UNITED NATIONS CONFERENCE ON TRADE AND DEVELOPMENT

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BUILDING THE CAPACITIES OF LEAST DEVELOPED COUNTRIES TO UPGRADE AND DIVERSIFY **FISH EXPORTS**

Training Manual

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Abbreviations

ASC	Aquaculture Stewardship Council
BAP	Best Aquaculture Practices
BRC	British Retail Consortium
CAC	Codex Alimentarius Commission
CCFFP	Codex Committee on Fish and Fishery Products
DTIS	Diagnostic Trade Integration Study
EIF	Enhanced Integrated Framework
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
FDI	Foreign direct investment
GAA	Global Aquaculture Alliance
GAP	Good aquaculture practices
GATT	General Agreement on Tariffs and Trade
GHP	Good hygiene practices
GMP	Good manufacturing practices
HACCP	Hazard Analysis and Critical Control Points
HS	Harmonized Commodity Description and Coding System (Harmonized System)
ISO	International Organization for Standardization
ITC	International Trade Centre
IUU	Illegal, unreported, and unregulated (fishing)
LDC	Least developed country
MSC	Marine Stewardship Council
n.e.s.	not elsewhere specified
OECD	Organisation for Economic Co-operation and Development
OIE	World Organisation for Animal Health
PPP	Public-private partnership

PRP	Prerequisite programme
SPS	Sanitary and phytosanitary
SQF	Safe quality food
SSOP	Sanitation Standard Operating Procedures
STDF	Standards and Trade Development Facility
TBT	Technical barrier to trade
UN	United Nations
UNCTAD	United Nations Conference on Trade and Development
UNIDO	United Nations Industrial Development Organization
WHO	World Health Organization
WTO	World Trade Organization
WWF	World Wide Fund for Nature/World Wildlife Fund

Glossary

Terms	Definition /Explanation
Aquaculture	Farming during part or all of the life cycles of aquatic animals intended for human consumption, with the exception of mammalian species, aquatic reptiles, and amphibians.
Codes of practice and guidelines	Voluntary documents containing general recommendations on practices and operations which frequently are adopted by the sectors to which they are addressed.
Ecolabelling	A voluntary method of environmental performance certification and labelling that is practised around the world. An "ecolabel" identifies the overall environmental preference conformity of a product or service within a specific product/service category based on life-cycle considerations. Examples in the fishery sector include labelling by the Aquaculture Stewardship Council (ASC) and the Marine Stewardship Council (MSC).
Export diversification	An increase in the variety of exports in one of three ways: (i) geographically, by exporting the same good or goods to new markets; (ii) sectorally, by exporting a new product or products to established markets; or (iii) exporting new products to new markets.
Export strategy	A country's overall plan for developing its exports. Such strategies often include policies for upgrading and/or diversifying exports.
Export upgrading	"Economic upgrading is defined as firms, countries or regions moving to higher value activities in GVCs (global value chains) in order to increase the benefits (e.g. security, profits, value-added, capabilities) from participating in global production." Export upgrading refers to the same concept, but stresses the higher value activities that are associated with exports.
Hazard Analysis and Critical Control Points (HACCP)	A system that identifies, evaluates, and controls significant hazards to food safety.
Illegal, unreported, and unregulated (IUU) fishing	A broad term that describes a wide range of irresponsible fishing activities. EU rules to prevent, deter, and eliminate IUU fishing entered into force on 1 January 2010. The rules allow the banning of fish imports from countries that lack sufficient commitment to preventing illegal fishing (in mid-2015, the EU banned imports from Cambodia, Guinea, and Sri Lanka).
Least developed countries (LDCs)	A UN designation based on three criteria: per capita income, human assets, and economic vulnerability. Currently there are 47 LDCs.
Niche market	A segment of a regional or global value chain that is highly distinctive and constitutes a market in its own right. Examples include organic food, eco-labelled products, and fair-trade-labelled products.
Private standards	As used by WTO, FAO, and UNIDO, this term relates to standards developed by non-governmental entities such as individual firms, industry organizations, and non-governmental organizations. Compliance is not legally required by national governments or multilateral regulations, but nonetheless may be of great importance. Examples of significant private standards in the fishery sector include the British Retail Consortium (BRC) Global Standard for Food Safety, the International Featured Standard (IFS Food), and the GLOBALG.A.P. Aquaculture Standard.

Public standards	As used by WTO, FAO, and UNIDO, this term refers to standards developed by national governments or multilateral fora. Compliance with public standards is mandatory.
Sanitary and phytosanitary (SPS) measures	Measures dealing with food safety and animal and plant health. A specific WTO agreement sets out the basic rules for applying these standards (SPS Agreement).
Structural transformation	The ability of an economy to continually generate new activities characterized by higher productivity and increasing returns to scale. Historically, this has referred to the transfer of labour and capital from traditional economic sectors such as agriculture to more modern sectors such as manufacturing. More recently, however, structural transformation also is understood to include shifts within sectors towards activities that are more knowledge-intensive and have higher value-added or greater learning potential.
Technical barriers to trade (TBT)	Regulations, standards, testing, and certification procedures which can obstruct trade. A specific WTO agreement aims to ensure that such barriers do not create unnecessary trade obstacles (TBT Agreement).
Technological sophistication	The level of complexity of a country's produced (or exported) goods and services. One classification used by UNCTAD includes the following five levels (in order of increasing technological sophistication): resource-based activities, low-tech manufacturing, mid-level manufacturing, sophisticated manufacturing, and knowledge-based services.

I. Introduction

The fishery sector is one of the most economically important for many least developed countries (LDCs). It contributes significantly to livelihoods, national income, and international trade. However, it is often underdeveloped — dominated by small-scale artisanal operations using traditional methods and rudimentary technology. Moreover, many fish-exporting LDCs rely heavily on sales of a limited number of species.

These shortcomings indicate that there is considerable potential for growth and development. The intent of this manual is to assist LDCs in upgrading and diversifying their fish exports, primarily by meeting international food-safety and sanitary standards. Such standards include both public and private (industry) requirements.

Fish-producing LDCs face several challenges to participating effectively in major developed-country markets. These include weak infrastructure, ineffective trade-facilitation procedures, and difficult business environments. One of the main obstacles for fish exporters is complying with standards and regulations on safety and quality imposed by importers. National authorities in importing countries sometimes have more stringent standards than those adopted by international bodies. And private-sector entities — primarily retailers — often have their own industry-specific requirements. In view of the central role that compliance with standards and regulations plays in the ability of fish-producing LDCs to expand their exports, this manual pays particular attention to that challenge.

Overall, the manual aims to benefit the governments and the private sectors of LDCs in three ways:

- To help them formulate better export-development and diversification strategies so that they can tap the potential of the fishery sector
- To boost their capacities for raising national food-safety and sanitary standards, and
- To assist them in complying with international requirements, importing-country requirements, private regulations, industry standards, and related measures

The manual thus combines information and knowledge from two areas: export development and diversification, on the one hand, and standards on fish safety and quality, on the other. It does not go deeply into the details of either field; instead, a premium is put on brevity and clarity to enable ease of understanding and to promote

the effective implementation of the recommendations made. Additional sources are provided throughout the text for readers interested in further — and more detailed — explorations of the issues discussed.

The manual is part of the UNCTAD project *Building the capacities of selected LDCs to upgrade and diversify their fish exports (Bangladesh, Cambodia, Comoros, Mozambique, Myanmar and Uganda)*[1], financed with resources provided by the United Nations Development Account. Occasional references to these six LDCs are therefore made in the text. It should be noted, however, that the fishery sectors of these countries are quite different, and that the overall discussion within the manual is general rather than country-specific. The intent is to provide information applicable to all LDCs endowed with fishery resources. Clearly, readers must take country-specific contexts into account for the manual to be an effective tool for national policymaking.

There are four main parts to the manual. The first is a broad discussion of the importance and potential of upgrading and diversifying fish exports from LDCs. This section also reviews the challenges that standards and regulations on fish safety and quality pose to achieving such progress. The second part provides an overview of international, national, and private frameworks on fish safety and quality, and summarizes the tools needed to comply with such standards. The third section presents an eight-stage process for formulating and implementing policies and actions to upgrade and diversify fish exports. And the fourth consists of annexes providing tools for analysis and detailed market information on the world's four largest fish importers: China, the European Union (EU), Japan, and the United States of America.

[1] After completion of the country study, Bangladesh withdrew from the project.

II. Why upgrading and diversifying exports matters

Key messages

- Upgrading and diversifying exports boosts economic growth and socio-economic development.
- Countries that add more value and sophistication to their exports are the most successful at achieving sustained growth and at reducing poverty.
- There are no fixed rules for how to upgrade and diversify exports, but there are useful guiding principles and recommendations.

(i) What is upgrading and diversification?

At the most basic level, export diversification can take place by exporting new products (product diversification) or by exporting to new markets (geographic diversification) — or by doing both at the same time. Product diversification, in turn, can be either vertical or horizontal. Vertical diversification implies adding new products or processes upstream or downstream in an existing value chain, which, in the context of fish, can relate to filleting, marketing, or to the improvement of cooling facilities, transportation, and other activities related to the processing, wholesale, and retail stages. Horizontal diversification refers to the addition of other types of fish products, such as harvesting and exporting other species, developing aquaculture if none exists, or exploring niche markets such as those for ecological or organically produced fish.

The upgrading of exports is distinct from diversification in that it is concerned with improving the quality of existing exports. Such improvements can involve food safety (issues related to biological, chemical, and physical agents that pose health hazards to consumers) or food quality (issues such as taste improvement, higher nutritional quality, or upgraded processing and labelling).

(ii) Why is upgrading and diversifying exports important?

Upgrading and diversifying exports can have a positive impact on countries' socio-economic development, especially in the case of low-income countries such as LDCs. In fact, studies show a clear relationship between export diversification and economic

growth: countries seem to progress through stages in which few products are exported at low-income levels; many different products are exported in the middle-income range; and, at high-income levels, the variety of products once again narrows (but such products tend to be knowledge-intensive or have high technological content and significant profit margins). Thus, LDCs should have an explicit interest in diversifying exports because it can promote economic growth.

But the benefits of upgrading and diversifying exports go beyond higher economic growth. Job opportunities and rising wages are a frequent result. Pursuing this course also can stimulate entry into higher value-added activities and can promote production and service linkages within an economy, leading to increased consumer choice and to heightened national competitiveness. And, since many LDCs are dependent on only a few exported products, this strategy is a way to dampen the negative effects that come from fluctuations in prices for these exports — especially the damaging boom-and-bust cycles long associated with exports of commodities. In fact, with respect to price fluctuations, value addition in itself is desirable because fish prices vary less at higher stages of the value chain.

It is important to recognize, however, that upgrading and diversification of exports is not an end in itself. There are other — complementary — means for promoting socio-economic development that should be pursued in parallel. For example, an LDC's exported products that are already established in certain markets should be nurtured and sustained.

(iii) How to upgrade and diversify exports

There are no hard and fast recipes to follow in upgrading and diversifying exports. It is crucial to take into account country-specific contexts such as the prevailing political, legal, and institutional frameworks. Export upgrading and diversification is essentially a process of discovery — a country needs to explore new ways to use its productive capacities. The following five broad recommendations are often invoked to support this process:

- It generally proves useful to put in place better development policies centred on structural economic transformation and on enhancing productive capacities. Capable institutions are required to implement such policies. Also important is sound economic management that takes into account a country's resource base, local conditions, and other specifics. In addition, LDCs should develop a long-term vision for diversifying their economies by integrating their natural endowments into their respective vision documents.

- Broad-based reforms and investments that affect a country's productive capacities in a general way – rather than a sector-specific way – frequently help to spur progress. Such across-the-board policies and actions include strengthening institutions (such as those dealing with the rule of law and property rights), improving the business environment, promoting imports and foreign direct investment (FDI), investing in infrastructure, increasing access to finance, strengthening national innovation systems, and developing trade facilitation.
- It is helpful to ensure comprehensive stakeholder participation in designing, implementing, and evaluating policies and actions. There should be an ongoing dialogue with all relevant stakeholders such as firms, civil society, and industry associations. Such interactions typically result in more relevant policies, strengthen stakeholders' commitment to implementing those policies, and increase transparency and accountability.
- National economic capabilities often can be strengthened through promoting regional cooperation that boosts trade and investment links and pools resources. Moreover, closer regional teamwork can support export diversification and upgrading strategies. That is because it is helpful to establish a regional platform on the way to advancing participation in global trade.
- Export upgrading and diversification strategies should be designed to be accountable. The objectives should be aligned with national strategies. The design should include measurable targets that can and will be evaluated in transparent fashion. The design also should include clear benchmarks to assess whether the strategy has been successful or not within a specified timeframe. Failures should be duly recognized.

Box 1. Ten design principles for industrial policy

Policies to upgrade and diversify exports can be seen as a set of industrial policies that aims to promote the structural transformation of an economy. Renowned development economist Dani Rodrik has proposed a list of ten design principles to guide those formulating industrial policies.

1. Incentives should be provided only for "new" activities.
2. There should be clear benchmarks/criteria for success and failure.
3. There must be a built-in sunset clause.
4. Public support must target activities, not sectors.
5. Activities that are subsidized must have the clear potential for providing spillovers and demonstration effects.

Box 1 (contd.)

6. The authority for carrying out industrial policies must be vested in agencies with demonstrated competence.
7. The implementing agencies must be monitored closely by a principal with a clear stake in the outcomes and who has political authority at the highest level.
8. The agencies carrying out promotion must maintain channels of communication with the private sector.
9. Optimally, mistakes that result in "picking the losers" will occur.
10. Promotion activities need to have the capacity to renew themselves, so that the cycle of discovery becomes an ongoing one.

Source: Dani Rodrik, *Industrial Policy for the Twenty-First Century,* paper prepared for United Nations Industrial Development Organization (Vienna, 2004)-

III. The potential of fish exports from LDCs

Key messages

- Fish and fish products are among the most important sectors in many LDCs in terms of employment, earnings, and exports.
- Fish-exporting LDCs are often highly dependent on a few products and a few markets.
- Several LDCs have untapped potential for greatly increasing fish exports, and that potential could be realized through the upgrading and diversification of the goods offered.
- There is considerable scope for many LDCs to join the group of successful exporters, not only in traditional exports but also in non-traditional exports such as fish.

Traditionally, efforts to advance structural transformation and economic development in less-wealthy countries have focused on the manufacturing sector. Industrialization has been seen as the key to raising productivity, with the result that it has been strongly promoted as the way for countries to enter and climb value chains. Although the expansion of manufacturing is certainty something that should be encouraged, there is no reason for it to receive exclusive attention. Non-traditional sectors in agriculture and services also provide significant opportunities for restructuring economies and for boosting socio-economic development. Horticulture and tourism are two examples that have proven potential for LDCs. The fishery sector is another.

The harvesting and marketing of fish is very significant in many LDCs in terms of employment and earnings. Fish exports rank in the top five among merchandise exports in 14 of the world's 47 LDCs. For LDCs as a group, fish make up the seventh largest export overall, and they are the largest food item exported. However, despite its importance, the sector is often underdeveloped and the bulk of fish exports frequently consists of just a few products sent to a limited number of importing markets. The three most exported fish products account for roughly half of all fish exports from LDCs.

To gain a more detailed view of the structure of fish exports from LDCs, consider the six LDCs that are the focus of the UNCTAD project *Building the capacities of selected LDCs to upgrade and diversify their fish exports (Bangladesh, Cambodia, Comoros, Mozambique, Myanmar, and Uganda).* Tables 1 and 2 show the top three products for fish exports from five of the countries (detailed information was not available from Myanmar) and the top three destinations for exports of the six countries. The tables also show the same information for all LDCs on aggregate. The lack of diversification with respect to fish products exported is particularly striking among the five LDCs cited, with

the share of the top three products ranging from 71 percent of exports (Uganda) to 98 percent (Comoros). Although the concentration is not as pronounced with respect to the countries receiving the LDCs' exports, Bangladesh is the only exporting country among the six cited where the top three destinations account for less than half of fish exported. This is not counting the EU as one market. If the EU is considered as one destination, then that territory accounts for 62 per cent of fish exports from Bangladesh, 55 per cent from Mozambique, and 63 per cent from Uganda. The overall lack of diversification in fish exports suggests that there is considerable potential for the LDCs concerned to expand exports by targeting new products and/or markets.

However, the existence of this potential does not mean that LDCs are in a strong position to take advantage of it. The challenges to doing so are numerous and include meeting the safety and quality requirements of importing countries, reducing trade costs, and improving the sustainability of fisheries. That said, there is good reason to believe that many LDCs should be able to tap the potential of upgrading and diversifying fish exports. Several countries are located in ideal environments, with abundant fishery resources, and some already have well-developed facilities — such as processing plants — that support fish exports. Some also have well-established trade links with the world's major importing countries.

There also are external reasons for being optimistic about the potential for expanding fish exports from LDCs. Fish are among the most frequently traded food products and, according to projections of the Organisation for Economic Cooperation and Development (OECD) and the Food and Agriculture Organization (FAO), are likely to remain so until 2023. Growth rates will be driven primarily by developing countries, as has been the case since 2000 (Figure 1). Trends on trade in fish from capture and aquaculture, respectively, are not easily discernible, but production rates suggest that the quantity of fish from capture will remain at roughly the same level, while the quantity of fish from aquaculture will continue to grow steadily (Figure 2).

In the final analysis, there is untapped potential for fisheries in several LDCs that — if put to good use — should result in more job opportunities, growing exports, and greater socio-economic development. The potential, if anything, is only increasing in view of the expanding demand for fish seen in both developed and developing countries, coupled with the depletion of fishing stocks in developed-country waters. The comparative advantages of many LDCs in the fishery sector, and the sector's potential to grow, mean that governments should at least explore the possibility of upgrading and diversifying fish exports. Earlier UNCTAD studies of countries such as Bangladesh and the United Republic of Tanzania have shown that investments aimed at raising and enforcing

norms and standards, particularly in relation to fish exports, can significantly boost export earnings and can contribute to overall growth and development.

Table 1

Top three fish exports of LDCs, 2012–2013

Bangladesh	Cambodia	Comoros	Mozambique	Myanmar	Uganda	All LDCs
Shrimps and prawns[1] (frozen) (80%)	Crabs (not frozen) (29%)	Frozen fish n.e.s.[2] (73%)	Shrimps and prawns[1] (frozen) (65%)	Marine fish (69%)	Nile perch (fresh or chilled) (46%)	Shrimps and prawns[1] (frozen) (27%)
Crabs (not frozen) (7%)	Crustaceans n.e.s. (not frozen) (28%)	Frozen cod-like[3] fish n.e.s. (22%)	Dried fish, other than edible fish offal and cod (9%)	Shrimps and Prawns (15%)	Nile Perch (frozen) (14%)	Octopus (not live, fresh or chilled) (12%)
Frozen fish n.e.s.[2] (4%)	Shrimps and prawns[1] (not frozen) (18%)	Shrimps and prawns[1] (frozen) (3%)	Rock lobster and other sea crawfish (frozen) (8%)	Crabs, sea spiders (5%)	Fish heads, tails, and maws (11%)	Skipjack or strip-bellied bonito (9%)

Source: UN COMTRADE (HS 2012).

[1] Other than cold-water shrimps and prawns (HS 2012 code 030617)

[2] HS 2012 code 030389

[3] Frozen fillets of fish of the families Bregmacerotidae, Euclichthyidae, Gadidae, Macrouridae, Melanonidae, Merlucciidae, Moridae and Muraenolepididae: Other (HS 2012 code 030479)

Table 2

Top three destinations of sample LDCs' fish exports, 2011–2013

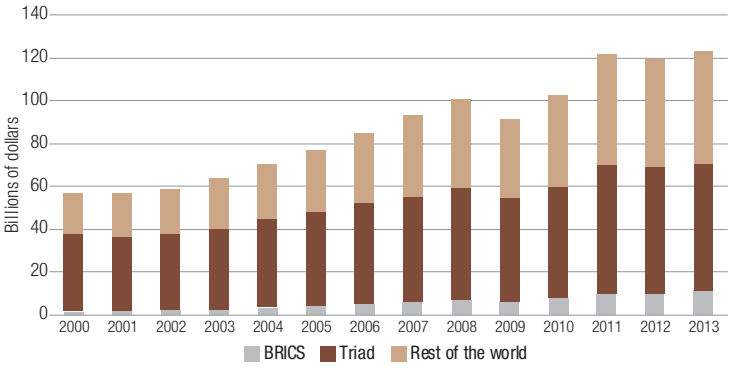
Bangladesh	Cambodia	Comoros	Mozambique	Myanmar[1]	Uganda	All LDCs
Belgium (17%)	Korea, Rep. (41%)	Mauritius (97%)	Spain (33%)	China (36%)	Belgium (26%)	Japan (11%)
United Kingdom (16%)	China (24%)	Madagascar (3%)	Portugal (23%)	Thailand (27%)	Netherlands (14%)	Thailand (9%)
Germany (12%)	Vietnam (10%)		Zimbabwe (12%)	Malaysia (7%)	Hong Kong, China (13%)	France (8%)

Source: UN COMTRADE (SITC Rev.3).

[1] Data for Myanmar is for 2014-2015, sourced from Department of Fisheries and UNCTAD Stat

Figure 1

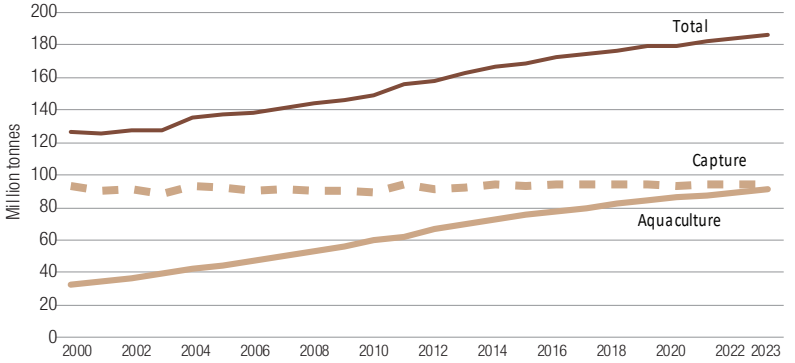
World imports of fish, 2000-2013 (in billions of US$)



Source: : UN COMTRADE.
BRICS: Brazil, Russia, India, China, and South Africa
Triad: EU, Japan, and United State of America

Figure 2

Global fish production, 2000-2023 (million tons)



Source: OECD-FAO Agricultural Outlook 2014-2023 database.

IV. Why safety and quality matter for fish exports

Key messages

- Improving fish safety and quality is important because:
- It leads to greater market access, increased competitiveness, and higher fish exports.
- It stimulates the upgrading and diversification of fish exports.
- It benefits the health of the population.
- It cuts post-harvest losses and improves the use of resources.
- It reduces negative impacts on the environment.

(i) Regulations and standards on fish safety and quality and their impacts on LDC exporters

Fish exports, as has been seen, have an important role to play in the socio-economic development of many LDCs. As a result, such countries should treat seriously any obstacles that significantly decrease this trade. Seafood safety and quality requirements in importing markets are without doubt one of the main obstacles for LDCs, as attested to by surveys and reports (see Table 1). In extreme cases, failure to meet such requirements results in a total ban on exports. That can have devastating effects on a country's seafood industry.

Stringent fish-safety requirements need not result in bans, however, to have considerable negative effects on LDC exporters. If they find requirements beyond minimal processing too difficult to comply with, that can relegate them to the lowest position on the global seafood value chain. The end result is that the value of their fish exports can be below potential. If, therefore, LDCs can improve their compliance with the requirements of importing markets, this can lead to greater market access and to higher export earnings. It also can lead to export diversification and upgrading. Tools to improve compliance include adopting good hygiene practices (GHP), good manufacturing practices (GMP), implementing a Hazard Analysis and Critical Control Points (HACCP) system, setting up public-private partnerships, and fostering regional cooperation. These and other tools are discussed in the following sections.

One set of standards that has become increasingly common with the globalization and growth of the international fish trade is private standards. In-house standards of

large retailers, collective standards of producer/industry groups, public certification schemes, non-governmental organization (NGO)-driven standards and certification, and private food-safety-management schemes are crowding into this area. At the moment, LDC fish exporters are active in market segments that occupy the lower end of the value chain, and these are largely unaffected by private standards. That means that the immediate challenge is to meet public safety regulations. But the lack of capacity to comply with private standards means that such countries cannot enter the higher value-added processing activities that yield greater profits and are less vulnerable to fluctuations in demand.

Table 3

Main objectives in fisheries identified in diagnostic trade integration studies (DTIS) and other studies

	Bangladesh	Cambodia	Comoros	Mozambique	Myanmar	Uganda
Pursue export diversification	X			X	X	
Improve sustainability of fisheries	X	X	X	X	X	X
Upgrade compliance with safety and quality requirements	X	X	X	X	X	X (aqua-culture)
Develop infrastructure	X	X	X	X	X	X
Improve legislation and institutions		X	X			
Increase value of exports			X (currently hardly any exports)	X		

Sources:

Bangladesh: Golub, S. and Varma, A., Fishing Exports and Economic Development of Least Developed Countries: Bangladesh, Cambodia, Comoros, Sierra Leone and Uganda, paper prepared for UNCTAD (Geneva, 2014).

Cambodia: Integration and Competitiveness Study, Cambodia Trade Integration Strategy 2014-2018.

Comoros: Étude diagnostique de l'intégration commercial (2007).

Mozambique: Removing Obstacles to Economic Growth in Mozambique: A Diagnostic Trade Integration Study, Nathan Associates Inc. (2004).

Myanmar: Opening for Business: Diagnostic Trade Integration Study, World Bank (Washington, D.C. 2016); Findings of national workshop on "Building the Capacities of Myanmar to upgrade and diversify its fish exports to meet international quality and safety standards", Yangon, August 2016.

Uganda: Uganda Diagnostic Trade Integration Study and Diagnostic Trade Integration Study Update, World Bank (Washington, D.C., 2006 and 2013).

(ii) Impact – beyond trade – of seafood safety and quality

The loss of market access is but one of several reasons why LDCs should take seafood safety and quality seriously. Chief among them, of course, is the health of their own populations. This is not only for the obvious reason that poor food safety can make people ill — even kill them — but also because a healthy population is essential for the economic well-being of a country. Thus, a lack of proper seafood-safety management has fundamental social and economic consequences for LDCs.

The waste of resources that results from a high degree of spoilage is another reason why seafood safety and quality is important. Reducing post-harvest losses through a strong seafood-safety management system not only increases the economic gains from fishing, but also frees up resources that can be used more productively. It also puts less strain on remaining seafood stocks.

A third reason for addressing seafood safety and quality is its positive environmental impact. Pollution and unregulated production methods, in addition to presenting hazards for human consumers, can have negative impacts on fish supplies and can lead to dwindling stocks.

V. Overview of regulations and tools for food safety and quality

Regulations governing the safety and quality of fish products have, if anything, taken on greater significance in recent decades as a result of food scares and the growth of the international fish trade. The three major importing markets — the EU, Japan, and the United States of America — have revised and updated their regulatory frameworks on food safety. In addition, there has been a proliferation of private standards that primarily address food quality (that is, non-safety) issues that are an additional hurdle for LDC exporters. Several studies, including one by UNCTAD, also point to the fact that developed-country supermarket chains — which account for more than 60 per cent of fresh produce retail sales — are increasingly demanding that their suppliers be certified as complying with private food-safety standards such as GLOBALG.A.P. There is increasing evidence that Asian markets also are insisting on some minimum certification of food safety and are applying extra quality requirements to their purchases of fishery goods, although most of these steps are voluntary, rather than mandatory.

There are four efforts at the international level that address food-safety concerns relevant to fish products: (i) the standards, guidelines, codes of practice, and other recommendations developed by the Codex Alimentarius Commission (CAC), an intergovernmental body within the framework of the Joint Food Programme established by the FAO and the World Health Organization (WHO); (ii) the sanitary and phytosanitary (SPS) ` technical barriers to trade (TBT) agreements of the WTO; (iii) the FAO Code of Conduct for Responsible Fisheries; and (iv) the Aquatic Animal Health Code of the World Organisation for Animal Health. Notwithstanding these international regulatory frameworks, the various regulations and standards implemented in importing markets are not harmonized, although several of the major markets share two requirements imposed on exporters: (i) the application to exports of prerequisite programmes for good hygiene practices and good manufacturing practices that form the basis of food-safety management; and (ii) the implementation of the Hazard Analysis and Critical Control Points (HACCP) system for the control and prevention of food-safety hazards such as biological, chemical, and physical hazards.

The regulatory frameworks on fish sent through international markets are clearly relevant insofar as they impact exports from LDCs. However, the focus of this manual is not on the safety and quality of fish per se, so this section restricts itself to an overview of the main regulations and standards. The two tools of the prerequisite programmes and the tools of the HACCP system are also described briefly.

An invaluable reference is the comprehensive *Assessment and management of seafood safety and quality: Current practices and emerging issues*, a report compiled by FAO staff, which is listed immediately below. Other useful reports and manuals providing detailed reviews of regulations and standards for food safety and quality as they relate to fish are listed at the end of the section.

Useful source:

- Ryder, J., Iddya, K., and Ababouch, L., Assessment and management of seafood safety and quality: Current practices and emerging issues, FAO Fisheries and Aquaculture Technical Paper No. 574, FAO (Rome, 2014).

(i) International regulations and codes of conduct

Codex Alimentarius

The Codex Alimentarius Commission (CAC) is an intergovernmental organization that was set up by FAO and WHO in the early 1960s to develop a food code – the Codex Alimentarius. The purpose of Codex Alimentarius is to ensure safety and quality in food trade by developing standards, guidelines, and codes of practice. By mid-2015, there were 216 such standards, 72 guidelines, and 50 codes of practice, as well as a handful of other recommendations. The CAC is a decision-making body in which all member States are represented, but the development of standards takes place in subsidiary bodies, particularly the CAC's General Subject Committee and its Commodity Committee.

The standards of the General Subject Committees cover issues such as food hygiene, contaminants in foods, and pesticide residues, which are relevant to fish. However, the most directly relevant standards for fish are the ones developed by the Codex Committee on Fish and Fishery Products (CCFFP). By mid-2015, a total of 27 standards, codes of practice, and guidelines had been developed by the CCFFP. One of the texts is the Code of Practice for Fish and Fishery Products (CAC/RCP 52-2003), which provides "background information and guidance for the elaboration of fish and shellfish process management systems that would incorporate good manufacturing practice (GMPs) as well as the application of HACCP in countries where these, as yet, have not been developed."

The standards, guidelines, codes of practice, and other recommendations that make up the Codex Alimentarius are voluntary and there is no obligation for countries to

adopt them. However, their impact on food trade is significant. Notably, the WTO's SPS Agreement makes several references to the work of the CAC, for instance in the preamble, which states the desire for harmonization of SPS measures "on the basis of international standards, guidelines and recommendations developed by the relevant international organizations, including the Codex Alimentarius Commission."

Useful sources:

- Codex Alimentarius. http://www.codexalimentarius.org/
- Codex Alimentarius Commission, Code of Practice for Fish and Fishery Products, 2nd edition, CAC/RCP 52-2003 (2012). ftp://ftp.fao.org/codex/publications/Booklets/Practice_code_fish/CCFFP_2012_EN.pdf

SPS and TBT Agreements of the WTO

The World Trade Organization was founded in 1995 as a successor to the General Agreement on Tariffs and Trade (GATT). Its purpose is to support global trade by enabling member States to agree on international trade rules among themselves. There are currently some 60 agreements, annexes, decisions, and understandings that form the foundation of today's WTO system. The agreements are binding, and member States are committed to complying with them. In cases where member States disagree on whether they are adhering to the rules, there is a system for settling disputes.

There are two WTO agreements of relevance to fish safety and quality: the Agreement on the Application of Sanitary and Phytosanitary Measures (the "SPS Agreement") and the Agreement on Technical Barriers to Trade (the "TBT Agreement"). The SPS Agreement is concerned with rules that govern the protection of human, animal, or plant life or health. It states that the rules should be based on international standards, guidelines, or recommendations, but it also allows member States to impose stricter SPS measures as long as they are deemed necessary to protect human, animal, or plant life or health, are scientifically justified, and do not discriminate either among trading partners or between domestic and foreign goods. The SPS Agreement makes explicit references to the international standards, guidelines, and recommendations of the Codex Alimentarius Commission and of the World Organisation for Animal Health (OIE), and refers as well to the relevant international and regional organizations operating within the framework of the International Plant Protection Convention.

The TBT Agreement deals with technical regulations, standards, testing, and certification procedures. Like the SPS Agreement, it stipulates that member States should use international standards as a basis for their technical regulations and standards (although

no references are made to international standard-setting bodies). Member States have the right, however, to apply different technical regulations or standards when international standards are seen as ineffective or inappropriate for given objectives. Such regulations or standards should not be more trade-restrictive than necessary and should adhere to the same non-discriminatory principles as the SPS Agreement. Issues covered by the TBT Agreement that are relevant for trade in fish products are quality provisions, nutritional requirements, labelling, packaging and product-content regulations, and methods of analysis.

Useful sources:

- World Trade Organization, Sanitary and Phytosanitary measures https://www.wto.org/english/tratop_e/sps_e/sps_e.htm
- World Trade Organization, Technical Barriers to Trade https://www.wto.org/english/tratop_e/tbt_e/tbt_e.htm

FAO Code of Conduct for Responsible Fisheries, and instruments against illegal, unreported, and unregulated (IUU) fishing

The Food and Agriculture Organization (FAO) of the United Nations was established in 1945. It has five strategic objectives: (i) to help eliminate hunger, food insecurity, and malnutrition; (ii) to make agriculture, forestry, and fisheries more productive and sustainable; (iii) to reduce rural poverty; (iv) to enable inclusive and efficient agricultural and food systems; and (v) to increase the resilience of livelihoods to threats and crises. Among the FAO's tasks is to develop and implement agreements, codes of conduct, and technical standards.

The 1995 FAO Conference adopted a Code of Conduct for Responsible Fisheries. The overall objective of the code is to contribute to the sustainable use of living aquatic resources. With respect to fish safety and quality and fish trade, it contains provisions that aim to "promote the contribution of fisheries to food security and food quality, giving priority to the nutritional needs of local communities" and provisions that aim to "promote the trade of fish and fishery products in conformity with relevant international rules and avoid the use of measures that constitute hidden barriers to such trade." The code is voluntary.

Related to the Code of Conduct for Responsible Fisheries are the efforts made by the FAO to fight against illegal, unreported, and unregulated (IUU) fishing. Concern over IUU fishing has become significant for trade since the EU issued a regulation whereby trading partners can be restricted and even banned from exporting fish to the EU if

they are seen as not taking the fight against IUU fishing seriously. There are several FAO measures that address IUU fishing, among them the International Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing (voluntary, adopted in 2001) and the Agreement on Port State Measures to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing (binding, adopted in 2009).

Useful sources:

- Food and Agriculture Organization, FAO webpage on Code of Conduct for Responsible Fisheries: http://www.fao.org/fishery/code/en
- Food and Agriculture Organization, International Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing, (Rome, 2001). http://www.fao.org/fishery/ipoa-iuu/en
- Food and Agriculture Organization, Agreement on Port State Measures to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing (Rome, 2009) http://www.fao.org/fishery/psm/en

OIE Aquatic Animal Health Code

The World Organisation for Animal Health (OIE; until 2003 known as the International Office of Epizootics) was founded in 1924. Its objective is to improve animal health and welfare. Areas of work include disseminating information on the global animal-health situation; collecting, analysing, and disseminating veterinary scientific information; and developing standards for international trade in animals and animal products. Standards developed by the OIE concern terrestrial and aquatic animals, respectively, with one set of codes and one manual for each category.

The first editions of the *Aquatic Animal Health Code* (the "Aquatic Code") and the *Manual of Diagnostic Tests for Aquatic Animals* (the "Aquatic Manual") were both published in 1995. The purpose of the Aquatic Code is to ensure the safety of trade in aquatic animals and their products. It does so by providing veterinary authorities and/or other competent authorities of member States with details on animal-health measures that can be applied to ensure safe imports and exports of aquatic animals and of aquatic animal products. It also includes model international aquatic animal-health certificates to facilitate safe trade. The purpose of the Aquatic Manual is to provide laboratory technicians with information on diagnosing diseases listed in the Aquatic Code. The Aquatic Code is voluntary, but the OIE is – like the CAC – named in the SPS Agreement, and WTO members therefore are meant to take into account the Aquatic Code when imposing SPS measures.

Useful sources:

- World Organisation for Animal Health, *Aquatic Animal Health Code* (Paris, 1995). http://www.oie.int/en/international-standard-setting/aquatic-code/
- World Organisation for Animal Health, Aquatic Animal Health Manual (Paris, 1995).
- http://www.oie.int/en/international-standard-setting/aquatic-manual/

(ii) Public and private requirements in importing countries

National requirements

To access the world's largest markets — the European Union, Japan, and the United States of America — LDC fish exporters must meet requirements that go beyond the standards and codes of conduct adopted by the CAC and other standard-setting bodies. For instance, both the European Union and the United States of America require exporters to apply the Hazard Analysis and Critical Control Points (HACCP) system (see section on tools below) in their processing of fish and fish products. These markets also have introduced traceability requirements, whereby fish exporters must be able to show the movements of their products throughout the value chain – from farm to fork.

The regulations that apply to fish imports in China, the European Union, Japan, and the United States are detailed in Annex 5, but a brief comparison of these requirements is provided in Table 4.

Private standards and certification schemes

In parallel with increasingly strict national requirements on fish safety and quality, there has been a mushrooming of private standards and certification schemes. It is enough to browse the more than 170 sustainability standards listed on the International Trade Centre's Standards Map website to appreciate the abundance of private standards in the world. For fish products, a study by FAO provides an illustrative list of more than 40 relevant standards, codes of conduct, guidelines, labels, and certification schemes related to food safety, animal health, social and ethical issues, the environment, and food quality.

The role of private standards in the fish trade has increased in conjunction with their proliferation. Many retailers in developed countries have their own standards or require certification based on NGO-driven schemes. For instance, the United States-based retailer Whole Foods Market sells its own range of farmed fish and seafood with

Table 4

Comparison of fish import systems of the European Union, United States, and Japan

	Importing country or region		
Import requirements	**European Union**	**United States**	**Japan**
Role of exporting government for exports to the importing country/region	EU certifies a competent authority in exporting country	Can voluntarily create an agreement with United States	Can voluntarily create an agreement with Japan
Role of exporters for exports to the importing country/ region	Must apply GHP/HACCP (own checks) to be certified by their own country's competent authority following physical inspections, documentation review, and final product checks	Must have SSOP/ HACCP-based programme and make necessary documentation available to FDA through importer	Have a voluntary GHP/ HACCP-based programme Major importing companies have their quality control staff work with exporting companies
May an exporter export to the importing country/region without the existence of a competent authority in its own country?	No	Yes	Yes
Role of importing governments in the importing country/ region	Runs inspection system to ensure European Union legal and technical requirements are met Has border inspection posts	Runs inspection system to ensure U.S. legal and technical requirements are met, but these are not mandatory as for European Union Has border inspection posts	Runs inspection system to ensure Japanese legal and technical requirements are met, but to a much lesser extent than European Union Has border inspection posts
Role of importers in the importing country/ region	Receive cleared imports	Must check SSOP/HACCP plans of exporting firms and make them available to FDA inspectors Must notify authorities of all imports (under Bioterrorism Act)	Must notify authorities of all imports Major importing companies have their quality-control staffs work with exporting companies on grading and hygiene
Frequency of paper and identity checks at the borders of importing country/region	All imports	All imports	All imports

Table 4 (contd.)

	Importing country or region		
Import requirements	**European Union**	**United States**	**Japan**
Frequency of physical checks at the borders of importing country/ region	Variable frequency depending on the status of the country of origin and the exporting company's history	Variable frequency depending on the status of the country of origin and the exporting company's history	Variable frequency depending on the status of the country of origin and the exporting company's history
Frequency of microbiological and chemical analyses carried out at borders of the importing country/region	At discretion of inspector given evident quality, product type, species, country of export, and company's history	At discretion of inspector and/ or depending on yearly targeting programmes	At discretion of inspector and/or depending on yearly targeting programmes
Any requirements or guidance for microbial testing?	Yes, for ready-to-eat seafoods, live molluscs, and cooked crustaceans and molluscan shellfish	Yes	Yes
Type of microbiological tests done when required in the importing country/ region	At discretion of inspector but include tests for L. monocytogenes, E. coli, Salmonella, *S. aureus, Vibrio spp.*	The U.S. Food and Drug Administration's Bacteriological Analytical Manual (the BAM) is the preferred laboratory guide for tests to detect bacterial, viral, and parasitic (plus yeast and mold) pathogens and microbial toxins in food and cosmetic products.	Tests for indicator organisms and total counts
Type of chemical tests done when required in the importing country/ region	At discretion of inspector but include tests for histamine, heavy metals, veterinary drugs, and pesticides heavy metals, veterinary drugs, and pesticides	Tests for histamine, heavy metals, veterinary drugs, and pesticides	Tests for antioxidants, preservatives, veterinary drugs, colouring and bleaching agents, and biotoxins

Source: FAO (2005). Extract from Table 10 (with slight modifications) in Ababouch, L., Gandini, G. and Ryder, J., *Causes of detentions and rejections in international trade,* FAO Fisheries Technical Paper No. 473 (Rome, 2005).

specific requirements that must be met by suppliers, while food retailers in Switzerland work closely with the World Wide Fund for Nature (WWF) to source sustainable fish. Private standards and certification schemes present hurdles for fish exporters in LDCs that go beyond the public requirements imposed by importing countries. Such private requirements also can provide opportunities, for example by ensuring consumers of higher quality through eco-labelling or by appealing to social conscience through fair-trade schemes. So far, though, LDC exporters primarily operate in lower-end market segments that do not feature many private standards.

Table 5

Selected private standards

Standard	Description	Website
British Retail Consortium (BRC) Global Standard for Food Safety	A food-safety and quality standard aimed at retailers' suppliers that includes implementation of an HACCP system; a quality management system; factory environmental standards; product control; process controls; and personnel requirements	http://www.brcglobalstandards.com/
International Featured Standards (IFS) Food Standard (often referred to as International Food Standards)	A food-safety and quality standard aimed at retailers' suppliers that includes senior management responsibility; quality and food-safety management systems; resource management; production process controls; measurements, analysis, improvements, and food defence (protection from intentional contamination)	http://www.ifs-certification.com/
GLOBALG.A.P. Aquaculture Standard	A standard aimed at aquaculture producers that sets criteria for legal compliance, food safety, worker occupational health and safety, animal welfare, and environmental and ecological care. Producers that cannot achieve GLOBALG.A.P. certification can use localg.a.p., which is a stepping-stone to GLOBALG.A.P certification	http://www.globalgap.org/
Aquaculture Stewardship Council (ASC)	A standard aimed at fish farms that includes legal compliance; preservation of natural resources and biodiversity; responsible use of animal feed and other resources; animal health; and social responsibility	http://www.asc-aqua.org/
Marine Stewardship Council (MSC)	A standard aimed at capture fisheries that rests on three pillars to promote sustainable seafood: sustaining fish stocks, minimizing environmental impacts, and carrying out effective management	https://www.msc.org/
Best Aquaculture Practices (BAP) standards of the Global Aquaculture Alliance (GAA)	A standard that certifies fish farms, hatcheries, processing plants, and feed mills; the emphasis is on environmental and social responsibility, animal welfare, food safety and traceability	BAP: http://bap.gaalliance.org/ GAA: http://gaalliance.org/
Safe Quality Food (SQF) Code	A food safety and quality standard aimed at all players in food supply chains; it is based on the systematic application of HACCP for control of food-quality hazards and also focuses on food safety; it enables suppliers to be certified on three levels	http://www.sqfi.com/
Friend of the Sea	An environmental standard aimed at producers and suppliers of both capture fisheries and aquaculture. It follows FAO guidelines for the eco-labelling of fish and fishery products from marine capture fisheries	http://www.friendofthesea.org/

Useful sources:

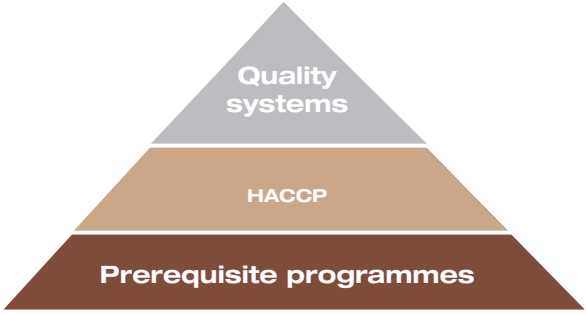
- ITC Standards Map: http://www.intracen.org/itc/market-info-tools/voluntary-standards/standardsmap/
- Seafish's guide to seafood standards: http://www.seafish.org/industry-support/guide-to-seafood-standards
- Washington, S. and Ababouch, L., Private standards and certification in fisheries and aquaculture: current practice and emerging issues, FAO Fisheries and Aquaculture Technical Paper No. 553 (Rome, 2011).

(iii) Tools

How can fish-exporting LDCs comply with international standards on food safety and quality and, in particular, meet the requirements imposed by importing countries? The tools that are available can be usefully thought of as forming a pyramid (Figure 3). At the base are prerequisite programmes that encompass a range of issues, from the design and construction of vessels and facilities to personal hygiene and health. The prerequisite programmes are necessary for the next stage, the Hazard Analysis and Critical Control Points (HACCP) system, which is a well-defined process for preventing hazards from occurring in fish. Finally, there are the numerous private standards and certification schemes that go beyond national and international requirements. In addition to these three categories, there is the issue of tracing products, which has taken on increased significance as the fish trade has become more global and as value chains have lengthened.

Figure 3

Food safety-management systems



Prerequisite programmes

Prerequisite programmes (PRPs) is a broad term with several definitions, but no overriding definition. The one commonality among the various definitions is that they are an essential foundation for the subsequent HACCP system. For example, the Code of Practice for Fish and Fishery Products (CPFFP) provides the following definition: "A programme that is required prior to the application of the HACCP system to ensure that a fish and shellfish processing facility is operating according to the Codex Principles of Food Hygiene, the appropriate Code of Practice and appropriate food safety legislation."

The CPFFP discusses the following features in establishing a PRP:

- Fishing vessel and harvesting vessel design and construction
- Facility design and construction
- Design and construction of equipment and utensils
- Hygiene-control programmes
- Personal hygiene and health
- Transportation
- Product tracing and recall procedures
- Training

A common thread running through various PRPs is good practices – that is, guidelines and recommendations for meeting safety and quality standards. These guidelines and recommendations can refer to proper hygiene and sanitation (good hygiene practices, or GHPs), processing and handling (good manufacturing practices, or GMPs) or fish farming (good aquaculture practices, or GAPs). Similar tools in this regard are the Sanitation Standard Operating Procedures (SSOPs) used by the Food Safety and Inspection Service of the United States Department of Agriculture. What these tools set out to do is to ensure that the basic requirements of fish safety and quality are met, whether they are applied to vessels, landing sites, or processing plants.

The issues that need to be addressed in a PRP are numerous and include everything from ice storage to the maintenance of toilets. There are several guides and manuals on the implementation of PRPs; a few are listed below.

Useful sources:

Manuals:

- Atyang, J., A *Manual for Training Staff in Ugandan Fish Processing Plants on Hygiene, Sanitation and the Application of HACCP Principles*, project for the United Nations University Fisheries Training Programme (Reykjavik, 1999). Available at www.unuftp.is/static/fellows/document/jimmy99-1ff.pdf
- Ryder, J., Development of a *Guide to Assist Fish Business Operators in Implementing and Maintaining Effective Pre-requisite Programmes in ACP Countries* (IND044GEN), mission report prepared for Strengthening Fishery Products' Health Conditions in ACP/OCT Countries (2010). Available at http://sfp.acp.int/guide
- Ryder, J., Iddya, K., and Ababouch, L., *Assessment and Management of Seafood Safety and Quality: Current practices and emerging issues*, FAO Fisheries and Aquaculture Technical Paper No. 574 (Rome, 2014).

Relevant codes of practice:

- Code of Practice for Fish and Fishery Products, 2nd edition (CAC/RCP 52-2003) ftp://ftp.fao.org/codex/publications/Booklets/Practice_code_fish/CCFFP_2012_EN.pdf
- Recommended International Code of Practice – General Principles of Food Hygiene (CAC/RCP 1-1969, Revision 2003) http://www.codexalimentarius.org/download/standards/23/CXP_001e.pdf

Hazard Analysis and Critical Control Points (HACCP) system

The HACCP system is a systematic, science-based tool for identifying, evaluating, and controlling significant hazards to food safety. Its emphasis is on prevention. Thus, instead of testing a product once it is finished, the HACCP system is designed to be applied throughout the food chain — from primary production to consumption. The impact of the HACCP system on food safety and quality has been so great that its implementation is required by the world's major importers.

To implement HACCP, producing and exporting companies must prepare an HACCP plan. The plan serves as a guidance document that describes the procedures to be followed for identifying hazards and establishing controls at specific points of the process. But before the HACCP plan can be prepared, a company must take the following preliminary steps:

1. **Assemble an HACCP team.** The team is responsible for developing the HACCP plan. Its members should collectively possess a diverse set of skills related to food safety, food quality, food technology, and quality assurance. The team also should include persons directly involved in the relevant food plant's daily activities.
2. **Describe the product, its intended use, and its intended consumers.** The HACCP team's description should include the product itself, the type of packaging used, the method of distribution employed, the characteristics of end users, and the likely use of the product.
3. **Construct a flow diagram of the firm's operations and describe the production process for the food concerned.** The team should visually present all the steps involved in daily operations – that is, receiving, processing, packaging, and storage – by means of the flow diagram. It also should provide a detailed written account of these steps.

After the preliminary steps have been completed, the HACCP plan should be prepared based on the seven principles listed in Table 4. Once the plan is finalized, the company is ready to put its HACCP operation into use.

Table 6

The seven principles of the HACCP system

HACCP principle	Required activities
Principle 1: Conduct a hazard analysis	Identify the potential hazard(s) associated with each stage of production; assess the likelihood of occurrence of the hazard and identify the measures for their control.
Principle 2: Determine critical control points (CCPs)	Determine the points, procedures or operational steps that can be controlled to eliminate the hazard(s) or minimize its (their) likelihood of occurrence.
Principle 3: Establish critical limit(s)	Establish critical limit(s), which must be met to ensure that the CCP is under control.
Principle 4: Establish a system to monitor control of the CCP	Establish a system to monitor control of the CCP by scheduled testing or observations.
Principle 5: Establish corrective action(s)	Establish the corrective action(s) that must be taken when monitoring indicates that a particular CCP is not under control.
Principle 6: Establish procedures for verification	Establish procedures for verification including supplementary tests and procedures to confirm that the HACCP system is working effectively.
Principle 7: Establish records and record-keeping	Establish documentation concerning all procedures and records appropriate to these principles and their application.

Source: Reproduced from Ryder, J., Iddya, K. and Ababouch, L., *Assessment and Management of Seafood Safety and Quality: Current practices and emerging issues,* FAO Fisheries and Aquaculture Technical Paper No. 574 (Rome, 2014).

Useful sources:

- Atyang, J., A *Manual for Training Staff in Ugandan Fish Processing Plants on Hygiene, Sanitation and the Application of HACCP Principles*, project for the United Nations University Fisheries Training Programme (Reykjavik, 1999.) Available from www.unuftp.is/static/fellows/document/jimmy99-1ff.pdf
- National Seafood HACCP Alliance, *Hazard Analysis and Critical Control Point: Training Curriculum, 5th edition* (College Station, Texas, U.S.A., 2011). Available from http://nsgl.gso.uri.edu/flsgp/flsgpe11001.pdf
- Ryder, J., Iddya, K., and Ababouch, L., *Assessment and Management of Seafood Safety and Quality: Current practices and emerging issues,* FAO Fisheries and Aquaculture Technical Paper No. 574 (Rome, 2014).
- U.S. Department of Health and Human Services, *Fish and Fishery Products Hazards and Controls Guidance, 4th edition* (Washington, D.C., 2011). Available from http://www.fda.gov/downloads/Food/GuidanceRegulation/UCM251970.pdf

VI. An eight-stage process* for pursuing upgrading and diversification of fish exports

LDCs have much to gain from upgrading and diversifying their exports. The fishery sector is important in many LDCs and has the potential to create additional jobs, raise national competitiveness, and, more broadly, advance socio-economic development. The question is: how? This section presents a systematic process that LDCs can follow to promote export development and diversification in their fishery sectors. General guidelines and recommendations for upgrading and diversifying such exports are summarized in Section II, but even when these guidelines and recommendations are taken into account, a country still faces the task of deciding which measures it should prioritize and how it should implement them. The aim of the process presented here is to aid LDCs in doing so.

There is, of course, more to export development and diversification than compliance with the safety and quality requirements of importing markets. It goes without saying that appropriate infrastructure is fundamental. This is particularly true for LDCs, where the most visible constraint — both horizontally and vertically — to upgrading and diversifying fish exports is underdeveloped infrastructure. The quality of facilities and equipment and the technological sophistication of production, cooling apparatus (cold storage), and transportation is central to any successful export strategy, especially in the fishery sector. An export strategy must therefore include establishing access to uninterrupted power supply (electricity), good roads, modern airports, efficient seaports, and effective communication technology. Given the perishability of fish, the “cold chain” is particularly important. Refrigerated storage should be available close to fishing sites, in trucks, and at airports and seaports; such capacities are critical for upgrading and diversifying fish exports while meeting food-safety standards.

The process presented in this section is all-inclusive and designed to cover all relevant issues. However, because this manual pays particular attention to safety and quality requirements in the context of upgrading and diversifying fish exports, additional emphasis is placed on standards in the description of the various stages of the process. In addition, boxes appear at various points of the discussion to present tools that address sanitary and phytosanitary (SPS) measures. The boxes mainly draw on insights from the Standards and Trade Development Facility, a global partnership that supports developing countries in building their capacities to implement international SPS standards and guidelines (http://www.standardsfacility.org/).

* These are proposed by UNCTAD, based on the review of existing guidelines, principles, successful experiences and best practices from selected developing countries.

It should again be made clear that the deliberately broad process described in the following pages should be applied in ways that take into account specific country circumstances.

Overview of the eight-stage process

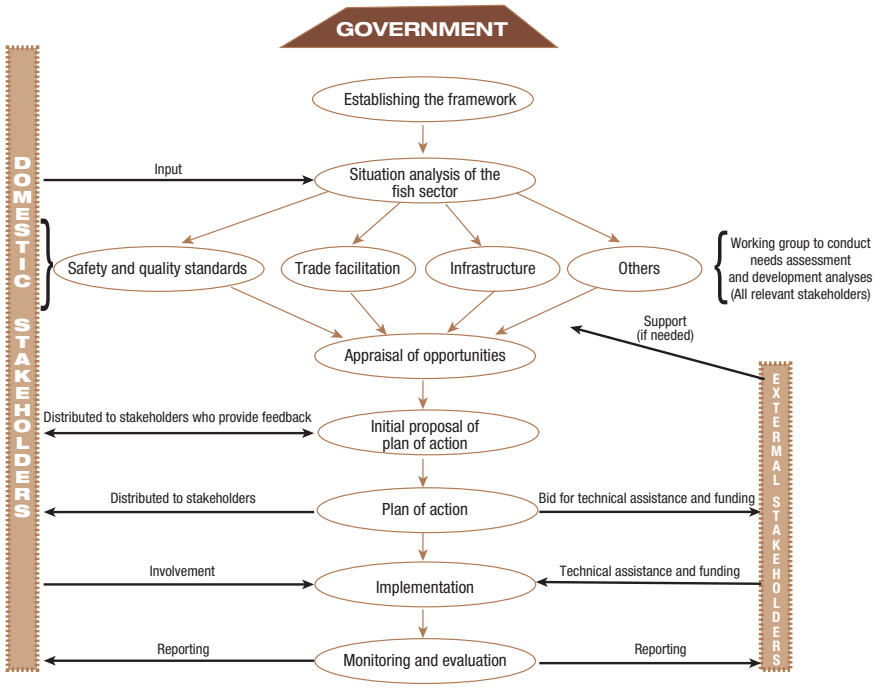
Figure 4 outlines the essential features of the process. The overall objective is to enable governments and other stakeholders to identify opportunities and constraints with respect to upgrading and diversifying fish exports; to help them prioritize which measures should be implemented and how; and to aid them in evaluating which efforts are working and which are not. The eight stages are:

1. Establishing the framework
2. Situation analysis of the fishery sector
3. Needs assessment and economic analysis of constraints
4. Appraisal of opportunities
5. Initial proposal of plan of action
6. Plan of action
7. Implementation
8. Monitoring and evaluation

1. ***Establishing the framework.*** At this preliminary stage, the groundwork of formulating objectives and outlining the process for developing a strategy is carried out. All stakeholders are identified and time frames are set. A background report on the country's fish exports is prepared. A guidance document to steer planning, implementation, and evaluation of the strategy is prepared.
2. ***Situation analysis of the fishery sector.*** With the basics in place, broad consultations are held with stakeholders to examine the current state of the fishery sector and to estimate its potential. The ultimate objective is to identify upgrading and diversification opportunities and the constraints that hinder achieving them. The focus is on opportunities and constraints at a general level, rather than on detailed analysis. (This is done at the next step.)
3. ***Needs assessment and proposed implementation strategies.*** Given the outcomes of the situation analysis, working groups are established to analyse each constraint in detail. Assessments are carried out to identify capacity gaps and needs. Various implementation strategies are considered, taking into account their estimated costs, estimated impacts, and their relative importance for realizing the opportunities that have been identified.

Figure 4

Eight-stage process for designing export upgrading and diversification strategies



4. ***Appraisal of opportunities in view of constraints.*** Analyses of constraints are collected at this stage in order to evaluate each opportunity with information that is as complete as possible. Economic analyses are performed to assess the investments and costs associated with addressing the constraints. The payoffs of the opportunities are estimated and weighed against the investments, costs, and outcomes associated with overcoming the constraints.
5. ***Initial proposal of plan of action.*** Based on the appraisal of opportunities and taking into account other factors such as political feasibility and compliance with national objectives, a plan of action to upgrade and diversify fish exports is proposed. The initial plan provides everyone involved with a set of recommendations of what should be achieved, how, when, and by whom.

6. ***Plan of action.*** The final plan of action is the set of objectives and measures that comes out of the consultation process following the initial proposal. The structure is therefore the same as the initial proposal, but with revisions that take into account feedback received from stakeholders. The plan of action is the basis for applying for any needed funding.
7. ***Implementation.*** This stage puts the plan of action into practice with the support — if needed — of donors. A lead agency oversees implementation to ensure that the designated strategies are followed by the designated entities, that the workflow proceeds as planned, and that any necessary adjustments are made promptly.
8. ***Monitoring and evaluation.*** The final stage is an assessment of the activities, outputs, and outcomes of the process. Ultimately, monitoring and evaluation are about determining whether — and to what extent — the overall objective of upgrading and diversifying fish exports is being achieved.

1. Establishing the framework

Goal: Determining the purpose and process of the exercise

Who is involved: Relevant government agencies

Main outputs: A background report on the country's fish sector, with a focus on exports, and a guidance document

The first stage lays the foundation for the subsequent stages. It must therefore clearly formulate why upgrading and diversifying fish exports is important for the country. It must outline in detail the process for pursuing that goal. It must identify all the relevant stakeholders and communicate clearly to them what is expected of them and why. To do so, the following steps should be taken:

- Support should be obtained from key decision makers.
- A lead agency should be established.
- The involvement of government agencies should be ensured.
- Stakeholders should be identified.
- A guidance document should be prepared.
- A background report should be prepared.

Support of key decision makers. Before anything, it must be clear that the effort of upgrading and diversifying fish exports enjoys support at a high decision-making level

of the government. Efforts must therefore be made to explain to key decision makers – such as the Minister of Fisheries and the Minister of Trade – why this effort is important, so that their support is gained. Without this support there is a risk that the effort will become a "paper exercise." With it, there is a strong mandate for pursuing the process which adds credibility, weight, and raises considerably the chances of success. High-level support makes it easier to engage stakeholders and to get them actively involved, and it lends credence to efforts to secure funding for the planning, implementation, and evaluation of the strategies developed.

Establishment of a lead agency. An essential feature of developing and implementing strategies is that leadership is appointed to keep the ball rolling. Thus, a lead agency must be established that is responsible for managing the workflow, overseeing its implementation, and reporting on the outcomes to key decision makers and to all relevant stakeholders. The formation of this lead agency is likely to differ from one country to another, since it depends on specific country contexts such as existing institutional frameworks. However, the agency selected – or created -- should be an inclusive group of no more than 10 representatives from different ministries and government agencies, such as the ministries of development, fisheries, and trade.

Identification of stakeholders. Upgrading and diversifying fish exports involves numerous factors, including fish production; processing that meets international safety requirements; transportation; and trade facilitation. For the effort to be successful, it must be undertaken with as much knowledge — and with perspectives as wide-ranging — as possible. It is therefore imperative to identify and actively involve all relevant stakeholders. This should be done by the lead agency. Although stakeholders will vary from country to country, they usually will include the following representatives:

- Public sector: ministries and agencies related to development, finance, fisheries, health, infrastructure, industry, and trade
- Other domestic stakeholders: academics, chamber of commerce members, exporters, and representatives of consumer organizations, industry associations, and research institutions
- External stakeholders: bilateral donors, international organizations, and regional organizations such as intergovernmental bodies and regional research institutions

Preparation of guidance document. To enable everyone involved to be clear about the objectives and the nature of the workflow at this stage of the process, a guidance document must be produced and distributed by the lead agency. The reasons for seeking to upgrade and diversify fish exports should be explained, including consideration of

Box 2. National SPS committees: Valuable stakeholders for meeting international standards on fish

National sanitary and phytosanitary (SPS) committees bring together various members from government agencies and the private sector on issues related to food safety and animal and plant health. It would therefore be natural to approach existing SPS committees to find stakeholders who can provide valuable inputs on SPS implementation, both within a given country and at the international level. In fact, national SPS committees – in their capacity as SPS coordination mechanisms – can be useful partners for lead agencies pursuing diversification and upgrading of fish exports.

However, the value of a national SPS committee depends on how functional and effective it is. A study of such committees in Africa found that their performances were less than satisfactory in all but one case. The committees are often hindered by unclear mandates, outdated legislation, limited SPS awareness, inadequate resources, and/or difficulties involving the private sector. What can be done? The study provides a number of recommendations for improving the functioning of national committees:

- Ensure the support of senior politicians and government officials
- Raise awareness of the importance of SPS capacities for trade and economic growth
- Clarify organizational mandates and roles in the SPS area, based on reviews and updates of appropriate legislation
- Build on existing working groups, task forces, and other committees that deal with food safety
- Encourage the active engagement of all SPS stakeholders
- Establish effective communications strategies for national committees and consider the creation of web-based networks and tools
- Take pro-active approaches to enhancing the sustainability of such committees, and
- Use national SPS committees to promote regional SPS coherence

Raising the performance of national SPS committees means that there are more resources for countries to draw on in their efforts to meet international fish standards. That can have a positive impact on upgrading and diversifying fish exports. Moreover, more effective national SPS committees improve implementation of the World Trade Organization's SPS Agreement and improve participation in international standard-setting bodies such as the CAC and OIE.

Sources: Kleih, U., *National SPS Coordination Mechanisms: An African Perspective*, report prepared for the Standards and Trade Development Facility (Geneva, 2012).

Standards and Trade Development Facility (STDF), *Enhancing SPS coordination at the country level,* STDF Briefing No. 8 (Geneva, 2012).

how this undertaking aligns with national goals and strategies. The backing of key decision makers for the process should be stated. The stages and the timeframe of the process should be described. The expected involvement and eventual responsibilities of the stakeholders should be made clear.

Preparation of background report with situation analysis. It is important that everyone involved have some common knowledge on which to build their inputs. The lead agency should therefore prepare a brief background report that provides an initial analysis of the country's fish exports and the potential for improvement. The report should include some preliminary thoughts on the opportunities and constraints related to upgrading and diversifying fish exports, and it should identify some points for discussion. Tools that might be used in creating the document include an analysis of strengths, weaknesses, opportunities, and threats (the so-called SWOT analysis), the Porter Diamond Model, which attempts to explain the competitive advantages some countries have due to certain factors available to them, and a global value-chain analysis (see brief descriptions in Annexes 1-3).

Table 7

Checklist for establishing the framework of the eight-stage process

1. Clearly formulate why upgrading and diversifying fish exports is important
2. Explain how the goal of upgrading and diversifying fish exports is aligned with national goals and strategies
3. Explain the potential of upgrading and diversifying fish exports
4. Explain how the eight-step process will aid in upgrading and diversifying fish exports
5. Identify related national projects and efforts that are being made or have recently been made, such as SPS needs assessments and steps towards developing the fishery sector.
6. Establish a lead agency that will oversee the process and that is ultimately responsible for the outcome
7. Identify government agencies that are directly or indirectly associated with fish exports and that should be involved in the process
8. Set a fixed timeline for the workflow
9. Identify relevant stakeholders to be engaged
10. Determine what the consultation process should look like – for example, how will contact with stakeholders be established, and will there be surveys or brainstorming sessions?
11. Prepare a background report that gives a brief description and initial analysis of the country's fish exports
12. Prepare a guidance document that is clear and concise, delineating (i) the objective and why it is important (including how it aligns with national strategies); (ii) the timeline and elements of the workflow; and (iii) what will be expected of everyone involved (for example, if they will be asked to provide information on the constraints and opportunities related to fish exports)

2. Situation analysis of the fishery sector

1. **Goal:** Identifying constraints and opportunities for export development of the fishery sector
2. **Who is involved:** All stakeholders
3. **Main output:** A summary report on the topic

Once the framework for diversifying and upgrading fish exports has been spelled out, the second stage involves defining the main challenges facing the sector and indicating possible solutions. To accomplish this, a situation analysis of the sector is carried out. This is the first opportunity for all stakeholders to be actively involved. The point is to obtain a general understanding of overall constraints and opportunities, thus laying the ground for a more detailed analysis in the subsequent stage.

Situation analysis. It is necessary to have a good understanding of the current situation facing fish exporters so as to be able to explore possible opportunities. To do this, the lead agency must undertake a situation analysis. However, the analysis cannot be carried out by the lead agency in isolation. It is imperative that inputs be obtained from all stakeholders.

The American Marketing Association defines a situation analysis as "the systematic collection and study of past and present data to identify trends, forces, and conditions with the potential to influence the performance of the business and the choice of appropriate strategies." A situation analysis thus gives a snapshot of the current state of the fishery sector and indicates possible future directions for export development. It analyses internal factors affecting the fish-exporting country and external factors such as competition from other countries, the preferences and needs of consumers in importing countries, and relevant factors involving the world economy. In the case of fish safety, the analysis should include consideration of the capacity of the fish-exporting country to comply with international standards and regulations, the specific requirements of selected import markets, and the level of fish-safety compliance achieved by the most relevant competitors.

The most popular tool for situation analysis is a SWOT analysis, which refers to the strengths, weaknesses, opportunities and threats facing a project or an organization. Other useful tools are the Porter Diamond Model developed by business theorist Michael Porter, and various global/regional value-chain analyses. These tools are described in Annexes 1-3.

Consultation with stakeholders. Engaging all stakeholders so that they provide vital contributions to the situation analysis can be achieved by organizing a meeting, with

representatives physically present, or by conducting written surveys, or by doing both. Practical considerations – distances to travel for stakeholders, costs, etc. – will determine which approach is optimal, but one approach that is often effective is to circulate a survey among stakeholders to get an initial indication of their views on the potential for developing fish exports. This can then be followed by a meeting where all (or most) of those consulted are present. The checklist at the end of this section (Table 8) includes questions that can be asked in such a survey and during a follow-up meeting.

Summary report. After the situation analysis has been completed, the lead agency should draft a brief summary report that highlights the key points raised during the consultations with stakeholders and the main constraints and opportunities that have been identified in relation to upgrading and diversifying fish exports. The summary report should then be distributed to all stakeholders for their comments.

Box 3. Sources for background reports and situation analyses

Useful sources for preparing background reports and situation analyses include the following. Only sources that have a global scope are cited.

Country studies:

- **Diagnostic Trade Integration Studies (DTIS).** These studies can be found on the website of the Enhanced Integrated Framework (EIF) for trade-related assistance for Least Developed Countries: http://enhancedif.org/
- **Fishery and Aquaculture Country Profiles.** These are comprehensive overviews of the fishery and aquaculture sectors of various countries: http://www.fao.org/fishery/countryprofiles/search/en

Statistics:

- **FAO fishery statistics.** Statistics on fisheries and aquaculture: http://www.fao.org/fishery/statistics/en
- **GLOBEFISH.** Information on international fish trade, including fish price reports, market studies, and trend analyses: http://www.globefish.org/
- **International Trade Centre marketing information and tools.** Market-analysis tools and market information, including on market access, trade competitiveness, and voluntary standards: http://www.intracen.org/itc/market-info-tools/ (Registration required, but free for users from developing countries.)
- **OECD-FAO Agricultural Outlook 2014-2023.** Prospects for the coming decade of national, regional, and global agricultural commodity markets, including fisheries: http://www.agri-outlook.org/
- **UN Comtrade.** Detailed global trade data: http://comtrade.un.org/
- **World Development Indicators.** A wealth of data on global development compiled by the World Bank: http://data.worldbank.org/data-catalog/world-development-indicators

Table 8

Checklist for situation analysis of the fishery sector

1. Disseminate the background report and guidance document to all stakeholders
2. State clearly that their inputs are needed to assess the current state of the fishery sector and to evaluate its potential so that opportunities and constraints can be identified
3. Invite stakeholders to describe which fish products are currently exported to which markets, and ask them to explain the reasons for the current state of the export structure
4. Invite everyone to explain why other fish products are not exported
5. Invite stakeholders to explain why other international markets are not being targeted
6. Ask stakeholders to list opportunities for vertical diversification of fish exports, indicating the priority and achievability of each opportunity, for example in relation to processing, packaging, and marketing
7. Invite participants to list opportunities for horizontal diversification of fish exports, indicating the priority and achievability of each opportunity, for example in relation to harvesting other types of fish and developing other fishing-related activities
8. Ask stakeholders to list opportunities for geographic diversification (that is, accessing markets not currently exported to), indicating the priority and achievability of each opportunity
9. Ask participants to list opportunities for upgrading fish exports, indicating the priority and achievability of each opportunity -- for example, improving handling or improving flavour
10. Invite stakeholders to list domestic constraints – such as overfishing, shortages of cold-storage warehouses, insufficient access to credit, and regulatory disincentives -- that hinder the realization of the identified opportunities, ranking them in order of importance
11. Request participants to list external (that is, international) constraints – such as SPS requirements, technical barriers to trade (TBTs), transportation costs, and the competitiveness of other exporting countries -- that hinder the realization of the identified opportunities, ranking these constraints in order of importance
12. Invite participants to list the investments (in time and money) they believe are necessary to overcome the constraints and to seize the opportunities they have identified
13. Once stakeholders have provided the requested information, prepare a report that summarizes the main conclusions of the situation analysis, with a focus on the constraints and opportunities related to upgrading and diversifying fish exports

3. Needs assessments and proposed implementation strategies

1. **Goal:** Identify needs and prioritize actions to address them
2. **Who is involved:** Lead agency and all stakeholders participating in working groups
3. **Main outputs:** A report from each working group summarizing the results of needs analyses and proposing implementation strategies

The situation analysis conducted in Stage 2 gives an overview of the development of fish exports and of the main problems and potential solutions to them. It thus serves as a foundation on which to proceed to more detailed analyses. These detailed analyses are carried out in Stage 3, which focuses on which specific needs have to be met to overcome constraints, and on which specific investments are required to address those needs. Separate working groups are set up by theme – for example, working groups

on standards and regulations, trade facilitation, and marketing. The task of the working groups is to perform needs analyses and economic analyses which are then submitted to the lead agency, which uses the results in Stages 4 and 5 of the process to appraise opportunities and to draft a plan of action.

Thematic working groups. The situation analysis will point out the factors that most constrain fish exports, such as low capacities for meeting the standards and regulations of importing countries, lack of infrastructure, and shortcomings of competition policy. Based on the areas identified, the lead agency should establish one working group to address each area. Each thematic working group should be made up of stakeholders directly involved with the specific constraints in question. In the case of a working group on safety and quality standards, for instance, it would be logical to include representatives from the national SPS committee, officials from relevant ministries and government agencies, representatives from industry associations, and persons who are actual fish producers and exporters.

Needs analyses. The needs analyses examine the capacity-building needs related to each opportunity identified in Stage 2. This means that the working groups differ in terms of the constraints they address, but all perform needs analyses with respect to the same set of opportunities. For instance, a working group on safety and quality standards could be expected to examine capacity gaps in areas such as fish-control management, relevant legislation, and fish-inspection requirements in view of how these issues relate to distinct opportunities, such as exporting farmed fish to Japan or exporting processed fish to emerging markets. A template for carrying out needs assessments is provided in Annex 4. A valuable resource for performing needs analyses is the FAO publication Strengthening national food control systems: A quick guide to assess capacity building[2], which provides useful guidelines for upgrading safety systems in all relevant areas: food-control management, food legislation, food inspection, food-control laboratories, and information, education, and communication.

Proposed implementation strategies. Having identified needs, each working group should also consider implementation strategies to address the capacity gaps identified. Actual interventions — such as investing in a plant or easing the availability of micro loans for ice boxes — should be proposed, along with alternatives to carry them out (e.g. through public-private partnerships (PPPs) or regional cooperation). The costs of the interventions must be indicated, so as to enable economic analyses to be carried out in the next stage. There also should be evaluations of the importance of and the time needed for each proposed undertaking. Together, these indications will be useful

[2] The cited publication is the abbreviated version. The long version is Food and Agriculture Organization, Strengthening national food control systems: Guidelines to assess capacity building needs (Rome, 2006).

for prioritizing interventions based on their estimated impacts and the value gained for the money invested. In addition to the estimated impacts of the interventions on the respective opportunities, any related positive and negative outcomes should be noted – for example, impacts on other economic sectors, on poverty reduction, and on gender equality.

Box 4. Information on existing and emerging standards of fish-importing countries

A precondition for performing a needs analysis with respect to constraints caused by safety and quality standards is to have information about which standards are required by importing countries.

For **public standards,** WTO provides access to documents and records relevant to its SPS Agreement, including notifications of new SPS measures introduced by WTO members. The information is publicly available at http://spsims.wto.org/.

For **private standards,** the Standards Map of the International Trade Centre provides information on which standards are applied in which countries. The information is available at http://www.intracen.org/itc/market-info-tools/voluntary-standards/standardsmap/

Beyond information on import requirements, it is crucial to have more general information and knowledge on global markets, for example on consumer preferences and trends. To this end, Annex 6 provides brief information on the world's four largest fish-importing markets, including their main import requirements.

Table 9

Checklist for needs assessments and proposed implementation strategies

1. The lead agency lists the constraints identified in the situation analysis, dividing them by category
2. The lead agency lists the stakeholders involved in each of these areas so that they can be appointed to area-specific working groups
3. The lead agency invites the stakeholders identified to be members of the respective working groups and designates one chairperson for each group
4. The lead agency informs stakeholders about the working groups that have been formed and the membership of each of group
5. The lead agency sets a specific, non-negotiable deadline for submission of reports by the working groups
6. Each working group performs a needs analysis using the same method, preferably a method similar to the template outlined in Annex 4
7. Each working group identifies the needs related to each opportunity
8. Each working group proposes interventions and strategies for addressing the identified needs
9. Each working group indicates the cost of each intervention recommended, its importance, and a timeframe for completing it
10. Each working group indicates any additional impacts – positive and negative – that may result from the proposed interventions
11. Each working group submits a report to the lead agency

Working group reports. Each working group should summarize its results in a brief report that is sent to the lead agency.

4. Appraisal of opportunities in view of constraints

1. **Goal:** Identify the most appropriate opportunities and the most effective implementation strategies for realizing them
2. **Who is involved:** Lead agency
3. **Main output:** A comprehensive assessment of opportunities and their related costs and benefits

After the lead agency has received the reports from each working group, it carries out an evaluation of the opportunities in view of all the needs identified and the interventions suggested. Thus, whereas Stage 3 is concerned with each constraint in view of the opportunities identified, the focus in Stage 4 is on each opportunity in view of the constraints identified. The appraisal of the opportunities will allow the lead agency to determine which implementation strategies are the best to pursue.

Evaluation of opportunities. The lead agency needs to estimate the relative values of the opportunities identified in the situation analysis. To do so, it should not only consider the potential capacities of the country concerned but also take into account external factors such as the growth projections of importers and the competitiveness of other fish-exporting countries. The evaluation of the various opportunities should be done simultaneously with Stage 3 and the activities of the working groups.

Economic analysis. Based on a review of the reports of the working groups and on an evaluation of the opportunities, the lead agency performs an economic analysis of the options on the table. Cost-benefit analysis is probably the best tool in most cases for balancing the expected expenses against the anticipated positive returns. Two other tools that may be useful in certain circumstances are cost-effectiveness analyses and multi-criteria decision analyses. Whichever analytical tool is chosen, the resulting analysis should assist the lead agency in identifying the optimal implementation strategies for upgrading and diversifying fish exports.

As an example, consider an opportunity to develop aquaculture. Among the constraints that exporting countries might have to address are demanding standards related to safety, quality, animal health, and sustainability; insufficient access to credit; a lack of infrastructure; weak policy and legal frameworks; an absence of coordination among relevant institutions; insufficient water management; and low availability and quality of feeds. Possible interventions could include investing in local feed mills and/or hatcheries, training local producers, certifying farms, updating policies and legislation,

Box 5. Definitions of economic analysis tools

A cost-benefit analysis calculates and compares flows of costs and benefits of capacity-building options, expressed in monetary terms, over time. Used on an ex ante (before-the-event) and ex post (and after-the-event) basis, its applications range from simple accounting to the employment of highly complex econometric models.

A cost-effectiveness analysis identifies the most cost-effective way to achieve a given option, but does not determine if this option produces a net benefit.

A multi-criteria decision analysis is a relatively new approach that can be used to examine several options which differ in their associated costs and benefits by examining them against various criteria. Different units (monetary or non-monetary) can be used to measure the costs and benefits.

Note: Definitions taken from Standards and Trade Development Facility, *Using economic analysis to inform SPS decision-making,* STDF Briefing No. 3 (Geneva, 2009).

and developing laboratories specializing in fish quality. The economic analysis would weigh the costs of these interventions against the benefits achieved by addressing the constraints, and, ultimately, the benefits of realizing the opportunity of developing aquaculture.

Appraisal of opportunities. The next step in the process is that all the opportunities — and their related costs and benefits — are assessed against each other. Such an analytical approach means that the lead agency can better understand which opportunities are worth pursuing, in order of importance, and which implementation strategies are best for doing so. In addition, the appraisal lends credence to the process, since it encourages transparency and accountability.

A template for the appraisal of opportunities is provided in Annex 5.

Table 10

Checklist for appraisal of opportunities

1. List by category the opportunities identified in the situation analysis
2. Estimate the value of each area of opportunity and assess how difficult it may be to realize, for example by giving an "easy-to-difficult" score to each area of opportunity
3. Settle on which type of economic analysis to employ to quantify the opportunities and constraints identified in the situation analysis, and to quantify the investments associated with them
4. Perform an economic analysis of each opportunity, taking into account the reports of the working groups.
5. Spell out alternative courses of action in terms of the greatest impact-cost ratios – that is, value for money
6. State explicitly the limitations of the economic analysis – for example, any assumptions made, any inherent uncertainties of the analysis, and any possible measurement errors
7. Appraise the opportunities in view of the results of the economic analysis

5. Initial proposal of plan of action

- **Goal:** Prepare a proposed plan of action with SMART — specific, measurable, attainable, relevant, and time-bound — objectives and undertakings
- **Who is involved:** Lead agency
- **Main output :** Proposed plan of action

Following the appraisal of opportunities in Stage 4, the lead agency proceeds by proposing a plan of action. The plan of action sets out immediate goals on the way to reaching the grand objective of upgrading and diversifying fish exports. The immediate goals are the opportunities identified in Stage 4 as the best to pursue, taking into account practical and political considerations. The plan of action also spells out in detail the implementation strategies to be pursued — that is, which tasks need to be accomplished, how, by whom, and by when. The plan also should briefly explain why these particular immediate goals and implementation strategies have been proposed (and not others). Upon completion, the initial proposal of the plan of action should be distributed to all stakeholders for feedback.

Basic principles. In preparing the proposed plan of action, the lead agency should make sure that the immediate goals and actions are SMART — that is, specific, measurable, attainable, relevant, and time-bound. In particular, the actions should spell out clearly:

- The goal and purpose of the action
- Who is responsible for performing a given task or action
- Who is expected to support the responsible stakeholder in performing a given task or action (if applicable)
- When the action is expected to begin and when it is expected to be completed
- Which resources are needed and how these might be obtained
- Which outcomes of a given action will be considered successes or failures

Box 6. Public-private partnerships for tackling SPS measures

Any serious attempt at building the capacities of an LDC to meet requirements on fish safety and quality must involve stakeholders from both the public and the private sectors. This has been increasingly recognized over the years. One manifestation of this has been a growing trend of establishing public-private partnerships (PPPs) to achieve such policy objectives. In the case of food safety, it has been shown that PPPs can have significant impacts on SPS capacity-building, value-chain development, and trade-facilitation upgrading, but it has also been apparent that such partnerships are not always easy to initiate, implement, and/or manage.

Are there any best practices that can be followed? A joint study by Standards and Trade Development Facility and the Inter-American Development Bank on PPPs dealing with SPS issues found that the bases for a successful PPP include:

- Ownership of the process by the key stakeholders, which leads to commitment and trust
- Identification of common interests, agreement on clear objectives, and alignment of expectations among the participants
- Clarity on how the PPP will be implemented and managed, including the roles, responsibilities, and obligations of the stakeholders involved
- Good governance and transparency
- High-level support, competent leadership, and capable partners
- Clarity on the financial costs and contributions required

Source: Hopper, M., and Almeida, J.S., *Public-Private Partnerships to enhance SPS capacity: What can we learn from this collaborative approach?*, joint document of the Standards and Trade Development Facility and the Inter-American Development Bank (Geneva, 2012).

Table 11

Checklist for initial proposal of plan of action

1. The lead agency deliberates on the appraisal carried out of the opportunities and other relevant factors -- such as political feasibility and national objectives — in relation to upgrading and diversifying fish exports
2. The lead agency prepares the initial proposal of a plan of action
3. It ensures that the proposal includes reasons for the recommendations made, including how they relate in practical terms to upgrading and diversifying fish exports
4. It includes key results from the needs assessment, the economic analysis, and the appraisal of opportunities
5. It makes sure that the proposal takes into account and states any positive and negative effects (direct and indirect) that may result from the actions recommended, including who could be affected and in what way
6. It ensures that the proposal discusses who will implement the actions and by when – that is, it includes an allocation of responsibilities and a timeframe
7. It includes a budget that outlines realistically how the actions will be funded
8. It makes sure that the proposal sets clear benchmarks for what should achieved, so as to allow determination of success or failure

Box 7. Regional cooperation to address fish safety and quality concerns

One useful tool for addressing the challenges related to fish safety and quality is regional cooperation and networking. Regional cooperation can result in collaborative efforts to upgrade regional standards and reduce common challenges such as cross-border diseases. In addition, regional workshops and meetings can be beneficial as places to exchange information and share best practices. Regional research centres and institutes also can contribute valuable skills and resources.

There are many examples of regional cooperation related to standards and to fish products -- for example, efforts by African regional economic communities to harmonize SPS standards; the role of the Lake Victoria Fisheries Organization in promoting the sustainable use of the lake's living resources by Kenya, Uganda, and the United Republic of Tanzania; and the development of an SPS action plan in the Greater Mekong Subregion. Best practices harvested from these and other initiatives include (i) promoting a common vision and agreeing on priorities; (ii) establishing a coordinating body; and (iii) establishing bilateral working groups to deal with specific issues related to fish safety and quality.

Sources: Enhanced Integrated Framework, *Tanzania: Diagnostic Trade Integration Study: Volume 1* (Geneva, 2005).
Magalhães, J., *Regional Sanitary and Phytosanitary Frameworks and Strategies in Africa,* report for the Standards and Trade Development Facility (Geneva, 2010).
Standards and Trade Development Facility, *Mobilizing Aid for Trade for SPS-related technical cooperation in the Greater Mekong Sub-Region,* STDF Briefing No. 5 (Geneva, 2010).

6. Plan of action

1. **Goal:** Finalize the plan of action
2. **Who is involved:** Lead agency, with feedback from all stakeholders
3. **Main output:** Plan of action

After the proposed of plan of action has been distributed to all stakeholders and they have, in turn, provided feedback on the document, the lead agency finalizes the plan of action. It considers the comments received from the stakeholders and, where appropriate, incorporates them into the text. The resulting document is the definitive plan of action to be implemented.

The basic principles of the final plan of action are the same as those of the initial proposal.

Table 12

Checklist for plan of action

1.	Distribute the initial proposal to all stakeholders for their feedback
2.	Invite them to provide feedback, taking into account the previously disseminated guidance document and the summary of the economic analysis
3.	Finalize a plan of action that takes on board the feedback
4.	Make sure that the plan includes reasons for the objectives and priorities cited, including how they relate in practical terms to the upgrading and diversification of fish exports
5.	Make sure that the plan takes into account and states any positive and negative effects (direct and indirect) that may result from the actions called for, including who could be affected and how
6.	Ensure that the plan discusses who will implement the actions and by when – that is, an allocation of responsibilities and a timeframe
7.	Make sure that the plan includes a budget that outlines realistically how the actions will be funded
8.	Make sure that it sets clear benchmarks for what should be achieved, so as to enable determination of success or failure
9.	Disseminate the plan of action to all stakeholders
10.	Apply for funding from donors if necessary

7. Implementation

1. **Goal:** Implement the plan of action
2. **Who is involved:** All stakeholders (including donors)
3. **Main output:** Implemented plan of action

With the plan of action in place, the lead agency and the rest of the stakeholders proceed to implementing it. If funding is needed for certain actions, the plan can serve as a template to apply for financial and technical assistance from donors in line with the principles of the Paris Declaration on Aid Effectiveness.

Box 8. Aid for Trade and the Paris Principles

In the context of seeking funding for upgrading and diversifying fish exports, the Aid for Trade initiative presents the most relevant form of financing. It can, for instance, be used to support efforts to comply with fish safety and quality standards, to improve management of fishery resources, and to promote investment in higher value-added activities.

No matter the type of aid being sought, LDCs and donor countries should strive for optimal effectiveness and therefore should adhere to the five fundamental principles outlined in the Paris Declaration on Aid Effectiveness:

1. Ownership of the process: LDCs set their own strategies for reducing poverty, improving their institutions, and tackling corruption
2. Alignment: Donor countries align behind these objectives and use local systems to pursue their achievement
3. Harmonization: Donor countries coordinate with each other, simplify procedures, and share information to avoid duplication of effort
4. Results: LDCs and donors focus on development results, and measure such results effectively
5. Mutual accountability: Both donors and LDCs are accountable for development results

The Standards and Trade Development Facility and the Organisation for Economic Co-operation and Development have looked at how these principles can be applied to SPS measures. In analysing a survey on SPS projects in East Africa, Central America, and the Greater Mekong Subregion, the organizations identified the following best practices:

- National ownership should be ensured
- The recipient country's context and absorptive capacities should be considered
- Needs should be carefully assessed and prioritized
- Project activities should be transparent, connected, and carried out in sequence

Box 8 (contd.)

- A value-chain approach should be adopted to maximize trade impact
- Public- and private-sector participation should be encouraged
- Flexibility should be practised during the implementation of projects
- The development of skills should be linked to their practice
- Management capacities should be strengthened and should be focused on results
- Market distortions should be avoided
- Impacts should be rigorously evaluated

Sources: OECD, Paris Declaration on Aid Effectiveness (Paris, 2005).

Standards and Trade Development Facility, *Good practice in SPS technical cooperation,* STDF Briefing No. 1 (Geneva, 2008).

Sumaila, U. R., Bellmann, C., and Tipping, A., *Fishing for the Future: Trends and Issues in Global Fisheries Trade*, E 15 Initiative, International Centre for Trade and Sustainable Development (ICTSD) (Geneva, 2008), and World Economic Forum (Cologny, Switzerland, 2014): www.e15initiative.org/

A critical component of the implementation stage is that the lead agency be ultimately responsible for the process and, in that regard, continually review the progress of the implementation of the plan of action. If stakeholders encounter problems in performing their tasks, they should consult with the lead agency to decide on alternative strategies.

It is equally important that the lead agency communicate regularly with all stakeholders and provide them with updates on progress. This can be done through newsletters and/or meetings.

Table 13

Checklist for implementation

1.	The lead agency periodically meets with the entities involved to discuss implementation of the plan of action
2.	If there are any problems associated with implementation, the lead agency and the relevant stakeholders together decide on needed adjustments
3.	The lead agency reports to all stakeholders on progress made and on problems encountered

8. Monitoring and evaluation

4. **Goal:** Transparent and accountable monitoring and evaluation of the implementation of the plan of action
5. **Who is involved:** Independent evaluator(s)
6. **Main output:** Report by evaluator(s)

Monitoring and evaluation is a formal process to assess how well the plan of action has been put into effect. This not only lends transparency and accountability to the process; it also highlights lessons learned and makes clear the reasons for various successes and failures, thus providing valuable insights that should aid subsequent efforts to upgrade and diversify fish exports.

There are two crucial principles to heed in monitoring and evaluation. One is that the evaluator(s) be independent and not have any vested interest in the outcomes of the actions involved. Clearly, the greater the independence of the evaluator(s), the more accountable are the monitoring and evaluation. The other principle is that there should be clear, quantitative indicators against which the evaluator(s) can assess the outcomes of the actions undertaken. This point should already have been addressed in Stage 5 by the lead agency during the drafting of the initial proposal of the plan of action, but it is highlighted again here because it plays such an important role in effective monitoring and evaluation.

Table 14

Checklist for monitoring and evaluation

1. An independent body is commissioned to perform monitoring and evaluation
2. Upon receiving the monitoring and evaluation report, the lead agency provides written comments on the findings
3. The monitoring and evaluation report and the comments of the lead agency are disseminated to all stakeholders
4. All stakeholders share their views on efforts that should be continued (successes) and efforts that should be discontinued (failures)
5. If applicable, the lead agency prepares a final report to send to donors on the basis of the monitoring and evaluation report

VII. Conclusion

The objective of this manual is to assist LDCs in upgrading and diversifying their fish exports, with a particular focus on meeting international fish safety and quality standards. Since it is a manual, a practical approach has been taken that primarily addresses two questions: what upgrading and diversification of such exports amounts to, and how it can be achieved. More specifically, the manual considers which challenges fish-exporting LDCs face, and how these challenges can be surmounted. The tools that have been presented, the eight-stage process that has been suggested, and the many references that have been provided, can all contribute to the efforts of LDCs to develop their fishery sectors and expand their fish exports. Thus, although the manual cannot possibly be a one-size-fits-all recipe — since the individual situations of LDCs vary too greatly for a single approach to be effective — it should contain useful ingredients that LDCs can combine as needed to devise their own effective strategies.

One of the key messages to take home is that LDCs can do a lot on their own. Among other measures, they can increase domestic political will and strengthen domestic commitment to developing fish exports; they can upgrade institutions; they can take steps to enhance the involvement of the private sector in formulating and implementing strategies and policies (for example through public-private partnerships); and they can improve coordination among domestic stakeholders.

However, it is equally clear that development partners have an important role to play in supporting LDCs in upgrading and diversifying fish exports, especially by providing technical and financial assistance. Imparting knowledge and skills to LDC participants along the value chain, increasing domestic abilities for carrying out inspections and enforcing regulations, and providing training in resource management are among the capacity-building measures that development partners can contribute. Above all, such partners can assist LDCs in improving the infrastructure needed to meet import requirements on fish — for example through aiding in the establishment of effective testing centres, laboratories, and cold-storage facilities. This is also one of the main conclusions drawn by the Standards and Trade Development Facility from its review of LDC efforts to meet SPS standards in the fishery sector:

> "(W)hile it is important to strengthen the 'software' for SPS compliance (including legal and regulatory frameworks, institutional capacity for implementing and enforcing SPS measures, SPS knowledge and skills among stakeholders all along the value chain), it is also crucial to ensure adequate financial resources for the SPS hardware and infrastructure required for compliance."

Annex 1: SWOT analysis

SWOT stands for strengths, weaknesses, opportunities and threats. An analysis focusing on these matters is an easy-to-use tool for identifying the trends, forces, and conditions that affect performance and competitiveness within an economic sector, thus enabling countries to develop appropriate future strategies. A SWOT analysis does this by identifying the positives and negatives of the internal and the external factors influencing performance. The internal factors are the strengths and weaknesses of the entity concerned, while the external factors are the opportunities and threats posed by the surrounding environment.

The results of a SWOT analysis are usually presented in a 2x2 matrix. Six examples of SWOT analysis are given in Annex Tables 1 to 6. These present analyses of the fishery sectors of Bangladesh, Cambodia, the Comoros, Mozambique, Myanmar, and Uganda. The analyses draw on the *Cambodia Trade Integration Strategy 2014-2018, the Uganda Diagnostic Trade Integration Study, Vol. 2 (2006), and the UNCTAD study Fishery Exports and the Economic Development of Least Developed Countries: Bangladesh, Cambodia, The Comoros, Mozambique, Myanmar, and Uganda* (2017).

Annex table 1

SWOT analysis of the Bangladesh fishery sector

Strengths	Weaknesses
• The fishery sector is a major component of Bangladesh's economy and culture. It provides direct or indirect employment to 15 million people (almost 10% of the population), and 73% of rural households are involved in aquaculture. • Bangladesh benefits from rich biodiversity. The Ganges delta and the country's multiple river systems provide large fishery resources and support some 320 different species. • Bangladesh is already the third largest inland-captures producer of fish and the sixth largest aquaculture producer in the world. • The fishing industry in Bangladesh has experienced steady growth, exceeding 5% per annum since 1984. • Bangladesh is already able to export to three major developed markets: the United States of America, the EU, and Japan. • In addition, more than half of Bangladesh's exports go to China, a major growth market. • The Bangladesh Fisheries Research Institute develops and disseminates fish farming and management techniques and develops new fish strains.	• While Bangladesh is one of the largest producers of fish in the world, it is only the 34th largest exporter of fish. • Exporters have faced problems meeting international food-quality and safety standards. • Lack of legislation and poor enforcement of rules has led to overfishing. • While regulation has focused on industrial trawlers, inadequate monitoring has meant that such trawlers continue to fish in shrimp spawning grounds, thus reducing the species' natural replacement rate. • Artisanal fisheries are largely unregulated, although they account for 90% of marine capture and the majority of aquaculture catches. • Negative environmental impacts of human activities in Bangladesh and India, such as upstream dams, are contributing to decreases in fish stocks. • Overfishing has led to a reduction in shrimp catches, and has reduced supplies of other species. • The unavailability of public icing and cold-storage facilities means that poor hygiene practices are widespread and a high proportion of the fishery harvest is discarded. • The absence of quality, well-connected roads from landing sites to wholesale markets leaves fishermen beholden to distributors, and this limited connectivity results in squeezed profit margins for them. Some 80% of fish farmers consider lack of information and poor distribution to be their main problems. • Fish producers are facing significant challenges in meeting the private standards of major export markets.
Opportunities	**Threats**
• Following repeated export bans, the Government and fishing industry are committed to upgrading infrastructure and the country's technical capacity to meet the foreign standards. They have invested significantly in efforts to meet HACCP requirements. • Processing facilities have excess capacity. There are currently 129 processing plants, of which 53 have approval to export to the EU. However, to date these plants are running at 20-25% capacity. • The formation of village communities can supplement government surveillance capacities for artisanal fishing. • Bangladesh has the potential to improve its management of the fishery sector by establishing property rights and water-sharing rights among fishers and by reaching environmental agreements with neighbouring countries. • Recent improvements in roads and communications have seen more fishers participate directly in secondary markets, thus shortening distribution chains. • The Bangladesh Fisheries Research Institute should be able to direct its research towards abiotic threats facing aquaculture, including problems with soil and water quality. • Training programmes for fish farmers have been shown to increase efficiency and productivity. • Bangladesh could exploit new export opportunities, such as for striped catfish. This could also help diversify exports away from shrimp and tuna.	• Exports to Japan declined by 2.5% per annum between 1991 and 2011. • Past failures to meet food and safety standards have led to intermittent export bans. • Overfishing has brought 54 of the country's estimated 320 species to the brink of extinction. • The construction of upstream dams is exacerbating Bangladesh's existing vulnerability to natural disasters. • Flooding, soil erosion, and low levels of dissolved oxygen in fresh water are limiting further aquaculture development.

Annex table 2

Value-chain analysis

Strengths	Weaknesses
• Cambodia's vast water resources – its seacoast, floodplains, rivers, and lakes -- offer significant economic opportunities for rural livelihoods through marine fishery, rice-field fishery, and aquaculture. • Cambodia's fresh waters are among the most conducive for fishing in the developing world due to the large floodplains around the Tonle Sap Great Lake and along the Tonle Sap and Mekong rivers. • Because fishing is a traditional sector with a long history in Cambodia, there is significant traditional knowledge relating to fish species and habitats. • Freshwater fish are the largest source of animal protein in Cambodia and figure prominently in Cambodian nutrition. • Establishment of small-producer associations in the three main coastal provinces has been an important first step in creating a better-organized marine fisheries sector. • The practice of co-management of Cambodia's inland water resources through community fisheries (CF) organizations has given greater voice to small-scale fishers and has enhanced the sustainable use of these water resources. • Since 2010 there has been rapid growth in export volumes (mainly of frozen shrimp) to one of the largest and most highly valued markets for fish— Japan. • While most fish exports are unrecorded, it is likely that informal exports of inland fish are significantly larger than those from marine resources. • The global fish trade typically faces very low (and often zero) tariff barriers.	• Lack of knowledge and/or compliance with SPS requirements in high-value international markets, including the EU, is a substantial barrier to increasing earnings from fish exports. • Lack of consistent supplies constrain onshore processors (including those who freeze fish) from expanding their outputs and exports. • Export Licensees are empowered to collect a 4% fee on the value of fish exports, discouraging exports and leading traders to seek informal trade channels. • Pressures on freshwater and coastal fisheries result in catches of lower economic value. • Many of the larger and more valuable fish species have declined significantly both in numbers and size, and are now in short supply in local markets. • A significant quantity of deep-sea catch is sold at sea by Cambodian fisherman to larger Thai, Vietnamese, and Hong Kong vessels, bypassing Cambodia's markets and onshore processing facilities. • Poor roads and lack of electricity make the storage and transportation of fish products difficult. • Highly unreliable trade data (especially for marine fisheries) impedes policymaking and the development of strategies for export market development. • There is insufficient industry knowledge of international fish markets, export practices, and marketing. • Fish producers face significant challenges in meeting the private standards of major export markets.
Opportunities	**Threats**
• Greater access to international markets could significantly improve national well-being — the fishery sector directly employs 420,000 people, while up to 6 million derive some form of livelihood benefit from fishery activities in Cambodia. • The Cambodian Strategic Planning Framework for Fisheries: 2010–2019 and ongoing reforms to the management of domestic fisheries provide an effective platform for driving private-sector investment in the fishery sector and in exports. • Significant quantities of deep-sea catch could be processed onshore in Cambodia. • Increasing the resources and the capacity of Cambodia to patrol and monitor its coastal areas could significantly lower the quantity of fish illegally harvested by foreign vessels within Cambodian waters. • The opening of the Marine Aquaculture Research and Development Centre (MARDeC) in 2012 could help the marine aquaculture sector grow rapidly. • Expansion of the aquaculture sector provides an opportunity for reducing fishing pressures on wild stocks while also boosting future export capacities. • Investing in harvest and post-harvest technology to enable Cambodia to meet global market standards could provide a catalyst for improved access to export markets. • Current efforts to boost the competencies of the Cambodia Fisheries Administration, together with parallel actions, could help lift SPS capacity in the sector.	• Environmental degradation and habitat destruction from dams, deforestation, and conversion of land for agricultural uses are creating problems for the fishery sector. • Widespread overfishing of freshwater and marine stocks due to increased demand, unregulated catch limits, and less-efficient fisheries practices is reducing fish stocks. • Key importing countries are imposing new and more stringent SPS and TBT restrictions on Cambodia's fish exports. • A failure to improve and expand institutional capacities for fish inspection and enforcement of quality and food-safety standards could deny the sector any real chance of sustained increases in export earnings. • Disease outbreaks, especially in aquaculture, are a concern. • A reluctance of government and industry to invest in research and development could weaken efforts to promote fish-processing technology that could minimize post-harvest losses.

Annex table 3

SWOT analysis of the Comoros fishery sector

Strengths	Weaknesses
• Fishing is the second most important sector of the Comoros economy, accounting for 10% of employment and 8% of GDP in 2013.	• All domestic fishing operations are artisanal, and there are no exports of fish from domestic fishers. • All industrial fishing in the Comoros is conducted by vessels of foreign nations. • A lack of infrastructure, landing, and processing facilities means that fish caught by foreign vessels in the waters of the Comoros are not brought ashore for processing in the Comoros. • As a result, tuna fishing creates no employment for Comoros nationals. • Due to the unavailability of personnel, there are no observers from the Comoros aboard European vessels fishing in Comoros waters. • Most artisanal fishers still use traditional wooden canoes, limiting their reach to areas close to the coast. • Lack of access to finance for investment in boats is a constraint to upgrading the fishing fleet. • Levels of human resources in both the public and private fishery sectors are low. • Governance of fisheries remains weak and lacks transparency. • There is no official legal framework for the country's exclusive economic zone, partly due to its overlap with the economic zones of Madagascar, Mozambique, Seychelles, and Tanzania. • Fish producers face significant challenges in meeting the private standards of major export markets.
Opportunities	**Threats**
• Foreign fishing companies operating in Comoros waters pay a licensing fee that includes funding for investment in the domestic fisheries sector. • A revision of the country's licensing agreement with the EU could tie the fees more closely to market conditions, thus increasing the funds available for supporting the domestic fishery sector. • The poverty-reduction and growth strategy of the government for 2010-2014 prioritized the fishery sector. • The Comoros is situated on the migratory paths of tuna and swordfish — and fish stocks, especially for tuna, are substantial. • While most artisanal fishermen still use traditional canoes, motorized fibreglass boats with greater range are slowly being introduced. • The first semi-industrial fishing operation has been established in the Comoros. • A tuna-processing facility is under construction in the Comoros as a mixed public venture by Qatar and Sri Lanka. • The Government envisions several steps for promoting local processing, including the construction of larger boats, a quality-control laboratory, and a new fishing school.	• The fisheries sector remains vulnerable to external shocks, as demonstrated by the drop in its share of GDP from 15% in 2010 to 8% in 2013. • Since 2005, piracy has disrupted tuna fishing off the coast of East Africa, reducing harvests.

Annex table 4

SWOT analysis of Mozambique's fishery sector

Strengths	Weaknesses
• Mozambique benefits from 2,700 km of coastline, and access to abundant fishery resources in 100,000 km2 of marine waters, with an exclusive economic zone of 200 nautical miles and 13,000 km^2 of inland waters. • Strengthening the fishery sector has been part of the Government of Mozambique's efforts to enhance socioeconomic development and reduce poverty, including through improving market access, upgrading infrastructure, and building training facilities. • Mozambique benefits from duty- and quota-free access to the EU market under the Everything But Arms initiative and a regional trade agreement. It also has been certified to export fishery products and aquaculture to the EU, which is already the largest market for its fishery products. • The National Institute for the Development of Small-Scale Fisheries provides support to the small-scale sector. • The Government has established a National Institute of Aquaculture Development to genetically improve some species, and is implementing an Aquaculture Development Strategy, including transfers of knowledge and technology, the enhancement of technical capabilities, and improved fingerling availability.	• Despite robust potential and Government efforts to promote it, the aquaculture sector remains underdeveloped. • Infrastructure challenges are preventing the development of the aquaculture sector. • Only 41% of fishers use boats, of which less than 10% are motorized, while the rest of fishermen are collectors or use shore-based fishing gear. • In recent years, the number of fishers has increased, leading to overfishing, increased illegal fishing, and a reduction in catches. • Supply-side constraints, including a lack of access to finance and credit and to external markets, as well as to effective processing and trading systems, pose key obstacles to development of the sector. • An absence of sufficiently equipped logistics services for distributing catches to processing plants in the region prevents foreign industrial fishing vessels from docking in Mozambique. • Fish producers face significant challenges in meeting the private standards of major export markets.
Opportunities	**Threats**
• China is already a significant trading partner for Mozambican fisheries, and its share of exports has been growing at an annual rate of 66.9%. • The fast growth of the Mozambican economy is increasing domestic demand for fish and seafood. • Small-scale fisheries have been given special attention in the development policies and strategies of Mozambique. • Mozambique possesses great aquaculture potential, with a favourable environment suitable for coastal aquaculture and the farming of wild native species. • While the aquaculture sector produced 721 tons of goods in 2013, some estimates suggest that marine and freshwater aquaculture have the potential to produce 800,000 and 2 million tons, respectively, per year. • The Government aims to develop a national tuna industry, including increasing the number of vessels pursuing the fish and improving infrastructure at landing sites.	• Increasing demand for fish from Mozambique's growing economy threatens to exacerbate overfishing. • Climate change poses a threat to small-scale fisheries. • Coastal shrimp stocks have been severely depleted, resulting in a reduction in annual fishing quotas. • Mozambique still faces challenges in fully implementing EU hygiene and food-safety standards.

Annex table 5

SWOT analysis of Myanmar's fishery sector

Strengths	Weaknesses
• Myanmar benefits from ample fishery resources — some 213,720 km^2 of marine waters and 8.2 million hectares of inland waters, as well as flood plains during monsoon season. • Between 2003 and 2012, Myanmar was already among the top 16 producers of inland-water captures, and among the top 10 producers of marine captures. • Over the last two decades, total fisheries production has grown at an average rate of 14.5% per annum, while exports have averaged at 11% growth annually. • China is the largest export destination, and demand from that market is growing. • Myanmar benefits from duty- and quota-free access to the EU under the Everything But Arms initiative. • To protect against overfishing, nursery areas have been established, marine fishing activities are regulated by a licensing and registration system, and the entry of new individuals into the industry is controlled. • With Government support, aquaculture has grown rapidly since the 1960s and now accounts for 19% of national fisheries' production.	• The export of aquaculture products to the EU is banned because Myanmar has not yet implemented a residue-monitoring plan required for meeting EU standards. • Lack of investment in infrastructure (especially electricity) and a lack of technical capacities and know-how are preventing local processors and fish farmers from complying with food-safety standards and with other conditions for the export of aquaculture products. • While efforts to monitor and control IUU fishing are underway, it still represents a problem in Myanmar. • Fish producers are facing significant challenges in meeting the private standards of major export markets.
Opportunities	**Threats**
• Despite its significant potential, the size of Myanmar's aquaculture sector remains small compared to capture production. • The development of a national regulatory system would help manage the risk of fish diseases undermining the aquaculture sector, and would aid in compliance with EU regulations. • As a member of the Association of Southeast Asian Nations (ASEAN), Myanmar benefits from regional harmonization of food-quality and safety requirements and from preferential market access to third countries through free-trade agreements negotiated by ASEAN.	• The fishing industry is vulnerable to natural shocks. For example, a cyclone in 2008 significantly reduced fishing employment in the Ayeyarwady delta region. • Recent trends suggest a decrease in marine abundance due to overfishing and overexploitation of stocks.

Annex table 6

SWOT analysis of Uganda's fishery sector

Strengths	Weaknesses
• Substantial, highly productive fishery resources. • Ideal environmental conditions for aquaculture in terms of water resources and climate. • Access to markets through existing processing and marketing channels. • World-class processing sector, compliant with hygiene and quality demands. • Well-established and efficient links to main global fish markets, particularly the EU.	• Ineffective resource management due to a) inadequate research; b) weak Monitoring, Control & Surveillance; and c) a lack of suitable policies. • Poor hygiene conditions at landing sites. • Inefficient marketing and distribution chains. • Significant challenges in meeting the private standards of major export markets. • Inadequate regulatory regime, especially a lack of veterinary-drug controls and residue monitoring. • Processing is substantially reliant on one product and one market. • Lack of competitiveness due to high raw material costs. • High distribution costs for Nile perch compared with other producers.
Opportunities	**Threats**
• Sustainable management can secure future fishery revenues. • Reducing post- harvest losses can improve export yields. • Increased exploitation of the mukene fishery (Lake Victoria) and the tilapia fishery (Lake Victoria and other lakes) can boost regional and international trade. • Investments by input suppliers (for example of feed and of monosex tilapia) can stimulate the growth of both lake- and land-based aquaculture. • There is potential for product diversification based on supplies from aquaculture (tilapia). • Premium prices can be achieved due to the superior quality of exports. • Value growth can be maintained through (i) improved quality from upgraded hygiene conditions at landing sites, thus heightening export yields and prices; (ii) development of aquaculture to supply international and regional markets; and (iii) generic promotion.	• Collapse of Nile perch stocks in Lake Victoria. • Loss of market access due to recent EU fish bans. • Reduced prices for fishers due to the introduction of a levy and a resulting increase in smuggling. • Social conflicts are inhibiting the development of lake-based cage aquaculture. • Loss of supplies due to fishery collapse. • Loss of market access due to recent EU fish bans. • Nile perch sales are being undercut by competition from fresh chilled aquaculture species from SE Asia.

Annex 2: Value-Chain analysis

Value-chain analysis is a strategic tool that examines the activities that go into making a product — from raw material through processing to finished product. Crucial to such analysis is that the activities are linked. Value-chain analysis can be used to look at the various activities that take place within an enterprise or to follow the transformation of a product as it moves from one enterprise to another until it reaches the end consumer. It is the latter sense that is of primary interest to this manual, as it provides insights into the positioning of a given enterprise or organization in the global value chain of fish and fish products, and of the contribution of that entity to the end product. A simple example of a value chain is depicted in Annex Figure 1.

Annex figure 1

Simple value chain in fisheries

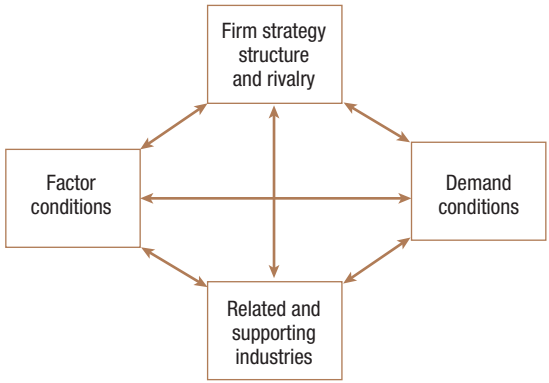
Source: Reproduced from Erik Hempel, *Value-Chain Analysis in Fisheries Sector in Africa*, study prepared for the New Partnership for Africa's Development (NEPAD) Trade Working Group of the Partnership for African Fisheries (Midrand, South Africa, 2010).

Annex 3: The Porter Diamond Model

The business theorist Michael Porter has developed a framework that examines four aspects that influence a country's competitive advantage. They can be put together to form a diamond, as depicted in Annex Figure 2.

Annex figure 2

The basic elements of the Porter Diamond Model



Source: Michael E. Porter, *The Competitive Advantage of Nations (2nd edition)*, Palgrave Macmillan (London, 1998).

The four aspects are:

1. ***Factor conditions***, meaning a country's relative position in terms of the factors of production — such as skilled labour and infrastructure — necessary to compete in a given industry
2. ***Demand conditions,*** meaning the nature of domestic demand for an industry's product or service
3. ***Related and supporting industries,*** meaning the presence or absence in the nation of internationally competitive supplier industries and related industries
4. ***Firm strategy, structure, and rivalry,*** meaning in-country conditions affecting how companies are created, organized, and managed, and including the nature of domestic competition

The Diamond Model analysis can be used to identify and locate the strengths and weaknesses of a country's competitiveness. It can therefore provide governments and other stakeholders with insights into where interventions might best boost the competitiveness of fishery sectors.

An example of a study that applies the Porter Diamond Model to fish is Hammerle, M., Heimur, T., Maggard, K., Paik, J., and Valdivia, S., *The Fishing Cluster in Uganda, Final Report for Microeconomics of Competitiveness,* Harvard Business School and Harvard Kennedy School of Government (Cambridge, Massachusetts, U.S.A. 2010). Available at: http://www.isc.hbs.edu/resources/courses/moc-course-at-harvard/Documents/pdf/student-projects/Uganda_Fishing_2010.pdf

Annex 4: Template for needs assessment

Examples:

CONSTRAINT: Insufficient fish safety and quality

Opportunity: Aquaculture development				
Need	Level of priority	Cost	Time needed for completion	Additional outcomes (positive and negative)

Opportunity: Exporting fish to Japan				
Need	Level of priority	Cost	Time needed for completion	Additional outcomes (positive and negative)

CONSTRAINT: Inadequate trade facilitation

Opportunity: Aquaculture development				
Need	Level of priority	Cost	Time needed for completion	Additional outcomes (positive and negative)

Opportunity: Exporting fish to Japan				
Need	Level of priority	Cost	Time needed for completion	Additional outcomes (positive and negative)

Annex 5: Template for appraisal of opportunities

Examples:

Opportunity: Aquaculture development					
Constraint	Needs	Priority	Expected value	Expected cost	Time needed for completion
Fish safety and quality					
Trade facilitation					
Others					

Opportunity: Exporting fish to Japan					
Constraint	Needs	Priority	Expected value	Expected cost	Time needed for completion
Fish safety and quality					
Trade facilitation					
Others					

Annex 6: Market information

Any effort to upgrade and diversify fish exports must be based on proper understanding of the markets targeted. Knowing about the standards and import requirements of such markets is one part of this, but exporters also must be well-informed on consumer preferences and trends, among others factors. Five points of advice given in a market report on the seafood sector in China — published by the Sea Fish Industry Authority — are certainly valid for all markets:

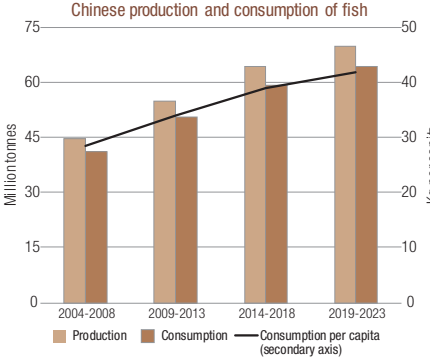
- Build relationships in the importing market
- Find a local partner and/or distributor
- Be flexible
- Do sufficient research
- Tailor exports to meet market demand and consumer preferences

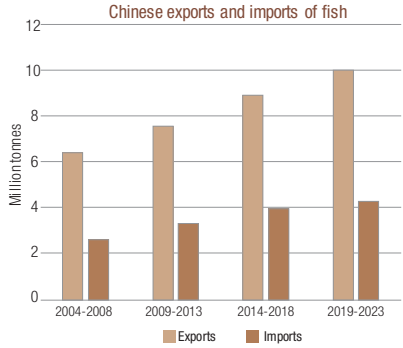
This annex provides brief market information on the world's four largest importers of fish: China, the European Union, Japan, and the United States of America. Together these four markets account for roughly half of the world's fish imports.

The main sources for this annex are:

- **Statistics:** OECD-FAO Agricultural Outlook 2014-2023 and UN Comtrade.
- **Market insights:** Seafood Export Profiles on the website of Seafish: http://www.seafish.org/industry-support/international-trade/international-export-advice
- **Regulations of the EU, Japan, and the United States:** Ryder, J., Iddya, K. and Ababouch, L., *Assessment and management of seafood safety and quality: Current practices and emerging issues,* Food and Agriculture Organization, Fisheries and Aquaculture Technical Paper No. 574 (Rome, 2014).

China





Top 10 fish species exported and imported by China

Rank	Exports	Imports
1	Fish fillets, frozen, n.e.s.	Fish meals, n.e.s.
2	Shrimps, prawns, prepared and preserved, n.e.s.	Fish, frozen, n.e.s.
3	Molluscs and other aq. Invertebrates, prep. Or pres.	Cods n.e.s., frozen
4	River eels, prepared or preserved, not minced, n.e.s.	Pacific salmon, frozen, n.e.s.
5	Cuttlefish and squid, other than live, fresh or chilled	Cuttlefish and squid, other than live, fresh or chilled
6	Shrimps and prawns, peeled, frozen	Plaices, frozen, n.e.s.
7	Fish n.e.s., prepared or preserved, not minced	Haddock, frozen
8	Fish, frozen, n.e.s.	Shrimps and prawns, frozen, n.e.s.
9	Crab meat n.e.s., prepared or preserved	Hairtails, frozen
10	Tilapia fillets, frozen	Mackerels n.e.s., frozen

China's top 10 trading partners in fish producs

Rank	Exports to	Imports from
1	Japan	Russian Federation
2	United States	United States
3	Korea, Rep.	Norway
4	Hon Kong, China	Canada
5	Malaysia	Japan
6	Germany	New Zealand
7	Russian Federation	Korea, Rep.
8	Spain	Thailand
9	Canada	India
10	Thailand	Peru

General market information and trends

- China is the world's largest producer and exporter of fish.
- It is also the world's largest consumer of fish. What is more, annual per capita consumption of fish in China increased from 25 kg in 2003 to 36 kg in 2013, and is forecast to grow to 43 kg in 2023. This is much higher than the world average, which was 20 kg in 2015.
- China's imports of fish are also growing and the country now has higher imports than Japan, although it is still a smaller importer than the European Union and the United States (and is expected to remain so over the near future).
- The most popular fish in China is carp.
- Demand is particularly buoyant for premium species such as salmon, lobster, scallops, mussels, and oysters, which are being consumed by more affluent, urban people. This market is expected to be a promising one for importers over the foreseeable future.

Import requirements

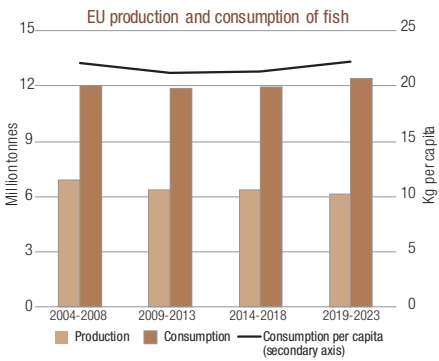
- Key regulations include:
  - Fisheries Law (1986, amended in 2000) and the accompanying Regulation for the Implementation of the Fisheries Law (1987)
  - Food Hygiene Law (1995)
  - Standardization Law (1988) and the accompanying Regulations on the Implementation of the Standardization Law (1990)
  - Regulations for the Administration of Feed and Feed Additives (1999) and the accompanying Procedures for Administration of Registration of Imported Feed and Feed Additives (2000)
- Two registrations with Chinese authorities are required for fish exporters looking to supply the Chinese market:
  - Registration with the General Administration of Quality Supervision, Inspection, and Quarantine (AQSIQ), which can be done online at http://ire.eciq.cn
  - Registration with the Certification and Accreditation Administration (CNCA), which has to be done through relevant competent authorities (for example the Bureau of Fisheries and Aquatic Resources) in exporters' home countries. The website of CNCA (http://www.cnca.gov.cn/) provides information on what establishments have been approved for registration/accreditation. For aquatic products, Bangladesh, Mozambique, and Uganda are among the countries with registered/accredited exporters

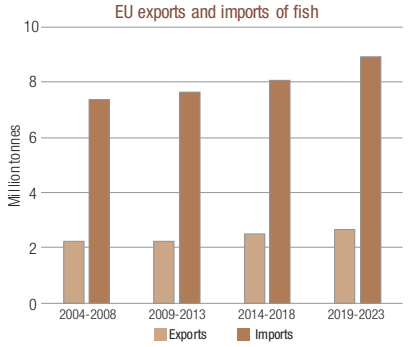
Useful sources

Two useful studies provide insights into the Chinese seafood market:

- Chen, H., *Overseas Market Introduction Service: China,* study prepared for Sea Fish Industry Authority by China-Britain Business Council and UK Trade & Investment (London, 2013). Available at: http://www.seafish.org/media/765546/china.pdf
- de Jong, B., *The Dragon's changing appetite: China's changing net trade position in seafood and implications,* Rabobank (Utrecht, 2017) Available at: https://sjavarutvegsradstefnan .is/wp-content/uploads/2017/11/Beyhan-de-Jong_Rabobank-2017.pdf

European Union





Top 10 fish species exported and imported by the EU

Rank	Exports	Imports
1	Salmons, fresh or chilled, n.e.s.	Salmons, fresh or chilled, n.e.s.
2	Salmons, smoked	Shrimps and prawns (Penaeus spp.), frozen
3	Fish means, n.e.s.	Tunas prepared or preserved, not minced, n.e.s.
4	Shrimps and prawns (Penaeus spp.), frozen	Tunas prepared or preserved, not minced, in oil
5	Fish fillets, prep. Or pres, incl. raw, coated in batter or breadrum, cooked or not, frozen	Shrimps and prawns, forzen, n.e.s.
6	Salmon fillets, fresh or chilled	Shrimps and prawns, prep. Or pres., not in airtight containers
7	Shrimps and prawns, prep. Or pres., not in airtight containers	Cod n.e.s., fillets, frozen
8	Tunas prepared or preserved, not minced, in oil	Fish meals, n.e.s.
9	Marine fish, fresh or chilled, n.e.s.	Alaska pollack fillets, frozen
10	Shrimps and prawns, forzen, n.e.s.	Salmon fillets, frozen

EU top 10 trading partners in fish products

Rank	Exports to	Imports from
1	United States	Norway
2	Switzerland	China
3	China	Iceland
4	Japan	Vietnam
5	Russian Federation	Ecuador
6	Nigeria	Thailand
7	Norway	United States
8	Egypt, Arab Rep.	Morocco
9	Morocco	India
10	Vietnam	Argentina

General market information and trends

- The European Union is a single market, which means that – in general – a product that can be sold in one member country can be sold in all member countries.
- However, the EU consists of 28 countries, and the types of fish consumed vary considerably from country to country.
- The EU is the world's largest importer of fish and is expected to remain so for the foreseeable future.
- Fish consumption per capita has been fairly stable over the past decade (slightly above 20 kg per person per year) and is expected to remain so over the next decade.
- The Centre for the Promotion of Imports from Developing Countries (CBI) has identified the following types of fish as promising export products to the EU: frozen escolar, frozen white fish products, octopus, pangasius, tilapia, frozen crustaceans, shrimp products, frozen tuna products, monodon shrimp, organic seafood, squid, cuttlefish, vannamei shrimp, bivalves, and fresh tuna.

Import requirements

- Key European Union regulations include:
  - Food Law (Regulation 178/2002)
  - The EU "hygiene package," consisting of regulations on the hygiene of foodstuffs, hygiene rules for food of animal origin, and official controls on products of animal origin (Regulations 852/2004, 853/2004 and 854/2004)
  - A requirement that food business operators set up traceability systems and procedures — a measure included in the Food Law regulation. An implementing regulation also has been developed (Regulation 931/2011)
  - Related to traceability is a regulation addressing illegal, unreported, and unregulated (IUU) fishing (Regulation 1005/2008). Countries judged to put too little effort into combatting illegal fishing can be banned from exporting fish to the EU. In mid-2015, three States were blacklisted: Cambodia, Guinea, and Sri Lanka
- An important feature of the EU's import requirements is that exporters must be certified by a competent home-country authority. The competent authority is an agency that enforces EU-like regulations. For fishery products, Bangladesh, Mozambique, and Uganda are among the countries with registered/accredited exporters. Links to lists of certified third-country establishments can be found at the following website:http://ec.europa.eu/food/safety/international_affairs/trade/third_en.htm
- The most important private food-safety standards in the EU are those of the British Retail Consortium (BRC) and those contained in the International Featured Standards (IFS).

Useful sources

The ***EU Export Helpdesk Online*** is a tool of the European Commission that provides comprehensive information for developing countries on how to access the EU market and benefit from preferential trade agreements. It includes information on EU tariffs, requirements, preferential arrangements, quotas, and statistics affecting businesses in developing countries. Link: http://exporthelp.europa.eu/thdapp/index.htm

The ***Centre for the Promotion of Imports from Developing Countries*** (CBI) is a Dutch government agency that supports developing countries in expanding exports to the EU. It provides market intelligence, export coaching, and institutional development for business-support organizations, among other services.

Link: http://www.cbi.eu/

Market information from the Centre on exporting fish and seafood to Europe is available at http://www.cbi.eu/market-information/fish-seafood

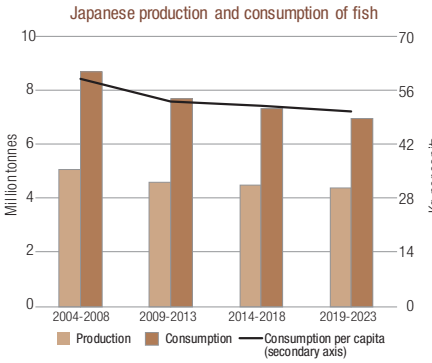
Open Trade Gate Sweden (OTGS) is a Swedish government agency that assists developing countries by responding to questions concerning the rules and requirements for exporting from developing countries to Sweden and to the EU.

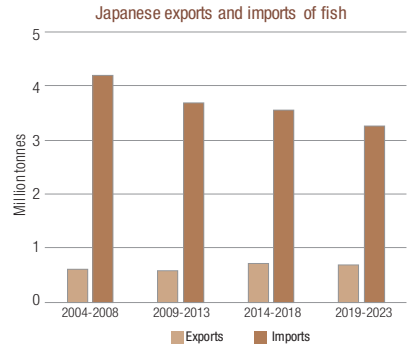
Link: http://www.opentradegate.se/

The ***European Market Observatory for Fisheries and Aquaculture Products*** (EUMOFA) is a market-intelligence tool on the EU fisheries and aquaculture sector. The website includes information on weekly prices, monthly trends, yearly data, and price structures. Link: http://www.eumofa.eu/

A recent publication on EU import requirements for fish is: Blaha, F., *EU Market Access for Fishery and Aquaculture Products,* Switzerland Global Enterprise (Zurich, 2015).

Japan





Top 10 fish species exported and imported by Japan

Rank	Exports	Imports
1	Molluscs and other aq. intervertabrates, prep. Or pres.	Shrimps and prawns, frozen, n.e.s.
2	Molluscs n.e.s., prepared or preserved	Shrimps, prawns, prepared or preserved, n.e.s.
3	Scallops, other than live, fresh or chilled	Tuna loins and fillets, frozen
4	Pacific salmon, frozen, n.e.s.	Bigeye tuna, frozen, n.e.s.
5	Mackerels n.e.s., frozen	Salmonoids fillets, n.e.s.
6	Mollusc preparatons, not in airtight containers	Pacific salmon, frozen, n.e.s.
7	Skipjack tuna, frozen	Fish meat, whether or not minced, frozen, n.e.s.
8	Molluscs and other aq. Intervertabrates, dried, salted, etc.	Fish n.e.s., prepared or preserved, not minced
9	Fish cakes	Cod roes, frozen
10	Fish, frozen, n.e.s.	Fish meals, n.e.s.

Japan's top 10 trading partners in fish producs

Rank	Exports to	Imports from
1	Hong Kong, China	China
2	China	Thailand
3	United States	United States
4	Thailand	Russian Federation
5	Korea, Rep.	Chile
6	Vietnam	Vietnam
7	Singapore	Indonesia
8	Russian Federaton	Norway
9	Egypt, Arab Rep.	Korea, Rep.
10	Philippines	Canada

General market information and trends

- Japan remains a large and important market for fish and is one of the top consumers and importers of fish. It also has the third highest fish consumption per capita in the world (after the Republic of Korea and Norway).
- However, the main indicators of the Japanese fish market are all on a downward trend. Production, consumption, consumption per capita, and imports of fish have declined since 2000 and are expected to continue to slide over the foreseeable future.
- Freshness, safety, and price are the top three concerns of Japanese consumers of fish.
- The Government of Canada has identified frozen crustaceans (including shrimps and prawns), salmon, and freshwater frozen fish roe as some of the products for which there is rising demand in Japan.

Import requirements

- Key regulations include:
  - The Food Safety Basic Act (2003), which covers seven main issues: (i) basic understanding of securing safety on food, (ii) stages of the food-supply process, (iii) prevention of adverse effects from food consumption, (iv) responsibility of food business operators, (v) role of consumers, (vi) conducting food risk assessments, and (vii) promotion of exchange of information and opinions
  - The Food Sanitation Act (2003), which serves "to prevent the occurrence of health hazards arising from human consumption of food so as to contribute to the protection of health of people by conducting regulations and measures deemed necessary, from the view point of public health, for securing food safety"
  - The Law Concerning Standardization and Proper Labelling of Agriculture and Forestry Products (JAS Law), which promotes (1) improvement of quality, (2) rationalization of production, (3) fair and simplified trade, and (4) reasonable use or consumption of agricultural and forest products and suitable labelling concerning quality. Implementation of the law is carried out by using two systems: the JAS (Japanese Agricultural Standards) System and the Standardized Quality Labelling System
  - The Quarantine Act, which "aims to prevent the causative agents of infectious diseases which do not ordinarily exist within the territory of this country from entering by way of ships or aircraft, and also to take necessary measures to prevent other infectious diseases carried by ships and aircraft"
  - The Act on the Protection of Fishery Resources, whereby importers of fish products that fall under the Fisheries Protection Import System need to obtain import permits

Useful sources

The ***Japan External Trade Organization*** (JETRO) has a webpage with information on standards and regulations concerning imports to Japan (http://www.jetro.go.jp/en/reports/regulations/). Of particular relevance is the *Handbook for Agricultural and Fishery Products: Import Regulations 2009*, which is available at http://www.jetro.go.jp/en/reports/regulations/pdf/agri2009e.pdf

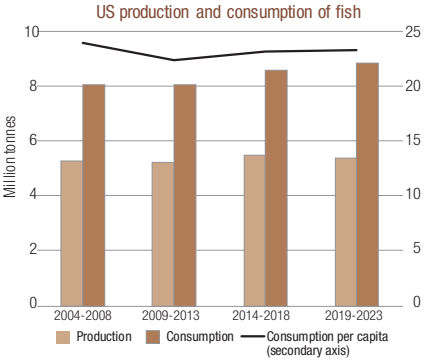
The ***Ministry of Health, Labour and Welfare*** provides information on food safety in English at http://www.mhlw.go.jp/english/topics/foodsafety/index.html, which includes links to unofficial English translations of the Food Safety Basic Act and the Food Sanitation Act.

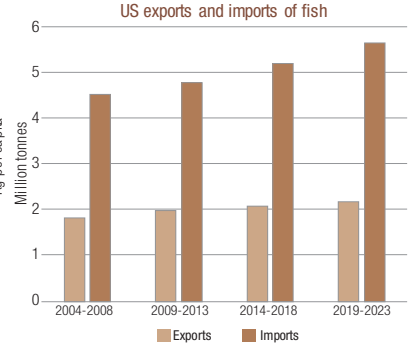
Two studies that provide insights into the Japanese seafood market:

Agriculture and Agri-Food Canada, *Inside Japan Seafood Trade,* Her Majesty The Queen in Right of Canada (Ottawa, 2009). Available at: http://www.gov.mb.ca/agriculture/market-prices-and-statistics/trade-statistics/pubs/japan_seafood_trade_en.pdf

Yanagisawa, A., Hasegawa, M., and Ohsumi, K., *Overseas Market Introduction Service On Japanese Seafood Market,* study prepared for the Sea Fish Industry Authority, OMIS, JPN2610, UK Trade & Investment (later replaced by the UK Department for International Trade) (London, 2012). Available at: http://www.seafish.org/media/765558/japan.pdf

United States of America





Top 10 fish species exported and imported by US

Rank	Exports	Imports
1	Lobsters (Homarus spp.), not frozen	Shrimps and prawns, frozen, n.e.s.
2	Alaska pollack fillets, frozen	Shrimps and prawns, peeled, frozen
3	Pacific salmon, frozen, n.e.s.	Shrimps, prawns, prepared or preserved, n.e.s.
4	Alaska pollack meat, whether or not minced, frozen	Salmon fillets, fresh or chilled
5	Alaska pollack roes, frozen	Atlantic and Danube salmons, fresh or chilled
6	Fish fillets, frozen, n.e.s.	Tilapia fillets, frozen
7	Salmon roes, frozen	Tunas prepared or preserved, not minced, in airtight containers
8	Squid (Ommastrephes sagittatus, Loligo spp.), frozen	Crab meat, in airtight containers, prep. Or pres.
9	Fish fillets, fresh or chilled, n.e.s.	Tanner crab, n.e.s., frozen
10	Gadiformes n.e.s., frozen	American/European lobsters (Homarus spp.), n.e.s., frozen

US's top 10 trading partners in fish producs

Rank	Exports to	Imports from
1	China	China
2	Canada	Canada
3	Japan	Thailand
4	Korea, Rep.	Indonesia
5	Germany	Vietnam
6	Netherlands	Chile
7	France	Ecuador
8	Hong Kong, China	India
9	Spain	Mexico
10	United Kingdom	Norway

General market information and trends

- The United States of America is currently the world's second-largest importer of fish (counting the European Union as one importer). Its imports have grown over the past decade and are expected to expand further over the coming decade.
- United States consumers have a clear preference for fresh fish over frozen fish, with more than half of all retail sales consisting of fresh fish.
- A report by the Government of Canada expects seafood to become increasingly popular among United States consumers, especially on the East and West coasts and in areas with growing Latino or Caribbean populations.
- Two-thirds of the fish consumed in the U.S. is sold in restaurants; one third is sold through retailers.

Import requirements

- Key regulations include:
  - Laws on food safety and public health: the Food, Drug and Cosmetic Act (1938, since amended multiple times), the Food Safety Modernization Act (2011), and the Public Health Act
  - The Bioterrorism Act of 2002, which includes traceability requirements, demands that firms' facilities engaged in manufacturing, processing, packing, or holding fish for consumption in the United States are registered, and mandates that prior notice of fish imported to the United States should be given to the Food and Drug Administration.

  More information on the registration process is available at: http://www.fda.gov/Food/GuidanceRegulation/FoodFacilityRegistration/ucm2006831.htm

  More information on filing prior notice is available at: http://www.fda.gov/Food/GuidanceRegulation/ImportsExports/Importing/ucm2006837.htm)
  - The Lacey Act (2008), which aims to protect wildlife from illegal exploitation
  - The Country of Origin Labelling Act (COOL, 2002), which requires retailers to label the country of origin on certain foods, including fish and shellfish
  - The 21 Code of Federal Regulation 123, which mandates that producers of seafood must implement HACCP systems
  - Form DS-2013, which shrimp exporters must submit to the Customs and Border Protection agency (CBP). The form is available at: http://www.state.gov/documents/organization/80015.pdf

  Imports of seafood are governed by the Food and Drug Administration (FDA), the National Marine Fisheries Service (NMFS), and the Fish and Wildlife Service (FWS).

Useful sources

The United States Department of Agriculture (USDA) and the United States Customs Border and Protection (CBP) agency provide brief summaries of the requirements for importing seafood:

USDA: https://fsrio.nal.usda.gov/faq-page/regulations-standards-and-guidelines#t146n2512

CBP: https://help.cbp.gov/app/answers/detail/a_id/204/~/regulations-for-importing-seafood

Two studies that provide insights into the seafood market of the United States:

Agriculture and Agri-Food Canada, *The American Seafood Market,* Her Majesty The Queen in Right of Canada (Ottawa, 2010). Available at: http://www.gov.mb.ca/agriculture/market-prices-and-statistics/trade-statistics/pubs/us_seafood_consumer_trends_en.pdf

Dickerson, L., *Overseas Market Introduction Service: USA*, study prepared for the Sea Fish Industry Authority, UK Trade & Investment (London, 2012). Available at: http://www.seafish.org/media/765585/usa.pdf

Additional sources: http://www.nmfs.noaa.gov/ia/our_work/importing_exporting_seafood.html