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**PROMOTING PARTICIPATION OF DEVELOPING COUNTRIES IN
DYNAMIC AND NEW SECTORS OF WORLD TRADE: FISHERY
PRODUCTS**

Background note by the UNCTAD secretariat*

Executive Summary

In 2003, world fisheries production was 132.2 million tonnes. Developing countries accounted for 77 per cent, with China being the largest producer. Capture fishing has remained stable, but aquaculture has expanded, reaching 30 per cent of production. Fish is the most important food export of developing countries and among the principal commodity exports for many. The world capture capacity is too large compared to fish stocks. Subsidies to increase capacity are the main cause. In this connection, a “traffic light” approach similar to that used for agriculture has been proposed. Fresh fish is valuable but difficult to trade and transport, and it faces very stringent health regulations and quality standards.

Fish consumption is rising. In developed countries, the emphasis is on the healthy properties of fish. In poor countries, fish is essential for food security. With limits on increasing catches, aquaculture has a bright future. Developing the fishery sector can contribute to raising national income and employment, improve food security, facilitate the development of a local processing industry, and increase foreign exchange earnings.

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Agreements have been concluded to assign fishing rights to foreigners in exclusive economic zones. Common governance among coastal countries is assisted by regional fisheries bodies. FAO's International Code of Conduct for Responsible Fisheries refers to measures for sustainable fishing practices.

Technical assistance is needed to evaluate available fish resources and ensure the sustainability of stocks. Information and training are also essential. More value for the fish produced or caught can be obtained through less by-catch, better fishing efficiency, smaller losses during processing and better quality. Improving access to finance is also crucial.

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INTRODUCTION

1. International trade of fish, and more specifically fresh crustaceans and fish preparations, has grown considerably in the last decade.¹ The fish sector is one of the more complex among commodity sectors. This report tries to identify the multiple issues involved in the fish sector, including issues having to do with production, consumption, transformation, trade and policies. Some of the complexity of the fish sector results from the dualities between fish as a tradable good and fish as a staple food and between processed fish and fresh fish. It results also from the renewable but depletable character of the resource and from international policies on global stock management, subsidies, fishing rights, traceability and standards.

2. Total fish demand and fish for human consumption are increasing, while fish stocks are being depleted. Already some fish can no longer be captured in regions where they were historically abundant. Cod has disappeared from Canadian territorial seas. Some NGOs recommend that consumers limit their consumption of fish as food, and buy fish preferably from local origins or with a Maritime Stewardship Council (MSC) label or organic label when it comes from aquaculture.² All experts agree on the state of depletion of fish stocks, although the picture is different according to regions.

3. Developing countries receive important revenues from fishery industries (capture, culture and processing),³ but their access to foreign markets could be improved. They have expressed interest in having access to training to improve their export capacity and to comply with quality requirements and standards.

4. Fish is also a staple food for coastal populations who live directly from fisheries.

5. This survey includes fishes, molluscs, crustaceans, marine invertebrates, amphibians, reptilians and marine mammals, either from fresh water or marine water. Marine plants are not included.⁴

I. FISHERY PRODUCTION

A. World trends

6. In 2003, world fisheries production was estimated to be 132.2 million tonnes, of which 81.3 million tonnes came from marine capture, 9 million tonnes from inland capture, 16.7 million tonnes from marine aquaculture and 25.2 million tonnes from inland aquaculture.⁵ World fish production grew at an annual rate of 2.3 per cent over the period 1990-2003. This rate remained the same when only the last five years of that period are taken into account. While capture fishing has reached a maximum and

¹ "Strengthening participation of developing countries in dynamic and new sectors of world trade: Trends, issues and policies", UNCTAD, Geneva, 15 December 2004, TD/B/COM.1/EM.26/2.

² *Fish, A Consumer's Guide*, WWF, Switzerland 2004.

³ In 2003, developing countries produced 77 per cent of world fishery production in quantity terms and exported 48 per cent of world exports in value terms (source: Fishstat from FAO).

⁴ Annex I shows the main groups of species adopted internationally for statistical classification purposes.

⁵ Annex II shows the evolution of capture and aquaculture productions over the period 1980 to 2003.

has remained stable since the beginning of the 1990s, aquaculture has been expanding and has accounted for the entire growth in production. Its rate of expansion is higher than for any other animal production for human consumption. From 3.9 per cent of total production of fish, molluscs and crustaceans in 1970, aquaculture reached 30 per cent in 2002. With 71.2 per cent of aquaculture production, China is by far the main producer. Aquaculture production in fresh water for human food represents 58 per cent of aquaculture production, and 90 per cent of it comes from developing countries.

B. Reduction of catches and fleet capacity

7. World fleet capacity is measured with several indicators: number of decked and undecked vessels, number of powered and unpowered vessels, and gross tonnage. The number of decked vessels remains stable at around 1.3 million, while undecked vessels engaged in fishing activities are around 2.8 million, of which 65 per cent are not powered. Asia has 85 per cent of the decked vessels, 50 per cent of the powered undecked vessels and 83 per cent of total non-powered boats. The rest of the decked vessels (15 per cent) are spread among Europe (8.9 per cent), North and Central America (4.5 per cent), Africa (1 per cent), South America (0.6 per cent) and Oceania (0.2 per cent).⁶

8. The world capture capacity is too large compared to stocks available. Subsidies to fishermen that act as incentives to increase fishing capacity are the main cause. Examples of fishery subsidies include subsidies for fishery infrastructure, for renewal and modernization of the fishing fleet, for price support and for marketing. There is no particular regime for regulating fisheries subsidies in the WTO agreements. However, in the Doha round negotiations, some Member States propose a “traffic light” approach similar to the one used for agricultural subsidies, with different liberalization objectives for different categories of subsidies. Other Member States consider that there is no need for a special fisheries subsidies regime, arguing that the fisheries sector is no different from other sectors and that the problem of overexploitation has more to do with management of the resources than with subsidies.⁷ Nevertheless, several countries have already taken steps toward the reduction or the reorientation of subsidies. For instance, since the reform of its common fishery policy in 2002, the EU has oriented its subsidies towards improving working conditions on board rather than the renewal and modernization of its fleet.

⁶ Source: *The State of World Fisheries and Aquaculture 2004*, FAO, Rome 2005.

⁷ UNEP organized a round table on Promoting Development and Sustainability in Fishery Subsidies Disciplines in Geneva, 30 June 2005. <http://www.unep.ch/etb/events/2005rtgeneva.php>

Box 1: EU policies for the fish sector: Vessels and catches

The EU has already reoriented its subsidies in order to safeguard its resources. It seeks to reduce its fleet capacity, to reach new markets by improving product quality, to promote products produced using environment-friendly methods, and to find markets for surpluses and under-exploited species.

Number of vessels.

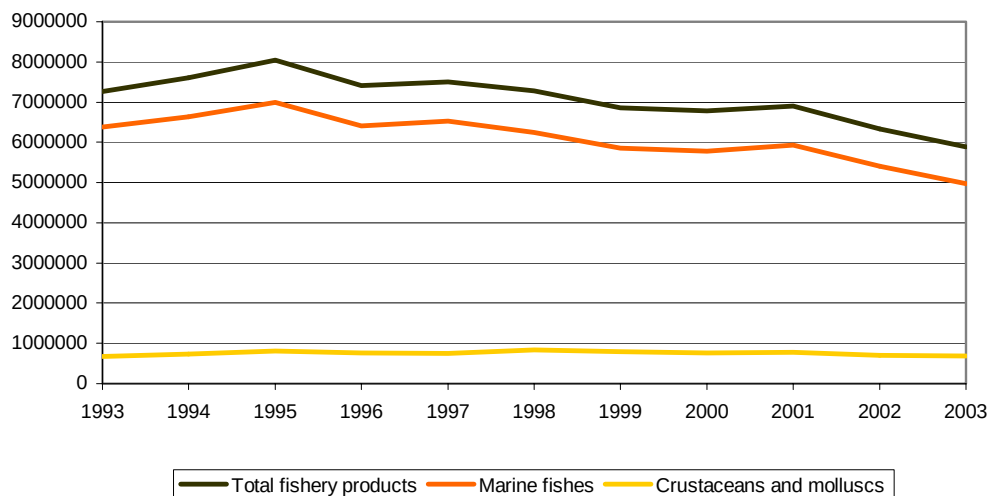
	1995	2000	2001	2002	2003	2004
EU (15 countries)	103,633	95,381	92,328	90,129	88,122	82,351
Iceland	:	1,997	2,016	1,939	1,876	1,828
Norway	:	13,014	11,951	10,651	9,933	8,183

Gross tonnage.

	1995	2000	2001	2002	2003	2004
EU (15 countries)	1,998,391	2,007,262	2,005,765	1,965,484	1,911,696	1,845,486
Iceland	:	180,203	191,487	191,629	183,773	191,267
Norway	:	392,281	407,010	394,482	395,327	394,846

Source: New Cronos, EUROSTAT.

While the number of vessels in the EU fleet has steadily decreased since 1995, it is only since 2002 and the implementation of the new fishery common policy that the total tonnage has started to decrease. Graph 1 illustrates the decrease of EU catches since its maximum in 1995.

Graph 1:EU(25) fishery catches in tonnes in the world

Source: New Cronos, EUROSTAT.

C. Inland and marine aquaculture

1. Development of aquaculture⁸

9. In 2002, the contribution of aquaculture to global supplies of fish, crustaceans and molluscs represented 30 per cent of total production by weight. Worldwide, the sector grew at an average annual rate of 8.9 per cent a year over the period 1970-2002. Its share in total supply of protein is increasing. In 2002, developing countries accounted for 90.7 per cent of aquaculture production, with China alone accounting for 70 per cent. In developing countries excluding China, the growth of aquaculture production of fish, molluscs and crustaceans has exceeded that in developed countries.

10. Most aquaculture production of fish, molluscs and crustaceans comes from freshwater species (57.7 per cent by quantity in 2002). However, while marine and brackish-water aquacultures represent only 42.3 per cent by quantity, they account for 51.6 per cent of the value owing to the high prices of finfish species and crustaceans. While still not very common, new offshore marine aquaculture areas are expanding. This includes Atlantic cod or wild-caught tuna fattening in sea cages before sales. Table 1 shows the main species in aquaculture and their growth.⁹

Table 1: World aquaculture production: Quantity, value and growth by major species group in 2003

	Freshwater fish	Molluscs	Diadromous fish	Crustaceans	Marine fish
Quantity (thousand tonnes)	23,143	12,302	2,646	2,792	1,249
Value in 2002 (US\$ millions)	21,343	10,512	6,465	10,839	4,144
Annual average growth of quantity in % (1995-2003)	7.5	4.9	7.2	12.3	11.2

Source: Fishstat from FAO.

2. Impacts on the environment

11. In order to face growing demand and with production through catches at its sustainable maximum, aquaculture seems to be a promising opportunity. However, production constraints are numerous and various: infrastructure needs to be built for the different steps of fish growing, for recycling of water and for fish processing and/or packaging, and reliable access to fish feed, veterinary services and drugs needs to be assured. Aquaculture, as it is often conducted, may not be a panacea for protecting stocks that are being depleted while satisfying demand. Indeed, feed for

⁸ All statistics in this section are from *The State of World Fisheries and Aquaculture 2004*, FAO, Rome 2005.

⁹ Annex I details by groups the species mentioned in table 1.

aquaculture may come from captured fish as fish flour. Aquaculture also impacts on the environment by exhausting and degrading resources (spread of pathogens from cultured stocks to wild stocks and pollution by discharge of effluent, solid wastes and escapees).

12. Several countries have been proactive in implementing reasonably conducted aquaculture. Market forces also exercise a strong influence, while standards for imports are becoming increasingly stringent, and not only for fish from aquaculture. Trade in endangered species, labelling of origin, traceability, the chain of custody and zero tolerance for certain veterinary drug residues are among issues considered in requirements for imports. The introduction of product certification, eco-labelling, ethical or fair trade and organic certification allows fish products to satisfy the exigencies of consumers but implies additional costs and heavier investment in production facilities.

II. FISH AND FISH PRODUCTS CONSUMPTION.

A. Increasing trends

13. Most fish for human consumption is sold fresh (52 per cent), while 26 per cent is frozen, 11 per cent is canned and 10 per cent is smoked. The share of fresh fish is rising. Owing to its highly perishable nature, live and fresh fish are not the most internationally traded items, but their share of trade is increasing fast owing to technical progress in transport.

14. World fish consumption continues to rise in both developed and developing countries. Fish is a source of micronutrients, minerals, essential fatty acid and proteins. Demand in rich countries is supported by the emphasis of the healthy properties of fish in marketing. In poor countries, the demand is also strong because fish is essential in terms of food security. Smoked fish is often the main source of proteins for inland populations, especially at the “soudure” time, when the harvest of the past year has been entirely sold and the new one has not yet taken place (this is particularly true in Western Africa). Overall, fish provides more than 2.6 billion people with at least 20 per cent of their average per capita intake of animal protein. In industrialized countries, the contribution of fish to total protein intake declined from 8.0 per cent in 1992 to 7.7 per cent in 2001, while in low-income food-deficit countries (LIFDCs) the percentage reached more than 20 per cent, which is probably an underestimation since subsistence fisheries are not included in official statistics. The portion reaches more than 50 per cent of total animal protein intake in small island developing States.¹⁰

15. In 2003, fisheries production for human consumption reached 78 per cent of total world production, the rest being transformed into non-food products (mainly fishmeal and fish oil). While total capture production is stagnant or even slightly decreasing, human consumption continues to grow. The requirements are thus met thanks to increases in aquaculture production and smaller catches for non-food uses.

¹⁰ Source: *The State of World Fisheries and Aquaculture 2004*, FAO, Rome 2005.

B. Quality requirements

16. Most marketed fish is fresh fish, but it is the most expensive to trade and especially to transport. Fish is one of the few commodities for which transformation does not increase the price: fresh fish or living fish have higher prices than canned, frozen or smoked ones. As for any other imported food products, sanitary requirements in rich countries are extremely stringent. Health regulations and quality standards based on Hazard Analysis of Critical Control Point (HACCP) with regard to fish and fishery products have been adopted in developed countries. Imports to the EU and the United States must have an original health certificate from approved establishments and bear the name of the country of origin. Establishments for certification have been approved in some developing countries. The EU has developed a programme of certification for non-EU exporting countries. Once an establishment has been certified, products coming from it do not need veterinary inspection at the EU border. As of June 2005, 68 countries had at least one company certified by the EU. However, companies in poor countries have difficulties in obtaining certification. Table 2 shows the balance of EU certification among regions.

Table 2: Number of countries by region with at least one company certified by the EU.

	Number of countries with certification	Total number of countries	Number of coastal countries	Ratio: certification over number of countries
Africa	22	53	40	42%
America	22	35	33	63%
Asia	21	44	32	48%
Oceania	3	15	15	20%

Source: UNCTAD calculation based on European Commission information.¹¹

17. Capacities need to be reinforced in all regions and particularly in Oceania. Aid programmes to upgrade existing plants and improve inspection skills exist but are not sufficient if developing countries are to benefit from opportunities in the fish sector.

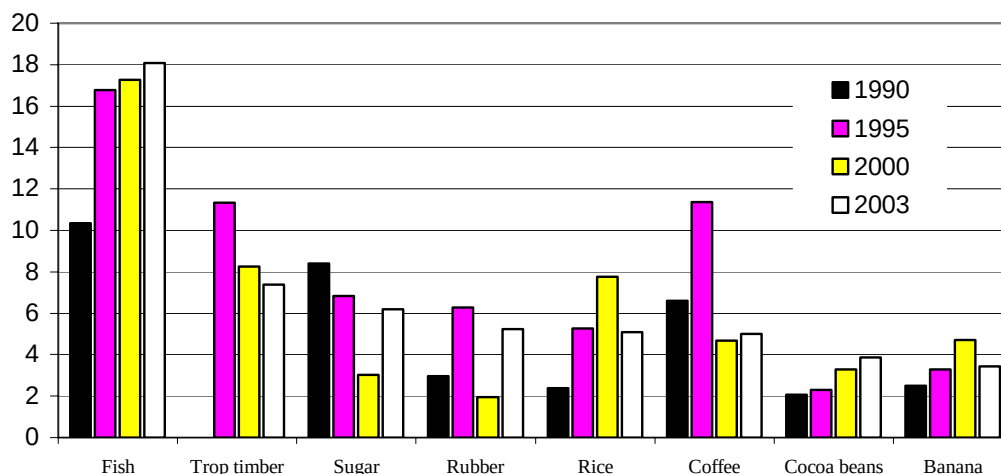
III. TRADE

A. Global trends

18. The value of total fish exports is more important for developing countries than that of other traditional types of agricultural exports.

¹¹ Lists of product establishments in third countries,
<http://forum.europa.eu.int/irc/sanco/vets/info/data/listes/table0.html>

**Graph 2: Value of developing country exports of main agricultural and forestry products
(in US\$ billion)**



Source: Statistics from the FAO, ITTO and COMTRADE.

19. In 2002, about 38 per cent of world fish production entered international trade, with 49 per cent in value terms coming from developing countries.¹² Developed countries accounted for 82 per cent of world fishery imports, headed by Japan with 22 per cent, the United States with 16 per cent, followed by Spain, France, Italy, Germany and the United Kingdom. China was the biggest exporter in 2002, for the first time outstripping Thailand, Norway and the United States.

20. Table 3 shows the relative importance of Asian exports. Attention should also be drawn to low-income and food-deficit countries (LIFDCs), whose exports amount to 20 per cent of world exports. Other developing countries exports reached almost 30 per cent.¹³ Table 3 also shows the significance of fishery exports from developing countries and thus the interest of those countries in preserving and expanding this opportunity.

¹² Stefania Vannuccini, "Overview of fish production, utilization, consumption and trade", November 2004, FAO p.19.

¹³ See section V for further discussion on the issue.

Table 3: Fishery commodities' export value in 2002

	Value in thousand US\$	Share of world export value
Africa	3,153,171	5%
America, North/Central	7,999,607	14%
America, South	5,177,442	9%
Asia	19,596,752	34%
Europe	20,469,131	35%
Oceania	1,815,036	3%
World	58,211,139	100%
Industrial countries	27,322,773	47%
Economies in transition	2,184,806	4%
LIFDCs	11,827,911	20%
Other developing countries	16,875,649	29%

Source: FAO, Fishery Information, Data and Statistics Unit.

21. Tariffs facing developing countries' exports of fish products in developed countries are generally low or zero due to preferences. In the Quad countries, even MFN tariffs are relatively low. They are generally around 5 per cent, exceptionally going above 20 per cent. For imports by developing countries, tariffs are higher and can constitute definite barriers.

22. Health regulations on fishery products are the main restriction on market entry. Other environmental or social considerations may exist based on consumer preferences. Environmental labelling, fair-trade labelling or adapted marketing are possibilities to overcome these impediments.

B. Dynamic subsectors

23. In 2002, shrimp continued to be the main fishery commodity traded in value terms. Other main groups exported in various forms are groundfish, tuna and salmon. Products derived from aquaculture account for 22 per cent of total exports, while non-food products (mainly fishmeal and fish oil) account for 36 per cent. Table 4 shows the main types of fishery product exports, their rates of growth and the share of developing countries. Live, fresh and frozen fish, the most valuable products, show an average of 7.8 per cent annual growth over the period 1985-2002. In general, the share of exports from developing countries increased for all of these items over the period. The share of exports from developing countries increased most in the case of prepared and preserved fish, but given what has been said about the high value of fresh products, this does not necessarily mean a move to more valuable items.

Table 4: Evolution of fishery export value and share of developing countries of world exports.

SITC and product	Value (billions of US dollars)			Average annual growth rate of exports (%)			Developing country share of world exports (on items %)		
	1985	1995	2002	85-95	95-02	85-02	1985	1995	2002
03 Fish, crustaceans,molluscs	8.6	24.6	27	9.5	1.5	6.3	42	52	51
034 Fish, fresh, chilled, frozen	2.6	7.6	9	10.5	3.3	7.8	33.3	39.1	39.2
035 Fish salted, dried, smoked	0.2	0.7	0.8	12.2	1.8	8.1	21.1	24.9	28.4
036 Shell fish fresh, frozen	4	11.4	11.3	8.7	0.2	5	57	69.5	65.9
037 Fish etc prepd, prsrvd nes	1.8	5	6	9.9	1.7	7.2	39	56.2	60

Source: UNCTAD calculations based on COMTRADE data.

24. Processing facilities in developing countries are often risky ventures, owing to a lack of reliability of supply, poor market research, poor product quality and weak partnerships with customers. The implementation of new quality requirements and safety control measures in the main importing countries is an additional factor that increases the need for investments and capacity building in order to benefit from export opportunities in main importing developed countries.

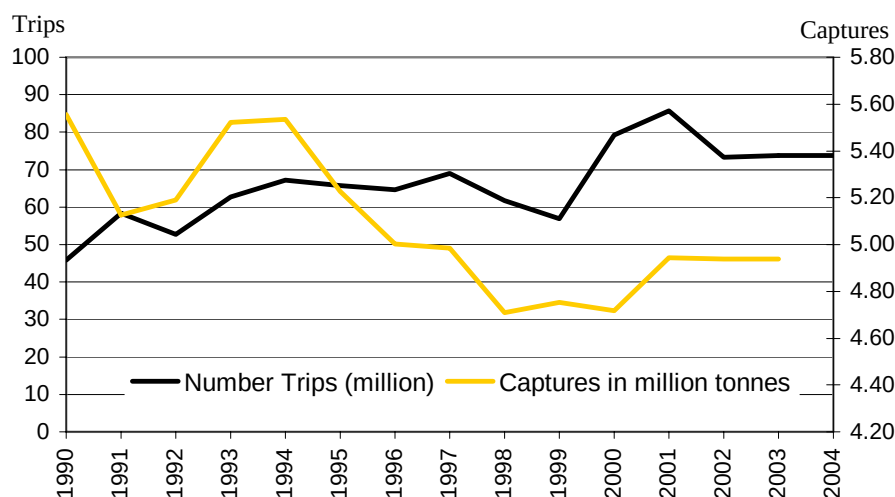
IV. FISHERY SUSTAINABILITY

A. Fish stocks and stock management

25. Worldwide in 1974, 10 per cent of fish stocks were considered to be depleted or overexploited. Since then, however, over-fishing has led to 25 per cent of stocks being considered as depleted, over-exploited or in recovery, 50 per cent of stocks fully exploited (close to the maximum level of capture sustainable) and 25 per cent under-exploited or moderately exploited. Although the situation as a whole is extremely alarming, it varies a lot from region to region and from species to species.

26. The most productive region remains the Northwest Pacific, where fluctuations in catches concern mainly Japanese sardine and Alaskan pollock. Stocks of these species show a decline from the late 1980s that has resulted in a 3 per cent production decline in the region, despite an increase in catches of other species. Although the level of captures plays a role in stock evolution, environmental conditions can have an important impact on the level of fish stocks. For instance, the “El Niño” phenomenon is the main determinant of the size of marine catches in the Southeast Pacific, where 80 per cent of the catches concern Peruvian anchoveta, Chilean jack mackerel and South American sardine.¹⁴

¹⁴ The State of World Fisheries and Aquaculture 2004, FAO, Rome, 2005.

Graph 3: Measured effort for fishing and fishery captures in the United States

Source: Personal communication from the National Marine Fisheries Service, Fisheries Statistics Division, Silver Spring, MD, USA, and Fishstats from FAO.

27. Graph 3 indicates that the number of trips¹⁵ in the United States increased by 70 per cent in less than 14 years, while captures decreased by 11 per cent. This is mainly due to an increase in the fleet and thus an increase in the fishing effort, which indicates exhaustion of the resource.

28. Owing to the reduction of stocks of valuable species such as cod in the Northeast Atlantic, fishing companies and industries have started to look for fish species that were not considered sufficiently valuable earlier. For instance, captures of blue whiting and sand eels are increasing in the Northeast Atlantic, and these fish have been accepted by consumers because of their lower prices.

29. Although a distinction must be made between regions and species, as well as between fishing activities in the high seas and above the continental shelf, fish stocks have globally decreased over the past 40 years. For instance, four of the 16 FAO statistical regions are at their maximum historical level of production and four have seen a sharp decline in production, including a 50 per cent decline from a peak in 1968 in the Northwest Atlantic, a 47 per cent decline from a peak in 1978 in the Southeast Atlantic and a 31 per cent decline from a peak in 1994 in the Southeast Pacific.¹⁶

30. Because of the migratory nature of fish stocks, their spread over several coastal States' marine territories or their presence in international seas, fish stock management cannot be addressed at the State level only. It has to be tackled at the regional or international level.

¹⁵ The number of boat trips is a statistical indicator which gives a proxy of the effort of the fishing activity, the more trips the more important is the effort for fishing, thus the exploitation of the resources. An increase of trips can result from the exhaustion of the resource: the effort is growing in order to compensate the difficulty to catch fish.

¹⁶ *The State of World Fisheries and Aquaculture 2004*, FAO, Rome, 2005.

B. Law of the Sea, Exclusive Economic Zone and international agreements

31. Fish stocks have no territorial frontiers, but fishing rights are given to fishing companies on a national sea zone base. The captures made in one national economic zone or international maritime zone can influence the sustainability of stocks in other countries and reduce the productivity of fishermen.

32. The United Nations Convention on the Law of the Sea of December 1982 set out principles for the Exclusive Economic Zone (EEZ), where the coastal country has sovereignty rights up to a 200 nautical mile limit with respect to natural resources and certain economic activities. The EEZ can be fully exploited by the coastal State and its national fishery sector, and any surplus can be sold to foreign parties, either Governments or companies. Agreements giving access to an EEZ to foreigners must be detailed and comprehensive in order to preserve natural resources and develop the national capacity to live from the resources. When fish stocks straddle several EEZs or are highly migratory, the preservation and fair distribution of the resource needs common governance among coastal countries sharing the resource. This is the role of Regional Fisheries Bodies (RFBs), which make recommendations for fish stock management in coastal and open seas. Bilateral agreements (or multilateral ones) among RFBs' contracting parties generally make reference to their recommendations.

33. In 1995, FAO prepared an International Code of Conduct for Responsible Fisheries in consultation with international partners, responding to a request by the International Conference on Responsible Fishing held in Cancún in May 1992.¹⁷ Also in 1992, the United Nations Conference on Environment and Development addressed the need for a precautionary approach in the fishery sector in Agenda 21. The Committee on Fisheries of the FAO supports, monitors and reports on the implementation of the code.

34. Agreements with foreign fleets can have both positive and negative impacts. From the point of view of a coastal State giving access to its EEZ to a foreign fleet, strong points include possibilities of expansion to new foreign markets, access to high technology and thus better efficiency when fishing, and long-term partnerships. The weakness is essentially the lack of flexibility of long-term partnerships. Opportunities arise in terms of improving product quality, training for local fishermen, employment of local crews and stock monitoring. Threats can come in terms of overly efficient fishing activity, conflicts with local fishermen and competition on foreign markets. On the other hand, retaining the EEZ for exclusive domestic use also has pros and cons. Positive aspects are social benefits, better monitoring of food security and links with economic activities on land. Weaknesses are poor product quality and the absence of markets for high-value species. Opportunities arise in terms of a balanced sector development and links with tourism. Threats are overexploitation of the resources, conflicts between artisanal and other fishing fleets, and dependency on foreign markets.¹⁸

¹⁷ *Code of Conduct for Responsible Fisheries*, 1995, FAO, Rome, http://www.fao.org/documents/show_cdr.asp?url_file=/DOCREP/005/V9878E/V9878E00.HTM, accessed August 2005.

¹⁸ *Source*: Rapport de l'Atelier sur la promotion d'accords de pêche équitables compatibles avec une exploitation durable des ressources halieutiques, Saly Portudal, Senegal, 27-29 Mars 2001, Papa Samba Diouf, Khady Sane et Kees Lankester.

35. Agreements can be particularly interesting when poor countries are not able to take the required measures to protect their resources. Agreements among Governments and between Governments and companies can be envisaged. Such arrangements allow poorer countries to benefit from the resources (control, research, training, equipments, etc) of the richer. They contain articles relating to partnership and sustainable development. For instance, fishing companies have signed agreements with Mauritania within the framework of the EU/Mauritania broader agreement:

- Inclusion in a crew of a minimum number of Mauritians for training (either in Mauritania or outside);
- Support for Mauritanian fishermen through training;
- Collaboration and transmission of information about entries and exits of boats from Mauritanian territorial waters;
- 24 hour monitoring of boats by remote sensing;
- Checking of log-books by Mauritanian authorities;
- Partnerships on research between European research centres and universities and Mauritanian ones.

36. Both foreign and local fisheries play a role in stock depletion. For the latter, traditional stock management practices may be abandoned when the catches are for export. It is difficult to convince fishermen, particularly when they are poor and have a short time horizon, to regulate their catches of endangered species. This is especially the case when this fishery accounts for the main part of their income and when there is no profitable alternative. Both regulatory and economic solutions may be envisaged in order to assure the sustainability of stocks and at the same time guarantee fishermen's incomes.

C. Role of regional fisheries bodies¹⁹

37. Regional fisheries bodies (RFBs) are created by international agreements. They provide a framework within which the representatives of Governments agree on ways of managing the fish resources of the open seas and overlapping stocks. They aim to strengthen regional cooperation as a way of guaranteeing both conservation and the sustainable exploitation of fish resources. They issue recommendations on management and conservation measures based on the best available scientific advice. The recommendations must then be implemented by all the RFB contracting parties. The growing international commitments to promote responsible fisheries are expected to improve compliance with measures introduced by regional fisheries organisations. Despite real progress, however, compliance is still not completely guaranteed.

38. Regional fisheries bodies represent an appropriate framework for combating illegal, unreported and unregulated fishing. Most RFBs have already adopted measures to deter skippers of vessels flying the flag of non-contracting parties from ignoring conservation rules. These measures provide for preventing such vessels from landing their catches in the ports of contracting parties and from transferring fish from one vessel to another in zones under the monitoring of RFBs. Some RFBs have also implemented joint inspection programmes to ensure that contracting parties abide by the measures they have adopted.

¹⁹ A list of selected regional fisheries bodies is provided in annex III.

D. Certification, eco-labelling, organic production

39. Main importing countries have changed their regulations about quality and sanitary standards and made them more restrictive, often under the pressure of customers regarding food safety and environmental concerns. New labelling rules and the concept of traceability (similar to the one in place for beef meat) have been introduced by some countries, chemical residues in aquaculture products are limited or prohibited, and certification of the sustainability of aquaculture, the non-overexploitation of certain fish stocks, and the assurance that products are not from illegal, unregulated or unreported fishing has been developed.

40. The WWF advocates that developed country customers limit their consumption of fish and fish products, that they should prefer local fish products to imported ones, and that they should buy imported fish from aquaculture only if it is organically produced.²⁰ Concerns about fish stock sustainability will grow in developed countries, and thus proper information and training is needed, especially at the small-scale fisheries level.

41. Consumer concerns relate to the impact of fishing on resources. The impact of resource depletion on livelihoods may be another area of concern. Providing consumers and producers with reliable and understandable environmental information is a win-win approach because it satisfies consumer concerns and helps the producer to observe environmentally sound practices. Eco-labelling initiatives are often product-specific, and a strong potential exists for their development. Engaging in eco-labelling entails additional costs for the process of certification itself, for investment in environmentally preferable production practices, and for marketing the labelled product (packaging, identification of markets, etc). Small-scale fisheries can participate more easily in such certification schemes if they can share the costs among several fishermen and/or with exporters. Assistance can be sought from international development organizations, associations of fisheries can also be reliable counterparts for lending banks, and government policies and programmes can help.

V. ROLE OF FISHERIES IN NATIONAL DEVELOPMENT AND POVERTY REDUCTION STRATEGIES

A. Employment, food security, income and source of foreign currencies

42. It is estimated that 38 million people derive some revenues from fishing activities. Of these, 85 per cent live in Asia (China alone accounts for one third of the total). While in industrialized regions fishing is a commercial activity, in poorer areas fishing may be a subsistence activity. The fishery sector also includes processing activities, which are often carried out by women. Women also play other roles, including retailing, taking the fish at landings, carrying it, processing it and selling it at markets.

43. Dependence on fishery activities can be very high, not only for exports but also as an important contribution to the local economy (processing industries, transport,

²⁰ *Fish, A Consumer's Guide*, WWF, Switzerland 2004.

markets) and population health. The fishery exports of LIFDCs, which are by definition net food-importing countries, amount to 20 per cent of total world fishery exports. Overall, over the period 1998-2000, fishery exports were among the four main commodity exports for 68 developing countries, of which 23 are least developed countries (out of a total of 50) and 16 are small island developing States (out of a total of 27). The fishery sector also contributes to food security, providing populations with an affordable source of protein. In processed forms, fish can be conserved for several months, allowing transport to remote areas or ensuring a stock of protein even for the poorest.

B. Role of small-scale fisheries in national development and poverty reduction

44. Small-scale fisheries are essential for the fishery sector and for the national economy of many countries. They are also the first to be affected by the sustainability of fish resources. In the face of increasing demand at the local level but also from importing countries, regulating fishery activity through repressive policies alone is far from easy. Solutions to the problem of exhaustion of fisheries resources through provision of alternative activities must be investigated.

45. Small-scale fisheries and fishermen are often badly informed about the situation of the resources they exploit and possible alternatives. Independent and competing exploitation of fish stocks without regulation may lead to exhaustion. Moreover, small-scale fishermen lack the infrastructure for handling and processing, resulting in significant harvest losses during these steps. They also lack storage and transport facilities to sell value-added products, mainly live, fresh or frozen fish, and they lack access to recognized inspections necessary for export. Small-scale fishermen need access to information on stock availability, quality standards and markets, as well as training in modern fish technologies, in order to be more efficient when fishing and thus reducing by-catch and losses.

46. Aquaculture seems to be a viable economic alternative when several conditions are met. Fish products from aquaculture must comply with stringent quality and veterinary requirements. Moreover, importing markets and consumers are paying increasing attention to the sustainable character of production (which is also true for wild catches) and the use of environmentally friendly practices. Although technically evolving, aquaculture is limited to certain species. The introduction of aquaculture in a traditional catch fishery needs reliable market analyses, training of fishermen and investment in infrastructure.

47. In addition to training, information and capacity building, small-scale fisheries and the fishery sector need better access to finance for financing infrastructure such as storage facilities and processing and packaging plants. They also need financing for inputs such as fuel, nets, tools on boats and aquaculture inputs. Innovative financing schemes can be designed for these purposes.

C. Financing small-scale fisheries

48. Credit finance has been identified as one of the major limiting factors of fishery sector development. The introduction of fisheries management and conservation measures and related aspects requires raising working capital, credit and investment

support, particularly for small and medium-scale enterprises. However, there are many constraints that handicap access to credit on reasonable terms. The difficulties are due mainly to widespread mistrust, institutional barriers and lack of understanding on the part of credit institutions, which consider fisheries as a high-risk industry and therefore insist on substantial collateral and attach stringent terms and repayment programmes for their loans. New financing solutions therefore need to be put in place to respond to the needs and requirements of the fishery sector.

49. Also, owing to rising standards, investments in aquaculture have become more burdensome, and new financing solutions are necessary to maintain the growth of the industry. The same applies to certified or labelled catch fisheries, owing to the additional costs of the certification itself and of environmentally friendly practices.

50. Different financing schemes that facilitate access to finance for small-scale fisheries have been developed to overcome the need for collateral. Micro-credit and specialized credit institutions have been the only option for artisanal fisheries in some countries, while banks have been providing collateral-based finance, namely pre-financing of inputs and warehouse receipts financing.

51. For instance, a bank buys fuel for fishermen, and reimbursement takes place once the fish is sold. Fish captures can be stored in a cold storage facility, which delivers a receipt indicating the quantity of stored fish, and the receipt is handed to the bank as collateral for a loan; the bank is not the owner of the stock but would use it only as a guarantee for reimbursement. These mechanisms allow fishermen not to run out of cash and to pay their daily costs (fuels, rentals, wages, etc) until they receive payment from their customers (which can take from a few days to a few weeks if fish is processed or exported).

VI. CONCLUSION

52. The fishery sector plays a dual strategic role in developing countries: as a source of foreign exchange in the form of export revenues or income from leasing out of fishery rights, and in ensuring food security, particularly as a source of animal protein. Both these roles are particularly important for LDCs. With respect to exports, market entry in the fisheries sector is basically connected to health regulations. The market is likely to enjoy stability and good prices for the foreseeable future. Fish products already play a very important role in ensuring food security for the poor in LDCs, who are particularly dependent on fish as a food source.

53. The two roles of the fishery sector may come into conflict with each other, since they depend on exploitation of the same resource. However, this conflict can be avoided and the two roles can be mutually supportive if development of the export-oriented fisheries sector takes into account the need to exploit all opportunities for more broadly based development. In addition to the generation of foreign exchange revenues, development of the fishery sector – both catching of fish and aquaculture – can make major contributions to poverty reduction through its effect on several crucial variables of the development process, including local employment,

development of a local processing industry, development of environmental policies, and gender equality through the involvement of women in fish processing and sales.

54. In order for the development of the fishery sector to achieve these results, however, the sustainability of fish stocks must be assured so that production can continue in the long term. Moreover, consumers of fish in rich countries attach importance to the sustainability of stocks. FAO has developed a Code of Conduct for sustainable fisheries that details the different steps necessary to reach this goal through national and regional policies.

55. National fishery sector development policies can then focus on two objectives:

- Ensuring food security by developing the local fishery sector, including aquaculture; and
- Exporting fishery products by ensuring high product quality and strengthening the processing and exporting sectors, including through fishing agreements with foreign companies.

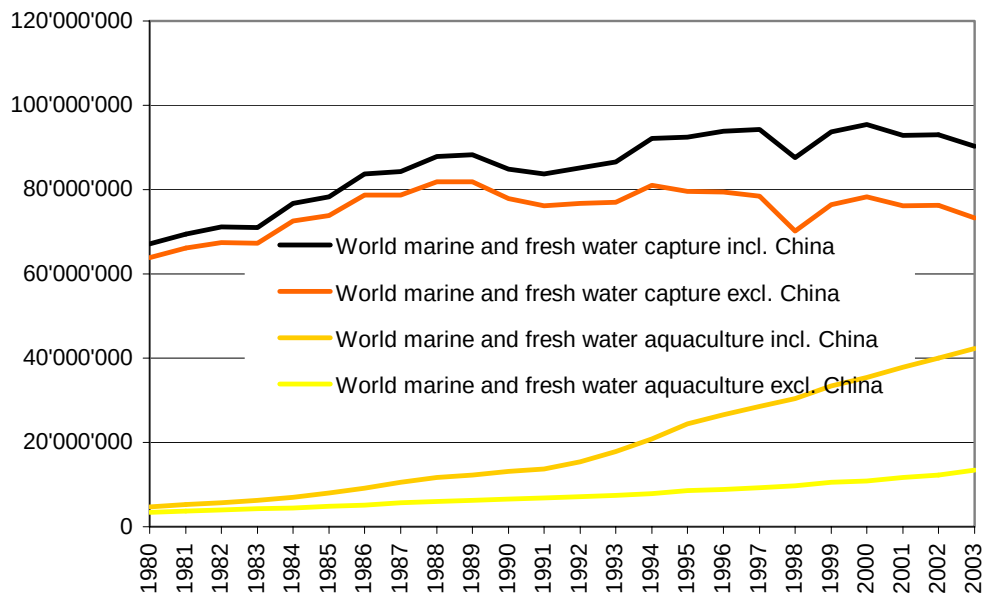
56. Small-scale fisheries and aquaculture operations need to be at the centre of the policies because of their flexibility, relatively low capital needs, importance for employment and strategic position in local supply chains.

57. Technical assistance is necessary in many countries to enable the fishery sector to fulfil its potential. Important areas for technical assistance include:

- Evaluation of fish resources and implementation of actions to ensure sustainability of fish stocks;
- Training on practices with a view to obtaining more value for the fish produced or caught: less by-catch, better fishing efficiency, less losses during processing and better quality of products;
- Introduction of new financing methods;
- Meeting standards for export by training in handling procedures and by creating at least one certified control organization in each country.

Annex I: Nine divisions and 50 groups of species adopted by the FAO International Standard Statistical Classification of Aquatic Animal and Plants (ISSCAAP).

FRESHWATER FISHES	MARINE FISHES	DIADROMOUS FISHES	CRUSTACEANS	MOLLUSCS	AQUATIC MAMMALS	MISCELLANEOUS AQUATIC ANIMALS	MISCELLANEOUS AQUATIC ANIMAL PRODUCTS	AQUATIC PLANTS
Carp, barbels and other cyprinids	Flounders, halibuts, soles	Sturgeons, paddlefishes	Freshwater crustaceans	Freshwater molluscs	Blue-whales, fin-whales	Frogs and other amphibians	Pearls, mother-of-pearl, shells	Brown seaweeds
Tilapias and other cichlids	Cods, hakes, haddocks	River eels	Crabs, sea-spiders	Abalones, winkles, conchs	Sperm-whales, pilot-whales	Turtles	Corals	Red seaweeds
Miscellaneous freshwater fishes	Miscellaneous coastal fishes	Salmons, trouts, smelts	Lobsters, spiny-rock lobsters	Oysters	Eared seals, hair seals, walruses	Crocodiles and alligators	Sponges	Green seaweeds
	Miscellaneous demersal fishes	Shads	King crabs, squat-lobsters	Mussels	Miscellaneous aquatic mammals	Sea-squirts and other tunicates		Miscellaneous aquatic plants
	Herrings, sardines, anchovies	Miscellaneous diadromous fishes	Shrimps, prawns	Scallops, pectens		Horseshoe crabs and other arachnoids		
	Tunas, bonitos, billfishes		Krill, planktonic crustaceans	Clams, cockles, arkshells		Sea-urchins and other echinoderms		
	Miscellaneous pelagic fishes		Miscellaneous marine crustaceans	Squids, cuttlefishes, octopuses		Miscellaneous aquatic invertebrates		
	Sharks, rays, chimaeras			Miscellaneous marine molluscs				
	Marine fishes not identified							

Annex II: World fish production (tonnes)

Source: Fishstat from FAO

Annex III: List of selected regional and international fisheries bodies.**RFBs that establish management measures**

CCAMLR	Commission for the Conservation of Antarctic Marine Living Resources
CEPTA	Council of the Eastern Pacific Tuna Fishing Agreement
CCSBT	Commission for the Conservation of Southern Bluefin Tuna
GFCM	General Fisheries Commission for the Mediterranean
IATTC	Inter-American Tropical Tuna Commission
IBSFC	International Baltic Sea Fishery Commission
ICCAT	International Commission for the Conservation of Atlantic Tunas
IOTC	Indian Ocean Tuna Commission
IPHC	International Pacific Halibut Commission
IWC	International Whaling Commission
NAFO	Northwest Atlantic Fisheries Organization
NASCO	North Atlantic Salmon Conservation Organization
NEAFC	North East Atlantic Fisheries Commission
NPAFC	North Pacific Anadromous Fish Commission
PSC	Pacific Salmon Commission
SEAFO	South East Atlantic Fisheries Organization
SWIOFC	Southwest Indian Ocean Fisheries Commission
WCPFC	Western and Central Pacific Fisheries Commission

RFBs that provide members with scientific and management advice

AAFC	Atlantic Africa Fisheries Commission
APFIC	Asia-Pacific Fisheries Commission
BOBP-IGO	Bay of Bengal Programme - intergovernmental organization
CARPAS	Regional Fisheries Advisory Committee for the Southwest Atlantic
CECAF	Committee for the Eastern Central Atlantic Fisheries
CIFA	Committee for Inland Fisheries in Africa
COPESCAL	Commission for Inland Fisheries in Latin America
COREP	Regional Fisheries Committee for the Gulf of Guinea
CPPS	Permanent Commission for the South Pacific
COFREMAR	Comisión Técnica Mixta del Frente Marítimo
EIFAC	European Inland Fisheries Advisory Committee

FFA	South Pacific Forum Fisheries Agency
LVFO	Lake Victoria Fisheries Organization
NAMMCO	North Atlantic Marine Mammal Commission
MRC	Mekong River Commission
OLDEPESCA	Organización Latino-Americana de Desarrollo Pesquero
RECOFI	Regional Committee for Fisheries (Gulf States)
SEAFDEC	Southeast Asian Fisheries Development Centre
SRFC	Sub-Regional Commission on Fisheries (West Africa)
WECAFC	Western Central Atlantic Fisheries Commission
WIOTO	Western Indian Ocean Tuna Organization

Scientific bodies

ACFR	Advisory Committee on Fishery Research
CWP	Coordinating Working Party on Fishery Statistics
ICES	International Council for the Exploration of the Sea
NACA	Network of Aquaculture Centres in Asia-Pacific
PICES	North Pacific Marine Science Organization
SPC	Secretariat of the Pacific Community

Other agreements

ACCOBAMS	Agreement for the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and Contiguous Atlantic Area
ASCOBANS	Agreement on the Conservation of Small Cetaceans of the Baltic and North Seas