

# PART 1

## INTERNATIONAL AND REGIONAL FRAMEWORKS FOR SUSTAINABLE FISHERIES

### 1.1

#### ALIGNING NEGOTIATING STRATEGIES AND PROMOTING SUSTAINABLE FISHERIES MANAGEMENT

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#### ABSTRACT

In September 2015, the international community agreed on the 2030 Agenda for Sustainable Development including the adoption of 17 Sustainable Development Goals. These goals, established for the next 15 years, are rightly ambitious with full support of the Commonwealth. However, this should not obscure the scale of the challenges ahead. Urgent actions are required to advance this development agenda. Sustainable Development Goal 14 urges the international community to “conserve and sustainably use the oceans, seas, and marine resources”. This points to a pressing need for the international community to address the issue of the conservation and the rebuilding of global fish stocks that have been so quickly depleted as a result of the industrialisation of the fisheries sector to date. This article reflects on the capacity of bilateral, regional and multilateral trade policy to manage sustainable fisheries effectively. Upon reflection what becomes apparent is the requirement for better synergies and coherence amongst these levels of trade policy making in order to promote global sustainable fisheries management more effectively.

#### Introduction

According to the Commonwealth Secretariat, 25 out of 53 Commonwealth member states are SIDS. Many other countries within the membership have large maritime zones. Consequently, the oceans and resources therein are fundamental to the well-being of the Commonwealth. This is particularly so for the SIDS which may possibly not have other significant natural resources.

The data clearly demonstrates the high importance of the Oceans to this group of vulnerable countries. For example:

- The Bahamas has an Exclusive Economic Zone (EEZ) of an estimated 629,292 square kilometres (km<sup>2</sup>) compared to a land area of 13,942 km<sup>2</sup>.

- Kiribati comprises 33 islands with a total land area of just 810 km<sup>2</sup> but with about 3.5 million km<sup>2</sup> of marine waters.
- Mauritius has a land mass of 2,040 km<sup>2</sup> and an EEZ of 1.3 million km<sup>2</sup>.

These facts render the ocean economy, including sustainable fisheries management, of fundamental and critical importance to these countries

The global ocean market is estimated to be valued at approximately US\$1,345 billion per annum, contributing approximately 2 percent to the world's Gross Domestic Product. Approximately 350 million jobs globally are linked to the oceans through fishing, aquaculture, coastal and marine tourism and research activities. Furthermore over a billion people depend

on fish as their primary source of protein. Conversely, experts have issued a stark warning; if we continue on the current trajectory, only one third of the amount of fish available from capture fisheries in 1970 will still be available by 2050. This trend underlines the critical need to conserve and rebuild the global fish stocks that have been mainly affected by the industrialisation of the fisheries sector over the past decades.

Last year was central to these efforts. In July, at the financing for development conference in Addis Ababa, I noted how a collective effort is crucial towards the establishment of a more equitable, more inclusive and sustainable future for all of humanity. This collective effort is equally pertinent as we look for feasible approaches and frameworks to ensure that multilateral and regional trade policy negotiations can (and should) contribute to more sustainable fisheries.

### **Agenda 2030 and interface with the Global Trading System**

There are hopes for Agenda 2030 to reinvigorate and help to establish momentum at the multilateral level. However, we believe attention must now shift to the implementation agenda and to policy sequencing. This includes translating the goals into practical action by the WTO members within the existing framework of multilaterally agreed trade rules. In this regard, the outcomes from the 10<sup>th</sup> WTO Ministerial Conference (MC10) reflected in the “Nairobi package” were sub-optimal.

The fact remains that despite more than 14 years of negotiations, consensus on all facets of the Doha Development Agenda has not been reached and thus the tenets of the Doha agreement remain inaccessible for WTO members. Notwithstanding the fact that the outcomes from MC10 include a commitment to abolish export subsidies for farm exports, some members have called for a more result. In particular, for reinvigorated action by WTO members on ambitious and effective disciplines on fisheries subsidies. This is reflected in an initiative led by a subset of WTO members which gained some momentum at MC10 which calls for international action to eliminate harmful fishing subsidies (McClay, 2015). Many of these were commonwealth members; New Zealand, Australia, Brunei Darussalam, Canada, Fiji, Pakistan, Papua New Guinea, Solomon Islands, Vanuatu, Antigua and Barbuda, Dominica, Grenada, St Kitts and Nevis, St Lucia, and St Vincent and the Grenadines.

The current landscape is one in which outcomes have fallen short of that which was originally envisaged in the Doha Development Agenda and round of negotiations- the first since the WTO inherited the multilateral trading system in 1995. As Agenda 2030 places such great emphasis on effectively concluding the Doha round, failure to move forward on this front may also impede the achievement of Agenda 2030.

In reality some 260 regional trade agreements have been notified to the WTO. The main difference between regional and multilateral or bilateral trade negotiations often boils down to the level of ambition in terms of rule-setting. The speed at which bilateral and regional trade negotiations have been concluded relative to the respective rounds of negotiations under the multilateral trading system and the WTO is testimony to this. Nevertheless, as recently noted by the WTO Director-General Roberto Azevêdo, the wider the gap between regional and multilateral disciplines, the more challenging the trade environment becomes.

### **Aligning negotiation strategies**

Goal 14 of Agenda 2030 builds upon many of the provisions for oceans and fisheries conservation within the context of the Rio+20 outcome document. This includes the Samoa Pathway and the Istanbul Programme of Action (IPOA) – an initiative led by the LDCs which expires in the year 2020. The emphasis on creating a coherent strategy for developing countries, includes a recognition of the need for special and differential treatment and technical cooperation (Goal 14.7) for SIDS and LDCs. Hence, it is important that global actions: are consistent with these objectives, serve to promote global policy coherence and also ensure sustainable fisheries management becomes a reality.

The achievement of targets such as the end of overfishing and destructive fishing practices and in addition the implementation of science-based management plans to restore fish stocks by 2020 (Goal 14.4) will be challenging to achieve. We need to draw on the lessons learned from the experiences of the Millennium Development Goals and these include, for example, that:

- Many SIDS and LDCs cannot produce output with a consistent enough quality, to meet demand and hence, need to integrate into high-value fisheries supply chains (domestic, regional or global).
- Technical as well as financial barriers to sanitary

and phytosanitary (SPS) requirements and similarly adherence to standards, which may be legitimate non-tariff measures (NTMs) can inhibit market access.

- Rules of origin (RoO) are often too complicated and burdensome to allow many SIDS and LDCs to utilise the trade preference available within existing trade agreements effectively.

We think there is a need for more targeted aid for trade (Aft) disbursements to address productive capacity shortfalls amongst SIDS and LDCs. The amount of resources disbursed compared to demand, have so far been underwhelming (Razzaque and Te Velde, 2013). The fulfilment of NTMs in the fisheries sector have not been sufficiently considered in the Aft initiative to date. Furthermore although NTMs are in principle legal and legitimate in their objectives, they may impede market entry where technical as well as financial barriers exist.

The first joint UNCTAD-Commonwealth meeting on “Sustainable Fisheries Management”, (UNCTAD, 2015) yielded solid outcomes that we believe serve as recommendations which will advance the SDG 14 implementation agenda. This includes; the need for further mapping, convergence and harmonisation of NTMs, with a view to promoting the mutual recognition of documentation and certification. For instance, in practice although compliance standards may be adhered to by artisanal producers in SIDS and/or LDCs, the need for documentation and proof – can be a major challenge without commensurate support.

It should not be assumed that lack of capacity to report and present the appropriate documentation implies an illegal origin. There has been wide spread recognition of the need to address illegal fishing practices, however more needs to be done to support countries’ capacity to address unregulated and unreported fishing; including through capacity-building. In addition national schemes, seeking to tackle IUU fishing should be based on international law, without being arbitrary,

discriminatory or obstructive to trade.

RoO should be made more flexible for developing country parties in order to facilitate value addition and stimulate the emergence of new production networks. For example, the same RoO given under Free Trade Agreements could be extended to Least Developed Countries, included as part of the agreement reached under the LDC package.

### **Aligning governance structures**

There is a need for effective governance structures to underpin Agenda 2030. Monitoring progress on the implementation of SDG 14 should be a priority. Embedding a review process and mechanism within the WTO’s existing trade policy review procedure could be one solution.

In view of the multiplicity of legal instruments that govern the fisheries sector, further coherence among existing legal institutions and instruments should be promoted. There is a wide array of international law, soft laws, rules and frameworks dealing with the conservation, harvesting, and trading of fish in the high seas and countries EEZs. At our meeting in September 2015, experts indicated the need to promote the participation and ratification of these instruments by the international community.

We will continue to work with UNCTAD to design effective implementation strategies of SDG 14 in order to achieve a more sustainable trade landscape for our membership and LDCs. In our view multilateral and regional trade policy negotiations can and should contribute to more sustainable fisheries. To bolster their contribution, aligning negotiation strategies, with a view to promoting much needed global policy coherence should enable the achievement of the oceans and marine specific Agenda 2030 objectives. The international community has been urged to take actions to “conserve and sustainably use the oceans, seas and marine resources for sustainable development,” and we shall respond.

## 1.2

## PROMOTING SUSTAINABLE FISHERIES THROUGH THE EFFECTIVE IMPLEMENTATION OF THE UNITED NATIONS CONVENTION ON THE LAW OF THE SEA (1982) AND THE UNITED NATIONS FISH STOCKS AGREEMENT (1995)

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### ABSTRACT

Fisheries have the potential to be a major contributor to sustainable development, as evidenced by their inclusion in the 2030 Agenda for Sustainable Development. However, the continuation of benefits from fisheries depends on their sustainability, which is being challenged by factors such as overfishing, IUU fishing, destructive fishing practices and ecosystem degradation. The 1982 United Nations Convention on the Law of the Sea (“the Convention” / UNCLOS) sets out the overarching international legal framework for all activities on the oceans and seas, including the conservation and sustainable use of living marine resources. It is complemented by the 1995 Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks (“the Agreement”). The latter sets out a comprehensive legal framework for the implementation of the provisions of the Convention relating to the long-term conservation and sustainable use of straddling fish stocks and highly migratory fish stocks. Together, these two instruments form the base of a solid legal framework for the development of sustainable fisheries at all levels, including a multitude of complementary international instruments at the global and regional levels. However, various challenges in the implementation of these instruments have hampered their overall effectiveness. The United Nations General Assembly has played an important role in promoting sustainable fisheries through the implementation of the Convention and the Agreement, as well as by developing policy and providing guidance at the global level. It is important that trade initiatives relating to fish and fish products aim to support the implementation of this legal and policy framework, and maintain consistency with the rights and obligations of States established therein.

### Introduction

Given the contribution of oceans to sustainable development and the importance of sustainable fisheries to poverty reduction, livelihoods and food security, as well as ecosystems health and resilience, the conservation and sustainable use of marine living resources is firmly incorporated in the international community’s 2030 Agenda for Sustainable Development. While fish consumption impacts food security and nutrition, trade in fish and fish products contributes to local, regional and global economies. Fish continues to be one of the most traded commodities in the world, as well as a source of direct employment for tens of millions of people worldwide.

Nonetheless, the potential benefits of the world’s capture fisheries are under threat due to a number of stressors to the sustainability of stocks, overfishing, destructive fishing practices, ecosystem degradation

and IUU fishing. In 2011, almost 30 per cent of the world’s fish stocks were fished at biologically unsustainable levels (FAO, 2014). In addition, environmental stressors, such as climate change, ocean acidification, pollution and coastal development, can negatively impact fish stocks by deteriorating the ecosystems they inhabit and depend upon.

Effective implementation of the international legal framework for oceans, as reflected in the Convention and the Agreement for the conservation and management of straddling fish stocks and highly migratory fish stocks, is key to achieving sustainable fisheries. The General Assembly, through its annual resolutions on oceans and the law of the sea and on sustainable fisheries, plays an important role in promoting this international legal regime, as well as further developing global policy on oceans.

## The regime for sustainable fisheries in the Convention

The Convention, often referred to as the “Constitution for the Oceans”, provides a comprehensive legal framework for all activities in the oceans and seas, including fisheries. It sets out the extent of various maritime zones and the rights and obligations of States in these zones. With regard to fisheries, it provides for, inter alia, the sovereign rights of coastal States for the purpose of conserving and managing marine living resources in their EEZs (e.g. articles 56, 61 and 62) and the freedom of fishing on the high seas (e.g. articles 87 and 116).

These rights are accompanied by the responsibility to ensure the long-term sustainability of those resources. Pursuant to the rights and obligations set out in Part V of the Convention, the coastal State must determine the allowable catch of the living resources in its EEZ, and its capacity to harvest those resources (articles 61 and 62).

When a coastal State lacks the capacity to harvest the entire allowable catch in its EEZ, it is required to give other States access to the surplus through agreements or other arrangements, having particular regard to the rights of land-locked States (article 69) and of geographically disadvantaged States (article 70), especially in relation to developing States (article 62). In giving access to other States to its EEZ, the coastal State must take into account all relevant factors, including the significance of the living resources of the area to its economy and other national interests (article 62(3)).

Nationals of other States who fish in the EEZ are required to comply with the conservation measures established in the laws and regulations of the coastal State, which must be consistent with the Convention (article 62(4)). They may relate, inter alia, to regulating seasons and areas of fishing; the types, sizes and amount of gear; and the types, sizes and number of fishing vessels that may be used. In exercising its sovereign rights to explore, exploit, conserve and manage the living resources in the EEZ, the coastal State may take such measures – including boarding, inspection, arrest and judicial proceedings – as may be necessary to ensure compliance with its laws and regulations (article 73).

The Convention also requires States to take or cooperate with other States in taking measures as needed in regards of their respective nationals for the

conservation of the living resources of the high seas (article 117) and cooperate with each other in the conservation and management of living resources in the areas of the high seas (article 118).

In addition, the Convention contains a number of provisions directly relevant to straddling fish stocks and highly migratory fish species. These provisions require the coastal State and the States fishing in the adjacent area in the high seas to seek to agree upon measures necessary for the conservation of straddling fish stocks, directly or through appropriate sub-regional or regional organizations (article 63(2)). Similarly, the Convention requires the coastal State and other States whose nationals fish in the region to cooperate directly or through appropriate international organizations with a view to ensuring conservation and promoting the objective of optimum utilization of highly migratory species throughout the region (article 64). In this regard, it requires the States involved to cooperate in establishing appropriate international organizations in regions where they do not exist, and participate in their work.

## The significance and main elements of the Agreement

Highly migratory fish stocks (such as tuna, swordfish and oceanic sharks) and straddling fish stocks (such as cod, halibut, pollock, jack mackerel and squid) are amongst the most commercially important marine capture fish stocks in the world (FAO, 2014). These stocks require international cooperation to manage them due to their cross-boundary nature. Effective implementation of applicable international law is critical to ensuring the long-term sustainability of such stocks and, consequently, the continuation of benefits accrued through international trade in such stocks.

The Agreement sets out a comprehensive legal framework for the implementation of those provisions of the Convention that relate to the long-term conservation and sustainable use of straddling and highly migratory fish stocks. In particular, it gives effect to, and elaborates on, the duty to cooperate set out in the Convention, as enshrined in articles 63(2), 64 and 116 to 119.

It does this, inter alia, through the establishment of general principles for management, with specific provisions on the application of the precautionary and ecosystem approaches (articles 5 and 6 as well as Annex II); minimum standards for data collection

and sharing (articles 5 and 14 as well as Annex I); mechanisms for compliance and enforcement of measures (articles 19-23); compatibility of conservation and management measures established for the high seas and those adopted for areas within national jurisdiction (article 7); and dispute settlement procedures (articles 27-32). The provisions on compliance and enforcement include an article that details measures that port States may take for the promotion of the effectiveness of conservation and management measures (article 23). The innovative provisions of the Agreement serve to support and strengthen the regime set out in the Convention by providing a detailed framework for its implementation, allowing for the incorporation of robust and modern tools and management approaches in its implementation.

Regional fisheries management organizations and arrangements (RFMO/As) constitute the primary mechanism for cooperation between coastal States and high seas fishing States under the Agreement. They have substantial responsibilities in the conservation and management of straddling and highly migratory fish stocks, as well as non-target and associated/dependent species. Thus, their effectiveness is at the heart of the legal framework established by the Agreement.

Importantly, the Agreement recognizes the special requirements of developing States, including in the development of their own fisheries and in their participation in high seas fisheries for straddling and highly migratory fish stocks (articles 24-26).

### **Impact of the Agreement on the further development of international fisheries law and policy**

In the 20 years since its opening for signature, the Agreement has had a considerable impact on the practice of States and RFMO/As, and has provided the impetus for the further development of international law and policy.

Five new RFMO/As were established over this period,<sup>1</sup> and some existing RFMO/As have improved their performance through the revision of their constitutive instruments in line with the Agreement and the adoption of robust conservation and management measures.<sup>2</sup> Many of them have also completed performance reviews. Several of the Agreement's provisions are also reflected in General Assembly

resolutions on sustainable fisheries, which have provided a benchmark for the development of new instruments by the FAO, such as the 2009 Agreement on Port State Measures to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing and the Voluntary Guidelines for Flag State Performance.

In addition, the relevance of the general principles of the Agreement to high seas fish stocks other than straddling and highly migratory fish stocks has been addressed by the Review Conference and the General Assembly, where the importance of such principles to the management of discrete high seas fish stocks has been recognized.<sup>3</sup>

The Review Conference, convened pursuant to article 36 of the Agreement, has also contributed to sustainable fisheries through the adoption of recommendations for the improved implementation of the Agreement in 2006 and 2010. These recommendations have stimulated concrete actions to improve the sustainability of high seas fisheries. The resumed Review Conference, to be held in 2016, may provide another excellent opportunity for States parties and States non-parties to cooperate in improving the governance of high seas fisheries, by reviewing and assessing the adequacy of the provisions of the Agreement, and, if necessary, proposing means of strengthening the substance and methods of implementation of those provisions.

### **The role of the General Assembly in promoting sustainable fisheries**

The General Assembly is the global institution that has the competence to carry out annual reviews of developments relating to sustainable fisheries and ocean affairs, and the law of the sea more generally. It has played a central role in norm- and policy-setting in the field of oceans and the law of the sea, including sustainable fisheries. In 1991, for example, it established a global moratorium on the use of large-scale pelagic drift-net fishing on the high seas. Resolution 49/116 of 19 December 1994 specifically addressed “unauthorized fishing in zones of national jurisdiction and its impact on the living marine resources of the world's oceans and seas”. More recently, the General Assembly has undertaken a process to consider measures to address the adverse impacts of bottom fishing on vulnerable marine ecosystems and the long-term sustainability of deep sea fish stocks. The measures adopted by the General Assembly have served as the basis for important actions to address

this issue. For example, in 2008, the FAO adopted International Guidelines for the Management of Deep-Sea Fisheries in the High Seas. At its seventieth session in 2016, the General Assembly will conduct a further review of the actions taken by States and RFMO/As in order to ensure the implementation of the relevant provisions of its resolutions 64/72 and 66/68. Such review will be preceded by a two-day workshop open to all relevant stakeholders.

The General Assembly has also taken numerous steps to strengthen the implementation of the Convention and the Agreement, including resolution 69/109 of 9 December 2014, which addressed the rights and duties of flag States and coastal States with respect to the conservation and management of marine living resources, including measures to address IUU fishing.

With regard to access agreements, the General Assembly requested that distant-water fishing nations, when negotiating with developing coastal States, to do so on an equitable and sustainable basis. They should take into account the legitimate expectations of developing coastal States to fully benefit from the sustainable use of the natural resources in their EEZs, as well as ensure that vessels flying their flag comply with the laws and regulations of the developing coastal States adopted in accordance with international law.

A number of General Assembly processes have also addressed sustainable fisheries, including the United Nations Open-ended Informal Consultative Process on Oceans and the Law of the Sea, which focused on IUU fishing in 2001, fisheries and their contribution to sustainable development in 2005, and the role of seafood in global food security in 2014. Another General Assembly process has recently led to the completion of the First Global Integrated Marine Assessment (United Nations Oceans and Laws of the Sea, 2016) also referred to as the first "World Ocean Assessment" as part of the Regular Process for Global Reporting and Assessment of the State of the Marine Environment, including Socioeconomic Aspects. This assessment examines, inter alia, the status of the world's fisheries, as well as their socioeconomic aspects, which can serve as a tool for informed decision-making at all levels.

The General Assembly has also adopted resolutions endorsing the outcomes of the major conferences on sustainable development, which have

addressed sustainable fisheries and IUU fishing. On 25 September 2015, all 193 Member States of the United Nations adopted a new Sustainable Development Agenda with 17 global goals, including most particularly Goal 14: Conserve and sustainably use the oceans, seas and marine resources for sustainable development.

### **Key actions for achieving sustainable fisheries through the Convention, the Agreement and the General Assembly**

In light of the important role played by the Convention and the Agreement in the conservation and sustainable use of fish stocks, it is essential to continue to promote increased participation in, as well as more effective implementation of these instruments. The General Assembly has repeatedly called on States to become Parties to the Convention and the Agreement. As of 1 May 2016, the total number of Parties to the Agreement stands at 83, including the European Union.

In this regard, it is important to promote a wider awareness and understanding of the provisions of both the Convention and the Agreement. The Division for Ocean Affairs and the Law of the Sea, as secretariat to the Convention and the Agreement, can play an important role in this regard, including in cooperation with FAO, UNCTAD and RFMO/As. This can also contribute to the achievement of the Sustainable Development Goals, most particularly Goal 14.

However, participation must be followed by full and effective implementation of the Convention and the Agreement at national, regional and global levels. One of the principal challenges in this regard is the lack of capacity, particularly in developing States. Increasing capacity-building in ocean affairs and the law of the sea, and fisheries in particular, should remain a priority for the international community. In this regard, it is important to maintain adequate funding for trust funds, such as the Assistance Fund established under Part VII of the Agreement. Trade-related measures should seek to strengthen implementation of the existing international legal regime for international fisheries. UNCTAD, as the United Nations trade and development focal point, is well positioned jointly with the FAO in supporting the understanding on how trade related measures may contribute to such goal.

The General Assembly's ability to examine various issues within ocean-related processes and to set

global policy standards gives it a key role in the promotion of sustainable fisheries, which depend on international cooperation at the global, regional and sub-regional levels. Moreover, it is the only body with the competence to examine ocean issues in an integrated, interdisciplinary and inter-sectoral manner at the global level, through its annual consideration and review of developments relating to ocean affairs and the law of the sea. In view of the inter-relationships between all of the uses of the oceans and their impacts on other uses, the General Assembly's role is vital in this regard.

## **Conclusion**

This is a pivotal time for the future health of the world's fisheries resources. More than ever, there is a need to ensure the effective implementation of the international legal framework for the conservation and sustainable use of living marine resources set out in the Convention and the Agreement. The General Assembly can play an important role in promoting this through its resolutions, as well as by examining specific issues in its processes. Only fisheries that are truly sustainable can continue to contribute to international trade and development for many generations to come.

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## 1.3

## FISHERIES AND CLIMATE CHANGE

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### ABSTRACT

Fishing, the access to which is free, is an activity involving the hunting of wild species. Fisheries have been historically affected by frequent and unexpected regional climate variability. The best known regional climate variability is the El Niño Southern Oscillation (ENSO). While climate change is likely to alter the seasonality, frequency, duration and intensity of climate variability, it does not cause uniform or homogenous global effects. Instead, it impacts different regions with varying intensity and peculiarities that have important geopolitical and economic consequences.

### Fishing activity

The fishing industry and the communities that depend on fish for their livelihoods have had to adapt to variability in the supply of fish, which is contingent on environmental and climate variability. The only social, economic, technical or institutional capability to deal with the availability of fish is limited to the control of catches.

Fishing causes changes in the distribution, demography and stock structure of individual species impacting, in turn, directly and indirectly, fish communities, marine ecosystems and ecosystem services (such as nutrient cycling). It impinges on the sustainability, resilience and natural ability of species and ecosystems to adapt to climate variability/change, anthropogenic interventions and extreme events such as storms, hurricanes and tsunamis.

The often predatory and selective nature of fishing (based on targeted species and size) coupled with the free access to marine resources causes changes in the size and age structure of fish populations, which results in greater variability in annual catch of exploited populations. The truncation of the age structure and the loss of geographic substructure within populations makes them more vulnerable to climate fluctuations. Most stocks are currently fished at levels that expose them to a high risk of collapse given the trends in climate change and the uncertainty over other impacts. The percentage of stocks fished within biologically sustainable levels shows a declining trend from 90 per cent in 1974 to 71.2 per cent in 2001. This means that the abundance of stocks is lower than the maximum sustainable yield (MSY) level. Besides, 28.8 per cent of fish stocks are overfished. Only 9.9 per cent of stocks are under-fished, while 61.3 per cent are estimated to

be fully fished. This implies that there is no room for further catch expansion (FAO, 2014a).

Overfishing is among the many anthropogenic pressures that have resulted in a global decline in marine biodiversity. It poses the greatest threat to future fisheries, a risk compounded by IUU fishing, which remains a major threat to marine ecosystems. This raises concern over the role of biodiversity in maintaining ecosystem services and, in particular, the resilience to cope with and adapt to climate change.

### Climate change effects on oceans

Climate change generates modifications in the marine environment with regard to temperature, water stratification, ocean currents, winds, the sea and pH levels, precipitation and the rate of changes. The Intergovernmental Panel on Climate Change (IPCC, 2014) has confirmed that global sea-surface temperatures have increased since the late nineteenth century. Upper-ocean temperature now varies over multiple timescales, including seasonal, inter-annual, decadal and centennial periods. Depth-averaged ocean temperature trends from 1971 to 2010 are positive, which means warming over most of the globe.

The IPCC, 2007 predicts a global average temperature increase of 0.2°C per decade over the next two decades, causing an increase in sea-surface temperature which, in turn, leads to polar ice melt. However, ocean temperature increases will not be geographically homogeneous. The melting of continental glaciers and ice sheets is a cause of global sea level rise (Barange M and Perry RI, 2009), which puts several low-lying coastal areas at risk and damages coastal habitats.

Sea levels are also influenced by regional and local natural factors, such as regional variability in winds and ocean currents, vertical movements of land and isostatic adjustments in the levels of land. Therefore, sea levels will rise more than the global mean in some regions although they may actually fall in others.

Climate change affects the patterns of ocean salinity. This is likely to influence ocean current circulation and the role of oceans in capturing carbon dioxide. Oceans absorb around 26 per cent of the increase in emissions of anthropogenic carbon dioxide, which reacts with seawater forming carbonic acid thus increasing ocean acidification. This decreases the levels of calcium carbonate dissolved in seawater, thus lowering the availability of the carbonate ions that are needed for the formation of marine species of shells and skeletons. Some of these calcium-dependent organisms such as crustaceans and corals are important for capture fisheries. Ocean acidification is expected to continue to increase in parallel with the rise of greenhouse gas emissions.

Ocean water stratification – i.e. the layers of water masses with different properties, such as temperature, density, salinity, oxygenation, etc. – is expected to grow with increasing water temperatures and changes in levels of precipitation and salinity. The combined effects of temperature and salinity changes are likely to reduce the density of the surface ocean, increase vertical stratification and change surface mixing (Barange M and Perry RI, 2009).

It has been predicted that climate change will increase the frequency and intensity of climatic variability, including winds, storms and other extreme events. From the perspective of fisheries, important marine phenomena include upwellings caused by winds that push warm surface waters away. This facilitates rises from beneath to the surface of cold waters, which replace the warm water pushed away by winds. The cold water is very rich in nutrients, resulting in high biological productivity and, consequently, high fish production making them optimal fishing grounds.

Despite evidence of recent increases in upwelling intensity, global ocean circulation models do not show a clear pattern of changes in response to warmer ocean temperatures, although it is expected that the upwelling seasonality may be affected by climate change (Barange M and Perry RI, 2009). These changes may have important effects on fisheries because the five upwelling areas that cover only 5 per

cent of the ocean surface contribute to 25 per cent of global marine catches. The five upwelling areas are: the Benguela, off Southern Africa; the Canaries, off Northwest Africa; the California, off California; the Humboldt off Peru and northern Chile; and the Somali, off the Somalia and Oman currents. From the perspective of fisheries, the first four are the most important. Other upwellings occur in southern Brazil, the southern ocean around Antarctica and the southeast of Australia, while intermittent upwelling may occur around islands such as the Galapagos and the Seychelles. Any change in the intensity and seasonal variability of upwellings will affect fisheries performance. For example, the Humboldt upwelling, which is one of the largest fisheries areas, is very susceptible to extreme seasonal variability and ENSO in particular. This susceptibility to seasonal variability has a strong and direct impact on fish production, particularly that of pelagic species.

Climate-induced changes in the marine environment create a range of biological effects, including changes in plankton composition, primary productivity, distribution, life history strategies, behaviour, ecosystem composition, interactive effects, invasive species, substitution effects, habitat availability as well as larval dispersal and viability.

Climate change scenarios predict that up to 60 per cent of the ocean biomass could be affected. This is likely to cause disruptions to many ecosystem services. Studies of species with strong temperature preferences such as skipjack and blue fin tuna foresee major changes in range, as well as decreases in productivity. These effects are found in all regions. In the North-West Atlantic, changes in feeding patterns triggered by overfishing and by changes in climate have altered species composition causing, for instance, a shift from a predomination of cod to a preponderance of crustaceans.

## **Climate change effects on fisheries**

Climate change may affect fisheries directly through influencing fish stocks and the global fish supply, or indirectly by influencing the cost of goods and services required by fisheries, as well as the price of fish. While the precise consequences cannot yet be forecast, climate change is likely to impact both fisheries and the communities that depend on them. The impacts of climate change are threefold: physical, biological and economic in nature.

Climate-related physical effects include, *inter alia*, changes to sea levels, temperature, salinity, stratification, ocean currents, seasonal variability, flooding, storms and coastal upwelling. The biological and ecological responses to physical changes include modifications in the physiology, behaviour, growth, development, reproductive capacity, mortality and distribution of fish. Changes in ocean conditions affect species distribution of marine organisms, communities, structure composition and the stability of ecosystems on which fish depend for food and shelter. This causes changes in productivity and the food web, as well as species abundance, stock locations and pathogen levels. Unexpected and non-linear effects of climate change, exacerbated by overfishing, could result in shifts that favor lower trophic species such as jellyfish at the expense of high-value species such as cod (Kirby et al., 2009).

Temperature changes cause species to follow their thermal preferences, shifting to new areas and thereby redistributing themselves (Roessig JM et al., 2004). Empirical and theoretical studies show that marine fish and invertebrates tend to shift their distribution according to the changing climate, usually in the direction of higher latitudes and deeper waters (Perry et al., 2005; Cheung et al. 2008; Barange M and Perry RI, 2009). Observed and projected rates predict a shift of around 30-130 km/decade towards the poles and 3.5m/decade to deeper waters. However, climate change is likely to affect fish species differently.

Warmer temperatures are likely to result in diminished ecosystem productivity in most tropical and subtropical oceans while productivity may actually increase at higher latitudes. This means that warm-water species will be redistributed towards the poles with consequent changes in the size and productivity of their habitats. Many commercially important species are predicted to redistribute in different ranges as a result of changing conditions. Warmer water is also associated with an increased risk of changes in competitors, predators and species invasions, a greater incidence of disease and parasites and the spread of vector-borne diseases (FAO, 2009) as well as more frequent harmful algal blooms.

Fish production depends on net primary production<sup>4</sup> at the base of the aquatic food chain (Brander KM, 2007). Increases in water temperature, ocean stratification and upwelling alter primary productivity, which in turn causes changes in community structure (IPPC, 2008; Roessig et al., 2004). The increasing vertical stratification and water column stability in oceanic

areas create barriers between water layers that are likely to reduce nutrient availability in the euphotic (sunlight) zone, leading to a decrease in primary and secondary production, and/or a shift in productivity to smaller species of phytoplankton. The impact of the combined effects of climate change is likely to reduce the productivity of fish stocks. Nevertheless, primary production may increase in high latitudes (Roessig JM et al., 2004).

In both cases the efficiency of the transfer of energy through the trophic web is altered. Global primary production is projected to increase by 0.7 to 8.1 per cent by 2050 with very large regional differences, including decreases in productivity in the North Pacific, the Southern Ocean and around the Antarctic continent, and increases in the North Atlantic regions (Sarmiento et al., 2004). Available studies show considerable changes in the distribution of catch potential by the year 2055, with possible reductions in the Red Sea, as well as the southern coast of the Mediterranean and the Antarctic. The Indo-Pacific region may see a reduction of up to 50 per cent in next 10 years. In contrast, catch potential is likely to increase by more than 50 per cent in higher latitudes, particularly the offshore of the North Atlantic, the North Pacific and the Arctic. While the magnitude of change varies regionally in comparison to the global trend, the potential catch in the tropical Pacific is projected to decrease by up to 42 per cent from 2005 levels, while that of the subarctic region will be doubled in relation to 2005 levels (Cheung et al., 2010).

Higher ocean temperatures and changes in ocean currents may reduce recruitment success through alterations in spawning, migration, food availability and susceptibility to disease. While changing currents may affect larval dispersal and viability (FAO, 2009) in ways unfavourable to stock productivity (Roessig et al., 2004); changes in pH through increased CO<sub>2</sub> and the acidification of ocean waters can reduce the productivity of calciferous species such as mollusks, crustaceans and corals. Sea level rise can lead to a loss of feeding, breeding and nursery habitats (FAO, 2009). The relative abundance of species within assemblages may also change as a consequence of the alteration of habitat quality brought by climate change (Przeslawski R et al., 2008; Wilson SK et al., 2008).

The fish populations and ecosystems most at risk due to climate change are those already near their physiological limits in terms of temperature, salinity and pH. In addition, they are seriously compromised in

terms of their resilience by anthropogenic interventions such as overfishing.

While some of the changes are expected to have positive consequences for fish production, in other cases reproductive capacity has been reduced and stocks have become vulnerable to levels of fishing that had previously been sustainable. Local extinctions are occurring at the edges of current ranges, particularly in diadromous species such as salmon and sturgeon. Capture fisheries depend on net primary production of the aquatic food chain. Larger fish, which are higher on the food chain, tend to carry more value in the market. Because of their high trophic position, they show more variability in catches and, therefore, in value. The variability depends on the degree to which changes in net primary production are translated directly to changes in fish productivity (Brander KM, 2007). The observed decline of 0.05 to 0.10 trophic levels per decade in global fisheries landings is a matter of concern. It represents a gradual removal of large, long-lived fish from the oceans ecosystem. For instance, the biomass of predatory fish in the North Atlantic declined by two-thirds in the second half of the last century (Pauly D et al., 2002), reflecting a simplification of food webs, which show a reduction in the number and length of pathways linking food fish to primary producers.

The predicted increase in the frequency and intensity of climate variability, including winds, storms and other extreme events due to climate change will affect the circulation and food availability for fish (FAO, 2009). In particular, in rich upwelling regions that attract most commercial fishing fleets. In this context, ENSO deserves particular attention due to its effects on the very rich upwelling regions, particularly with regard to pelagic fish.

## Uncertainties

The effects of climate change on fisheries are yet to be established with a conclusive degree of certainty. This is due to several factors (Perry R, 2011), including:

- Observation uncertainties: the natural variability of the time/space scale is not yet fully understood, making it difficult to make accurate predictions;
- Model-based uncertainties: imperfect modelling capabilities are exacerbated by the lack of knowledge about parameter values;
- Process uncertainties: lack of understanding of how the marine and socioeconomic systems are structured and how they function; and
- Policy uncertainty: policies are poorly applied or

may be inappropriate due to lack of knowledge.

While some of the direct effects of climate change are predictable, many others are not. This holds true for ecosystem responses to climate change that involve interactive and synergetic effects. Forecasts regarding future changes are characterized by a high level of uncertainty: the longer the time-scale, the greater are the uncertainties. The non-linear effects of climate change are of particular concern as past experience provides little guidance. In addition, the pressures on marine ecosystems are still poorly understood, although it is accepted that they reduce the system's resilience. The effects of some changes, such as ocean acidification, are also largely unknown.

The increasing environmental variability caused by climate change has led to greater uncertainty for fisheries, including economic consequences for fishers, processors and communities. In the short term, probably only a small proportion of fish will be affected by climate change, but in the long run its indirect effects are likely to have serious implications for all marine ecosystems. However, the principal threats to future fisheries production and performance are expected to evolve progressively.

While not all the impacts resulting from climate change will be negative, they are likely to increase the degree of uncertainty (Pauly D et al., 2002) of the temporal and spatial variations of fish populations, habitat viability/stability, ecosystem interactions and feedback (Heal G, Kristrom B, 2002; Grafton QR, 2010; Kirby et al., 2009). As a consequence, the ability to predict change is highly weakened. Simulation models have been used to project the effects of climate change mainly in the areas of agriculture and food production allowing analysis of potential socioeconomic vulnerability, impacts on global food security and the costs/benefits of climate change. While there are some projections of climate change impacts on marine ecosystems with regard to a few species, regional climate variability and regime shifts or qualitative inferences of potential changes (Lehodey P, 2001; Roessig et al., 2004; Drinkwater KF, 2005; Brander KM, 2007); global scale projections of climate change impacts on fisheries are still lacking (Cheung et. al., 2010). However, there is a tentative consensus that in the short run, i.e. 1 to 5 years, the main anthropogenic impacts will be due to overfishing, fishing-induced damage to marine ecosystems, degradation or loss of coastal habitat, pollution, introduction of exotic species and undesirable effects of aquaculture (Brander KM,

2010). It has also been noted that fishing increases the variability of fish populations, which reduces resilience and increases uncertainty (Chih-hao Hsieh et al., 2006; Anderson et al., 2008). In the short run, however, climate change is likely to affect a relatively small proportion of fish (Grafton QR, 2010).

The effects of climate variability/change on fisheries generate economic uncertainty, increasing risk-aversion among decision-makers who could postpone or even impede actions needed for adaptation to climate change.

The effects of rising temperatures on marine ecosystems are already evident, with a rapid poleward shift in the distribution of fish and plankton in regions such as the North East Atlantic where temperature change has been rapid. Further changes in distribution and productivity are expected as a consequence of the warming and freshening of the Arctic.

### **Fisheries, climate change and vulnerability**

The effects of climate change on fisheries are likely to have both economic and geopolitical repercussions. Fish remains among the most traded food commodities worldwide: in 2012, some 200 countries reported exports of fish or/and fishery products. In 2013, the total volume of fishery exports reached 57.9 million metric tons, which represents 36.7 per cent of total fishery production (FAO). Between 1976 and 2006, the value of world seafood trade increased threefold, from US\$28.3 billion to US\$86.4 billion. During the same period, trade volume grew nearly fourfold, from 7.9 million tons to 31.3 million tons (Asche et al., 2010). The unit value of seafood has decreased, increasing the competitiveness of seafood as a food source. Fish trade is especially important for developing nations, in some cases accounting for more than half of the total value of traded commodities. Developing countries represent 56 per cent of total fishery exports by value and more than 60 per cent by quantity (in 2012).

While fluctuations in fish stocks have had major economic consequences for human societies, there are very few studies and assessments of the vulnerability of regions and countries to changes in fisheries (Allison et al., 2009). Vulnerability depends upon three factors: exposure to a hazard, in this case to the effects of climate change; sensitivity to the hazard and the degree to which the community, the region or the country depends on fisheries, and;

the ability to adapt to, absorb or recover from the hazards (Adger et al., 2005; Brooks et al., 2005). Dependence on fisheries can be defined in terms of production (either landings or catch values); contributions to employment (including fishers as well as people employed in processing); export income as a percentage of total export revenues; and nutritional dependence measured by the share of fish protein in people's diet and total food consumption. The major fishing countries (China, Peru, Japan, USA, Indonesia, India, Chile, Thailand, Russia and Norway) should be considered vulnerable on the basis of fishery production, while from the employment perspective the most vulnerable are located mainly in southern Asia and Africa. Fish exports are important to countries such as Peru and Chile as well as the coastal countries of Southeast Asia and Africa. Among developed countries, Norway, Denmark, Iceland and New Zealand show dependence of fishery exports while fish consumption is important in Iceland, Japan and Norway (Allison et al., 2009). Fish protein dependence is very high in many African countries. Thirteen LDCs are among those most dependent on fish protein, particularly Ghana, The Gambia and Sierra Leone, where fish protein represents between 59 to 67 per cent of animal protein intake. Fish provides 27 per cent of dietary protein in LDCs, which also account for 20 per cent of world fish exports (Allison et al., 2009).

Studies on climate change/variability and fisheries are have mainly focused on trends and fluctuations in fish abundance and distribution (Glantz MH (ed.), 1992) in relation to oceanic regime changes and the pelagic fish stocks of upwelling zones that are the target of large-scale industrial fisheries (Klyashtorin LB, 2001; Gutierrez et al., 2007; Yañez et al., 2001). However, there are very few studies on the effects of climate change at the local scale with regard to the livelihoods of the majority of small-scale fishers who make up more than 90 per cent of the world's fishers and fish traders (Badjeck et al., 2010).

Climate change will affect, in the first place and indirectly and disproportionately, people living near climate-sensitive environments. While coastal populations in low-income countries are highly dependent on fisheries and marine resources in general, they have almost no ability to adapt (Allison et al., 2015), being thus the second to be affected by climate change. Although fisheries may play only a small part in the overall national economy, they are often very important at a local or community levels.

Traditional coastal communities, small-scale artisans and fishers with small boats operating within limited fishing areas bear a relatively greater impact than fishers with large and more mobile boats. The latter, as well as those with greater access to capital, will be able to move, if needed, to further fishing areas thus reducing the negative impact.

Fishing communities that depend on just a few species are more vulnerable to fluctuations in stocks than communities that spread their dependency over an extensive range of marine resources. This vulnerability is aggravated in communities that have historically fished intensively or overfished. This applies in particular to the artisanal and semi-industrial fisheries and to the rock lobster and small-scale line fisheries in certain African countries (FAO, 2014). Shifts in species composition (for instance, from a domination of cod to a preponderance of crustaceans) are likely to affect fishing techniques and practices and even nutritional habits of local communities.

In vulnerable areas, exposure to climate change variables and impacts is likely to exacerbate current socio-economic inequalities, penalizing already disadvantaged groups such as migrant fishers or women employed in the processing industry (FAO, 2014). The lowest adaptive capacity is found in most African countries and tropical Asia where the four indicators (production, employment, share of exports, and dietary dependence) are compounded, thus magnifying vulnerability.

Lack of basic facilities – or limited access to them and to information and communication technologies – is a serious hindrance to adapt fishing practices to changes brought by climate. In this regard, largely organized and capital-intensive fishery activities are more adaptable to climate change effects. In this regard, the historical expansion of distant water fleets has reduced the dependence of the fishing industry on a particular area or species, and has allowed them to adapt to variations in species distribution. Nevertheless, fleet expansion remains one of the main factors behind the increase in the rate of exploitation, reduced stock levels and greater stock variability.

One expected effect of climate change concerns the distribution and migration of fish stocks or their displacement. In this case, the value of traditional sources of catch may be threatened. Costs are likely to be affected if the changing distribution of fish stocks means an increase in travel distances to fishing

grounds (OECD/ Hanna S, 2011). These effects are likely to affect countries in different ways. There are no problems if the migrations or displacements occur inside the EEZ of a country. However, if stocks migrate to other EEZs, the country of origin is likely to lose while the receiving country will benefit (OECD/ Hannesson R (2011).

Long-lasting displacement of fish stocks from one country's EEZ to another could put existing fish stock agreements under pressure, thereby undermining or rendering them inappropriate, which could make new negotiations difficult.

A different situation is that of straddling stocks in the high seas, which are open to any country. Tuna stocks provide a typical example due to high value and extensive migrations. As yet, there is no conclusive estimate of the effect of climate change on fish migrations in the high seas. However, if the pattern of migrations changes as consequence of climate change, international agreements that regulate the global governance of the high seas are likely to be affected.

## Recommendations

- Since their effects are borderless, both the effects on climate change and variability on fisheries should be seriously considered under a global perspective in the adoption on fisheries policies;
- Allocate resources and promote research on climate change effects on fisheries as well as on fisheries' resilience and adaptation to climate change;
- Undertake research on most suitable policies to promote the adaptation of the fisheries sector and the economic activity of coastal populations to climate change and variability;
- Identify and promote new technological alternatives for sound fishing practices that consider climate change and variability; and
- Rather than just relying on the management of marine biomass, countries and the international community should engage in preserving the age and geographical structure of fish populations in order to sustain their resilience.
- Remove existing subsidies and incentives that promote the expansion of fishing capacity.
- Limit the size of fishing fleets to levels commensurate to the existing marine resources.
- Control fishing practices that favour bycatch.
- Improve marine governance so that it can respond to the unpredictability and variability brought by climate change.

## 1.4

## ENVIRONMENT AND FISHERIES PROVISIONS IN THE THE TRANS-PACIFIC PARTNERSHIP AGREEMENT: SOME IMPLICATIONS

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### ABSTRACT

The proposed Trans-Pacific Partnership (TPP) agreement contains the highest level environmental provisions ever agreed so far in a regional trade agreement (RTA). Environmental provisions in the TPP go far beyond that of any precedent trade agreement in terms of scope and enforceability. Innovative provisions include commitments on the conservation of marine resources, the protection of endangered species, and control of ozone depleting substances and pollution by ships.

This note explores the content of environmental provisions in the TPP, links with existing Multilateral Environmental Agreements (MEAs), the treatment of marine resources, including fisheries, and biodiversity and the potential implications for developing countries, including Parties and non-Parties to the TPP accord.

### Introduction

The TPP agreement, signed by 12 Pacific Rim countries on 4 February 2016, arguably contains the highest level of environmental provisions ever agreed in a regional trade agreement (RTA). Its scope is ambitious and covers areas that did not exist in previous free trade agreements (FTAs) subscribed to by the United States and many of the other 11 participating nations, particularly in relation to certain marine environment protection measures. The TPP contains environmental-related provisions in a specific environment chapter, but also in other relevant chapters such as those on investment, technical regulations to trade, and intellectual property.

The environmental chapter aims at promoting mutually supportive trade and environmental policies, higher levels of environmental protection, and effective enforcement of environmental law. It also seeks to enhance capacities on trade-related environmental issues through cooperation. The environmental chapter reaffirms Principle 12 in the UN's 1992 seminal Rio Declaration on Environment and Development by indicating that environmental laws and other measures should not be established or used in a manner which would constitute a disguised restriction on trade and investment. The chapter also refers to the sustainable management of resources, as enshrined in the Preamble of the Marrakech Agreement creating the WTO. The TPP environment chapter further contains a variety of legal provisions that range from fully binding

clauses to best endeavour ones. In some cases, there is a simple recognition of the importance of a particular environmental concern, implying that not all issues covered by the chapter are considered "hard law" obligations or enforceable.

The environment chapter establishes a consultation mechanism to address and resolve any matters raised by TPP parties. The mechanism includes the possibility of initiating consultations among parties, then senior representatives, and eventually at ministerial level. If these multi-stage consultations fail, parties have access to the broader TPP trade dispute settlement mechanism, which largely reflects the US' approach in other FTAs. Other significant traders such as the EU – not a party to the TPP – have tended not to the environmental provisions in trade deals to broader dispute settlement arrangement.

The right of governments to legislate and regulate in the public interest, including for public health and environment purposes, is reaffirmed in the TPP's investment chapter. This is considered as positive to avoid "regulatory chilling" effects in the environmental field caused by excessive litigation, especially under investor-state dispute settlement (ISDS) arrangements. In the environment chapter, parties recognise the sovereign right of each participant to establish its own level of environmental protection, and their own environmental priorities. Nevertheless, the investment chapter does include prohibitions on certain "performance requirements" such as local content and technology localisation as a criterion for

recognition of the investor status, which would affect the capacity of TPP parties to require the transfer of environmentally sound and climate technologies.

The chapter on technical barriers to trade includes a series of annexes related to the regulation of specific products and sectors in order to promote common regulatory approaches. This could have an important impact on certain environmental and safety policies, administrative practices, and trade in some goods. These annexes tend to cover regulatory approval, assessment, and conformity procedures, verification, mutual recognition, and packaging of several products for direct human consumption such as certain foods, alcoholic drinks, food additives, cosmetics and organic agricultural products. Separate assessment on these implications may be needed.

### **Multilateral environmental agreements**

The TPP includes a commitment by the parties to fulfil obligations under some multilateral environmental agreement (MEAs) in which they participate, effectively enforce their own environmental laws, and not waive or derogate from these in order to promote trade or attract investment. No party shall fail in enforcing their environmental laws whether by action or inaction, such as through lack of resource allocation, or inexistence of relevant competent authority. However, while there is a need for improving compliance, the above mentioned principle is a quite ambitious and perhaps unrealistic at this stage due to historical low levels of environmental compliance in many TPP parties. Further, these obligations may have a big impact on developing country parties, given that the lack of implementing capacity, effective institutions, or insufficient resources which however according to TPP commitment may not be presented as an excuse for lack of compliance.

The environmental chapter requires parties to comply with the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), the Montreal Protocol on Substances that Deplete the Ozone Layer, and the International Convention for the Prevention of Pollution from Ships (MARPOL). Footnotes and accompanying annexes are included to clarify what constitutes compliance in the TPP context. None of these multilateral conventions is new and their practical application is considered as very positive to promote the protection of endangered species, the ozone layer, and marine ecosystems.

Overall these commitments appear to go beyond ratification and legal development of obligations under national legislation and put an emphasis on practical application, monitoring, and enforcement. Parties shall also take measures to promote awareness of their own national environmental laws including procedures to investigate violations; availability of administrative, quasi-judicial and judicial procedures for enforcement; as well as appropriated sanctions and remedies. Opportunities for allowing consultations and public submissions regarding the implementation of the TPP environment chapter are provided for.

While some references are made to the importance of “low emission, resilient economies” and the conservation of biodiversity, no specific provision have been incorporated to ratify or apply the recent Paris Agreement under the UN Framework Convention on Climate Change (UNFCCC), or the Convention on Biological Diversity (CBD) and its Nagoya Protocol on Access and Benefit sharing. It should be noted that the words “climate change” are not found anywhere in the environmental chapter. While this is consistent with political reservations or non-participation to these by some TPP parties, it suggests an approach around the most relevant or less controversial MEAs. Some critics consider the selection of MEAs in the TPP falls short on civil society expectations if compared to the seven MEAs identified by a 2007 US Congress bipartisan agreement as appropriate for inclusion in trade agreements<sup>5</sup>. Particularly regarding the CBD and the Nagoya Protocol, whose inclusion by developing countries such as Mexico, Peru, Malaysia and Vietnam had pushed for. There is, however, some important recognition of the importance of biodiversity conservation as well as appropriate access and benefit sharing procedures around genetic resources in the chapter. This is discussed in more detail below.

### **The treatment of marine resources including fisheries**

The TPP environmental chapter contains some landmark provisions related to the conservation of living marine resources. It should be noted that these provisions do not apply to aquaculture activities. These obligations are particularly important for international trade of fish products and sea food given that the parties include some of the world's largest consumers, producers, and traders of fish products. Fisheries management systems must be designed to prevent overfishing and overcapacity, reduce by-

catch of non-targeted species, and promote recovery of overfished stocks. Management systems should also be based on best scientific evidence, recognised best practices, and international instruments listed in a footnote. Direct reference to multilateral UN instruments when setting fish management systems can make obligations under the TPP more precise and strengthen common interpretations over grey areas or legal vacuums.

Parties shall also establish measures for the long-term conservation for sharks, turtles, seabirds, and marine mammals such as bycatch mitigation measures, conservation and relevant management measures, catch limits, and finning prohibitions. This obligation complements the protection of marine species covered by CITES and expands protection to non-covered marine species.

The TPP also contains novel provisions on the prohibition of certain type of fish subsidies. This is an area where advances in the WTO remain elusive. In this regard, the implementation of fish management systems must include the control of, reduction, and eventual elimination of all subsidies that contribute to over fishing and overcapacity. Accordingly, no party shall grant or maintain subsidies for fishing that negatively affect fish stocks that are in an overfished condition; and subsidies provided to any vessels listed by the flag state or relevant regional fisheries management organisations (RFMOs) as being involved in illegal, unregulated and unreported (IUU) fishing. According to a footnote, “a fish stock is overfished if the stock is at such a low level that mortality from fishing needs to be restricted to allow the stock to rebuild to a level that produces maximum sustainable yield or alternative reference points based on the best scientific evidence available. Fish stocks that are recognised as overfished by the national jurisdiction where the fishing is taking place or by a relevant regional fisheries management organisation shall also be considered overfished.” The definition of overfishing under the TPP is therefore not linked to assessments made by the FAO but rather to a “best scientific evidence” test, to national determinations by TPP parties, and determinations of relevant RFMOs.

The TPP also includes fisheries subsidy notification obligations and a best effort “stand still” provisions in relation to new or extending existing fisheries subsidies that contribute to overfishing or overcapacity. The political weight of the US, Australia, Canada, and New Zealand seems to have had a significant effect

on Japan – home to one of the ocean’s largest fleets and higher estimated level of subsidisation – to bring about outcomes that had previously seemed unachievable at the multilateral level. These are very important results for promoting global action on tackling fisheries subsidies. If implemented they can make major progress towards achieving SDG 14.6. The TPP does not provide for any cross-cutting special and differential treatment (SDT) for developing economies participants in this area, with the exception of technical cooperation and a two year extension granted to Vietnam for the transition period to remove inconsistent subsidies.

The TPP also recognises the importance of concerted action against IUU fishing and requires parties to improve international cooperation in this regard including through competent international organisations. Parties should cooperate with each other to build capacity to support the implementation of the article on IUU. More specifically, parties must support monitoring, control and surveillance of IUU fishing and adopt measures to deter vessels flying its flag from engaging in IUU; address transshipments at sea; implement port state measures; and strive to act consistently with RFMOs conservation and management measures even if not a member.

All these obligations are based in the 2001 FAO IUU Fishing Plan of Action and other relevant FAO conventions and instruments. It might also prepare the entry into force of the FAO Port State Measures Agreement (2009) which took place on 5 June 2016. Moreover, the commitments can contribute to mainstreaming cooperation on fighting illegal fishing and transfers obligations to a more enforceable level, especially with regard to policies set by RFMOs. The main challenge for developing countries in the TPP will be having the necessary resources and technical capacity to fulfil these obligations. The level of risk when looking at the potential IUU fishing activities, capacity to implement effectively combative policies, and to monitor EEZs greatly varies among nations, some being in better position than others to fulfil international, regional, or unilateral IUU standards. Many stakeholders are also concerned about diversity in national schemes to combat IUU and the trade effects over non-cooperative countries. The TPP includes a provision that may go some way towards helping assuage this issue by requiring parties, to the extent possible, to provide other parties with the opportunity to comment on proposed measures that

are designed to prevent trade in fisheries products that result from IUU fishing.

### **Possible implications**

The TPP's environment chapter will likely have mixed implications for developing country parties and non-parties. On the one hand, it raises the environmental regulatory bar, which may be welcomed in the constituencies of many developing countries and places a stronger focus on effective implementation and enforcement. The inclusion of an independent but also interlinked dispute settlement makes strengthens this emphasis. It will also have implications in terms of institutional, administrative, enforcement and, and legal defence terms and costs.

Advances on prohibiting certain harmful fisheries subsidies and on measures to combat IUU fishing offers a significant precedent to the WTO and for implementing relevant SDG 14 targets. Such progress can contribute to the conservation of fish stocks in the Pacific Ocean with positive effects on TPP parties and non-parties. Obligations on the establishment or improvement of fish management systems are also a welcomed development. Lack of technical and financial capacity nevertheless remains unaddressed, especially for developing economies. The environment chapter has a special article on cooperation but subject to the availability of funds. Stronger links between obligations and technical cooperation and capacity

building by developed parties in the TPP, especially in the form of a special cooperation funds, would have made the implementation task less complex and more effective. Enhancing the conservation of fish and combatting IUU fishing requires major investment by countries. Thus while special and differential treatment for developing economies are not provided as such in the TPP, such treatment would be needed by developing parties for capacity building for fisheries management and form putting in place measures to combat and deter IUU fishing , and to gather data and notify fisheries subsidies .

The new standards set by the TPP will not be easy to achieve. Most competitive sectors may survive and even prosper. Nevertheless, for smaller and weaker firms, fierce competition is expected and the capacity for states to assist these may been lessened. Whether or not this TPP initiative will result in net positive results, remains to be seen.

As a final note, the best approach to addressing subsidies is the multilateral track. It prevents the free-riding factor which is faced in regional and plurilateral contexts and undermines such agreements as the free-riders gaining unfair comparative advantages and continue depleting the common resource base. Multilateral solutions could be advanced in the WTO backed by a strong dispute settlement system are needed. Also, a UN treaty that could become enforceable through cooperative action can be feasible in light of implementing SDG 14.

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## Notes

- 1 These are SPRFMO, SEAFO, NPFC, WCPFC, SIOFA.
- 2 For example, NAFO, NEAFC and GFCM,
- 3 See, e.g., General Assembly resolution 69/109, at paragraph 33; A/CONF.210/2006/15, Annex, at paras. 2 and 16.
- 4 Fish production depends on the amount of net primary production (NPP) and how this production passes, from prey to predator, through the aquatic food chain. However, it is difficult to establish a clear relationship between fish production and NPP because the variability of steps in the trophic chain and of the efficiency in the transformation of NPP at each step. Most food fishes have trophic levels ranging from 3.0 to 4.5. Species at higher trophic levels are, on average, larger and more valuable per unit weight.
- 5 CIEL (2015). *The Transpacific Partnership Agreement and the Environment*. See <http://www.ciel.org/wp-content/uploads/2015/11/TPP-Enforcement-Analysis-Nov2015.pdf>.