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TRADE BRIEF

A discussion on the Trade and Environmental Review and fisheries data for Africa

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ABSTRACT

The United Nations Conference on Trade and Development (UNCTAD) has recently released a Trade and Environmental Review (TER). The review presents a broad overview of three contemporaneous main issues facing fisheries and aquaculture with a strong focus on sustainability. These include (i) international and regional frameworks for sustainable fisheries; (ii) trade in sustainable fisheries and aquaculture; and (iii) harmful incentives, particularly fisheries subsidies.

This trade brief will present a summary of the most salient features of this report and also detail pertinent African export data focusing on fisheries and aquaculture.

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SWEDEN

A discussion on the Trade and Environmental Review and fisheries data for Africa

by Gavin van der Nest

Introduction

The United Nations Conference on Trade and Development (UNCTAD) has recently released a Trade and Environmental Review (TER) (UNCTAD, 2016). The review presents a broad overview of three contemporaneous main issues facing fisheries and aquaculture with a strong focus on sustainability. These include (i) international and regional frameworks for sustainable fisheries; (ii) trade in sustainable fisheries and aquaculture; and (iii) harmful incentives, particularly fisheries subsidies. This trade brief will present a summary of the most salient features of this report and also detail pertinent African export data focusing on fisheries and aquaculture.

1. The role of fishing

Fishing has a well-established role in sustainable development, economic growth, food security, and livelihoods. A significant portion of the diets of more than a billion people is derived from organisms harvested from the oceans and freshwater bodies. It plays an even more significant role in Least Developed Countries (LDCs) and Small Island Developing States (SIDS) where at least 50% of daily protein intake is sourced from the consumption of fish.

It has been estimated that in 2014 the global export of fish and fish products reached its highest level – US$146 billion. In terms of volume, after observed highs in the 1990s, the level of the marine-freshwater fish catch has remained steady at approximately 90 million tonnes. This could mainly be due to extraction reaching its limit of an already overexploited resource. The majority (56%) of total world exports of fish are sourced from developing countries and it is therefore in their best interest to have a strong say in methods designed to safeguard this precious resource's future.

The Food and Agriculture Organisation (FAO) has estimated that 87% of the world's marine fish stocks are already fully exploited, overexploited or depleted. This ratio has been steadily increasing. Half of the stocks located off the West African coast have been classified as overharvested which simply means that the resource is unable to recover. It is in the best interest of all parties to arrest this decline and embrace sustainable methods of harvesting and production.

It is encouraging to note that *Transforming our world: the 2030 Agenda for sustainable Development* (United Nations, 2015) sets out 17 clear Sustainable Development Goals (SDGs) of which there is a specific stand-alone global goal to address the health of marine resources and ecosystems with a specific regard for fish. This goal is SDG 14 and it sets out several targets which are specifically designed to prevent fish stocks from succumbing to the first global tragedy of the commons. However, there remain many challenges ahead in ensuring that SDG 14 meets its targets. These challenges include the complexities underlying oceans and fisheries governance, weak regulatory frameworks, harmful fishing subsidies (particularly in fishing nations among developing countries), poor implementation and the lack of financial and technical resources. These challenges, as well as possible innovations to advance the implementation of the SDG 14 (including responsible and sustainable wild fish harvest, aquaculture production and trade), are extensively discussed in several papers contained in three parts in the Trade and Environmental Review (TER).

2. International framework for sustainable fisheries

TER details several possible strategies for ensuring sustainable fisheries. It discusses the role of the United Nations Convention on the Law of the Sea (1982), the United Nations Fish Stocks Agreement, climate change as well as possible lessons learnt from the Trans-Pacific Partnership Agreement (which could possibly become defunct given comments of the Trump administration).

At a meeting held in Nairobi in July 2016, UNCTAD joined by the FAO, the United Nations Environment Programme (UNEP), 91 member states, four international governmental organisations and 11 international civil society organisations issued a *Fish Subsidies Declaration* to serve as a roadmap in eliminating harmful fishing subsidies. This Nairobi *Maafikiano* (Swahili for 'agreement') gave UNCTAD a specific mandate over the oceans' economy. This mandate arises from the need to advance and implement the trade-related aspects of SDG 14.

TER details issues relevant in the sustainable use of living marine resources with a strong focus on fish, healthy oceans and seas. It highlights trade in fish within the context of the oceans' economy or the

Blue Economy as it has become known. This all falls within the realm of implementing Agenda 2030 with a specific focus on SDG 14. SDG 14 urges participants of the international community to, 'conserve and sustainably use oceans, seas, and marine resources'.

The global ocean market has been estimated to be worth approximately US$1 345 billion per annum which equates to around 2% of world Gross Domestic Product (GDP). Estimates are given which state that approximately 350 million jobs are linked to the oceans through fishing, aquaculture, coastal and marine tourism, and research activities. It is a well-diversified sector with great potential for economic growth and development if sustainably managed. Additionally, there are over 1 billion people dependent on fish as their primary source of protein. However, experts have pointed out that continuing on the current trajectory of harvesting and consumption only a third of the amount of fish available from capture fisheries in the 1970s will be available in 2050. This trend emphasises the acute need for the conservation and rejuvenation of global fish stocks which have primarily been affected by the industrialisation of the fisheries sector over the past decades.

TER stresses that a collective effort is crucial in establishing a more equitable, more inclusive and sustainable future. It is just as applicable to consider feasible approaches and frameworks in ensuring that multilateral and regional trade-policy negotiations contribute more towards sustainable fisheries, particularly forming part of negotiations and outcomes.

As such, the Commonwealth Secretariat has called for the implementation of and policy sequencing for Agenda 2030 including the translation of its goals into practical action by World Trade Organisation (WTO) members within the existing framework of multilaterally agreed trade rules. However, there has been limited progress at the 10th WTO Ministerial Conference (MC10) where calls have been made for effective and ambitious disciplines relating to fisheries subsidies. This led to a strong call for international action to eliminate harmful fishing subsidies. The current landscape is such that these outcomes have fallen short of those originally championed in the Doha Development Agenda (since Agenda 2030 places emphasis on the effective conclusion of the Doha Round) and have thus impeded the achievement of Agenda 2030.

SDG 14 has been built upon many of the provisions for oceans and fisheries conservation as contained within the Rio+20 outcome document, particularly in the special recognition of the need of developing countries for differential treatment and the technical cooperation of SIDS and LDCs. Many of the subgoals are challenging, specifically, the target (14.4) to end overfishing and destructive fishing practices in addition to the implementation of science-based management plans to restore fish

stocks by 2020.

Deodat Maharaj, Deputy Secretary-General of the Commonwealth Secretariat, emphasises that lessons may be learnt from the experience of the Millennium Development Goals, including the following:

- Many of the LDCs and SIDS are not able to produce output with a consistent enough quality to meet demand. There is therefore a need to integrate high-value fisheries supply chains within a domestic, regional and global context.
- There exist technical as well as financial barriers to Sanitary and Phytosanitary (SPS) requirements as well as adherence to other standards which lead to Non-Tariff Measures (NTMs) potentially restricting market access.
- Rules of Origin (RoO) are often complicated and unnecessarily burdensome in allowing many SIDS and LDCs to utilise trade preference available within existing trade agreements effectively.

A strong need exists for more targeted aid for trade disbursements in addressing the productive capacity shortfalls among SIDS and LDCs. Crucially, the fulfilment of NTMs in the fisheries sector has not been sufficiently considered in aid of trade initiative data. NTMs may in principle be legal and legitimate in their objectives but they may impede market entry where technical as well as financial barriers exist.

The first joint UNCTAD-Commonwealth meeting on sustainable fisheries management in 2015 was able to deliver solid outcomes to serve as a recommendation in the advancing of the SDG 14 implementation. These include a need for further mapping, convergence and harmonisation of NTMs as well as the promotion of the mutual recognition of documentation and certification.

To ensure long-term sustainability it is crucial to address illegal fishing. There needs to exist strong support for a countries' capacity to address unregulated and unreported fishing. This is done through capacity building, additional national schemes, seeking to address IUU (Illegal Unreported and Unregulated) fishing based on international law without being arbitrary, discriminatory or obstructive to trade. Additionally, RoO should be made more adaptable for developing country parties in order to facilitate value addition and stimulate the emergence of new production networks.

A priority should be monitoring the progress of SDG 14 implementation. An option exists for embedding the review process and mechanism within the WTO's existing trade policy review procedure.

A multiplicity of legal instruments governing the fisheries sector exists. There is therefore a need to create coherence among existing legal institutions and instruments (as well as promoting participation and ratification of these instruments by the international community) throughout the wide ambit of international law, soft laws, rules and frameworks dealing with conservation, harvesting, and trading fish in the high seas of countries' exclusive economic zones (EEZs).

Sustainable fisheries within the context of the United Nations Convention on the Law of the Sea (1982) and the United Nations Fish Stocks Agreement (1995)

The conservation and sustainable use of marine living resources have been firmly enshrined in the 2030 Agenda for Sustainable Development. However, the world's capture fisheries sustainability is under threat from several quarters including overfishing, destructive fishing practices, ecosystem degradation, and IUU fishing. It has been estimated that in 2011 almost 30% of the world's fish stocks were fished at biologically unsustainable levels. Climate change, ocean acidification, pollution, and coastal development also play a role in deteriorating ecosystems and fish stock depletion.

For sustainable fisheries to become a reality there is a strong need for the effective implementation of an international legal framework for the oceans as reflected in the convention and agreement. The UN General Assembly has a key role to play in passing annual resolutions for the oceans and law of the sea and on sustainable fisheries through the promotion of an international legal regime in the development of further global policies on the ocean.

The Convention is often referred to as the 'Constitution for the Oceans' as it contains an extensive legal framework for all activities in oceans and seas. It defines various maritime zones as well as the rights and obligations of states in those zones. It enshrines the sovereign rights of coastal states in the conservation and management of marine living resources in the EEZs as well as the freedom of fishing on high seas.

Under the convention, coastal states determine the allowable catch of living resources in their EEZ as well as the capacity to harvest these resources. If the state is unable to harvest the entire harvestable catch in its EEZ it is required to give access to the surplus to other states through agreements or other

arrangements. There is a particular emphasis here on access for landlocked and geographically disadvantaged states (especially developing states). The nationals of other states fishing in the EEZ are in turn required to comply with all conservation measures established in the laws and regulations of the coastal state and must be in accordance with the convention. In exercising its sovereign right to the living resources within its EEZ the coastal state may take such actions (including boarding, inspection, arrest and judicial proceedings) which may be necessary to ensure compliance with its laws and regulations.

The convention also requires the coastal state and the other state whose nationals fish in the region to cooperation with a view to ensuring the conservation and promotion of the optimum utilisation of highly migratory species within the region.

The United Nations Fish Stock Agreement's main elements comprise dealing with highly migratory fish stocks (tuna, swordfish, oceanic sharks) and straddling fish stocks (cod, halibut, pollock, jack mackerel and squid). These are among the most commercially important stocks in the world and require strong international cooperation in their management. This is especially pertinent given their cross-border nature: the implementation of relevant international law is essential to ensure their long-term sustainability and the continuation of benefits accrued in the international trade of such stocks.

The agreement gives effect to and expands upon the duty of states to cooperate as set out in the convention. These have been set out particularly in regard to the general principles of management, with specific provisions for the application of a precautionary and ecosystems approach, minimum standards of data collection and sharing, mechanisms of compliance and enforcement measures, compatibility of conservation and management measures established for high seas and those areas within national jurisdictions, and dispute settlement procedures.

The primary mechanism for cooperation between coastal states and high seas fishing states under the agreement is the Regional Fisheries Management Organisations and Arrangements (RFMO/As). This encompasses responsibility in the conservation and management of straddling and highly migratory fish stocks, as well as non-target and dependent species. The agreement also recognises the special requirements of developing states in the development of their own fisheries as well as their participation in high seas fisheries of straddling and highly migratory fish stocks. The agreement has been impactful in altering the practice of states and RFMO/As and has provided the impetus for further development of international law and policy.

The UN General Assembly has a central role to play in the promotion of sustainable fisheries. This includes being a global institution that has the ability to carry out annual reviews of developments relating to sustainable fisheries and ocean affairs and, in general, the law of the sea (including norm and policy setting). The General Assembly has taken several steps to strengthen the implementation of the convention and agreement. This includes addressing the rights and duties of flag states and coastal states in regard to conservation and management of marine living resources including measures to address IUU fishing.

When partaking in negotiations with developing coastal states the UN General Assembly called for all countries to do so on an equitable and sustainable basis. They should, in particular, be aware of the legitimate expectation of developing coastal states to benefit fully from the sustainable use of natural resources within their EEZ. In addition, all flag flying vessels in their waters should comply with the laws and regulations of the host state and in accordance with international law. It is telling that on 25 September 2015 all 193 member states of the UN adopted the new Sustainable Development Agenda including 17 global goals of which Goal 14 (relating to the conservation and sustainable use of oceans, seas and marine resources for sustainable development) will play a central role in this sector.

The General Assembly's essential ability to examine the various issues within ocean-related processes and to set global policy standards gives it a pivotal role in the promotion of sustainable fisheries which depend on international cooperation at the global, regional and subregional levels. It is the only extant body with the relevant competence to examine ocean issues in an integrated, interdisciplinary and intersectoral manner at the global level. This is done through annual consideration and the review of developments relating to ocean affairs and the law of the sea.

3. Fisheries and climate change

Over the years a greater variability in the annual catch of exploited fish populations has been observed. This is a direct result of changes in size and age structure of fish populations due to often predatory and selective fishing (based on targeted species and size) as well as unrestricted access to marine resources. This makes already stressed populations particularly vulnerable to climate change.

Climate change has a direct impact on marine environments by affecting temperature, water stratification (changing where certain species are to be found), ocean currents, winds, seas, pH levels, precipitation as well as the rate of changes.

It is estimated that most stocks are already fished at levels exposing them to a high risk of collapse given trends in climate change. If one simply looks at the statistics there is no room for further catch expansion. The percentage of stocks fished within biologically sustainable levels has shown a marked downward trend from 90% in 1974 to 71% in 2001. 28.8% of fish stocks are already overfished, 9.9% are underfished and approximately 61.3% are estimated to be fully fished.

Particularly vulnerable are upwelling areas where the wind pushes warm waters away and allows for cold water rich in nutrients which stimulates biological diversity to rise. These seasonal occurrences are vulnerable to disruption and have a direct impact on fisheries in these regions which only cover 5% of the ocean surface but contribute to almost 25% of global marine catches. These areas include the Benguela (off southern Africa), Canaries (off northwest Africa), the California (off California), the Humbolt (off Peru and northern Chile), and the Somali (off Somalia and the Oman currents).

Climate change has the potential to directly affect fisheries through impacts on fish stocks and the global supply of fish or indirectly through influencing the costs of goods and services required for fisheries as well as the price of the fish itself. Species may redistribute as they follow their thermal preferences which will usually be towards the poles and to deeper waters.

By 2050 large regional differences in primary production are estimated to occur. This includes decreases in productivity in the North Pacific, Southern Ocean and around the Antarctic continent and increases in the North Atlantic regions. Studies have also shown that by 2055 there will be possible reductions in the Red Sea as well as off the southern coast of the Mediterranean and Antarctic. The Indo-Pacific region may see a reduction of up to 50% within the next 10 years. On the flipside, catch potential may potentially increase by more than 50% in higher latitudes, particularly in the North Atlantic, North Pacific and the Arctic. There are large regional variations in potential catch change. The tropical Pacific is estimated to decrease by almost 42% of its 2005 levels while the subarctic region may double in comparison to its 2005 levels. One region's gain is another’s loss and this will play a significant role in future production, harvesting and trade accords.

In the short run, climate change is likely only to affect a relatively small proportion of fish but the long run indirect effects will likely have serious implications for all marine ecosystems. The effects of climate variability and change on fisheries generate economic uncertainty. This uncertainty then increases risk aversion among decision makers who in turn postpone or even delay actions needed for the mitigation of and adaptation to climate change.

A global perspective on the adoption of fisheries policies should be pursued due to the borderless and variable effects of climate change on fisheries. It is suggested that resources be allocated and research be conducted on the climate change effect on fisheries as well as on the resilience and adaptation to climate change on fisheries. Research should be undertaken to determine the most suitable policies to promote the adaptation of the fisheries sector and coastal population economic activities to climate change and fishing stock variability.

Crucially, the removal of existing subsidies and incentives which promote the expansion of fishing capacity should be pursued. Fishing fleet size should be limited to levels appropriate for sustainable harvesting of existing marine resources. Marine governance should also be improved allowing for appropriate responses to the unpredictability and variability brought about by climate change.

Environmental and fisheries lessons gained from the Trans-Pacific Partnership Agreement

The Trans-Pacific Partnership (TPP) Agreement signed by 12 Pacific Rim countries on 4 February 2016 contains among the highest levels of environmental provisions ever agreed in a Regional Trade Agreement (RTA). The TPP contains a specific environment chapter dealing with environment-related provisions. Environmental provisions are also contained in other chapters specifically dealing with investment, technical regulations to trade, and intellectual property. However, the future of the TPP is uncertain given the Trump administration's insistence to withdraw but some valuable environmental lessons can certainly be learnt.

The chapter on the environment promotes mutually supportive and environmental trade policies, higher levels of environmental protection and effective enforcement of environmental law. It also seeks to encourage greater cooperation in enhancing capacities on trade-related environmental issues. The TPP also reaffirms the environmental principle of the UN 1992 Rio Declaration on the Environment and Development whereby environmental laws and other measures should not be created or enforced which would constitute a disguised restriction on trade and investment. The sustainable management of resources is also contained within the TPP. The TPP contains a variety of legal provisions ranging from fully binding to best endeavour clauses and recognises the sovereign right of each party to establish its own level of environmental protection and environmental priorities. This means that TPP parties should effectively enforce their own environmental laws without waiving or derogating from these in order to promote trade or attract investment.

The TPP chapter on the environment contains landmark provisions on the conservation of living marine resources. This is particularly important for the international trade of fish products and seafood given that the parties to this agreement are some of the world's largest consumers, producers, and traders of fish products.

The TPP also enshrines novel provisions on the banning of certain types of fish subsidies which the WTO has failed to do. The TPP ensures that the implementation of fish management systems includes the control of, reduction, and future elimination of all subsidies which encourage overfishing and overcapacity. The TPP also recognises the crucial need to act against IUU fishing and encourages international cooperation in this regard.

The specific advances contained in the TPP to prohibit certain types of harmful fisheries subsidies and measures to combat IUU fishing undeniably sets a standard for the WTO to follow and for the successful implementation of SDG 14 targets.

In order for the issue of harmful subsidies to be adequately addressed a strong multilateral track is needed to prevent free riding faced in regional and plurilateral contexts. This undermines such agreements as free riders gain unfair comparative advantages while continuing to deplete the common resource base. It is suggested multilateral solutions be advanced at the WTO, backed by a strong dispute settlement system.

4. Looking at fish and world trade regimes towards 2035

The world in 2035 is envisioned to be very different with three significant global trends which cannot be ignored:

1. population growth
2. climate change
3. declining level of fish stocks and wild catch.

The world population is expected to expand dramatically with significant changes in the age structure by 2035. World population is expected to grow to 8.5 billion by 2035. The population of least developed countries will pass that of the developed world by 2030. This will present challenges in both the production and supply of food. The average age in 2035 is expected to increase from the current 29 years to 45 mainly as a result of decreasing rates of fertility in developed countries. This then translates into a significant increase in the need for more abundant, high quality, healthier food

which is likely to expand to emerging and developing countries as income levels continue to grow.

Climate change will also have a negative impact on fish stocks and marine ecosystems. This is particularly because of changes in temperature and acidification (through increased carbon dioxide absorption) which will have a substantial impact on the future of freshwater and marine fisheries.

The level of wild fish catch will also likely remain stagnant over the next 20 years. Global marine and inland fish catch have remained constant at approximately 90 million tonnes since 2007 with a prediction of a small increase to 93 million tonnes by 2030. This highlights the chance of not achieving significant stock recovery by 2035. It is possible that the ocean's sustainability levels have already been reached and unless fish stock replenishment becomes a top priority an increasing amount of fish species will face extinction and there is a very real chance that entire marine ecosystems will be threatened.

There are also several important changes which could shape how trade regimes enable and regulate fish and fish products trade, including:

1. increased demand for fish
2. a larger share in the production and trade of aquaculture products
3. deeper economic integration through trade agreements amongst members, which could affect fish trade.

Projections show that total fish supply (wild and aquaculture) will increase from 154 million tonnes in 2011 to over 186 million tonnes in 2030. As wild catch supply is likely to remain stagnant the share of aquaculture supply is expected to grow. As the share of farmed products in the market increases, the nature of production of seafood will become quite different. This is because the business model for aquaculture differs significantly from traditional and industrial fisheries as it is more intensive in capital, land and ecosystem services, technology and knowledge.

The FAO estimates that in 2014 global exports of fish, crustaceans and molluscs reached a historical peak value of US$146 billion. Developing countries already export approximately 56% of all fish and fish products, developed countries approximately 44%, and transition economies only 2%. Developing countries can potentially dominate fish exports by 2035. This might also suggest that developing countries will take greater responsibility in the future of fish stocks and aquaculture production, particularly in the face of the sustainable management of species and ecosystems concerns.

There is also a strong focus on realising the Sustainable Development Goals with SDG 14 especially relevant to the fisheries sector. A thorny issue within SDG 14 is addressing and removing fisheries subsidies which have stalled the WTO Doha Round on negotiations. This is of vital important to fisheries from SIDS and LDCs as the SDGs make specific reference to the need of increasing economic benefits for these countries and to creating conducive market access for small-scale artisanal fisheries. It is especially important to provide financial and technical assistance and technology transfer to these countries as they seek to implement national and regional strategies for sustainability, preservation, and the protection of their fisheries industries.

The SDGs are intertwined and achieving the targets of SDG 14 contributes towards the success of other goals. This includes SDG 2 (end hunger, achieve food security and improve nutrition, promote sustainable agriculture) and SDG 12 (ensure sustainable consumption and production patterns). This sets a precedent for the next 15 years at least.

Given this outlook, RTAs should enshrine the sustainable use of marine resources and other sectors of the oceans economy particularly in regard to introducing rules on fisheries subsidies and policies addressing IUU fishing. It is possible that average applied tariff measures may also decrease to close to zero percent levels. The WTO MFN (Most Favoured Nation) average applied tariffs for fish and fish products estimated at 11.6 % in 2014 are not particularly high. If the Doha Round finally succeeds in its Non-Agricultural Market Access segment it is possible to be close to a zero-tariff arrangement for most developed countries with some Special and Differential Treatment (SDT) for developing countries.

In marked contrast, NTMs continue to increase due to more demanding market requirements in both importing and exporting countries. These NTMs add new requirements and potential unexpected costs and procedural complexities to the production and exporting process. There is potential for a trade minefield of thousands of measures to develop in the future unless effective mechanisms for harmonisation, risk assessment and mutual recognition are found.

By September 2015, 723 SPS measures, as well as 524 Technical Barriers to Trade (TBT) relating to fish and fish products, were notified by WTO members. This translates into a significant annual growth of 10.2% and 12.2% in a number of SPS and TBT measures notified since 2010. It is crucial that NTMs do not simply present the opportunity for disguised protectionism in a trading system. An effective multilateral mechanism is needed to guard against this.

Binding and effective disciplines on fisheries subsidies which contribute towards overfishing and overcapacity as contained in the SDGs should be encouraged. UNCTAD has estimated that global fisheries subsidies are between US$15 to US$35 billion worldwide of which approximately US$20 billion may be classified as capacity enhancing. The World Bank and FAO have estimated that removing such subsidies could result in global gains of about US$50 billion. They further encourage a shift of focus from capacity enhancing to more sustainable subsidies which establish marine management systems, place precedence on fish stock conservation and ecosystem restoration, create larger marine protected areas and improve IUU fishing.

5. Challenges and opportunities in fisheries, aquaculture utilisation and trade

The FAO has estimated that approximately 58 million people were directly employed in fisheries and aquaculture in 2012. This, in turn, provides over 200 million direct and indirect employment opportunities along the value chain from harvesting to distribution. Fish and seafood remain among one of the most traded commodities where 36% of production is traded internationally generating a trade value of approximately US$144 billion in 2014. The FAO estimates that more than 56% of trade originates in developing countries where net trade income valued at US$38 billion in 2014 is greater than the net trade income of combined main agricultural commodities. This sector remains paramount in contributing significantly towards food security for a growing world population.

The FAO has launched a Blue Growth Initiative (BGI) in support of food security, poverty alleviation and the sustainable management of living aquatic resources. Its aim is to build the resilience of coastal communities and to restore the oceans' and wetlands' productive potential. It calls for an international coordinated effort in strengthening responsible management regimes and practices by reconciling economic growth and food security with oceans conservation and related ecosystems.

The OECD-FAO Agricultural Outlook contains a model in which future developments in fisheries and aquaculture is simulated. Key findings include the following:

- The main driver of fisheries and aquaculture production will be aquaculture which will surpass total capture fisheries by 2023.
- Fish consumption will expand on all continents with Asia and Oceania having the highest increases.

- There will be slight increases in projected fish consumption in Africa.
- There is large regional variation in consumption and production. The largest increase in production and consumption will stem from Asian countries. China will remain a leading producer and exporter at the world level with developing countries being major drivers in the increase of production, trade, and consumption of fish and fisheries products.

Fish to 2030 employs the International Food Policy Research Institute (IFPRI) IMPACT model. This is a partial equilibrium multi-market economic model containing a network of linked economic, water, and crop models. In particular, it simulates national and international agricultural market effects. The model projects that due to a population growth of 2.3% per annum, sub-Saharan Africa will increase its demand for fish by 30% by 2030. As the production capacity of this region is only expected to expand marginally, the region's dependence on fish imports will rise from 14% in 2000 to 34% in 2030. This creates a significant opportunity for expanding production in the region.

Ecolabelling and traceability in fisheries

Ecolabelling evolved from the promotion of sustainable fisheries management and is applied to sustainably sourced seafood. Fisheries Improvement Projects are being piloted in various fisheries to assist developing countries with market access and they aim to raise the level of fisheries management through increases in the availability of sustainably sourced products for international markets.

The FAO, as well as other organisations including the WTO, has raised concerns about whether these seafood certification schemes are technical barriers to trade, especially for developing country exporters. However, a number of developing countries have already asked for capacity-building assistance from the FAO to develop their own national ecolabels. Incentives for ecolabels include (i) ensuring market access for seafood exports and protecting the livelihoods of vulnerable small-scale fishers and aquaculture producers and (ii) lowering the costs of certification. The second point is especially important for the small-scale sector in which reductions in the cost of certification of a fishery can allow for vital access to global and regional markets.

Seafood traceability systems are important to ensure that fishing activities are conducted in a responsible and legal manner. In particular, IUU fishing can occur in the high seas, EEZs and inland fisheries, and has increased over the last two decades where high-value marine species are specifically targeted. Denying access to markets for illegal fish products remains one of the major deterrents to

IUU fishing. The FAO Port State Measures Agreement specifically aims to deny access to IUU fish into the value chains by denying entry into ports of undocumented fish products. World Bank and FAO estimates place the value of illicitly harvested fish at 11 to 26 million tonnes each year with a value of between US$10 billion and US$23.5 billion.

Means to stop IUU fishing can include monitoring, control and surveillance of known IUU vessels, international cooperation in the sharing of information on IUU vessels, denying access to ports, national legislation allowing for prosecution of IUU vessels, international coordination of catch certificates to facilitate the border control trade in fish, and the certification of produce from verifiably managed fisheries.

There are several suggested policy recommendations for the above. In order for fisheries and aquaculture sectors to continue playing an important role in world food security, it is important for them to grow sustainably aided by effective fisheries management policies and best aquaculture practices. The majority of future fish consumption is projected to depend heavily on aquaculture. Additionally, civil society and private stakeholder efforts in using market-based measures (including eco-labels) have improved the traceability of fish ensuring they are sourced from responsibly managed fisheries and aquaculture producers. However, it has demonstrably increased auditing costs and further complicated the international fish and fishery products markets, particularly for developing countries. The growth in public certification schemes has the potential to increase trade disputes between countries as eco-labels go beyond voluntary business-to-business and business-to-consumer transactions into the domain of technical standards which fall under WTO agreements.

The fishery supply chain remains incredibly complex due to the fact that fish products often cross national boundaries several times before final consumption due to increasing levels of outsourcing and processing. Trade in fish and fish products involves a wide range of products and participants and while the integration of global markets may yield positive results it may also adversely exclude small-scale producers and businesses. Small-scale producers play a crucial and vital role in meeting increasing demand and improving areas of market access will be key to ensure inclusiveness of global food markets.

Certified sustainable seafood

There has been a growing number of voluntary sustainability standards in the seafood sector. As it grows in market importance, policy makers and other players in the global seafood supply chain are

faced with the decision whether such initiatives are viable policy options in the promotion of sustainability.

This is even more important within the context of SDGs. Seafood standards can be relevant in realising SDG 12 (ensuring sustainable consumption and production patterns) as well as SDG 14 (conserve and sustainably use the oceans, seas and marine resources). However, seafood standards' ability to fulfil these goals may be difficult to quantify due to the absence of robust data on market and performance trends.

Most voluntary seafood standards seek to promote or allow for the sustainable production and harvesting of seafood. The importance and popularity of voluntary standards are derived from the supposed ability to leverage market forces in achieving sustainable outcomes.

There has been a rapid rise in the consumption of certified sustainable seafood products over the past two decades. This has primarily been driven by increased awareness among consumers and companies. More and more certified products have become available to consumers particularly in Europe and North America. In 2015 certified production reached 23 million metric tonnes – equivalent to 14% of the global total. This is markedly up from 0.5 million metric tonnes (or 0.5%) in 2003.

Almost 80% of certified seafood originates from wild catch production. This is not only due to the longer history of certification in wild catch markets but also due to the critical sustainability issues wild catch faces, particularly in regard to related stock management.

However, seafood certification growth has largely been limited to very specific markets limited to certain species with high visibility. This includes three species groups: anchoveta, cod and tuna. These collectively account for over 57% of global certified production. It is worth noting that these species groups account for only 13% of global seafood production.

It can be noted that certified seafood does provide special advantages in international market access for some countries. Asia, which accounts for 69% of global seafood production accounts for only 11% of the global certified seafood production. On the other hand, Europe and North America, which jointly account for approximately 15% of global seafood production, provide almost 47% of global certified seafood.

In 2015, 16.6 million metric tonnes of retail ready seafood were certified: this is equal to 87% of the total seafood consumption in Europe and North America. It should be noted that the demand for certified seafood by consumers is far less than market supply; this is because growth in the industry has mostly been driven by retail and manufacturer commitments to certification rather than by individual consumer recognition and demand.

Growth in this sector is becoming increasingly reliant on more demand from developing-country markets and a general expectation or requirement from global markets as a price of market entry. In order to sustain market demand, there is a need to focus on enabling developing country certification, particularly in Asian production.

By itself, voluntary seafood standards cannot be expected to achieve significant sustainability outcomes. The successful use of voluntary standards in the fisheries sector is reliant on the infrastructure provided by local public institutions. Additionally, the global nature of many public goods is at risk through seafood production and therefore requires a corresponding response from the international community. Voluntary standards are also heavily reliant on publically available data in regard to regulations, data collections and fisheries management systems in assessing a given fishery's sustainability. Imperfect markets may also require targeted public policy support in overcoming the additional costs of certified production. The need for policy intervention is particularly necessary for low-income economies with significant smallholder production since the certification process may represent a significant barrier in accessing international markets.

The case of sustainable and organic aquaculture

Organic certification remains a niche market, particularly catering to higher-income and more health- and environmentally conscious consumers in the developed world. A small but growing proportion of international consumers actively seek out additional standards and certifications ensuring that the fish products they consume are not only sustainably but also organically produced. As a result, certified organic producers are able to capture a price premium in the organic market segment but these higher margins may also be largely offset by higher costs of production.

Developing-country producers should strive towards sustainable production and achieve certification in order to access major world markets. This would also safeguard against the negative effects of overexploitation and stock depletion. However, pursuing certified organic production may not be feasible for these producers due to the higher production and certification costs and a relatively

smaller organic segment of the market. Also, if many developing-country producers do seek organic certification a rapid growth in organic production may outstrip the growth in the global organic consumer market and through supply and demand interactions could result in significantly reduced price premiums.

Harmful incentives and unsustainable fisheries practices

The Global Oceans Commission has identified the role of government subsidies in the fisheries sector as a critical aggravating factor in the conservation and sustainable use of biodiversity in areas beyond national jurisdictions. Estimates from the Fisheries Centre, University of British Columbia, show that subsidies amount to US$30 billion worldwide. Of this, 60% is estimated to contribute towards overcapacity and overfishing.

As a result of these negative effects, a three-step approach to subsidies has been advocated: firstly, full transparency and disclosure of all fisheries subsidies; secondly, classification of fisheries subsidies to ascertain which are harmful (i.e. contributing to overcapacity, overfishing and other destructive methods); thirdly, the immediate capping and phasing-out of high seas fishing fuel subsidies (which play a significant role in overcapacity) within five years. Studies have shown that many high seas fishing operations would be unprofitable if it were not for the subsidies which sustain them.

In particular, target 14.6 of the SDGs calls for the prohibition of certain forms of fisheries subsidies which directly contribute towards overcapacity and overfishing by 2020. Furthermore, it calls for the elimination of subsidies which contribute to IUU fishing and refraining from introducing new subsidies of this kind. It also recognises that appropriate and effective special and differential treatment for developing and least-developed countries should form an integral part of WTO fisheries subsidies negotiations.

Achieving sustainable fisheries has proven a challenge given that it often suffers from the tragedy of the commons resulting in overfishing, pollution and habitat destruction. Ocean acidification, ocean warming and deoxygenation are new threats.

Significant increases over time in fishing effort and catch has negatively impacted on wild fish stocks and their habitats. This, in turn, threatens food and nutritional as well as social and economic security.

The provision of capacity-enhancing or harmful subsidies resulting in the overfishing of fish stocks makes little economic sense. Subsidies may be divided into three types according to their impact on

fisheries resources: (i) subsidies for management, research, etc., which are sometimes defined as good subsidies since they are generally assumed to have a positive effect on the ability to sustainably manage fishery resources, (ii) capacity-enhancing (or harmful) subsidies which include those for boat construction and fuel and which often lead to disinvestment in the resource by motivating overcapacity and overfishing, and (iii) ambiguous subsidies which include those vessel buy-back programmes and rural fisher-community development which has the potential to promote or undermine the sustainability of fish stocks depending on circumstances.

There are least three interconnected reasons for the control of subsidies:

1. Total fisheries subsidies are estimated to constitute between 30% to 40% of the landed values generated in wild fisheries worldwide. Of these, capacity-enhancing subsidies make up the highest share. Fuel subsidies (22%) make up the greatest proportion followed by subsidies for management (20%) and ports and harbours (10%). 65% of total subsidies are contributed by developed countries which far outweigh those contributed by developing countries and which account for almost 80% of the global fish catch.

2. Subsidies have socioeconomic, distributional and trade impacts due to their ability to distort the market for fish and disadvantaging fishers who receive relatively fewer subsidies. Most of the subsidies are given to large-scale industrial fishers of developed countries. This distorts the market and is a significant development barrier to resource-poor small-scale developing country fishers.

3. It has been theoretically established that some fisheries subsidies (capacity-enhancing) have a harmful impact on the sustainability of fisheries since they stimulate overcapacity and overfishing.

The direct impact of subsidies on fish stock also depends on the health of the stock and the strength of management in place (which is rarely completely effective). There exists considerable evidence to suggest that subsidies undermine efforts to manage stocks sustainably. This suggests that even when fisheries are well managed, subsidies can be harmful. It is therefore crucial to eliminate all forms of capacity-enhancing subsidies even given quite effectively managed fisheries.

6. Fisheries subsidies, development and the global trade regime

Fish and fish products are classified by the WTO as industrial goods, and subsidies to this sector fall

under the WTO 1994 Agreement on Subsidies and Countervailing Measures (ASCM). However, subsidies to this sector have not been challenged under the existing ASCM for four main reasons. Firstly, it has been difficult to identify and prove a 'trade distortion' for fish products because the same species can fetch widely different prices due to complex quality and market differentials. Secondly, the WTO's analytical emphasis on exchange/trade makes the ASCM structurally incapable of capturing fisheries subsidies which distort production rather than trade. Thirdly, countries are hesitant to take fisheries subsidies cases to the WTO dispute settlement for fear of their own subsidies being investigated. Lastly, the notifications of fisheries subsidies under the ASCM is infamously scarce.

The WTO ministerial mandate establishing fisheries subsidies disciplines was included in the 2001 Doha Development Agenda (DDA). Here, WTO members agreed to clarify and improve disciplines on fisheries subsidies bearing in mind the importance of the sector to developing countries. This agreement was reaffirmed at the 2005 Ministerial Conference in Hong Kong. After this conference, a number of WTO members tabled proposals for new fishing subsidies rules. These negotiations focused on: (i) the scope of prohibition, (ii) SDT for developing countries, and (iii) the use of fisheries management conditionalities (sustainability criteria) to ensure that nonprohibited subsidies do not deplete global fish stocks further.

WTO members generally agree that fisheries subsidies contribute to global fish stock depletion and are in agreement with strengthening disciplines by the WTO. However, an agreement on fisheries subsidies disciplines has still not been reached.

In terms of the UN SDGs, they seek a 'triple win' by integrating environmental, economic and social dimensions of development. SDG 14 seeks to address fisheries subsidies through incorporation with conservation and the sustainable use of oceanic ecosystems. UN members in SDG 14.6 agreed to the following:

> By 2020, prohibit certain forms of fisheries subsidies which contribute to overcapacity and overfishing, eliminate subsidies that contribute to IUU fishing and refrain from introducing new such subsidies, recognising that appropriate and effective special and differential treatment for developing and least-developed countries should be an integral part of the World Trade Organisation fisheries subsidies negotiation.

In 2015 the ambitious discipline of fisheries subsidies was starkly narrowed as evidenced in WTO negotiations and the modest agreements on fisheries subsidies included in the SDG. However, the

agreed text at the UN and in the TPP allows for fisheries subsidies to remain on the international agenda.

Fisheries subsidies remain a concern for many economically smaller and fiscally constrained coastal developing countries. They are calling for a limit on subsidies by developed and developing countries, especially for fleets harvesting overfished stocks. They argue that this would improve the chances of their domestic producers for potential long-term sustainability and food-security benefits. However, it remains difficult to predict the real-world implications of any agreement, specifically due to a scarcity of subsidy programme data, the struggle to define overfished stocks, and the challenges and costs involved with dispute settlement.

7. Fisheries and aquaculture trade data for Africa

In 2012 almost 200 countries reported exports of fish and/or fishery products. In 2013 the total volume of fishery exports reached approximately 57.9 million metric tonnes which represented 36.7% of total fishery production. The value of the world seafood trade increased from US$28.3 billion to US$86.4 billion between 1976 and 2006. Over the same period, trade volume grew from 7.9 million tonnes to 31.3 million tonnes. Also over the same period, the unit value of seafood decreased, thus leading to the increasing competitiveness of seafood as a source of food.

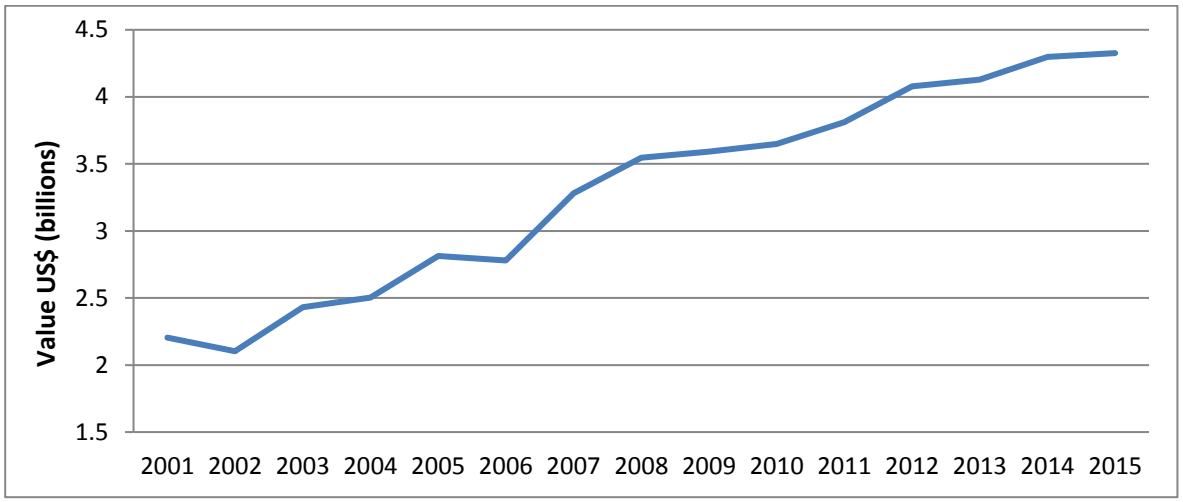
Fish trade remains especially important for developing nations and in some cases accounts for more than half of the total value of traded fish and/or fishery products. Developing countries account for approximately 56% of total fishery exports by value and more than 60% by quantity. The dependence on fisheries may be defined in terms of production (either landings or catch values), contributions to employment (fishers as well as employment in processing), export income as a percentage of total export revenues, and nutritional dependence as measured by the share of fish protein in people's diet and total food consumption.

Africa and southern Asia remain the most vulnerable in terms of employment. Many African countries also have a very high dependence on fish proteins. Thirteen LDCs are among the most dependent on fish protein, particularly in Ghana, The Gambia and Sierra Leone, where fish protein accounts for between 59% to 67% of the animal protein intake. Fish accounts for approximately 27% of the dietary protein in LDCs which together account for almost 20% of world fish exports.

According to ITC Trade Map data, fish and crustaceans, molluscs and other aquatic invertebrates

(HS03) exports in Africa have been growing steadily in value over time (see Figure 1). In 2001, exports from Africa amounted to US$2.204 billion. This grew to US$4.326 billion in 2015 representing an annual compound growth rate of approximately 5%.

Figure 1: Value of Fish and crustaceans, molluscs and other aquatic invertebrates (HS03) exports from Africa between 2001 and 2015



At the same time, the share of HS03 exports from Africa as a percentage of the world total has been steadily decreasing since 2001. In 2001 Africa accounted for approximately 5.25% of world fish export value but this declined to 4.29% in 2015. As noted earlier, the unit cost of seafood has been steadily decreasing over time and this decline may be as a result of that or of shifting patterns of demand from the rest of the world. Africa could also potentially be consuming more of its own fish produce to meet the demands of an increasing population.

Figure 2: African percentage share of world total export value (HS03)

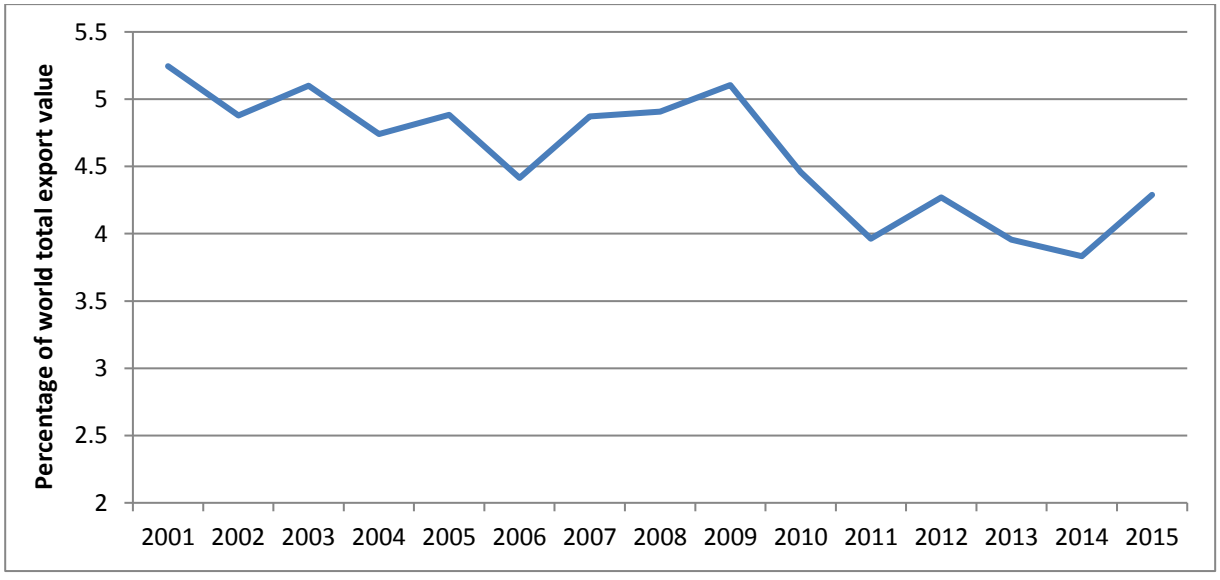


Figure 3 shows that most exporting markets' share of HS03 has remained relatively steady over time. This may also point to the fact that many waters have already reached or are very close to their harvesting capacity. Only Asia has seen a marked increase in export market value share from 30.4% in 2007 to 35.8% in 2015. Asia is now on par with Europe in terms of share of world export value.

Figure 3: Percentage world total export value share for a selection of exporting markets (HS03)

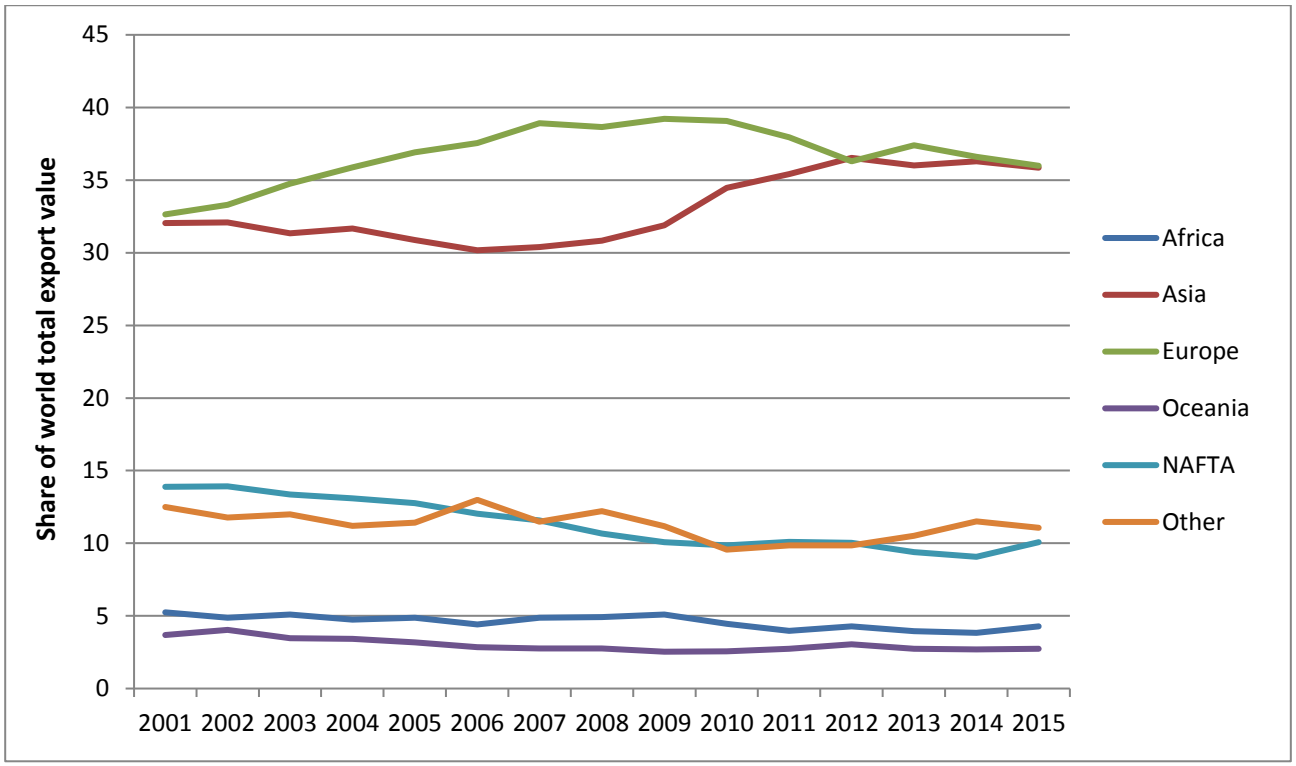


Figure 4 also shows the relative share of exporting countries in the world market for the HS03 group. China is by far the largest exporter while many coastal African states hold a relatively small share of the export market.

Also, according to ITC Trade Map, fish and crustaceans, molluscs and other aquatic invertebrates (HS03) are the 14th largest export group by value from Africa. The export value of the HS03 group in 2015 amounted to US$4.326 billion which is approximately 1.13% in value of total exports from Africa (which is dominated by mineral fuels and oil exports (HS27)) (see Figure 5).

Figure 4: Export market share for countries of HS03 group

Figure 5: Total value composition of African exports in 2015 (Top 14 HS groups)

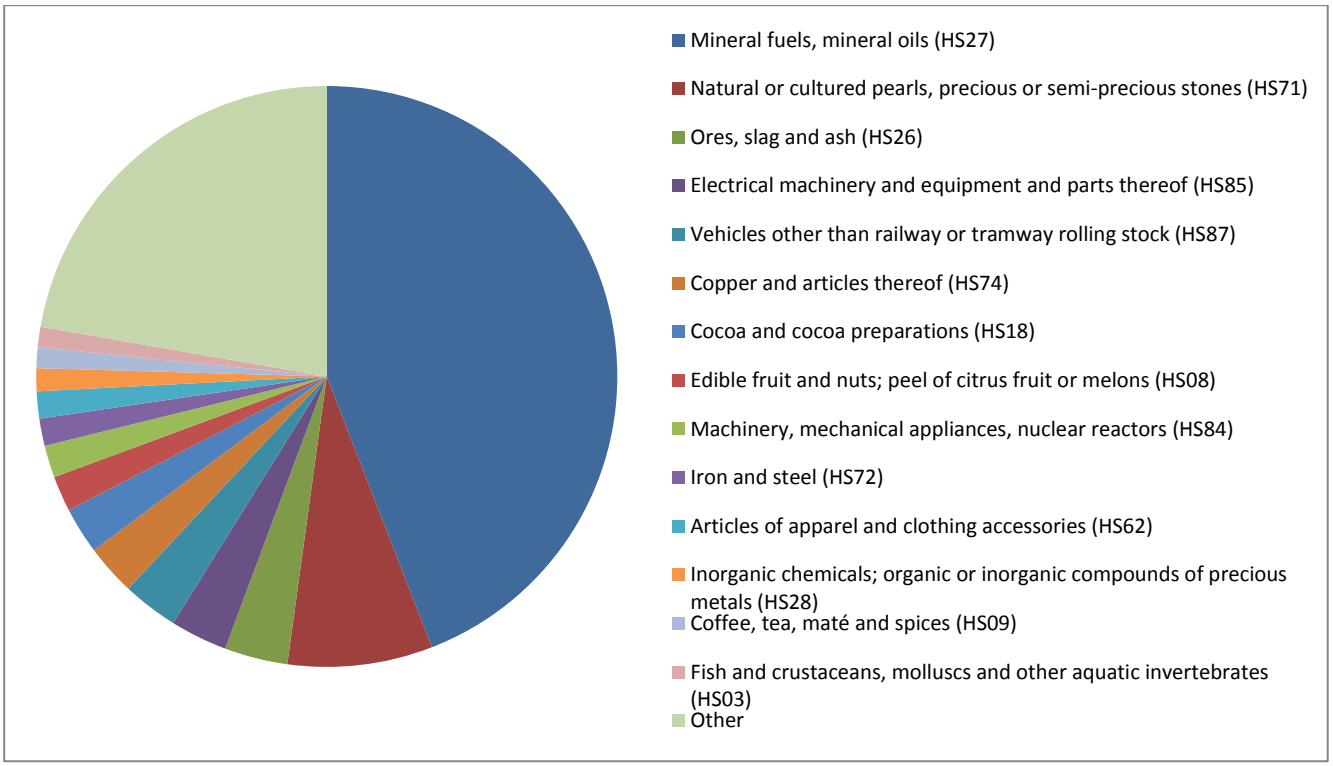
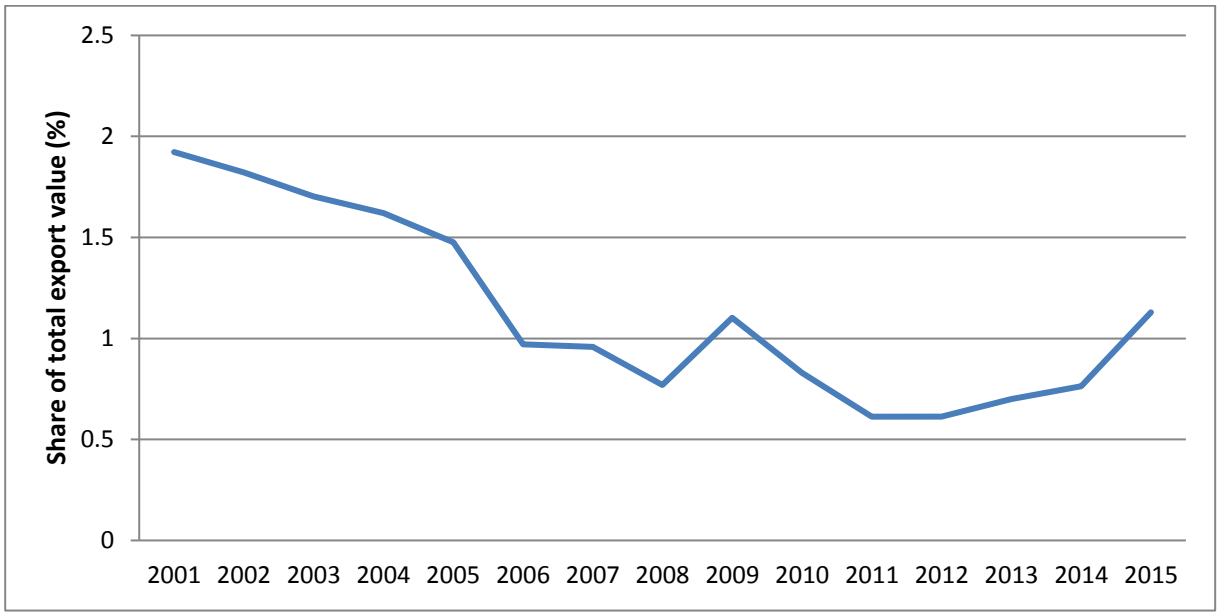


Figure 6 shows that there has been a steady decline in the total value share of HS03 in African export value over the 2001-2015 period, with a brief upsurge in 2009 and a positively increasing trend since 2013. HS03 still remains a largely insignificant element in African exports.

Figure 6: Fish and crustaceans, molluscs and other aquatic invertebrates (HS03) as a share of total African export value



Breaking down HS03 into the HS4 level clarifies several interesting trends. Figure 7 shows that there was a marked increase in the export value of frozen fish (HS0303) and molluscs (HS0307) from Africa over the period 2001-2015. The value of the HS0303 group increased by almost 149% from US$531.57 million in 2001 to US$1,321.19 million in 2015. This equates to a compound annual growth rate of approximately 7%. Molluscs (HS0307) also increased significantly by 135% over the same period. This is an approximate compound annual growth rate of 6.2%. Crustaceans (HS0306) and fish, fresh or chilled (HS0302) has not shown such significant changes in growth or value. The other product groups show more or less constant values with minimal growth, particularly since 2009.

Figure 8 shows the total HS03 export values of the top 10 African states. Morocco is the largest export having exported to the value of approximately US$1,061 million in 2015. It is followed by Mauritania (US$697 million) and Namibia (US$586 million). South Africa is in fourth place having exported US$396 million.

Figure 7: Export value of constituent HS03 products from Africa over the period 2001 to 2015

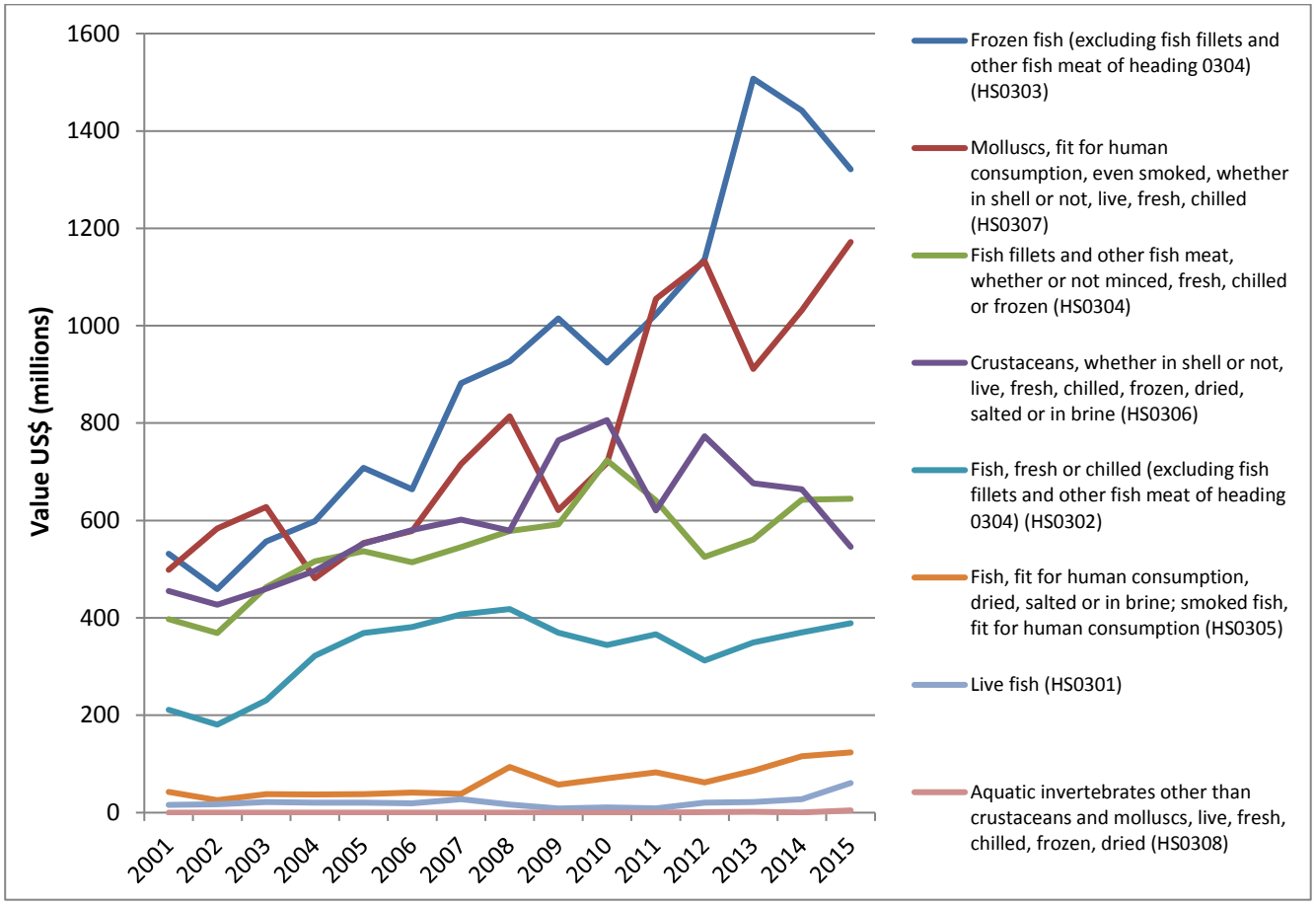


Figure 8: Total export value of HS03 group from top 10 African states, US$ (millions)

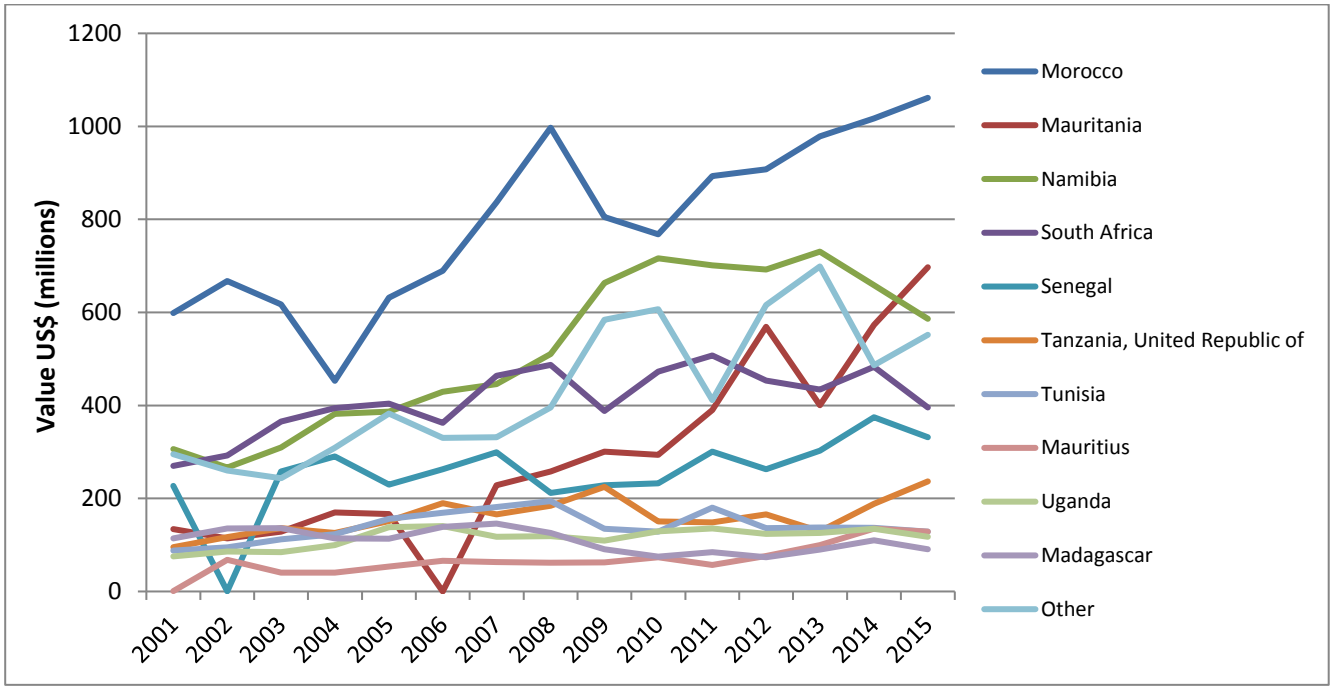


Figure 9 shows the relative HS03 export share for the top ten African countries. Morocco declined from a high of 31.7% in 2002 to 24.5% in 2015. Mauritania saw good growth from 6.1% in 2001 to 16.11% in 2015. The export share of the other countries has remained relatively stable over the last couple of years.

Figure 9: Share of export value for African top ten HS03 export countries

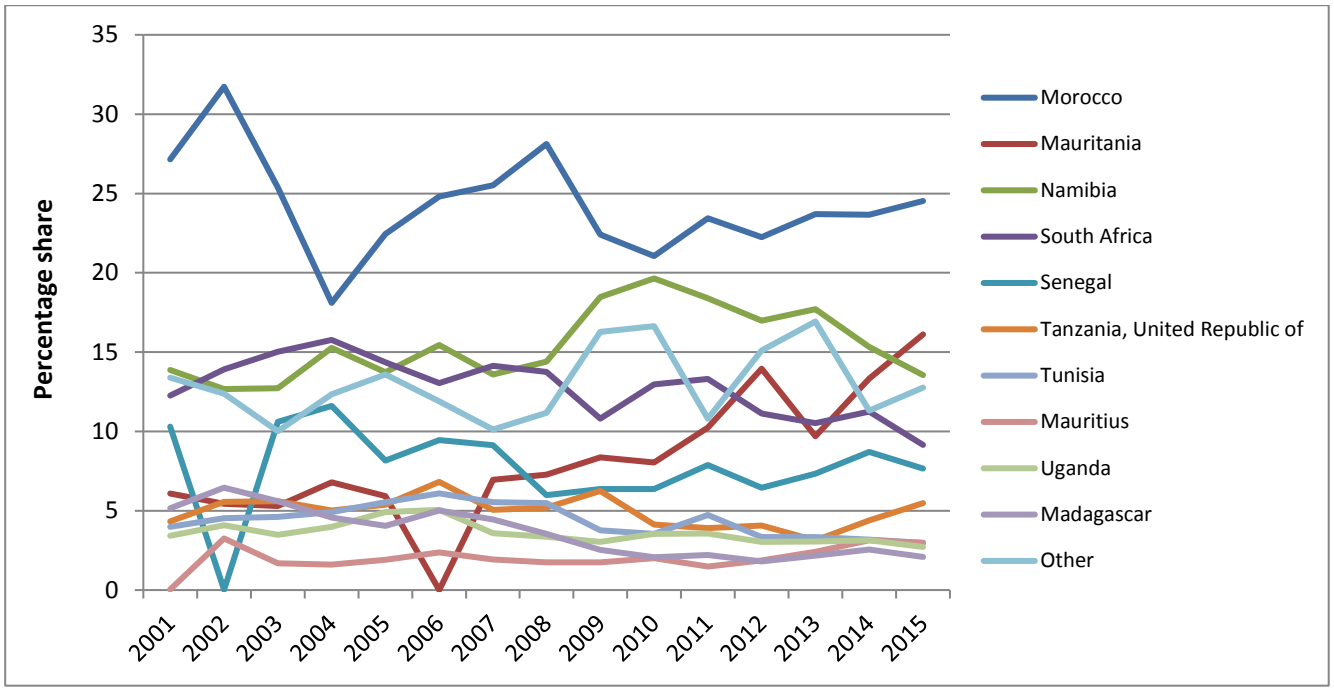


Figure 10 shows that the largest export market for HS03 from Africa is the European Union (EU-28). There was strong growth into this region, particularly over the last ten years of the studied period, from a low of US$1,383 million in 2002 to US$2,239 million in 2015. Spain is by far the largest European destination market.

Figure 11 shows the relative market share of African HS03 exports by destination. The EU-28 accounted for over 51% of market share in 2015 of which Spain contributed 26.6% to the total share in 2015. Ivory Coast and Cameroon also feature on this list and might just point to the fact that exports pass through these regions as re-exports to regions abroad. Most of the largest markets for HS03 are in Europe with Hong Kong and China completing the list.

Figure 10: Top ten export destinations (including EU28) for African exports of HS03 by value, US$ (millions)

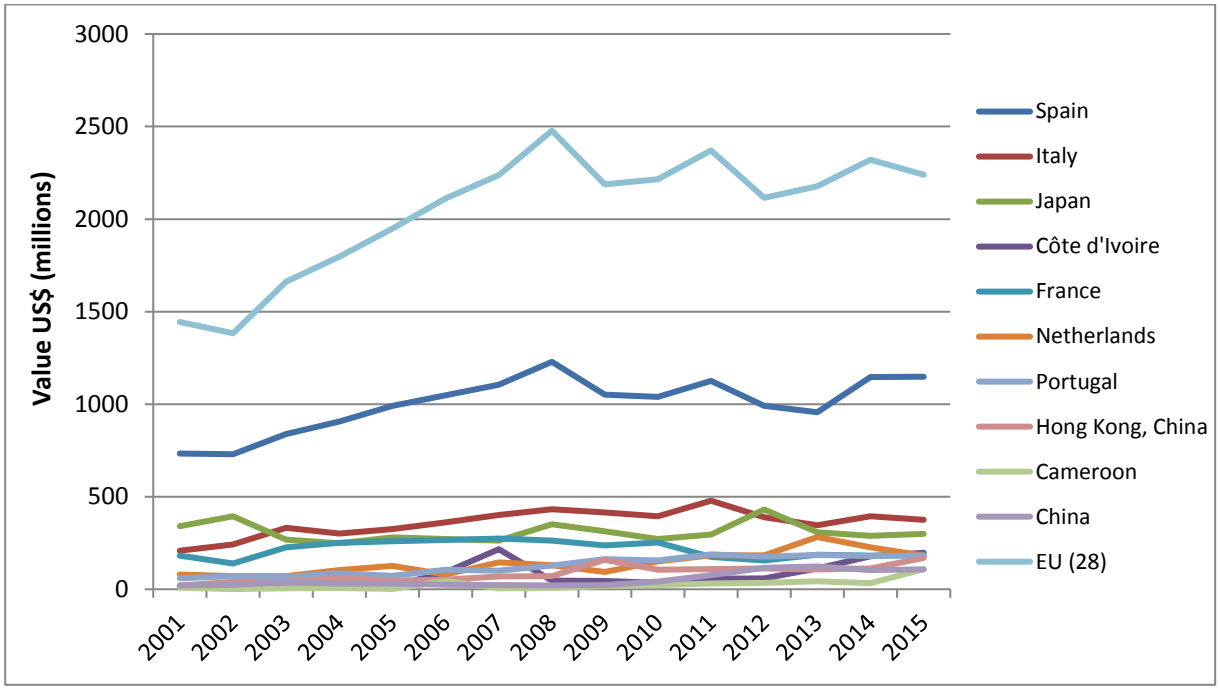
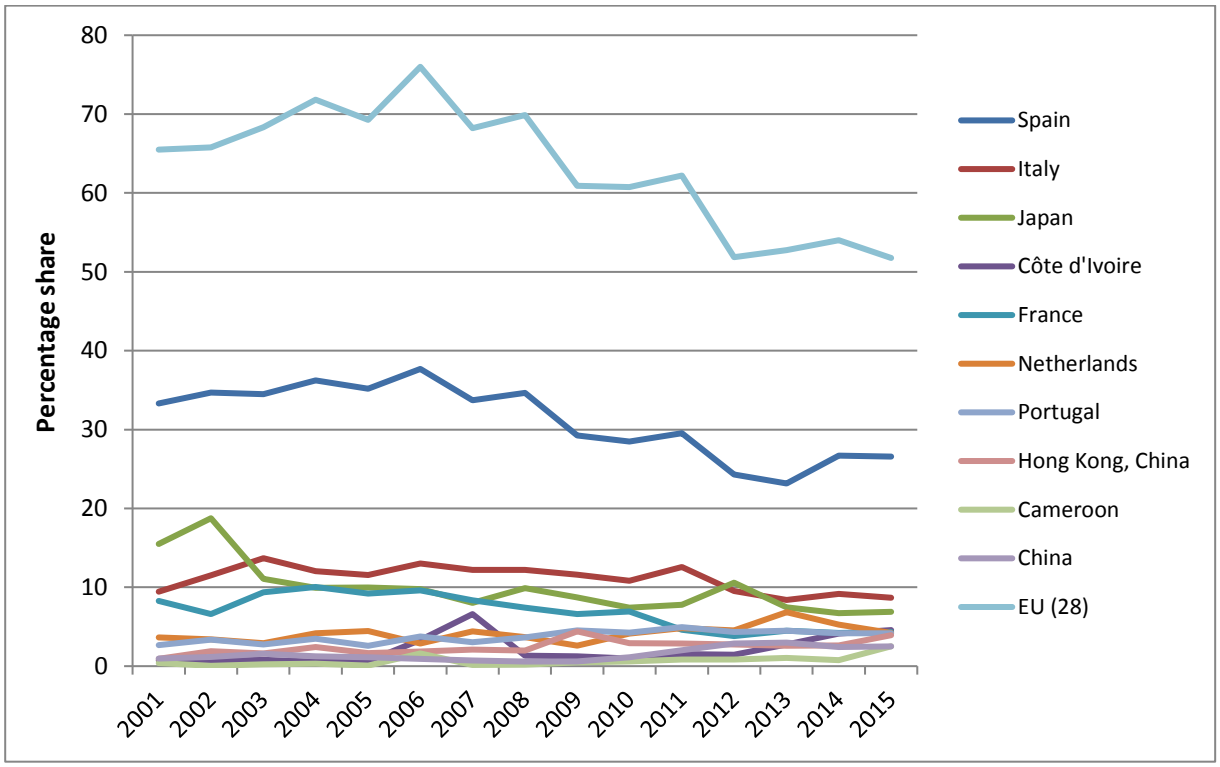


Figure 11: Market share of African exports by export destination for HS03



8. Conclusion

TER sets out a comprehensive review of developments within the fisheries and aquaculture sector, particularly over the last few years. Many policy suggestions are given along with suggested frameworks and guidelines to work with in the future. There is a strong emphasis on the sustainable management of the fisheries sector as well as frank discussions on the dangers of certain types of fisheries subsidies.

The world's population is expanding and the fisheries sector can play a pivotal role in food security and the sustainable use of scarce resources. However, at current levels of harvesting there is very little room to expand the industry and without careful management stocks can be depleted beyond replenishment levels. There therefore needs to be a strong balance between sustainable and commercial extraction.

Africa is still a minor player in the fisheries sector but with a rapidly expanding population it can start playing an increasingly more important role in the sector as it adapts to climate change, issues of food security, and a developing economy. This calls for greater multilateral cooperation as countries seek to sustainably develop, especially within the context of the new Sustainable Development Goals where fisheries play a fundamental role.

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