

Committee on Trade and Environment

ENVIRONMENTAL BENEFITS OF REMOVING TRADE RESTRICTIONS AND DISTORTIONS: THE FISHERIES SECTOR

Item 6 of the work programme

Note by the Secretariat

1. In response to the request of the Committee on Trade and Environment (CTE) at its meeting on 29 February - 1 March 2000, the Secretariat has prepared this Note to update previous papers on the fisheries sector, in cooperation with relevant international organizations, and with attention to the development dimension.¹ This Note is intended to be used as a basis for further discussion in the Committee's sectoral analysis of the environmental benefits of removing trade restrictions and distortions, one part of the agenda under Item 6 of the work programme. It summarizes different aspects relating to the elimination of trade restrictions and distortions in light of the potential environmental impacts on global fisheries sustainability. The Secretariat recognizes that this is a document which should evolve, as further empirical research becomes available, and as work on fisheries evolves in national, regional and international fora.

2. The Note is organized as follows: Section I provides a general overview of the current status of the world's fisheries resources. Section II presents an economic analysis of the fisheries sector to illustrate the unique complexities related to fisheries conservation. Section III surveys the state of play of international discussions and recent work on sustainable fisheries management in relevant international fora, particularly with respect to subsidies.² Reference is also made in this section to the contributions made in the CTE by Members and international organizations. A select bibliography, including relevant submissions to the CTE, is provided at the end of the Note.

I. GENERAL OVERVIEW

3. The situation of fisheries sustainability world-wide is a source of increasing concern. Recognition has been given to the need to analyse developments in the fisheries sector from a broad perspective in order to take into account the complex issues involved in moving towards sustainable fisheries management. The following statistics are intended to serve as background to understanding the status of global fisheries resources.³

¹ This Note updates WT/CTE/W/67 (7 November 1997), which examines the environmental effects of removing trade restrictions and distortions in several sectors discussed under Item 6; and WT/CTE/W/80 (9 March 1998) and Add.1 (21 September 1999), which present an overview of possible subsidies relating to fisheries notified under Article 25 of the Agreement on Subsidies and Countervailing Measures.

² The Secretariat has prepared this Note in cooperation with several international fora working on fisheries and is grateful for comments and contributions from APEC, FAO, OECD, UNEP, ICCAT, the Convention on Biological Diversity, CITES and CCAMLR, as well as WWF and ICTSD. The Secretariat takes full responsibility for any errors in the Note and is prepared to revise it in the light of further information.

³ The FAO Fisheries Department has contributed the data in this general overview.

A. FISH PRODUCTION

4. For the two decades following 1950, world marine and inland capture fisheries production, the traditional and largest sector, increased on average by as much as 6 per cent per year, trebling from 18 million tonnes in 1950 to 56 million tonnes in 1969. Subsequently during the 1970s and 1980s, the average rate of increase declined to 2 per cent per year, falling to almost zero in the 1990s. The decrease in total catch follows the general trend of most fishing areas of the world apparently reaching their maximum capture fisheries production potential, with most stocks being fully exploited. According to FAO, it is therefore very unlikely that substantial total catch increases will be obtained in the future.

5. In contrast, growth in aquaculture production has shown the opposite tendency. The increase in production of 20 million tonnes over the last decade was mainly due to aquaculture, since capture fishery production remained relatively stable. Starting from an insignificant level, inland and marine aquaculture production grew by about 5 per cent per year between 1950 and 1969, by about 8 per cent during the 1970s and 1980s, and over 10 per cent since 1990.

Table 1: World fisheries production and utilization

	1994	1995	1996	1997	1998	1999*
PRODUCTION (million tonnes)						
INLAND						
Capture	6.7	7.2	7.4	7.5	8.0	n.a.
Aquaculture	12.1	14.1	16.0	17.6	18.7	n.a.
Total inland	18.8	21.4	23.4	25.1	26.7	n.a.
MARINE						
Capture	84.7	84.3	86.0	86.1	78.3	85.0
Aquaculture	8.7	10.5	10.9	11.2	12.1	n.a.
Total marine	93.4	94.8	96.9	97.3	90.4	n.a.
Total capture	91.4	91.6	93.5	93.6	86.3	90.8
Total aquaculture	20.8	24.6	26.8	28.8	30.9	32.2
Total world fisheries	112.3	116.1	120.3	122.4	117.2	123.0
UTILIZATION						
Human consumption	79.8	86.5	90.7	93.9	93.3	92.6
For fishmeal and oil	32.5	29.6	29.6	28.5	23.9	30.4
Population (billion)	5.6	5.7	5.7	5.8	5.9	6.0
Per capita food fish supply (kg)	14.3	15.3	15.8	16.1	15.8	15.4

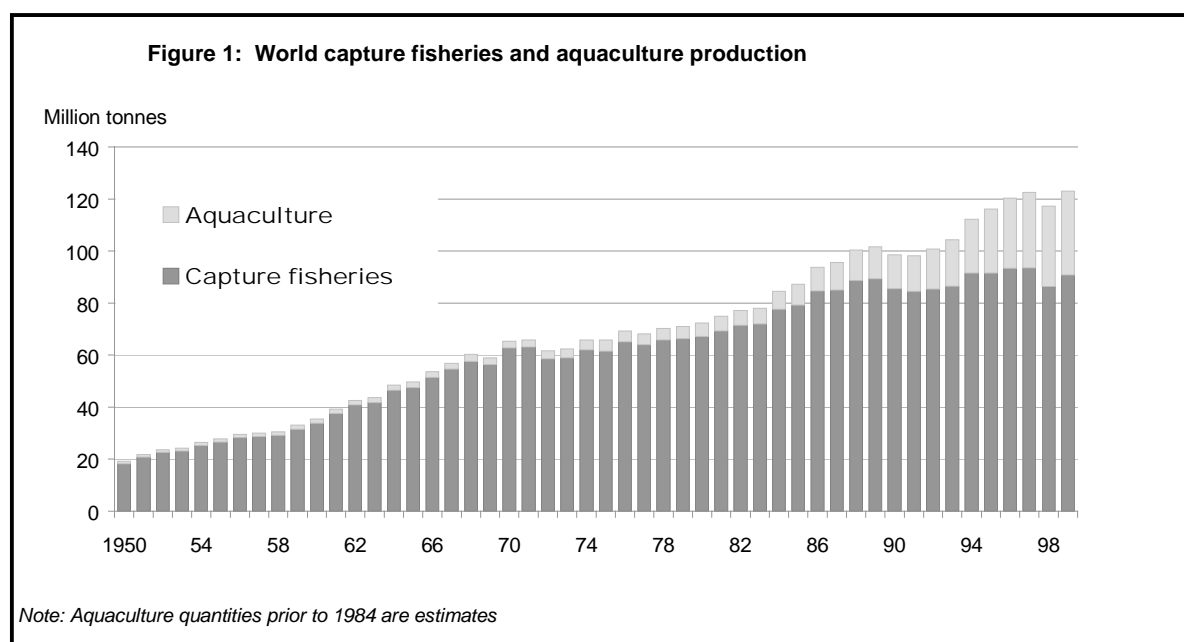
* preliminary estimate.

Source: FAO.

6. As set out in Table 1, reported global capture fisheries and aquaculture production fell to 117 million tonnes in 1998 from 122 million tonnes in 1997, mainly, the FAO notes, due to the effect of the climate anomaly, El Niño, on certain major marine capture fisheries. However, production recovered in 1999 to an estimated 123 million tonnes. Aquaculture provided 26.1 per cent of global fisheries production in 1999, which represents a significant increase from 18.5 per cent in 1997. In 1998, China, Japan, the United States, the Russian Federation, Peru, Indonesia, Chile and India (in that order) were the top-producing countries, accounting together for more than half the entire 1998

capture fisheries production in terms of tonnage. Although in decline, marine capture fisheries continued to account for more than 90 per cent of world capture fisheries production.

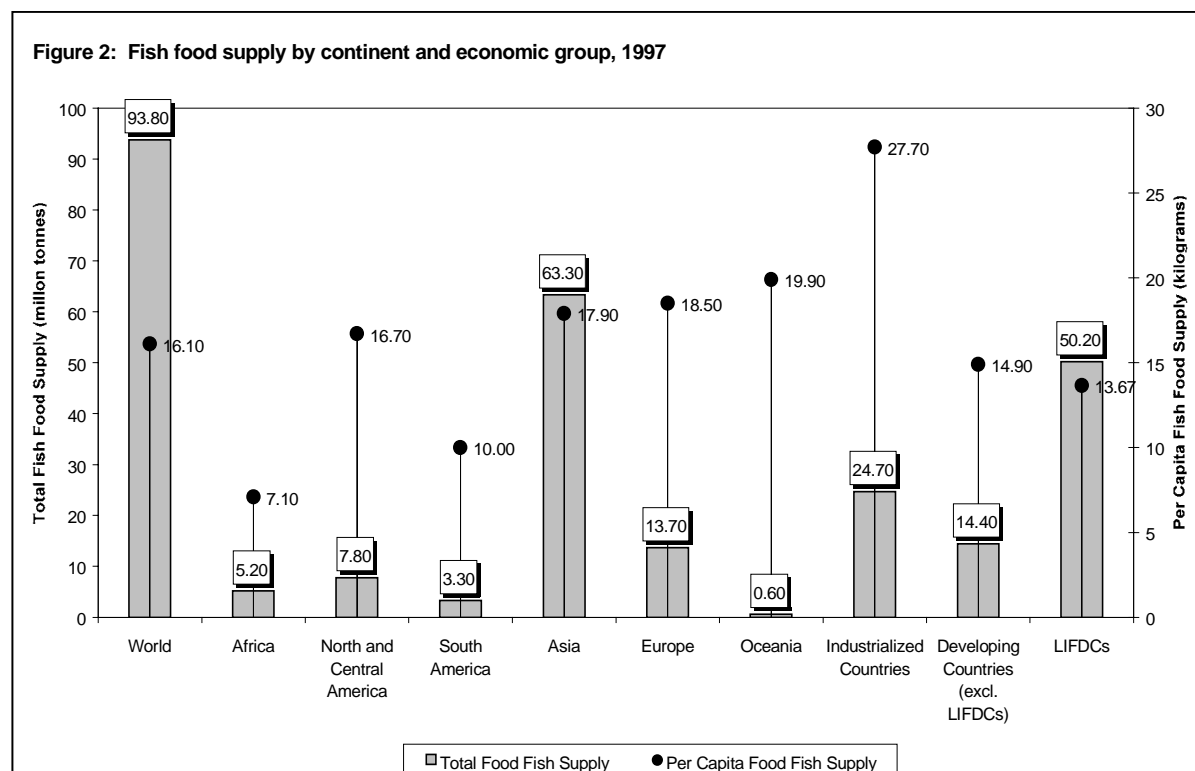
7. Aquaculture production is dominated by Asian countries, particularly China which reported increases of 0.7 million tonnes a year prior to 1992, and 2.6 million tonnes per year thereafter. For the rest of the world, growth in production has averaged 0.4 million tonnes a year. Within the last decade, low-income food deficit countries (LIFDCs), excluding China, have shown an upward trend in production. Figure 1 illustrates world capture fisheries and aquaculture production.



Source: FAO.

B. FISH CONSUMPTION

8. On a global basis, approximately 1 billion people rely on fish as their main source of animal protein, with a higher dependence in coastal areas. About 20 per cent of the world's population derive at least 20 per cent of animal protein from fish, and some small island nations depend almost exclusively on fish. With total food fish supply growing at a rate of 3.6 per cent per annum since 1961 - while the world's population was expanding at 1.8 per cent - the proteins derived from fish, crustaceans and molluscs have accounted for 13.8 to 16.5 per cent of animal protein intake. Fish supply per capita in LIFDCs was on average one fifth that of the richest countries in the early 1960s, but the gap has been gradually reduced; in 1997, it was close to half the average consumption in the more affluent economies. Figure 2 illustrates fish food supply by continent and economic group. The list of LIFDCs is contained in Annex I.



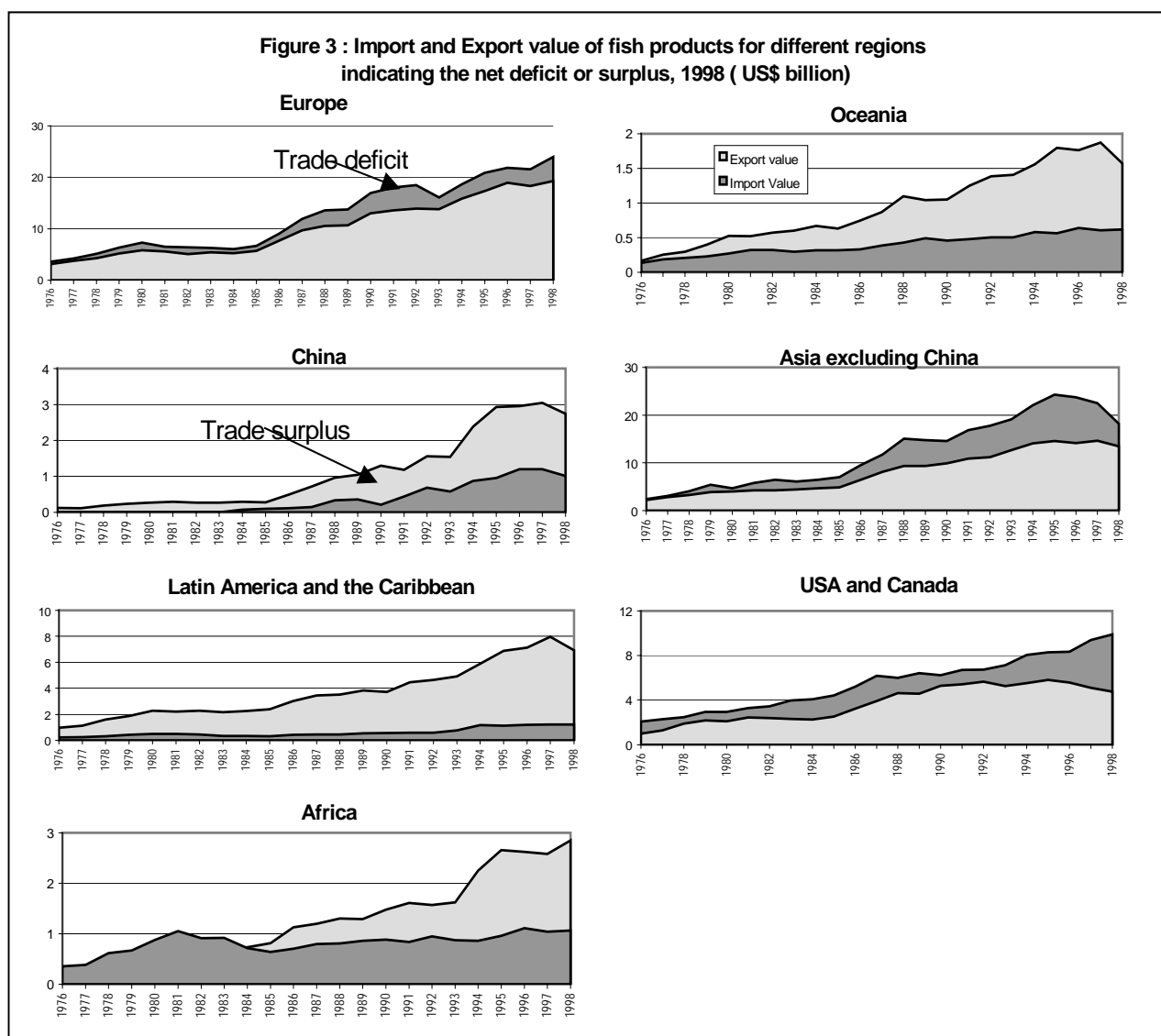
Source: FAO.

C. TRADE

9. A large share of fish production enters international trade, with about 33 per cent exported in 1998. LIFDCs play an active part in this trade and at present represent almost 20 per cent of exports. Developing countries are the key exporters of fish products, representing nearly 50 per cent of total exports in value terms. International trade in fish, fish products and fisheries services plays a crucial role in the development strategies of many countries, particularly developing countries, and provides an important source of income. According to FAO, more than 90 per cent of trade in fish and fisheries products consists of processed products in one form or another (i.e. excluding live and fresh whole fish). Frozen, fresh and chilled fish comprised the majority of exports. Although live, fresh or chilled fish represent only a small share of world fish trade due to perishability, trade is increasing, reflecting improved logistics and increased demand.

10. In 1998, according to FAO estimates, total exports of fish and fish products had a value of US\$51.3 billion, a 3.8 per cent decrease compared to 1997 (a significant increase from the value of \$3 billion in the early 1970s). In 1998, total imports of fish and fisheries products were \$55 billion, representing a slight decline compared to 1997 (a decrease of 2.8 per cent) and 1996 (a decrease of 3.9 per cent). Figure 3 illustrates the trade flows in fish products.

11. Developed countries are the key importers of fish and fish products. Japan was again the biggest importer of fisheries products, accounting for some 23 per cent of total imports. The European Communities has increased its dependence on imports for its fish supply. The United States, besides being the world's fifth major exporting country, was the second main importer. More than 77 per cent of the value of imports is concentrated in these three countries.



Source: FAO.

12. Trade in fish and fish products has been affected by the introduction of increasingly stringent import requirements, particularly in developed countries. These requirements generally relate to ensuring food safety, in many cases requiring that Hazard Analysis Critical Control Point (HACCP) procedures are applied by processors.⁴ HACCP has been put in place to establish standards for food processing by tracing, for example, fish products from harvesting through their production processes. Improved post-harvest processing is also seen as a method to develop the fishing industry without increasing harvests; improved processing can raise the value-added of fish products and develop uses for otherwise discarded catches.

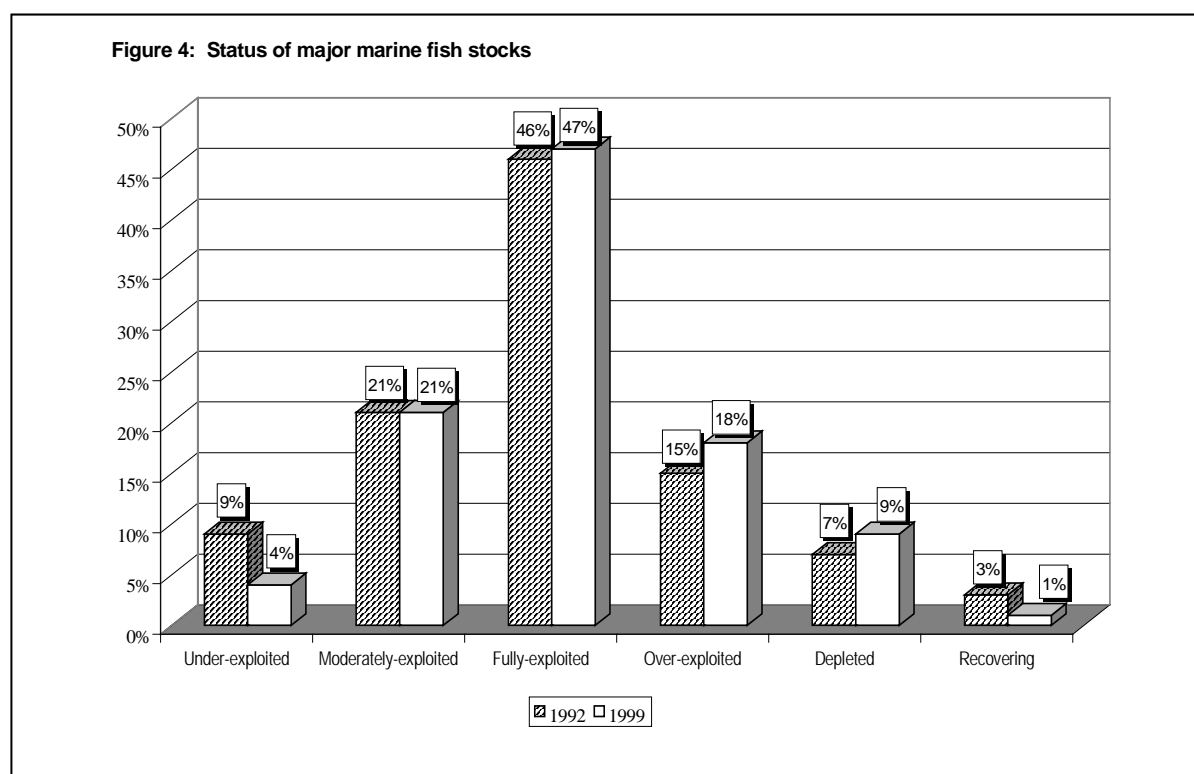
13. Issues of relevance in this sector include the development and use of eco-labelling; the determination of rules of origin for fish and fish products; and the potential impacts of these issues on market access and sustainable fisheries management. Eco-labelling is perceived as a way to maintain the productivity of fisheries, while providing incentives to improve conservation and management.

⁴ The investment needed to bring a fish processing plant up to the standards of a HACCP plan is considered to be substantial, and many companies, especially in developing countries, have noted that the implementation of new and increasingly rigid standards for fisheries products are *de facto* non-tariff measures against value-added products originating from developing countries. See FAO (1998a).

Concerns have been expressed, particularly by developing countries, with respect to the way in which such schemes are developed and their potential costs and market access effects.⁵ A paper by Schmidt (2000) provides examples of cases where "chain-of-custody" systems have been set up to monitor the flow of fish and fish products. This type of certification is considered to be more detailed than systems primarily to monitor fish trade, such as the ICCAT and CCSBT Tuna Statistical Documents, and the CCAMLR Catch Documentation Scheme.

D. STATUS OF FISHERIES RESOURCES

14. According to FAO, although the situation of some of the top-producing stocks has worsened, the global state of exploitation of the main marine fish stocks, for which assessment information is available, continue to follow the general trend observed in previous years. Figure 4 reflects the status of major marine fish stocks in 1992 and 1999.



Source: FAO.

E. FISHERIES MANAGEMENT

15. It is widely noted that the principal cause of stock depletion is inadequate management of fisheries resources. According to FAO, fisheries management continues to be widely ineffective, taking into account the state of many important fish stocks, as illustrated in Figure 4. However, although the rate of real change in management has been slow, FAO notes that there are signs that improvements are taking place. In addition to the difficulty in developing dynamic economic models, the conditions underlying fisheries management are characterized by a significant degree of resource and environmental uncertainty, such as inherently unpredictable environmental variations, which tend to defy calculation by economists and biologists (Gordon and Munro, 1996; Tietenberg and Folmer, 1998). Determining the optimal harvesting capacity, for example, is a complex issue in fisheries

⁵ See Deere (1999) for an overview of eco-labelling and sustainable fisheries.

management.⁶ As noted in a recent Report to the US Congress (US, 1999), the term "capacity" is difficult to define operationally and even more difficult to measure.

16. The FAO and OECD request their Member countries to provide information on, for example, total catches, imports, exports, employment, and the size of fishing fleets. The FAO is improving the monitoring of fishing fleets through its new Global Information System on Fisheries.⁷ Nevertheless, the lack of data has hampered empirical research in this area.

17. As a result of the uncertainties that prevail in fisheries, a precautionary approach to management is increasingly being followed in order that an absence of adequate scientific information and data does not impede conservation. The concept of precautionary action has been enshrined in several regional and international fisheries-related agreements, such as the Regional Fisheries Bodies (*see* Annex II); the 1995 UN Conference on Straddling and Highly Migratory Fish Stocks,⁸ and the 1992 Convention on Biological Diversity.

18. According to FAO, an urgent goal in a number of developed countries is to ensure that fishing fleet capacity is commensurate with sustainable exploitation. Developing countries have objectives that tend to concentrate on fisheries development in terms of new resources and technology. In addition to the recognition that some stocks are over-fished and require fishing to be limited, objectives also concentrate on enhancing and diversifying fisheries and promoting aquaculture. This is in part because the underlying concern for many countries is the relatively important role fisheries and aquaculture play in employment and food security for some of their poorest people. More specific aims include building infrastructure, particularly for processing to reduce post-harvest losses and increase value-added of, and market access for fisheries products.

F. DEVELOPMENTS AT THE INTERNATIONAL LEVEL

19. One of the main multilateral developments of relevance to sustainable fisheries management is the UN Convention on the Law of the Sea (UNCLOS), negotiated in 1982 and in force since 1994.⁹ UNCLOS establishes a comprehensive regime for the world's oceans and seas; it provides a legal framework and rules governing all ocean uses and access to their resources. UNCLOS assigns the exclusive right to coastal States to manage and exploit marine living and non-living resources in a 200-nautical mile Exclusive Economic Zone (EEZ) and to regulate fisheries resources through a comprehensive management system. Therefore, coastal states have both an exclusive right and an obligation to ensure that marine living resources are exploited in a sustainable manner. States are obliged to conserve the living resources in their EEZs through the use of total allowable catch (TAC) based on best available scientific evidence. If a coastal State does not have the capacity to harvest its TAC, UNCLOS stipulates that it shall give other States access to the surplus in return for fisheries-related economic benefits. However, as not all fish stocks are found within EEZs, UNCLOS directs the coastal State and other States fishing in the region to cooperate directly, or through appropriate international organizations, to ensure conservation and promote the objective of optimum use of fish stocks throughout the region, both within and beyond the EEZ.

⁶ "Over-capacity" is defined by Stone (1997: p.513) as "a state in which the value of inputs to fishing is greater than required for most efficiently achieving the desired level of fishing activity. However, there is little consensus on what would constitute the 'right' capacity, or the 'right' level of inputs, against which excess should be measured. For instance, the safe catch level for any stock is always controversial and fluctuates from year to year. In light of the uncertainties, it is not clear what level of fishing activity will net the 'right' catch."

⁷ FAO's International Standard Statistical Classification of Fishery Commodities (ISSCFC) is used to collate fisheries data. The ISSCFC is an expansion of the UN Standard International Trade Classification (SITC, Rev.3) and is linked with the Harmonized System (HS) nomenclature of the World Customs Organization, which is that used in the WTO. *See* FAO (2000a).

⁸ This Agreement states that coastal States and States fishing in the high seas shall: "apply the precautionary approach in accordance with Article 6."

⁹ *See* UNCLOS homepage, www.un.org/Depts/los.

20. UNCLOS attributes competence to the WTO in settling disputes involving trade-related measures, notably production subsidies and trade restrictions, and explicitly recognizes the authority of the WTO in the applicability of trade-related measures with respect to deep seabed mining.¹⁰

21. By far the largest proportion of fisheries resources is found within national jurisdictions. The FAO (1999c) estimates that over 90 per cent of global fish production comes from within 200 nautical miles of the coast, which also provides the nursery areas for fish caught on the high seas. As a direct result, the establishment of EEZs has brought the majority of fish stocks within the jurisdiction of coastal States - an important step towards limiting open access to fisheries resources.

22. UNCLOS contains provisions concerning management of fish stocks not limited to one EEZ, including straddling stocks (migrating between EEZs and the high seas), and highly migratory stocks (migrating over long distances, often through several EEZs). These provisions were clarified in the 1995 Agreement Relating to the Conservation and Management of Straddling and Highly Migratory Fish Stocks. Also of importance in this respect is the 1993 FAO Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas. Both these Agreements, when they enter into force, will assist in managing shared, transboundary and migratory fish stocks. The UN General Assembly has adopted several resolutions on Large Scale Pelagic Driftnet Fishing and called for a global moratorium as of 31 December 1992 on driftnet fishing on the high seas.

23. The multilateral framework for sustainable use and conservation of living aquatic resources has been enhanced significantly since UNCED in 1992.¹¹ Chapter 17 of *Agenda 21* addresses the "Protection of the oceans, all kinds of seas, including enclosed and semi-enclosed seas, and coastal areas and the protection, rational use and development of their living resources." A focus of the Commission for Sustainable Development (CSD) at its seventh session in 1999 was on issues concerning "oceans and seas", including over-fishing, marine pollution, and destruction of coral reefs and ecosystems. The UN General Assembly called on governments "to consider the positive and negative impact of subsidies on the conservation and management of fisheries through national, regional and appropriate international organizations and, based on the analyses, to consider appropriate action" (UN, 1999). The UN General Assembly also agreed to establish an open-ended Informal Consultative Process on Oceans and the Law of the Sea (UNICPOLOS), which held its first session in June 2000 focusing on responsible fisheries and illegal, unreported and unregulated (IUU) fishing activities.¹² Work is also being undertaken on oceans and seas in preparation for the ten-year review of UNCED and *Agenda 21* in 2002.

24. The 1992 Convention on Biological Diversity (CBD) recognizes the importance of biodiversity, including diversity of marine and coastal biodiversity. The FAO (2000c) estimates that there are over 1,100 species of fish, molluscs, and crustaceans that contribute to production of the major global fisheries, with additional species contributing to small-scale fisheries. Over 300 species contribute to aquaculture production. Preservation of the biodiversity of natural populations provides the resource base for commercial fisheries. The second Conference of the Parties (COP) of the CBD in 1995 agreed on the "Jakarta Mandate on Marine and Coastal Biological Diversity," which sets out mechanisms and strategies for implementing the Convention for marine and coastal areas. This Mandate covers integrated area management, protected areas, sustainable use of living resources, sustainable mariculture, and alien species, emphasizing the application of the precautionary approach to living marine resources, reliance on best available science in management, and identification of critical ecosystem functions (CBD, 1995).

¹⁰ See the Communication to the CTE from the UN Division for Ocean Affairs and the Law of the Sea on UNCLOS, WT/CTE/W/62; Section 6 on "production policy" of the Annex to the 1994 Agreement Relating to the Implementation of Part XI of the 1982 UN Convention on the Law of the Sea.

¹¹ For a comprehensive review see Dommen (2000).

¹² See the results of these consultations, www.un.org/Depts/los/Docs/UNICPO/UNICPOpage.htm.

25. Several marine species are listed under the 1973 Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), which regulates trade in threatened species, including sea turtles, sturgeon, whales, sea otters, all fur seals, sea lions, all cetaceans, salt water crocodiles and corals.¹³ To date, there are no commercially-exploited marine species included in CITES. At the 1997 meeting of the Conference of the Parties to CITES, Parties rejected a proposal to establish a working group on marine fish species, particularly large-scale commercially harvested species, and to consider the possible application of Appendix II listing criteria to marine species. The 1979 Convention on the Conservation of Migratory Species (CMS), adopted to protect the migratory species listed in its two Appendices, includes giant catfish, sturgeon, Chinese swordfish and white sharks. At the 1999 Conference of the Parties, the CMS adopted a resolution on by-catch concerning the protection of albatross, petrel, marine turtles and cetaceans from incidental catch during fishing.

G. REGIONAL FISHERIES BODIES

26. Fisheries management is also undertaken in the framework of Regional Fishery Bodies (RFBs), which are considered to be important elements of effectively addressing fisheries sustainability, particularly in the context of implementing UNCLOS. Annex II contains the list of the 28 RFBs. UNEP has a Regional Seas Programme, with a mandate to facilitate the management of marine and coastal areas.¹⁴

27. Statistical and catch documentation programmes have been put in place in several RFBs, such as the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR), the Commission for the Conservation of Southern Bluefin Tuna (CCSBT), the Inter-American Tropical Tuna Commission (I-ATTC) and International Commission for the Conservation of Atlantic Tunas (ICCAT). These schemes are designed to facilitate monitoring of international trade in fish species; identify the origins of the species imported into or exported from the territories of contracting parties; and determine whether the conservation measures established by RFBs have been respected. These schemes also facilitate the collection of data on fish stocks to ensure scientific monitoring of the sustainability of the fishery.

28. Although ICCAT and CCAMLR, for example, contain trade-related provisions, these agreements do not deal specifically with subsidization. Both are considered to provide examples of appropriate and WTO-consistent (i.e. non-discriminatory) use of trade measures in multilateral environmental agreements. ICCAT has made several presentations in the MEA Information Sessions of the CTE that have highlighted the strict conservation measures imposed with respect to illegal fishing by non-contracting parties, entities and fishing entities, which are considered to be undermining the effectiveness of its stock management programme.¹⁵

H. FISHERIES ACCESS AGREEMENTS

29. With the extension of coastal State jurisdiction in the 1980s following the UNCLOS, many countries have negotiated fisheries access agreements. The FAO notes that well over 300 agreements have been signed, many of which in the 1990s. Reference is made to "first" and "second" generation agreements, with the former involving the payment of a fee for the right to fish, and the latter developing the terms of access to include joint venture arrangements, technology and vessel transfer, and arrangements for monitoring and surveillance. Access agreements to a coastal fishery by distant water fishing nations (DWFNs) are negotiated between the parties based on several factors, including the historic interest in the fishery (pursuant to UNCLOS), and the fishing capacity of the coastal State.

¹³ For information on CITES see WT/CTE/W/151, W/71, W/63 and the *Matrix on Trade Measures Pursuant to Selected MEAs*, WT/CTE/W/160.

¹⁴ See Regional Seas Programme, www.unep.org/unep/program/natres/water/regseas/regsea.htm.

¹⁵ See the background papers to the MEA Information Sessions in the CTE from ICCAT WT/CTE/W/152 and W/87 (www.iccat.es); and from CCAMLR in WT/CTE/W/148 (www.ccamlr.org).

30. These types of agreements are interesting in so far as they can provide a source of revenue for coastal States and increase fishing opportunities for DWFNs. Access payments can represent an important source of revenue for developing countries (ICTSD-IUCN, 1999). The potential implications of such agreements, particularly for developing countries, have been noted in the CTE. As described by Stone (1999) and Porter (1997), some of the main concerns are that access payments may be relatively low compared with the value of the catch taken; the costs incurred by some DWFN fleets may have been lowered as a result of subsidization; and the coast State often devotes insufficient funds to fisheries management and enforcement. Other issues of relevance are the effects of DWFN fleets on artisanal or small-scale fisheries operating in the same waters; and the rules of origin for fish captured pursuant to access agreements.

II. ECONOMIC ANALYSIS

A. THE NATURE OF THE ISSUES

31. As a result of five decades of expansion, the general trend according to the FAO, set out in Section I, is that most fishing areas world-wide have reached their maximum production potential, with many stocks fully exploited. As illustrated in Section I, global fish production has expanded from around 65 million tonnes in the 1970s to approximately 120 million tonnes in 1999. The nominal value of international fisheries trade has increased from around US\$3 billion to over \$51 billion in the same period. From the extensive body of literature on developments in fisheries, it is evident that this sector has certain defining characteristics that make sustainable management all the more difficult. The main economic factors underlying these complexities are discussed in this Section.

32. There are two types of classic economic problems in fisheries: market and policy failures.

B. MARKET FAILURES: THE TRAGEDY OF THE COMMONS

33. Market failures result from prices that do not reflect the full costs or the full benefits associated with a given resource; for example, markets often fail to internalize or reflect the actual scarcity of fisheries resources, whence over-fishing and the depletion and collapse of some fisheries resources. Therefore, the market failure is the lack of incentive for individual fishers to conserve the stocks in a system with unlimited access to the resource base; essentially, if one fisher does not catch the fish, the next one will. Thus, unlimited access to a common resource base, such as a fishery, is likely to lead to over-exploitation of that resource.

34. Marine fisheries are the classic example of a common property resource given that fish are mobile and access is difficult to control and monitor, particularly on the high seas. Fishing grounds are thus referred to as "commons," in which access is, at least initially, unrestricted. The underlying tenet of the "tragedy of the commons," as expressed by the ecologist Garrett Hardin (1968), is that as human populations increase, there is increasing pressure at both the local and, particularly, the global levels to over-exploit common resources. Such common resources are inherently difficult to manage and are characterized by a lack of property rights. Hardin's analogy to a tragedy is based on the fact that although it is in the collective long-term interest of fishers to sustain the fishery, individual fishers have an immediate incentive to over-fish stocks beyond their carrying capacity or regeneration rate; any fish left by one fisher, will be harvested by the next. Thus the incentive is to harvest fish stocks before others do, and to free ride on the restraint of others.¹⁶ The inevitable result is over-exploitation of fish stocks and over-investment in fishing, leading to "lower profits for too many fishers investing

¹⁶ The potential for States to "free ride" on the conservation efforts of others makes international cooperation a necessity. This difficulty relates to the "prisoners' dilemma", whereby although it is in the mutual long-term interest of States to reduce fishing efforts, the rational short-term behaviour of each State is to maximize efforts; this leads to an irrational outcome from the collective perspective.

in too much capital to catch too few fish" (Anderson and Leal, 1991). This having been said, from an economic perspective, fisheries resources are a renewable resource that can be used in a sustainable way; sustainable fisheries management systems are in this regard crucial to provide appropriate incentives to correct market failures arising from open access fisheries, or fisheries in which well-defined or enforceable property rights are absent.

35. As described in Section I of this Note, the 1982 UN Convention on the Law of the Sea (UNCLOS) addressed the issue of open access and extended the rights of coastal States to manage marine resources from 12 to 200-mile Exclusive Economic Zones (EEZs). The objective of the establishment of EEZs was to create an incentive for States to manage their coastal living resources sustainably. The redistribution of the sea's wealth pursuant to UNCLOS has led to a period of adjustment and transition in the fisheries sector. As noted by the FAO (1992) in its special chapter on *Marine Fisheries and the Law of the Sea*, several developments were not anticipated, notably the continued investment in long-range and large-scale fishing vessels, the significant growth in fishing effort on the high seas beyond the 200-mile limit, increased stock depletion and ecosystem degradation, and widespread fishing conflicts arising from the redistribution of resources.¹⁷ Whilst some distant water fishing nations have significantly reduced their fleets, others are developing capacity (Porter, 2000).

36. One difficulty in protecting common resources lies in the fact that there is often an incongruence between the distribution of the resource and ownership. Many commercially-exploited fish stocks are shared, transboundary or migratory, which makes property rights, even those as broad as the 200-mile EEZs, effective for only part of the year. Ill-defined or non-existent property rights over fisheries resources result in an incentive structure that is conducive to over-exploitation if harvests are not controlled, and to over-capitalization of fishing fleets. As a result, effective fisheries management is facilitated by the creation of resource property rights, such as individual transferable quotas (ITQs) and territorial user rights. As with any management regime, enforcement and verification of stock levels are crucial issues to ensure that property rights are respected. However, as these instruments place a limit on the exploitation of a fishery and create incentives for self-regulation, enforcement may be more effective than under regimes regulated solely by a total allowable catch (TAC).

C. POLICY FAILURES: THE CASE OF SUBSIDIES

37. Policy failures result from government interventions that distort the market. One policy failure is precisely inadequate fisheries management, as described above. Instead of adequately addressing resource problems, governments, in many cases, have actually made the situation more difficult by introducing yet another policy failure: subsidies that encourage entry into the fishery and expand fishing capacity beyond what the oceans can sustain in the long run.¹⁸ The economic theory of common property resource use sheds light on why unlimited access fisheries tend to attract excessive amounts of capital and labour that lead to fishing efforts beyond maximum sustainable yields (MSY). Iceland's submission to the CTE (WT/CTE/W/111), and a recent WTO special study on trade and environment (Nordström and Vaughan, 1999) set out the economic theory, based on Gordon's (1954) stylized fishery model, underlying the incentives that hamper effective fisheries management. This analysis is summarized in Annex III.

¹⁷ Stone (1997: p. 511) notes that "many nations with a tradition in fishing and a heavily subsidized fishing fleet have managed to escape the dwindling stocks and toughening regulations by fishing the stocks of less-regulated developing countries."

¹⁸ Use of the term "subsidy" in this Note is without prejudice to the definition in the SCM Agreement. For a discussion of the coverage of the SCM Agreement *see*, for example, Chaytor (1998); Downes and Van Dyke (1998); Deere (2000); Porter (1998a); Schorr (1999); Steenblik (1999); and Stone (1997).

38. The experience of several countries (e.g. Norway, Iceland and New Zealand) shows that the adoption of more sustainable management systems is often accompanied by sharp reductions in subsidies (Myers and Kent, 1998, p. 125; Rory, 1996).

39. From a purely economic perspective, the question of whether particular subsidies support or undermine efforts to manage a fishery sustainably depends on the type of management regime in place and the interactions between policies (FAO, 1998c). Clearly, if fishing is unrestricted, subsidies that either boost revenues or lower costs have a stimulating effect on effort, and hence encourage over-fishing. As has been argued by some in the CTE, if sustainable management regimes were in place, subsidies would in effect only amount to income redistribution to fishers. However, if fisheries management is inadequate, subsidies tend to exacerbate the inherent market failure relating to the open or common access nature of fisheries. Moreover, this argument ignores the political economy considerations. If entry into the fishery is not restricted, along with the catch, subsidies will lead to more capacity than is needed to harvest the resource efficiently. This over-capacity will drive down incomes and lead to pressure being placed on fisheries managers to set TAC levels higher than desirable from a sustainability perspective.

40. In principle, temporary subsidies can be used to accelerate development of a new or under-exploited fishery without causing it great harm.¹⁹ However, as the experience following the extension of coastal jurisdiction shows, when resource-rich coastal states started providing financial support to their domestic fleets in order to take advantage of fishing opportunities vacated by foreigners, they very often misunderstood the dynamics of the fishery and overshot the mark. Moreover, once in place, the subsidies used during this period often proved difficult to remove after the fisheries had been fully developed (Steenblik, 1999).

41. Similarly, subsidies that are used to reduce fishing capacity - such as payments to owners to "buy-back" their vessels, gear or fishing licences - can support efforts to manage fisheries sustainably, but only under certain conditions. If no other subsidies are in place, catch limits are enforced, new entry is not allowed, and the gear or vessels are not allowed to enter another fishery, over-capacity will be reduced - generally to the benefit of the fishery. The main drawback of this type of scheme (under the aforementioned conditions) is that if used repeatedly, or only in fisheries that have reached a critical state, it can affect expectations and thus alter the behaviour of fishers in ways that discourage normal exit from fishing (Read and Buck, 1997; OECD, 2000b, p.57). This in turn may hinder attempts to manage capacity and effort in other fisheries. Other subsidies, such as undercharging for harbour berths, may also retard exit.

42. If, on the other hand, other subsidies are also being given for the construction or purchase of new vessels, decommissioning or buy-back schemes may accelerate the replacement of capital in the fishery (Flaaten and Wallis, 2000). And if the newer capital is technically more efficient at catching fish, and only the overall tonnage of the fleet remains unchanged, real capacity and effort is likely to expand. Finally, if the retired vessels or gear are allowed to be transferred to another country, the over-capacity problem may simply be shifted elsewhere - to the high seas or the fishery of some other country.²⁰

¹⁹ Most buy-back schemes are government financed. However, these schemes can be industry financed, obviating the need for large public expenditures. Such industry-financed schemes have been used in Iceland and have been authorized for use in the United States. *See* OECD (2000b, p. 58).

²⁰ Buy-back programmes generally seek to address resource conservation, economic efficiency, and social equity. These three objectives are not necessarily mutually compatible. The policy intent of a measure is not necessarily commensurate with its impact. Gates, Holland and Gudmundsson (1997) look at the experience with, and economics behind, limited entry licensing and buy-back programmes around the world, and suggest that alternative methods, such as individual transferable quotas (ITQs), may accomplish similar objectives and avoid some of the probable long-term consequences of buy-back programmes.

43. Government programmes that facilitate adjustment out of a fishery - such as worker retraining and re-employment schemes - have a much greater potential to reduce capacity and contribute to making the transition towards more sustainable fisheries. In some cases, making that transition may also require the use of more passive adjustment assistance, such as lump sum payments to unemployed fishers (OECD, 2000b). Once that stage has been reached, governments still need to spend money on management and enforcement, and on sufficient research to understand the nature of the resource under their control. These forms of government expenditure are considered to support sustainability.

44. It must be recognised, of course, that countries provide subsidies to their fishing industries for many reasons. Keeping people employed in fishing communities and ensuring minimum levels of income are two common objectives. In general, government programmes that target particular social concerns more directly (e.g. general income support not conditional on being a fisher), and are delinked from fishing as an economic activity (e.g. community-based services and economic development assistance) are likely to be more effective in the long run (OECD, 2000b). By contrast, when subsidies are used to support employment in rural industries, such as fisheries, which require specialised skills, the resulting low mobility of the affected labour force can itself become an impediment to policy change - increasing subsidy dependency, and making structural adjustment all the more difficult when it eventually has to be addressed (Steenblik, 1999).

45. Subsidies are only one type of government policy that can impact on capacity and fishing effort. If, in addition to subsidizing fishing activities for the variety of reasons set out above, tariffs are imposed at the border on fish and fish products, this acts as a further financial transfer to the fishery to the extent that these measures raise market prices. Following the Uruguay Round, tariffs on fish and fish products have been reduced from an average of 6.1 to 4.5 per cent, a 26 per cent reduction. The average tariff on imports from developing countries has decreased from 6.6 to approximately 4.8 per cent, a 27 per cent reduction. Estimates are that approximately 80 to 85 per cent of international trade in fish and fish products are bound under most-favoured-nation (MFN) tariffs, with the remainder included in the Generalized System of Preferences (GSP), and regional or bilateral trade arrangements (Filhol, 1995; GATT, 1994).²¹

46. Further work is needed to analyse the nature, extent and implications of fisheries subsidies on trade and sustainable fisheries management. Work in this respect in several international fora is described in Section III. In addition to studies recently completed in APEC and the OECD, work related to fisheries subsidies is ongoing. For example, the OECD Fisheries Committee will explore the effects of changes on restrictions on investment, access to services, subsidies, as well as other relevant factors affecting trade in this sector. A review of the form of fisheries subsidies and their likely impact on trade and resource sustainability will be prepared for the FAO Committee on Fisheries. This work is relevant to CTE discussions and will provide an important contribution when completed.

47. Based on the research carried out to date, however, the removal of environmentally-harmful subsidies would represent a necessary step towards eliminating an economic obstacle hampering the achievement of sustainable fisheries management. Subsidy reform has a role to play in complementing progress towards sustainable use of fisheries resources, although it will not in itself ensure sustainable fisheries.

²¹ Fish and fish products are covered under Chapter 3, 0509, 1504, 1604, 1605 and 2301 of the Harmonized System (HS) nomenclature.

III. STATE OF PLAY OF INTERNATIONAL ANALYSIS AND DISCUSSIONS

A. WORK IN INTERNATIONAL ORGANIZATIONS

48. There is an increasing consensus that the main cause of fish stock depletion is inadequate management of fisheries resources, including over-capacity of fishing fleets on a global scale: too much fishing capacity for the available resources. The institutional structure put in place at the domestic, regional and international levels to respond to the growing concern over fisheries sustainability is extensive. It is based on the principle that although efforts are essential at the national level, without international and regional coordination and cooperation it will be difficult to ensure sustainable fisheries management.

49. In this context, efforts are under way to analyse the different types of government support to the fisheries sector and to identify those fishing subsidies that are harmful to resource sustainability and distort trade. Estimates of the magnitude of support vary widely. Using a variety of approaches and with differing coverage, general estimates range from US\$6.3 to \$21.5 billion, approximately 15 to 25 per cent of the annual revenues of commercial fishing activities.²² Despite these studies, it remains unclear how the line of demarcation should be drawn between potentially environmentally-harmful and environmentally-enhancing forms of subsidization, particularly given the unintended consequences of government transfers in the fisheries sector. This is primarily an empirical question.

50. This Section reviews the work in APEC, FAO, OECD, UNEP and the World Bank. Discussions in the CTE have benefited from presentations and papers on the work of several of these organizations.

1. APEC²³

51. Over the course of 2000, the Asian Pacific Economic Cooperation (APEC) has undertaken a study on *the Nature and Extent of Subsidies in the Fisheries Sector of APEC Member Economies*. The background to the study is APEC's Early Voluntary Sectoral Liberalisation proposal for fish and fish products. The proposal required, *inter alia*, that Member Economies eliminate subsidies contrary to the WTO Agreement on Subsidies and Countervailing Measures (SCM). It was subsequently proposed that a study be undertaken to assist Member Economies to identify such subsidies. The study is now in the final stages of publication (APEC, 2000).

52. There were 5 formal requirements for the study: (i) a comprehensive inventory of generic types of subsidisation employed globally in the fisheries sector, including multi-sectoral subsidies applying also to fisheries; (ii) an inventory list and categorisation of subsidies in the fisheries sector of APEC economies; (iii) an inventory of policy objectives underpinning subsidies; (iv) an assessment of subsidies in light of the SCM Agreement, which differentiates between "prohibited," "actionable," and "non-actionable" subsidies; and (v) three case studies illuminating the impacts of subsidies.

53. An inventory of subsidies and support programmes in the fisheries sector of APEC shows 162 entries across the 19 APEC economies for which information was obtained. The study identified financial transfers in six categories, or "modalities":

1. Direct Assistance to Fishers and Fisheries Workers;
2. Lending Support Programmes;

²² By way of comparison, the OECD (2000b) estimates that government transfers to the agricultural sector in 1997, excluding market price support, represent 22 per cent of the farm-gate (the concept of "farm-gate" is equivalent to that of landed value in fisheries).

²³ The APEC Secretariat has provided this summary of its recent research.

3. Tax Preferences and Insurance Support Programmes;
4. Capital and Infrastructure Support Programmes;
5. Marketing and Price Support Programmes; and
6. Fisheries Management and Conservation Programmes.

54. The overall profile of transfers shows that the most favoured in APEC are those using *Management and Conservation*, and *Capital and Infrastructure* modalities, applied to capture fisheries. The next most favoured are the same modalities but applied to aquaculture. There are scarcely any subsidies in the *Direct Assistance* modality, and very few for fish processing applications regardless of modality.

55. The overall profile of subsidies in terms of concentrations in the fisheries sector within APEC remains relatively the same, regardless of whether drawn on the basis of the number of programmes in each category, or on the number of APEC economies represented by programmes in each category. This suggests a considerable harmony of policies and programmes in the fisheries sector across APEC. There is some evidence that a major structural shift may be under way in terms of the “mix” of programme modalities. Newer programmes appear to favour *Management and Conservation*, whereas older ones appear to have been more *Capital and Infrastructure* oriented.

56. The total dollar value of all APEC programmes and subsidies is estimated at approximately US\$12.9 billion. This is in line with previous estimates of subsidies globally in the fisheries sector, if allowance is made for inflation and the very approximate nature of the data. However, within APEC, the best estimate is that the total value of subsidies with a positive effect on fish stocks is US\$4.2 billion, while the total with a negative effect is estimated at US\$8.3 billion. Accordingly, there is still, on balance, a preponderance of subsidies that work against the sustainability of fishing resources.

57. Very few programmes and subsidies would seem to be incompatible with the SCM Agreement. Only ten out of 162 are assessed as being potentially “actionable,” with a medium or high risk of challenge. Of the 162, 29 are viewed as probably “non-actionable”. Of the remaining 133 that might conceivably be “actionable”, 123 have a very low or low risk of challenge. Accordingly, only ten programmes are viewed as both conceivably “actionable” and with a medium or high risk of challenge. The risk of challenge is a major determining factor. Many more subsidies and programmes might, in principle, be “actionable”, but are too small-scale, excusable as regional development, or are some form of environmental adjustment, which is exempt.

58. The estimate of dollar values in the APEC study suggests that the ten programmes identified as least “compatible” with the SCM Agreement carry a total value of approximately US\$370 million. This is a surprisingly low proportion of the total US\$12.9 billion estimated for the entire APEC inventory.

59. Case study analysis shows that the effects of subsidies on trade are not always self-evident. This is because of the distinctive, backward-sloping supply curve in the fisheries sector beyond the point of maximum sustainable yield (MSY) of the fishery. It is possible that subsidies designed to enhance fish stocks, or for vessel buy-back programmes in order to constrain fishing efforts, to enhance fisheries sustainability, cannot be guaranteed to have precisely the intended positive effect. However, subsidies to expand fishing efforts may turn out to be compatible with sustainability, provided the point of MSY has not been reached in a given fishery.

60. Of the ten programmes identified as appearing least compatible with the SCM Agreement, no fewer than six fall into just two positions (out of 18) in the Modality/Applications matrix. There are three programmes in the category of *Capital and Infrastructure* applied to capture fisheries; and three in the category of *Marketing and Price Supports* applied to fish processing. Accordingly, these two categories appear to be the least compatible with the SCM Agreement.

61. Conversely, the modalities of *Direct Assistance to Fishers* and *Management and Conservation* appear to contain no programmes within APEC (regardless of area of application) that would appear to have poor compatibility with the SCM Agreement. Accordingly, these two categories are the ones assessed as most compatible with the Agreement. This is a surprising result in the case of *Direct Support to Fishers*; the explanation lies in the small scale of the APEC programmes in this category, and the fact that they appear to be acting in practice as a means to adapt to new environments.

2. FAO²⁴

62. The FAO *State of Food and Agriculture* special report in 1992 on *Marine Fisheries and the Law of the Sea: A Decade of Change*, in many respects, can be credited for clearly setting out the issues relating to the interrelationship between fish stocks and their environment that have shaped the discussions in the past decade. This report was in response to the significant increase in marine environmental degradation, mainly through exacerbated over-fishing and coastal zone pollution. The FAO noted that this trend was highly disturbing, given that fish are one of the major sources of animal protein and are of critical importance to the increasing populations in developing countries. In this assessment, the FAO estimated that global operating and capital costs were US\$124 billion, and revenues US\$70 billion, based on data from the latter half of the 1980s. The difference of US\$54 billion was then inferred to represent the value of fisheries subsidization. However uncertain this preliminary FAO estimate, it has spawned a vigorous debate on the magnitude and potential environmental consequences of subsidization to the fisheries sector.

63. The FAO has been working on fisheries since 1965. Recent work has led to the conclusion of several multilateral fisheries agreements, such as the 1995 Code of Conduct for Responsible Fisheries (WT/CTE/W/15), which sets out voluntary principles for responsible fisheries and aquaculture practices. Implementation of the Code of Conduct is being supported by the FAO through the preparation and distribution of a set of technical guidelines.²⁵ The Code of Conduct includes the FAO 1993 Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas. Article 7 of the Code provides that:

"States should take measures to prevent or eliminate excess fishing capacity and should ensure that levels of fishing capacity are commensurate with the sustainable use of fishery resources as a means of ensuring the effectiveness of conservation and management measures." (Article 7.1.8)

"Such measures should provide, *inter alia*, that: excess fishing capacity is avoided and exploitation of fish stocks remains economically viable; the economic conditions under which fishing industries operate promote responsible fisheries." (Article 7.2.2)

64. The FAO is promoting implementation of the International Plan of Action for the Management of Fishing Capacity (IPOA), which was endorsed by the FAO Council in 1999.²⁶ Current FAO work in this area includes providing Members with the tools needed for the management of fishing capacity. Work is progressing on technical guidelines for the management of fishing capacity to be published in 2000 and identification of factors that contribute to fisheries over-capacity and unsustainability.

²⁴ The FAO provides the CTE with regular briefings on its work, see WT/CTE/W/135; W/126; WT/CTE/M/21: pp.15-16; M/22: p.7; M/23: p.9; and M/24: p.31.

²⁵ These FAO technical guidelines are on fishing operations, the precautionary approach to capture fisheries and species introduction, integration of fisheries into coastal area management, fisheries management, aquaculture development, inland fisheries, responsible fish utilization, and indicators for sustainable development of marine capture fisheries. See www.fao.org/fi/agreem/codecond/codecon.asp#AGREEM.

²⁶ See WT/CTE/W/126 and www.fao.org/fi/ipa/ipae.asp.

65. The FAO has been called upon by its Sub-Committee on Fish Trade and by the IPOA to compile and disseminate information on fisheries subsidies at the global level, as a basis for further analysis aimed at understanding their role in relation to trade of fish and fish products and fisheries resource sustainability. The FAO will hold expert consultation on Economic Incentives and Responsible Fisheries (Rome, 28 November - 1 December 2000) to assess the state of knowledge of fisheries subsidies and their likely impact on trade and resource sustainability. Its findings will be submitted to the 24th session of the FAO Committee on Fisheries in February 2001 (FAO, 2000b). This work is relevant to CTE discussions and will provide an important contribution when completed.

66. Illegal, unreported and unregulated (IUU) fishing is also a subject of discussion in FAO. IUU fishing includes unregulated and unreported fishing activities primarily by large-scale fishing vessels on the high seas, often under "flags of convenience," which refers to the practice of using the flag of another country. Although information on the extent of IUU fishing is difficult to ascertain for obvious reasons, trade in species, such as bluefin tuna in the Atlantic and Pacific, Patagonian toothfish in the Antarctic and cod in the Atlantic, tend to indicate that the practise is widespread (FAO, 2000d). The conservation and management of many fish stocks is being undermined by increasing levels of IUU fishing, particularly in the jurisdictions of developing coastal States.²⁷ The issue of IUU fishing was addressed most recently at an FAO technical consultation on 2 to 6 October 2000. Further consultation will be required prior to the next Session of the Committee on Fisheries in 2001.

67. An FAO study on *Eco-labelling and Sustainable Fisheries* (Deere, 1999) reviews the current international framework and rationale for eco-labelling; highlights the particular concerns and opportunities that these schemes may present, particularly for developing countries; and presents a case for stronger engagement by all stakeholders in the development of eco-labelling, including through the negotiation of international technical guidelines.

68. Other related work in FAO includes assessments of: (i) CITES criteria as they may apply to the listing of commercially-exploited aquatic species. In June 2000, FAO convened a technical consultation on the suitability of the CITES criteria for listing commercially-exploited aquatic species, the results of which will be submitted to the Committee on Fisheries in 2001 (FAO, 2000c); and (ii) biotechnology and biosafety issues surrounding seafood products from aquaculture, including use of drugs and other chemicals in aquaculture, quarantine and health certification of live aquatic animals during their transboundary movements, and screening of aquatic animals and animal products for human pathogens (i.e. genetically modified fish and fish products).²⁸

3. OECD²⁹

69. The Organization for Economic Cooperation and Development (OECD) has been working on issues related to fisheries subsidies since the early 1960s (Steenblik and Munro, 1999). In 1965, in response to a mandate from the OECD Council "to examine periodically the development of the situation as regards subsidies and other financial support to the fisheries in Member countries," the newly formed Committee for Fisheries published its first compilation of financial support to the fishing industry (OECD, 1965). The report, endorsed by the OECD Council, included recommendations to the effect that: "Subsidies directly given to the fishers on the basis of the quantity of fish landed, gross proceeds, or time spent at sea must be considered ... less acceptable than other types, ...[and] should not be given;" and that: "scrapping premiums, shipbuilding and other investment subsidies for the benefits of fisheries ... are only acceptable if they are to be in force

²⁷ See FAO (2000d), R. Tokrisna, *WTO-Consistent Trade-Related Measures to Address IUU Fishing: Developing Country Issues*, and T. Aqorau, *IUU Fishing: Considerations for Developing Countries*.

²⁸ The SPS Agreement recognizes the International Office of Epizootics as the competent authority for standards relating to fish and fish products. See FAO (1998a).

²⁹ The OECD provides the CTE with regular briefings on its fisheries work, see WT/CTE/M/23.

for a period of less than five years and/or the granted amount does not exceed 25 per cent of the building cost of a new vessel" (OECD, 1965).

70. Thus, since its inception the OECD Fisheries Committee has been mandated "to examine periodically the development of the situation as regards subsidies and other financial support to the fisheries in Member countries." Monitoring of support was continued over the next several years as part of the 1967 and 1968 OECD *Review of Fisheries*, and was expanded in a second study on financial support published in 1971. The third and final report in the series was published in 1980.

71. In the early 1990s, the OECD Fisheries Committee decided once again to measure and classify financial support to the fisheries sector and to determine how to calculate its impact on trade. The terms of reference of the *ad hoc* Expert Group, set up in 1990 specifically to examine the issue, were "to provide conceptual clarification and to assess the possibilities of developing a methodology and assess its usefulness for quantifying all relevant economic assistance measures in connection with the study on economic assistance" (OECD, 1990).

72. In 1993, the Committee's Expert Group acknowledged the difficulties in quantifying some types of assistance to the fishing industry (particularly that arising from trade restrictions). The Fisheries Committee accordingly decided to move on from this work and focused on deepening its understanding of the economic aspects of the management of fisheries resources (OECD, 1993).

73. The results of a recent OECD study carried out in the Fisheries Committee, *Transition to Responsible Fisheries - Economic and Policy Implications* (OECD, 2000b), illustrate, from selected case studies, that government financial transfers to the marine capture of fisheries sectors in OECD Member countries represent a significant policy intervention. The study examines in particular how these transfers affect fishery resource sustainability.

74. This study reaches an estimate of US\$6.3 billion in OECD government transfers to the fishing industry in 1997, defining a "transfer" as the monetary value of government interventions associated with fisheries policies, whether from central, regional or local governments. While the study made considerable progress in defining government assistance in this sector, it should be noted that the calculations do not include market price support,³⁰ nor many concessionary tax treatments, nor support from regional or local authorities (OECD, 2000a). However, market price support will be examined in the Fisheries Committee's forthcoming study on market liberalization. The OECD has provided the Executive Summary of the study as an input to this Note, which is contained in Annex IV.

75. Based on a range of case studies of experiences in OECD Members,³¹ the study notes that the nature of government financial transfers has changed in OECD countries since the 1970s and 1980s, with resources having shifted from developing fisheries to reducing fishing. The study contains the following categories of the various types of transfers, according to how they are implemented:

- Transfers in the form of *direct payments* from government budgets (i.e., financed by taxpayers) to fishers;
- *cost reducing transfers*, such as those that reduce the costs of fixed capital and variable inputs; and
- *general services*.

³⁰ Market price support are transfers that influence both producer and consumer prices, causing the domestic price of a product to be greater than the world price.

³¹ Case studies were provided by Australia, Canada, the European Community, Iceland, Japan, New Zealand, Norway and the United States. See the case-study summaries in OECD (2000b), pp.16-32. Each country determined which data to report for this study.

76. Examples of these generic categories are provided in Figure 5. In the first two of these categories the transfers are contingent on the level of activity of an individual fisher. The final category, general services, involves transfers not contingent on the level of activity of a fisher, but they reduce the costs faced by all fishers and an implicit transfer thus occurs.

Figure 5: Examples of categories of transfers to marine capture fisheries in OECD countries

Direct payments

Price premiums paid by governments, grants to small fisheries, direct aid to participants in particular fisheries, grants for new vessels, grants for modernization, grants to purchase second hand vessels, grants to set up temporary joint ventures in other countries, payments to set up permanent joint ventures in other countries, grants for temporary withdrawal of fishing vessels, temporary grants to fishers and vessel owners, vessel decommissioning payments, buyouts of licences and permits, buyouts of quota and catch history, compensation for closed or reduced seasons, compensation for damage from predators on fish stocks, disaster relief payments, income support, unemployment insurance, retirement grants for fisheries, income guarantee compensation, vacation support payments.

Cost Reducing Transfers

Subsidized loans for vessel construction, subsidized loans for vessel modernisation, loan guarantees, low cost loans to young fishers, low cost loans to specific fisheries, interest subsidies for the purchase of machines and equipment for fishing vessels, interest rebates, interest subsidies for the purchase of second-hand vessels, underwriting of insurance costs, low cost insurance, payments to reduce accounting costs, contributions to match private sector investments, transport subsidies, fuel tax exemptions, income tax deduction for fishers, tax exemptions for deep-sea vessels, support for crew insurance, support for development of deep-sea fisheries, support to improve economic efficiency, government payment of access to other countries' waters, reduced charges by government agencies, support to build facilities for commercial fishers at ports, provision of bait services.

General Services

Management expenditure, enforcement expenditure, research expenditure, funding of information dissemination, funding for the promotion and development of fisheries, expenditure for information collection and analysis, expenditure on exploratory fishing, fisheries enhancement expenditure, support for artificial reefs, expenditure on research of deep-sea fisheries, expenditure on the protection of marine areas, aid for restocking fish resources, payments to support community based management, payments to producer organisations, regional development grants, support to build port facilities for commercial fishers, grants to local authorities for retraining fishers in other activities, support to enhance the fisheries community environment, expenditure on research and development on fishing technologies, expenditure to promote international fisheries co-operation, support to improve the management of co-operatives, support to improve fishing villages, market intervention.

Box Notes: Market price support not included. The descriptions of the transfers come from a variety of sources. They are for illustrative purposes and the box does not contain a comprehensive listing. Some descriptions appear in more than one category. This is because, although the programs have the same descriptor, the available information indicates that they are implemented in different ways.

The box does not reflect any assessment of whether individual transfers programs have positive or negative implications for fisheries resource sustainability. Therefore, proper care should be applied in interpreting this summary information to consult the country case studies provided in the Annex to the study that discusses these implications.

Source: OECD (2000b).

77. Table 2 gives the OECD (2000b) estimates of government financial transfers to marine capture fisheries in OECD countries in 1997.

Table 2: Estimates of Government Financial Transfers to Marine Capture Fisheries in the OECD: 1997¹ (US\$ million)

	<i>Direct payments (A)</i>	<i>Cost Reducing Transfers (B)</i>	<i>General Services (C)</i>	<i>Total Transfers (D)</i>	<i>Total Landed Value (TL)</i>	<i>(A+B)/ TL</i>	<i>D / TL</i>
Australia ²	5	7	11	24	259	5%	9%
Canada	252	18	135	405	1621	17%	25%
European Union ⁴	366	358	710	1434	9324	8%	15%
Belgium	-	3	2	5	99	3%	5%
Denmark	20	-	62	82	521	4%	16%
Finland	3	2	21	26	29	18%	90%
France	22	14	104	139	756 ⁴	5%	18%
Germany	8	3	52	63	194	5%	32%
Greece	12	-	38	50	387	3%	13%
Ireland	5	3	96	104	220	3%	47%
Italy	24	5	64	92	1,749	2%	5%
Netherlands	4	-	32	36	466	1%	8%
Portugal	32	0	34	66	319 ⁴	10%	21%
Spain	205	81	59	345	3,443 ⁴	8%	10%
Sweden	9	-	45	54	129	7%	42%
United Kingdom	23	4	101	128	1,012	3%	13%
Iceland	-	18	18	36	877	2%	4%
Japan	25	22	2,899	2,946	14,117	0%	21%
Korea	30	59	253	342	4,929	2%	7%
Mexico	-	-	17	17	1017	-%	1%
New Zealand	-	-	17	17	475 ⁵	-%	4%
Norway	3	62	98	163	1343	5%	12%
Poland	-	-	8	8	215	-%	4%
Turkey	-	1	27	29	212	1%	13%
United States	21	194	662	877	3,644	6%	24%
OECD Total	702	740	4,856	6,298	38,032	4%	17%

Notes: "-": zero; **0**: Value less than 0.5 of the unit of measure; **1**: the table does not reflect any assessment of whether individual transfers programs have positive or negative implications for fisheries resource sustainability. Therefore, proper care should be applied in interpreting this summary information to consult the country case studies provided in OECD (2000b); **2**: Commonwealth fisheries only; **3**: European Union values are the sum of all EU Member State values. The exception to this is cost reducing transfers, where payments for access to third country waters are not allocated among each Member State. In this case, the value is added to the EU total figure; **4**: does not include national landings in foreign ports; **5**: 1996 figure. (figures are rounded-up).

Source: OCED 2000b.

78. As part of its programme of work for 2000-2002, the OECD Committee for Fisheries plans to analyse issues relating to fisheries management costs (Wallis and Flaaten, 2000); trade and investment liberalization in fisheries; indicators for monitoring sustainable fisheries development; and the causes and consequences of changes in fishing capacity. As part of the work on market liberalization, the Fisheries Committee will "... explore world and regional fish trade flows, issues and problems. This will include an analysis of how fisheries trade and production are likely to be affected by reductions in present tariff levels and by changes in non-tariff barriers. In addition, the study will explore the effects of change on restrictions on investment, access to services, subsidies in the fisheries sector, as well as other relevant factors (OECD, 2000a)."

4. UNEP

79. UNEP co-sponsored with WWF a workshop on "The Role of Trade Policies in the Fishing Sector" in June 1997 to discuss the relationship between fishing subsidies, trade distortions and the problems of fisheries resource sustainability (UNEP-WWF, 1997). A study prepared for UNEP (Porter, 1998a) contributes to the analytical framework for consideration of fisheries subsidies. This study calls for the reform of fishing subsidies and concludes that the negotiation of multilateral rules to discipline subsidies in the fisheries sector would facilitate adjustment to sustainable management. The options proposed are: a fishing subsidies agreement within the WTO framework; a protocol on fisheries subsidies within the framework of an existing multilateral environmental agreement; or a stand-alone agreement on fishing subsidies or fishing over-capacity. This initial work is being updated in a forthcoming UNEP study (Porter, 2000). UNEP is also undertaking integrated assessments of trade liberalization in the fisheries sector in select countries, such as Argentina, Senegal and Uganda.

5. World Bank

80. A World Bank paper (Milazzo, 1998) categorizes fisheries subsidies, and includes budgeted, non-budgeted and cross-sectoral subsidies. Based on six case studies (Japan, the EU, Norway, the US, Russia and China), Milazzo estimates that fisheries subsidies world-wide amount to between US\$14 and 20.5 billion per year, or 17 to 25 per cent of the revenue of the industry. This estimate is based on budgeted subsidies of US\$3.5 to \$5 billion, direct subsidies of US\$6 to 8 billion, indirect shipbuilding and infrastructure subsidies of US\$1.5 billion, and subsidies relating to access to the fishery of US\$3 to 7 billion. Excluded are subsidies put in place to reduce capacity and fishing effort.

81. The World Bank and FAO are jointly developing a *Forum for Sustainable Fisheries* to provide increased direct support to developing countries for the promotion of sustainable fisheries in general and for the implementation of the FAO Plan of Action (FAO, 1999c).

B. WORK IN NON-GOVERNMENTAL ORGANIZATIONS

82. The work of several NGOs has contributed to the analysis of fisheries subsidies. The World Wildlife Fund (WWF) is taking the lead in an international effort to reduce fisheries subsidies that contribute to over-fishing, under its Endangered Seas Campaign, including initiatives to: (i) increase transparency in national subsidy regimes; (ii) promote new international rules to monitor and discipline fisheries subsidies; and (iii) secure immediate reductions in the most harmful fisheries subsidies, including through implementation of the FAO Plan of Action (*see* WWF, 1997 and 1999; and Schorr, 1998).³²

83. The programme of the International Centre for Trade and Sustainable Development (ICTSD) on Fisheries, Trade and Sustainable Development addresses the intersecting issues of fisheries and sustainable development in the context of international trade policy-making. ICTSD focuses on improved policy coherence to complement and support stakeholder participation in processes at the WTO, OECD, FAO and other fora. ICTSD has published jointly with IUCN, *Fish For Thought* (ICTSD-IUCN, 1999); and *Fish Scales* (Dommen, 2000). ICTSD work in 2000-2002 will include stakeholder policy dialogues on fisheries.

³² WWF together with Unilever, one of the largest global fish processors, have created a Marine Stewardship Council to promote market-based incentives for sustainable fisheries, such as eco-labelling. *See* www.msc.org.

C. WORK IN GATT/WTO

1. The Uruguay Round

84. Meeting at Ministerial level in 1982, the GATT CONTRACTING PARTIES agreed to examine problems relating to trade in three groups of products - non-ferrous metals and minerals, forestry products, and fish and fisheries products, with a view to recommending possible solutions. Detailed background documentation was prepared and a working party was established in March 1984 to examine problems in those areas and possible solutions. The Working Party concluded that the elimination of obstacles would be conducive to trade liberalization; facilitate the adjustment of production to market conditions; favour greater stability in prices; and help create a stronger base for further development of industries concerned with natural resource-based products (GATT, 1985a). It considered that the best means of obtaining that objective was through a new round of multilateral trade negotiations. The 1985 Report of the Working Party (GATT, 1985b) contains a description of measures affecting trade in fish and fish products, many of which may need further consideration. The recommendations of the Working Party led to the creation of a negotiating group on Natural Resource Based Products (NG3) in the Uruguay Round, in which fisheries issues were discussed.

2. The Committee on Trade and Environment

85. There has been considerable discussion of the fisheries sector under Item 6 of the work programme of the CTE, which examines the environmental effects of removing trade restrictions and distortions. Following the 1996 Report of the CTE to the Singapore Ministerial Conference (WT/CTE/1), work has been undertaken to broaden and deepen the sectoral analysis under item 6 in several sectors.³³ Discussions in the CTE have pointed to the fisheries sector as a good example of the benefits for both trade and environment of removing trade restrictions and distortions.

86. In this context, recognition has been given to the fact that, for the most part, it is fisheries management, not trade, which plays the crucial role in determining sustainable resource use. Considering that the situation of fisheries world-wide needs to be addressed through enhanced fisheries management, the potential contribution of the WTO, which has a trade mandate, would be in the area of addressing the major trade distortion affecting the fisheries sector, i.e. subsidies.

87. It has been noted that certain subsidies may contribute to sustainable resource management and thus all forms of subsidies should not be condemned *a priori*. Determining sustainable resource exploitation is an issue of fisheries management first and foremost. In this respect, it is necessary to take a comprehensive approach to the discussion of fisheries, including the socio-economic aspects. The EC has suggested that it would be interesting to study whether the absence of subsidies targeted at adjustment of fishing activity could lead to undesirable over-exploitation of fisheries resources (WT/CTE/W/99). Reference has also been made to the role, in resource conservation, of non-tariff measures relating to transit and access to ports.

88. Contributions by New Zealand, the United States, Iceland and Australia have addressed the potential "win-win-win" opportunities for trade, environment and development from eliminating fisheries subsidies. These submissions start from the premise that an important cause of the decline in fish stocks is over-fishing due to over-capacity in production and fleets,³⁴ as described in Section II of this Note. Contributions by Iceland (WT/CTE/W/103), New Zealand (WT/CTE/W/134) and the

³³ Under the second part of this item, Members have discussed agriculture, energy, fisheries, forestry, non-ferrous metals, textiles and clothing, leather, and environmental goods and services.

³⁴ See the submissions by Australia (WT/CTE/W/36 and W/105); Iceland (WT/CTE/W/111 and W/103); New Zealand (WT/CTE/W/121 and W/51); and the United States (WT/CTE/W/154 and W/52).

United States³⁵ describe the progress being made at the national level to put in place sustainable fisheries management systems.

89. Members have raised various issues with respect to the fisheries sector in discussions in the CTE, including the role of the fisheries sector in developing and least-developed countries, artisanal and small-scale fisheries, access agreements, and market access for fish and fish products.

90. A recent submission by the United States (WT/CTE/W/154) distinguishes between open access, regulated open access and rights-based fisheries; and identifies a non-exhaustive list of categories of fisheries subsidies that tend to promote excessive levels of fishing effort and harvesting capacity, and to distort prices and trade. Excluded from this list are those government programmes for fisheries management, science, enforcement and most publicly financed port and landing facilities, as well as programmes that facilitate the transition to sustainable fisheries. This list is contained in Annex V to this Note.

3. The High Level Symposium on Trade and Environment

91. At the WTO High Level Symposium on Trade and Environment in March 1999, five Members submitted a joint statement on need to eliminate environmentally-damaging and trade-distorting subsidies in the fisheries sector.³⁶

4. The Seattle Ministerial Conference

92. In the preparatory process for the Seattle Ministerial Conference in December 1999, there were several proposals with respect to fisheries subsidies.³⁷ Views differed on the best way to approach this issue. Some Members put forward proposals on the need to negotiate disciplines on environmentally-harmful and trade-distorting fisheries subsidies.³⁸ Others felt that fisheries subsidies should not be singled out and that sustainable fisheries management needed to be dealt with in a comprehensive manner. One of these Members proposed that an independent negotiating group for forestry and fisheries products be established to address a range of issues, including fisheries subsidies.³⁹

D. CONCLUDING OBSERVATIONS

93. Apart from the earlier aggregate estimates by FAO and the World Bank, no detailed and easily comparable estimates of subsidies to fisheries have yet been compiled for all major fishing nations. Nevertheless, through the efforts of various organizations involved in examining and measuring government financial transfers to the fisheries sector, an overall picture is starting to emerge. Recent work in APEC and the OECD is a step in this direction. Further work to develop a common methodology will assist efforts to monitor progress of this important element bearing on fisheries management and trade. This work can usefully guide discussions in the CTE on the nature, extent and implications of fisheries subsidies in the context of the transition to sustainable fisheries management.

³⁵ The US (1999) made available a Congressional study on federal investments in the fisheries sector.

³⁶ See the statement by Australia, Iceland, New Zealand, the Philippines and the United States in Annex I of WT/CTE/W/121; for a summary of this meeting see IISD (1999).

³⁷ See Iceland's summary in WT/CTE/W/132.

³⁸ See, for example, Communication from Australia, Iceland, New Zealand, Norway, Peru, Philippines, and the United States, WT/GC/W/303.

³⁹ See, for example, Communication from Japan, WT/GC/W/221.

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CTE DOCUMENTS RELATED TO THE FISHERIES SECTOR

Symbol	Title of Document	Date
WT/CTE/W/160	Matrix on Trade Measures Pursuant to Selected MEAs	19 September 2000
WT/CTE/W/154	Environmentally-Harmful and Trade-Distorting Subsidies in Fisheries - Communication from the United States	4 July 2000
WT/CTE/W/152	Conservation Measures Taken by the International Commission for the Conservation of Atlantic Tunas – Communication from ICCAT	29 June 2000
WT/CTE/W/135	Update of FAO Activities Related to Fisheries - Communication from the FAO	25 February 2000
WT/CTE/W/134	Subsidies in the Fisheries Sector - Update on Recent Work Conducted by New Zealand - Communication from New Zealand	24 February 2000
WT/CTE/W/132	Fisheries Subsidies and the Environment - Communication from Iceland	21 February 2000
WT/CTE/W/126	The FAO International Plan of Action for the Management of Fishing Capacity and Related Initiatives for Sustainable Fisheries - Communication from the FAO	12 October 1999
WT/CTE/W/121	Benefits of Eliminating Trade Distorting and Environmentally Damaging Subsidies in the Fisheries Sector - Submission by New Zealand	28 June 1999
WT/CTE/W/113 + Corr.	The Commission for the Conservation of Atlantic Marine Living Resources - Communication from CCAMLR	20 May 2000
WT/CTE/W/80/Add.	GATT/WTO Rules on Subsidies and Aids Granted in the Fishing Industry - Note by the Secretariat	21 September 1999
WT/CTE/W/111	Report by the Icelandic Ministry of Fisheries on the Environmental Impact of Fisheries Subsidies - Submission by Iceland	11 March 1999
WT/CTE/W/105	Trade Liberalization and the Environment: A Positive Agenda for Trade Reforms - Submission by Australia	2 February 1999
WT/CTE/W/103 + Corr.	The Icelandic Fisheries Management System: A Market-Driven Sustainable Fisheries Regime – Submission by Iceland	27 January 1999
WT/CTE/W/99	Comments by the EC on the Secretariat's document WT/CTE/W/80 on Subsidies and Aids Granted in the Fishing Industry	6 November 1998
WT/CTE/W/87	Communication from the Secretariat of the International Commission for the Conservation of Atlantic Tunas	16 July 1998
WT/CTE/W/83	Comments by the EC on the Secretariat's document WT/CTE/W/67 (Environmental Benefits of Removing Trade Distortions)	10 June 1998
WT/CTE/W/80	GATT/WTO Rules on Subsidies and Aids Granted in the Fishing Industry - Note by the Secretariat	9 March 1998

Symbol	Title of Document	Date
WT/CTE/W/67	Environmental Benefits of Removing Trade Restrictions and Distortions - Note by the Secretariat	7 November 1997
WT/CTE/W/62	The 1994 Agreement Relating to the Implementation of Part XI of the 1982 UN Convention on the Law of the Sea - Communication from the UN Division for Ocean Affairs and the Law of the Sea	16 September 1997
WT/CTE/W/52	The Fisheries Sector - Submission by New Zealand	21 May 1997
WT/CTE/W/51	Environmental and Trade Benefits of Removing Subsidies in the Fisheries Sector - Submission by the United States	19 May 1997
WT/CTE/1	Report (1996) of the Committee on Trade and Environment to the Singapore Ministerial Conference	12 November 1996
WT/CTE/W/36	Trade Liberalization, the Environment and Sustainable Development - Submission by Australia	23 July 1996
WT/CTE/W/15 + Corr	Recent Developments in MEAs - Note by the Secretariat - FAO Code of Conduct for Responsible Fisheries	1 December 1995
General Council documents		
WT/GC/W/348	Preparations for the 1999 Ministerial Conference - Improved Disciplines and Remedies under the Agreement – Communication from Canada	11 October 1999
WT/GC/W/303	Fisheries Subsidies Proposal Submitted by Australia, Iceland, New Zealand, Norway, Peru, Philippines and the United States	6 August 1999
WT/GC/W/292	Proposal by New Zealand on the Elimination of Trade-Distorting and Environmentally-Damaging Subsidies in the Fisheries Sector	5 August 1999
WT/GC/W/229	Preparations for the 1999 Ministerial Conference - Fisheries Subsidies – Communication from Iceland	6 July 1999
WT/GC/W/221	Preparations for the 1999 Ministerial Conference - Negotiations on Forestry and Fishery Products - Communication from Japan	28 June 1999
WT/GC/W/185	Preparations for the 1999 Ministerial Conference - Market Access for Industrial Goods, Including Fish and Fish Products - Communication from Norway	19 May 1999

ANNEX I

LIST OF LOW-INCOME FOOD DEFICIT COUNTRIES (LIFDCs)

Afghanistan	Korea D.P. Rep.
Albania	Kyrgyzstan
Angola	Laos
Armenia	Lesotho
Azerbaijan	Liberia
Bangladesh	Macedonia
Benin	Madagascar
Bhutan	Malawi
Bolivia	Maldives
Bosnia Herzegovina	Mali
Burkina Faso	Mauritania
Burundi	Mongolia
China	Morocco
Cambodia	Mozambique
Cameroon	Nepal
Cape Verde	Nicaragua
Central African Republic	Niger
Chad	Nigeria
Comoros	Pakistan
Congo, Dem. Rep.	Papua New Guinea
Congo, Rep.	Philippines
Cuba	Rwanda
Côte d'Ivoire	Samoa
Djibouti	Sao Tome Principe
Ecuador	Senegal
Egypt	Sierra Leone
Equatorial Guinea	Solomon Islands
Eritrea	Somalia
Ethiopia	Sri Lanka
Ethiopia	Sudan
Gambia	Swaziland
Georgia	Syria
Ghana	Tajikistan
Guatemala	Tanzania
Guinea	Togo
Guinea Bissau	Turkmenistan
Haiti	Tuvalu
Honduras	Uzbekistan
India	Vanuatu
Indonesia	Yemen
Kenya	Zambia
Kiribati	

ANNEX II

REGIONAL FISHERIES BODIES

These instruments set out specific duties or responsibilities on both Regional Fisheries Bodies (RFBs) and their respective members. They address such issues as unregulated fishing; over capitalization of fleets; excessive fleet size; insufficiently selective fishing gear; by-catch and discards; data and statistics; use of the precautionary approach; conservation and management of high seas fish stocks; monitoring and compliance schemes (MCS) and enforcement by flag and port States; marine pollution; ecosystem protection; data gathering and subsequent management advice; and assistance to developing States.

FAO Regional Fishery Bodies

- Fishery Committee for the Eastern Central Atlantic (CECAF)
- Western Central Atlantic Fishery Commission (WECAFC)
- Indian Ocean Fishery Commission (IOFC)
- Asia-Pacific Fishery Commission (APFIC)
- General Fisheries Commission for the Mediterranean (GFCM)
- Indian Ocean Tuna Commission (IOTC)

Non-FAO Regional Fishery Bodies

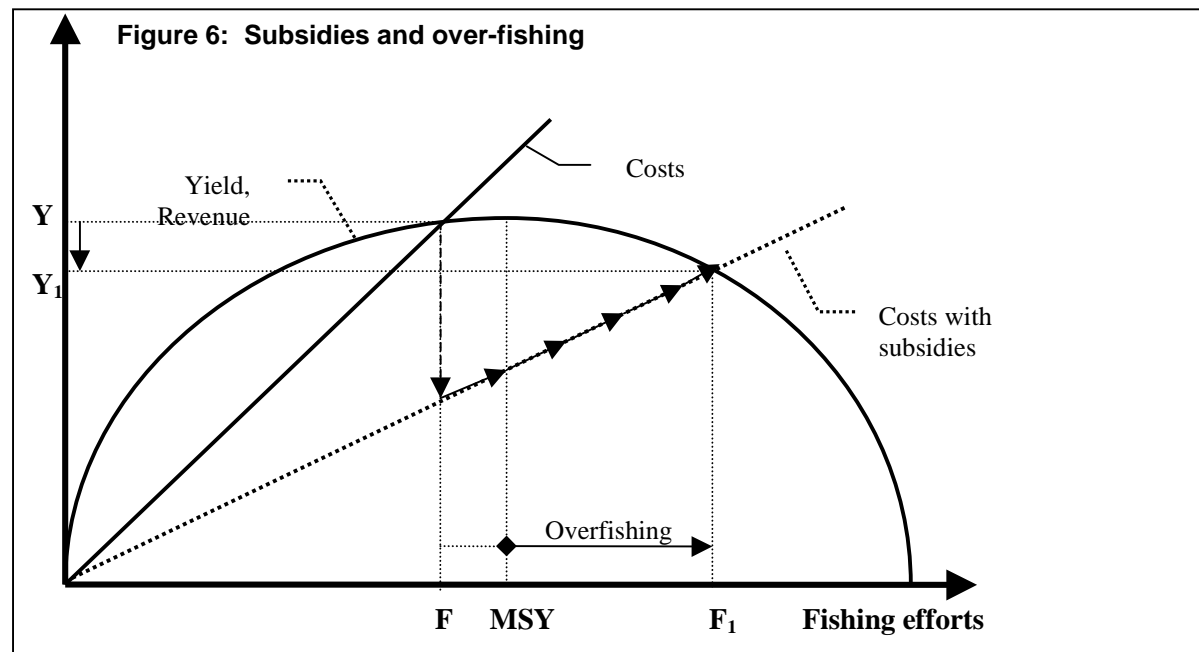
- Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR)
- Commission for the Conservation of Southern Bluefin Tuna (CCSBT)
- Forum Fisheries Agency (FFA)
- Inter-American Tropical Tuna Commission (I-ATTC)
- International Baltic Sea Fishery Commission (IBSFC)
- International Council for the Exploration of the Sea (ICES)
- International Commission for the Conservation of Atlantic Tunas (ICCAT)
- Northwest Atlantic Fisheries Organization (NAFO)
- Comité régional des pêches du Golfe de Guinée (COREP)
- Commission sous-régionale des pêches (CSRP)
- Joint Technical Commission for the Argentina/Uruguay Maritime Front (CTMFM)
- North Atlantic Marine Mammal Commission (NAMMCO)
- North Atlantic Salmon Conservation Organization (NASCO)
- North-East Atlantic Fisheries Commission (NEAFC)
- International Pacific Halibut Commission (IPHC)
- North Pacific Anadromous Fish Commission (NPAFC)
- North Pacific Marine Science Organization (PICES)
- Pacific Salmon Commission (PSC)
- South Pacific Permanent Commission (CPPS)
- Pacific Community (SPC)
- Latin American Organization for the Development of Fisheries (OLDEPESCA)
- International Whaling Commission (IWC)

ANNEX III

MODEL OF A FISHERY: SUBSIDIES AND OVER-FISHING

Figure 4 is a standardized model of a fishery and does not represent all fisheries, such as a fishery in process of being developed. In this standard model, with varying degrees of fishing effort (number of vessels or fishers), stocks of fish will produce varying levels of sustainable yields. It furthermore assumes constant prices and a particular cost function for the harvesting of a fish stock. The yield increases in response to increased fishing effort to the point of maximum sustainable yield (MSY). In a situation of open access, the point of economic efficiency in Figure 6 is located at point **F** along the total catch curve, where the total costs equal the total revenues produced by harvesting the fish stock.

In general, underlying economic problems are related to incentive structures in a fishery. Policy failures relating to open access are central to over-fishing and the consequent decline of fish stocks. Thus, if government transfers or subsidies provide incentives to increase capital and labour inputs beyond the level associated with MSY of the fishery, over-capitalization and over-fishing occur. This is represented by the shift from point **F** to **F₁** in Figure 6. Initially, subsidies result in additional profits for individual fishers, which serves to attract more fishers into the sector. Thus, if there are no barriers to entry in the fishery, effort will exceed the point of MSY and subsidies provide only temporary rents to the industry.



Source: Nordström and Vaughan (1999), p. 24.

ANNEX IV

OECD, *TRANSITION TO RESPONSIBLE FISHERIES - ECONOMIC AND POLICY IMPLICATIONS*. PARIS, 2000.

EXECUTIVE SUMMARY

1. Government financial transfers to the marine capture fishery sectors in OECD Member countries represent a significant policy intervention. These transfers have a variety of objectives and employ a number of means to achieve them. Most represent general services, of which the largest proportion is spent on fisheries infrastructure, the remainder funding activities that are designed to assure the sustainable use of fish stocks. A significant amount of expenditure is also spent on transfers that attempt to ease current transition, modernise fleets and provide access to other countries' waters. In this study the OECD Fisheries Committee started to explore a number of transfers and attempted to assess their impacts on fishing capacity and activity, and on fish stock sustainability.
2. It is estimated that at least US\$ 4.9 billion (77 per cent of all transfers) was spent on general services in 1997 – 13 per cent of the value of the landings. Common examples of general services are expenditures on fisheries research, enforcement, management, enhancement and infrastructure. Many of these expenditures fund services that are important for ensuring the sustainable use of fish stocks and the aquatic ecosystem, in accordance with international obligations. For some of these services, some OECD countries consider that fishers are the primary beneficiaries as they own the fishing vessels and thus are the primary users of the fishing rights. As a consequence, these countries operate cost recovery programmes whereby the costs associated with providing these services - normally fisheries management and research - are recovered from fishers. Other countries take the view that such services benefit society as a whole and should therefore be paid for from general tax revenues. A further USD 1.4 billion was spent on support in the form of direct payments and cost reducing transfers to the sector in 1997 – 4 per cent of the value of landings. Common examples include modernisation grants, decommissioning payments, tax exemptions and income support. Transfers arising from market price support - i.e., the difference between the domestic price and the world price of fisheries products due to a government intervention - are not included in any of these figures.
3. Many cases documented the use of direct payments and cost reducing transfers that are targeted at reducing fishing capacity. These policies were either intended to boost profitability of the remaining fishers, reduce dependency on the fishery, meet international obligations or reduce pressure on stocks. In some situations, capacity reducing transfers were used in conjunction with resource conservation measures. The evidence presented indicates that these transfers were successful in improving the profitability of the fishery. Even when this was not a policy objective there appeared to be improved performance by the remaining fishers. Although in many countries resource conservation policies are treated separately from transfers policies, some cases demonstrated the value of such policies working together. Government financial transfers have been used to effectively lubricate the introduction of stricter management policies. These findings underlined the value of coherence between resource management policies and transfers policies.
4. The presented evidence suggests that some direct payments and cost reducing transfers can encourage a build-up of capacity and an expansion of fishing activity. However, many of these effects can be avoided if there are adequate management systems in place. While some cases showed that over-fishing had contributed to resource sustainability problems, few demonstrated the linkage between these problems and government financial transfers.
5. Capacity reducing transfers were observed to have other effects. By creating opportunities for economic rent to be generated, these policies provided the means for more efficient effort to enter the fishery (in the absence of adequate effort controls). Other transfers, such as those provided by renewal and modernisation programmes, which encourage the infusion of new technology, may also

work against the objectives of the capacity reduction programmes. Furthermore the difference between measured capacity (e.g., fleet tonnage and engine power) and effective capacity complicates the design of policies that have the objective of reducing fishing effort. Capacity reducing transfers also have the potential to create spillover effects in other fisheries. If these other fisheries are not adequately managed, the net contribution to resource sustainability could be negative. In a few cases the costs of capacity reduction programmes were covered by funds collected from fishers. The positive aspects of such an approach include its effect on the incentive structure of fishers when they request adjustment assistance, and the reduced costs for taxpayers.

6. The evidence presented to this study suggests that a significant proportion of transfers, when combined with sound management policies, can contribute to resource sustainability. Some direct payments and cost reducing transfers, however, may have a negative impact on the governance of fisheries. Transfers can imbed expectations about capacity and activity levels that can be expensive and costly for governments to remove. Excess capacity, primarily due to the lack of appropriate management and transfers policies, can lead to increased pressures on fisheries management decisions that favour short term requirements at the expense of long term sustainability.

7. Some countries consider that reform of their government financial transfers policies, combined with other management measures, has been successful with respect to their resource management objectives. While the reforms reflect the unique characteristics of each situation, they contribute to the possibility of having an economically profitable and biologically sustainable fishery that internalises its own adjustment risks and functions without direct payments and cost reducing transfers.

8. Capacity reducing transfers can reduce pressure on over-fished stocks. The available evidence suggests that improvements in resource sustainability are possible when capacity reducing transfers are accompanied by appropriate management measures.

9. The Committee recognised the difficulties in isolating the impact on fisheries sustainability of government financial transfers. Nevertheless, the study advanced the understanding of the impacts of transfers on the fisheries sector and some useful general statements and assessments can be made. The study touched upon topics that will be part of the Committee's next work programme. The Committee will be conducting further work to improve its understanding of the general services transfers, especially those provided by fisheries research, management and enforcement expenditures. The potential relationship between transfers and trade will also be a topic for the Committee's future programme of work.

ANNEX V

NON-EXHAUSTIVE LIST OF ENVIRONMENTALLY-HARMFUL
AND TRADE-DISTORTING FISHERIES SUBSIDIES

Category	Examples of types of measures
A. Subsidies that reduce capital (fixed) and operating (variable) costs	
<i>(i) Domestic fisheries</i>	
Reduction of fixed and variable costs	- Government-funded commercially applicable research and development
Reduction of the cost of capital	- Government loans and loan refinancing at below market rates - Government loan guarantees that facilitate below market rate loans - Government forgiveness of government-funded loans
Reduction of income and sales tax and increase of profit margins	- Investment tax credits - Income tax deferrals/accelerated depreciation allowances - Exemption from national sales and fuel excise taxes (unless the tax is a user fee that funds a non-fishery programme such as highway construction and maintenance)
Mitigation of risks and costs	- Government-supported marine insurance at below market rates where such insurance is commercially available
Centrally-controlled fisheries	- Government ownership/management of fishing enterprises if inconsistent with market terms - State trading if inconsistent with market terms and customary business practices
Other indirect measures	- Assistance to shipbuilding when the benefits accrue specifically to fishers
<i>(ii) International fisheries</i>	
Explicit promotion of international fisheries, such as on the high seas and in other countries EEZs	- Government-funded foreign access payments - Government assistance to foreign fishery joint ventures - Government-supported fishing vessel exports - Government-supported below market insurance for foreign fishery investments
B. Subsidies that support incomes and prices	
Explicit price support programmes that have the general effect of promoting operations beyond an optimal point and sustain marginal producers	- domestic price support programmes - Government purchases for above market remuneration
Directly trade-promoting subsidies	- rebates of certain taxes on inputs if the finished product is exported - Government-funded export subsidies
Sector-specific social assistance programmes if implemented in way that encourage fishers to remain active even if sufficient fishery resources are no longer available	- sector-specific income maintenance programmes - regional economic development, if effectively fisheries sector-specific

Source: Communication from the United States to the CTE, WT/CTE/W/154, 4 July 2000.