



SUPPORTING
ECONOMIC
TRANSFORMATION

FISHERIES: THE IMPLICATIONS OF CURRENT WTO NEGOTIATIONS FOR ECONOMIC TRANSFORMATION IN DEVELOPING COUNTRIES

Leah Worrall and Max Mendez-Parra

December 2017

Acknowledgements

This paper was written for the discussion in advance of the upcoming 11th WTO Ministerial Conference in Buenos Aires, Argentina, in December 2017. We are grateful for comments received from Sheila Page from ODI and Vanessa Head and Avi Bram from DFID. The views presented are those of the authors and do not necessarily represent the views of DFID or ODI. Errors are the authors' own.

© SUPPORTING ECONOMIC TRANSFORMATION.

The views presented in this publication are those of the author(s) and do not necessarily represent the views of **DFID** or **ODI**.



CONTENTS

List of acronyms	iv
Executive summary	v
1. Introduction	1
2. Background	3
2.1. Data considerations	3
2.2. Fisheries trade	3
2.2.1. Global capture production	3
2.2.2. Fisheries trade	4
2.2.3. Fisheries value addition	5
2.2.4. Globalisation and global value chains	8
2.3. Fisheries subsidies	9
2.3.1. Region and income distribution	10
2.3.2. Types of subsidies	13
2.4. Key concepts	14
3. Negotiation proposals	17
4. Effects on economic transformation	21
5. Impact assessment	22
5.1. Literature findings	22
5.2. Estimating the effect of subsidies removal	23
5.3. Caveats in the data	25
5.4. Special and differential treatment	26
6. Conclusions	27
References	29
Annex 1	32
Shared fisheries	32
Distant water fleets	32
Illegal, unreported and unregulated fishing	32
Artisanal fishing	33

LIST OF ACRONYMS

ACP	African, Caribbean and Pacific
ASEAN	Association of Southeast Asian Nations
DWF	Distant Water Fleet
EC	European Commission
EEZ	Exclusive Economic Zone
EU	European Union
FAO	Food and Agricultural Organization of the UN
GDP	Gross Domestic Product
MC11	11th WTO Ministerial Conference
NGR	Negotiating Group of Rules
IUU	Illegal, Unreported and Unregulated
LDC	Least Developed Country
OECD	Organisation for Economic Co-operation and Development
R&D	Research and Development
RFMO	Regional Fisheries Management Organisation
SCM	Subsidies and Countervailing Measures
SDG	Sustainable Development Goal
SDT	Special and Differential Treatment
SIDS	Small Island Developing States
SVEs	Small and Vulnerable Economies
UN	United Nations
UNCTAD	UN Conference on Trade and Development
UNSD	UN Statistics Division
US	United States
WTO	World Trade Organization

EXECUTIVE SUMMARY

This paper sets out a brief overview of the problem of fisheries subsidies in the context of overfishing. It provides a concise overview of WTO proposals and negotiations, followed by a global snapshot of fisheries trade and subsidies. It also explores the opportunities for economic transformation and the theoretical implications of fisheries subsidies for economic transformation. Finally, it sets out to provide an impact assessment of the removal of fisheries subsidies on select countries, as well as the impacts of special and differential treatment (SDT).

Currently, there is wide scope with regards to fisheries subsidies prohibitions and SDT across the seven proposals on the table at the WTO. The success of the fisheries subsidy negotiations will depend on the ability of countries to compromise. Certain countries may act as key sticking points in terms of reaching a global deal, including in relation to certain types of subsidies (e.g. fuel subsidies). Whatever the form of the deal, in subsidy scope, SDT and other carve-outs, the impact on individual countries will depend on their portfolio of fisheries capture production, trade and subsidies.

Globally, while developing countries dominate capture production, developed countries are adding more value, as seen in global fisheries commodities values (Section 2). Hence, developed countries still gain more value from global fisheries. There are some exceptions to this rule, however. Developing countries that are particularly reliant on fisheries for value addition include least developed countries (LDCs) such as Myanmar and Sierra Leone.¹ With the fisheries global value chain increasingly globalised, countries need to form backward and forward linkages to the fisheries global value chain – as Fiji and Vanuatu have achieved since the early 2000s, for example.

Overall, adopting the World Bank data categories, developing countries provide more fisheries subsidies than developed countries (by value), though the difference is not necessarily significant. The analysis suggests the East Asia and Pacific region provides the majority of fisheries subsidies, along with a few dominant countries, such as Japan, China and the US. The magnitude of fisheries subsidies individual LDCs and small island developing states provide, although important to the size of their economies, is marginal at the global level. Overall, it is fuel subsidies that dominate global fisheries subsidies, recognised as a form of ‘harmful’ and capacity-enhancing subsidy. This is followed by ‘beneficial’ subsidies to fisheries management (see the typology presented in Section 1). Fuel subsidies may also be particularly important for distant water fleets, with China an example in this case.

Not all fisheries subsidies are necessarily ‘harmful’ to global stocks. It is capacity-enhancing subsidies that require attention under the WTO negotiations. Fisheries value addition in economic transformation can improve opportunities for within-sector productivity growth. Globally, capacity-enhancing subsidies could theoretically affect developing countries through two avenues: 1) reduced international fish prices and 2) the reduced sustainability of fishing through overcapacity. In theory, the elimination of these subsidies could represent an important first step for sustainable development and economic transformation around the fishing sector in many developing countries.

A review of the existing literature finds that the net benefits of reducing overfishing were equivalent to \$83 billion in 2012, through higher harvests, a higher unit price for landed fish and lower fishing costs (see assumptions in Section 5; World Bank, 2017). The report did not specifically explore the role of fisheries subsidies. In order to complement the available research, this report’s impact assessment focused on two scenarios under the WTO negotiations: the global removal of capacity-enhancing subsidies and the application of SDT within a potential agreement. The table below summarises our findings. We conclude that the elimination of subsidies alone is unlikely to prevent overfishing, even if it reduces its incidence (calculations based on limited data in the OECD database). The report therefore recommends that, to achieve Sustainable Development Goal 14, other global coordination mechanisms are needed to complement any agreement reached on fisheries subsidies at the WTO.

¹ The dataset used for the latter analysis is incomplete, however, requiring further investigation of data.

Table: Impact assessment of fisheries subsidy removal and SDT

	Theory	Country examples
Subsidy removal	<p>Elasticities of demand and supply will determine how subsidy elimination will affect prices. A very inelastic demand function will generate a larger increase in the world price.</p> <p>Restructuring allows efficient firms to absorb inefficient firms upon subsidy removal, which gain scale and become more productive. The volume of landings will hence not decline proportionally to subsidy removal. The effect will depend in part on the country's relative reliance on fishery subsidies; or how much of the fisher income is provided through government support. The effect on international prices, however, will depend on the change in the volume of landings.</p> <p>Two different adjustment processes may operate. First, if the adjustment is through prices, developing countries will increase the value of captures and exports, maintaining current volumes. With elasticity of demand dependent on the product, the effect will be different in each country based on the capture profile. A second pathway of adjustment would be the transfer of captures from countries subsidising fisheries to non-subsidising countries.</p>	<p>The value of subsidies as a proportion of total landings (by value) provides an indication of their importance at the country level. The reduction of subsidies in Turkey or Canada is expected to have smaller effects than in the US. In the case of the EU and Japan, fisheries support estimates represent a lower share of the landings (by value), indicating the effect on domestic firms is smaller. However, given the volume of landings, the potential effect on world prices may still be substantial.</p> <p>Landing values could fall by \$2.7 billion for countries if the existing support is eliminated. (Note this does not include certain countries, e.g. China, India, Indonesia.) Assuming the reduction in captures (by value) is associated with proportional reductions in landed tonnage, these countries will reduce their captures by 1.5 million tonnes. Given global captures reached 77.7 million tonnes in 2015, subsidy elimination would reduce global capture by 2%.</p> <p>A quantity-based adjustment implies a transfer of captures from subsidising countries to non-subsidising countries. This would imply an average increase in their captures of 2.6%. This figure is computed out of a base number that excludes important countries (e.g. China). If we assume high-subsidising countries do not benefit from this increase, then the rest of the countries will see an increase in captures of 5.5%.</p> <p>A brief complementary analysis on fuel subsidies to distant water fleets, and fishery subsidies to illegal, unreported and unregulated (IUU) fishing, reveals the removal of such subsidies would decrease captures even more.</p>
SDT	<p>In many developing countries, small-scale and artisanal fishing may be able to become more efficient, under the usual infant industry support conditions. Market entry barriers are higher for developing countries, given limited access to finance and the high cost of capital.</p> <p>Although subsidies may help overcome these high setup costs, they also distort international prices. From an economic perspective, the arguments in favour of flexibility in the use of subsidies for developing countries are not strong, in introducing the same type of distortions with effects only differing in terms of the magnitude of support.</p> <p>The global distortionary effects may be small, but firms will generate a drain in the countries' resources that any increase in output and employment is unlikely to offset. In a context of limited resources, typical in LDCs, this policy will not contribute to economic transformation by maximising productivity and increasing efficiency. In contrast, these policies will generate a fishing sector dependent on subsidies for survival.</p>	<p>Accounting for 6.5% of world captures, subsidies granted by LDCs may have important effects in world markets. Globally, this may seem small and allowable. However, the effects may be stronger if these subsidies are limited to certain species, affecting fishers (or fisheries) in particular countries.</p> <p>Support may help fishers in developing countries to overcome the high costs associated with commercial activities (e.g. access to credit). For example, subsidies, or technical capacity building, may be needed to meet quality and food safety standards and help firms export to the high value world markets (e.g. Myanmar).</p>

1. INTRODUCTION

In the lead-up to the 11th World Trade Organization (WTO) Ministerial Conference (MC11), to be held in Buenos Aires in December 2017, Member States have renewed their focus on fisheries subsidies. International attention to designing disciplines for reducing fisheries subsidies is not new: having gained traction through the WTO's 2001 Doha Declaration and the 2005 Hong Kong Ministerial Declaration, they are now again sharing the centre stage of negotiations as MC11 approaches.

The importance of fisheries is recognised under Sustainable Development Goal (SDG) 14, to 'conserve and sustainably use the oceans, seas and marine resources' (UN, 2015). The sub-goals relate to improving the conditions of fisheries, including through acting on illegal, unreported and unregulated (IUU) fishing, refraining from introducing new fisheries subsidies, increasing benefits to small island developing states (SIDS) and least developed countries (LDCs) and enhancing access for artisanal fisheries (see Appendix). SDG 14 also addresses the fisheries subsidies issue through a sub-goal that prohibits fisheries subsidies from contributing to overcapacity, overfishing and IUU. The Samoa Pathway of the Third International Conference on SIDS, 2014, also prohibits subsidies that promote overcapacity and overfishing (Fevrier and Dugal, 2016). A fisheries resolution adopted by the UN in June 2017 reiterates support for the implementation SDG 14.

Marine, freshwater and aquaculture fisheries provide 3 billion people with 15% of the animal protein they consume and represent for 1 billion people their primary source of protein (Commonwealth Secretariat, 2016; Sumaila, 2016). Fish protein therefore has important implications for global food security. The fisheries sector generates employment for over 140 million people worldwide (Sumaila, 2016), with 97% of the world's fishers currently living in developing economies (South Centre, 2017).

Trade in fish and seafood reached 45 million tonnes in 2014 and a value of \$146 billion (FAOSTAT, 2017). Developing countries captured 56% of global fish trade (in total capture terms, 2014) (UNCTAD, 2016). They are thus majority shareholders in fisheries resources for development. Developing countries can derive significant benefit from increasing productivity within domestic fisheries sectors – and from shifting exports from fish commodities to value added products – contributing to economic transformation. Evidence on the trade benefits of fisheries is mixed, however. As Campling (2017) notes:

The pro-trade stance argues that the income generated by fish exports in the exporting country can contribute to economic growth (Bostock et al. 2004). Opponents of this view maintain that revenue from fish trade often fails to materialize (Petersen 2003), that export-oriented industry development results in local job loss (Kaczynski and Fluharty 2002), or that the economic gains are captured by elites and do not benefit the national fisheries sector or individuals connected with it (Wilson and Boncoeur 2008). Asche et al. (2015), on the other hand, demonstrate that developing countries, as a group, tend to benefit from trade with developed countries in seafood. Further, Smith et al. (2010) argue that the reasons local populations may not derive benefits from trade are more related to domestic governance issues rather than trade per se.

Global fisheries stocks are, however, suffering under the unsustainable extraction of resources from exclusive economic zones (EEZs) and the high seas. The size of the global fleet more than doubled in the past four decades up to 2012, while the number of fishers more than tripled in the same period (FAO, 2014). In 2014, the global fishing fleet reached 4.6 million vessels, of which the Asian fleet accounted for 75% of vessels and Africa 15% (FAO, 2016). The number of fisheries described as fully fished, overfished and depleted increased to 90% in 2013, from 75% in 2005 (FAO, 2014).

While developing countries are responsible for the majority of capture production, developed countries were the majority shareholders of the past, and collective action is required to correct the sustainability of global fisheries. The World Bank (2017) finds annual reductions of 5% in fishing productive effort could allow global stocks to recover within 30 years.

Fisheries subsidies² are partially responsible for increased capture rates. The most recent global estimate is that \$35 billion in fisheries subsidies was provided in 2009, of which \$20 billion has contributed to overfishing (UNCTAD, 2016; Sumaila et al., 2015). Given a lack of transparency, these estimates are likely to be conservative (Sumaila et al., 2010).

Not all fisheries subsidies are capacity-enhancing, however, and this report adopts the typology in Sumaila et al. (2010), which is accepted within the literature (see Table 1 for a typology). We focus our attention on the fisheries subsidies that are deemed ‘capacity-enhancing’, such as fuel subsidies, boat and port construction, price support or foreign access agreements. These types of subsidies can contribute to increases in landed values, the distortion of global markets and unsustainable livelihoods, and even reduce the profitability of fisheries (Heymans et al., 2011; Mukiibi, 2017).

Table 1: A typology of fisheries subsidies

	Definition	Types
Beneficial	Investment in natural capital (fisheries)	Fisheries management Research and development (R&D) Marine protected areas
Capacity-enhancing	Investments in infrastructure and operational expenditure (fisheries)	Fuel subsidies Boat construction, renovation and modernisation Port construction and renovation Price and marketing support, processing and storage infrastructure Fisheries development projects Foreign access agreements
Ambiguous	Unclear	Fisher assistance Vessel buy-backs Rural fisheries communities’ development

Source: Sumaila et al. (2010).

Returning to the WTO negotiations in the lead-up to MC11, the impact of fisheries subsidy disciplines on global fisheries trade could be far-reaching. WTO fisheries subsidies negotiations can represent a ‘triple win’ – for market liberalisation, environment and development outcomes. Also, they will be important for developing countries in terms of the restraint they place on capacity enhancement in developed countries (Campling and Havice, 2013).

Special and differential treatment (SDT) will be required for developing countries, such as through exemptions or extended timelines. Small and vulnerable economies (SVEs) can derive significant economic benefits from the sale of goods and services to distant water fleets (DWFs) in national waters, or through employment within DWFs (Campling, 2017). And, as discussed later, DWFs may be particularly reliant on fisheries subsidies, such as fuel tax exemptions.

² Adopting the WTO’s Agreement on Subsidies and Countervailing Measures (SCM) (Article 1) definition, a subsidy is ‘a financial contribution that confers a benefit’. This can include direct transfers, foregone government revenue and the provision of goods and services below market value (other than infrastructure). Other wider definitions can include access agreements, infrastructure and income and price support, such as the Organisation for Economic Co-operation and Development (OECD) definition, or externalities, such as the Food and Agriculture Organization of the UN (FAO) definition (OECD, 2017). Various studies have estimated the value of global fisheries subsidies, including bottom-up inventories by the OECD and Sumaila et al., and some country estimation for missing information has been carried out, including by Sea Around Us.

2. BACKGROUND

2.1. Data considerations

The data presented exclude freshwater and aquaculture fisheries, unless stated otherwise. We attempt to capture the most recent information on fisheries trade and fisheries subsidies, although the majority of databases with comprehensive country coverage – such as those by the Organisation for Economic Co-operation and Development (OECD), the Food and Agricultural Organization of the UN (FAO) and UN Statistics – are for the year 2013 or earlier (with the exception of global capture production, for which data are available for 2015). There is some overlap in the SIDS and LDC data categories used. Countries that are both SIDS and LDCs that are identified in the datasets are Comoros, Cook Islands, Guinea-Bissau, Haiti, Kiribati, São Tomé and Príncipe, Nauru, Niue, Solomon Islands, Timor-Leste, Tuvalu and Vanuatu. Gross value-added data from UN Statistics are not comparable across countries, as they collate information from different countries that may adopt different methodologies for estimation (for further information see <https://unstats.un.org/home/>).

The only comprehensive global dataset available for fisheries subsidies that is disaggregated to the country level is found in Sumaila et al. (2010), which contains data for 144 countries in 2003. This is not up to date but provides a basis for country, income group and regional comparisons. Note that the authors of this report disaggregated the data according to World Bank country income and regional groups, as opposed to the classifications used in Sumaila et al. (2010), in order to provide consistency with the fisheries trade data. The Sumaila et al. (2010) global estimate is then compared with more recent (but not disaggregated) global estimates or with select countries, using Sumaila et al. (2015) and the OECD fisheries support estimates database.

The country examples are based on evidence in the data and supporting literature reviews. These are countries for which fisheries trade and/or fisheries subsidies have been identified as being of particular importance in addressing different topics such as value addition in the fisheries sector and distant water fleets.

2.2. Fisheries trade

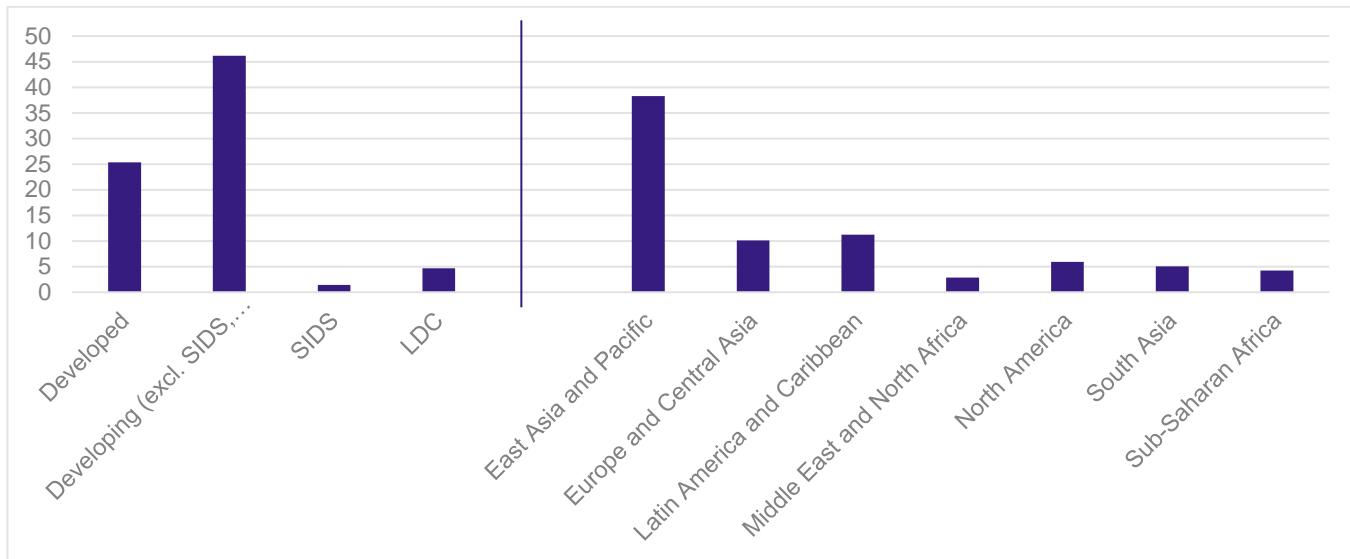
2.2.1. Global capture production

Figure 1 shows global capture in 2015, by region and income group. As noted in the Introduction (Section 1), developing countries have overtaken developed countries to account for the majority of global fish capture production (UNCTAD, 2016). Global capture production in developing countries reached over 52 million tonnes in 2015 (including in SIDS and LDCs), compared with just over 25 million tonnes in developed countries in the same year (FAOStat 2017). SIDS were responsible for 2.8% of developing countries' capture production, compared with 10.2% by LDCs. In absolute terms, SIDS global capture production was lower than that of LDCs, at 1.4 million tonnes compared with 4.7 million tonnes (*ibid.*).

From a regional perspective, East Asia and the Pacific account for the largest part of global capture, at over 38 million tonnes in 2015. This is almost the same as the scale of capture in all the other regions combined, of 40 million tonnes in 2015. In these other regions, capture production ranged from 2.9 million tonnes (Middle East and North Africa) to the higher end of 11.2 million tonnes (Latin America and the Caribbean) (FAOStat 2017).

Certain countries are responsible for a large share of global capture production. In 2015, the top five countries were China (15.6 million tonnes), Indonesia (6.1 million tonnes), the US (5.0 million tonnes), Peru (4.8 million tonnes) and Japan (3.5 million tonnes) (FAOStat 2017).

Figure 1: Global capture production by country group and region (millions of tonnes), 2015



Note: Data for 173 countries.

Source: FAOStat (2017).

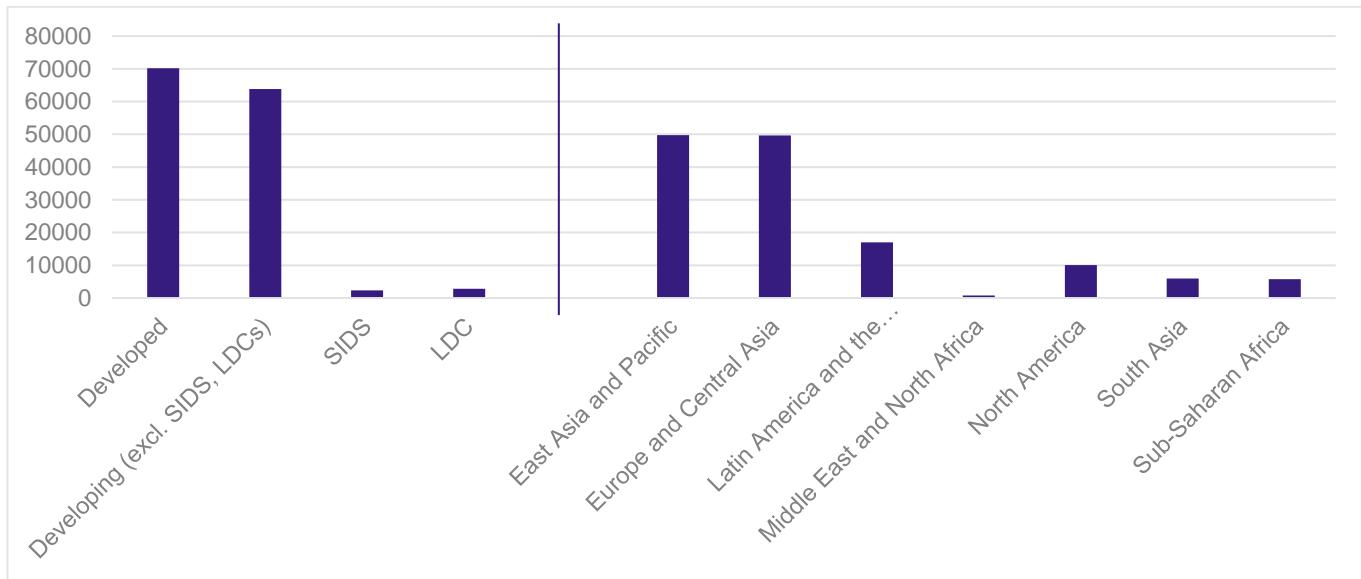
2.2.2. Fisheries trade

The global picture of fisheries commodities exports does not necessarily reflect global capture production. In fact, in absolute value terms, developed countries were responsible for more commodity exports in 2013 than developing countries (including SIDS and LDCs), at \$70.2 billion and \$68.9 billion tonnes, respectively. SIDS and LDCs were responsible for 3.3% and 4.0% of developing country commodity exports, respectively, in 2013 (FAOStat, 2017) (see Figure 2).

From the regional perspective, East Asia and the Pacific as well as Europe and Central Asia were the major exporters of fish commodities in 2013, at \$49.8 billion and \$49.7 billion, respectively. The majority of other regional export values ranged from between \$5.8 billion (Sub-Saharan Africa) and \$17.0 billion (Latin America and the Caribbean). The exception is the Middle East and North Africa, for which fish commodity exports were comparatively low, totalling only \$0.8 billion in 2013 (FAOStat, 2017).

The top commodity exporting countries for fish in 2013 include both developed and developing countries. Countries with commodity export values over \$5 billion were China (\$19.7 billion), Norway (\$10.4 billion), Thailand (\$7.1 billion), Viet Nam (\$6.9 billion), the US (\$5.7 billion) and Chile (\$5.2 billion) (FAOStat, 2017).

Figure 2: Fish commodities exports by country group and region (US\$ millions), 2013



Note: Data for 173 countries.

Source: FAOStat (2017).

2.2.3. Fisheries value addition

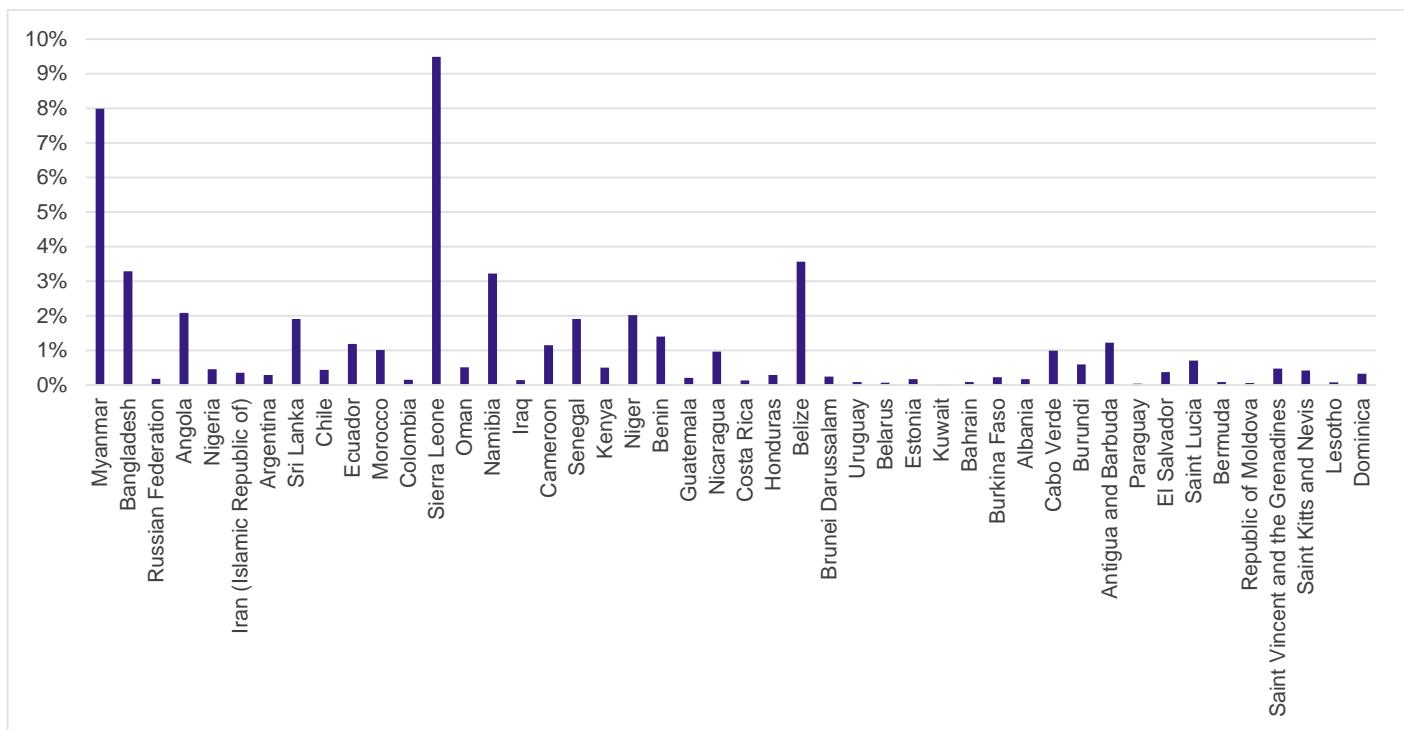
While global capture production and fisheries commodities exports provide an important indication of the size of domestic fisheries sectors, value added data are necessary to confirm whether fisheries sectors are contributing to increased productivity, and hence economic transformation. We therefore analysed data on value addition, even though, as noted in Section 2.1 above, global comprehensive datasets were not readily available. UN Data is the most comprehensive dataset, capturing 46 countries in 2013. It is worth noting that this dataset excludes some major actors in the fisheries global value chain, such as China, India, Indonesia and the US.

Given the low level of country coverage in the UN Data database, it is not necessarily prudent to identify country income or regional trends. The data present some important examples of countries that derive significant value addition from the fisheries sector, however. According to the UN Data database, 10 countries derived from more than \$1 billion in gross value added from fisheries in 2013: Myanmar (\$5.0 billion), Bangladesh (\$4.7 billion), Russian Federation (\$3.5 billion), Angola (\$2.9 billion), Nigeria (\$2.3 billion), Iran (\$2.0 billion), Argentina (\$1.5 billion), Sri Lanka (\$1.1 billion) and Ecuador (\$1.1 billion).

In order to determine how important fisheries value addition was, we then calculated this as proportion of ‘economy gross value added’, using the UN Data dataset. Over 14 countries included in the database derive more than 1% of economy-wide value addition from fisheries alone: Bangladesh, Myanmar, Angola, Sri Lanka, Ecuador, Morocco, Sierra Leone, Namibia, Cameroon, Senegal, Niger, Benin, Belize and Antigua and Barbuda. In particular, Sierra Leone derives 9.5% of total value added from fisheries, compared with 8.0% in Myanmar (author calculations from UN Data 2017). Further, fisheries value added contributes between 3% and 4% of Bangladesh, Namibia and Belize’s economy-wide value added, and between 2% and 3% of Niger and Angola’s value added (*ibid*). See Figure 3 for a graphical demonstration.

With the introduction of global targets to limit the scale of fishing (including under the SDGs), value addition may be important to retain domestic value in the fisheries sector. Given the significant contributions of fisheries to value addition in Myanmar, and the fact that the country accounts for 1.4% of global capture, Box 1 presents a brief country example.

Figure 3: Gross fisheries value added, top countries (% gross economy value added), 2013



Note: Data available for 46 countries. See Appendix for a full list.

Source: UN Data 2017.

Box 1: Fisheries value addition in Myanmar

Myanmar is a lower-middle-income country and LDC, whose capture production contributes an estimated 81% of total fisheries production (with the remainder from aquaculture) (UNCTAD, 2017). Its total capture production reached 1.1 million tonnes in 2015, equivalent to 1.4% of global capture that year (FAOStat, 2017). The agriculture and fisheries sector combined contribute 40% of total gross domestic product (GDP) and employ 70% of the total labour force (Center for the Promotion of Imports from Developing Countries in UNCTAD, 2017).

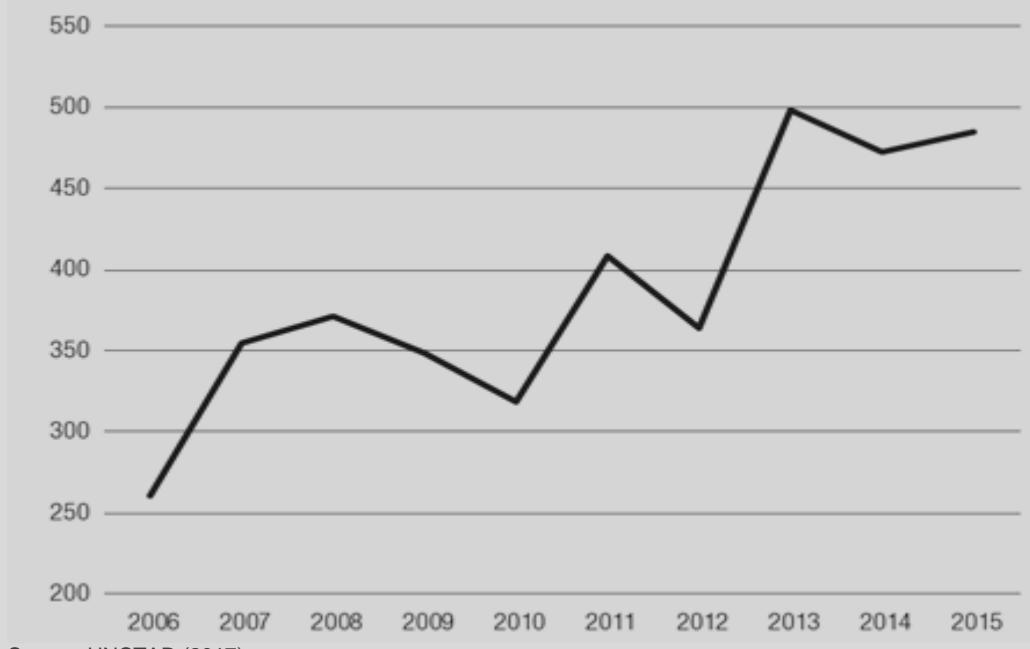
In 2013, value addition from the fisheries sector reached \$4.98 billion, equivalent to 7.98% of the country's total value addition across the economy (author calculations from UN Data 2017). The export value of Myanmar's fisheries sector has also been growing rapidly, at an average rate of 11% a year over the past two decades (UNCTAD, 2017) (see Figure B1).

As reported by the Myanmar Ministry of Information (2017), in the fiscal year 2014/15 116 cold storage and processing factories were present in the country, using both capture and aquaculture fish. Thirteen factories alone produced 1.8 billion tonnes of seafood for re-export.

The fisheries sector supplies demand in the domestic market, including the tourism sector, and international markets (Ministry of Information, 2017). Major export markets include China and Thailand, which take 35% and 26%, respectively, of total fishery exports (Department of Fisheries in UNCTAD, 2017). In 2013, the majority of commodity fishery exports were fish species (62%), followed by shrimps and prawns (16%) and crabs and sea-spiders (5%) (UN Data 2017). The majority of commodity fishery imports were also fish species (81%) (this analysis excludes ornamental fish) (*ibid.*).

Opportunities remain for Myanmar to expand its value addition in the fisheries sector, for example through improving fish product standards: even though it has access to EU preferential treatments, including under the Everything but Arms initiative (duty-free quota-free access), the country's exports to Western countries remain low, in part because of high food standards (Kyaw, 2017; UNCTAD, 2017). In the past, it has lost access to the EU market, partly as a result of poor labour force standards, violating the International Labour Organization's Forced Labour Convention (UNCTAD, 2017). Fisheries products exported from Myanmar to the EU reached a peak value of \$50 million in 2008, dropping to \$14 million in 2010 but recovering in 2012-2014 (UNCTAD, 2017).

Figure B1: Value of fisheries exports in Myanmar (US\$ millions), 2006-2015



Source: UNCTAD (2017).

The Myanmar Fisheries Federation has recently indicated an intention to double Myanmar's export value to \$1 billion a year, through a combination of productivity and product quality improvements (Kyaw, 2017). Myanmar Marine Fisheries Association is, however, pressuring the government to reduce tax rates for fishing vessel gear and diesel (*ibid.*). Decisions on subsidies would be vulnerable to the WTO fisheries subsidy negotiations standstill clause (proposed by New Zealand, Iceland and Pakistan). Though recent subsidy estimates are not readily available, in 2003 Myanmar provided only \$0.2 million in fishery subsidies (Sumaila et al., 2010). As an LDC, the country is also eligible to SDT under various WTO fishery subsidy proposals, however.

The country is also investing significantly in the aquaculture sector. This includes EU financing of €20.5 million for a five-year sustainable aquaculture programme, alongside €10.5 million for a four-year trade development programme (Kyaw, 2017). Under EU import regulations, aquaculture imports require more stringent standards when compared with capture fishery products (UNCTAD, 2017). Nevertheless, domestic investment in product standard facilities (and associated technical capacity), as well as in electricity for fishery storage, are two avenues that could increase EU market access for both aquaculture and capture fishery products (*ibid.*). This not only could increase domestic fish production, and hence value addition, but also is one avenue to encourage sustainable development of the domestic fisheries sector (if this is done in an environmentally sustainable manner).

Though the literature focuses on the major opportunities for Myanmar in export to Western markets, other opportunities arise from its membership in the Association of Southeast Asian Nations (ASEAN) and free trade agreements with other countries. For example, under the ASEAN trade area, Myanmar enjoys tariff elimination for fish and seafood products to the region (UNCTAD, 2017). In addition, it enjoys free trade agreements with countries – such as Australia, China, India, Japan, New Zealand and the Republic of Korea – that provide for tariff reduction or elimination in these markets, including for fisheries products.

2.2.4. Globalisation and global value chains

Fisheries trade is increasingly global. In 2013-2014, 36% of global fish production was traded in international markets (FAO data in World Bank, 2017). Keane (2017) argues that the fisheries global value chain has followed the general trends of the global trade landscape, in being characterised by 'a few dominant players'. These players drive the fisheries value chain globally, and are typically multinational and transnational enterprises. While a full analysis of the fisheries global value chain is beyond the scope of this paper, Keane provides some interesting findings in the context of Pacific and Caribbean countries, which are highly reliant on the oceans economy, and in particular the fisheries sector.

As an example, from the African, Caribbean and Pacific (ACP) countries, Keane (2017) identifies Vanuatu as having demonstrated significant increases in fisheries value addition in the past decade, as a result of deeper integration in the global fisheries value chain (see Box 2).

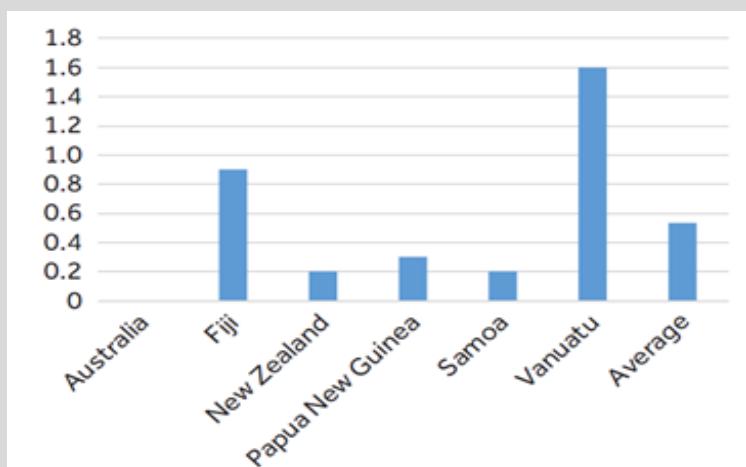
Box 2: The Pacific: Vanuatu's fishery sector transformation

Between 2000 and 2012, the Pacific realised significant increases in foreign value added, described as the share of imported intermediate inputs embodied within a country's exports (Keane, 2017). The largest increases, indicative of deeper integration in the global fisheries value chain, were in Fiji and Vanuatu (*ibid.*), the latter of which is a lower-middle income country (see Figure B2A).

Vanuatu is also classified as an LDC and a SIDS. In 2015, total capture production was only 0.1% of global capture production, or just over 75,500 tonnes (FAOStat, 2017). Despite this, there were significant increases in value addition achieved over time (Keane, 2017) (see Figure B2B), and in 2013 the total value of fisheries commodities trade reached \$64.1 million (FAOStat, 2017). There is some anecdotal evidence that this was in part because of the licensing of more boats in Vanuatu (compared with upgrading investments in Fiji) (Keane, 2017).

A number of fish species have been particularly important in Vanuatu's value addition. While tuna, bonito and billfish accounted for 51% of the country's capture production (in 2015), they accounted for almost 98% of the total value of fisheries commodities exports, equivalent to \$65.6 million (in 2013) (FAOStat 2017). This suggests these fish species are a key resource for fisheries value addition.

Figure B2A: Shifts in total foreign value added (% point change) in the Pacific, 2000-2012

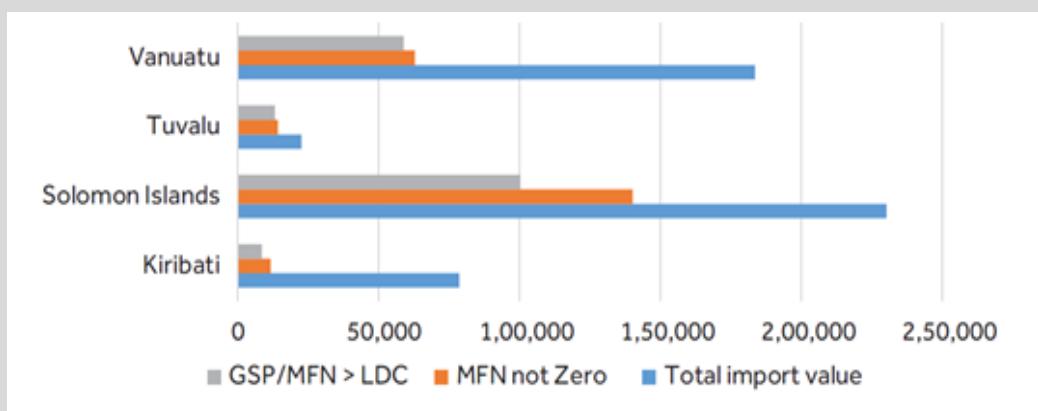


Source: Keane (2017).

In part, access to foreign markets is a product of the preferential access agreements the country enjoys. However, with Vanuatu set to graduate from LDC status in 2020, a number of its 'key' products are at risk. A large range of products (26) across a number of markets face tariff rate increases – including with the EU, Japan, China, Republic of Korea and Thailand. In particular, tariff increases would be experienced for exports to Japan (12 products) and the Republic of Korea (6 products) (Keane, 2017). Figure B2B shows the value of Vanuatu's imports receiving preference.

The Government of Vanuatu has developed the National Fisheries Sector Policy 2016-2031, which includes a pillar on 'access finance, improved infrastructures, market access, seafood safety and value-adding' (Ministry of Agriculture, Livestock, Forestry, Fisheries and Biosecurity, 2017). This prioritises investments in increasing fishery sector productivity. This supports the country to become competitive in fisheries global value chains, in the absence of preferential agreements before 2020.

Figure B2B: Vanuatu's imports receiving preference (US\$ thousands)



Source: Keane (2017).

2.3. Fisheries subsidies

Country governments are creating fiscal incentives for extraction from fisheries; this may help explain some of the trends seen in the trade data. Subsidies can alter trade behaviour in increasing the production or consumption of fisheries resources, and in diverting investment into the fisheries sector. Fisheries subsidies can also have impacts on developing countries through government accounts and capital investment (energy sector) (World Bank, 2010), hence acting as a fiscal strain.

The WTO negotiations are focusing on 'harmful' capacity-enhancing subsidies associated with overfishing – as opposed to 'beneficial' subsidies that can help improve the health of fisheries through investments in

maritime protected areas (Sumaila et al., 2010). This section therefore also focuses on capacity-enhancing subsidies.

2.3.1. Region and income distribution

Data on fisheries subsidies that are both recent and disaggregated are hard to find. A total of \$35 billion in fisheries subsidies was provided in 2009 (Sumaila et al., 2015). The Asia region provided the greater part of subsidies, followed by Europe (*ibid.*). According to country classifications in Sumaila et al. (2015), Japan and China were major developed country providers in 2009, at 19.7% and 19.6%, respectively, of developed country subsidies; the Russian Federation and Micronesia were major developing country providers, at 19% and 16% of developing country subsidies. These country income classifications differ from the World Bank classifications used elsewhere.

It was not possible to obtain disaggregated data for Sumaila et al. (2015) and hence the regional and country income findings are not comparable with data elsewhere in this report (as the study is not based on World Bank classifications). Sumaila et al. (2015) find that, accounting for inflation, the picture in 2003 was similar to that in 2009. Analysis was hence conducted on the dataset for 2003 in Sumaila et al. (2010), for which country-disaggregated data was available in the annexes, hence applying the World Bank country income and regional categories was feasible below (see Section 2.1).

Globally, \$27 billion in subsidies was provided in 2003 (Sumaila et al., 2010) (see Figure 4). Developing countries (including SIDS and LDCs) provided more fisheries subsidies than developed countries, at \$14.8 billion compared with \$12.4 billion in 2003 (*ibid.*). Excluding ‘beneficial’ and ‘ambiguous’ subsidies, developing countries provided \$9.2 billion in capacity-enhancing subsidies (including SIDS and LDCs), and developed countries \$7.0 billion (*ibid.*). SIDS provided 9.4% of total developing country capacity-enhancing subsidies, compared with 5.0% by LDCs (author calculations from Sumaila et al., 2010).³

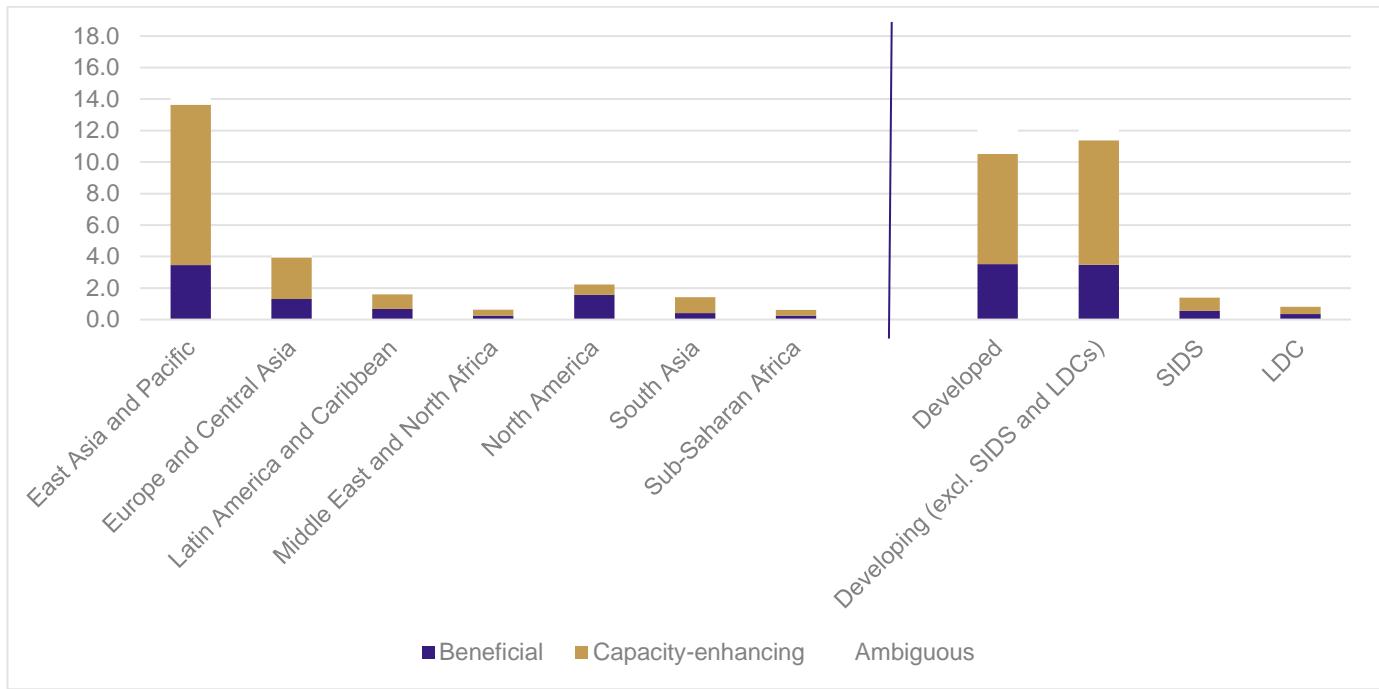
East Asia and the Pacific was the major provider of subsidies (\$15.3 billion), followed by Europe and Central Asia (\$4.7 billion) and North America (\$2.6 billion), with other regions providing the remainder (\$4.5 billion) in 2003. With regard to capacity-enhancing subsidies, only three regions provided more than \$1 billion in subsidies: East Asia and the Pacific (\$10.2 billion), Europe and Central Asia (\$2.6 billion) and South Asia (\$1.0 billion) in 2003 (Sumaila et al., 2010).

At the country level, the top providers of fisheries subsidies were Japan and China, which each provided over \$4 billion in 2003 (Sumaila et al., 2010). Other major providers of fisheries subsidies were (in descending order) the US, Russian Federation, India, Indonesia, Philippines and the Republic of Korea.

A total of 27 countries provided over \$100 million in capacity-enhancing subsidies in 2003 (see Table 2). Conversely, countries with the highest expenditure on ‘beneficial subsidies’ included China (\$1.2 billion) and the US (\$1.1 billion) that year (Sumaila et al., 2010).

³ This shows the importance of consistency in data country categorisation, as Sumaila et al. (2010) report that developed countries provide more subsidies than developing countries. This is because they include Trinidad and Tobago, Cuba and Uruguay are categorised as developing countries, and China, Russia and Taiwan as developed countries.

Figure 4: Fisheries subsidies by region and country group (US\$ billions), 2003



Source: Sumaila et al. (2010).

Table 2: Countries providing capacity-enhancing subsidies (over US\$ 100 million), 2003

Country	Capacity-enhancing subsidies (US\$ millions), 2003
Japan	3,392.1
China	2,185.9
Russian Federation	1,038.9
India	851.9
Republic of Korea	798.8
Indonesia	787.6
Philippines	609.9
Thailand	497.3
US	440.8
Papua New Guinea	427.5
Viet Nam	414.2
Spain	341.9
Taiwan	312.3
France	300.0

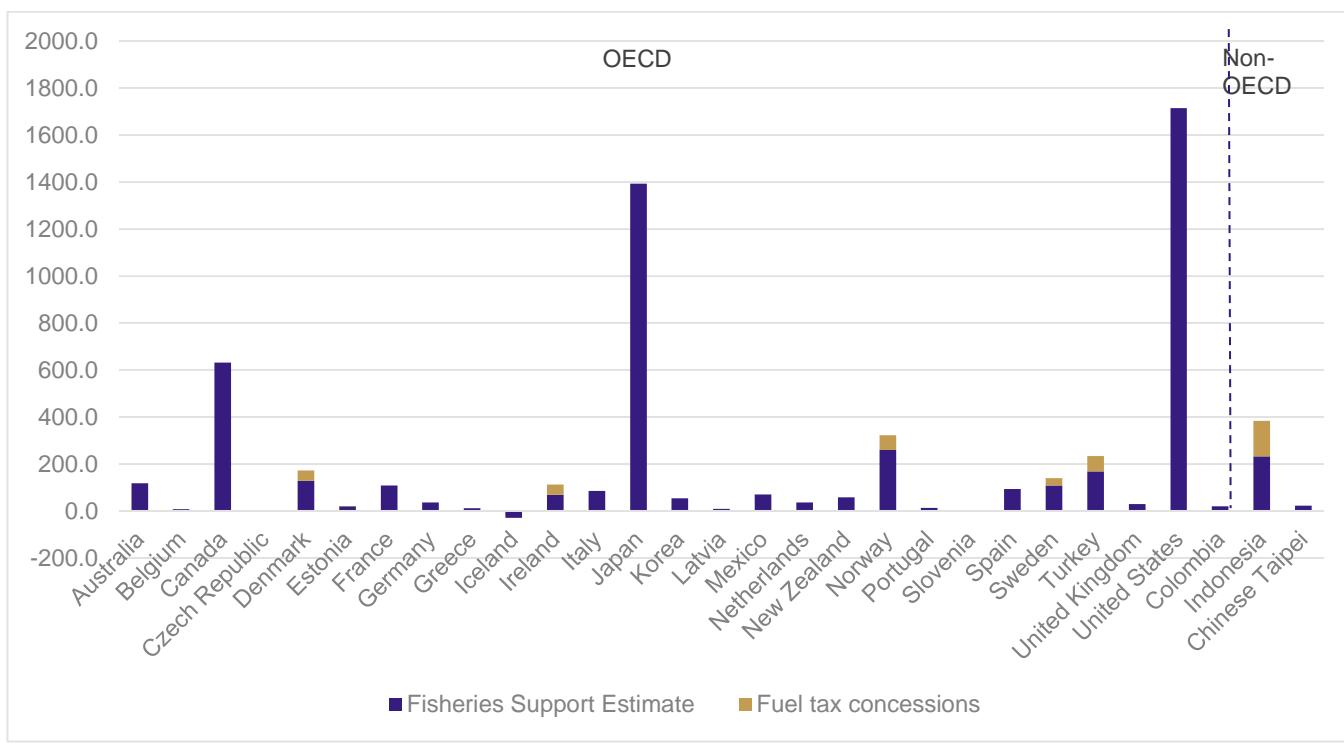
Country	Capacity-enhancing subsidies (US\$ millions), 2003
Malaysia	281.9
Canada	234.4
Brazil	206.1
Norway	197.5
Mexico	195.8
Argentina	184.4
Iran	138.2
Australia	137.3
UK	136.6
Peru	130.7
Micronesia	128.2
Iceland	115.7
Vanuatu	101.2

Source: Sumaila et al. (2010).

The most recent fisheries subsidy estimates are from the OECD (2017), for OECD countries and select non-OECD countries (see Figure 5). OECD countries provided a total of \$5.2 billion in fisheries subsidies, whereas Colombia, Indonesia and Chinese Taipei provided \$20.5 million, \$232.6 million and \$23 million, respectively, as fisheries subsidies in 2014 (more data are available for 2014 than for 2015).

In comparing OECD (2017) with data in Sumaila et al. (2010), there are some stark differences in country estimates, probably because of a combination of differences in subsidy definitions, methodologies and data years. For example, Japan's fisheries subsidies were estimated at \$4.6 billion in 2003, which is a quarter of the \$1.4 billion estimated in 2014. Indonesia's were estimated at \$989.7 million in 2003, compared with \$232.6 million in 2014.

Figure 5: Fisheries subsidies in OECD and select non-OECD countries (US\$ millions), 2014



Note: Fuel tax concession estimates only available for select countries: Denmark (34% of total fishery subsidies), Estonia (2%), Ireland (62%), Norway (24%), Slovenia (15%), Sweden (29%), Turkey (39%), Indonesia (65%). No estimates are provided for the remaining countries.

Source: OECD (2017).

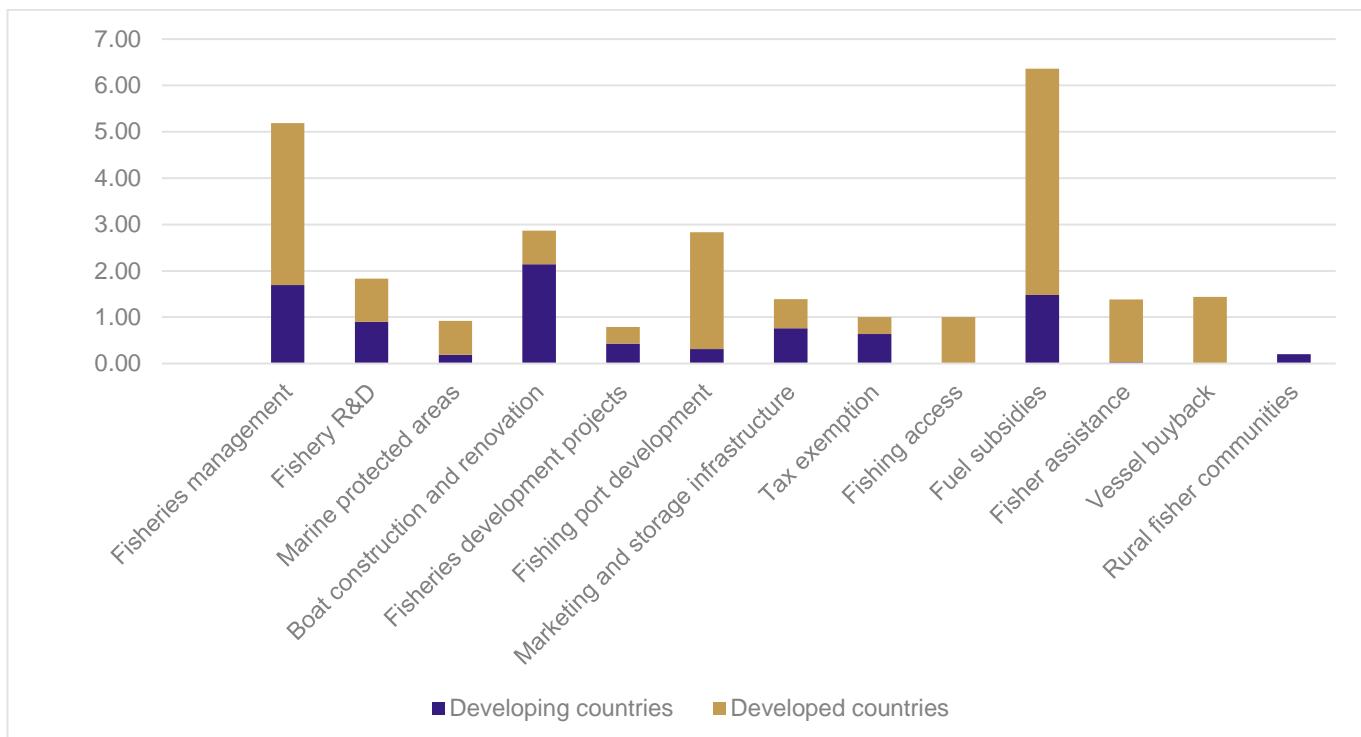
2.3.2. Types of subsidies

Figure 6 presents a global snapshot of the types of subsidies provided. This demonstrates the significant role of fuel subsidies (23%), followed by fisheries management (19%) in 2003 (Sumaila et al., 2010).⁴ This is not dissimilar to the data in Sumaila et al. (2015), suggesting there was no significant shift between 2003 and 2009. In 2009, fuel subsidies was the largest category (22%), followed by management (20%) and then ports and harbours (10%) (Sumaila et al., 2015).

While estimates on fuel tax concessions are available only for select countries in OECD (2017), the range is relatively large, with 2% of Estonia's fisheries subsidies supporting fuel compared with 62% in Ireland and 65% for Indonesia (see Figure 5). The only other fuel tax concession estimates are available for (in ascending order) Slovenia (15%), Norway (24%), Sweden (29%), Denmark (34%) and Turkey (39%). There is also a political angle to fuel subsidy perspectives, with the EU proposing carve-outs for fuel subsidies (Table 3, below).

⁴ Of the \$6.4 billion in fuel subsidies, developed countries provided the majority, at \$4.9 billion; a similar picture is found for fisheries management: developed countries provided \$3.5 billion of the \$5.2 billion total (Sumaila et al., 2010). However, these data are not consistent with the rest of Section 3, which uses country income and regional categories from Sumaila et al. (2010) rather than from the World Bank.

Figure 6: Global fisheries subsidies by category, 2003



Notes: Developing countries include Trinidad and Tobago, Cuba and Uruguay. Developed countries include China, Russia and Taiwan.
Source: Sumaila et al. (2016).

2.4. Key concepts

The data analysis has dealt with fisheries trade and subsidies across countries but the reality of global fisheries is much more complex. The Appendix summarises key concepts for the WTO negotiations and SDGs: shared fisheries, DWFs and IUU fishing, as well as artisanal fishing. Boxes 3 and 4 provide country illustrations on these issues, identified from the literature. They focus on DWFs, including the importance of fisheries subsidies, as well as their implications for nearby developing countries.

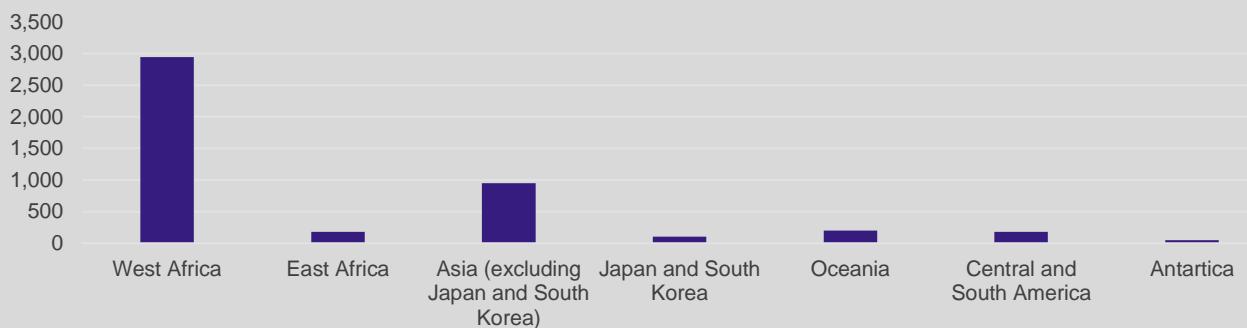
Box 3: Chinese subsidies and distant water fleets

China is the world's largest producer, consumer, exporter and importer of seafood products (European Commission, 2017). In 2014, the value of Chinese processed fish and seafood exports was \$17.7 billion; this was equivalent to a total capture production of 15.6 million tonnes in 2015 (OECD, 2016; FAOStat 2017). The sector is highly concentrated in the five provinces of Shandong, Liaoning, Zhejiang, Fujian and Guangdong, with 90% of processing contained in these provinces (European Commission, 2017). This rapid growth in fish trade may be to the detriment of domestic and overseas fisheries stocks.

The rapid expansion of the country's fisheries fleet has resulted in declines of the fisheries stocks in China's EEZ, with 30% of wild fisheries having collapsed and 20% currently overfished (data from the University of British Columbia; World Fishing and Aquaculture, 2014; Clover, 2016).

The Chinese fisheries sector has expanded its DWF presence in international waters and into the EEZs of 93 other countries (Pauly et al., 2014; European Commission, 2017). Mallory (2013) estimates that 54% of DWF catches are transported to China. Estimates on the size of the Chinese fishing fleet vary widely, from 196,800 vessels (in 2013) to 3,432 DWF vessels (in 2014) (Pauly et al., 2014; European Commission, 2017). China's DWF catch is estimated to have reached an average of 4.6 million tonnes per year (2000-2011), with 2.9 billion tonnes per year located in West Africa (Pauly et al., 2014) (see Figure B3). But there are concerns that catches are under-reported; China reported a DWF catch of 360,000 tonnes per year to FAO, or 8% of the total catches estimated by Pauly et al. (2014).

Figure B3: Chinese DWF catch by region (annual average, thousands of tonnes), 2000-2001



Note: Japan and South Korea are treated as a different category given a different methodological approach for estimation. See further information in the source.

Source: Pauly et al. (2014)

Subsidies have been central to the expansion of the Chinese fleet, and every capture tonne is subsidised by €78 (2011-2013; European Commission, 2017). In 2013, the Chinese government spent \$6.5 billion on fishery capture subsidies, of which 94% was in the form of fuel subsidies (Mallory, 2016). Other estimates suggest fishery capture subsidies were equivalent to between \$4.5 billion (in 2009) and \$7.6 billion (in 2012) in earlier years (OECD, 2015; Sumaila et al., 2016). Subsidies to fisheries management, infrastructure and vessel purchase and construction were also relatively high (Mallory, 2016).

Financial analysis of two major Chinese fishery companies involved in DWF fishing – the CNFC Overseas Fishery Company Ltd and Shanghai Fisheries General Corp – suggests that, without the intervention of government subsidies, these companies would not be able to turn a profit (Greenpeace, 2016). Meanwhile, Chinese IUU activity overseas continues to cause international disputes, for example with the US and Argentina (*ibid.*). Closer to home, Chinese EEZ border disputes continue with the neighbouring countries of South Korea, Japan and Taiwan (Popescu et al., 2013 in European Commission, 2017).

Provincial plans from Fujian and Shandong reflect the vision for the continued expansion of the Chinese DWFs (Greenpeace, 2016). However, evidence points to the diminishing returns of continued investment in the fisheries sector: while Fujian and Shandong expanded their fishing vessels by 149% and 232%, respectively, production value increased by only 63% and 77% (*ibid.*). The sustainability of fishing efforts is hence central to ensuring long-term returns.

Box 4: West Africa fisheries

The West African coastline contains some of the most valuable fisheries in the world, including high-value tuna stocks. The fisheries sector is also extremely important for the economy and population. West Africa's fisheries exports to the global market were worth more than \$489 million in 2011 (Daniels et al., 2016). The fisheries sector accounted for 9.5% of domestic value addition in Sierra Leone, compared with 2.0% in Niger, 1.9% in Senegal and 1.4% in Benin (UN Data 2017).

The sector employed 30 million people in West Africa in 2013, with the major country players being Nigeria, Senegal, Ghana and Mauritania (Ndiaye, 2013), whose total capture production in 2015 ranged from 256,175 to 295,434 tonnes (UN Data 2017). The artisanal sector also provides employment, for 32,000 people in Gambia, 45,000 in Côte d'Ivoire and nearly 100,000 in Senegal (de Graaf and Garibaldi in Daniels et al., 2016). Women also feature prominently in fish processing jobs (Daniels et al., 2016). Beyond the economic benefits, local fisheries are an important source of food. Nearly 60% of West Africa's protein derives from fish (*ibid.*).

The West African coast is also a hub of IUU activity, which accounts for between half and a third of the regional catch (Daniels et al., 2016). IUU fishing is estimated at \$1.3 billion every year, providing missed opportunities for domestic fleets (Africa Progress Panel, 2014). In particular, fisheries-dependent countries are losing out: Senegal to the tune to \$300 million a year; Guinea to the tune of \$110 million a year; and Sierra Leone to the tune of \$29 million a year (USAID, 2013 and MRAG, 2005 in Daniels et al., 2016).

Over 50% of fisheries resources are considered overfished (FAO data in Daniels et al., 2016). Weak governance is certainly one contributing factor to high levels of IUU in West Africa, with evidence of organised crime in fisheries as well as conflicts between IUU fisher and artisanal fishermen, given ever-increasing competition for dwindling resources. Daniels et al. (2016) point to loopholes in governance regimes, weak compliance and limited enforcement. Contrarily, fishing has also played a valuable role in the post-conflict recovery of Sierra Leone, providing a source of jobs and GDP growth to the country (*ibid.*).

DWFs from China, the EU and other countries dominate extraction in West African fisheries. Other countries with a DWF presence include Taiwan, Korea and Russia, including a significant presence of illegal vessels (Agnew et al., 2009). It is noted that 'Chinese trawling interests often have influence because local markets have to a degree become dependent on their landings' (Pauly et al., 2014). In total, nearly 75% of all fish caught by Chinese vessels are caught in West Africa's waters, or 3.1 million tonnes, with claims that 80% of this is unreported (World Fishing and Aquaculture, 2014). This is compared with 1.2 million tonnes caught by an estimated 274,000 artisanal fishermen in the region (Clover, 2016), showing the small share the artisanal sub-sector captures.

In the case of the EU, the bloc has secured Fisheries Partnership Agreements with developing countries in West Africa (as well as East Africa, the Pacific and Caribbean), which provide financial and technical support in exchange for fishing rights. In 2011, the EU fleet caught 400,000 tonnes in foreign waters through these agreements, of which more than half, at 240,000, were supplied to West African countries. The 160,000 tonnes supplied back to the EU that year was valued at €320 million a year (Schroer et al., 2011). The agreement has exported the problem of overfishing to some extent, however.

Daniels et al. (2016) have estimated the effect of Western Africa countries 'taking back control' of their fisheries from foreign investors. In doing so, governments could create 306,000 jobs, including a mix of fisher and processor jobs, equivalent to a 10% increase in the local workforce. This would include approximately 90,000 jobs for women, hence also triggering wider socioeconomic gains in the region. If just a fraction of the fish caught by foreign fleets was consumed locally, the impact on nutrition would also be significant (*ibid.*). In order to pursue this line of action, West African governments will need to step up enforcement of their fisheries, to reduce the levels of IUU fishing.

3. NEGOTIATION PROPOSALS

Despite the presence of other WTO agreements relevant to disciplining fisheries subsidies – such as anti-dumping under the General Agreement on Tariffs and Trade 1994 and the Agreement on Subsidies and Countervailing Measures (SCM) – fisheries subsidies have proliferated in Member States.⁵ Fisheries subsidies negotiations were first broached in the WTO Doha Development Round negotiations in 2001, and later gained momentum during the WTO Hong Kong Ministerial in 2005 and in the lead-up to MC11 in December 2017.

The Chair of the Negotiating Group of Rules (NGR) for fisheries subsidies provided draft text in 2007. This targeted subsidies for vessel construction or repair (or transfer), operating costs and port infrastructure, as well as price or income support. It also offered SDT to LDCs, as well as to artisanal fishing, vessels under 10 metres and fishing in Member States' own EEZs (if the health of fisheries stocks was proved). Exemptions also included aid for natural disaster relief, crew safety, re-education of fishers into alternative livelihoods and environmental or sustainability-related investments. However, the text created tensions among countries – such as the EU, the US and Japan – which were divided on scope and coverage. Following the deadlock, countries forwarded new proposals for fisheries subsidies reform in 2009. Some other Member States – for example Japan and the Republic of Korea – have meanwhile been among the greatest challengers of reform. For example, Japan has argued that there is no established link between subsidies and fisheries depletion (Bahety and Mukiibi, 2017).

Several new proposals for MC11 contain different approaches to the scope of prohibitions, SDT and other carve-outs. Table 3 provides an overview of these.

Scope. The prohibitions on subsidies related to overfishing, overcapacity and IUU fishing are largely agreed on across the proposals. The EU and the New Zealand, Iceland and Pakistan bloc, however, do not explicitly mention 'overcapacity'. The EU proposal isolates 'capacity-enhancing' subsidies, which other proposal refer to as 'overcapacity'. The major exceptions to this rule are Norway and China, which include only IUU fishing. A recent communication by the Chair of the Negotiating Group on Rules supports this in focusing disciplines on overfishing and overcapacity (November 2017; WTO NGR, 2017).

Other major differences in scope relate to the location (or type) of fishing taking place – with only the ACP Group and the New Zealand bloc proposing the prohibition of subsidies to industrial fishing and fishing outside of Member States' own EEZs. The New Zealand bloc further recommends a prohibition on subsidies for high seas fishing; this is the only proposal to do so. While both the EU and Indonesia proposals suggest the banning of subsidies to fishing vessels (construction, maintenance, etc.), Indonesia is the only proposal to prohibit operational cost subsidies. The LDC proposal focuses on issues closer to home, with general exemptions for artisanal fishing and fishing within Member States' own EEZs (as well as within the bounds of regionally agreed upon quotas). The Philippines proposal advocates for the elimination of subsidies in waters claimed by more than one Member.

SDT. The differences in relation to SDT are much broader, despite some areas of overlap. The ACP proposal focuses narrowly on LDC and SVE exemptions (particularly for artisanal fishing and fishing inside of Member States' own EEZs or within the bounds of regional agreement quotas). The New Zealand bloc also argues for LDC exemptions, but only if the subsidies scope is expanded beyond their proposal, meaning LDCs' treatment would not differ (if this proposal was agreed without further carve-outs).

The China, EU and Indonesia proposals adopt a wider recognition of developing countries. The EU, for example, focuses on developing countries and LDCs, provided vessels are under 10 metres (and providing evidence they are not contributing to overfishing). Indonesia provides for developing country exemptions but only for artisanal fishing and vessels below 24 metres (and provided it is within the bounds of regional/high sea quotas). In contrast, the Norway and US proposals do not address SDT provisions.

⁵ See footnote 2. Many Member States are also party to the Convention on Biological Diversity (multilateral environment agreement), which outlines the need to reduce those market distortions that adversely affect biological diversity; align incentives to promote biodiversity conservation and sustainable use; and internalise costs and benefits in the given ecosystem to the extent feasible.

There are also some differences in SDT approach, with the ACP providing for flexibilities in design and implementation (though these are not specified). With regards to design, the New Zealand bloc focuses on the concept of proportionality, so as to not undermine the effectiveness of the agreement. The ACP Group's provisions of proportionality for transparency requirements echo this. With respect to implementation, however, the China, Latin America Group, LDC and New Zealand bloc proposals all recommend transitional periods – such as those in the Trade Facilitation Agreement – which the Latin American proposal explicitly references. The ACP Group, the LDCs and Indonesia also provide for 'technical assistance', while the Latin America Group, the New Zealand bloc and the LDCs focus on 'capacity-building'. The LDCs is the only proposal that specifies that capacity-building should be conducted in a sustainable manner.

Other **carve-outs** are focused primarily on exemptions for safety, in the case of natural disasters, or for enforcement (see Table 3). The EU also proposes exemptions for fuel de-taxation schemes and provides a central role for transparency in any WTO agreement. The US echoes the central role of transparency, although it advocates the inclusion of fuel subsidies and aquaculture subsidies in reporting requirements. Neither Indonesia nor Norway addresses the issue of transparency, which is present in the other proposals (WTO, 2017).

Table 3: MC11 positions of major negotiating groups

Negotiating blocs/countries	Scope of fishery subsidies	SDT	Other (e.g. carve-outs)
ACP Group	<ul style="list-style-type: none"> Overfished stocks Contributing to overcapacity Vessels involved in IUU fishing Large-scale vessels and industrial fishing Fishing outside of Member's EEZ 	<ul style="list-style-type: none"> Exemptions for LDCs and SVEs, particularly for artisanal fishing and fishing confined to Member's EEZs or within regional agreements Flexibilities in design and implementation timelines of disciplines (except for illegal fishing) Technical assistance and capacity-building Transparency that is proportionate to 1) capacity of developing countries and 2) contribution to overfishing and overcapacity 	Exemptions for safety, R&D and sustainability of stocks, as well as equipment for safety of crew and vessels, for reducing environmental impact, reducing vulnerability to climate change and improving compliance with fisheries management
Argentina, Colombia, Costa Rica, Panama, Peru and Uruguay	<ul style="list-style-type: none"> Vessels involved in IUU fishing Overfished stocks Contributing to overcapacity Standstill clause during negotiations, preventing introduction of new subsidies 	<p>Adopt a Trade Facilitation Agreement approach, with:</p> <ul style="list-style-type: none"> Category A implementation by 2020 Category B allowed a transitional period and Category C allowed a transitional period and capacity-building support 	<ul style="list-style-type: none"> Exemptions in the case of natural disasters Exemptions for small-scale artisanal fishers

Negotiating blocs/countries	Scope of fishery subsidies	SDT	Other (e.g. carve-outs)
EU	<ul style="list-style-type: none"> SCM definition of subsidies Capacity-enhancing (incl. ability to find fish) To fishing vessel construction or import For the transfer of fishing vessels Vessels involved in IUU fishing 	<ul style="list-style-type: none"> Exemptions for developing countries and LDCs for subsistence fishing Exemptions for developing countries and LDCs if: <ul style="list-style-type: none"> Stocks are not overfished Effective management is proved (on the basis of best available science) Fleet management plans demonstrate subsidies will not contribute to overfishing 	<ul style="list-style-type: none"> Transparency is an essential element Does not apply to fuel de-taxation schemes
Indonesia	<ul style="list-style-type: none"> SCM definition of subsidies Maintenance or upgrade of existing vessels, and other capital inputs For operational costs Vessels involved in IUU fishing Contributing to overcapacity and overfishing 	<ul style="list-style-type: none"> Developing country exemptions for artisanal fishing Developing country exemptions for small-scale fisheries for vessels, provided they are: <ul style="list-style-type: none"> Below 24 metres, and operating in the Member's EEZ, or Obtain regional or high seas fishing quotas 	<ul style="list-style-type: none"> Not applicable to inland fisheries and aquaculture Exemptions on subsidies for safety, control and enforcement, and equipment for reducing emissions Developed countries provide technical assistance to developing countries (including in enforcement)
LDCs*	<ul style="list-style-type: none"> Overfished stocks Vessels involved in IUU fishing (and illegal transhipment) Contributing to overcapacity and overfishing For capital or operating costs 	<ul style="list-style-type: none"> LDCs shall receive technical assistance (including to address constraints in fighting IUU fishing) Developing countries (not engaged in large-scale industrial distant water fishing) and LDCs shall receive transition periods Artisanal and small-scale fisheries, and fishing within EEZs, or fishing within regional quotas Prohibitions over than those outlined should not apply to LDCs Capacity-building to help LDCs develop their fishing capacity in a sustainable manner (including assessment of stocks) Transparency and notification requirements proportional to countries 	<ul style="list-style-type: none"> General exemptions for: <ul style="list-style-type: none"> Artisanal, coastal fishing EEZ fishing Fishing within regional quotas Safety, reducing environmental impact and compliance with fisheries management Inland fisheries, aquaculture and recreational fishing

Negotiating blocs/countries	Scope of fishery subsidies	SDT	Other (e.g. carve-outs)
New Zealand, Iceland and Pakistan	<ul style="list-style-type: none"> For IUU fishing For fishing where stocks are not assessed or overfished Fishing on the high seas or in other Members' EEZs Industrial or large-scale fishing 	<ul style="list-style-type: none"> Proportional to disciplines so as to not undermine their effectiveness Specified prohibitions should apply to all Members LDC differential treatment, in the case of any additional prohibitions LDC transitional arrangements, capacity-building, as well as transparency, monitoring and review 	Enhanced reporting requirements are proposed for effective enforcement
Norway	Vessels or operators involved in IUU fishing		IUU applies for 5 years
China	IUU fishing vessels	Developing countries and LDCs declaring difficulties are permitted a transition period, in relation to unreported and unregulated activities in small scale, artisanal and/or subsistence fishing	Provisions for dispute settlement procedures
US**	There is a lack of information on the scope, nature and extent of fishery subsidies prohibitions		<ul style="list-style-type: none"> Transparency is an essential element Re-commit to SCM Agreement and implement Article 25.3 Inclusion of fuel subsidies and aquaculture subsidies
Philippines	For fishing (and related activities) in waters claimed by more than one Member at the time of this Decision.		Implementation no later than 2020.

Note: *This is based on submissions by Rwanda, Benin, Cambodia and Guyana. **The US is advocating a re-commitment to the SCM Agreement, as opposed to a new fisheries subsidies agreement. The submission by Cambodia advocates the SCM Committee to undertake annual review under the fisheries agreement.

Different countries and negotiation bloc positions will be influenced by the combination of 1) relative importance of fisheries trade to their economies and 2) relative reliance of their domestic fisheries sectors on fisheries subsidies. Recent data on subsidies are very hard to obtain and existing calculations are from as far back as 2003.

In an effort to disentangle the vulnerabilities of different countries, Section 4 provides an overview of this data.

4. EFFECTS ON ECONOMIC TRANSFORMATION

Section 3 has already demonstrated the importance of fisheries to developing countries. The evidence demonstrates the benefits of fisheries value addition, for example in the case of Myanmar and Vanuatu. Successful transformers have also taken advantage of the fisheries sector, as is the case for China.

This section focuses on the role fisheries subsidies play in enabling or disabling economic transformation in developing countries.

As noted, fisheries subsidies take multiple forms. This section focuses on capacity-enhancing subsidies. These include, for example, grants or flexible loans to expand fleets or acquire gear, as well as support to pay for inputs such fuel and crew members. Regardless of the form these capacity-enhancing subsidies take, however, they will operate on the supply side by increasing capacity to capture or by reducing the operational costs of operating fleets.

Capacity-enhancing subsidies increase supply over the typical free market solution; as well as reacting to the market, firms respond to government support. This means that, for a given demand, the resulting price is lower than the equilibrium price that would prevail without subsidies. Putting aside any discussion on how they are financed, subsidies benefit both consumers and fishers. For example, fishers receive support in meeting the operation costs of vessels, which would not be able to operate under normal market conditions. Increases in supply generate lower prices, benefiting consumers.

The effects of subsidies go further than the countries that received them. If capacity-enhancing subsidies are provided to fishers in a small country (in terms of the volume of supply), the effect on international prices will be small.

However, if a sufficiently large supplier, or many small suppliers, provide fisheries subsidies, the effect on international prices may be significant. The increased global supply will lower international fish prices; this will in turn lead to lower revenue to other fishers and force fishers to reduce their capture below the levels at which this would occur in the absence of subsidies. All countries that partake in fisheries would then feel the negative capture volume effects, with the subsidies transferring capture between countries. The impact would be particularly negative for countries such as SIDS, which rely on such resources for livelihoods, trade and value addition.

Overall, capacity-enhancing subsidies affect global efficiency and productivity, as efficient fishers are replaced by less efficient fishers in subsidising countries. They allow for the operation of fishers that, by virtue of their higher production costs, would not be economically viable, or able to capture, under normal market conditions. From the global perspective, there is an overall welfare loss as capture is transferred from efficient to costly fishers. Moreover, there is a general productivity reduction as less efficient fishers increase capture.

Beyond these welfare considerations, there is a serious global income redistribution issue. If we consider that many affected fishers are likely to be in low-income or vulnerable economies, the distributive impacts can depress fisheries sector development. Income is hence being transferred from fishers in these countries to fishers operating in more developed countries. Poverty also increases as incomes in developing countries fall.

These are the typical effects of any subsidy operating at the global level, and are not isolated to fisheries subsidies. They are not particularly distinct from subsidies affecting agricultural commodities in developing countries, for example, where the same type of issues can be identified in terms of global welfare and world income distribution.

Fisheries are renewable resources, but this is reliant on their sustainable management. Fish stocks can be depleted if the resource is intensively exploited above the maximum sustainable yield (defined as the rate at which individuals can be removed that allows the stock to remain indefinitely productive). If the rate of extraction of fish is higher than this, the stock will deplete.

Countries can ensure fish stocks are not overfished. For example, they can introduce closed seasons or directly ban the fishing of certain species, or fishing in certain areas. Their actions are limited to their territorial waters (or EEZs), however. They cannot prevent the overfishing of shared, regional or high seas fishing stocks. If international ocean property rights are not assigned, fishers can fish as much as they can, leading to problems of collective action, including the 'Tragedy of the Commons'. This is exacerbated by the presence of subsidies that help fishers from many parts of the world to operate in remote locations, in particular through the application of operational and fuel subsidies.

While the elimination of capacity-enhancing subsidies may not prevent overfishing – and regional or international agreements and coordination are also required – the existence of subsidies to fishing increases the likelihood of coordination problems.

Capacity-enhancing subsidies to fishing thus affect developing countries by (i) reducing prices and (ii) affecting the sustainability of fisheries on which developing communities depend. The elimination of these subsidies will help generate sustainable development and economic transformation around fishing in many developing countries.

5. IMPACT ASSESSMENT

This section aims to analyse the impacts of subsidies on the fisheries sectors of developing countries, through impact analysis, to test the theoretical linkages set out in Section 4. Table 4 presents the scenarios that this section analyses, focused on the elimination of fishery subsidies and the role of SDT.

Table 4: Scenarios for the impact assessment

Scenario	Objective
1. Elimination of all subsidies	Reduction of trade-distorting subsidies, in particular capacity enhancement
2. Elimination of all subsidies with maximum SDT	Allow LDCs to retain some capacity to use subsidies to develop commercial fisheries

5.1. Literature findings

The literature identifies the possible impacts of overfishing and fishery subsidies on global fish stocks. Very few studies have generated quantitative assessments; this section reviews one such paper.

The World Bank (2017) uses a bio-economic model, finding that global annual lost revenues from overfishing were worth \$83 billion in 2012. The sources of benefit are lower fishing costs (52%), higher unit prices of landed fish (33%) and higher harvests (15%). The majority of the benefit accrues to Asia (65%), followed by Europe (15%), Africa (12%), the Americas (7%) and Oceania (1%).

The report analyses two pathways towards the global recovery of fishing stocks: the most rapid path and the moderate path. The latter would require reducing global fishing effort by 5% a year for 10 years to reach the 'ideal' level in 30 years. The most rapid path generates the highest net present value, while lessening the cost of action. The 'ideal' level of fisheries stocks would also create oceanic fish biomass increases of a factor of 2.7; annual harvest increases of 13%; and unit fish prices increases of 24%.

The bio-economic model assesses the interaction between global fishing effort and changes in global fisheries stocks; it hence does not assess the interactions or performance of individual fisheries or fishing operations. The model excludes the other major source of fisheries dynamics, fishing capital, which capacity-enhancing subsidies promote. The model focuses on the interactions among biomass, biomass growth, harvest, fish price, fishing revenues, fishing costs, net benefits and level of fishing effort, with

fishing effort as the exogenous factor. For calculating benefit, it adopts a ‘middle ground’ between true financial profit (costs and revenues, including all taxes and subsidies) and economic net benefit (nets out taxes and subsidies that reflect transfer payments, to concentrate on the true cost of production) – using an equation computing the aggregate revenues (unit price, multiplied by catch level) minus aggregate costs. This is assumed at \$3 billion in 2012.

5.2. Estimating the effect of subsidies removal

To provide complementary quantitative analysis to the global debate, this section focuses specifically on the impact of fisheries subsidies removal on specific countries (selected based on the latest available data in OECD, 2017).

Assessing the effect of the elimination of subsidies in developing countries is complex, as this depends on multiple factors. On the one hand, the elasticities of demand and supply will determine how the price will respond because of the elimination. A very inelastic demand function will generate a larger increase in the world price. This elasticity is likely to depend on the type of product. This may be addressed by quantitative assessments at very disaggregated levels, which, owing to time and data constraints (e.g. level of subsidies per fisheries species), is not feasible. Therefore, a general assumption of an elasticity will be adopted, which may result in inaccuracies for many countries.

On the other hand, the effect of fisheries subsidies elimination on firms currently benefiting from them will depend partly on firms’ efficiency. The elimination of subsidies is likely to generate a process of restructuring within the sector, whereby efficient firms may absorb inefficient ones. Although there may be a reduction in the capture in the EU, Japan or Korea, it is likely that existing efficient firms will gain scale and become more productive. Consequently, some fishing firms from these countries are likely to continue capturing. Therefore, it can be hypothesised that the elimination of subsidies alone is not likely to prevent overfishing. It may reduce its incidence and localise overfishing problems, but a global coordination mechanism may still be necessary to achieve the sub-goals of SDG 14. Subsidies may exacerbate overfishing but they are not the only factor; it is caused primarily by a poor allocation of property rights.

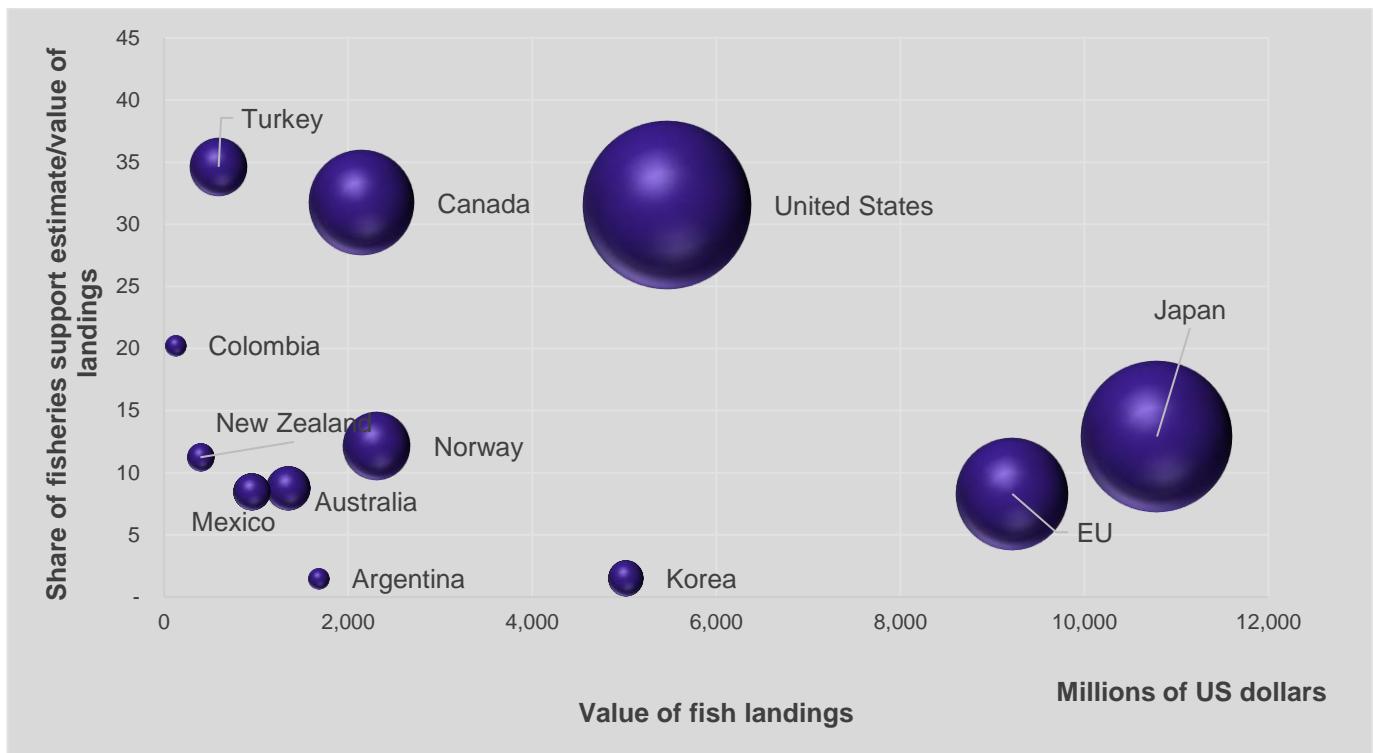
Despite the difficulties involved in precisely assessing the effect a reduction of subsidies will have on the fishers that receive them, it is possible to make an initial assessment as to how fisheries subsidies elimination will affect countries that provide them in broad terms. From such countries, it will be possible to conduct a high-level assessment on how this could affect the most vulnerable countries.

0 shows the relationship between the value of fish landings and fisheries subsidies (total fisheries support estimate; OECD, 2017). The size of the bubbles represents the value of fisheries subsidies in US dollars. It can be seen, for example, that the value of Canadian fisheries support represents around 31% of the value of total fish landings. Turkey shows the highest relative value of the fisheries support estimate, representing 35% of the value of the landings.

These relative values would indicate how much of the fisheries income is provided through government support (or subsidies), as well as through other price support mechanisms. The higher the value, the stronger the impact of subsidies removal on their beneficiaries, through impacts on their income. This suggests that, for firms located in Turkey, Canada or the US, the removal of subsidies would create a serious shock, affecting the total volume of landings in these countries.

The effect on international prices will depend on the volume of landings. In this case, the reduction of subsidies in Turkey or Canada is expected to have a smaller effect than the reduced landings in the US. In the case of the EU and Japan, fisheries subsidies represent a lower share of the value of landings, which suggests the effect on their domestic firms will be smaller. However, because their landings represent a high share of the world total, even a small reduction may affect world prices.

Figure 7: Fish support estimates and value of fish landings (size of bubbles represents value of fish support estimate), average 2012-2014



Source: Authors' own calculations based on OECD (2017).

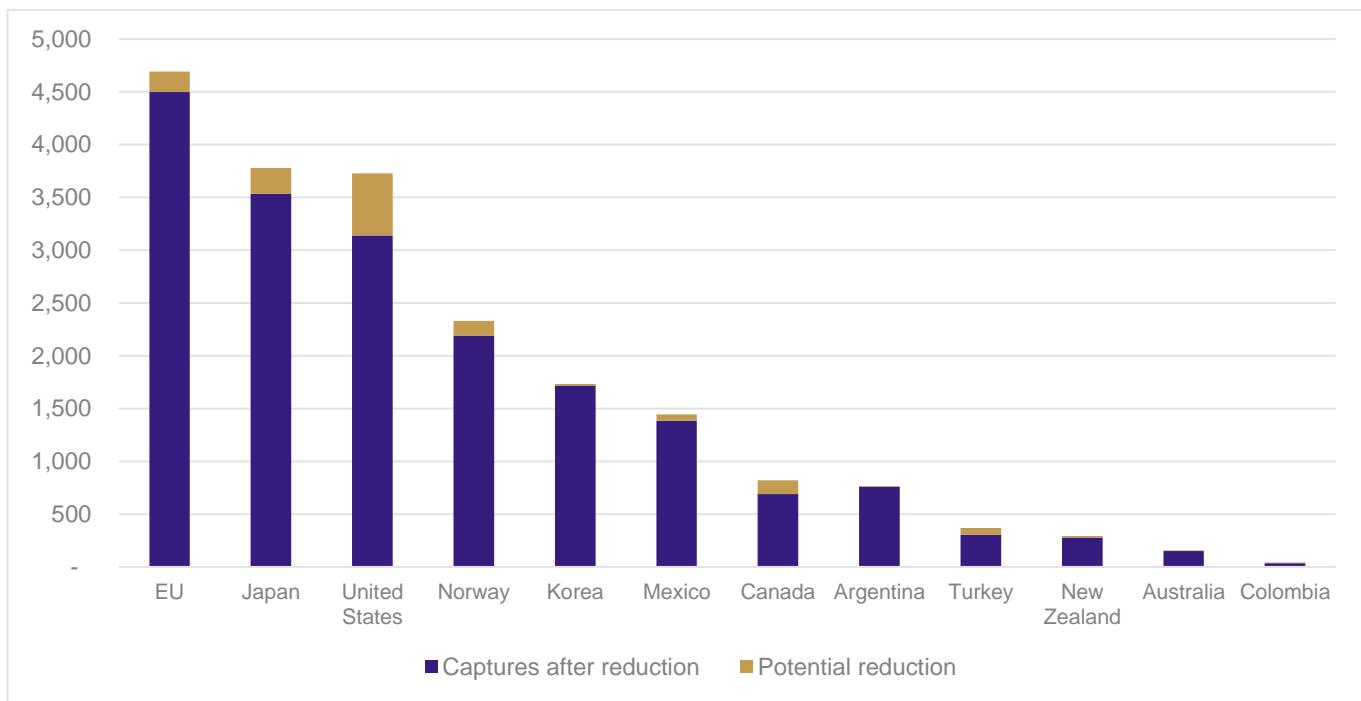
It is quite difficult to determine how the elimination of fisheries subsidies would affect the supply of each country. As we have mentioned, subsidy elimination would promote restructuring, whereby efficient firms absorb inefficient firms. This means the value of landings is not going to fall by the same value as the absolute fall in fishery subsidies. An assumption is thus required of the proportion of landings that the elimination will affect. We assume, for the sake of simplicity, that the value of landings will fall by just half of the existing value of the fisheries support estimates. This will imply a fall in all the countries considered of \$2.7 billion.

The calculations are simplistic, hence vulnerable to subjectivities (e.g. the half transmission assumed). They do not include information from China, India, Indonesia, Brazil or Russia, or any other developing countries. Therefore, they probably represent an underestimate of the reduction in landing values.

As a further step, we can use data on the capture (tonnes) of existing landings, assuming that the reduction in the value of landings is associated with proportional reductions in the volume of landings, to estimate that the capture of these countries would decline by 1.5 million tonnes (see Figure 8). Given that global captures reach nearly 77.7 million tonnes, the elimination of subsidies would cause global captures to decline by 2%.

Two adjustment processes may operate simultaneously in this case. If the adjustment is entirely through prices, developing countries would have opportunities to increase the value of their captures and exports. This can be considered a short-run adjustment where captures remain constant. The magnitude of this adjustment would depend on the elasticity of demand, which is likely to observe a large variation depending on the product. Consequently, the effect would be felt differently in each country based on the capture profile.

Figure 8: Potential reduction of captures after reduction of subsidies (in thousands of tonnes)



Source: Authors' own figure based on OECD (2017) and FAOStat (2017).

Alternatively, a quantity-based adjustment would imply a transfer of captures from subsidising countries to non-subsidising countries (or countries providing a high level of subsidies to countries providing a low level of subsidies). This would imply an average increase in captures of 2.6%. However, as this figure is computed out of a base number that does not include a number of countries with a high level of subsidies – such as China, Taiwan, Indonesia, Brazil and Russia – it is likely to be an underestimate. If we then assume that these countries will reduce their current captures upon subsidy removal, and that they do not benefit from any increase, other developing countries would see their captures increase by 5.5%. The distribution among countries would, however, depend on how the different products will be affected.

5.3. Caveats in the data

At this point, it is worth noting some caveats. The global fishing effort is currently at an unsustainable level, requiring a global move towards reducing fishing. A combination of declining fish stocks and declining global fishing effort could therefore reduce global capture opportunities in the short term, in order to allow fish stocks to recover. However, in the 'ideal' scenario envisioned by World Bank (2017), if fish stocks were allowed to recover and increase returns in the longer term, opportunities could be higher.

Due to time and data limitations we were not fully able to assess the impacts of subsidy removal to DWFs and IUU fishing. Brief data analysis presented below, reveals that targeting subsidy disciplines in these areas could have an even greater impact in decreasing global fishing overcapacity (when compared to the above data findings).

Fuel subsidies can be argued to be a major determinant of the economic viability of distant fishing activity (e.g. China and EU; see Section 2). DWFs are responsible for significant global fishing capacity, and in some instances, the removal of fuel subsidies could lead to the cessation of certain distant fishing activities. In this context, the scale of fishing effort – by subsidising countries – could be greatly reduced, unless this capacity is replaced by local fleets. Assuming that half of a country's total fuel subsidies are granted to DWFs and, assuming half of DWF activities continue (as a result of efficient firms absorbing inefficient ones and moving to nearby waters), then the following calculations can be made. In China, adopting fishery subsidy estimates in Mallory (2016): eliminating China's \$6.11 billion in fuel subsidies

would reduce the Chinese fleet's fish landings by \$1.53 billion (2013 data).⁶ For the OECD, by adopting the OECD (2017) fishery subsidy estimate of \$5.20 billion: eliminating \$1.83 billion in fuel subsidies, the OECD fleet's fish landings would decline by \$485.5 million (2014 data).⁷ Assuming that the reduction in the value of landings is associated with proportional reductions in the volume of landings: China's landings would decrease by 3.89 million tonnes and the OECD landings by 4.12 million tonnes annually (2015 data; FAOStat). A similar argument could be fashioned for the EU DWF.

These DWF estimates are likely to be conservative, as we can argue that distant fishing activities often occur sufficiently far away that even efficient firms cannot necessarily justify these activities economically, in the absence of subsidy income. Whilst, nearby fisheries may not be able to support the same scale of fishing activity. Hence, further study would need to assess the overall impact as a function of: (i) the efficiency of firms, (ii) the proportion of fuel subsidies allocated the country's DWF, (iii) the distance such fleets travel, and (iv) the availability of sufficient fishery resources nearer to the country in question.

Subsidy disciplines applied to IUU fishing could also have a disproportionate impact. If IUU subsidy disciplines were combined with globally effective IUU fishing enforcement measures, up to the complete value of IUU fishing would be eliminated. This is estimated at a quarter of total global capture (2016 data; UNCTAD, 2016). Or, \$276.3 billion in capture (2013 data; FAOStat). Though, it is important here to re-emphasise that subsidy disciplines alone are insufficient and complementary enforcement measures are necessary.

5.4. Special and differential treatment

Many developing countries are negotiating exemptions from subsidy prohibitions, with proposals reflecting differing degrees of SDT. Section 3 presents these proposals.

The case for SDT, as its proponents suggest, is that developing countries, and LDCs in particular, may need to use fisheries subsidies to develop their fisheries sector. In many developing countries, artisanal and small-scale fishing operations may require (by virtue of the high setup cost) support and incentives to become market-oriented operations, which can provide employment and income to a larger number of people. Market incentives, according to this view, would often not be strong enough to overcome the high setup costs encountered for large-scale commercial fishing activities. The entry costs are higher for developing countries, given limited access to finance and the high cost of capital.

Although subsidies may help in overcoming these high setup costs, this brief discussion is focused on whether LDC exceptions will be unnecessary, as well as continuing to distort international prices. As noted in the previous subsection, the reduction of fisheries captures in subsidising countries increases international prices, with opportunities to benefit fisheries in developing countries.

From the economics perspective, the arguments in favour of allowing for this flexibility are not strong. Subsidies are expected to introduce the same type of existing distortions, with effects differing only in terms of the magnitude of the support. Accounting for 6.1% of world fish captures, subsidies granted by LDCs may have a similar effect as subsidies currently provided by a country such as Japan. Globally, this may seem small and allowable. However, the effects may be even stronger if these subsidies are limited to certain species, hence affecting fishers only in particular countries.

Although the global distortionary effects may be small, a SDT provision allowing subsidies in LDCs is likely to divert resources away from other development spending. Subsidies generate the appearance of inefficient firms in LDCs in the same way that current subsidies lead to inefficient fishing in the subsidising countries. Subsidised firms could hence create a drain in the countries' resources that an increase in

⁶ Calculation based on 94% of China's fishery subsidies being fuel subsidies (Mallory, 2016).

⁷ Calculation based on data on the average proportion of fuel subsidies in the OECD, though fuel subsidy estimates are only available for 7 countries: Denmark, Estonia, Ireland, Norway, Slovenia, Sweden, Turkey (OECD, 2017).

output and employment will not offset. In a context of limited resources, typical in LDCs, this policy will not contribute to economic transformation by maximising productivity and increasing efficiency. On the contrary, subsidies are likely to generate a poorly developed sector, reliant on subsidies for its survival.

The development of a modern fisheries sector needs to be based on other types of economic transformation policies. Some of these policies may be horizontal or enable economic transformation. These include improving the business climate, tax reform, investment in infrastructure, etc. Other policies may be sector-specific, such as providing specialised training, as well as technical standards facilities, which are not firm specific. The presence of such policies can be argued to be essential for LDCs to effectively integrate into the global fisheries value chain (e.g. Myanmar and Vanuatu; see Section 2).

The EU and Indonesia proposals are advocating for SDT provisions to be granted to developing countries in certain instances, rather than to LDCs in isolation. It can be argued in the absence of LDCs adopting economic transformation policies – such as conducive to developing an efficient fisheries sector – they would be less competitive in the fisheries global value chain. Under this scenario, LDCs run the risk of missing out on the global opportunity arising out of global fishery subsidy disciplines, should they be outcompeted by other, more competitive, developing countries in the global value chain. It could therefore follow that any WTO agreement should include international support for LDCs, through the avenue of technical capacity building. The type of technical support required by LDCs is likely to vary significantly across countries, requiring flexibility in the design of such a mechanism, in any WTO agreement. It is worth noting that such technical support is being advocated by the LDCs Group and New Zealand, Iceland and Pakistan bloc proposals.

6. CONCLUSIONS

Developed and emerging economies, including Japan, China, the US and the EU, alongside others, currently dominate the global fisheries trade landscape. The global landscape of fisheries subsidies is one explanatory factor for this trade dominance, enabling China and the EU, for example, to go into distant waters. In the case of China, fishery subsidies are dominated by fuel subsidies, which are enabling these DWFs to operate. The EU is also advocating fuel tax exemptions in any WTO agreement on fishery subsidies, while the US proposal includes a need for reporting on fuel subsidies. This demonstrates that the scope of prohibitions in the agreement is likely to be a key political sticking point.

Fisheries can also play an important role in economic transformation, through within-sector productivity growth. This is of particular importance to SIDS, which may cover a small geographic land area but have large EEZs. To reach their full potential in fisheries trade, and in particular the promotion of value added activity, developing countries and LDCs need to invest in a variety of within-sector and cross-sectoral enablers. The country examples of Myanmar and Vanuatu demonstrate, for example, the role of technical capacity in meeting developed country food standards for export, access to financial credit for upgrading activities and backward and forward linkages to the global value chain for access to global markets. This is particularly relevant for small-scale fishers.

The proportion of fisheries stocks currently described as fully fished, overfished or depleted has reached over 90% of global fish stocks. Action is required to reverse this trend and to achieve SDG 14. The elimination of capacity-enhancing subsidies is necessary to reverse the decline in fishery stocks. Fisheries subsidies that enhance the technical or financial capacity for fisheries value addition in LDCs and SIDS, however, may remain important to enhance their access to, and their economic opportunity arising from, the global commons of fisheries. While subsidies in LDCs may have little distortionary effect on world prices, though, they may also promote the creation and expansion of inefficient firms in LDCs, reducing productivity. In this sense, SDT provisions will be contrary to the general economic transformation objective in these countries, and other policy tools may be important for developing countries.

Quantitative analysis isolating the impact of fisheries subsidies removal is unfortunately limited within the publicly available literature. A brief quantitative analysis conducted for this paper is based only on select countries, given the sparseness of recent data (in the OECD database). The removal of capacity-

enhancing fishery subsidies would favour efficient firms with incomes that are less dependent on fisheries subsidies. The resulting restructuring process would occur domestically, through competition within countries' fishery sectors, and globally through the redistribution of fishing capacity to efficient firms in other countries, including to developing countries that are less reliant on fisheries subsidies. The application of SDT could therefore to some extent negate the positive ramifications of capacity-enhancing fisheries subsidies removal, allowing inefficient firms to survive and creating a fiscal strain within cash-strapped developing countries.

As a result of the restructuring process, the global fisheries catch would decline by only 2%, following the removal of capacity-enhancing subsidies (extrapolation based on a limited number of countries' data in the OECD database). The small size of this decline would be the result of the ability of efficient firms to absorb fishing effort from inefficient firms dependent on subsidies. Currently, significant overcapacity is implicated in the rise of overfishing globally, hence fisheries capacity needs urgently to be reduced and global stocks allowed to recover, at least in the short term, to sustainable levels. Therefore, global fisheries catch needs to reduce by a proportion greater than 2%.

The analysis was unable to fully capture the effect of subsidies disciplines to IUU fishing and DWF. It is likely that any action that curbs the subsidies provided to these activities would decrease captures even more. From a brief analysis, the removal of fuel subsidies to DWF could reduce the economic viability of certain distant water fishing activities. Whilst, IUU fishing accounts for a quarter of total fisheries capture; and, a combination of subsidy removal and effective enforcement mechanisms could begin to eliminate these illegal catches completely.

Although much of the subsidies affecting fisheries are trade distorting, reduce productivity and efficiency; there is certain support that can help fishers in developing countries to overcome the high costs associated to the commercial activity. This includes, for example, the access to credit to modernise fleets and equipment. Moreover, subsidies to meet quality and food safety standards need to be considered to help these firms export into the high value world markets. Other support could be provided through a technical capacity support mechanism within a WTO agreement.

The global removal of capacity-enhancing subsidies under the WTO negotiations is an important first step in global efforts to reduce overfishing, particularly for shared stocks (e.g. regional and high seas fishing, or fishing in other Members' EEZs). Based on our analysis, it is unlikely that a WTO agreement on fishery subsidies alone will be sufficient to achieve SDG 14, in particular in light of SDT provisions. In order to complement a possible agreement at the WTO, a further coordination mechanism may be required under the UN to combat overfishing effectively.

REFERENCES

- Africa Progress Panel (2014) *Grain fish money: financing Africa's green and blue revolutions*. Abidjan: African Development Bank. (www.afdb.org/fileadmin/uploads/afdb/Documents/Project-and-Operations/Africa_Progress_Report_2014.PDF).
- Agnew, D.J., Pearce, J., Pramod, G., Peatman, T., Watson, R., Beddington, J.R. et al. (2009) 'Estimating the worldwide extent of illegal fishing', *PLOS ONE* 4(2): e4570. (<https://doi.org/10.1371/journal.pone.0004570>).
- Campling, L. (2017) 'Small vulnerable economies and fisheries subsidies disciplines: issues, debates and alliances'. *Trade Hot Topics*. London: Commonwealth Secretariat.
- Campling, L. and Havice, E. (2013) 'Mainstreaming environment and development at the WTO? Fisheries subsidies, the politics of rule-making and the elusive "triple win"', *Environment and Planning A* 45: 835-852.
- Clover, C. (2016) Thousands of Chinese ships trawl the world, so how can we stop overfishing?' *The Guardian*, 15 November. (www.theguardian.com/global-development-professionals-network/2016/nov/15/thousands-of-chinese-ships-trawl-the-world-so-how-can-we-stop-overfishing-un-goals).
- Commonwealth Secretariat (2016) 'The blue economy in small states', *Small States Digest Issue 1*. London: Commonwealth Secretariat.
- Bahety, S. and Mukibbi, J. (2017) *WTO fisheries subsidies negotiations: main issues and interests of least developed countries*. Geneva: CUTS International.
- Daniels, A., Gutierrez, M., Fanjul, G., Guereña, A., Matheson, I. and Watkins, K. (2016) *Western Africa's missing fish: the impacts of illegal, unreported and unregulated fishing and under-reporting catches by foreign fleets*. London: Overseas Development Institute.
- European Commission (2017) *Study on the subsidies to the fisheries, aquaculture, and marketing and processing subsectors in major fishing nations beyond the EU*. Brussels: European Commission.
- FAO (Food and Agricultural Organization) (2002) *Implementation of the International Plan of Action to prevent, deter and eliminate illegal, unreported and unregulated fishing*. Rome: FAO. (www.fao.org/3/a-y3536e.pdf).
- FAO (2014) *The state of world fisheries and aquaculture 2014: opportunities and challenges*. Rome: FAO. (www.fao.org/3/a-i3720e.pdf).
- FAO (2016) *The state of world fisheries and aquaculture 2016: contributing to food security and nutrition for all*. Rome: FAO. (www.fao.org/3/a-i5555e.pdf).
- FAOSTAT (2017) 'FAOSTAT'. (www.fao.org/faostat/en/).
- Fevrier, S. and Dugal, M. (2016) 'The WTO's role in fisheries subsidies and its implications for Africa'. (www.ictsd.org/bridges-news/bridges-africa/news/the-wto%e2%80%99s-role-in-fisheries-subsidies-and-its-implications-for).
- Greenpeace (2016) 'Give a man a fish – five facts on China's distant water fishing subsidies'. (www.greenpeace.org/eastasia/PageFiles/299371/FINAL_The%20problem%20with%20China%27s%20distant%20water%20fishing%20industry%20subsidies_.pdf).
- Heymans, J.J., Mackinson, S., Sumaila, U.R., Dyck, A. and Little, A. (2011) 'The impact of subsidies on the ecological sustainability and future profits from North Sea fisheries', *PLoS ONE* 6(5): e20239. (<https://doi.org/10.1371/journal.pone.0020239>).
- Keane, J. (2017) 'Effectively influencing value chain governance and implementing SDG 14: "Life below water", in Y. Soobramanien and L. Worrall (eds.) *Emerging trade issues for small developing countries: scrutinising the horizon*. London: Commonwealth Secretariat.
- Kyaw, K. (2017) 'Myanmar fishery export income set to double', *The Nation*, 2 March. (www.nationmultimedia.com/news/business/EconomyAndTourism/30307682).

- Mallory, T. (2013) 'China's distant water fishing industry: evolving policies and implications', *Marine Policy* 38: 99-108.
- Mallory, T. (2016) 'Fisheries subsidies in China: quantitative and qualitative assessment of policy coherence and effectiveness', *Marine Policy* 68: 74-82.
- Mukiibi, J. (2017) *Addressing fisheries subsidies: a quest for sustainable fisheries production*. Geneva: CUTS International.
- Ministry of Agriculture, Livestock, Forestry, Fisheries and Biosecurity (Vanuatu) (2017) 'National Fisheries Sector Policy 2016-2031'. ([Ministry of Information \(Myanmar\) \(2017\) 'Actual activities of sea food processing factories in Myanmar'. Ministry of Information Website \(<http://www.moi.gov.mm/moi:eng/?q=news/22/09/2015/id-5442>\).

Ndiaye, P.G. \(2013\) 'Fishing and fish products in West Africa: the untapped potential for a regional market', *Bridges Africa* 2\(1\). Geneva: International Centre for Trade and Sustainable Development. \(\[www.ictsd.org/bridges-news/bridges-africa/news/fishing-and-fish-products-in-west-africa-the-untapped-potential-for\]\(http://www.ictsd.org/bridges-news/bridges-africa/news/fishing-and-fish-products-in-west-africa-the-untapped-potential-for\)\).

OECD \(Organisation for Economic Co-operation and Development\) \(2017\) 'Fisheries support estimate'. OECD Database. \(\[http://stats.oecd.org/Index.aspx?datasetcode=FISH_FSE\]\(http://stats.oecd.org/Index.aspx?datasetcode=FISH_FSE\)\).

Pauly, D., Belhabib, D., Blomeyer, R., Cheung, W., Cisneros-Montemayor, A., Copeland, D., Harper, S., Lam, V., Mai, Y., Le Manach, F., Österblom, H., Mok, K.M., van der Meer, L., Sanz, A., Shon, S., Sumaila, R., Swartz, W., Watson, R., Zhai, Y. and Zeller, D. \(2014\) 'China's distant-water fisheries in the 21st century', *Fish and Fisheries* 15\(3\) 474-488.

Schmidt, C.C. \(2017\) *Issues and options for disciplines on subsidies to illegal, unreported and unregulated fishing*. Geneva: International Centre for Trade and Sustainable Development.

Schroer, A., Sakai, C., Vulperhorst, V. and Bialasi, A. \(2011\) 'The European Union and fishing subsidies'. \(<http://oceana.org/reports/european-union-and-fishing-subsidies>\).

South Centre \(2017\) *The WTO's fisheries subsidies negotiations*. Addis Ababa: South Centre, African Trade Policy Centre. \(\[www.southcentre.int/wp-content/uploads/2017/08/AN_TDP_2017_5_The-WTO%20%99s-Fisheries-Subsidies-Negotiations_EN.pdf\]\(http://www.southcentre.int/wp-content/uploads/2017/08/AN_TDP_2017_5_The-WTO%20%99s-Fisheries-Subsidies-Negotiations_EN.pdf\)\).

Schuhbauer, A. and Sumaila, R. \(2016\) 'Economic viability and small-scale fisheries – a review', *Ecological Economics* 124\(C\): 69-75.

Sumaila, R. \(2016\) 'Trade policy options for sustainable oceans and fisheries'. E15 Expert Group on Oceans, Fisheries and the Trade System – Policy Options Paper. Geneva: International Centre for Trade and Sustainable Development and World Economic Forum.

Sumaila, R. \(2017\) *Shared stocks and fisheries subsidies disciplines: definitions, catches, and revenues*. Geneva: International Centre for Trade and Sustainable Development.

Sumaila, R., Khan, A., Dyck, A., Watson, R., Munro, G., Tydemers, P. and Pauly, D. \(2010\) 'A bottom-up re-estimation of global fisheries subsidies', *Journal of Bioeconomics* 12\(3\): 201-225.

Sumaila, R., Lam, V., Le Manach, F., Swartz, W. and Pauly, D. \(2015\) 'Global fisheries subsidies: an updated estimate', *Marine Policy* 69: 189-193.

UN \(United Nations\) \(2015\) *Transforming our world: the 2030 Agenda for Sustainable Development*. New York: UN. \(<https://sustainabledevelopment.un.org/content/documents/21252030%20Agenda%20for%20Sustainable%20Development%20web.pdf>\).](https://spccfpstore1.blob.core.windows.net/digitallibrary-docs/files/a7/a7fb5b74e8bb0cc01e12997d8a129ecf.pdf?sv=2015-12-11&sr=b&sig=jIU5PpCoTIGs2sqFbncPE2SR67JhaxGB5DuWF3zLYvq%3D&se=2017-12-12T14%3A33%3A41Z&sp=r&rscc=public%2C%20max-age%3D864000%2C%20max-stale%3D86400&rsct=application%2Fpdf&rscd=inline%3B%20filename%3D%22Anon_17_Vanuatu_fisheries_Policy.pdf%22)

- UN (2017) 'Report of the United Nations Conference to Support the Implementation of Sustainable Development Goal 14: conserve and sustainably use the oceans, seas and marine resources for sustainable development'. New York: UN.
(www.un.org/ga/search/view_doc.asp?symbol=A/CONF.230/14&Lang=E).
- UNCTAD (UN Conference on Trade and Development) (2016) *Sustainable fisheries: international trade, trade policy and regulatory issues*. Geneva: UNCTAD.
- UNCTAD (2017) Fishery exports and the economic development of least developed countries: Bangladesh, Cambodia, The Comoros, Mozambique, Myanmar and Uganda. Geneva: UNCTAD.
(http://unctad.org/en/PublicationsLibrary/aldc2017d2_en.pdf).
- UNSD (UN Statistics Division) (2017) 'UN Data'. <https://unstats.un.org/home/>.
- World Bank (2010) *Subsidies in the energy sector: an overview*. Washington, DC: World Bank.
- World Bank (2017) *The sunken billions revisited: progress and challenges in global marine fisheries*. Washington, DC: World Bank.
(<https://openknowledge.worldbank.org/bitstream/handle/10986/24056/9781464809194.pdf?sequence=8&isAllowed=y>).
- World Fishing and Aquaculture (2014) 'Is China really a land of promise?'
(www.worldfishing.net/news101/regional-focus/is-china-really-a-land-of-promise).
- Worrall, L., Vrolijk, J., Mason, C. and Balchin, N. (2015) 'Baseline on economic transformation: review of the international, regional and domestic literature on economic transformation'. Supporting Economic Transformation, ODI: London (http://set.odi.org/wp-content/uploads/2015/12/Baseline-on-Economic-Transformation-2015_Final.pdf).
- WTO (World Trade Organization) (2017) *Fisheries subsidies: compilation matrix of textual proposals received to date*. Geneva: WTO.
- WTO Negotiating Group on Rules (NGR). (2017) *Fisheries subsidies working documents on prohibited subsidies relating to IUU fishing and overfished stocks: Communication from the Chair*. Geneva: WTO.

ANNEX 1

Shared fisheries

Shared fisheries, or migratory and regional fisheries, can be spread across the high seas and multiple countries' EEZs. These require effective collaboration between countries for fisheries management. In total, shared fisheries account for between 35% and 50% of global catches, equivalent to 58 million tonnes or \$30.7 billion in 2006 (Sumaila, 2017). By 2005, 151 countries were stakeholders of shared fisheries – including 5 countries whose total landings from shared fisheries exceeded 75% of total landings – Finland, Greenland, Peru, Barbados and Martinique (*ibid.*).

Countries with a strong interest in shared stocks can be divided into two groups (Sumaila, 2017):

- Countries that capture a significant share of global shared stocks, including Japan, Republic of Korea and Chinese Taipei; and
- Countries that are highly dependent on shared stocks but do not capture a significant proportion, including Greenland, the Caribbean and SIDS.

Shared fisheries therefore require collective management to ensure their sustainability, which is often secured through regional fishery agreements.

Distant water fleets

Countries can apply for foreign access agreements, in order to fish in the EEZs of other countries, or expand fisheries operations to the high seas. DWFs may also be particularly reliant on fisheries subsidies, and in particular fuel subsidies, for the economic viability of distant fishing activities.

Campling (2017) summarises the types of foreign access agreements, which include government-to-government agreements, industry association-to-government agreements and company-to-government agreements. Different countries show a preference for different agreements, with the EU often negotiating between governments whereas fisheries industry associations in Japan and Taiwan usually undertake negotiations with government. Second-generation access agreements can also arise, whereby governments can negotiate EEZ access in return for the local registration of vessels, or in exchange for investments in processing facilities (Campling, 2017).

SVEs may benefit from the local registration of DWF vessels, as was the case in Seychelles, with DWF transhipment boosting local good and services trade and increasing economic benefits beyond access agreements themselves (Campling, 2017). DWFs can also provide valuable employment to SVEs (e.g. Fiji, Kiribati, Madagascar and Seychelles) and African countries (e.g. Ghana, Côte d'Ivoire and Senegal) (*ibid.*). Problems arise where SVEs cannot compete with highly subsidised DWFs, or where processing facilities are locked into procuring fish from DWFs rather than local procurement (*ibid.*).

DWFs have also been implicated in the rise of unsustainable fishing. In the case of canning-grade albacore tuna, overfishing led to the collapse of locally based operators in SVEs, with the Chinese DWF a major contributor to the decline. Box 3 in the main text presents an overview of the Chinese DWF.

Illegal, unreported and unregulated fishing

IUU fishing is not necessarily captured in official country statistics, such as those presented in Section 3. Definitional issues exist around IUU fishing; the most widely used is FAO (2002), which is briefly summarised as follows:

- Illegal fishing – without the permission of the relevant state; in contravention of the management measures of regional fisheries management organisations; and/or in violation of national or international laws;

- Unreported fishing – unreported or misreported to the relevant national authority; or unreported or misreported to the relevant regional fisheries management organisation;
- Unregulated fishing – in the area of a regional fisheries management organisation without a nationality, or a relevant state flag; or in contravention or management measures; or (in the absence of rules) fishing areas or fish stocks in a manner inconsistent with conservation and/or international law.

Overall, it is estimated that IUU fishing is responsible for between 11 and 26 million tonnes of fish annually, equivalent to \$23 billion or 25% of global capture production (UNCTAD, 2016). Another estimate, by Daniels et al. (2016), is more conservative, that a fifth of the world's fish catch originates from IUU activity. In an older study, Agnew et al. (2009) estimate that IUU fishing in 54 countries and international waters results in IUU fishing of between \$10 billion and 23.5 billion annually.

The WTO proposals include subsidy prohibitions for IUU fishing, which as a first step requires general monitoring and enforcement of IUU fishing. IUU within EEZs can be enforced through domestic laws and regulations, and Schmidt (2017) recommends that IUU enforcement in the high seas rely on the Regional Fisheries Management Organisations (RFMOs)⁸ IUU lists of vessels. Examples of national IUU rules include (*ibid.*):

- EC – list of vessels that cannot land or sell fish within the EU, based on lists compiled by RFMOs;
- Norway – list of vessels that fish outside of quota arrangements in international waters, with the consequence of perpetual refusals to award licences in the EEZ or allow vessels to fly the Norway flag;
- US – list of vessels that are restricted access to US ports, based on IUU lists compiled by international fisheries organisations.

In order to determine IUU, national or regional inspection agencies may require investigative powers, which may be lacking (Schmidt, 2017). Upon infractions, such agencies will notify the flag state; however, certain countries may lack the necessary administrative capacity to be able to respond on whether the vessel belongs to the country or is flying an illegal flag (*ibid.*). IUU vessels may take advantage of this loophole to continue undertaking fishing activities in areas of interest – with IUU often occurring in the high seas and badly managed EEZs (Sumaila, 2016).

Artisanal fishing

With the presence of increasingly subsidised or large-scale fishing operations, there is increasing competition for increasingly scarce fisheries resources. This is to the detriment of developing country communities that rely on fishing for livelihoods and food. As noted by the South Centre (2017), more than 90% of fishers are engaged in small-scale activities, which can include artisanal fishing activities.

Anecdotal evidence by Schuhbauer and Sumaila (2016) reports that, in Indonesia, 95% of capacity-enhancing subsidies go to the large-scale sector rather than the artisanal fishing sector. In comparison, approximately 10% of Mexico's \$200 million in fishery subsidies is targeted at the small-scale fishing sector.

To provide some insight into the topic, Box 4 in the main text presents a brief illustration of small-scale artisanal fisheries in West Africa, which are experiencing increasing competition from DWFs.

⁸ Most RFMOs require information on the flag state, operators of and ownership and beneficial owners of fishing vessels (Schmidt, 2017).