



Advancing Sustainable Development

Goal 14:

Sustainable fish, seafood value
chains, trade and climate



© 2019, United Nations

This work is available open access by complying with the Creative Commons licence created for intergovernmental organizations, available at <http://creativecommons.org/licenses/by/3.0/igo/>.

The findings, interpretations and conclusions expressed herein are those of the authors and do not necessarily reflect the views of the United Nations or its officials or Member States.

The designation employed and the presentation of material on any map in this work do not imply the expression of any opinion whatsoever on the part of the United Nations concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.

Photocopies and reproductions of excerpts are allowed with proper credits.

This publication has not been formally edited.

United Nations publication issued by the United Nations Conference on Trade and Development.

UNCTAD/DITC/TED/2019/3

eISBN: 978-92-1-004696-1

Contents

Acknowledgements	iv
Abbreviations	v
SUMMARY	VI
I. INTRODUCTION	1
II. IMPORTANCE OF SUSTAINABLE FISHERIES AND AQUACULTURE	4
2.1. Environmental benefits	4
2.2. Social benefits	4
2.2.1. <i>Food and nutrition security</i>	4
2.2.2. <i>Employment</i>	4
2.3. Economic benefits	6
2.3.1. <i>Fish utilization and processing for value addition</i>	6
2.3.2. <i>International Fish and seafood trade</i>	6
2.3.3. <i>Potential of exports from least developed countries</i>	7
III. CHALLENGES FOR HARNESSING THE POTENTIAL OF FISHERIES AND AQUACULTURE	11
3.1. Capture fisheries: promise, decline and recovery	11
3.1.1. <i>The state of capture fisheries</i> :	11
3.1.2. <i>Illegal, unreported and unregulated fishing</i>	11
3.1.3. <i>Fisheries subsidies</i>	12
3.1.4. <i>Climate change</i>	15
3.1.5. <i>Marine pollution</i>	16
3.2. Aquaculture development and environmental concerns	18
3.3. Market access/market entry requirements and non-tariff measures	19
3.3.1. <i>Market entry requirements or Non-Tariff Measures (NTMs)</i>	19
IV. TOWARDS ACHIEVING SDG 14 TARGETS: CHALLENGES AND OPPORTUNITIES FOR SUSTAINABLE FISH AND SEAFOOD TRADE	22
4.1. Sustainable fisheries and trade-related SDG 14 targets	22
4.2. Sustainable aquaculture and trade-related SDG 14 targets	22
4.3. Potential and innovative approaches of the Oceans/blue economy to accelerate achievement of the Trade-related targets of SDG 14	23
4.4. International initiatives	25
4.4.1. <i>Addressing overfishing and harmful fishing practices, improving fisheries management and providing access of small-scale fishers to resources and markets</i>	26
4.5. International events for experience sharing, advocacy and dissemination of best practices	30
4.5.1. <i>The United Nations Ocean Conferences: High level global events to refocus efforts and share experiences on SDG 14</i>	30
4.5.2. <i>Ocean Forums: High level international events on trade related area and their outcomes</i>	31
4.5.3. <i>The Sub-committee on fish trade of the FAO Committee of fisheries (COFI:FT)</i>	32
4.6. Inter- Agency Plan of Action (IAPoA) to accelerate achievements of the trade related targets of SDG 14	33
V. CONCLUSIONS AND RECOMMENDATIONS	35
Notes	
References	

Figures

Figure 1.	Milestones of key instruments and major undertakings in support of sustainable fisheries and living marine resources	2
Figure 2.	World fish and aquaculture production	5
Figure 3.	Global utilization of fish and seafood.....	8
Figure 4.	International trade of fish and seafood.....	8
Figure 5.	Net benefit (export value – import value) of developing countries from international food trade	9
Figure 6.	Reported global capture fisheries production (1950–2017)	13
Figure 7.	Global trends in the state of the world’s marine fish stocks (1974–2015)	13
Figure 8.	Global fisheries support estimate, total (2010–2015)	14
Figure 9.	Incidence of support on fishery commodities exports of major fishing nations (2015).....	14
Figure 10.	World production of farmed aquatic animals and plants (1980–2017)	19

Tables

Table 1.	World fisheries and aquaculture production and utilization	5
Table 2.	Top ten exporters and importers of fish and fish products	9
Table 3.	Top three fish export commodities of LDCs (2012–2013).....	10
Table 4.	Top three destinations of sample LDCs’ fish exports (2011–2013)	10

Acknowledgements

This document is the consequence of a joint effort by UNCTAD, FAO, and UN Environment. It was produced by Lahsen Ababouch, UNCTAD, FAO and UN Environment Senior Fisheries consultant, David Vivas Eugui, Legal Officer, and Lorenzo Formenti, Associate Economic Affairs Officer, all at UNCTAD. The authors wish to acknowledge the comments and inputs by Marcio Souza de Castro, FAO and Elena Antoni and Jayasurya Kalakkal, UN Environment in the preparation of the present report. Page layout was done by Alessia Capasso, FAO, Nadege Hadjemian and Rafe Dent, UNCTAD.

13 November 2019

Abbreviations

ABNJ	Areas beyond national jurisdiction
ACP	African Caribbean and Pacific Group of States
BGI	Blue Growth Initiative
CITES	Convention on International Trade of endangered Species
CCRF	FAO Code of Conduct for Responsible Fisheries
EAF	Ecosystem Approach to Fisheries
EEZ	The Economic Exclusive Zone
GDP	Gross Domestic Product
GSSI	Global Seafood Sustainability Initiative
IOI	International Oceans Institute
IPoA	Interagency Plan of Action for the advancement of SDG 14
IUU	Illegal, unreported and unregulated fishing
FAO	Food and Agriculture Organization of the United Nations
GHG	Green House Gases
LDC	Least Developed Countries
MC 11	The WTO 11th Ministerial Conference, Buenos Aires, Argentina 2017
MCS	Monitoring, Control, and Surveillance
MFN	The Most Favored Nation
NTMs	Non-tariffs Measures
NGOs	Non-Governmental Organizations
OECD	Organization for Economic Co-operation and Development
OETS	Ocean Economy and Trade Strategy
SAMOA	SIDS Accelerated Modalities of Action
SDGs	Sustainable Development Goals
SDT	Special and differential treatment
SIDS	Small Island Developing States
SPS	Sanitary and Phytosanitary Measures
SPR	Sao Paulo Round of negotiations on the General System of Trade Preferences
TBT	Technical barriers to trade
UNCLOS	The United Nations Convention on the Law of the Sea
UNCTAD	The United Nations Conference on Trade and Development
UNECE	The United Nations Economic Commission for Europe
UNDP	The United Nations Development Programme
UNFSS	United Nations Forum for Sustainable Standards
WTO	The World Trade Organization

SUMMARY

Oceans and seas have always been a major source of food and central to employment opportunities, recreation, trade, culture and economic benefits to many people throughout the world. Global fish production was estimated at 172.6 million tonnes in 2017, supplying around 21 kg/capita per year and 17 per cent of global animal proteins and essential micronutrients. Upstream and downstream activities along the fish and seafood value chain provided significant employment and economic benefits to countries and local coastal communities. As a result, around 59.6 million people were employed in fisheries and aquaculture in 2016 and some 200 million direct and indirect employment opportunities occur along the fish and seafood value chain.

Likewise, fish and seafood are among the most traded food commodities. Some 35 to 38 per cent of the world production enters international trade and generated \$152 billion in 2017. Over 50 per cent of this trade originates in developing countries. In Pacific Small Island Development States (SIDS), fishing can provide between 30 and 80 per cent of exports – an advantage of the large Exclusive Economic Zones (EEZs) and the economic values they are able to capture from fish species such as tuna.

Unfortunately, rapid exploitation of living aquatic resources during recent decades has been undertaken in an unsustainable manner in several parts of the world leading to overfishing, degradation of fish stocks, habitats, ecosystems and biodiversity. The resulting economic loss is estimated at \$83 billion per year for fisheries and over \$6 billion per year from diseases in aquaculture. This is further exacerbated by climate change, which is likely to have a severe effect on fishing and fish farming communities in many parts of the world causing loss of livelihoods, displacement and migration of populations because of floods, storms or changes in fisheries distributions.

In 2015, the international community adopted the 2030 Agenda for Sustainable Development, with a Global Goal devoted for the first time to Oceans and Seas. Sustainable Development Goal (SDG) 14 is exclusively dedicated to “conserve and sustainably use the oceans, seas and marine resources for sustainable development. It has ten targets relating to marine pollution, protecting marine and coastal ecosystems, minimizing ocean acidification, sustainable management of fisheries and ending harmful fisheries subsidies, conserving coastal and marine areas, increasing economic benefits to SIDS and Least Developed Countries (LDCs).

Achieving the trade related targets of SDG 14 requires the catalysis of policies, investment and innovations to restore the productive capacity of the oceans and increase economic benefits to developing countries, in particular SIDS and LDCs. Innovations that integrate best practices for harvesting, value addition in processing and distribution, can benefit greatly from opportunities offered around the concepts of Oceans economy/blue economy, eco-labelling and certification, value chain analysis and seafood clusters.

The importance of effective partnerships to enable collective action with the full participation of all relevant stakeholders cannot be emphasized enough. UNCTAD, FAO and UN Environment jointly deposited a set of voluntary commitments at the United Nations Ocean Conference in June 2017, aimed to support member countries with technical assistance, capacity building and information dissemination on the trade-related issues associated with SDG 14. The convening power and expertise of the three agencies can provide a strong differential in supporting countries to progress towards achieving trade related targets of SDG 14 and to be in a better position to participate in relevant trade negotiations.

This background note reviews current trends and projections of fish and seafood trade, and recent work undertaken to support implementation of the trade related activities of SDG 14, with a focus on the work of UNCTAD, FAO and UN Environment. It flags the main issues encountered and sets the scene for the discussions of the Forum. It draws on the complementary experiences and mandates of UNCTAD, FAO and UN Environment to make recommendations to key stakeholders and propose innovative approaches and tools around the oceans/blue economy, value chain analysis, certification and eco-labelling to strengthen the capacity of developing countries in meeting the trade related targets of SDG 14.

1. INTRODUCTION

From ancient times, fisheries and aquaculture have been a major source of food and a provider of employment, recreation, trade, culture and economic benefits to many people throughout the world. These activities attain greater relevance along the coastal areas of many developing countries where there are significant obstacles for employment and where access to fisheries and aquaculture resources sometimes remains the only option open for earning a livelihood, improving income and the quality of lives. Unfortunately, there is evidence that easier access to fishery resources has not always translated in the long term into better incomes and increased well-being of coastal communities. The opportunities certainly exist, and they can be used by nations and communities, provided the right economic, institutional and governance policies and partnerships are in place.

Until fifty years ago, the wealth of living aquatic resources was considered an unlimited gift of nature. However, with increased scientific knowledge, this myth has faded as we realized that aquatic resources, although renewable, are not infinite and need to be properly managed. The widespread introduction in the mid-seventies of exclusive economic zones (EEZs) and the adoption in 1982 of the United Nations Convention on the Law of the Sea (UNCLOS) provided a framework for management of marine resources. UNCLOS was further strengthened by the Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas (Compliance Agreement, 1993) and by The United Nations Agreement for the Implementation of the Provisions of UNCLOS relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks (Fish Stock Agreement, 1995) (Figure 1). This legal regime of the oceans gave coastal States rights and responsibilities for the management and use of fishery resources within their EEZs, which embrace some 90 per cent of the world's marine fisheries.

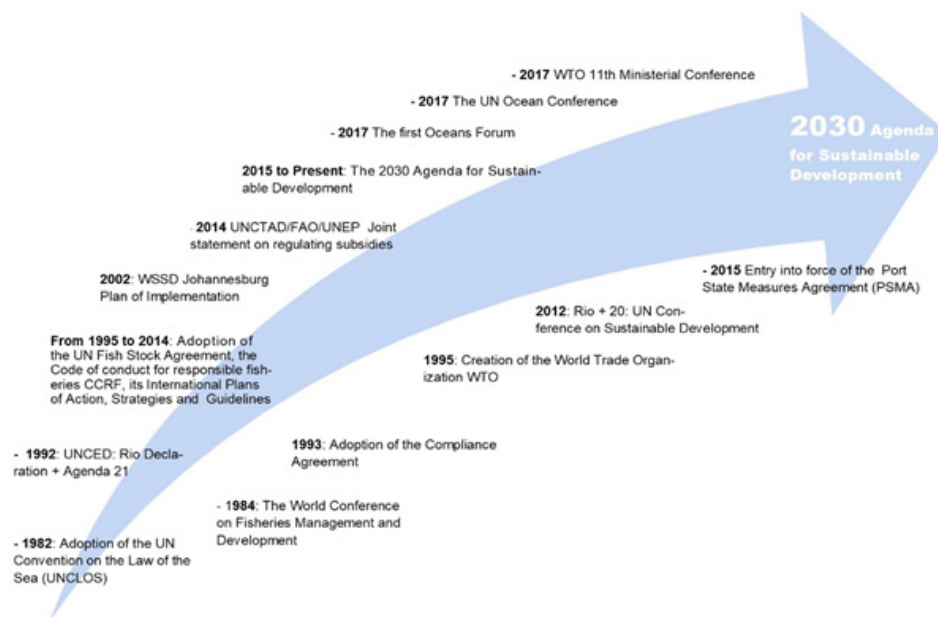
Concurrently and for over 25 years, world fisheries and aquaculture have become a market-driven, dynamically developing sector of the food industry, and coastal States have striven to take advantage of their opportunities by investing in fishing fleets, infrastructure and services in response to growing international demand for fish and seafood. Novel trade policies and strategies were promoted, and trade

agreements were facilitated. The year 1995 saw the creation of the World Trade Organization (WTO) and several trade agreements were adopted to support a robust and predictable multilateral trade system for goods and services.

Unfortunately, it became clear in the late 1980s that fisheries resources could no longer sustain such rapid and often uncontrolled exploitation, and that new approaches to fisheries and post-harvesting management, embracing conservation and environmental considerations were needed urgently. In 1995, a Conference of the Food and Agriculture Organization of the United Nations (FAO) adopted the Code of Conduct for Responsible Fisheries (CCRF). This Code sets out principles and international standards of behaviour for responsible practices along the fisheries and aquaculture value chain with a view to ensure effective conservation, management and development of living aquatic resources, with due respect for the ecosystem and biodiversity.

The Code recognizes the nutritional, economic, social, environmental and cultural importance of fisheries and aquaculture and the interests of all those concerned with the sector. Further international instruments, Plans of Action (IPOAs), resolutions and commitments for healthier oceans were made (Figure 1). Concurrently, UNCTAD streamlined sustainability of living aquatic resources in its programmes on trade and development and partnered with FAO and other organizations to support and enable coastal developing countries, in particular Least Developed Countries (LDCs) and Small Islands Developing States (SIDS), to achieve greater benefits from sustainable fish and seafood trade while addressing illegal trade and unfair competition. UN Environment supported this process through the generation of policy-relevant analysis on the environmental, economic and social impacts of subsidies, facilitating dialogue between trade and fisheries policy-making communities, and its contributions to the international discussion on subsidy reform through a series of workshops, analytical papers and country projects. In recent years, the work of FAO, UNCTAD and UN Environment expanded into opportunities for sustainable fish and seafood trade offered by blue/ green economy and the contribution of instruments such as sustainability standards and certification to tap into these opportunities.

Figure 1. Milestones of key instruments and major undertakings in support of sustainable fisheries and living



Programs, initiatives and projects were implemented to improve fisheries and aquaculture management and conservation and to address emerging issues such as overfishing, Illegal Unregulated and Unreported (IUU) fishing, overcapacity, fisheries subsidies, destructive fishing gears and practices and marine pollution. Despite notable improvements achieved in some areas, real progress in addressing the key threats of living aquatic resources has not been substantive. Implementation has been uneven in many countries, and success in meeting the targets set for addressing the key drivers of deterioration in ocean health remained elusive – at great cost to the global economy and particularly to coastal and island developing countries. Yet, meeting the commitments the world has made for healthier oceans is doable. The causes for the decline of the health of the oceans are fairly known. The challenge to be solved by the global community does not lie in the establishment of a new treaty or agreement for ocean health, but rather in accelerating efforts to implement those successive commitments to reverse the trend in oceans health decline.

A new opportunity arose in September 2015 with the adoption of the 2030 Agenda for Sustainable Development by the 193 Member States of the United Nations. The Sustainable Development Goals (SDGs) of the Agenda represent a set of 17 aspirational objectives with 169 targets designed to guide

development actions of governments, international agencies, civil society and other institutions over the period 2016 – 2030.¹ The 2030 Sustainable Development Agenda calls on countries to express their priorities and commitments, to formulate strategies and plans and to adopt policies, programmes and partnerships to achieve their national goals and targets. Although fisheries and aquaculture contribute to several goals, the 2030 Agenda for Sustainable Development adopted, for the first time, a Global Goal on Oceans and Seas. SDG 14 is exclusively dedicated to “conserve and sustainably use the oceans, seas and marine resources for sustainable development”, with clearly defined targets and timelines for:

- Reducing marine pollution;
- Protecting marine and coastal ecosystems;
- Minimizing ocean acidification;
- Sustainably managing fisheries and ending harmful fisheries subsidies;
- Conserving coastal and marine areas;
- Increasing economic benefits to LDCs and SIDS.

The adoption of the 2030 Agenda for Sustainable Development calls for the organization of high-level meetings to discuss ways and means for their effective implementation and for monitoring progress. These meetings are necessary beyond and above the statutory meetings of relevant agencies, such as FAO, UNCTAD and UN Environment, which featured

prominently in discussions on the SDGs (e.g. sessions of the FAO Committee on Fisheries COFI, the UNCTAD Conference, the UN Environment Assembly, the WTO eleventh Ministerial Conference among others). In this regard, UNCTAD, FAO, UN Environment, UNECE, the Commonwealth, the Africa Caribbean and Africa (ACP) Group and the International Oceans Institute (IOI) have organized since 2017 an Oceans Forum on trade related aspects of SDG 14 on an annual basis. The first Forum (March 2017) focused on the fight against IUU fishing, harmful fisheries subsidies and access to markets and resources by small-scale fisheries.² The second Oceans Forum (July 2018) focused on the link between fish and seafood trade, with a special attention to the seafood value-chain, related logistical and trade services and the Ocean/blue economy in order to advance SDG 14. The third forum will focus on the impacts of climate change on fisheries and the blue economy, as well as on development considerations of the final phase of WTO fish Subsidies Negotiations. These yearly high-level forums are a unique opportunity to review achievements, major undertakings and challenges to accelerate experience sharing and dissemination of best practices. They have become a key implementation vehicle for dialogue and experience-sharing of the UNCTAD/FAO/UN Environment commitments with partners and other stakeholders.

In June 2017, a high-level United Nations Conference to Support the Implementation of SDG 14 was convened at United Nations Headquarters. The Conference underlined the integrated and indivisible character of all the SDGs, as well as the interlinkages and synergies between them, and reiterated the critical importance of being guided in work on oceans by the 2030 Agenda, including the principles reaffirmed therein. The Conference endorsed a declaration entitled *“Our ocean, our future: call for action”*. This declaration confirmed the commitment of the Member States, Civil Society, international organizations and representatives of the industry to support the implementation of SDG 14 (United Nations General Assembly Resolution A/RES/71/312 of 2017)³. FAO, UNCTAD and UN Environment jointly deposited a set of voluntary commitments at that Ocean Conference to support member countries with technical assistance, capacity building and information dissemination on the trade-related issues associated with SDG 14 (UNCTAD, FAO, United Nations Environment, 2016)⁴.

This background note draws on the main findings and conclusions of the First and Second Oceans Forum

and other important international events. The note analyzes current trends and perspectives for trade related aspects of fisheries and aquaculture along the seafood value chain, with a specific emphasis on developing countries and their challenges to meet the SDG 14 targets. Based on the complementary experiences and mandates of FAO, UNCTAD and UN Environment, this note furthermore proposes innovative approaches and tools⁵ to strengthen the role of developing countries and their small scale operators in sustainable seafood trade, by promoting value addition, assessing trade opportunities, and facilitating market entry and market access.

2. IMPORTANCE OF SUSTAINABLE FISHERIES AND AQUACULTURE

2.1. Environmental benefits

Life originated in the oceans, which cover more than two thirds of the surface of our planet. Oceans continue to support all life today by generating oxygen, absorbing carbon dioxide (CO₂), recycling nutrients and regulating global climate and temperature. Oceans and wetlands produce half the oxygen we breathe, absorb around 30 per cent of the anthropogenic emissions of CO₂ and around 93 per cent of the heat arising from human-driven changes to the atmosphere (Hoegh-Guldberg et al, 2015). The ocean is home to a wide diversity of life, from single-celled organisms to the largest whales. These species are intertwined in a complex food web within which humans play an increasing role.

Likewise, oceans and seas offer a myriad of ecosystem services, that provide socio-economic benefits vital for human survival on earth, although markets for these services do not exist yet. They include protection for low lying communities by coastal areas from floods and erosion, functioning as a sink for waste and nutrient disposal, provision of offshore energy sources, biotechnology for cosmetics and pharmaceuticals and the protection of biodiversity. Inversely, biodiversity, habitat protection and restoration are of fundamental importance for the resilience of ocean ecosystems services.

Four categories of ecosystem services can be distinguished. Their enhancement and conservation imply different processes (Levrel, Pioch and Spieler, 2012):

- **Support** such as the creation of marine habitats, the cycles of water, oxygen and carbon;
- **Regulation** such as control of waves and energy from currents, spawning grounds and refuge for fish species, control of erosion, siltation, pollution and detoxification;
- **Products** such as algae and derivatives for food, fish, crustaceans and molluscs, genetic resources;
- **Recreation and cultural services** such as recreational fishing, scuba diving, sightseeing tourism

(e.g. scenery, marine mammals), source of cultural identity.

2.2. Social benefits

2.2.1. Food and nutrition security

Fisheries and aquaculture make a significant contribution to food security and livelihoods of millions of people around the world. Global fish production was estimated at 172.6 million tonnes in 2017, supplying around 21 kg/capita per year, and 17 per cent of global animal proteins as well as many essential micronutrients (Table 1 and Figure 2). Fish and seafood consumption accounted for 20 per cent of animal protein intake for 3.2 billion people. Of those 3.2 billion people, about 26 per cent live in LDCs, 19 per cent in other developing countries, and about 16 per cent in Low Income Food Deficit countries (LIFDCs) (FAO, 2018a).

While fish production from capture fisheries has stagnated at around 88 to 93 million tonnes over the years, the demand for fish and seafood has continued to rise. Consumption has more than doubled since 1973. The increasing demand has been steadily met by a robust increase in aquaculture production, estimated at an average 6 per cent yearly growth during the period 2001-2015, after a double-digit yearly growth rate during the period 1980 - 2000 (FAO, 2018a).

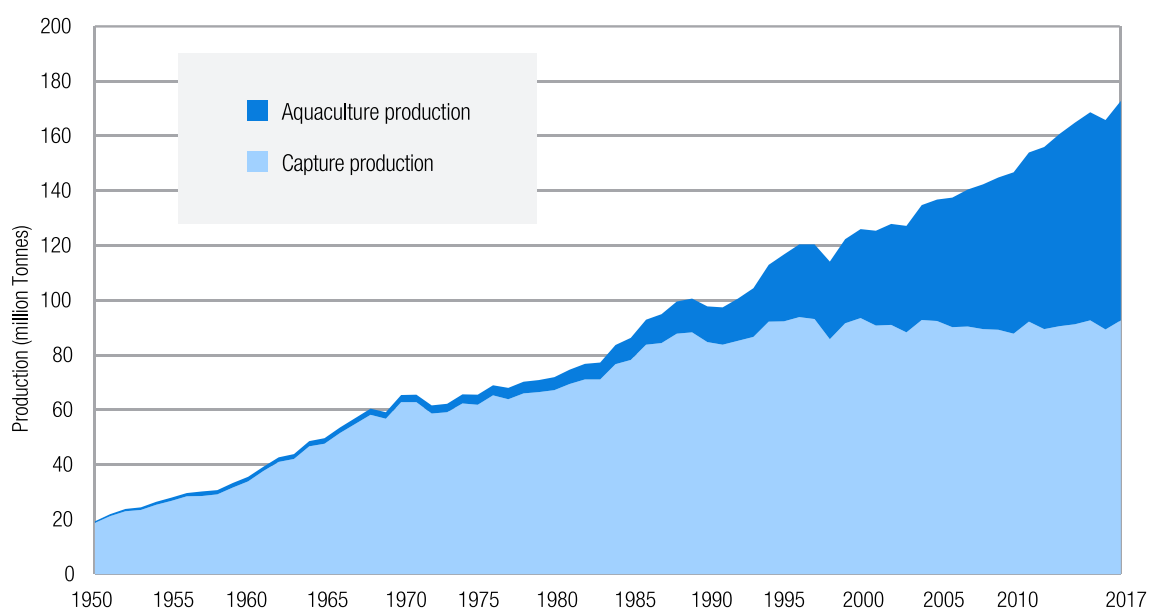
2.2.2. Employment

Likewise, around 59.6 million people were employed in fisheries and aquaculture in 2016 and some 200 million direct and indirect employment opportunities occur along the value chain from harvesting to distribution, making the livelihoods of some 660 to 880 million people dependent on the sector (FAO, 2016). Upstream and downstream activities in fishing harbours, landing sites, processing facilities, maritime and logistical services, insurance and other financial services provide significant employment and economic benefits to countries and local coastal communities. Employment opportunities in ocean-based sectors have a great importance along the coastal areas of many countries, especially in developing countries where they often represent the only opportunity for livelihoods, earning an income and improving the quality of life for the family.

Table 1. World fisheries and aquaculture production and utilization

Production (in million tonnes)	2012	2013	2014	2015	2016	2017	2027
Capture							
Inland	10.9	10.9	11.1	11.1	11.3	11.9	
Marine	77.6	78.7	79.2	80.4	78.1	80.6	
Total capture	88.4	89.6	90.2	91.5	89.4	92.5	91.0
Aquaculture							
Inland	39.7	42.2	44.4	45.9	48.1	49.5	
Marine	23.8	24.7	26.1	26.9	28.3	30.6	
Total aquaculture	63.5	66.9	70.5	72.8	76.4	80.1	103.8
Total world fisheries and aquaculture	151.9	156.6	160.7	164.3	165.8	172.6	194.8
Utilization (in million tonnes)	2012	2013	2014	2015	2016	2017	2027
Human consumption	136.4	140.2	144.8	148.4	151.2	153.8	177.6
Non-food uses	20	21	20	20	20	18.5	17.2
Population (billions) ^b	7.1	7.2	7.3	7.3	7.4	7.5	8.2
Per capita food fish supply (Kg)	19.3	19.7	20.1	20.3	20.4	20.5	21.7

Source: OECD-FAO (2018), FAOSTAT 2019 at <http://www.fao.org/fishery/statistics/en>.^a Excludes aquatic mammals, reptiles, seaweeds and other aquatic plants ^b Source of population figures: United Nations, 2015e.

Figure 2. World fish and aquaculture production

Source: FAOSTATS (2019) at <http://www.fao.org/fishery/statistics/en>

2.3. Economic benefits

Economic benefits of fisheries and aquaculture accrue to coastal countries from the rent extracted from the marine sites and their living resources, onshore value addition and trade. The value of fish harvest from marine fisheries and aquaculture is estimated at over \$150 billion (FAO, 2018a). FAO and the World Bank estimate that an additional US \$83 billion could be extracted from the oceans if the productive capacity of currently overfished stocks was restored. Fish and seafood are among of the most traded food commodities in a variety of products and using diverse processes. Some 35 to 38 per cent of world production enters international trade, reaching a value of \$143 billion in 2016, and about \$152 billion in 2017 (FAO, 2017a). Over 50 per cent of this trade originates in developing countries whose net trade income (export – import), valued at \$37 billion in 2016, is greater than their net trade income of most other agricultural commodities combined (Figure 5).

In Pacific SIDS, fishing can provide between 30 and 80 per cent of exports— an advantage of the large Exclusive Economic Zones (EEZs) and the economic values they are able to capture from high value fish species such as tuna. Likewise, the share of fish trade flows for some West African countries can represent between 5 to 12 per cent of GDP (UNCTAD, 2016b). Fees from fishing licenses are an important source of government revenue and foreign exchange earnings for several developing countries which have agreements with distant water fishing fleet companies (UNCTAD, 2016a). (UNCTAD, 2016a).

2.3.1. Fish utilization and processing for value addition

The fisheries and aquaculture sector has experienced significant change through globalization over the last 3 decades. Over 1000 fish species are consumed worldwide and more than 200 countries have reported trade in fish and seafood. Nowadays, a fish can be harvested in one country, processed in a second and consumed in a third. Sustained demand, trade liberalization policies, globalization of food systems, improvement of transportation and logistics, technological innovations to meet the rapidly changing consumption habits and consumer preferences have significantly modified the way fish and seafood are prepared, processed, marketed and delivered to consumers. The intermingling of these drivers of change has been multidirectional and complex,

and the pace of transformation relatively rapid. As a result, the share of world fish production destined for human consumption has increased and diversified significantly, up from 67 per cent in the 1960s to 88 per cent currently. Fresh, live and chilled fish represents some 45 per cent of the fish consumed and is the most preferred and highly priced form, except for high value smoked fish. The rest is processed and distributed as frozen (31 per cent), preserved (12 per cent), cured by smoking, salting or drying (12 per cent) (Figure 3) (FAO, 2018a).

2.3.2. International Fish and seafood trade

As a result of the high demand and the globalization of utilization and distribution, trade in fish and seafood has expanded significantly in recent decades (figure 4). This is manifested most clearly in wider geographical participation in trade. In 2016, more than 200 countries reported exports and imports of fish and fishery products. About 78 per cent of seafood products were exposed to international trade competition (FAO, 2018a). The structure and pattern of trade differs significantly by commodity and by region. China is the main fish producer and the largest exporter of fish and seafood. It is also a major importer due to outsourcing of processing from other countries as well as growing domestic consumption of species not produced locally. Norway, the second major exporter, recorded high export values in 2015. In 2014, Viet Nam became the third major exporter, overtaking Thailand, which has experienced a decline in exports since 2013, mainly linked to reduced aquaculture shrimp production due to disease problems. The European Union is still by far the largest single market for fish and seafood imports, followed by the United States of America and Japan. These three markets accounted in 2016 for approximately 64 per cent of the total value of world imports of fish and fish products, or approximately 56 per cent if trade within the European Union is excluded (Table 2). Developing economies, whose exports represented 37 per cent of world trade in 1976, experienced a rise to 54 per cent of total export value and 59 per cent in volume by 2016 (FAO, 2018a). In 2016, fishery exports from developing countries were valued at \$78 billion, and their fishery net export revenues (exports minus imports) reached \$37 billion, greater than most major agricultural commodities (such as meat, dairy, rice and sugar) combined (figure 5).

A subject of recurring debate is whether international trade negatively affects local and national food security.

To examine this question, the FAO commissioned a study on the effect of trade on food security, based on evidence from a global assessment, as well as from 11 country case studies (Kurien, 2005). The study concluded that, in most cases, international fish trade had a positive effect on local food security. However, the study did find that trade had resulted in increased pressure on fish stocks. The study concluded that preserving fisheries resources through effective fisheries management was necessary to increase food security and sustain international trade in fisheries resources in the long term. This supports the notion that market demand needs to be coupled with a sustainable resource management policy.

This situation can be different for aquaculture. Exports of farmed products are unlikely to have negative effects on domestic consumers as production is often planned for export markets (e.g. shrimp export from Bangladesh or India). Concurrent fish imports can increase domestic food supply and may keep prices stable. Many developing countries export high-value products and import low-value ones. Thus, countries can equally be major exporters and importers of fish, as is the case for Thailand, China, Viet Nam, Nigeria or Egypt. In some instances, the proceeds from exporting high value species can be used to import less expensive, but equally or more nutritious, species. Africa, for example, despite its positive net export value of fish, remains a net importer in terms of volume, and is therefore dependent on lower-cost fish imports (small pelagics, tilapia and catfish) for local food security. However, a major concern for the trade-driven development of aquaculture is environmental degradation. The rapid development of aquaculture has caused degradation of natural coastal habitats, impacting their key biodiversity and ecosystem functions through mangrove deforestation, excessive nutrient release, chemical pollution and the escape of farmed species and disease agents into the natural environment (FAO, 2018a).

2.3.3. Potential of exports from least developed countries

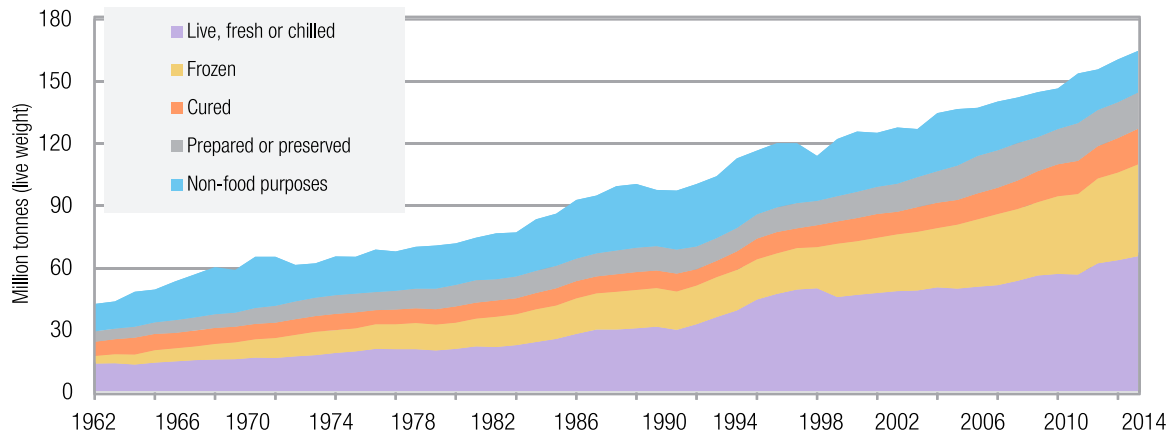
Harvesting and trade of fish and seafood is very significant in many LDCs, ranking among the top five merchandise exports in 14 of the world's 47 LDCs. For LDCs as a group, fish and seafood make up the seventh largest export overall, and the largest food item exported. However, and despite its importance, the sector is often underdeveloped, and the bulk of fish exports frequently consists of few products sold to

a limited number of importing markets. The three most exported fish products account for roughly half of all fish exports from LDCs (UNCTAD, 2018).

Tables 3 and 4 show the top three fish and seafood exports from five LDCs and the top three importers. The tables also show the same information for all LDCs on aggregate. They show lack of diversification with the share of the top three products ranging from 71 per cent of exports (Uganda) to 98 per cent (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 lack of diversification in fish exports shows an important potential for the LDCs to expand exports through value addition and by targeting new products and/or markets.

The challenges to doing so are numerous and include meeting market entry requirements of importing countries, reducing trade costs, and improving the sustainability of fisheries and aquaculture resources. There are successful LDCs whose experiences can be duplicated and upscaled in other countries with conducive environments, abundant fishery resources and decent facilities — such as ports, processing plants and cold stores— that support fish exports. Some also have well-established trade links with the world's major importing countries (UNCTAD, 2018).

The untapped potential for fisheries and aquaculture in several LDCs, if put to good use, should result in more job opportunities, growing exports, and greater socio-economic development. The potential is significant in view of the expanding demand for fish seen in both developed and developing countries. The comparative advantages of many LDCs in fisheries and aquaculture and the sector's potential to grow, offers possibilities for governments to explore ways 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 (UNCTAD, 2018).

Figure 3. Global utilization of fish and seafood

Source: FAOSTATS (2018a) at <http://www.fao.org/fishery/statistics/en>

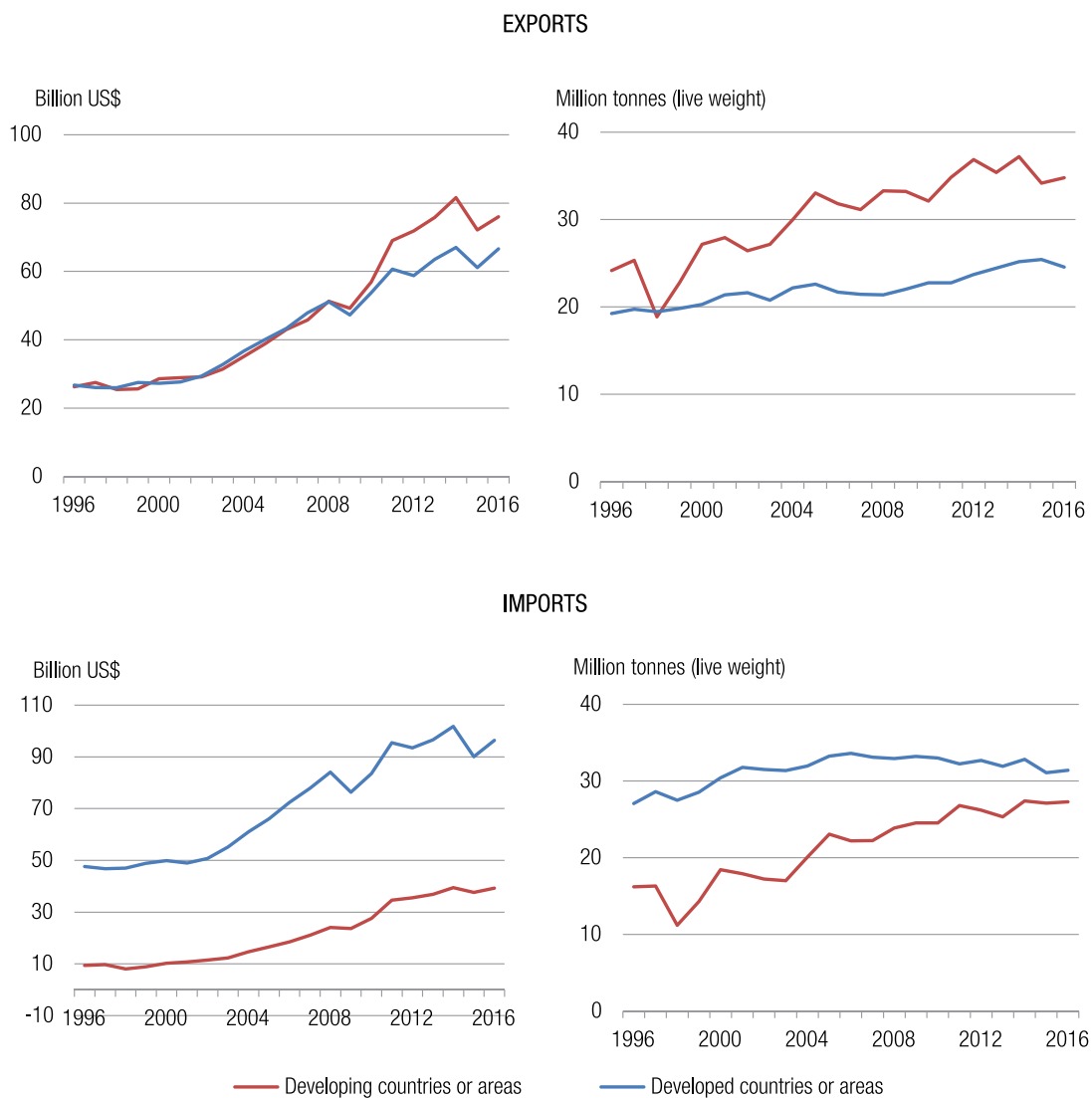
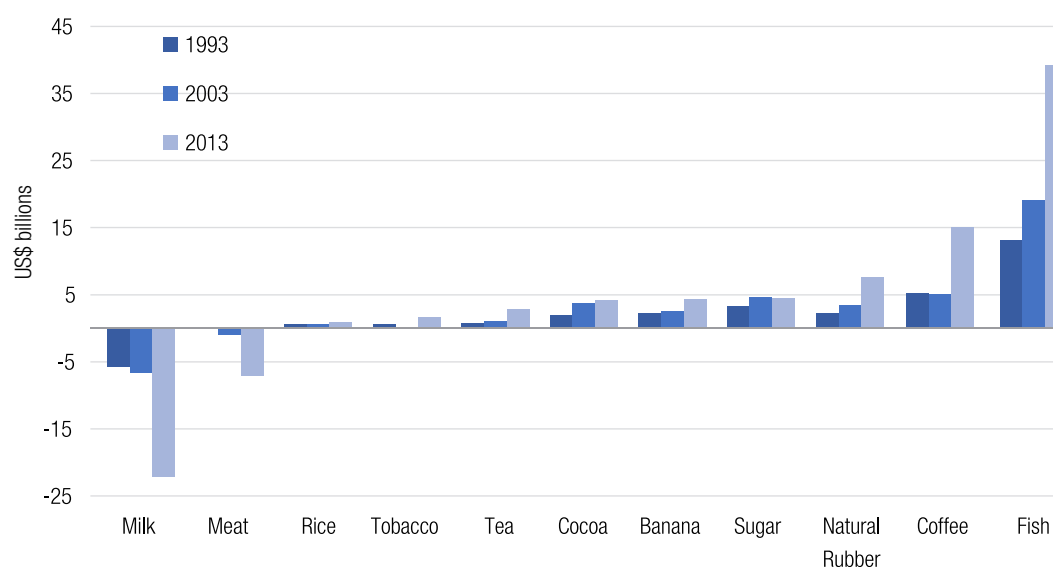
Figure 4. . International trade of fish and seafood (FAO, 2018a)

Figure 5. Net benefit (Export value – import value) of developing countries from international food trade**Table 2. Top ten exporters and importers of fish and fish products (FAO, 2018a)**

Country	2006		2016		APR ^a (per cent)
	Value (million \$)	Share (per cent)	Value (million \$)	Share (per cent)	
Exporters					
China	8 968	10.4	20 127	14.1	8.4
Norway	5 503	6.4	10 770	7.6	6.9
Viet Nam	3 372	3.9	7 320	5.1	8.1
Thailand	5 267	6.1	5 893	4.1	1.1
United States of America	4 143	4.8	5 812	4.1	3.4
India	1 763	2.0	5 546	3.9	12.1
Chile	3 557	4.1	5 143	3.6	3.8
Canada	3 660	4.2	5 004	3.5	3.2
Denmark	3 987	4.6	4 696	3.3	1.7
Sweden	1 551	1.8	4 418	3.1	11.0
Top ten subtotal	41 771	48.4	74 730	52.4	6.0
Rest of world total	44 523	51.6	67 824	47.6	4.3
World Total	86 293	100.0	142 553	100.0	5.1
Importers					
United States of America	14 058	15.5	20 547	15.1	3.9
Japan	13 971	15.4	13 878	10.2	-0.1
China	4 126	4.5	8 809	6.5	7.9
Spain	6 359	7.0	7 108	5.2	1.1
France	5 069	5.6	6 177	4.6	2.0
Germany	4 717	5.2	6 153	4.5	2.7
Italy	3 739	4.1	5 601	4.1	4.1
Sweden	2 028	2.2	5 187	3.8	9.8
Republic of Korea	2 753	3.0	4 604	3.4	5.3
United Kingdom	3 714	4.1	4 210	3.1	1.3
Top ten subtotal	60 533	66.6	82 275	60.7	3.1
Rest of world total	30 341	33.4	53 370	39.3	5.8
World Total	90 875	100.0	135 645	100.0	4.1

^a APR: average annual percentage growth rate for 2006–2016.

Table 3. Top three fish export commodities of LDCs, 2012–2013 (UNCTAD, 2018)

Bangladesh	Cambodia	Comoros	Mozambique	Myanmar	Uganda	All LDCs
Shrimps and prawns (frozen) (80%)	Crabs (not frozen) (29%)	Frozen fish n.e.s.2 (73%)	Shrimps and prawns (frozen) (65%)	Marine fish (69%)	Nile perch (fresh or chilled) (46%)	Shrimps and prawns (frozen) (27%)
Crabs (not frozen) (7%)	Crustaceans n.e.s. (not frozen) (28%)	Frozen cod-like 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 (4%)	Shrimps and prawns (not frozen) (18%)	Shrimps and prawns (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%)

Table 4. Top three destinations of sample LDCs' fish exports, 2011–2013 (UNCTAD, 2018)

Bangladesh	Cambodia	Comoros	Mozambique	Myanmar	Uganda	All LDCs
Belgium (17%)	Republic of Korea (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%)	Viet Nam (10%)		Zimbabwe (12%)	Malaysia (7%)	Hong Kong, China (13%)	France (8%)

3. CHALLENGES FOR HARNESSING THE POTENTIAL OF FISHERIES AND AQUACULTURE

3.1. Capture fisheries: promise, decline and recovery

3.1.1. The state of capture fisheries

Global capture fishery production in 2016 was 90.9 million tonnes, of which 79.3 million tonnes from marine waters and 11.6 million tonnes from inland waters (Table 1 and Figure 6). For marine fisheries production, China remained the major producer followed by Indonesia, the United States of America and the Russian Federation. The Northwest Pacific remained the most productive area, followed by the Western Central Pacific, the Northeast Atlantic and the Eastern Indian Ocean. Except for the Northeast Atlantic, these areas have shown increases in catches compared with the average for the decade 2003–2012. Unfortunately, the situation in the Mediterranean and Black Sea is alarming, as catches have dropped by one-third since 2007, mainly attributable to reduced landings of small pelagics (FAO, 2018a).

Projections over the next decade indicate that, unless major transformational changes are undertaken, world capture fisheries will fluctuate between lows of 91.3 million tonnes in *El Niño* years and highs of 93.7 million tonnes in the best fishing years (OECD-FAO, 2018). This is a higher maximum level of capture fisheries production than seen in the previous decade and should result from a combination of improved catches in some fishing areas (due to improved management regimes in some cases but increases in fishing effort in others), higher market prices, climate change impacts, and new regulations stimulating reductions in discards and waste from fishing.

Overall, the state of the world's marine fish stocks has not improved, despite notable progress in some areas. Of the total number of fish stocks assessed, the share of fish stocks within biologically sustainable levels (fully fished and underfished) decreased from 90 per cent in 1974 to 66.9 per cent in 2015. In contrast, the percentage of stocks fished at biologically unsustainable levels increased from 10 per cent in 1974

to 33.1 per cent in 2015, with the largest increases in the late 1970s and 1980s. In 2015, maximally sustainably fished stocks (formerly termed fully fished stocks) accounted for 59.9 per cent and underfished stocks for 7.0 per cent of the total assessed stocks. The underfished stocks decreased continuously from 1974 to 2015, whereas the maximally sustainably fished stocks decreased from 1974 to 1989, and then increased to 59.9 per cent in 2015, partly as a result of improved management and enforcement (Figure 7).

The ten most-productive species accounted for about 27 per cent of the world's marine capture fisheries production in 2013. However, most of their stocks are fully fished with no potential for increases in volume. The remainder are overfished with increases in their volume only possible after successful stock restoration (FAO, 2018a).

3.1.2. Illegal, unreported and unregulated fishing

Overfishing is the result of suboptimal fishing capacity and effort, some of it sustained by subsidies, and IUU fishing. IUU fishing refers to i) Fishing by "Stateless" vessels; ii) Fishing in convention areas of Regional Fisheries Management Organizations (RFMOs) by non-party vessels; iii) Fishing activities which are not regulated by States and cannot be easily monitored and accounted for. Studies (e.g. OECD, 2018 and UNCTAD 2016b) have highlighted the detrimental effects that IUU fishing has on global fisheries and its negative impact on the marine environment and on distorting international fish trade, in addition to its criminal and human rights abuse aspects.

Illegal fishing refers to fishing and related activities conducted in contravention of national, regional or international law, fishing without a license, in prohibited areas, with prohibited gear, harvesting prohibited species, or extracting over the allowed quota.

Unreported fishing refers to any fishing operation or catch that is not recorded or that is misreported to proper authorities, any withholding of catch type, size, and location.

Unregulated fishing refers to catch from areas i) of a relevant RFMO by vessels with no nationality or flying the flag of a state not party to the RFMO or by a fishing entity, in a manner that is not consistent with or contravenes the conservation and management measures of that RFMO; ii) in areas or for fish stocks in

relation to which there are no applicable conservation or management measures and where such fishing activities are conducted in a manner inconsistent with State responsibilities for the conservation of living marine resources under international law.

IUU fishing has seen rapid increases, and intensified overfishing. It represents a multifaceted and severe threats to global fisheries, in particular for fisheries of developing countries lacking the capacity and resources for effective Monitoring, Control, and Surveillance (MCS) of their EEZ. In 2014, the United Nations General Assembly declared IUU fishing as one of the biggest threats to sustaining fish stocks globally (United Nations General Assembly Resolution A/RES/69/109 of 2015)⁶. Fisheries resources available to bona fide fishers are poached in a ruthless manner, often leading to the collapse of local fisheries, with small-scale fisheries in developing countries proving particularly vulnerable. If not effectively addressed, products derived from IUU fishing can continue finding their way into international markets thus throttling local food supply. IUU fishing therefore threatens livelihoods, exacerbates poverty, and augments food insecurity, in addition to the threat posed to natural ecosystems and aquatic life. It occurs not only in the high seas but also within EEZs that are poorly managed and may sometimes be associated with organized crime. Unfortunately, the clandestine nature of IUU fishing prevents a fair estimation of its impact. Rough calculations, however, indicate that IUU fishing across the world's oceans weighs in at around 11–26 million tonnes of fish each year or a value of \$26 to 35 billion (FAO, 2018a).

In summary, the effects of IUU fishing are:

- Overfishing because stock assessments do not include IUU catches, resulting in quotas set too high to be sustainable, threatening food security;
- Collapse of vulnerable fisheries such as those of certain sharks or high value species such as bluefin tuna;
- Exploitation of developing countries: Illegal foreign vessels remove up to \$450 million from Somalian waters alone each year, destroying local livelihoods⁷;
- Seafood fraud: Illegal fish mixed with legal catches are often mislabelled, so they can be sold as a high value fish to boost profits;
- Criminality: IUU fishing is often linked to human trafficking, drug smuggling, physical and sexual abuse, child labour, dangerous working conditions, and forced labour;
- Endangered seafood safety: Poor sanitation, disease, and unsafe food handling endangers the health of consumers.

3.1.3. Fisheries subsidies

In economics, a subsidy is a government incentive provided in the form of financial aid or other non-financial support to an economic sector (or institution, business or individual). The impact of fisheries subsidies varies considerably, from positive effects on fisheries sustainability (e.g. support to fisheries management and research) to harmful ones (i.e. to overcapacity, overfishing and IUU fishing). No complete inventory of fisheries subsidies or a common understanding of their impacts exist yet. As a result, reliable and accurate data on fisheries subsidies remain sparse, partly due to a lack of transparency.

This information vacuum has largely been filled by widely debated broad assumptions and estimates, often based on anecdotal evidence. Academic sources estimate global fisheries subsidies to be in the region of \$35 billion, of which over \$20 billion come in the form of capacity-enhancing subsidies (Sumaila et al, 2016). Based on data reported to the OECD by 28 countries, the total public support to fisheries can be estimated annually at \$9.3 billion on average, during the period 2010-2015. This period has experienced a growth of 42 per cent in total with a peak of \$11 billion in 2012, followed by steady decline (Figure 8). Of this reported support, the majority was devoted to fisheries management, monitoring and control, infrastructure, research and fuel costs. A similar study by the European Union reports around \$9.7 billion annually in fisheries subsidies in major non-European Union fishing countries (European Commission, 2016).

Figure 9 compares fisheries support, fishery commodities exports, and world catch data for these countries. Some major producers and exporters of fish and seafood, such as China and the United States, provide important support to fisheries, averaging 30 per cent of the value of gross exports. In other countries, such as Indonesia, this average is relatively small (6.5 per cent). In Japan, a country with a large domestic market, a significant use of fishery support measures (60 per cent) may be motivated by internal market demand, e.g. consumption patterns, rather than export motives.

Fuel subsidies, a prominent type of fisheries support, have been analyzed by UNCTAD through a scenario assessment on marine gasoil (MGO) retail prices in the

Figure 6. Reported global capture fisheries production 1950 – 2017 (FAO STAT, 2017)

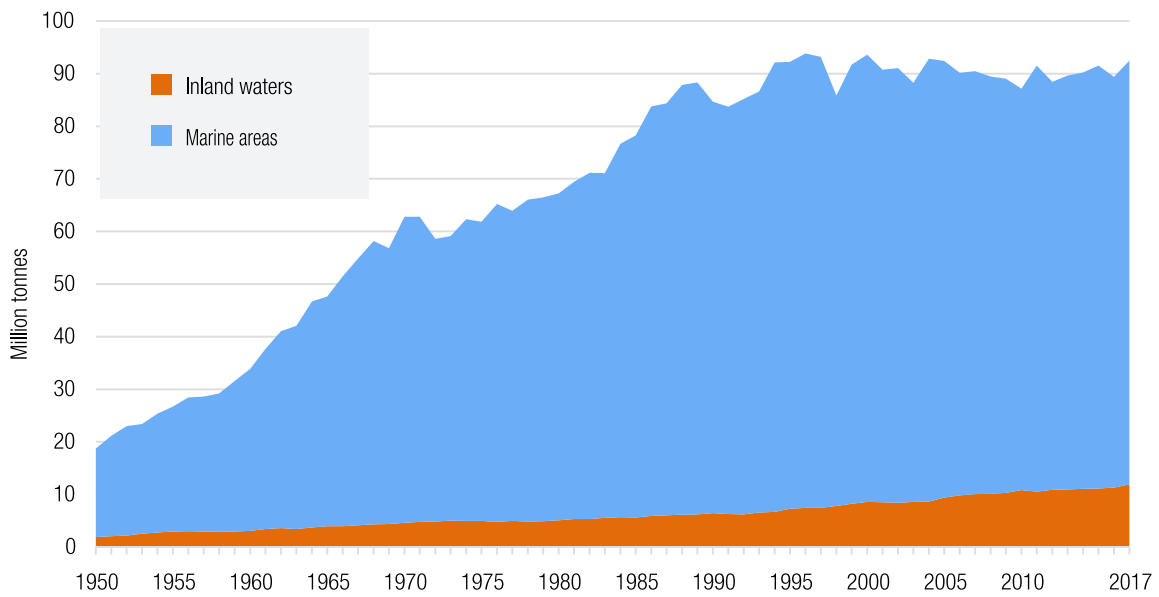
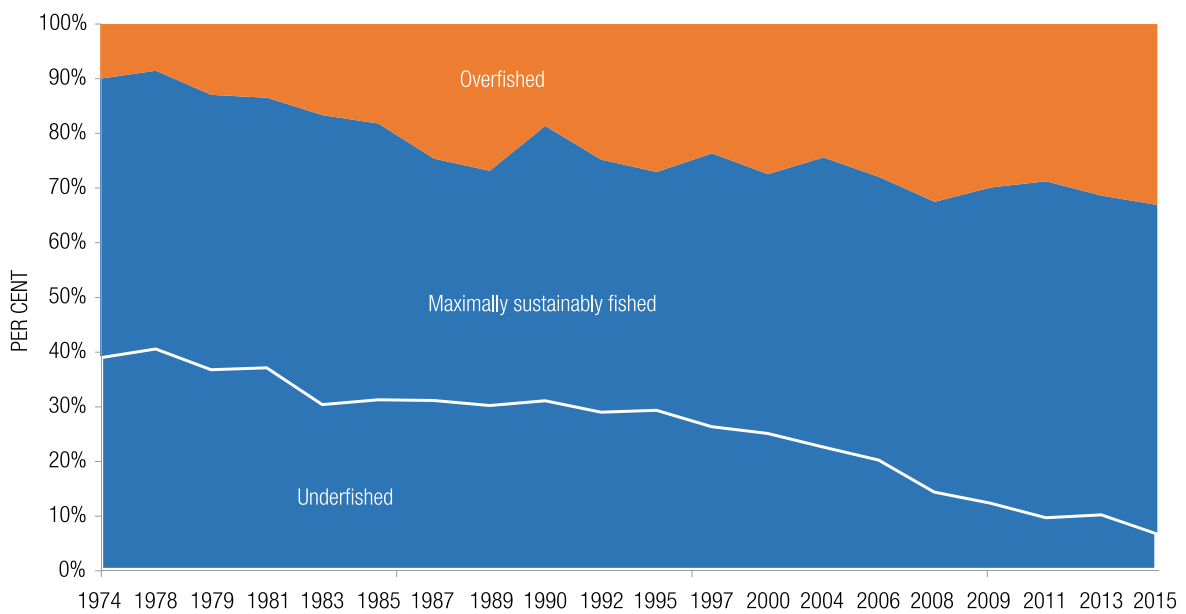
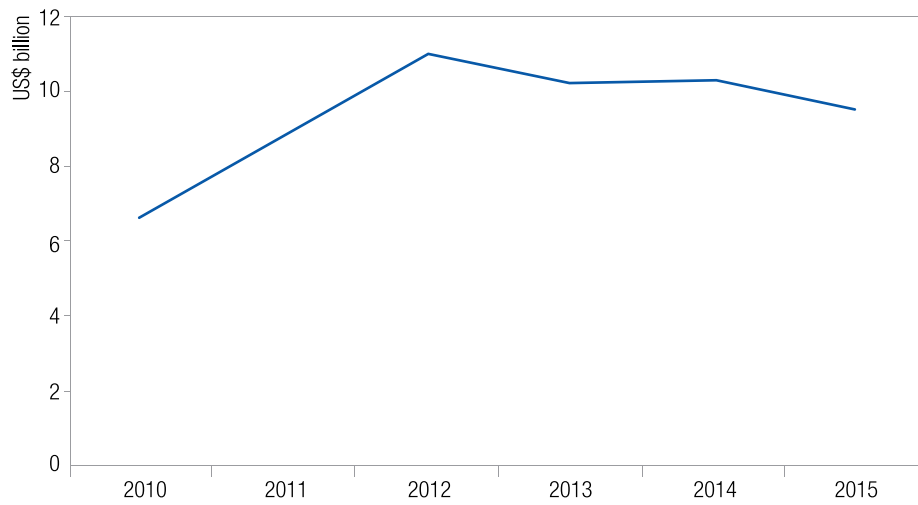


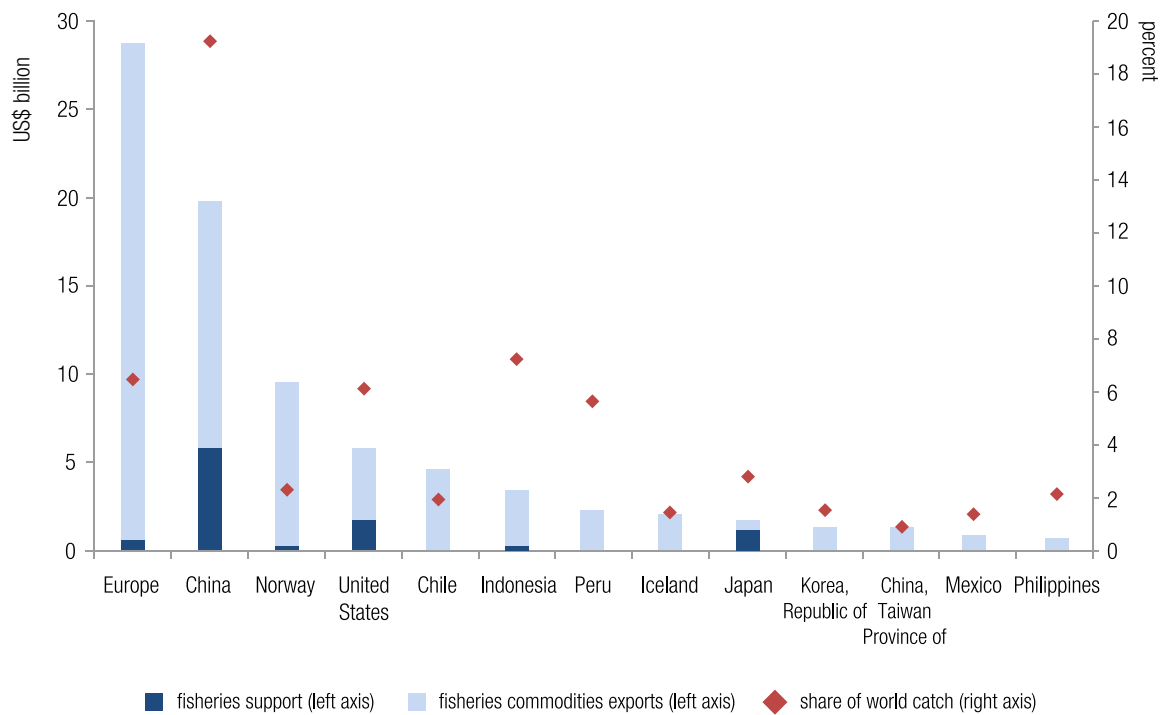
Figure 7. Global trends in the state of the world's marine fish stocks (1974 – 2015)



Source: FAO, 2018a

Figure 8. Global fisheries support estimate, total, 2010-2015

Source: UNCTAD calculations based on OECD data on Fisheries Support Estimates, 2018.

Figure 9. Incidence of support on fishery commodities exports of major fishing nations (2015)

Source: UNCTAD calculations based on UNCTAD data and OECD data on Fisheries Support Estimates, 2018.

world largest ports. The study shows high variability across countries and regions, with many countries selling largely below the global average fuel price. This may not be a surprise in countries producing oil, such as the Russian Federation, Malaysia or the Bolivarian Republic of Venezuela with dual pricing schemes. In other countries, this suggests the existence of some forms of price support or subsidy maintaining MGO retail prices fairly low in major fishing ports.

It has also been suggested that fisheries subsidies create unfair competition, particularly between large fleets and individual artisanal fishermen, and foster inequality with about 84 per cent of all fisheries subsidies benefiting large scale fleets (Schuhbauer et al., 2017). The challenge is to eliminate harmful subsidies and convert these funds for investment in fisheries sustainability to reduce pressure on fish stocks. A fundamental prerequisite is adherence to transparency initiatives and participation in fisheries governance for the benefit of a more sustainable management of marine fisheries, like the Fisheries Transparency Initiative (FITI)⁸. This can facilitate data analysis in support of the overall negotiation process on fisheries subsidies.

Multilateral discussions on fisheries subsidies have been ongoing for more than 20 years. Concerns over fisheries subsidies made it for the first time into the formal multilateral agenda during the negotiations and final adoption of the FAO International Plan of Action for the Management of Fishing Capacity (IPoA MFC, 2000)⁹. Fisheries subsidies was then raised as a key issue under the WTO Doha Development Agenda mandate (WTO DDA, 2001), which included a call to “clarify and improve” existing WTO subsidies disciplines. That mandate was further elaborated at the WTO Hong Kong Ministerial Conference (2005) with a call to prohibit certain forms of fisheries subsidies that contribute to overcapacity and overfishing, taking into account appropriate special and differential treatment for developing and least developed Members as an integral element of the negotiations.

Unfortunately, the negotiations experienced many difficulties for several years. The momentum for creating new disciplines on fisheries subsidies rose again in early 2015 with the adoption of the United Nations 2030 Sustainable Development Agenda. Target 6 of SDG 14 calls United Nations Members to prohibit certain forms of fisheries subsidies which contribute to overcapacity and overfishing, eliminate subsidies that contribute to IUU fishing, recognizing appropriate

and effective S&DT for developing countries and LDCs within the WTO context by 2020. There was a great hope to achieve a breakthrough at the 11th WTO Ministerial conference. Unfortunately, multilateral negotiations did not deliver so far, a solution to prohibit certain forms of fish subsidies as mandated by the Doha and Hong Kong (China) conferences and SDG 14.6. Ongoing initiatives and their potential outcomes are discussed in chapter 4.

3.1.4. Climate change

Climate change is already having an impact on fisheries and aquaculture. Experts estimate that in the future the effect is likely to be even more severe on fishing and fish farming communities. These impacts will have repercussions on a global scale, due to factors such as an increased number of people at risk, especially in coastal and low-lying areas and atolls, loss of livelihoods, displacement and migration of human populations from floods, storms and/or changes in fisheries distributions. Additionally, increased levels of Green House Gases (GHG) concentration in the atmosphere, higher CO₂ absorption by the oceans, changes in seawater temperatures and pH levels, and low levels of oxygen in the seawater, may severely affect marine biomass and current migratory patterns of many fish species.

Globally, emissions of GHG by fisheries and aquaculture were estimated at around 7 per cent of those from agriculture, mainly from fishing vessels (about 0.5 per cent of total global CO₂ emissions in 2012). Reductions of 10 to 30 per cent could be attained through the use of efficient engines and by improving vessel shapes. There are also opportunities to reduce greenhouse gas emissions in aquaculture, which include improved technologies to increase efficiency, use of renewable energy sources, and improving feed conversion rates, among others (Barange et al., 2018).

A recent FAO review (Barange et al., 2018) indicates that climate change will lead to significant changes in the availability and trade of fish products. This may result in important geopolitical and economic consequences, especially for those countries most dependent on the sector. Model projections in 13 marine regions suggest decreases in maximum catch potential in the world's EEZs of between 2.8 per cent and 12.1 per cent by 2050. Although estimates are subject to significant variability, the biggest decreases can be expected in the tropics, mostly in the South Pacific regions. For high latitude regions, catch potential is

projected to increase, or show less of a decrease than in the tropics. However, these projections only reflect changes in the capacity of the oceans to produce fish, and do not consider the management decisions that may or may not be taken in response. Therefore, the interaction between ecosystem changes and management responses is crucial to minimize the threats and maximize the opportunities emerging from climate change. Changes in production are partly a result of expected shifts in the distribution of species, which are likely to cause conflicts between users, both within and between countries.

In the case of aquaculture, climate change can lead to production losses and damages of infrastructure, from extreme events such as floods, increased risks of diseases, parasites and harmful algal blooms. Long-term impacts can include reduced availability of wild seed, as well as reduced precipitation, again leading to increasing competition over freshwater. Climate driven changes in temperature, precipitation, ocean acidification, incidence and extent of hypoxia and sea level rise, amongst others, are expected to have long-term impacts in the aquaculture sector at multiple scales. Options for adaptation and resilience building exist, although interactions between aquaculture, fisheries and agriculture can either exacerbate impacts or help create solutions for adaptation.

An often-unrecognized impact of climate change is on food safety, for example through changes in the growth rates of pathogenic marine bacteria, or on the incidence of parasites and food-borne viruses. Climate change may also bring increased risks for animal health, particularly in the rapidly growing aquaculture sector, for example by changing the occurrence and virulence of pathogens or the susceptibility of the organisms being cultured to pathogens and infections.

The 2015 Paris Climate Agreement recognizes the need for effective and progressive responses to the urgent threat of climate change, through mitigation and adaptation measures, while taking into account the particular vulnerabilities of food production systems. The inclusion of adaptation and diversification measures in the fisheries and aquaculture sector is currently hampered by a widespread lack of targeted analyses of the sector's vulnerabilities to climate change and associated risks, as well as the opportunities and responses available.

The FAO review (Barange et al., 2018) examines existing and potential responses to adapt to the

changes for the 13 different marine regions covering a range of ecological, social and economic conditions. It concluded that adaptations to climate change must be undertaken within the multifaceted context of fisheries, with any additional measures or actions to address climate change complementing overall governance for sustainable use. It is recognized that some of these measures will require institutional adaptation. The impacts of climate change on the fisheries and aquaculture sector will be determined by the sector's ability to adapt. Guidance on the tools and methods available to facilitate and strengthen such adaptation is available. Because each specific fishery or fishery/aquaculture enterprise exists within unique contexts, climate change adaptations must start with a good understanding of a given fishery or aquaculture system and a reliable assessment of potential future climate change. Experts recognize the multifaceted and interconnected complexity of fisheries and aquaculture, through which direct and indirect impacts of climate change will materialize. Efforts to adapt to and mitigate climate change should be planned and implemented with full consideration of this complexity. Failure to do so would increase inefficiency and maladaptation, exacerbating rather than reducing impacts (Barange et al., 2018).

3.1.5. Marine pollution

More than 40% of the global population lives within 100 kilometres of the coast. Thirteen of the world's 20 megacities lie along coasts. Nearly 700 million people live in low-lying coastal areas less than 10 metres above sea level (UNEP, 2016; 2018)¹⁰. As coastal cities and populations, together with global agricultural production and energy consumption, have grown faster than the institutions and their capacity to address the environmental impact they cause, so too has the level of pollution entering the oceans, 80 per cent of which comes from land-based sources.

Marine pollution from land-based sources such as agricultural run-off and untreated sewage has long been a serious problem in coastal areas. It is estimated that discharge of nitrogen and phosphorous to the oceans has increased three-fold since pre-industrial times. Over 80% of the 232 marine eco-regions reported the presence of invasive species, which is the second most significant cause of biodiversity loss on a global scale (UNEP, 2016; 2018).

Following the Rio summit in 1992, A Global Program of Action for the Protection of the Marine Environment

from Land-Based Activities (GPA) was adopted in 1995 as the main initiative to reduce ocean pollution from land-based sources. The GPA aims to provide guidance to countries on how to address land-based activities affecting the marine environment at the national, regional and global levels. At the regional level, UNEP's Regional Seas Program has helped to develop guidance for addressing land-based activities affecting ocean health in 18 Regional Seas Programs. International commitments have been made to reduce pollution, including from excess nutrients, to levels that are not detrimental to ecosystem function and biodiversity.

Since Rio in 1992, progress has been made in levelling off and even reducing marine pollutants from a number of sources, but with three major challenges remaining where pollution has continuously worsened since 1995: (i) nutrients, (ii) wastewater/sewage, and (iii) marine litter. In terms of nutrient runoff into the oceans, excess nitrogen run-off from fertilizers in particular has resulted in algal blooms, such as sargassum, in the oceans that consume so much of the oxygen that most marine life is unable to survive, leading to 'dead zones' covering 95,000 square miles of the oceans in 2008 – an area the size of Great Britain (Diaz and Rosenberg, 2008). The number of these dead zones has increased dramatically, reaching at least 169 such zones in coastal areas in 2012 and 415 coastal areas suffering from eutrophication (UNEP, 2012). In terms of wastewater, sewers carry human waste from a growing number of urban locations (e.g. the mega-cities along the coast in East and South Asia), often releasing it untreated in local waterways or coastal waters. At present, on average only 10 per cent of wastewater in developing countries is treated. In addition to land-based nutrient and wastewater pollution, the ocean is increasingly used as a depository for solid waste (i.e. marine litter), with an estimated 8 million tonnes of plastics dumped into the oceans every year, with a volume estimated at 150 million tonnes. In a business-as-usual scenario, the ocean is expected to contain 1 tonne of plastic for every 3 tonnes of fish by 2025 (World Economic Forum, 2016). Lastly, pollution as a result of increases in the development of offshore oil, gas and mining operations and maritime transportation is projected to be a significant risk to ocean health in the coming years.

Plastic production has increased exponentially since the early 1950s, reaching 322 million tonnes in 2015, whereas this figure does not include synthetic fibres which accounted for an additional 61 million tonnes

in 2015 (FAO, 2017c). This production is expected to continue to increase in the future and is likely to double by 2025. It is estimated that 75 per cent of this plastic has become waste. Even with one of the best waste collection and management systems in the world, Canada only recycles 11 per cent of its plastic waste, leaving almost 90 per cent sitting in landfills and in some cases reaching lakes, rivers and ocean basins. Inadequate management of plastic waste has led to increased contamination of freshwater, estuarine and marine environments. Abandoned, lost or otherwise discarded fishing gears (ALDFG) are considered the main source of plastic waste by the fisheries and aquaculture sectors, but their relative contribution is not well known at regional and global levels (FAO, 2017c).

Plastics have become the ubiquitous workhorse material of the modern economy – combining functional properties with low cost. Almost all aspects of daily life involve plastics. In the European Union (World Economic Forum, 2016), for example, the main applications of plastics include: packaging (39.9 per cent, much of which is single-use), building and construction (19.7 per cent), automotive industry (8.9 per cent), electrical and electronic (5.8 per cent), agriculture (3.3 per cent) and other (22.4 per cent) applications (including consumer and home appliances, furniture, sport, health and safety).

The use of plastics has increased twentyfold in the past half-century and is expected to double again in the next 20 years. The current plastics economy has drawbacks that have become major concern, including for the fishing community. A staggering 32% of plastic packaging escapes collection systems, generating significant economic costs by reducing the productivity of vital natural systems such as the ocean and clogging urban infrastructure. The cost of such after-use externalities for plastic packaging, plus the cost associated with greenhouse gas emissions from its production, is conservatively estimated at \$40 billion annually. To overcome these drawbacks, we need enhance system effectiveness to achieve better economic and environmental outcomes in order to continue harnessing the benefits of plastic packaging. A "New Plastics Economy", which aligns with the principles of the circular economy has been proposed to promote innovations with better environmental outcomes (WEF, 2016).

A key concern in fisheries and aquaculture is the ingestion of microplastics by fish and its impact on

the fauna and human food safety (Lusher et al., 2017). Microplastics are usually defined as plastic items which measure less than 5 mm in their longest dimension, this definition includes also nano plastics which are particles less than 100 nanometres (nm) in their longest dimension. Plastic items may be manufactured within this size range (primary micro- and nano plastics) or result from the degradation and fragmentation of larger plastic items (secondary micro- and nano plastics). Ingestion of microplastics by aquatic organisms, including fish species of commercial importance, has been documented in laboratory and field studies. Microplastics contain a mixture of chemicals (additives) added during manufacture and can efficiently adsorb persistent, bio accumulative and toxic contaminants (PBTs) from the environment. The ingestion of microplastics by aquatic organisms and the accumulation of PBTs have been central to the perceived hazard and risk of microplastics in the marine environment. Adverse effects of microplastics ingestion have been observed in aquatic organisms under laboratory conditions, usually at high exposure concentrations that exceed present environmental concentrations by several orders of magnitude. In wild aquatic organisms microplastics have been observed within the gastrointestinal tract, usually in small numbers, and at present, there is no evidence that microplastics ingestion has negative effects on populations of wild and farmed aquatic organisms. In humans the risk of microplastic ingestion is reduced by the removal of the gastrointestinal tract in most species of seafood consumed. However, most species of bivalves and several species of small fish are consumed whole, which may lead to microplastic exposure (FAO, 2017c). Microplastic contamination of aquatic environments is likely to increase in the foreseeable future, increasing the risks for aquatic living organisms and the safety of consumers.

3.2. Aquaculture development and environmental concerns

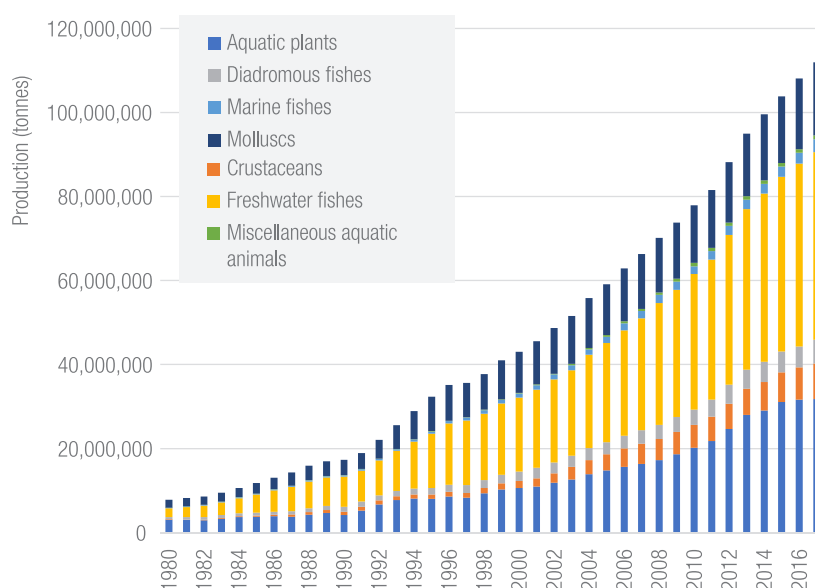
Many millennia after terrestrial food production shifted from hunting to agriculture, fish and seafood production has transitioned from being mainly fishing to mainly fish farming. For the first time in 2014, aquaculture supplied more fish for human consumption than capture fisheries which has been relatively static since the late 1980s. As a result, aquaculture has been filling the gap between supply and demand of fish for human consumption. China in particular and Asia in general have played a major role in this growth as they represent

respectively more than 60 per cent (China) and some 90 per cent (Asia) of world aquaculture production. Many other countries have seen significant increases in aquaculture production for human consumption, with many doubling their production since 1995 (FAO, 2018a).

Currently, some 591 aquatic species and species groups are farmed worldwide producing 106 million tonnes in live weight, with a total estimated first-sale value of \$163 billion. This production comprised *farmed aquatic animals*, *aquatic plants* and *non-food products* (pearls and shells). At continent level, African aquaculture growth during 2001-2015 averaged 10.4 per cent, followed by Asia (6 per cent) and Americas (5.7 per cent), whereas aquaculture growth in Oceania and Europe were only 2.9 per cent and 2.5 per cent, respectively during the same period (FAO, 2018a).

In 2015, finfish farming represented the most important aquaculture species in many countries with a contribution between 63-68 per cent during the last two decades. Mollusc farming, which used to account for about 30 per cent of the total food fish farming production in 2000, has gradually declined to reach 21 per cent in 2015. In contrast, crustacean farming increased from less than 5 per cent before 2000 to 10 per cent in the past decade. Aquatic plants farming represented 27.7 per cent of the total production in 2015. With almost all farmed aquatic animals destined for human consumption, aquaculture supplied 10.42 kg of food fish for human consumption in 2015, an increase by 0.28 kg from 10.14 kg in 2014 (FAO, 2016).

The significant growth of aquaculture during the last 40 years has raised major concerns over its environmental impact and some of its unsustainable models. Aquaculture sites have often been carved out of important natural coastal habitats with rapid expansion exceeding the capacity of planning controls and oversight. Development in aquaculture of fed species, where poorly managed, has affected key biodiversity and ecosystem functions through mangrove deforestation, excessive nutrient release, chemical pollution and the escape of farmed species and disease agents into the natural environment. Major causes of impact have been associated with feeding and nutritional wastes, the existence and spread of diseases and the interbreeding of wild and selected strains (FAO, 2018a).

Figure 10. World production of farmed aquatic animals and plants (1980 – 2017)

Source: FAOSTATS 2019 at <http://www.fao.org/fishery/statistics/en>

3.3. Market access/market entry requirements and non-tariff measures

The important development in international fish trade has benefitted from favorable measures for market access (tariffs) that are not particularly high and have been decreasing slowly since 2011. UNCTAD-World Bank-WTO data suggest that applied tariffs were globally about 4.8 per cent on average for raw fish and fish fillets in 2014, dropping from 6.7 per cent in 2009 (UNCTAD, 2016b). The Most Favoured Nation (MFN) tariff¹¹ for fish products stood at 11.6 per cent in 2014, a decline of more than 2 percentage points since 2009. However, tariff escalation is commonly found on tariff lines that cover processed fish products among all country groupings. By way of example, the European Union tariffs for processed fish and seafood can be subject to tariff peaks of 25 per cent for processed tuna, 20 per cent for processed shrimp and 12 per cent for canned sardines. In countries like the Republic of Korea and Thailand, applied MFN tariffs are 20 per cent for tuna preparations. Tariff peaks continue to be applied to certain fish products to ensure some level of local value addition, although developing countries actually resort less to tariff peaks than developed countries do. In terms of average peaks per country, high-income countries have an average of 22 peaks, while the average per country among low-, middle-income and LDCs is less than 7 peaks (UNCTAD, 2016b).

According to FAO, fish trade between developing countries is expected to increase (FAO, 2018a). To facilitate this trade, the Global System of Trade Preferences (GSTP) among developing countries should be reinvigorated. This would be accelerated once the Sao Paulo round of negotiations (SPR) concluded in 2010 enters into effect. This could reduce applied tariffs by at least 20 per cent for over 70 per cent of the national tariffs list. Eleven countries exchanged tariff concessions and adopted SPR. These are: Argentina, Brazil, Paraguay and Uruguay (forming Mercosur), the Republic of Korea, India, Indonesia, Malaysia, Egypt, Morocco and Cuba, of which five have ratified (Argentina, India, Malaysia, Cuba, and Uruguay). Fish products are often included in the schedule of commitments of the SPR. The future rounds of the GSTP should focus the negotiations on goods that contribute to environmental protection and sustainability in order to achieve SDGs targets while creating additional opportunities for South-South cooperation and further integration of value chains among developing countries.

3.3.1. Market entry requirements or Non-Tariff Measures (NTMs)

The major challenges for fish and seafood exports remain non-tariff measures (NTMs) or market entry measures applied to fish and fish products by importing countries and companies. These measures can be legitimate sanitary and phytosanitary measures

to protect the health of consumers, animals and plants or technical standards to protect consumers from fraudulent practices and mislabelling. This can include measures on traceability and catch documentation to ensure that traded fish has been legally harvested and has come from well managed fisheries and aquaculture operations.

Basically, these measures are disciplined under two Agreements of the WTO respectively on the Application of SPS measures, and the Technical barriers to Trade (TBT). The SPS agreement, which is specific to agriculture and food including fish, confirms the right of WTO member countries to apply measures necessary to protect human, animal and plant life and health as long as they are consistent with obligations prohibiting arbitrary or unjustifiable discrimination on trade between countries where the same conditions prevail and are not disguised restrictions on international trade.

The objective of the TBT Agreement on the other hand is to prevent the use of national or regional Technical Regulations or standards as unjustified technical barriers to trade. The agreement covers standards relating to all types of products including industrial products and quality requirements for foods (except requirements related to SPS measures). It provides that all technical regulations and standards must have a legitimate purpose and that the impact or cost of implementing the standard must be proportional to the purpose of the standard (Washington and Ababouch, 2011).

Unfortunately, the requirements and practices of border inspections are not always harmonized, fit for the purpose or aligned with the SPS/TBT principles. Developing countries have regularly pointed to the challenge presented by NTMs that vary from one jurisdiction to another. This multitude of approaches imposes significant costs on exporting countries, unnecessary duplication and represent a severe handicap for export from many developing countries with limited resources and capacity for management and infrastructures.

The fish sector is highly regulated in most countries, although at a lesser extent in LDCs. Similarly, fish products are generally more exposed to NTMs than non-fish products because of the high incidence of SPS measures on food products that are usually not applied to manufactures. UNCTAD's NTM database show that on average 2.5 times more technical measures applicable per Harmonized System (HS) codes for fish

products than for manufactures (Fugazza, 2017). For example, 732 SPS measures applicable to fish and fish products were notified to WTO by 67 members by September 2015. There were also about nine specific trade concerns (e.g. regarding safety, quality and/ or import restriction) raised by members to the SPS Committee. In terms of TBT measures applicable to fish and fish products, 524 were notified by 53 members and two specific trade concerns were also raised (UNCTAD, 2015). The increasing number of NTMs related to trade in fish and fish products calls for improved harmonization and efficiency and clearly demonstrates the challenges that capacity-constrained exporters face for accessing markets without adequate support such as Aid for Trade.

Further complicating the multiplicity of public NTMs, fish exporters have been increasingly subjected to a wide range of private standards. The private standards have emerged in areas where there is a perception that public institutions are failing to achieve desired outcomes. These include food safety and quality following major food scares, sustainability and responsible fisheries management, or social and environmental sustainability in the growing aquaculture industry. As a consequence, importing food firms, especially retailers, use their increasing bargaining power vis-à-vis other businesses in the value chain, to impose certification to private standards. The increasing vertical integration and complexity of value chains in fish and seafood has also stimulated the growth of private standards, as business-to-business tools used in the context of procurement contracts. Complex value chains – where raw materials are sourced globally, processed in one country and distributed in yet another – require reliable traceability systems and guaranteeing consumer protection from farm/boat to fork. These traceability and chain of custody systems are built into the frameworks included in most private standards schemes.

If implemented in an appropriate manner, sustainability standards can be a valuable tool, facilitating access to international markets and driving environmental improvements upstream in the value chain and hence contributing to resource sustainability. Internationally recognized sustainability standards have become a reality for fisheries and a key feature of the modern seafood trade environment. Likewise, in response to the growing requirement of “greening” the aquaculture business, certification is gaining more traction in international fish and seafood trade (Washington and Ababouch, 2011, UNEP, 2009).

However, the fragmentation of private standards can represent an additional hurdle that must be overcome if developing countries are to effectively consolidate their market shares and engage with high-value supply chains. A systematic mapping of the existing NTMs, both public and private, and their benchmarking against internationally recognized standards (e.g. Codex standards for food safety and quality, OIE standards for animal health, FAO guidelines for eco-labelling in fisheries and certification in aquaculture, etc.) is a necessity. Such a mapping improves knowledge of NTMs, particularly those that exert the strongest effect on developing country exports and have the potential to become obstacles to trade, assess their potential discriminatory nature and trade distorting impact. This helps to promote sound harmonization and equivalence among trading partners and technical assistance initiatives such as Trade for Aid (Washington and Ababouch, 2011). Harmonization and benchmarking tools such as Global Sustainability Seafood Initiative's (GSSI)¹² benchmark tool or the WWF dialogue for sustainable aquaculture¹³ can minimize many of these concerns.

Equally important is the need to determine how private market-based mechanisms fit into the overall governance framework for sustainable fisheries and aquaculture. Many governments, including of developing countries, have recognized the potential of private standards to increase market entry for exported products and services (UNFSS, 2016), and how sustainably certified fish products can increase export revenues for countries while helping advance environmental policy objectives (UNEP, 2013). Private standards when aligned with technical regulations are not likely to conflict with public regulations. Duplication is more likely to be an issue, including between certification schemes, if not in relation to the content of requirements, then certainly in the compliance assessment and verification. Arguably more problematic than the actual costs of certification is the distribution of those costs. At present, the compliance costs associated with certification to a private certification scheme are borne disproportionately by those upstream in the supply chain rather than those downstream where the demands for certification originates. Yet evidence of price premiums suggests that the financial benefits accrue to importers and retailers who demand certification. Should these retailers help foot the bill for certification? Is some redistribution of costs possible, and using what levers? These are areas for promising Public Private Partnerships (PPP) across borders (Washington and Ababouch, 2011).

Another study by UN Environment (UNEP, 2013) on green trade opportunities in sustainable aquaculture in Viet Nam, which surveyed 55 farms and processors of shrimp and pangasius, found variable environmental and economic benefits. Overall, the economic and environmental impact of certification was positive in shrimp farming, but uncertain or even negative for pangasius. The study highlighted various obstacles for further expansion of a sustainable aquaculture in Viet Nam, including the ability to comply with international standards, and insufficient capacity both in the private and public sectors. Overall, the study emphasized that capacity building will be key towards facilitating a transition to sustainable aquaculture.

4. TOWARDS ACHIEVING SDG 14 TARGETS: CHALLENGES AND OPPORTUNITIES FOR SUSTAINABLE FISH AND SEAFOOD TRADE

International trade of fish and seafood has linkages to and clear implications for most, if not all, SDG 14 targets. These targets also have high relevance to the mandates of UNCTAD, FAO and UN Environment. The three organizations have joined efforts to fulfil their 2017 commitments to support member countries with technical assistance, capacity building and information dissemination on the trade-related aspects of SDG 14. Following is a review of how the three organizations plan to achieve this, in collaboration with other collaborating organizations and stakeholders.

4.1. Sustainable fisheries and trade-related SDG 14 targets

The current situation for international management of fisheries and oceans is characterized by a myriad of international instruments and governance systems, often implemented in an uncoordinated manner by different agencies. This multitude of instruments and governance systems can be streamlined, better coordinated and made more effective by channelling their implementation around achieving SDG 14 targets. Some SDG 14 targets make clear reference to international instruments and criteria, while others define means to support achievement of the goal.

SDG 14 and its targets are highly ambitious, and their implementation faces many difficulties. For example, effectively regulate harvesting, end overfishing, IUU fishing and destructive fishing practices, and implement science-based management plans to restore fish stocks by 2020 (target 14.4) or eliminate by 2020 harmful subsidies (target 14.6) – have proven very challenging so far although some improvements have been reported. While key actions have been defined and their implementation initiated in some areas around target 14.4, WTO negotiations on fisheries subsidies did not so far deliver an international agreement to

prohibit certain forms of fish subsidies as mandated by the Doha and Hong Kong conferences and SDG 14.6. The eleventh WTO Ministerial Decision on Fisheries subsidies (WT/MIN(17)/64 , WTO, 2017)¹⁴ reasserted the will of Member States “to continue to engage constructively in the fisheries subsidies negotiations, with a view to adopting in 2019, an agreement on comprehensive and effective disciplines”. The serious challenge is in translating SDG 14 targets into concrete actions and upscaling successful and promising initiatives to other regions and areas. Taking into account the vital role of fisheries for many coastal developing countries, SDG 14 makes specific mention to the need to increase economic benefits for these countries (target 14.7) and to provide market access to small-scale artisanal fishers (target 14.b). Financial and technical assistance, and technology transfer (14.a), are important for many coastal developing countries as they look to create and implement national and regional strategies for sustainability, preservation and protection of fisheries and ocean health.

Small scale fisheries, which employ 90 per cent of the fishers and produce over 30 per cent of the capture marine fisheries, have suffered severe decline and marginalization. Small-scale fishers should be involved in the allocation of fisheries resources and its management. This requires policies and capacity that empower small-scale fishing communities to take a more active role in terms of resource stewardship and management.

4.2. Sustainable aquaculture and trade-related SDG 14 targets

Marine aquaculture relates to the farming of fish, crustacean, molluscs, aquatic plants and seaweeds. Aquatic plants and seaweeds have multiple edible and non-edible potential uses. Most work on achieving SDG 14 targets has focused on oceans and marine capture fisheries. Comparatively, little work has addressed the relevance and potential of marine aquaculture development to achieve SDG 14 targets. Many reports often make the implicit assumption that marine fisheries include aquaculture. This has been the practice by many institutions and in many parts of the world. Fish trade statistics for example, based on classification by the World Custom Organization (WCO), usually do not distinguish whether the origin of the fish is wild capture fisheries or aquaculture. However, capture fisheries and aquaculture are based on different production and business models and face different challenges.

Sustainable marine aquaculture has the potential to contribute significantly to SDG 14 targets, while promoting the socio-economic development of coastal populations in Africa, the Caribbean, Asia and the Pacific. It has increased fish and seafood supply to meet demand and stabilize fish prices, in particular during the periods of price hikes of other food commodities. In some countries, it has contributed to reducing overfishing by providing alternative business opportunities to fishermen.

However, this requires the use of best aquaculture practices with minimal environmental impacts on coastal ecosystems. The aquaculture development model which has prevailed until now in major aquaculture nations is not valid and needs a major revision. Minimizing the impact of aquaculture on the environment and ocean health should take more precedence than before and be at the centre of marine aquaculture development. A key market approach to promote sustainable aquaculture is through robust aquaculture certification schemes. This requires capacity building and technical assistance in coastal developing states where marine aquaculture has great potential for investment and development.

4.3. Potential and innovative approaches of the Oceans/blue economy to accelerate achievement of the Trade-related targets of SDG 14

Achieving the trade related targets of SDG 14 requires innovative approaches stimulated by significant development in science, technology, logistics and marketing. Integrating best practices for natural resource management, harvesting, value addition and distribution can benefit greatly from opportunities offered around the concepts of Oceans/blue economy, value chain and seafood clusters. These concepts offer the possibility to integrate in a synergetic manner the objectives of the different users of oceans and seas.

Oceans and seas hold the promise of significant resources and great potential for boosting economic growth, employment and innovation. They are increasingly recognized as indispensable for addressing many of the global challenges facing the planet in the decades to come, from world food security and climate change to the provision of energy, natural resources and improved well-being and medical care.

The Oceans economy, also referred to as Blue economy or Blue growth, has its origins in the green economy concept endorsed at the Rio + 20 United Nations Conference on Sustainable Development in 2012. UNEP (2015) describes sustainable blue economy as an economy “*that improves human well-being and builds social equity while reducing environmental risks and scarcities*”. At its core, the Oceans or Blue economy refers to the de-coupling of socio-economic development from environmental degradation (UNCTAD, 2016a), with a particular attention to gender, poverty and vulnerable groups. These are building blocks of any sustainable development undertaking that integrate environmental protection, economic development and social responsibility. However, the Blue economy aims to integrate these blocks for the major users of oceans in a synergistic manner. This includes traditional sectors such as marine fisheries, tourism, maritime transport and water desalination, but also new and emerging activities, such as offshore renewable energy, marine aquaculture, seabed extractive activities and marine biotechnology and bioprospecting. The Oceans economy recognizes the fundamental role of the services provided by ocean ecosystems for which markets do not exist yet. These include carbon sequestration, coastal protection, waste disposal and the protection of biodiversity (Levrel, Pioch and Spieler, 2012).

The Oceans economy is relevant to all coastal countries and can be applied on various scales, from local to regional to global. It represents a unique opportunity for coastal LDCs and SIDS, whose oceans and seas represent a much larger geographic area (over 1000-fold for many countries) than their inland territory. While stimulating growth in individual oceanic sectors can be comparatively straightforward, it is not always clear what a sustainable Oceans economy, integrating the different sectors, should look like and the conditions under which it is most likely to develop. Each country should weigh the relative importance of each sector of the Oceans economy and decide, based on its own circumstances, which ones to prioritize. The contribution of natural oceanic capital to welfare must be properly valued and considered to support the right policy decisions, including with regards to trade-offs amongst different sectors of the Oceans economy. Investment in and use of the best available science, data and technology is critical to underpinning governance reforms and shaping management decisions to enact long-term change. Ensuring ocean health will require new investment and targeted financial instruments - including blue bonds,

insurance and debt-for-adaptation swaps. The private sector can and must play a greater role in the Oceans economy. Trade in the sectors of the Oceans economy can be boosted by introducing sound policies based on effective regulatory and institutional frameworks to develop ancillary services needed to support these activities, including research and development, finance, insurance, communications, testing and certification, ports, logistics (UNCTAD, 2017b).

In 2013, FAO launched the Blue Growth Initiative (BGI)¹⁵, based on the concept of the green economy, and anchored on the core principles of the CCRF and related instruments. The FAO BGI prioritizes balancing sustainable and socioeconomic management of living aquatic resources, with an emphasis on efficient resource use in capture fisheries and aquaculture, ecosystem services, trade, livelihoods and food systems. It is aimed at reconciling economic growth with improved ecosystems, livelihoods and social equity, and strengthening transparent, reliable and more secure food systems.

An emerging area of the Oceans economy is marine bioprospecting. Oceans and seas are the source of a variety of living aquatic resources that have great potential for new food, biochemical, pharmaceutical, cosmetics and bioenergy applications. For example, over 18,000 natural products have been developed to date from about 4,800 marine organisms, and the number is growing at a significant rate every year, driven by increased investments in marine biotechnology research and growing demand for natural marine ingredients (UNCTAD, 2017b). The UNCTAD BioTrade initiative (BTI) offers promising opportunities to promote sustainable bioprospecting. BioTrade includes activities related to the harvesting or production, transformation, and commercialization of goods and services derived from native biodiversity (genetic resources, species and ecosystems) according to criteria of environmental, social and economic sustainability. The UNCTAD BTI aims to contribute to the conservation and sustainable use of biodiversity through the promotion of trade and investment in BioTrade products and services in line with the objectives and principles of the Convention on Biological Diversity (CBD)¹⁶. Currently, UNCTAD and the Development Bank of Latin America with the support of CITES Secretariat and the International Oceans Institute (IOI) are exploring options to adapt the existing BioTrade principles and criteria to the marine ecosystem environment to develop a Blue BioTrade approach for the trade of marine sourced natural ingredients.

Development of the Oceans economy can further benefit from the concepts of supply and value chain analysis. A supply chain is a network of actors through which products move from the point of production to consumption, including pre-production and post-consumption activities. In supply chains, production is focused on efficient logistics and supporting services using upstream and downstream businesses aimed mostly at pushing products rapidly and efficiently to consumers. On the other hand, a value chain is a step further in evolution, as it moves beyond just bringing the product to consumers and aims at providing a more mutually beneficial environment for all stakeholders. As the name suggests, value chains add incremental value to the product in the nodes of a chain either by value addition or value creation. This value is then realized from higher prices and/or the development of new (niche) or expanded markets (Bjorndal et al., 2014). In fisheries and aquaculture, the term value addition is used to characterize adding value in products through some type of processing method – essentially converting raw fish to a resulting semi-finished or finished product that has more value in the marketplace. Value creation is used to characterize fish and fishery products that have incremental value in the marketplace by differentiating them from similar products based on product attributes such as: geographical location (e.g. Mediterranean tuna); environmental stewardship (eco-labelling, BioTrade, fair trade, organic farming); food safety, quality and branding. Therefore, value chains should be viewed as empowering the fragmented stakeholders as they recognize opportunities to contribute and increase their product value. Understanding consumer preferences is key for value chain analysis and development. Factors considered by consumers include price, convenience, nutritional content, safety, substitutes, tastes, fashion, advertising and expectations. One of the main underlying ideas of a value chain is the recognition that consumer choices are not always price driven, as they may be willing to pay more for a value-added product or special products (Bjorndal et al., 2014).

A value chain approach within the frame of the Oceans economy is an innovative approach for promoting entry of small-scale fisheries and aquaculture products to lucrative markets (target SDG 14.b). A study on 14 fisheries and aquaculture value chains in countries from Asia, Africa, Europe, Latin America and North America, confirmed the potential for value addition and market penetration of small-scale fisheries and aquaculture products in developing countries (Bjorndal et al., 2014). However, the distribution of the value

chain's benefits in many developing countries were not equitable. Relative to other players in the value chain, small-scale fishers and fish farmers received the least economic benefits from the value addition/creation accrued. Processors and retail markets received more of the distributional benefits owing to their stronger bargaining power. In some cases, the disparities in terms of earnings were considerable (over 250 times), pushing small scale fishers to fish more and farmers to adopt unsustainable practices to make a decent living. The study made strong policy recommendations to enable equitable distribution of benefits to enable small-scale fishers and farmers to more dignified livelihoods, commensurate with the key role they are expected to play in sustainability. This requires increased governmental, NGO and private-sector support for technical training, infrastructure upgrade, finance, and research and development, with specific emphasis on international market requirements and certification, hygienic practices and reducing post-harvest losses. This has proven difficult given the fragmentation of small-scale fishers and farmers requiring them to organize into larger groups to increase their negotiation power, to improve skills and share good practices and resources. The study reports on successful experiences from various countries and regions depicting support from governments, enacting legislation and incentivizing participation in organizational models such as clusters of small-scale fishers and aquaculture producers, private/public partnerships and cooperatives. These experiences should be disseminated and up-scaled, within the context of achieving the trade related targets of SDG 14 of relevance to small scale operators.

Whatever the organizational model, it would be conducive to upscaling circular economy approaches in fisheries and aquaculture, especially in Africa (e.g. Nigeria) and Asia (e.g. India) where recycling has been second nature for years in many sectors, making effective re-use of materials and energy. This can be further catalyzed in an environment increasingly enabled digitally to support organized groups of small-scale fishers and farmers, interconnected and symbiotic in sharing knowledge, adopting sustainable practices and significantly decreasing requirements and costs for energy, maintenance of gear and equipment, resources such as seed, feed and fertilizers and reducing seafood loss across the supply chain.

Fishing ports have represented a nodal place for creating seafood clusters that promote sustainable fisheries and aquaculture, improved logistics and services

and generate value for the communities. Examples of such seafood clusters have been launched in several developed countries (e.g. Norway and Iceland) and emerging and developing states (Argentina, Chile, Ecuador, Mauritania, Mauritius and Papua New Guinea). Creating a seafood cluster requires building the capacity of stakeholders to plan, design, organize, and promote a cluster that integrates sustainable management of fisheries and aquaculture and related supporting services in the development of competitive seafood value chains with the participation of local actors. It requires a Public-Private Dialogue (PPD) to develop a common vision for a sustainable seafood cluster and accelerate reforms for its development and to generate and channel investments. It requires improving the handling and processing of the harvest and promoting value addition for export at the seafood cluster and building local suppliers' and vulnerable groups' capacities to capture greater benefits from productive and inclusive seafood value chains.

Interest in the trade in fisheries services has increased in recent years. At the request of its Members, FAO conducted an Expert Consultation to assess the benefits of fisheries services for countries (FAO, 2018b). The Consultation helped clarify definitions, interlinkages and coverages, and the debate on the extent that fisheries access arrangements constitute services or have associated services. The Consultation addressed the importance for developing countries to benefit from trade in fisheries services, including through a more equitable and transparent environment for parties engaged in the trade. The consultation encouraged FAO to strengthen its work in this area to address data scarcity, which hampers correct assessment of the benefits from trade in fisheries and aquaculture services and their equitable distribution.

4.4. International initiatives

Four years after the adoption of the 2030 Sustainable Development Agenda, many initiatives have been undertaken by international and regional development organizations, academia, NGOs and CSOs. They all aim at increasing awareness about SDG 14, its targets and indicators. They also mobilize ways and means to integrate SDG 14 into national and local planning, implementation and follow up on healthy oceans and sustainable exploitation of living aquatic resources. All these initiatives are necessary and additional ones will probably be needed to tackle the complex issues at hand and the high demand for assistance. One of the main challenges is to bring coherence among

these initiatives and to promote synergies and sectorial integration to ensure they align to achieve the SDG 14 targets as committed by the Members.

The scope of this paper does not allow to cover all the initiatives out there and their aims, merits, shortfalls and achievements in an exhaustive manner. Instead, it concentrates on the collective work of FAO, UNCTAD and UN Environment that have made a joint official commitment on 2017 to support developing countries, in particular, LDCs and SIDS, to deliver on the three pillars of healthy oceans, sustainable fisheries and aquaculture. Since then, they have been exploring ways and means to follow up on that commitment and respond to the important needs of developing countries. The paper is also a call for other organizations to join the three agencies and support the implementation of their commitment and/or emulate the approach and upscale their efforts into other areas and regions.

4.4.1. Addressing overfishing and harmful fishing practices, improving fisheries management and providing access of small-scale fishers to resources and markets

As reported earlier, various international instruments have been adopted over the years to regulate global governance of fisheries and aquaculture. These instruments address legal, environmental or biological aspects of fisheries and aquaculture. The legal string started with UNCLOS (1982), the environmental string with the United Nations Conference on Environment and Development (UNCED), 1992 and the fisheries management string with the FAO CCRF (1995). In relation to regulating fishing, implementing science-based fisheries management and governance of small-scale fisheries, the CCRF and its support instruments have proven pivotal. The CCRF sets out international principles and standards of behaviour to ensure effective conservation, management and development of both marine and freshwater living aquatic resources. It accounts for the impact of fishing on ecosystems, the impact of ecosystems on fisheries, and the need to conserve biodiversity. The CCRF is global and comprehensive in scope. It is directed toward members and non-members of FAO; fishing entities; sub-regional, regional, and global organizations (governmental and nongovernmental); everyone concerned with conserving fishery resources, managing fisheries, and developing fisheries; and other users of the aquatic environment in relation to fisheries. The CCRF provides a reference framework for national, regional and international efforts, including the

formulation of policies and other legal and institutional frameworks and instruments, to ensure sustainable exploitation of aquatic living resources in harmony with the environment. To support implementation of CCRF, FAO has developed a wide range of instruments consisting of international guidelines, international plans of action and strategies. These supporting instruments have been elaborated to meet evolving challenges such as the constant advance in fishing technologies and evidence of resource exhaustion and ecosystem impacts. They have also adapted provisions of the CCRF to changes in institutions, paradigms and scientific knowledge. Of relevance to trade related targets of SDG are the instruments addressing the ecosystem approach to fisheries, small scale fisheries and combatting IUU.

4.4.1.1. Ecosystem approach to fisheries

According to FAO (2003)¹⁷: “*An Ecosystem Approach to Fisheries (EAF) strives to balance diverse societal objectives, by taking into account the knowledge and uncertainties about biotic, abiotic and human components of ecosystems and their interactions and applying an integrated approach to fisheries within ecologically meaningful boundaries*”. The purpose of the EAF is to plan, develop and manage fisheries in a manner that addresses the multiplicity of societal needs and desires, without jeopardizing the options for future generations to benefit from marine ecosystems. Interest in EAF has been motivated by several issues, most prominently are the increased awareness of the interactions between fishery resources and the ecosystem within which they exist; recognition of the wide range of societal objectives for, and values of, fishery resources and marine ecosystems within the context of the three dimensions of sustainable development.

Fisheries are highly dependent on habitats (coral reefs, mangroves, seagrass beds, and wetlands), all of which are susceptible to pollution and physical destruction caused by humans. Ecosystem-based measures include those aimed at protecting, restoring and enhancing habitats and ecosystems with direct or indirect impacts on fisheries. The restoration of these habitats, particularly those that influence the abundance of a resource at some stage of the species' life cycle, improve stock health and productivity.

International markets encourage the implementation of EAF through eco-labelling and certification. The minimum substantive requirements and criteria for

ecolabelling are (FAO, 2009):

- The fishery is conducted under a management system that is based on good practice including the collection of adequate data on the current state and trends of the stocks and based on the best scientific evidence;
- The stock under consideration is not overfished;
- The adverse impacts of the fishery on the ecosystem are properly assessed and effectively addressed.

Whereas more and more fisheries are engaging on a path towards eco-labelling, it had proven very difficult and costly because of the funds, scientific and technical resources needed. As a result, only 10 to 15 per cent of the internationally traded fish is certified to an eco-label. To engage the other less performing fisheries on a path of improvement, that can be recognized by the market, several developing countries have adopted Fisheries Improvement Programmes or Projects (FIPs), with support from organizations such as UNCTAD, FAO, UNDP and others, with the view to motivate and move fisheries towards sustainability. Implementation of FIPs is especially relevant where small to medium scale fisheries operate under systems of weak governance. Several experiences of FIPs operated in a credible manner have been reported (Sustainable Fisheries Partnership (2018)¹⁸, with a plan of actions to implement the FIP in a transparent manner, to monitor and report on measurable improvement in the performance of the fishery.

Small scale fisheries: In 2014, FAO members adopted the FAO Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty Eradication (VGSSF). It is the first ever international instrument dedicated to small-scale fisheries, representing a global consensus on principles and guidance for small-scale fisheries governance and development. The VGSSF encourage governments, fishing communities and other stakeholders to work together and ensure secure and sustainable small-scale fisheries for the benefit of fishers, fish workers and their communities and society at large.

To achieve the intended impact, the SSF Guidelines need to be implemented, in particular at the local level. For this, collaboration and concerted efforts are needed at all levels and by all stakeholders. In this regard, an FAO Umbrella Programme for the Promotion and Application of the SSF Guidelines is being promoted. It aims to channel efforts, resources and assistance

to support the development and implementation of sustainable small-scale fisheries policies, strategies and initiatives in the context of food security and poverty eradication (FAO, 2014b)¹⁹. The third World Congress on small scale fisheries (Kerezi et al., 2019) was an opportunity for researchers, practitioners, fisher organizations, CSOs, and policy makers to share up-to-date information about many aspects of small-scale fisheries and to discuss action plans and capacity development programs to support the implementation of the SSF Guidelines. The Congress looked at the roles of governments, CSOs, and research community in the implementation process, and discussed the main challenges and opportunities in the implementation, the type of governance transformation needed and how best to integrate knowledge and foster communications to enhance this process.

4.4.1.2. Combatting IUU fishing

Combatting IUU locally, regionally and internationally should be deployed on three fronts: during fishing operations, during landing the catch and during marketing the fish and seafood products. This puts three levels of responsibilities on States: Flag State, Port State and Market State Responsibility.

The promotion, regulation and monitoring of responsible fishing practices, through effective fisheries management and governance frameworks, are essential for the sustainability of fisheries resources in both coastal areas and high seas. The principles of responsible fisheries management prescribed in international instruments and the requirement for their implementation by States and RFMOs around the globe are essential.

The Voluntary Guidelines for Flag State Performance (FAO, 2014a)²⁰, provide guidance to strengthen and monitor compliance by flag States with their international duties and obligations regarding the flagging and control of fishing vessels. It covers the relevant responsibilities of Flag States on the basis of elements contained in international law, including binding and nonbinding international fisheries instruments. Fisheries management, registration and records of vessels, authorizations, MCS and cooperation between flag States and coastal States are among the central components of the Guidelines. RFMOs have a key role to play to ensure implementation of these Guidelines to strengthen flag State performance.

Considering that fishing vessels are highly dependent

on the use of ports, including ports of States other than their own, support for the implementation of port State measures in combatting IUU fishing increased remarkably over the years leading to the adoption of the landmark FAO Agreement on Port State Measures (PSMA)²¹ to prevent, deter and eliminate IUU fishing. The PSMA, which entered into force in June 2016, sets conditions for the entry and use of ports by foreign fishing vessels and defines minimum international standards to be applied by port States in reviewing information prior to the vessels' entry into port, conducting inspections in their designated ports, taking measures against vessels found to have engaged in IUU fishing, as well as for information exchange with concerned States, RFMOs and other international entities.

Global implementation of the PSMA would effectively establish “*compliance check-points*” at ports around the world for a large number of fishing vessels, especially those which operate in waters outside the jurisdiction of the flag State and seek entry into ports of other States. As of August 2019, there were about 60 parties to the PSMA, including the European Union²². The Agreement provides an opportunity for States to collaborate and exchange information on fishing vessels and their activities, including through and with RFMOs, thereby creating a network which supports Port States in combatting IUU fishing, flag States in the control of their vessels, coastal States in protecting their fishery resources and market States in ensuring that fishery products derived from IUU fishing do not enter their markets.

The Global Record of Fishing Vessels, Refrigerated Transport Vessels and Supply Vessels (Global Record) concept has been widely supported and is expected to play a crucial role in closing the information gap on vessels carrying out IUU fishing and related activities. In addition to information such as registration, characteristics and ownership, the Global Record also integrates other pieces of information relevant to the fight against IUU fishing such as previous vessel names, owners and operators as well as authorizations to fish, tranship or supply fish, and the vessel history of compliance. The Global Record launched the public version of the information system in July 2018, with one third of the global eligible fleet already registered²³.

Equally important are the Voluntary Guidelines for Catch Documentation Schemes which were adopted in July 2017 (FAO, 2017b)²⁴. Their aim is to provide assistance in the development and implementation of

catch documentation scheme, improving the ability of market States and regional entities to enhance traceability in the fisheries supply chain, especially in relation to the fishing operations. Additional efforts to better understand and monitor at-sea transshipments as well as guidelines to estimate the magnitude of IUU fishing are also underway. These initiatives strengthen international cooperation as well as increase knowledge on specific aspects of IUU fishing, directly supporting the ability of States and Organizations to effectively combat and deter IUU fishing.

Becoming Party to various international instruments is a first step, necessary but not enough. Further challenges arise when working towards their implementation. While most countries face obstacles in this regard, these obstacles are far more challenging for developing countries. Therefore, these international instruments recognize that developing States may have special requirements and that assistance should be provided to address these.

In 2017, FAO launched its Global Capacity Development Umbrella Programme in support of implementing the PSMA and complementary instruments. This programme is providing support to over 33 countries in its first 5 years of implementation²⁵. The other two are participating actively to these international efforts by providing technical assistance and capacity building to combat IUU fishing, in their respective areas of expertise and relevant to their mandates. For example, UNCTAD has launched in collaboration with the United Nations Division for Ocean Affairs and the Law of the Sea a project on “*Evidence-based and policy coherent Oceans economy and Trade Strategies*”. The project aims to support developing countries in the Caribbean region in realizing economic benefits from the sustainable use of marine resources, using both international legal instruments and trade facilitation tools. The project assists coastal developing countries, particularly SIDS and LDCs, in promoting the sustainable trade of products and services in ocean economy-based sectors by analyzing, elaborating and adopting evidence-based, legally sound and coherent Oceans Economy and Trade Strategies (OETS).

4.4.1.3. Fisheries subsidies negotiations and initiatives

Following several years of stalled talks since 2000, the momentum for creating new disciplines on fisheries subsidies grew again in 2015, with the adoption of the 2030 Sustainable Development Agenda. Target 6 of

SDG 14 calls on United Nations Members “to prohibit certain forms of fisheries subsidies which contribute to overcapacity and overfishing, eliminate subsidies that contribute to IUU fishing, recognizing appropriate and effective Special and Differential Treatment (SDT) for developing countries and LDCs within the WTO context by 2020”.

Unfortunately, negotiations have not delivered so far, the agreement called for in Doha and Hong Kong (China) and by SDG 14.6. All efforts have focused now on implementing the Buenos Aires mandate. In this respect, the Chair of the Negotiating Group on Rules has undertaken a mixed approach composed of cluster meetings, bilateral sessions, incubator groups made of selected delegations, and since early 2019 a process involving facilitators on four main areas of the disciplines, namely IUU, overfished stocks, overfishing and overcapacity and cross-cutting issues.

The key issues under negotiations relate to the scope of the disciplines, subsidies to IUU fishing, subsidies for fishing overfished stocks, subsidies that contribute to overfishing, special and differential treatments, technical assistance and capacity building, notification, transparency and surveillance.

Scope of the disciplines: Most proposals call for the disciplines to apply only to wild marine capture and exclude inland fishing and aquaculture. There are also proposals to exclude certain forms of support such as natural disaster relief, safety, R&D and sustainable management.

Subsidies to Illegal Unreported and Unregulated (IUU) fishing: Prohibiting subsidies related to IUU fishing is perhaps the area where consensus might be the easiest in WTO fish subsidies negotiations, at least in appearance. Indeed, it sounds illogical that States support IUU fishing activities. However, applying such a prohibition in practice raises a number of practical challenges. These include, for example how to define IUU? who determines when IUU fishing has occurred? should determinations made by third parties be automatically recognized by the subsidizing country? A key question relates to the extent to which there should be a distinction between the Illegal, the Unregulated and the Unreported fishing in the IUU disciplines. Some WTO Members, particularly LDCs, may have difficulties in establishing effective regulations and reporting systems, particularly in cases of small-scale fishing activities. For example, should the prohibition be triggered for any IUU infraction or only for the most

severe ones and where to establish the limit between a most severe and a lesser one?

Subsidies for fishing overfished fish stocks: A second prohibition focuses on subsidies for fishing that affect overfished stocks. While the overall notion to prohibit fishing of stocks which are already overfished is uncontroversial, implementing such a prohibition raises several challenges including how to define an overfished stock? Who decides that a stock is overfished? What to do with unassessed stocks or poor data fisheries? where and when to use a precautionary approach, how to define a negative effect on fish stock?

Subsidies that contribute to overfishing and overcapacity: Several members have proposed a prohibition of subsidies that contribute to overfishing and overcapacity of a fleet. Again, despite a unanimous agreement on the principle, lack of an internationally agreed definition of “overfishing” or “overcapacity” represent a major impediment.

Given the issues with definitions, a first proposal to deal with such subsidies consists in identifying, ex ante, a list of measures to prohibit because they are considered as contributing to overfishing and overcapacity. Listing of prohibitions includes subsidies to capital goods such as construction, acquisition, purchase, modernization, repair and renovation of vessels, machinery and equipment. It also includes subsidies to operating costs such as license fees, fuel ice, bait, personnel, support in income or price, etc.

Another proposal considers establishing a cap or maximum limit of such support measures instead of simply prohibiting them. Three variants of the cap approach have been proposed respectively by the United States and Australia, the Philippines or China. These proposals are fast evolving and should be carefully monitored.

Special and differential treatment (SDT): Proposals for special and differential treatment include different transitional arrangements and various modalities on flexibilities linked mostly to prohibitions on overcapacity and overfishing. Transitional arrangements are essentially for a given period, expressed usually in years, given to Members depending on their level of development, to mark the entry into force of the future agreement. At this stage of the negotiations, these are proposals to give an additional temporary period for implementing prohibitions regarding unreported and

unregulated fishing for developing countries in general or for small scale, artisanal and subsistence fishing activities in those countries.

SDT is explicitly mentioned in SDG 14.6 and the WTO Buenos Aires Decision on Fisheries Subsidies as a full part of any negotiated outcome. For many developed countries, due to the environmental sustainability implications, SDT should be limited to transitional arrangements and capacity building support.

Also, while most developing countries have adopted fish stock management plans, not all of them have capacities to generate relevant scientific data for management and to deploy effective MCS systems. A potentially useful form of SDT for developing countries would be to strengthen capacities for sustainable stock management and support to sustain livelihoods and artisanal and small-scale fishers.

Technical assistance and capacity building:

Proposals currently on the table refer to a demand-driven process based on mutually agreed terms with developing countries, LDCs and small and vulnerable economies (SVEs). The providers of such assistance should not only be developed countries but also for the first time, developing countries that are in a position to do so. The type of assistance should be managed by a cooperation scheme that includes bilateral and regional cooperation. Technical assistance needs listed so far go from addressing institutional and financial constraints to implement a future agreement to specific capacity constraints related to reporting mechanisms, compliance, stock assessment, MCS, R&D and participation in RFMO/As processes. WTO has been explicitly called upon to cooperate with FAO and UNCTAD in the provision of technical assistance under the future agreement.

Notification, transparency and surveillance:

Notification systems under the subsidies agreement are essential to ensure transparency and surveillance. Submissions in this area propose that each Member shall provide or endeavour to provide the following information under Article 25.3 (notifications and surveillance) of the WTO SCM Agreement: subsidies programmes, legal basis, granting authority, amounts, level and type of support, type of marine activity supported, vessels to which the subsidy is granted, recipients, catch data, status of stocks, fleet capacity, conservation and management measures in place, total import and exports per species for which the subsidy is provided, among others. Such a notification will not be

optional under a future fish subsidies agreement, as it was explicitly mandated in the Buenos Aires Ministerial Decision. It is also suggested to notify the list of vessels and operators engaged in IUU fishing and non-specific subsidies for the provision of fuel or related to fuel that benefit the fisheries sector.

The level of detail of notifications is quite ambitious for many developing countries, especially LDCs and may not be commensurate with their contribution to the problem of overfishing and overcapacity. While some of the information requested may be obtained from other international data platforms, (e.g. on fleets, status of certain stocks, catch volumes per species and import-export data gathered by IMO, FAO UNCTAD), other required data may not be available or easy to collect in many developing countries.

4.5. International events for experience sharing, advocacy and dissemination of best practices

4.5.1. The United Nations Ocean Conferences: High level global events to refocus efforts and share experiences on SDG 14

The first high-level United Nations Oceans Conference to Support the Implementation of SDG 14 (5 to 9 June 2017) underlined the integrated and indivisible character of all SDGs, as well as the interlinkages and synergies between them, and reiterated the critical importance of being guided in work on oceans by the 2030 Agenda, including the principles reaffirmed therein. It acknowledged that each country faces specific challenges in its pursuit of sustainable development, in particular coastal LDCs and SIDS. Member States reaffirmed their commitment to achieve the targets of Goal 14 within the timelines, and the need to sustain action over the long term, taking into account different national realities, capacities and levels of development and respecting national policies and priorities. They recognized the importance of certain targets in Goal 14 for SIDS and LDCs.

The need for an integrated, interdisciplinary and cross-sectoral approach was stressed, as well as enhanced cooperation, coordination and policy coherence, at all levels. The critical importance of effective partnerships was emphasized to enable collective action with the full participation of all relevant stakeholders. The Conference recognized that the conservation and sustainable use of the ocean and its resources require

the necessary means of implementation in line with the 2030 Agenda, the Addis Ababa Action Agenda of the Third International Conference on Financing for Development²⁶ and other relevant outcomes, including the SIDS Accelerated Modalities of Action (SAMOA) Pathway. Member States stressed the importance of the full and timely implementation of the Addis Ababa Action Agenda and, emphasized the need to enhance scientific knowledge and research, capacity-building at all levels, mobilize financial resources from all sources and facilitate the transfer of technology on mutually agreed terms, taking into account the Intergovernmental Oceanographic Commission Criteria and Guidelines on the Transfer of Marine Technology, in order to support the implementation of Goal 14 in developing countries.

The Conference endorsed a declaration entitled “*Our ocean, our future: call for action*”. This declaration confirmed the commitment of the Member States, Civil Society, international organizations and representatives of the industry to support the implementation of SDG 14²⁷.

In May 2019, the United Nations General Assembly adopted a resolution to convene the second high-level United Nations Oceans Conference in Lisbon in June 2020, with a focus on the conservation and sustainable use of the oceans, seas and marine resources in the context of the Sustainable Development Goals (United Nations General Assembly Resolution A/73/L/82)²⁸. The proposed overarching theme of the Conference is “*Scaling up ocean action based on science and innovation for the implementation of Goal 14: stocktaking, partnerships and solutions*”. The Conference will aim to adopt by consensus a brief, concise and action-oriented declaration that will highlight, science-based and innovative areas of action to support the implementation of Goal 14. Kenya and Portugal, which will co-host the Second United Nations Oceans Conference, will organize a two-day preparatory meeting in February 2020. It is hoped that the Conference will serve as an opportunity to bring about a new generation of concrete, ambitious commitments and to help forge new, inclusive and effective partnerships.

4.5.2. Ocean Forums: High level international events on trade related area and their outcomes

Organized by UNCTAD, FAO, UN Environment, the Commonwealth Secretariat, the Africa, Caribbean

and Pacific Group, the International Oceans Institute for the first time in March 2017, the Oceans Forum has become a unique global platform to take stock of developments, exchange experiences and present options for the implementation of trade-related targets of SDG 14, through the involvement of leading United Nations agencies, regional bodies, government institutions and civil society organizations.

The First Oceans Forum provided a good multi-stakeholder platform for a dialogue on policies and actions on trade related aspects of SDG 14. The objective of the forum was to discuss and put forward policy and regulatory options for the implementation of trade related targets under SDG 14 focusing on IUU fishing, subsidies and small-scale fisheries. The Forum recognized the undeniable nexus between the extraction of fisheries resources and conservation and trade. Thus, the opportunity cost of not acting to address harmful fishing subsidies was considered extremely high. The Forum highlighted the urgent need to clearly discipline and prohibit harmful fisheries subsidies, confirming that the forum for negotiations is the WTO and that due consideration of SDT for developing countries should be an integral part of the negotiations. Pragmatism, realism and a clear view of timelines were considered essential. The Forum recognized that Oceans economy/Blue economy offers important opportunities for the sustainable use and conservation of marine resources. The Forum highlighted that challenges affecting small-scale artisanal fisheries must be better reflected in the implementation agenda of SDG 14, leading to the adoption of effective policies to promote their development. The forum stressed that due attention should be given to the “formalization” of this sector at all levels, in particular with regard to non-tariff measures and private standards, both of which require strengthened capacities of small-scale artisanal fishermen so that they can access markets and resources. The Forum considered aquaculture as an important sector to bridge the gap arising from lower wild catch supplies and the growing global demand for fish and seafood products, provided environmental and social sustainability are ensured.

The objective of the Second Oceans Forum was to identify challenges and opportunities that were raised on sustainability and integration of the seafood value chain and related services within the framework of the oceans/blue economy. The Forum provided a platform for presenting state of the art analysis, sharing country experiences and identifying public and private best

practices. It explored options, under the lens of SDG 14, on strengthening the position of developing countries to add value, seize trade opportunities, enable diversification and improve environmental and social sustainability within the seafood value chain and related services. The Forum sought to identify challenges and opportunities that sustainability and further integration of the seafood value chain and related services (transport, port and logistical services, etc.) may offer within the framework of the oceans/blue economy. The Forum provided a timely opportunity for Member States and other stakeholders to present their views on various trade-related aspects of SDG14.

The second forum highlighted the need to mainstream capacity building activities, training and education, tools and strategies of Oceans Forum partners and other technical cooperation agencies for practitioners, policy makers and stakeholders of the general public committed to a sustainable interaction with oceans or engaged in oceans/blue economy activities.

- It stressed the need to continue the involvement of agencies such as UNCTAD, FAO and UN Environment, as well as scientific advisory bodies that provide technical expertise and fora for discussion which has been invaluable in the negotiation process on fisheries subsidies. Several good practices from developing countries, notably Malta, Maldives, Ecuador and Peru were proposed to promote
- The sustainability of the fishing and processing industries;
- The expansion and implementation of good fish stock management practices;
- Responsible small-scale fisheries development programmes;
- The incremental use and cultivation of algae-based products, and
- The growth in other sustainable oceans/blue economy sectors. This included ecosystem and precautionary based approaches, pole and line fishing, access and benefit sharing, and community and fisher-friendly practices.

The forum welcomed The Joint Plan of Action presented by the three Organizations and described hereafter under 4.6, noting that it will serve as an important means of implementation to mobilize resources, technical expertise and partnerships, building on the UNCTAD/FAO/UN Environment roadmap that was committed to at the United Nations Ocean Conference in June 2017.

The Third Ocean Forum will take place in September 2019 at UNCTAD Geneva, Switzerland. It will focus on the impacts of climate change on fisheries and the blue economy as well as on key aspects for consideration during the final phase of WTO fish Subsidies Negotiations. Oceans-based economic diversification could enhance the Nationally Determined Contributions of SIDS to the implementation of the Paris Agreement on climate change. Trade can be an enabling factor in adaptation and in mainstreaming oceans-based economic activities in SIDS, where domestic markets remain small and remoteness is an intractable hindering factor. Taking stock of current developments of WTO fish subsidies negotiations on potential approaches on prohibitions, harmful effects and cap-based systems as well as complementary options could be quite timely when devising trade related policies to promote blue economy activities. Disciplining fish and related fuel subsidies as well as a sound tax policy reform, can support mitigation efforts and create incentives for carbon-neutral technologies and best practices in key sectors such as shipping, fisheries, marine aquaculture and tourism. The forum will seek to gather political support and recommendations by the Oceans economy and trade community to the United Nations Climate Summit to be held in New York in 2019, the Second United Nations Oceans Conference in June 2020, the finalization of WTO fish subsidies negotiations and how to tackle marine pollution with microplastics.

4.5.3. The Sub-committee on fish trade of the FAO Committee on fisheries (COFI:FT)

Established by the FAO Committee on Fisheries (COFI) in 1985, the FAO Sub-Committee on Fish Trade of the Committee on Fisheries (COFI:FT) is open to all Member Nations of the Organization. Non-Member states of the Organization that are members of the United Nations, or any of its specialized agencies. NGOs, CSO, and industry representatives participate as observers. Following are the main functions of COFI:FT²⁹:

- The Sub-Committee shall provide a forum for consultations on technical and economic aspects of international trade in fish and fishery products including pertinent aspects of production and consumption;
- It performs periodic reviews on the situation and outlook of principal fishery commodity markets covering all factors influencing them;
- It discusses specific fish trade problems and

possible solutions and suitable measures to promote international fish trade and to improve the participation of developing countries in this trade, including trade-related services.

The issues relevant to SDG 14 discussed at COFI:FT relate to access to markets by small scale fisheries and aquaculture, NTMs such as standards and certification, traceability and catch documentation schemes and trade in fisheries services. The main conclusions and recommendations of COFI:FT relevant to SDG 14 are shared with other stakeholders during the Oceans Forums³⁰.

4.6. Inter- Agency Plan of Action (IAPoA) to accelerate achievements of the trade related targets of SDG 14

The UNCTAD/FAO/UN Environment commitment engages the three Organizations to jointly support member states in achieving the trade-related targets of SDG 14. Through this commitment, they reaffirmed that these targets represent a promising pathway for addressing unsustainable practices and re-asserted that suitable trade-policies and best practices can facilitate the transition to sustainable ocean-based economies. The convening power and the multidisciplinary expertise of the three agencies provide a unique differential to support countries to progress towards sustainable development by incorporating more sustainable trade policies, and to deliver upon the relevant SDG targets.

To facilitate a comprehensive understanding of the trade-related aspects of SDG 14 and introduce innovative approaches to implement best practices in the sector, the three organizations propose an Inter-Agency Plan of Action (IAPoA). This joint effort aims to improve countries' capacity to shift towards more integrated, resource efficient and sustainable pathways. It will support selected countries to undertake policy and regulatory reform aligned with SDG 14 targets and to better position themselves within relevant trade negotiations. The IAPoA builds on the experience of UNCTAD, FAO and the UN Environment, their ongoing work and their partnerships with scores of actors from governments, fisheries and oceans management organizations, academia, research, the private sector, NGOs and civil society.

The IAPoA can generate impact on the ground through

reformed policies, legal and institutional frameworks that support effective implementation of best practices while bringing new knowledge and successful processes which can be shared, replicated and upscaled on the regional and international arena. This way, the IAPoA would address the need for creating an enabling environment to build effective institutional structures and processes at global, regional and national levels. The IAPoA is proposed with due recognition of the ongoing initiatives and experiences supporting trade-related targets of SDG 14 but also of the wide scope for improvement and of the many opportunities to expand coordination at regional and national/local levels. Because many actors work independently from each other and because there is limited capacity in many developing countries to analyse, coordinate and effectively steer various initiatives in the same direction, there is a great need to improve collaboration for promoting and implementing agreed best practices. The convening power and expertise of UNCTAD, FAO and UN Environment provide a unique differential to support developing countries to deliver upon the relevant SDG targets.

The overall goal of the IAPoA is to accelerate the achievement of trade-related targets of SDG 14 through improved trade and trade-related policies that safeguard food security and contribute to the conservation and sustainable use of oceans, living marine resources and livelihoods. Three main outcomes sustain this overall goal:

Outcome 1: *Dialogue, cooperation and consensus are enhanced towards regional and multilateral support of trade-related targets of SDG 14.*

Such an outcome will contribute to the discussions and negotiations supporting achievement of SDG 14 at the WTO, UNCTAD, the FAO, UN Environment, and other fora. Realizing this outcome will rely on increasing the knowledge and capacity of policymakers and negotiators, to ensure efficient and wider participation in regional and international consultations in trade-related aspects of SDG 14. Activities will focus on eliminating harmful subsidies, combatting IUU and promoting market access for sustainable fisheries and aquaculture. Key fora that shall be organized and supported include the annual Oceans Fora, the United Nations Ocean Conference, the WTO ministerial Conferences as well as the major Oceans and Fisheries related conferences of UNCTAD, FAO and UN Environment. Support to countries in complying with their WTO obligations, particularly involving

fish subsidies notifications, addressing NTMs and requirements for their harmonization and equivalence and preparing relevant policy briefs can enhance significantly the outcomes of the deliberations during these fora and facilitate evidence-based dialogue and consensus.

Outcome 2: *National and regional capacity are strengthened to support the design and implementation of supportive policy frameworks and best practices for sustainable fish and seafood trade.*

The IAPoA approaches require the streamlining of SDG 14 targets in national and regional policies and governance frameworks to implement best practices to restore fish stocks, eliminate IUU and harmful subsidies and promote development strategies that can facilitate the transition towards sustainable ocean-based economies by increasing resource efficiency, enhancing inclusiveness and creating new ocean/blue business opportunities. This outcome requires capacity building to pilot sustainable Blue economy actions in selected countries and regions.

Outcome 3: *Market leaders, government officials, scientists and civil society organizations have enhanced awareness, knowledge and capacity to implement practices and tools for effective governance and sustainable fish trade.*

This outcome will require expanding partnerships, including Public Private Partnership (PPP), to improve data collection and dissemination, analysis and sharing of best practices to promote uptake of market standards, traceability and catch documentation schemes, eco-labelling and blue bio-trade. This outcome will also require the organization of regional and global stakeholders' workshops to share and disseminate successful experiences in using best practices tools and guidelines.

The IAPoA is an innovative program that will build on the experiences and synergy between the three organizations mandated to address environmental, socio-economic and biological sustainability of the living marine resources. Stakeholders consultation during the planning and throughout implementation will allow for proper identification of the gaps and propose tailored solutions of technical advice, policy reforms and capacity building at multilateral, regional and national levels. The IAPoA targets three regions and two countries per region to provide more focused attention and deeper engagement for piloting best

practices at the local level. Care will be exercised to appoint active and responsive focal points to enable full engagement. The IAPoA will also promote wide stakeholders' participation and interagency cooperation in order to generate national ownership and enable the sustainability of the plan.

5. CONCLUSIONS AND RECOMMENDATIONS

Ocean and seas have always been a major source of food and a provider of employment, recreation, trade, culture and economic benefits to many people throughout the world. Until fifty years ago, the wealth of living aquatic resources was considered an unlimited gift of nature. However, with increased scientific knowledge, this myth has faded as we realized that aquatic resources, although renewable, are not infinite and need to be properly managed. In the meantime, Oceans economy has developed and expanded beyond fishing and fish trade into shipping, marine aquaculture, tourism, renewable energies, seabed mining and marine biotechnology. Supported by major fishing nations and international institutions, coastal states have striven to take advantage of their opportunities by investing in fishing fleets, port and processing infrastructure and services in response to growing international demand for fish and seafood. To curb overexploitation of living marine resources, programs, initiatives and projects were implemented to improve fisheries and aquaculture management and conservation and to address emerging issues such as IUU fishing, overcapacity, fisheries subsidies, destructive fishing gears and practices and marine pollution. Despite notable improvements achieved in some areas, real progress in addressing the key threats of living aquatic resources has not been substantive. Implementation has been uneven in many countries, and success in meeting the targets set for addressing the key drivers of deterioration in ocean health remained elusive – at great cost to the global economy and particularly to coastal and island developing countries. The challenge before the global community is not to establish a new treaty or agreement for ocean health, but rather to accelerate efforts to implement those successive commitments to reverse the trend in oceans health decline. Adoption of the 2030 Agenda for Sustainable Development in 2015 offers a new opportunity to guide development actions of governments, international agencies, civil society and other institutions over the period 2016 - 2030. Although fisheries and aquaculture contribute to several goals, the 2030 Agenda for Sustainable Development adopted, for the first time a Global Goal on Oceans and Seas. SDG 14 is exclusively dedicated to “*conserve and sustainably use the oceans, seas and marine resources for sustainable development*”.

The 2017 high-level United Nations Ocean Conference in Support of the Implementation of SDG 14 underlined the integrated and indivisible character of all the SDGs, as well as the interlinkages and synergies between them, and reiterated the critical importance of being guided in work on oceans by the 2030 Agenda, including the principles reaffirmed therein. The Conference endorsed a declaration entitled “*Our ocean, our future: call for action*”. This declaration confirmed the commitment of the Member States, Civil Society, international organizations and representatives of the industry to support the implementation of SDG 14. At that Conference, FAO, UNCTAD and UN Environment jointly deposited a set of voluntary commitments at that Conference to support member countries with technical assistance, capacity building and information dissemination on the trade-related issues associated with SDG 14.

This background note draws on the main findings and conclusions of the work of international organizations and events to analyze current trends and perspectives for trade related aspects of oceans, fisheries and aquaculture along the seafood value chain, with a specific emphasis on developing countries and their challenges to meet the SDG 14 targets. It draws on the complementary experiences and mandates of FAO, UNCTAD and UN Environment to propose concrete actions using value chain analysis, Oceans economy, trade in fisheries and related services, as well as market instruments for sustainability, climate change mitigation and adaptation, to strengthen the role of developing countries and their small-scale operators, in value addition, assessing trade opportunities, market entry and market access.

A key pilaster of the proposed actions is the Inter-Agency Plan of Action (IAPoA) federating expertise and resources from the UNCTAD, FAO and UN Environment. The overall goal of the IAPoA is to accelerate the achievement of trade-related targets of SDG 14 through improved trade and trade-related policies that safeguard food security and contribute to the conservation and sustainable use of oceans, living marine resources and livelihoods. Once adequately funded, the IAPoA will support selected countries to undertake policy and regulatory reform aligned with SDG 14 targets and to better position themselves within relevant trade negotiations. The IAPoA builds on the experience of UNCTAD, FAO and the UN Environment, their ongoing work and their partnerships with scores of actors from governments, fisheries and oceans management organizations, academia, research, the

private sector, NGOs and civil society. The IAPoA can generate impact on the ground through reformed policies, legal and institutional frameworks that support effective implementation of best practices while bringing new knowledge and successful processes which can be shared, replicated and upscaled on the regional and international arena. This way, the IAPoA would address the need for creating an enabling environment to build effective institutional structures and processes at global, regional and national levels.

Notes

- 1 <https://www.un.org/sustainabledevelopment/sustainable-development-goals/>
- 2 <http://unctad.org/en/pages/MeetingDetails.aspx?meetingid=1299>
- 3 <https://oceanconference.un.org/callforaction>
- 4 http://unctad.org/meetings/en/SessionalDocuments/U14ditc_d16_FishSub_Statement_en.pdf
- 5 The following tools are discussed: value chain analysis, Oceans/blue economy/blue growth, trade in fisheries and related services, as well as market instruments for sustainability, climate change mitigation and adaptation
- 6 <http://undocs.org/A/RES/69/109>
- 7 <http://adesoafrika.org/newsroom/newsroom/illegal-and-unregulated-fishing-in-somalia-report-2015/>
- 8 <http://fisheriestransparency.org/>
- 9 See: <http://www.fao.org/3/X3170E/x3170e04.htm>
- 10 https://papersmart.unon.org/igr-meeting/sites/default/files/gpa_igr4_inf3_20_years_of_gpa_final.pdf
- 11 MFN tariffs are those applicable to all WTO members, unless there is a WTO preferential or regional trade agreement
- 12 See: Global Sustainability Seafood Initiation (GSSI) benchmark tool
- 13 See: WWF dialogue for sustainable aquaculture <http://www.wwf.de/fileadmin/fm-wwf/Publikationen-PDF/AquacultureOverviewfactsheetFinal.pdf>
- 14 https://www.wto.org/english/thewto_e/minist_e/mc11_e/documents_e.htm
- 15 <http://www.fao.org/zhc/detail-events/en/c/233765>
- 16 <https://www.cbd.int/convention/>
- 17 FAO, 2003. Fisheries management. No 4. Supplement 2. The eco-system approach to fisheries. FAO, Rome. 112 pages, <http://www.fao.org/3/a-y4470e.pdf>
- 18 <https://www.sustainablefish.org/Publications>
- 19 <http://www.fao.org/voluntary-guidelines-small-scale-fisheries/implementation/en/>
- 20 <http://www.fao.org/3/a-i4577t.pdf>
- 21 <http://www.fao.org/3/a-i5469t.pdf>
- 22 www.fao.org/fileadmin/user_upload/legal/docs/037s-e.pdf
- 23 <http://www.fao.org/global-record/en/>
- 24 <http://www.fao.org/3/a-i8076e.pdf>
- 25 <http://www.fao.org/port-state-measures/capacity-development/ongoing-capacity-building-efforts/en/>
- 26 Supra, foot note 3. <https://oceanconference.un.org/callforaction>
- 27 <https://www.un.org/press/en/2019/ga12143.doc.htm>
- 28 <http://www.fao.org/about/meetings/cofi-sub-committee-on-fish-trade/en/>
- 29 <https://unctad.org/meetings/en/SessionalDocuments/ditc-ted-21032017-OceansForum-Chairman-Conclusion.pdf> and <https://unctad.org/meetings/en/SessionalDocuments/ditc-ted-16072018-Oceans-Forum-2-Chair-Conclusions.pdf>

References

- Barange, M., Bahri, T., Beveridge, M.C.M., Cochrane, K.L., Funge-Smith, S. and Poulain, F., (eds). 2018. Impacts of climate change on fisheries and aquaculture: synthesis of current knowledge, adaptation and mitigation options. FAO Fisheries and Aquaculture Technical Paper No. 627. Rome, FAO. 628 pp.
- Bjorndal, T; Child, A and Lem, A. 2014. Value chain dynamics and the small-scale sector: Policy recommendations for small-scale fisheries and aquaculture trade. FAO Fisheries and Aquaculture Technical Paper 581. 123 pages.
- Convention on Biological Diversity (1992).
- Diaz, R.J and Rosenberg, R. 2008. Spreading dead zones and consequences for marine eco-systems. *Science*. 15:321. Pp 926-929. <https://www.ncbi.nlm.nih.gov/pubmed/18703733>.
- European Commission (2016). Study on the subsidies to the fisheries, aquaculture, and marketing and processing subsectors in major fishing nations beyond the European Union. <https://publications.europa.eu/en/publication-detail/-/publication/45f78bf8-d24b-11e6-ad7c-01aa75ed71a1>.
- FAO (2000). International Plan of Action for the Management of Fishing Capacity.
- FAO (2003). Fisheries management. No 4. Supplement 2. The eco-system approach to fisheries. FAO, Rome. 112 pages, <http://www.fao.org/3/a-y4470e.pdf>.
- FAO, 2009. Guidelines for the ecolabeling of fish and fishery products from marine capture fisheries. Revision 1. Rome. 91 Pages. <http://www.fao.org/3/a-i1119t.pdf>.
- FAO (2010). Agreement on port state measures to prevent, deter and eliminate illegal, unreported and unregulated fishing. FAO. Rome. http://www.fao.org/fileadmin/user_upload/legal/docs/037s-e.pdf.
- FAO, 2014a. Voluntary guidelines for flag states performance. FAO. Rome. 66 pages. <http://www.fao.org/3/a-i4577t.pdf>.
- FAO, 2014b. Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries. FAO. Rome. <http://www.fao.org/voluntary-guidelines-small-scale-fisheries/background/en/>.
- FAO, 2016. The State of Fisheries and Aquaculture. Contributing to food security and nutrition for all. FAO, Rome. 200 pages.
- FAO, 2017a. Recent developments in fish trade. Paper presented at the FOA COFI Sub-Committee on fish trade, 16th session. Busan, Republic of Korea. FAO. 11 Pages. <http://www.fao.org/3/a-mt772e.pdf>.
- FAO, 2017b. Voluntary guidelines for catch documentation schemes. FAO, Rome. 20 Pages. <http://www.fao.org/3/a-i8076e.pdf>.
- FAO 2017c. Microplastics in fisheries and aquaculture. <http://www.fao.org/3/a-i7677e.pdf>.
- FAO, 2018a. The State of Fisheries and Aquaculture. Meeting the Sustainable Development Goals. FAO, Rome. 221 pages.
- FAO, 2018b. Report of the FAO expert consultation on trade in fisheries and aquaculture services. FAO Fisheries and Aquaculture Report FIAM/1230 (En). 26 pages.
- Fugazza M, 2017. A primer on Non-Tariff Measures. UNCTAD Research Paper No. 7. 35 pages. UNCTAD/SER.RP/2017/7 Fish Trade and Policy.
- Hoegh-Guldberg, O. et al. 2015. Reviving the Ocean Economy : the case for action - 2015. WWF International, Gland, Switzerland., Geneva, 60 pp.
- Kerezi, V., Aguión, A., Andrews, E., Arias Schreiber, M., Beckensteiner, J., Coronado, E., Daly, J., D'Armengol, L., Esteves Dias, A.C., Gomes de Mattos, F.M., Gustavsson, M., Harper, S., Kelkar, N., Nyiawung, R.A., Salgueiro Otero, D., and Wojciechowski, M.J, 2019. Supporting the implementation of the SSF Guidelines: Report from the 3rd World Small-Scale Fisheries Congress. Too Big To Ignore Research Report, number R-03/2019, St. John's, NL, Canada, 15 pp.
- Kurien, J. 2005. Responsible fish trade and food security. FAO Fisheries and Aquaculture Technical Paper No 456. FAO, Rome. 102 pages.
- Levrel H., Pioch S., Spieler R., 2012. Compensatory mitigation in marine ecosystems: which indicators for assessing the "no net loss" goal of ecosystem services and ecological functions? *Marine Policy* 36: 1202-1210.

Lusher H., Hollman P. and Mendoza-Hill P, 2017. Microplastics in fisheries and aquaculture: Status of knowledge on their occurrence and implications for aquatic organisms and food safety. FAO Fisheries and Aquaculture Technical Paper No 615. 147 pages. FAO. Rome, Italy. <http://www.fao.org/3/a-i7677e.pdf>.

OECD (2016), *The Ocean Economy in 2030*, OECD Publishing, Paris. <http://dx.doi.org/10.1787/9789264251724-en>.

OECD (2017), "Support to fisheries: Levels and impacts", OECD Food, Agriculture and Fisheries Papers, No. 103, OECD Publishing, Paris. <http://dx.doi.org/10.1787/00287855-en>.

OECD-FAO, 2017. Fish and seafood, in *OECD-FAO Agricultural Outlook 2017-2026*, OECD Publishing, Paris. DOI: http://dx.doi.org/10.1787/agr_outlook-2017-12-en.

OECD-FAO, 2018. Fish and seafood, in *OECD-FAO Agricultural Outlook 2018-2026*, OECD Publishing, Paris. DOI: <http://www.fao.org/publications/oecd-fao-agricultural-outlook/2018-2027/en/>.

OECD, 2018. *Combatting Illegal, Unreported and Unregulated Fishing: Where countries stand and where efforts should concentrate in the future*. Paper TAD/FI(2017)16/FINAL. 135 pages. Paris, France.

Schuhbauer, A; Chuenpagdee, R; Cheung, W; Greer, K and Sumaila R. 2017. How subsidies affect the economic viability of small-scale fisheries. *Marine Policy*. Volume 48. Pp 114 – 121.

Sumaila, R; Lam, V. b; Le Manach, F. b; Swartz, W.C; Pauly, D., 2016. Global fisheries subsidies: An updated estimate. *Marine Policy* 69: 189–193. www.elsevier.com/locate/marpol.

Sustainable fisheries partnership, 2018. Annual report 2018. 17 pages. <https://www.sustainablefish.org/Publications>.

United Nations (2015). General Assembly Resolution A/RES/69/109 of 6 of February 2015.

United Nations (2017). General Assembly Resolution, A/RES/71/312 of 14 July 2017.

United Nations (2017). Chair Conclusions to the Oceans Forum. <https://unctad.org/meetings/en/SessionalDocuments/ditc-ted-21032017-OceansForum-Chairman-Conclusion.pdf>.

United Nations (2018). Chair Conclusions to the Second Oceans Forum. <https://unctad.org/meetings/en/SessionalDocuments/ditc-ted-16072018-Oceans-Forum-2-Chair-Conclusions.pdf>.

United Nations (2019). General Assembly Resolution A/73/L/82 of 9 May 2019.

UNCTAD, 2007. UNCTAD BioTrade Initiative. *BioTrade Principles and Criteria*. 20 pages. UNCTAD/DITC/TED/2007/4.

UNCTAD, 2011. *The green economy: trade and sustainable development implications*. Background note for the Ad Hoc Expert Meeting on the green economy. 8–10 November 2011. Geneva, Switzerland.

UNCTAD, 2014. *The Oceans economy: Opportunities and Challenges for Small Island Developing States*. 40 pages. UNCTAD/DITC/TED/2014/5.

UNCTAD, 2015. *Sustainable Fisheries: International Trade, Trade Policy and Regulatory Issues* UNCTAD/WEB/DITC/TED/2015/5.

UNCTAD, 2016a. *Trade and Environment Review 2016, Fish Trade*.

UNCTAD/DITC/TED/2016/3.

UNCTAD, 2016b. *Sustainable Fisheries: International Trade, Trade Policy and Regulatory Issues*. 42 pages.

UNCTAD/WEB/DITC/TED/2015/5.

UNCTAD-FAO-UNEP, 2016. *Joint Statement on Regulating Fisheries Subsidies*. Fourteenth session of the United Nations Conference on Trade and Development Nairobi, Kenya, 17-20 July 2016.

UNCTAD/FAO, 2017a. *Trade related fisheries targets: sustainable development goal 14*. Summary document preparatory working group 14. High-level UN Conference to support the implementation of SDG 14. New York, 5-9 June 2017. UNCTAD/DITC/TED/2017/3.

UNCTAD, 2017b. *BioTrade and Access and Benefit Sharing: From concept to practice*. A handbook for policymakers and regulators. 100 pages. UNCTAD/DITC/TED/2017/6.

UNCTAD, 2018. Building the capacities of least developed countries to upgrade and diversify fish exports. A training manual. UNCTAD/ALDC/2018/2. 85 pages. Geneva, Switzerland.

UNCTAD, FAO, United Nations Environment (2016). Regulating fisheries subsidies must be an integral part of the implementation of the 2030 Sustainable Development Agenda.

UNEP, 2009. Certification and Sustainable fisheries. 116 pages. United Nations Environment Programme, Nairobi. Kenya.

UNEP, 2012. State of the Mediterranean Marine and Coastal Environment, UNEP/MAP/Barcelona Convention, Athens. <https://www.undp.org/content/dam/turkey/docs/Publications/EnvSust/akdenizrapor.pdf>

UNEP, 2013. Fisheries and Aquaculture: trends, challenges and opportunities. In Green Economy and Trade. Pp 89 – 123. United Nations Environment Programme, Nairobi. Kenya.

UNEP, 2016. Marine plastic debris and microplastics – Global lessons and research to inspire action and guide policy change. United Nations Environment Programme, Nairobi. Kenya.

UNEP, 2018. Intergovernmental Review Meeting on the Implementation of the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities Fourth session Bali, Indonesia, 31 October and 1 November 2018. The Global Programme of Action for the Protection of the Marine Environment from Land-Based Activities A 20-year Perspective on a Unique Programme to Advance the Ocean Agenda. 95 pages. https://papersmart.unon.org/igr-meeting/sites/default/files/gpa_igr4_inf3_20_years_of_gpa_final.pdf.

UNFSS, 2016. Meeting sustainability goals. Voluntary sustainability standards and the role of the government. Second flagship report of the United Nations Forum on sustainability standards (UNFSS). https://unfss.files.wordpress.com/2016/09/final_unfss-report_28092016.pdf.

Washington, S and Ababouch. L, 2011. Private standards and certification in fisheries and aquaculture. FAO Fisheries and Aquaculture Technical Paper 553. 181 pages.

WTO (2017). Ministerial Decision on Fisheries Subsidies, WT/MIN(17)/64.

World Bank. 2017. The Sunken Billions Revisited Progress and Challenges in Global Marine Fisheries. Washington, DC: World Bank. Environment and Sustainable Development series. doi:10.1596/978-1-4648-0919-4. License: Creative Commons Attribution CC BY 3.0 IGO.

World Bank and United Nations Department of Economic and Social Affairs. 2017. The Potential of the Blue Economy: Increasing Long-term Benefits of the Sustainable Use of Marine Resources for Small Island Developing States and Coastal Least Developed Countries. World Bank, Washington DC. 50 pages.

World Economic Forum, 2016. The new plastics economy. Rethinking the future of plastics. http://www3.weforum.org/docs/WEF_The_New_Plastics_Economy.pdf. Accessed 21 July, 2019.