be recruited by the Ministry of Fisheries and the Blue Economy for a period of 6 months.

Activity/ Deliverable	Timeline/Deadline
Signing of contract	Month 0
Inception report	Month 1
Draft Market intelligence plan	Month 3
Interim report	Month 4
Operational modalities	Month 5
Final Market Intelligence Plan	Month 6
Final technical report	Month 6

#### 5. Supervision responsibility

The consultant will report to the Ministry of Fisheries and the Blue Economy but will be required to work in collaboration with relevant stakeholders, as required. The consultant will provide monthly progress summaries to the Ministry and will respond to a timely manner to queries and draft documents.

### Annex 13: Glossary of Terms

The terms used in this report are referenced from the International Monetary Fund glossary<sup>76</sup>.

Amortization	Scheduled reimbursement or repayment of the amount borrowed.
Benchmarks	A point of reference against which progress may be monitored. Benchmarks may be either quantitative or structural in content and may be set on a quarterly or semi-annual basis.
Budget	A statement of the projected revenues, proposed expenditures, and planned financing of any surplus or deficit of an entity, especially government.
Consumer Price Index	A measure of a country's general level of prices based on the cost of a typical basket of consumer goods and services.
Emerging Markets	The capital markets of developing countries that have liberalized their financial systems to promote capital flows with non-residents and are broadly accessible to foreign investors.
Gross Domestic Product	Gross domestic product is the most commonly used single measure of a country's overall economic activity. It represents the total value of final goods and services produced within a country during a specified time period, such as one year.

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<sup>76</sup> International Monetary Fund: Available at <https://www.imf.org/en/About/Glossary>

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