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International Instruments for Managing Fisheries in the Indian Ocean

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Abstract

The paper sets out with a brief review of the status of marine fishery resources and the principal fisheries management issues in the Indian Ocean region. It then presents important international instruments for fisheries management and, in general terms, reviews progress in their implementation. The term 'international' is defined broadly to also encompass the conventions of regional or sub-regional fisheries management organizations (RFMOs). The paper focuses on fisheries management in the conventional sense of making optimum use of the fishery resources. Instruments addressing the protection of fish habitats from pollution and degradation are also addressed but in less detail.

Contents

Page

1. Introduction[1,2]

The aim of this paper is to present important international instruments for the management of Indian Ocean fisheries. The term 'international' is defined broadly to also encompass the conventions of regional or sub-regional fisheries management organizations (RFMOs).

The focus of the paper is on fisheries management in the conventional sense of making optimum use of the fishery resources. The protection of fish habitats from pollution and degradation is also addressed but in less detail. Instruments covering maritime safety, labour and human rights standards and international trade are not considered, except for those provisions that might have direct relevance for fisheries management.

The paper will only occasionally, and as a matter of example, refer to the management of specific fisheries in the Indian Ocean region for the simple fact that this region is so vast and diverse in climatic and environmental conditions, fishery resources, technological levels and scales, and nutritional, economic, social and cultural importance of fisheries. It will, however, briefly describe the current status of marine resources in the region and review, in general terms, the principal fisheries management issues and how these affect, in particular, small-scale artisanal fisheries and fishing communities. The bulk of the paper is devoted to summaries or excerpts of international instruments and some commentaries and notes on their history.

2. The Status of Marine Fisheries Resources in the Indian Ocean Region

For statistical purposes, FAO has divided the world's oceans into several statistical areas. Statistical Area 51 covers the Western Indian Ocean, i.e. the area between the east coast of Africa and the west coast of India. Statistical Area 57 covers the Eastern Indian Ocean, i.e. the area between the east coast of India and the west coast of Australia. The following account of the status of marine fisheries resources in these two areas has been extracted from FAO's regular reporting exercise.[3]

Western Indian Ocean

The Western Indian Ocean area has a surface area of 30 million sq km, and encompasses regions with greatly differing fishery resources characteristics. The Northwest Arabian Sea contains areas of nearly continuous upwelling (off the Oman coast) and thus extremely high productivity, as well as areas with seasonal

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1 The views expressed in this paper are those of the author. They do not necessarily represent the views of the Food and Agriculture Organization of the United Nations (FAO), nor any of its Members.

2 Nothing in this paper implies the expression of any opinion whatsoever on the part of the FAO concerning the legal status of any country, territory, city, or area or of its authorities, or concerning its frontiers or boundaries.

3 FAO, 1997. Review of the state of world fishery resources: marine fisheries. FAO Fisheries Circular. No. 920. Rome, FAO. 1997. 173 p. The chapter on the Western Indian Ocean has been prepared by Ross Shotton and the chapter on the Eastern Indian Ocean by Purwito Martosubroto. The data were updated and the text revised, as appropriate, by the author of the current paper.

upwelling also resulting in periods of high productivity, as off the coast of Iran and Pakistan in the Gulf of Oman and Arabian Sea. This monsoon-induced upwelling extends to the west coast of India. The Persian Gulf, a shallow, enclosed area characterized by warm saline waters has fisheries characteristic only to that area, while, in the Red Sea, narrow continental shelves and an enclosed nature also create unique fisheries situations. The Gulf of Aden and Somali coast are also monsoon-driven upwelling areas that experience seasons of high productivity. Area 51 also contains some small oceanic islands, the Seychelles, Mauritius, Maldives and the Comoros, that have their own characteristic fisheries reflecting their oceanic or near-oceanic features. Further to the south, South Africa has fisheries of a temperate and sub-Antarctic nature.

The total marine capture fishery catches in the Western Indian Ocean increased at a compounded annual average growth rate of 3.8 per cent from a 1970 catch of about 1.5 million tonnes to nearly 3.9 million tonnes in 1999.[4] The catch in the early 1950s amounted to about 0.5 million tonnes. India is by far the biggest fishing nation in the Western India Ocean region with a west coast catch of 1.78 million tonnes, equal to 46 per cent of this Statistical Area in 1999. This is followed by Pakistan, with 474, 000 tonnes (12 per cent) and Iran with 244 thousand tonnes (6 per cent). The rest of the catch in the Western Indian Ocean region is made up of a large number of countries, each of about half of them contributing less than one per cent of the total catch and each of the other half, more than one per cent but less than 4 per cent. Countries whose share is above one per cent include Egypt, France, Maldives, Madagascar, Oman, Saudi Arabia, Spain, Taiwan (Province of China), Tanzania, United Arab Emirates, and Yemen. About 10 per cent of the total catch is taken (i.e. reported) by non-coastal countries, and comprise principally of tuna and tuna-like species, in particular skipjack and yellow-fin tuna.

The growth of the total catch has remained fairly stagnant from 1993 onwards, after an annual growth rate of about 6 per cent in the 1980s. The strong growth in the 1980s, to a substantial part, was contributed by the rapid expansion of the catch of tuna and tuna-like species of nearly 20 per cent per annum. Small pelagic species have depicted, on average, a slight growth trend of 1.4 per cent per annum during the last three decades. As the abundance of small pelagic species is heavily influenced by climatic and oceanographic conditions, strong inter-annual fluctuations are typically observed of these species. In contrast, the catches of demersal species (redfishes, croakers, drums, etc.) have increased relatively steadily since 1950 at a rate of nearly 4 per cent per annum, with particularly large increases since the early 1980s coming from various species of croakers and drums.

Catches of large pelagics, principally tuna and tuna-like species, have increased relatively steadily since the 1950s, with large increases in skipjack and yellowfin tuna being reported in the 1980s because of the expansion of large-scale purse-seine and longline fisheries by mostly vessels of long-distance fishing nations, including France, Spain, Japan, Republik of Korea, and Taiwan (Province of China). Relatively small-scale fishing vessels of Sri Lanka and the Maldives have also contributed

[4] If not otherwise indicated, growth rates refer to compounded annual averages.

significantly to higher tuna catches. The growth has slowed down since the mid-1990s as raw material prices for canned tuna have experienced a sharp decline to an uneconomic low level of below US $ 400 per tonne because of over-supplies. This decline was arrested and prices re-bounded to around US $ 800 in this millennium, largely because of a concerted action taken by the World Tuna Purse-Seine Organization to reduce catches by large purse-seiners.

While total crustacean catches appear to have been relatively constant since the early 1970s, the catches of high-value penaeid shrimps have increased sharply since the mid-1980s, but stablized in more recent years as stocks are fully fished. A large part of the shrimp catch is exported to, primarily, Japan, USA and countries of the European Union (EU).

From a relatively small catch of less than 9000 tonnes in 1970, the production of squids and cuttlefish increased strongly by nearly 10 per cent per annum to a high of nearly 150,000 tonnes in 1997, and then declined to 116,000 tonnes in 1999. Squids and cuttlefish are also important internationally traded products.

Eastern Indian Ocean

The Eastern Indian Ocean includes the Bay of Bengal in the north, the Andaman Sea and the northern part of the Malacca Straits in the east, and the waters around the west and south of Australia. The main shelf areas include those of the Bays of Bengal and Martaban and the narrower shelf areas on the western and southern sides of Indonesia and Australia. Most of the coastal fisheries are concentrated in these shelf areas and are the main fisheries in the region. The resources range from typical tropical species found in the northern part of the area to temperate species in the waters of the southern latitudes west and south of Australia.

The fisheries of the Eastern Indian Ocean are characterized by increased fishing pressure, especially in inshore areas. The coastal areas off the east of India, the west of Thailand and the south coast of central Java are good examples of areas where fishing pressure has kept increasing. Knowledge of the fish stocks is generally poor and management actions taken have usually been on an ad hoc basis, in most cases with little scientific backup.

The total catches in the Eastern Indian Ocean region increased nearly fourfold, from 1.13 million tonnes in 1970 to 4.32 million tonnes in 1999. Tuna and tuna-like species, squids and cuttlefish, red fishes, mackerels and jacks increased at higher average growth rate than the 4.8 per cent per annum reported for the total catch. There has been only a slight drop in the average growth rate in the 1990s to 4.2 per cent, higher than the 3.8 per cent per annum reported in the 1980s.

Catches of five countries (India, Indonesia, Malaysia, Myanmar and Thailand) account for over four-fifth (85 per cent) of the reported catch in 1999. The absence of Bangladesh as a major marine fishing nation, despite a large population, is due to its historical focus on the large freshwater fishery resources. The catches of Australia made up less than 3 per cent of total catches by weight, but contributed a much higher proportion in terms of their economic value.

Thailand, with an average growth rate of 11 per cent, and Indonesia, with 9.4 per cent per annum, showed, by far, the fastest expansion in marine catches in the Eastern Indian Ocean region, but the growth rate has slowed down in the 1980s and 1990s to below 9 per cent, in the case of Thailand, and below 7 per cent, in the case of Indonesia. Notable is the strong growth in Sri Lanka's catches in the 1990s, with 4.4 per cent per annum, after stagnating catches in the 1980s. This has been largely due to a more than doubling of tuna and tuna-like catches in the 1990s with the introduction of the so-called multi-day boat fleet.

Six major species groups dominate the catch; these include redfishes, small pelagics, mackerels, jacks, tunas and tuna-like species, and shrimps. Over one-third of the total catch is reported as miscellaneous fishes, principally comprising small fishes and juveniles of some high-valued fishes. Although the continued increase of catch of this group may indicate the increase in fishing pressure and of unselective fishing practices, the relatively high figure is partly also caused by poor and incomplete statistical recording in several countries.

Most of the catch from coastal fisheries is used for local consumption. Fish is generally considered an affordable source of protein by most people in the region. Shrimp and tuna are the main export commodities. Overexploitation of shrimp resources in coastal waters has reduced the amount of exports from capture fisheries, and, in many countries in the region, there is a growing tendency for exports to come from the aquaculture sector. While the majority of tuna catches are from coastal fisheries, skipjack and yellowfin tuna, which form the major part of the tuna exports, are caught offshore. During the last decade, some countries have developed offshore fishing for tuna, notably longlining, in the case of Indonesia, and purse-seining, in the case of Thailand.

The main fisheries in the southern part of the Eastern Indian Ocean are the fisheries off the west and southwest coast of Australia. The lobster fishery is one of the important fisheries in this area. In general, the fisheries have been relatively steady since the 1980s, except for tuna catches that experienced a worrying decline from a high of some 20,000 tonnes in the mid-1980s to less than one-third that amount in more recent years. In response to the decline, Australia, Japan and New Zealand co-operated in the Commission for the Conservation of Southern Bluefin Tuna (CCSBT) to achieve better fisheries management.

3. Fisheries Management Issues in the Indian Ocean Region

Unsurprisingly, being of such a vast and diverse nature, this region depicts the full range of fisheries management problems that have become a pervasive feature of the world's fisheries during the last several decades. They include:

Biological overexploitation of many coastal fishery resources, especially valuable, bottom-dwelling finfish resources. The extent of biological overexploitation is camouflaged, to some degree, in aggregate catch figures by ecosystem changes as the biomass decline of long-lived species is substituted by more short-lived species that have a greater resilience to high levels of fishing effort.

Excessive fleet sizes are pervasive in the region and estimated, at the global level, in the order of 30 to 40 per cent. The extent of overcapacities in any specific fishery is usually directly related to the potential of the fishery resource to generate resource rent. The amount of potential rent, as a share of the value of the catch, can be as high as 70 per cent and as low as zero. The share is primarily influenced by the abundance of the resource, the market price of the species and harvesting costs, which, in turn, are influenced by how easily the resource can be exploited with the available fishing technologies. As many fisheries in the region continue to be open-access, i.e. no effective controls are in place to limit the growth of fishing capacity and fishing effort or to limit catches through a quota regime, the high resource rent potential manifests itself initially in high returns to the owners of fishing vessels. This high profitability attracts new entrants into the fisheries as well as incites current operators to invest in technological improvements of fishing craft and gear, causing the fishing power to augment. The capacity and effort expanding investments commonly continue to take place until the time when the fishery has become unprofitable and crew incomes have dropped to a low level.

Discarding in commercial fisheries has attracted considerable attention over the last decade as part of the debate on the appropriate utilization of the world's fisheries resources.[5] Discarding is too often seen solely as the result of careless fishing. In general, however, it results from a number of factors, the nature of which is biological (the multi-species nature of the resources), technological (the difficulty of developing 100 per cent selective gear and practices, and economic (unprofitable holding and conserving of catches of low or no commercial value). However, there appears to remain a large scope for shifting from largely unselective bottom trawling to other types of gear. In the absence of specific and effective regulatory provisions or economic incentives to discourage discarding, the problem is known to become potentially worsened by management through individual transferable quotas (ITQs) of multi-species fisheries and quota-induced high-grading in single species fisheries. [6] With the exception of some Australian fisheries, no individual quota management regime has been established in the region.

The impact of discarding is a complex issue, depending on local situations and demand, quality and commercial potential value of the discards, or their impact on system productivity. In general, however, discarding is considered both a waste of resources and a threat to biodiversity. In view of the full or overexploitation of many wild fish stocks, discarding has caused particular concern for the availability of fish to large numbers of poorer consumers in developing countries to whom fish is a major source of their animal protein supplies. The food security implications

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5 United Nations General Assembly (UNGA) Resolutions 49/118 of the Forty-ninth Session of the UNGA of 1994 and 50/25 of the Fiftieth Session of the UNGA of 1995 were concerned with fisheries by-catch and discards and their impact on the sustainable use of the world's oceans and seas. The matter was also considered at the 22nd Session of the Committee on Fisheries, Rome, Italy 17-20 March 1997 based on a paper by the FAO Secretariat (COFI/97/Inf.7).

6 A comprehensive discussion is provided in Pascoe, Sean. 1997. By-catch Management and the Economics of Discarding. *FAO Fisheries Technical Paper* No. 370.

have been underlined in the 1996 Kyoto Conference and the adopted Kyoto Declaration on the sustainable contribution of fisheries to food security.[7]

Low profits or even losses and low crew incomes are typically observed in fisheries that have been subject to open access and heavy fishing pressure for a prolonged time. Precipitous collapses in overall catches, however, have not been observed in the tropical fisheries of the Indian Ocean region, possibly because of biomass substitution effects. As a consequence, no sharp drops in fishing activities or in employment as a result of biological and economic overfishing have been observed in the region.

Conflicts among fishers using different types of fishing gear and different scales of fishing technology are pervasive in unmanaged or badly managed fisheries. These are especially common between small-scale fishers using boat-seine and encircling nets, hooks-and-line and gillnets, and small and medium-sized industrial trawlers and purse-seiners that operate in near-shore waters and exploit the same species as the small-scale sector. Apart from directly competing over scarce fish stocks, the active nature of the industrial operations can cause damage to artisanal fishing gear. Reports of severe and often fishing conflicts in the Indian Ocean region were more common in the 1970s and 1980s but appear to have declined in both frequency and severity since then. While conflicts continue to be pervasive in the region, the lower incident of violent conflicts may be attributable to measures taken by governments to avoid the direct interaction between industrial and small-scale fisheries through the establishment of reserved inshore areas for small-scale fishers (e.g. Malaysia), the placement of artificial reefs in near-shore waters to detract from the use of active fishing gear, especially bottom trawl (e.g. Thailand), as well as the banning of trawl gear in certain areas (e.g. Indonesia). The level of conflict may also have declined with the increasing adoption of motorized fishing craft by small-scale fishermen that allow not only the adoption of similar active fishing gear (e.g. small-scale trawls and purse-seines) but also for the extension of the range of fishing activities into deeper and more offshore waters. The increased range of fairly small-scale fishing vessels has resulted, during the last decade, in a growing number of incidents of small-scale fishers accidentally, or intentionally, entering the exclusive economic zones (EEZs) of foreign countries. Not infrequently, these fishers have become subject to arrest and have, at times, been held for prolonged periods.

Competition over migratory fish stocks, especially tuna and tuna-like species, is not confined to fleets of a single country but pits the interests of vessels of long-distance fishing nations in the Indian Ocean region against those of small-scale fishers who have exploited these stocks for centuries, as is the case of the traditional pole-and-line fishery for skipjack tuna in the Maldives. In the particular case of the skipjack fishery, while stocks still appear to be in a fairly healthy state, the massive expansion of industrial purse-seine production in the 1990s has caused a surreptitious drop in average sales prices, making the traditional technology, though greatly modernized in recent years, unprofitable. While the recent action

[7] Report of the International Conference on the Sustainable Contribution of Fisheries to Food Security, Kyoto, Japan, 4-9 December 1995.

taken by the World Tuna Purse-Seine Organization has led to reduced skipjack and small yellowfin tuna catches and a recovery of average sales prices, the average production and collection costs per tonne of the Maldivian pole-and-line fishery compare unfavourably with those of the large-scale industrial purse-seiners.

While there is still insufficient information for a rigorous stock assessment of yellowfin tunas, the Indian Ocean Tuna Commission (IOTC), working party on tropical tuna, considered that total catches of yellowfin tuna appear to have reached a plateau, and may now be at, or approaching, maximum sustainable yield (MSY) for the current fishing pattern. It noted that the recent trend of increased fishing pressure on juvenile yellowfin from purse-seine fishery on drifting objects may decrease the sustainable yield of the stock.[8]

Bigeye tuna, and especially southern bluefin tuna, are the two species that cause the greatest management concern among the highly migratory tuna species in the Indian Ocean region. They can be found throughout the world's southern oceans, spending most of their lives in cold waters (in deep waters and southern waters) where they are caught as adults, with longlines, primarily for sale in the high-priced Japanese *sashimi* market (having a preference for fatty flesh that serves the animals as insulation against the cold water). As juveniles, they can be captured in more surface tropical and sub-tropical waters. Southern bluefin tuna breed in the Indian Ocean's warm waters, south of Java, Indonesia, from where they migrate as juveniles south down the west coast of Australia. When they are 40-50 cm long (they can grow up to 2 m long and weigh 200 kg), they move either east, through the Great Australian Bight, towards New Zealand, or west, through the Indian Ocean, towards South Africa[8b].

IOTC's working party on tropical tuna Stated that the status of bigeye tuna should be considered uncertain but of concern.[9] More serious is the condition of the southern bluefin tuna stock whose biomass is reported to be "well below the minimum level recognized internationally as acceptable for supporting sustainable utilization".[10]

Illegal, Unregulated or Unreported (IUU) fishing activities have become a pervasive problem in many of the world's oceans. Whereas IUU fishing occurs, or has the potential to occur, in all capture fisheries, both in marine and inland waters, it has raised particular concern with regard to fisheries on the high seas for highly migratory and straddling fish stocks as well as pure high-seas stocks, i.e. fishery resources whose entire life cycle is within waters outside of national jurisdictions

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8 IOTC. 20001. Report of the 5th Session of the Indian Ocean Tuna Commission, Victoria, Seychelles, 11-15 December 200. Victoria, Seychelles.

8b Deere, C.L. (2000). Net Gains; Linking Fisheries Management, *International Trade and Sustainable Development*. IUCN. Washington DC

9 IOTC. 2001. op.cit.

10 CCSBT (1998b) Report of the Resumed Fourth Annual Meeting of the Commission for the Conservation of Southern Bluefin Tuna, Canberra, Australia, 19-21 February, 1998. p.1.

(i.e. EEZs).[11] The IOTC estimated that, in 1996, IUU fishing amounted to nearly 100,000 tonnes in the Indian Ocean, i.e., 10 per cent of all reported landings of tuna and tuna-like species. IOTC reported that this figure might be an underestimate.

IUU fishing is often associated with the activities of so-called “flag-of-convenience” (FoC) vessels. FoC vessels, through re-flagging, can avoid the need to adhere to the rules and regulations of their original flag State or those that the flag State is committed to enforce under the provisions of regional fisheries management organizations (RFMOs). Even where no intentional re-flagging has occurred, RFMOs experience difficulties in applying responsible fisheries management measures to the vessels of non-Parties, particularly those on the fishing vessel registers of so-called "open register" States. This has resulted in various proposals, ranging from making efforts to encourage such non-Parties to join the regional fisheries bodies and/or comply with their management measures, to implementing bans of various sorts against them, such as denying port access, banning imports of fish, outlawing trans-shipments, etc.[12]

In the Indian Ocean, the problem of IUU fishing is especially pronounced among a large number of small (<100 GT/24 m) longline vessels, based more or less permanently in Indian Ocean ports, which report neither to their flag authorities, nor to those of the countries where they are based. There is a growing fear that the long-line fishery for especially bigeye tuna may over-exploit this high-value stock. This, and low economic returns, or even losses, have recently prompted Japan to unilaterally reduce by 20 per cent its distant-water longline fleet. The benefits from this move might accrue to IUU fishing fleets if measures are not taken to constrain their activities. Similarly, because of the migratory nature of the target species, the aspirations of coastal countries to enter this fishery could be compromised.[13]

Degradation of the marine habitat is caused by man-made environmental changes which have toxic or otherwise damaging effects such as water pollution, impairment of coral reefs, removal of mangroves, smothering of seagrass beds, etc. These changes adversely affect, respectively, the productivity and abundance of resources and the quality of fish as a consumer good. Globally, it is estimated that 90 per cent of the world’s fish production is dependent on critical coastal zone habitats at some time in the life cycle. Critical habitats include estuarine areas, coral reefs, mangrove forests and other wetlands, tidal flats and seagrass beds, which provide essential nursery and feeding areas for many coastal and oceanic aquatic species.

The geographic origins of damaging habitat impacts can reach far inland, not infrequently straddling national boundaries, and their sources commonly include many different economic activities such as different industries, agriculture, forestry, and human settlements. These effects also arise from within the fisheries sector

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[11] Doulman, D. Illegal, Unreported and Unregulated Fishing: Mandate for an International Plan of Action. Paper submitted to the Expert Consultation on IUU Fishing, Sydney, Australia, 15 – 19 May 2000.

[12] Bray, K. 2000. A Global Review of Illegal, Unreported and Unregulated (IUU) fishing. Paper submitted to the Expert Consultation on IUU Fishing, Sydney, Australia, 15 – 19 May 2000.

[13] Bray, K. (2000) Op. cit.

through inappropriate siting of fish and shrimp ponds in mangrove areas, high stocking densities, excessive feeding and inappropriate use of chemicals in coastal aquaculture, as well as the use of destructive or unselective fishing methods in marine fisheries, including explosives, poison, and excessive bottom-trawling. Furthermore, a worldwide concern is the adverse impact of global warming on, especially, coral reefs.

Social disruption typically occurs in coastal areas where there is intense competition over scarce natural resources as a consequence of rapid development of an unplanned and unregulated nature. Social disruption is felt mostly at the local level and can take the form of displacement of traditional community-based activities in agriculture, forestry and fisheries; marginalization of resident resource users and non-resource users due to increasingly inequitable distribution of income; decreasing employment opportunities, with shifts towards unskilled and seasonal labour; migration towards urban centres; and deteriorating nutritional and health conditions of people.[14]

4. Main Factors Causing Overfishing and Habitat Degradation

Open access, subsidies and lack of gainful employment opportunities

At the origin of the pervasive nature of overfishing and excess harvesting capacities are, on the one hand, the open-access condition that continues to govern many of the Indian Ocean marine fisheries and, on the other hand, the direct and indirect subsidization of fisheries, which worsens the consequences of market failure associated with open access. While the progressive establishment of EEZs since the mid-1970s has created the necessary institutional condition for the control of access over most marine fishery resources, governments have, first, encouraged the building up of fishing capacity in the name of "development" and, after having inadvertently developed an overcapacity, encountered serious political, economic, social and cultural difficulties to effectively restrict access and contain or reduce expansion of fishing capacity and fishing effort. At the heart of these difficulties is the need to reduce and contain the number of people who are employed in capture fisheries and who derive their livelihoods from them. In most countries of the Indian Ocean region, this need stands in contrast to a still rapidly growing population, which, in many instances, can neither be gainfully employed in agriculture nor absorbed at the required rate in industry or the service sector. In some countries, there continues to be an inflow of labourers from agriculture into the marine fisheries sector, as the latter offers higher incomes and acts as employer of last resort. Globally, employment in fisheries has grown in the period 1970 to 1990 by two and a half times to nearly 30 million persons and has increased more rapidly than the population as a whole and more rapidly than employment in agriculture[14b].

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[14] Barg, U., P. Martosubroto and R. Willmann. 1998. Towards Sustainable Coastal Management: Selected Issues in Fisheries and Aquaculture. In, Entwicklung und ländlicher Raum. Jahrgang 32. Heft 2/98. pp. 3-7.

[14b] Garica, S.M. and R. Willmann. 1999. *Responsible Marine Capture Fisheries: Main Global Issues and Solutions. Mimeo.* FAO. Rome

While mobility into fisheries is frequently high and rarely restricted, there are several hurdles that impede labour mobility from fisheries into other sectors of the economy. The level of education among fishing communities is often below average and they have a distinct maritime culture and tradition. The maintenance of this tradition has become an issue in its own right, which has attracted support from the public at large and which may partly explain the substantive amounts of subsidies channelled into fisheries. Other reasons for subsidization include poor economic performance of fleets exploiting overfished stocks; the desire to re-deploy excess capacities into third countries through fishing agreements; poverty and marginalization of artisanal fisheries in some regions, especially in South and Southeast Asia; maintenance of fishing employment in remote coastal areas; and promotion of offshore and long-distance fisheries as a means to reduce fishing pressure from coastal waters.

Complexity of integrated management of coastal zones

The intricate management issues in the coastal zone are caused by complex human-nature interactions, multiple and interdependent resource use patterns and market failures, especially in the form of cost externalities, i.e. the imposition of costs by an economic activity on other resource users, without carrying the burden of – or paying a price for - this action. Cost externalities are pervasive where there is an unregulated or uncoordinated use of State and common-property resources and where well-defined property rights over coastal resources are absent or impossible or undesirable to establish and enforce. Integrated management efforts of coastal areas are often hampered by high costs of acquiring essential management information, the complex nature of establishing an effective regulatory framework requiring strong interagency co-ordination and stakeholder participation, and the difficulty of attaining high compliance with management rules and regulations.[15]

5. International Management Instruments[16]

At the conclusion of UNCLOS in 1982, it had been assumed, implicitly at least, that the adoption of extended jurisdiction in international law would lead to a significant improvement in the way in which the world's marine fisheries resources were managed and utilized. However, the 1991-1992 FAO analysis[17], drawing together data and related fisheries information in a novel way, showed that such expectation from the "new economic order" in fisheries had not been generally realized. Moreover, the FAO study provided, for the first time, a global assessment of the poor economic performance of world fisheries. This analysis, widely quoted

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[15] Willmann, R. 1997. Fisheries Management Within the Framework of Integrated Coastal Area Management. In, Proceedings of the South Asian Workshop on Fisheries and Coastal Area Management – Institutional, Legal and Policy Dimensions, Chennai, India, 26-29 September 1996, International Collective in Support of Fishworkers (ICSF), Chennai, India.

[16] If not otherwise specified, this section draws heavily upon the following two papers: Willmann, R. 1997. International Instruments on Fisheries and of Relevance to Fisheries. Paper presented at the first meeting of the World Forum of Fish Harvesters and Fishworkers, New Delhi, India, 17 – 21 November 1997. (*op. cit.*)

[17] FAO 1993. Marine Fisheries and the Law of the Sea: A Decade of Change (Special chapter (revised) of *The State of Food and Agriculture 1992*), FAO Fisheries Circular No. 853.

in the international fisheries press and literature, has become a benchmark and has stimulated a large number of further studies[18, 19, 20]. It also has provided impetus to a range of initiatives at global, regional and national levels to improve fisheries management and to make the necessary adjustments in institutional arrangements and incentive structures to encourage responsible fisheries.

The 1991-92 FAO analysis was undertaken against a background of a series of preparatory meetings for United Nations Conference on Environment and Development (UNCED) that served to promote broad international awareness and concern about the manner in which many of the world's natural resources were being used. In May 1992, one month prior to UNCED, the International Conference on Responsible Fishing was convened in Cancún by the Government of Mexico, in collaboration with FAO. The Conference had its roots in the 1991 Nineteenth Session of the FAO Committee on Fisheries (COFI) which recommended, inter alia, that the concept of responsible fishing be developed and that an instrument to this effect be elaborated.[21] The Conference adopted the Cancún Declaration, which provided input to the UNCED process and gave impetus to the elaboration of the Code of Conduct for Responsible Fisheries.

In combination, the 1991 Session of COFI, the Cancún Conference and UNCED led to the launching of the following three international and complementary fisheries initiatives:

- the 1993-95 United Nations Conference on Straddling Fish Stocks and Highly Migratory Fish Stocks (UN Fish Stocks Conference), which led to the opening for signature in December 1995 of the UN Fish Stocks Agreement;

- the 1992-93 negotiation of the legally binding Compliance Agreement, which was adopted in November 1993 by the Twenty-seventh Session of the FAO Conference; and

- the 1993-95 negotiation of the Code of Conduct for Responsible Fisheries, and its adoption by consensus in October 1995 by the FAO Conference.

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[18] Doulman, D. 1998. the Code of Conduct for Responsible Fisheries: the Requirement for Structural Change and Adjustment in the Fisheries Sector. FAO. Rome. (http://www.fao.org/WAICENT/FAOINFO/FISHERY/agreem/codecond/codecon.htm)

[19] Garcia S.M. and C. Newtonne. 1997. Current Situation, Trends and Prospects in World Capture Fisheries. In E.K. Pikitch, D.D. Huppert, and M.P. Sissenwine (Eds). Global Trends: Fisheries Management. American Fisheries Society Symposium, 20. Bethesda. Maryland. USA: 3-27

[20] Grainger Richard. and Serge M. Garcia (1996) Chronicles of Marine Fishery Landings (1950-1994): Trend Analysis and Fisheries Potential. FAO Fisheries Technical paper, 359:51 p.

[21] It should be noted that while the 1991 Session of COFI focused on responsible fishing operations, because of the concern with selectivity of fishing operations (*inter alia* the dolphin-tuna, shrimp-turtle, and large-scale pelagic driftnets problems), the Cancun Conference broadened the concept to the more holistic concept of responsible fisheries, of which responsible fishing operations were only a part, (Doulman, *op. cit.*)

The UN Fish Stocks Conference is one of several international activities with relevance to fisheries pursuant to the 1992 UNCED (or Rio Conference) and its two principal outcomes: (1) Rio Declaration and (2) Agenda 21. Others include the 1995 Global Programme of Action for the Protection of the Marine Environment from Land-Based Activities (GPA), adopted in Washingtonne in 1995, and the 1995 Jakarta Mandate on Marine and Coastal Biological Diversity. The latter is the outcome of the second Conference of the Parties to the Convention on Biological Diversity (CBD). CBD was opened for signature at the Rio Conference and entered into force in 1993.

A feature of all recent international negotiation processes, including the UN Fish Stocks Conference and the Code negotiations, is the broad interest of non-governmental organizations (NGOs) in fisheries and marine issues, their high technical competence and their influence on the drafting of provisions important for their constituencies, and their focus on protection of migrants and specific categories of workers such as seafarers including fishworkers, and others.

Before discussing these recently concluded international instruments, it appears appropriate to refer first to the possibly most innovative and complex international instruments ever negotiated in human history, the 1982 United Nations Convention on the Law of the Sea (1982 Convention), which formally entered into force not until 16 November 1994, i.e. one year after the minimum number of 60 States had deposited their instruments of ratification or accession. The 1982 Convention was innovative in several aspects (e.g. the introduction of an international dispute settlement mechanism), and set important precedents for the negotiation procedures of complex international agreements in other areas.

5.1 The 1982 United Nations Convention on the Law of the Sea (1982 Convention)

The United Nations Convention on the Law of the Sea was opened for signature on 10 December 1982 in Montego Bay, Jamaica. This marked the culmination of more than 14 years of negotiations and work involving participation by more than 150 countries, representing all regions of the world, all legal and political systems and the spectrum of socioeconomic development. The 1982 Convention embodies and enshrines the notion that all problems of ocean space and ocean resources are closely interrelated and need to be addressed as a whole.[22] An overview of the 1982 Convention is given in Annex 1 as prepared by the Division for Ocean Affairs and the Law of the Sea, United Nations Office of Legal Affairs (UN/DOALOS).

The two key 'fisheries' articles of the 1982 Convention are *Article 61 Conservation of the living resources* and *Article 62 Utilization of the living resources* which are reproduced in Annex 2. There are several principles contained in them, including for coastal countries to ensure the conservation of the living resources and to promote their optimum utilization. The conservation objective is expressed by the

[22] UN, 1983; see also the Internet site http://www.un.org/Depts/los/losconv1.htm).

requirements (i) to determine the total allowable catch (TAC) in the EEZ, (ii) guided by the best available scientific evidence to avoid overexploitation of target species and of associated or dependent species, (iii) maintain or restore harvested populations at levels which can produce the maximum sustainable yield, and (iii) to exchange relevant scientific information with all States and organizations interested in the resources.

The principal idea in promoting the objective of optimum utilization of the living resources is that those States that do not have the required fishing capacities should make available surplus fishery resources to other States, in particular to land-locked and geographically disadvantaged developing States of the same region[23], and to those States whose nationals have habitually fished these resources. In practice, Articles 69 and 70, specifying the respective rights of land-locked and geographically disadvantaged States vis-à-vis such surplus, were hardly ever applied.

The interpretation of what in fact amounts to "surplus" remains contentious until today because of the ambiguity of the text and the real practical difficulties of measuring the abundance of fishery resources and the size of fishing capacities. The ambiguity of the text results from two specific formulations: (a) in Article 61(3), the desirable stock level is given as the one producing the maximum sustainable yield but with the suffice "*as qualified by relevant environmental and economic factors, including the economic needs of coastal fishing communities and the special requirements of developing States...*"; and (b) Article 62 (3), with reference to allocating a part of the total allowable catch (TAC) to other States: *In giving access to other States to its exclusive economic zone under this Article, the coastal State shall take into account all relevant factors, including, inter alia, the significance of the living resources of the area to the economy of the coastal State concerned and its other national interests..."*

Not unexpectedly, it has proven impractical for most coastal States, especially in the tropics and sub-tropics, to determine the TAC by species and assess for each of them that part which is in surplus of the State's own harvesting capacity. Furthermore, even if the difference could be determined between the TACs and domestic harvesting capacity, the exploitation of the surplus by a foreign fleet would usually affect the economic performance of the local fleet. This results from the fact that, for most fish stocks, the catch per unit of fishing effort declines as total aggregate fishing effort increases. Therefore, even though the domestic fleet may still be able to take the same amount of catch, its profitability would be reduced by the harvesting activities of a foreign fleet and, wherever a sharing system prevails, the income of crew members would also decline.[24]

At the time when the Convention was signed in December 1982, the reference in it to a target stock size that can produce the maximum sustainable yield (MSY) was subject to critique by not only fisheries economists but also fisheries biologists. From

[23] Note that this does not apply to land-locked and geographically disadvantaged developed States

[24] On this point and other aspects of surplus assessment, see the 1986 article in Marine Policy of the following three eminent fisheries scientists: S. M.Garcia, late J.A.Gulland and E. Miles.

an economic point of view, at the stock size producing MSY, a fishery may already show serious signs of economic overfishing. From a biological point of view, fishing at the MSY level not only increases the instability of the ecosystem but also neglects species interactions (Garcia et al. 1986;196). In addition, given the inherent uncertainties in estimating stock abundance, a precautionary approach to resource conservation may require targeting stock sizes higher than those producing MSY.[25] The idea of precaution was subsequently incorporated into the UN Fish Stocks Agreement discussed further below.

Article 61 (3), however, taken by itself, may be interpreted more literally in that a State can allow harvesting activities which reduce stock size below the MSY level for economic and socioeconomic reasons, such as to provide employment and income to fishing communities. Such an interpretation, apart from its short-term outlook, could hardly be taken to justify the allocation of surplus resources to foreign fishing vessels. It may also be seen to run counter to the coastal State's basic obligation expressed in paragraph (2) of the same Article not to endanger by overexploitation the maintenance of the living resources in the EEZ. Today, the prevailing view of fisheries biologists is that any form of biological overfishing entails a risk to the maintenance of the concerned fish stock.

Article 62 (4) provides certain elaborations on the conditions that may be placed upon foreign fishing vessels harvesting the surplus resources in a coastal country's EEZ. These may include licensing for fees and other forms of remuneration; determining the species and fixing quotas; regulating harvesting seasons, areas and methods; requiring the conduct of research and training and the placement of observers on board of fishing vessels; laying down the terms and conditions for joint ventures, and requiring the catch to be landed in domestic ports; and specifying the information to be submitted. While most fisheries agreements between coastal and foreign fishing States contain some or most of these provisions, in practice, it has often been difficult to ensure compliance by foreign fishing fleets with the laws and regulations of the coastal country as prescribed in Article 62 (4). The difficulties of enforcement of laws and regulations are, however, one may add, rarely specific to foreign fishing but apply equally to domestic fleets.

Article 73 discusses specifically the enforcement of fisheries laws and regulations of the coastal State in its EEZ. It is of particular significance in view of the human hardship that has been created by the seizure of vessels and crew, which were found to fish illegally in countries' EEZs. While law enforcement requires deterrence, Article 73 (2) and (3) require States to promptly release arrested vessels and their crew upon the posting of reasonable bond or other security and that penalties for violations of fisheries laws and regulations in the EEZ may not include imprisonment and, in the absence of agreements to the contrary, no form of corporal punishment. In practice, the arrests of foreign fishermen for extended periods of time, analogous to imprisonment, have been observed in the Indian Ocean region as well as elsewhere.

[25] See FAO, 1996, for details on the precautionary approach to fisheries.

Part VII (Articles 86-120) and Part XII (Articles 192-237) of the 1982 Convention deal with high seas and the protection and conservation of the marine environment respectively. Article 87 specifies the meaning of the *freedom of the high seas* and Articles 116 to 120 address the conservation and management of the living resources of the high seas. The implementation of these Articles by countries and regional fisheries organizations will be facilitated and strengthened by the UN Fish Stocks Agreement (see below).

The provisions of Part XII on the protection of the marine environment are of a general nature but have, over the years, been complemented by more specific legal instruments, including conventions negotiated under the aegis of the International Maritime Organization (IMO) and guidelines such as the 1985 Montreal Guidelines for the Protection of the Marine Environment from Land-based Sources of Pollution (see below).

In summary, the 1982 Convention has been a milestone in human history by setting a precedent for the creation of complex international rules, including dispute settlement mechanisms and the assignment of rights over resources, which, formerly, were "global commons" through a peaceful negotiation process. The latter has itself created highly valuable insights on the conditions needed for successful bargaining, which has had a direct bearing on many subsequent international and regional negotiations in various areas, including trade and peace.

5.2 Rio Declaration and Agenda 21

The 1992 United Nations Conference on Environment and Development (UNCED), also called the Earth Summit or the Rio Conference, has probably been the largest international conference ever organized in human history. Except for the Convention on Biological Diversity (CBD), the Rio Conference has not resulted in any binding international agreement. The Rio Declaration on Environment and Development proclaims 27 principles addressed to States, individuals, groups and the international community in general. A summary of the main contents of each principle is given in Annex 3.

The second main outcome of UNCED is Agenda 21, a blueprint for action for global sustainable development into the 21st century. It comprises four main sections addressing (1) the social and economic dimensions (international cooperation, combating poverty, changing consumption patters, demographic sustainability, human health and settlement; integration of environment and development in decision-making); (2) conservation and management of resources for development (i.e. atmosphere, land resources, combating deforestation and desertification, managing fragile ecosystems, sustainable agriculture and rural development, conservation of biodiversity, sound management of biotechnology, protection of oceans, seas, coasts and their living resources; (3) strengthening the role of major groups (i.e. women, children and youth, indigenous people, NGOs, local authorities, workers and their trade unions, business and industry, scientific and technological community, farmers); and (4) means of implementation (financial resources, technology and know-how transfer, science and education, awareness creation,

capacity-building, international legal instruments and arrangements, information for decision-making).

The full title of Chapter 17, Section 2, reads: "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". It comprises seven programme areas dealing with (a) integrated coastal and marine management, (b) marine environmental protection, (c) sustainable use and conservation of marine living resources of the high seas, (d) sustainable use and conservation of marine living resources under national jurisdiction, (e) critical uncertainties for the management of the marine environment and climate change, (f) strengthening international, including regional, cooperation and co-ordination and (g) sustainable development of small islands. The emphasis of programme area (a) is on strengthening integrated planning and co-ordinating mechanisms for the sound management of multiple-use resources and for conflict resolution and prevention.

Area (b) addresses the three principal sources of marine pollution: (i) land-based activities which are responsible for about 70 per cent of pollution, and (ii) maritime transport and (iii) dumping at sea, each of which contributes about 10 per cent. The 1995 Global Programme of Action for the Protection of the Marine Environment from Land-based Activities (GPA), adopted in Washingtonne in 1995, is a direct follow-up to this part of Agenda 21 and based on the 1985 Montreal Guidelines for the Protection of the Marine Environment from Land-based Sources of Pollution. A summary of the specific objectives and targets of GPA are given in Annex 4. The International Maritime Organization (IMO) addresses pollution from maritime transport and dumping.

Programme area (d) lists some of the important problems faced in the management of living resources under national jurisdiction including overfishing, unauthorized fishing by foreign vessels, ecosystem degradation, overcapitalization and excessive fleet sizes, non-selective fishing gear, increasing competition between artisanal and large-scale fishing and between fishing and other types of activities. There has been considerable influence by non-governmental organizations, including those advocating the interests of fishworkers, on the objectives and the management-related activities listed in this programme area. States are called on to take into account traditional knowledge and interests of local communities, small-scale artisanal fisheries and indigenous people in development and management programmes. They should ensure the sustainability of small-scale artisanal fisheries by integrating their concerns into development planning and, where appropriate, encourage representation of fishermen, small-scale fishworkers, women and local communities and indigenous people. The rights of small-scale fishworkers and the special situation of indigenous people and local communities are specifically acknowledged, including their rights to utilization and protection of their habitats on a sustainable basis.

Programme area (e) addresses research needs on the impact of atmospheric and climatic changes on the marine environment and living resources while programme

area (f) spells out the special problems and needs of small island States and how they should be addressed. The main international follow-up to the latter was the United Nations Small Island Conference held in Barbados in 1994.

Chapter 15 of Agenda 21 is entitled "Conservation of Biological Diversity" and its primary objective is to support the implementation of the Convention on Biological Diversity (CBD). As the earth's oceans, seas and coasts are major repositories of biodiversity, the 2nd Conference of the Parties to CBD held in 1995 in Jakarta, Indonesia, dealt specifically with marine and coastal biodiversity. The main outcome of this Conference, the Jakarta Mandate, calls on governments to introduced integrated coastal area management, establish marine and coastal protected areas, ensure that coastal and marine resources are used within sustainable limits and mariculture practices are sustainable, and prevent the introduction of, and support the eradication of, alien species that threaten ecosystems, habitats or native species.

5.3 The 1995 Agreement on the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks (UN Fish Stocks Agreement)

The impetus for the need to strengthen the implementation of the 1982 Convention provisions with respect to fishing on the high seas arose because of serious concern in the late 1980s over driftnet fishing on the high seas, initially in the South Pacific region. The issue was discussed in the UN General Assembly, which adopted Resolution 44/225 on *Large pelagic driftnet fishing and its impact on the living marine resources of the world's oceans and seas*. FAO was directed in the resolution to convene an expert consultation on the matter. In it, and in subsequent inter-governmental consultations, the wider issues of the management of high seas fisheries came to the fore, which then found expression in a specific recommendation on this matter in Chapter 17 of Agenda 21.

Pursuant to this recommendation, the General Assembly of the United Nations (UNGA) convened in 1992 the UN Fish Stocks Conference with the following terms of reference: (1) identify and assess existing problems related to the conservation and management of straddling fish stocks and highly migratory fish stocks; (2) consider means of improving fisheries cooperation among States and (3) formulate appropriate recommendations.[26] The Conference held five substantive and one organizational session between April 1993 and August 1995. Remarkable was the large attendance of non-governmental organizations representing environmental, fishworkers, industry and other related interests.

Hayashi (1996) has categorized the contribution of the UN Fish Stocks Agreement to the 1982 Convention into three aspects: (1) facilitation of implementation of the Convention; (2) strengthening of the Convention regime and (3) development of general or framework rules set out in the Convention. Regarding the first point, the Agreement provides in, for example, Article 5, a number of specific ways how States may fulfil their obligations under the 1982 Convention to conserve and

[26] Detailed reviews of the structure, process and outcome of the Conference can be found in Doulman (1995) and Hayashi (1996), on whose writings this section is largely based.

manage highly migratory and straddling fish stocks. These include some innovations to the 1982 Convention, such as the application of the precautionary approach, the requirement of States to take measures to prevent or eliminate not only overfishing but also excess fishing capacity and the duties to protect biodiversity and take into account the interests of artisanal and subsistence fishers.

The Agreement strengthens the 1982 Convention provisions on the collection and sharing of information and expands its dispute settlement provisions to all States, whether or not they are parties to the Convention (Hayashi 1996:55-56).

The most significant contribution of the UN Fish Stocks Agreement is in those areas where it further develops the 1982 Convention rules and principles. The precautionary approach was unknown in fisheries at the time the Convention was signed in 1982. Since about the mid-1980s, it has become increasingly adopted in national and regional legal instruments addressing primarily environmental aspects (Hayashi 1996). The approach calls in Article 6, *inter alia*, for taking explicitly into account uncertainties related to the size of fish stocks and the impact of fishing on them and the laying down of precautionary reference points.

Among the most notable innovations introduced by the UN Fish Stocks Agreement is the notion of *compatibility of conservation and management measures* adopted in EEZs and on the high seas as detailed in Article 7. The scientific basis of compatibility is the biological unity of fish stocks and, thus the need to apply coherent management measures throughout their geographic range of exploitation. Article 7 requires coastal and long-distance water fishing nations to "*agree upon the measures necessary for the conservation of these stocks*" and, pending reaching such agreement, to enter into provisional arrangements of a practical nature. If no agreement can be reached within a reasonable period of time, any of the concerned States may invoke the dispute settlement procedures provided through the 1982 Convention (Hayashi, 1996).

Another innovation of the UN Fish Stocks Agreement is that it obliges States whose fleets exploit highly migratory and straddling fish stocks to either join existing regional fisheries organizations or to adopt the conservation and management measures instituted by them. Where no such regional organization or arrangement exists, States are required to establish new ones. Hayashi (1996:58) notes that "[T]he combined effect of these provisions is to exclude those States which are not members of the existing regional organization or do not agree to apply its measures from conducting fishing operations for the straddling stocks and highly migratory stocks in the area concerned, thus denying their freedom to fish on the high seas."

The Agreement lays down more stringent flag State duties than contained in the 1982 Convention. In principle, no State is authorized to permit vessels flying its flag to fish on the high seas if it is not able to exercise effective control over them. This includes ensuring the compliance of its fleets with management measures agreed upon by regional fisheries organizations and the investigation and sanctioning of violations.

In respect to enforcement, the UN Fish Stocks Agreement goes even further by permitting any member State of a regional fisheries organization to board and inspect any fishing vessel in order to ensure compliance with adopted conservation and management measures.[27] It also introduced the new concept of "port State enforcement" , which gives the port State the right to inspect catch, fishing gear, log books, etc. of a foreign fishing vessel which uses voluntarily its ports or offshore terminals.

The special requirements of developing States are acknowledged in Article 24 which mentions, in particular, in paragraph 2(a)"… *the nutritional requirements of their populations or parts thereof;"* and in paragraph 2 (b): "*the need to avoid adverse impacts on, and ensure access to fisheries by, subsistence, small-scale and artisanal fishers and women fishworkers, as well as indigenous people in developing States, particularly small island developing States…"*

In conclusion, the UN Fish Stocks Agreement strengthens and facilitates the implementation of the management and conservation provisions of the 1982 Convention applicable to straddling and highly migratory fish stocks. Its historic and revolutionary dimensions result from innovations in several important areas, including the concept of compatibility, obligations towards regional fisheries organizations and the monitoring and enforcement powers by non-flag and port States (Hayashi, 1996).

5.4 The Code of Conduct for Responsible Fisheries [28]

The Code of Conduct for Responsible Fisheries (Code) was adopted by the FAO Conference at its twenty-eight session in 1995. It was negotiated over a period of two years in five formal sessions with the active participation of many of FAO's member States and important national and international fisheries NGOs representing environmental, industry and small-scale fisheries and fishworkers interests.

The initial impetus for the concept of responsible fishing can also be traced back to the large-scale pelagic driftnet fishing issue and the discussion of it at the 1991 FAO Committee on Fisheries. However, it was the Declaration of Cancún that pushed forward the idea of a Code and called on FAO to initiate the process of its elaboration. This declaration emanated from a meeting at Cancún on responsible fishing hosted by the Government of Mexico in May 1992.

The Code, thus, was negotiated in parallel to the UN Fish Stocks Agreement and, in fact, certain formulations of the Code reflect the outcome of the negotiations at the UN Fish Stocks Conference. The Code, however, is far more encompassing than the Agreement. Its voluntary nature has enabled it to cover much more than could have possibly been included in a legal binding instrument such as the Agreement.

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[27] It appears that in particular this provision of Article 21 (1) currently impedes some countries to ratify the UN Fish Stocks Agreement. Entry into force requires 30 ratifications or accessions. As of September 2001, 29 such ratifications / accessions had been received by the Depositary.

[28] See Edeson (1996) for a brief review of the Code.

Articles 1 to 6 describe the Code's nature and scope, its objectives and relationship with other international instruments, directions for its implementation, monitoring and updating, the special requirements of developing countries, and general principles. The substantive technical part comprises Articles 7 to 12: Fisheries Management, Fishing Operations, Aquaculture Development, Integration of Fisheries into Coastal Area Management, Post-Harvest Practices and Trade, and Fisheries Research.

The Code is global in scope and directed toward all States and fishing entities, subregional, regional and global organizations, whether governmental or non-governmental, and all persons concerned with the conservation of fishery resources and the management and development of fisheries. Its objectives are very far-reaching and ambitious, including the establishment of general principles and standards of conduct for responsible fisheries and, *inter alia*, the establishment of specific principles and criteria for the elaboration of national policies. It specifies policy objectives such as the contribution of fisheries to food security and food quality, giving priority to the nutritional needs of local communities.

Article 6 encapsulates the "philosophy" of the Code in a set of general principles. The most significant contents of a few selected paragraphs are summarized below:

Paragraph 6.1 establishes that the right to fish carries with it the obligation to do so in a responsible manner. With regard to the objectives of fisheries management, responsible fisheries is understood to include the maintenance of the quality, diversity and availability of fishery resources in sufficient quantities for present and future generations in the context of food security, poverty alleviation and sustainable development (see 6.2). It also includes the protection from destruction, degradation, pollution and other significant human impacts of all critical fisheries habitats in marine and fresh water ecosystems, such as wetlands, mangroves, reefs, lagoons, nursery and spawning areas (6.8).

Paragraph 6.13 calls on States to facilitate consultation and the effective participation of industry, fishworkers, environmental and other interested organizations in decision making with respect to the development of laws and policies related to fisheries management, development, international lending and aid.

Paragraph 6.18 recognizes the important contributions of artisanal and small-scale fisheries and requests States to protect the rights of fishers and fishworkers, particularly those engaged in subsistence, small-scale and artisanal fisheries. Where appropriate, States should give them preferential access to traditional fishing grounds and resources in the waters under their national jurisdiction.

The substantive contribution of NGOs and INGOs to the Code negotiation process can be gauged from the fact that first drafts of some of the above summarized provisions were originally submitted by representatives of these organizations.[29]

Many of the paragraphs of Article 7, "Fisheries Management", and Article 8, "Fishing Operations", reflect the text of the UN Fish Stocks Agreement but extends their application to areas of national jurisdiction including implicitly to inland fisheries.

While adhering to the general principles of sustainability enshrined in UNCED's Agenda 21, the Code's Article 9, "Aquaculture Development", is an innovation in an international instrument. It provides comprehensive guidance for the development, planning, management and operation of aquaculture in a sustainable and responsible manner.

Article 10, "Integration of Fisheries into Coastal Area Management", is also innovative by emphasizing the protection of fisheries interests and the adequate representation and participation of such interests in the decision-making processes for integrated coastal management.

Article 11, "Post-Harvest Practices and Trade", establishes the needed link between the conservation and management of fisheries resources and their utilization and trade. While its main tenor is to promote the further liberalization of trade in fish and fishery products, it contains several important provisos such as that trade *"should not compromise the sustainable development of fisheries…"* (11.2.2) and that *States, aid agencies, multilateral development banks and other relevant international organizations should ensure that their policies and practices related to the promotion of international fish trade and export production do not result in environmental degradation or adversely impact the nutritional rights and needs of people for whom fish is critical to their health and well being and for whom other comparable sources of food are not readily available or affordable"* (Paragraph 11.2.15).

Article 12, "Fisheries Research", in addition to underlining in general terms the relevance of a sound scientific basis for the conservation, management and utilization of fishery resources, also lists certain specific areas where research may produce desirable results. These include studies on the selectivity of fishing gear, the environmental impact assessment of new types of gear prior to their introduction, and investigation and documentation of traditional fisheries knowledge and technologies, in particular those applied to small-scale fisheries.

The FAO Fisheries Department is actively promoting the widespread application of the Code. For this purpose, it has developed a comprehensive mid-term strategy in support of the implementation of the Code. This is in line with the mandate received from the Conference at the time when the Code was adopted in 1995,

[29] The contribution of NGOs and INGOs to both the Code negotiations and the UN Fish Conference has been well analysed in a special issue of DEEP (Development Education Exchange Papers) published by FAO and produced by the International Collective in Support of Fishworkers (ICSF).

requesting the Organization to make provision in its Programme of Work and Budget to:

- provide advice to developing countries in implementing the Code;
- elaborate an inter-regional programme for external assistance to support the implementation of the Code;
- elaborate technical guidelines in support of the implementation of the Code, and
- monitor and report on the Code's implementation.

The Conference also urged FAO to strengthen regional fishery bodies so that they might deal more effectively with fisheries conservation and management, the Code's primary objective.

The technical guidelines in support of the implementation of the Code so far published by the FAO Fisheries Department focus on fishing operations, the precautionary approach to capture fisheries and species introductions, integration of fisheries into coastal area management, fisheries management, and aquaculture development. Other technical guidelines are under preparation.

5.5 The Compliance Agreement[30]

The Compliance Agreement is an integral component of the Code of Conduct for Responsible Fisheries. However, the Agreement, when it comes into force, will have a different legal status to that of the Code in that the Agreement will be a legally binding international instrument. So far, 20 acceptances have been received. It will enter into force on the date of receipt by the Director-General of FAO of the twenty-fifth instrument of acceptance.

The Compliance Agreement provides an instrument for countries to deter the reflagging of vessels by their nationals as a means of avoiding compliance with applicable conservation and management rules for fishing activities on the high seas. It seeks to ensure that there is effective flag State control over fishing vessels operating on the high seas. This would require, inter alia, that Parties to the Agreement maintain a register of vessels to fish on the high seas and that all vessels engaged in such fishing operations are authorized to do so. Moreover, the Agreement requires that certain records concerning the physical characteristics of the vessels and their ownership and operational details be maintained by the Parties as part of their flag State responsibilities. Furthermore, Parties are obligated to exchange information maintained on their respective registers through FAO and other appropriate global, regional and sub-regional fisheries management organizations.

Even though the Compliance Agreement has not yet entered into force, some of its elements are already being adopted by countries as their respective fisheries legislation is revised and other policy changes implemented concerning national authorizations for vessels to fish on the high seas. FAO is continuing to promote the

[30] This section is based on Doulman 1998. Op. Cit.

acceptance of the Agreement so that it might be brought into force with minimal delay.[31]

5.6 The International Plans of Action (IPOAs)[32]

As the first priority, following the adoption of the important recent international agreements referred to above was in their effective and rapid implementation, COFI, at its 23rd session in 1999, adopted three international plans of action (IPOA) aiming at:

- reduction of incidental catch of seabirds in longline fisheries;
- conservation and management of sharks; and
- management of fishing capacity.

Subsequently, at its 24th session, COFI adopted the International Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing.

All four IPOAs are voluntary, have been elaborated within the framework of the Code of Conduct and call for greater regional and international co-operation with respect to research and development; situation assessments; exchange of relevant data and information through appropriate channels including regional fisheries management organizations (RFMOs) and through FAO; and education, training and public awareness creation. In applying the IPOAs, States are asked, where appropriate, to develop a national plan of action (NPOA). Similarly, RFMOs are requested to develop plans of action for their area of competence. As all the IPOAs and NPOAs are in furtherance of implementing the Code, reporting on their progress at international level has been made an integral part of countries' regular biennial reporting to FAO on their implementation of the Code of Conduct.

Greater details on the two most widely applicable, and perhaps most relevant IPOAs, are given below.

The **IPOA on management of fishing capacity** asks States, through NPOAs as well as RFMOs through regional plans, to achieve worldwide, preferably by 2003 but not later than 2005, an efficient, equitable and transparent management of fishing capacity (paragraph 9 (ii)). Moreover, it requires, preliminary assessments of fishing capacity at the regional level within RFMOs, or in collaboration with them, and at the global level (in collaboration with FAO) in respect to transboundary, straddling, highly migratory and high-seas fisheries, as well as the identification of regional or

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[31] As part of the follow-up to the Compliance Agreement, FAO has continued to monitor reflagging. The number of vessels reflagged in the period 1994/1997 has increased to nearly 3 per cent of the fleet per year (vessels over 100 GT), however the vast majority of these have been normal transactions involving a change of ownership. Only about 15 per cent of the reflagging involve a change to a "flag of convenience". Nevertheless, the number of vessels flagged under open registers or "flags of convenience" has remained at around 5 per cent of the total fleet.

[32] The full text of the IPOAs can be found on the FAO web site as follows: http://www.fao.org/WAICENT/FAOINFO/FISHERY/ipa/ipae.asp

global fisheries and fleets requiring urgent measures (Paragraph 15). Among other urgent actions, it lists, inter alia, the following:

- support to FAO in the organization of a technical consultation to be held as early as possible on the definition and measurement of fishing capacity (Paragraph 12);
- the establishment of national, regional and international records of fishing vessels including of those fishing on the high seas as foreseen within the Compliance Agreement (Paragraphs 16-18);
- as part of NPOAs, States should progressively eliminate all factors including subsidies and economic incentives and other factors which contribute directly or indirectly to the build-up of excessive fishing capacity (Paragraph 25);
- States should recognize the need to deal with the problem of those States which do not fulfil their responsibilities under international law as flag States with respect to their fishing vessels and support multilateral co-operation to ensure that such flag States contribute to regional efforts to manage fishing capacity (Paragraph 33);
- States should promote, with the assistance of FAO, the exchange of information about the fishing activity of fishing vessels that do not comply with conservation and management measurers of RFMOs (Paragraph 35);
- States should ensure that no transfer of capacity to the jurisdiction of another State should be carried out without the express consent and formal authorization of that State. (Paragraph 37);
- States should, in compliance with their duties as flag States, avoid approving the transfer of vessels flying their flag to high seas areas where such transfers are inconsistent with responsible fishing under the Code of Conduct. (Paragraph 38).

The IPOA to prevent, deter and eliminate IUU fishing should be implemented by all States either directly, in co-operation with other States, or indirectly through relevant regional fisheries management organizations or through FAO and other appropriate international organizations. The full participation of stakeholders in combating IUU fishing, including industry, fishing communities, and non-governmental organizations, should be encouraged (Para. 9.1).

While the scope of the IPOA is broad and should address factors affecting all capture fisheries, the history of its origin clearly points to high-seas fisheries as its primary focus. In its submission to the 23rd Session of the FAO Committee on Fisheries (COFI) requesting the elaboration of an IPOA, the Government of Australia noted that IUU fishing took place mainly on the high seas, in contravention of management efforts by competent Regional Fisheries Management Organizations (RFMOs). The submission cited as an example the case of Patagonian toothfish, for which estimates indicated that up to 100,000 tonnes had entered international trade in 1996-97, around four times the legal catch level established by the Convention for the Conservation of Antarctic Marine Living Resources (CCAMLR).

The IPOA calls for a comprehensive and integrated approach, building on the primary responsibility of the flag State but using all available jurisdiction in

accordance with international law, including port State measures, coastal State measures, market-related measures and measures to ensure that nationals do not support or engage in IUU fishing (Para. 9.3). The following lists some of the significant responsibilities and measures that States should be taken to prevent, deter and eliminate IUU fishing. Of particular interest is the inclusion of trade measures to attain compliance with internationally agreed upon fishery management and conservation rules.

All State Responsibilities

All States should co-operate to identify those nationals who are the operators or beneficial owners of vessels involved in IUU fishing (para. 18). States should, to the extent possible in their national law, avoid conferring economic support, including subsidies, to companies, vessels or persons that are involved in IUU fishing (para. 23).

States should discourage their nationals from flagging fishing vessels under the jurisdiction of a State that does not meet its flag State responsibilities (para 19).

States should undertake comprehensive and effective monitoring, control and surveillance (MCS) of fishing from its commencement, through the point of landing, to final destination (para. 24).

Flag State Responsibilities

A flag State should ensure, before it registers a fishing vessel, that it can exercise its responsibility to ensure that the vessel does not engage in IUU fishing (para. 35). Flag States should avoid flagging vessels with a history of non-compliance, except under certain conditions (para. 36.1)

Flag States should deter vessels from reflagging for the purposes of non-compliance with conservation and management measures (para. 38) including denial to a vessel of an authorization to fish and the entitlement to fly that State's flag, to prevent "flag hopping" (para. 39).

Prior to allowing a vessel port access, States should require fishing vessels and vessels involved in fishing-related activities seeking permission to enter their ports to provide reasonable advance notice of their entry into port, a copy of their authorization to fish, details of their fishing trip and quantities of fish on board, with due regard to confidentiality requirements, in order to ascertain whether the vessel may have engaged in, or supported, IUU fishing (para. 55).

Port State Measures

Where a port State has clear evidence that a vessel having been granted access to its ports has engaged in IUU fishing activity, the port State should not allow the vessel to land or transship fish in its ports, and should report the matter to the flag State of the vessel (para. 56).

States should consider developing within relevant regional fisheries management organizations port State measures building on the presumption that fishing vessels

entitled to fly the flag of States not parties to a regional fisheries management organization and which have not agreed to co-operate with that regional fisheries management organization, which are identified as being engaged in fishing activities in the area of that particular organization, may be engaging in IUU fishing (para. 63).

Internationally Agreed Market-related Measures
States should take all steps necessary, consistent with international law, to prevent fish caught by vessels identified by the relevant regional fisheries management organization to have been engaged in IUU fishing being traded or imported into their territories. Trade-related measures should only be used in exceptional circumstances, where other measures have proven unsuccessful to prevent, deter and eliminate IUU fishing, and only after prior consultation with interested States. Unilateral trade-related measures should be avoided (para. 66).

Trade-related measures to reduce or eliminate trade in fish and fish products derived from IUU fishing could include the adoption of multilateral catch documentation and certification requirements, as well as other appropriate multilaterally-agreed measures such as import and export controls or prohibitions (para. 69).

States should take measures to ensure that their importers, transshippers, buyers, consumers, equipment suppliers, bankers, insurers, other services suppliers and the public are aware of the detrimental effects of doing business with vessels identified as engaged in IUU fishing,…and should consider measures to deter such business (para. 73). Similarly, States should take measures to ensure that their fishers are aware of the detrimental effects of doing business with importers, transshippers, buyers, consumers, equipment suppliers, bankers, insurers and other services suppliers identified as doing business with vessels identified as engaged in IUU fishing… (para. 74).

There are several other provisions that aim at improving the information flow and exchange among countries, RFMOs and international organizations, in particular FAO, in order to establish the identity and level and nature of activities of vessels that engage in IUU fishing. Other provisions aim at improving the traceability of fish and fishery products from the place (or stock) of capture right through to its end use.

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5.7 Instruments relating to fish trade, subsidies and ecolabelling

Trade and environment[33]

[33] A recent comprehensive discussion of the relationship between trade and sustainable development in fisheries is provided by Deere, C. L. (2000). Net Gains: Linking Fisheries Management, International Trade and Sustainable Development. IUCN. Washingtonne D.C.

The relation between trade, environment, and management has been a focus of international debate in recent years in the World Trade Organization (WTO), specifically in its Committee on Trade and Environment, as well as in various forums on fisheries and conservation. The debate has three main components: (a) the impact that expanding trade, in the wake of liberalization, may generate on resources through incentives to increase extractive pressure; (b) the ways in which international WTO rules, as agreed upon in the Uruguay round, could be used to facilitate the effective implementation of multilateral environmental agreements (MEAs) and, hence, improve environmental and resources conservation; and (c) the modifications which might be needed in WTO rules, or in their interpretation or application, to achieve compatibility with MEAs.

The extent of trade liberalization of fish and fishery products as a consequence of tariff reductions agreed upon in the Uruguay round have been generally less than with other types of products. Nevertheless, fish trade has expanded dramatically during the last two decades reaching above US$50 billion in 1998. The exports of mostly higher valued species by developing countries to northern markets has grown greatly in recent years and make a significant contribution to foreign exchange revenues. The aggregate net surplus of fish trade by developing countries is estimated at US $17.6 billion in 1996.[34]

Economic theory suggests that expanding fish trade and, hence, increasing demand and higher prices will provide incentives to individual fisheries entrepreneurs to increase their efforts to produce greater supplies. However, as most conventional high-value resources are already fully or over-exploited, the increased effort may not translate into sustained higher catches and supplies but in further degradation of the high-value resource base and increased pressure on less intensely exploited stocks of lower value. Such pressure will also provide incentives to increase aquaculture of high-value (carnivorous) species and, as a consequence, may boost further the production of fishmeal. Therefore, in the absence of effective fisheries management, trade expansion might worsen the present state of resources.

Subsidies

One avenue towards better managed fisheries, which has received great international attention in recent times, is the phasing out of direct and indirect subsidies to marine capture fisheries[35]. Such phasing out would amount to what has been called in trade and environment debates as a "win-win" policy; international trade would benefit from creating an equal playing field as competition-distorting subsidies are curbed, while the environment would benefit from reducing the economic incentive to overinvest and overharvest. This policy, however, will obviously make certain sections of people and entrepreneurs worse off than if these subsidies were to continue, at least in the short and medium term. Strong political opposition is, therefore, to be expected against policies that often would lead to

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34 SOFIA 1998. Op. cit.

35 Further to earlier references, see in particular Schorr, David (1998). Towards Rational Disciplines on Subsidies to the Fishery Sector. A Call for New International Rules and Mechanisms. WWF-US. Washingtonne.

bankrupting the more fragile fishery operators and, in some developing countries, further impoverishing artisanal fishing communities[36] in rural and peri-urban areas with little or no alternative sources of livelihood.[37]

A usual argument, when the issue is debated in FAO, is that there are "good" as well as "bad" subsidies: good ones are those that help to improve fisheries management (e.g. for decommissioning of excess fishing capacities), while bad ones are those that create incentives for excess capacity and overexploitation. It is notable that both trade expansion and bad subsidies create similar incentives for excess investments and that effective fisheries management could provide a solution in both instances. However, the competition-distorting effect of subsidies would still prevail.

Notable has been the call by the USA, Australia, Iceland, New Zealand and the Philippines, at the occasion of the WTO High-level Meeting on Trade and Environment, Geneva, 16-17 March 1999, that the new round of global trade negotiations should seek to eliminate harmful government fisheries subsidies. The agenda for these negotiations is likely to be set at the next WTO Ministerial Meeting, scheduled to take place in Doha, Qatar, 9-13 November 2001.

Ecolabelling[38]

Ecolabelling is a further approach to establish a higher congruence between trade and sustainability objectives, whose application to fisheries has recently got a lot of international attention. The potential usefulness of ecolabelling schemes to create market-based incentives for environmentally friendly products and production processes was internationally recognized at UNCED, where governments agreed to "encourage expansion of environmental labelling and other environmentally related product information programmes designed to assist consumers to make informed choices"[39]. Consumers are provided with the opportunity to express their environmental-ecological concerns through their choice of products. The consumers' preferences are expected to result in price and/or market share

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[36] It is notable, in this context, that the most powerful opposition might be coming from quarters of the shipbuilding industry and not from fisheries, which are not often well organized and politically forceful.

[37] In an editorial in the journal SAMUDRA Report, December 1998, entitled "What price subsidies?", Sebastian Mathew lists several reasons why there is often a legitimate need to continue, at least in the short term, with current subsidy schemes for small-scale labour intensive fisheries. SAMUDRA Report is published by the International Collective in Support of Fishworkers (ICSF), Chennai, India.

[38] This section is largely based on the FAO Secretariat paper FI:EMF/98/2 Issues Related to the Feasibility and Practicability of Developing Globally Applicable, Non-discriminatory Technical Guidelines for Ecolabelling of Products from Marine Capture Fisheries produced for the FAO Technical Consultation on the Feasibility of Developing Non-discriminatory Guidelines for the Ecolabelling of Products from Marine Capture Fisheries, Rome, Italy, 21-23 October 1998, the report of this consultation and on document FI:MM/99/3: What role for ecolabelling of fish and fishery production in support of responsible fisheries? prepared by the FAO Secretariat for the Ministerial Meeting on the Implementation of the Code of Conduct for Responsible Fisheries, Rome 10-11 March 1999.

[39] Paragraph 4.21 of Agenda 21.

differentials between ecolabelled products and those which either do not qualify to be ecolabelled or those whose producers do not seek to obtain such labelling. The label is obtained through a certification process based on a set of criteria (i.e. the desired standard). Potential price and/or market share differentials provide the economic incentive for firms to seek certification of their product(s).

In fisheries, there has been a rapid increase in ecolabelling initiatives in recent years. The first and most well known initiative in the field of marine capture fisheries has been the establishment of the Marine Stewardship Council (MSC), now an independent organization, by the World Wide Fund for Nature (WWF) and Unilever. While the number of marine fisheries currently covered is still very small, and the scheme's expansion into the area of aquaculture is currently the subject of investigation, MSC has given the impetus for a range of subsequent intitiatives. These include the following:

- an aquaculture ecolabelling scheme promoted by the Global Aquaculture Alliance, a recently-formed NGO representing primarily firms with interests in shrimp aquaculture.

- as part of the activities of the Nordic Council (a permanament co-operation arrangement among the Scandinavian States), in mid-2000, a working group proposed the establishment of a voluntary, consumer-driven scheme for marine capture fisheries with State authorities establishing criteria, which can then be used by private bodies and NGOs to ecolabel products.

- the Marine Aquarium Council (MAC) assigns a label for aquarium fish. It brings together representatives of the aquarium industry, hobbyists, conservation organizations, government agencies and public aquariums. MAC aims at conserving coral reefs by creating standards and educating and certifying those engaged in the collection and care of ornamental marine life from reef to aquarium.

- at COFI 2001, Rome, February 2001, the Organization for Promotion of Responsible Tuna Fisheries (OPRT), a Japan-based and supported NGO bringing together the tuna industry, traders and others, announced the launching of a tuna ecolabelling pilot project focusing on products produced from longline fisheries for the Japanese *sashimi* market.

If applied to marine capture fisheries, the goal of ecolabelling would be to achieve certain specific fisheries management objectives. These objectives find expression in the criteria underlying certification standards. The setting of fisheries management objectives and the establishment of the institutional and legal framework within which such objectives can be achieved (or not) are, in principle, the prerogatives of States, as clearly established in the UN 1982 Convention and the other international instruments discussed above. These instruments, however, establish also principles and objectives for conservation and management of marine fisheries resources, which are referred to by the tenants of ecolabelling, together with poor performance of conventional fishery management, to justify their initiatives.

During the 1997 and 1999 sessions of COFI and the 1998 session of the COFI Sub-committee on Fish Trade, a large majority of governments recognized the potential positive role of consumer choice but expressed concern about the MSC initiative. While many governments criticized the initiative for having failed to consult adequately with governments, industry, fishworkers and other interest groups, developing countries have voiced concern that ecolabelling schemes could create new barriers to trade, especially for their products and those produced by small-scale fisheries.

The question of whether, and how, the GATT Technical Agreement on Barriers to Trade (TBT) applies to ecolabelling programmes has been discussed in WTO's Committee on Trade and Environment (CTE) in 1996. One of the main issues of contention is the applicability of the TBT agreement to so-called non-product-related production methods and processes (PPMs). The report notes that "[M]any delegations expressed the view that the negotiating history of the TBT Agreement indicates clearly that there was no intention of legitimizing the use of measures based on non-product-related PPMs under the TBT Agreement, and that voluntary standards based on such PPMs are inconsistent with the provisions of the Agreement as well as with other provisions of the GATT." As ecolabelling schemes in marine capture fisheries would commonly encompass criteria and standards for non-product-related PPMs, one may conclude that there exists a discrepancy between the mandate given by Agenda 21 and the GATT TBT or, at least, its interpretation by many governments. However, notable is the ruling of a GATT arbitration panel from which one may infer that voluntary ecolabelling schemes are not, in principle, in contravention of existing WTO trade rules, irrespective of their coverage of production process and methods (PPMs), which are unrelated to a product's characteristics.[40] Whatever the scheme, the basic WTO principle of non-discrimination needs to be respect, and labelling requirements and practices should not discriminate — either between trading partners (most-favoured nation treatment should apply), or between domestically-produced goods or services and imports (national treatment).[41]

[40] In its ruling on the GATT-illegality of import restrictions adopted by the United States of America on tuna caught in association with dolphin, a GATT arbitration panel upheld the US voluntary "dolphin safe" tuna labelling scheme because any competitive advantage conferred by the label depended on the free choice by consumers to give preference to tuna carrying the "dolphin safe" label. The panel argued that "[T]he labelling provisions did not make the right to sell tuna or tuna products, nor the access to a government-conferred advantage affecting the sale of tuna or tuna products, conditional upon the use of tuna harvesting methods." (General Agreement on Tariffs and Trade. 1991. United States –Restrictions on Imports of Tuna. *GATT-Document. DS21/R*. Geneva.)

[41] See WTO's web site for details. (www.wto.org).

5.8 Provisions of Regional Fisheries Management Organizations (RFMOs)

All the recent international instruments relating to marine fisheries presented above stress, in particular, the important role of RFMOs in fisheries management. This appears to be in contrast with their overall achievement, as reflected by the poor state of many marine fisheries resources. There are over 30 RFMOs operating worldwide, nine of which were established under the FAO Constitution and 24 under international agreements between three or more contracting parties. Their mandates, membership and participation, decision-making procedures, modes of operation and outcomes have been subject of discussion in a recent meeting convened by FAO in Rome, 11-12 February 1999. In background documents made available to the participants, the FAO Secretariat noted, among the factors hindering progress in the effectiveness of RFMOs the failure by some States to accept and implement relevant international instruments, a lack of willingness by some States to delegate sufficient responsibility to regional bodies and the lack of enforcement of management measures at both national and regional level.

Fisheries management decision-making is very complex because it is not simply a technical process but involves the taking of decisions on the regulation of access and allocation of resources (with significant impact on wealth distribution and livelihoods), as well as the enforcement of regulations. Others have international implications such as monitoring, control and surveillance (MCS) of transboundary stocks or those stocks that are adjacent to national jurisdictions. At the regional level, such decisions have profound political implications and touch upon national sovereignty, explaining the reluctance of member States to delegate any supra-national responsibilities to such simple administrative mechanisms. The tendency of many RFMOs to take decisions by consensus leads to decisions on a minimum-common denominator and the "too little, too late" syndrome stressed by many analysts in the last two decades.

Indian Ocean Tuna Commission (IOTC)

IOTC is probably the most important RFMO in the Indian Ocean Region. It was established under Article XIV of the FAO Constitution and the Agreement entered into force in March 1996. Membership is open for both coastal States and non-coastal States whose vessels exploit species covered by the Agreement in the Indian Ocean, essentially tuna and tuna-like species. The main objectives, functions and responsibilities of the Commission include the following:

- promote co-operation among its Members with a view to ensuring, through appropriate management, the conservation and optimum utilization of stocks covered by this Agreement and encouraging sustainable development of fisheries based on such stocks;

- keep under review the conditions and trends of the stocks and to gather, analyze and disseminate scientific information, catch and effort statistics and other data relevant to the conservation and management of the stocks and to fisheries;

- encourage, recommend, and co-ordinate research and development activities in respect of the stocks and fisheries covered by this Agreement…having due regard to the need to ensure the equitable participation of Members of the Commission in the fisheries and the special interests and needs of Members in the region that are developing countries;

- adopt, on the basis of scientific evidence, conservation and management measures, to ensure the conservation of the stocks covered by this Agreement and to promote the objective of their optimum utilization throughout the Area;

- keep under review the economic and social aspects of the fisheries based on the stocks covered by this Agreement, bearing in mind, in particular, the interests of developing coastal States.

The Commission has the power to adopt, by a two-third majority, management measures that are binding on its Members. Since its inception, IOTC has established several working parties to fulfil its mandate including on data collection and statistics, tropical tunas, and on tagging. In a series of resolutions adopted at past sessions, IOTC seeks to improve its information base on tuna catches and the status of tuna stocks and the number and activities of tuna fishing vessels, including those by flag-of-convenience vessels in the Indian Ocean region. It also actively seeks to prevent, deter and eliminate IUU fishing through measures such as the refusal by contracting and non-contracting parties the landing and transhipment of tuna catches by FoC vessels, to inform their general public not to purchase tuna harvested by such vessels, and urges their manufactures and other concerned business people to prevent their vessels and equipment being used for FoC longline fisheries.

One area of critical importance that does not yet form part of the Agreement is a control and inspection scheme. In a resolution (99/03), IOTC resolves to establish the adoption of a scheme at its session in 2001, based on earlier proposals made with regard to the details of such a scheme at its intersessional meeting in Yaizu, Japan, in March 2001.[42]

The Commission for the Conservation of Southern Bluefin Tuna (CCSBT)
CCSBT members comprise Australia, Japan and New Zealand and its convention came into force in May 1994.[43] CCSBT's main objective is to ensure, through appropriate management, the conservation and optimum utilization of southern bluefin tuna. It has previously set a global TAC, but not since 1997, since when individual countries have voluntarily restricted to commercial catch levels in 1997. CCSBT has too endorsed guidelines for certain types of fishing gear to reduce incidental mortalities of sea birds (especially albatross). Individual countries have imposed restrictions of their own vessels to avoid fishing in breeding grounds and taking juvenile fish. Each country undertakes its own data collection and

[42] Further details can be obtained from IOTC's website: www.seychelles.net/iotc/

[43] Southern bluefin tuna is also exploited by vessels from Indonesia, South Korea and Taiwan (Province of China).

monitoring programmes. CCSBT recently agreed to develop a scientific research programme to seek to reduce uncertainties in stock assessment.

A dispute among the parties of CCSBT has resulted in one of the few fisheries cases being brought before the International Tribunal for the Law of the Sea. Australia and New Zealand asked the Tribunal in 1999 for an injunction to prevent Japan to continue its three-year experimental fishery for southern bluefin tuna, with the aim of improving stock assessment. In August 1999, the Tribunal issued an Order in which it decided that Australia, Japan and New Zealand should refrain from conducting an experimental fishing programme, unless agreed among the Parties and unless the catch is counted against the national quotas.[44]

Western Indian Ocean Tuna Organization (WIOTO)
The membership of WIOTO is entirely confined, in accordance with its convention that entered into force in 1994, to coastal countries whose territory is principally in the Western Indian Ocean region. Its current membership comprise Comoros, India, Mauritius and Seychelles. WIOTO has no regulatory powers but aims at increased co-operation and co-ordination on matters concerning:

- harmonization of policies with respect to fisheries;
- relations with distant-water fishing nations;
- fisheries surveillance and enforcement;
- fisheries development; and
- reciprocal access to EEZs of other members.

With the formation of IOTC , the activities of WIOTO appear to have largely ceased.

Southwest Indian Ocean Fisheries Commission (SWIOFC)
Two intergovernmental consultations have taken place in 2001 on the establishment of SWIOFC in order to obtain agreement on the objectives, structure and area of competence of this envisaged RFMO. As IOTC covers tuna and tuna-like species, it is self-evident that SWIOFC would address the management and conservation of non-tuna species. Open areas for further negotiations relate to whether its objectives should encompass fisheries development concerns in addition to those of conservation and management, its geographical area of competence, and if the Commission should be established under the constitution of FAO or as an independent organization.

5.9 The Global Plan of Action for the Protection of the Marine Environment (GPA)

The GPA was adopted in November 1995 by the Intergovermental Conference to Adopt a Global Programme of Action for the Protection of the Marine Environment

[44] For details on this case, the reader may consult the following: Maguire, J.J. 2000. Southern Bluefin Tuna dispute. In, Nordquist, M.H. and J. N. Moore (eds.). 2000. Current Fisheries Issues and the Food and Agriculture Organization of the United Nations. Martinus Nijhoff Publishers. The Hague/Bostonne/London. pp. 201-224. Wolfrum, R. 2000. The role of the International Tribunal for the Law of the Sea. In Nordquist, M.H. and J. N. Moore (eds.). op. cit. pp. 369-385.

from Land-based Activities (Washingtonne, October-November, 1995). The GPA is intended to address the fact that about 80 per cent of all marine pollution is caused by human activities on land leading to disposal in rivers and the coastal ecosystem of: urban and other sewage; inadequately treated waters from industries; discharges of nutrients of phosphorus and nitrogen used in agriculture, and finally, concentrations of heavy metals and persistent organic pollutants.

The GPA aims at preventing the degradation of the marine environment from land-based activities by facilitating the realization of the duty of States to preserve and protect the marine environment. More specifically, the GPA aims at identification and assessment of problems, identifying the nature and severity of problems caused by marine pollution on food security and poverty alleviation; public health; ecosystem health and biological diversity; and economic and social benefits and uses. It should also help assessing the severity and impacts of contaminants as well as the physical alteration, destruction, or otherwise of ocean habitats, and identify the point and non-point sources of pollution. Finally, it should also help identifying critical areas that are affected or particularly vulnerable, such as coastal watersheds, shorelines, estuaries and their drainage basins, and habitats of endangered species.

A wide range of actions, mainly at national level, are foreseen under the GPA including:

- adaptation or development of regional and national action programmes;
- regional and global assessments on the impact of land-based activities on the marine, coastal and associated freshwater environment;
- organization and operation of a clearing-house, prepared to respond to requests for assistance;
- mobilization of financial resources; and
- awareness building.

There are several action plans in the Indian Ocean Region of UNEP's Regional Seas Programme that address marine pollution and integrated coastal zone management, including those for Eastern Africa and Southern and Eastern Asia.[45]

5.10 The Convention on Biological Diversity (CBD)

Since UNCED, there has been a growing recognition that biological diversity is a global asset of tremendous value. The initiative that led to the establishment of the Convention on Biological Diversity (CBD) started in UNEP in 1988. The Convention was opened for signature on 5 June 1992 at UNCED and entered into force on 29 December 1993. Inspired by the world's community growing commitment to sustainability, the CBD represents an important step forward in the conservation of biological diversity, the sustainable use of its components, and the fair and equitable sharing of benefits arising from the use of genetic resources through *in situ* and *ex situ* conservation. It has, therefore, an obvious impact on the global regulatory context in which fisheries operate and on the way fisheries will be perceived in the global environmental arena.

[45] For details, see UNEP's web site at: www.unep.ch/seas/rshome.html

Following the establishment of the CBD, the FAO Commission on Genetic for Food and Agriculture (previously only concerned with plants) has broadened its mandate to cover also aquatic resources, and linkages between the CBD and the Code of Conduct requirements are considered in FAO in that ambit.

The "Jakarta Mandate on Marine and Coastal Biological Diversity" (CBD-JM), adopted by the Conference of the Parties of the CBD in 1995, provides a new global consensus on the importance of marine and coastal biological diversity, and reaffirms the critical need to address the conservation and sustainable use of marine and coastal biological diversity. Within the CBD-JM, five thematic issues have been identified: integrated marine and coastal area management; marine and coastal protected areas; sustainable use of marine and coastal living resources; mariculture and alien species.

From a species-diversity point of view, coral reefs are probably among the most valuable marine habitats. They are essential to fisheries production in most small island countries and are in serious decline globally, as well as in the Indian Ocean region. The International Coral Reef Initiative (ICRI) promotes the protection and restoration of reef environments through national development and management plans, capacity building, better research and monitoring. Its support in the Indian Ocean region includes mapping through GIS, status assesments, establishment of marine protected areas and integrated coastal area management.[46]

6. Conclusion

Significant progress has been made during the last half century in binding international legal instruments and voluntary codes and plans of actions and initiatives to improve the management of fisheries and protect the marine and coastal environment. As with all legal instruments and codes, domestic or international, their ultimate effect depends on their enforcement by the State and voluntary adherence by individuals and public and private organisations. Both enforcement by the State and voluntary adherence will be furthered by people becoming aware of the contents of these agreements and acting on it individually and in associations.

Considering the still very low average per capita incomes in many of the coastal countries of the Indian Ocean region and the daunting human, technological and financial resources required for improved management of the marine environment and fisheries, it is obvious that much greater resources have to be made available for these tasks by the international community. A special responsibility in this regard appears to fall on those countries that, in the past and present, have been among the major beneficiaries of the natural resources abundance in the Indian Ocean region. Having said that, one should hasten to add that much could be achieved in terms of

[46] More details on the status of coral reefs in the Indian Ocean region and elsewhere can be found at the following web site: www.ogp.noaa.gov/misc/coral/sor/sor_indian.html; more details on ICRI can be found here: www.environnement.gouv.fr/icri/index.html

improved fisheries management and the conservation of the marine environment by coastal countries themselves adopting better policies and regulatory frameworks.

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ANNEX 1

Convention on the Law of the Sea - Overview[48]

The United Nations Convention on the Law of the Sea (full text) comprises 320 articles and nine annexes, governing all aspects of ocean space, such as delimitation, environmental control, marine scientific research, economic and commercial activities, transfer of technology and the settlement of disputes relating to ocean matters.

The Convention entered into force in accordance with its article 308 on 16 November 1994, 12 months after the date of deposit of the sixtieth instrument of ratification or accession.

Some of the key features of the Convention are the following:

- Coastal States exercise sovereignty over their territorial sea which they have the right to establish its breadth up to a limit not to exceed 12 nautical miles; foreign vessels are allowed "innocent passage" through those waters;

- Ships and aircraft of all countries are allowed "transit passage" through straits used for international navigation; States bordering the straits can regulate navigational and other aspects of passage;

- Archipelagic States, made up of a group or groups of closely related islands and interconnecting waters, have sovereignty over a sea area enclosed by straight lines drawn between the outermost points of the islands; all other States enjoy the right of archipelagic passage through such designated sea lanes;

- Coastal States have sovereign rights in a 200-nautical mile exclusive economic zone (EEZ) with respect to natural resources and certain economic activities, and exercise jurisdiction over marine science research and environmental protection;

- All other States have freedom of navigation and overflight in the EEZ, as well as freedom to lay submarine cables and pipelines;

- Land-locked and geographically disadvantaged States have the right to participate on an equitable basis in exploitation of an appropriate part of the surplus of the living resources of the EEZ's of coastal States of the same region or sub-region; highly migratory species of fish and marine mammals are accorded special protection;

- Coastal States have sovereign rights over the continental shelf (the national area of the seabed) for exploring and exploiting it; the shelf can extend at least 200 nautical miles from the shore, and more under specified circumstances;

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[48] This overview is taken verbatim from the following Internet site: http://www.un.org/Depts/los/losconv2.htm

- Coastal States share with the international community part of the revenue derived from exploiting resources from any part of their shelf beyond 200 miles;

- The Commission on the Limits of the Continental Shelf shall make recommendations to States on the shelf's outer boundaries when it extends beyond 200 miles;

- All States enjoy the traditional freedoms of navigation, overflight, scientific research and fishing on the high seas; they are obliged to adopt, or cooperate with other States in adopting, measures to manage and conserve living resources;

- The limits of the territorial sea, the exclusive economic zone and continental shelf of islands are determined in accordance with rules applicable to land territory, but rocks which could not sustain human habitation or economic life of their own would have no economic zone or continental shelf;

- States bordering enclosed or semi-enclosed seas are expected to cooperate in managing living resources, environmental and research policies and activities;

- Land-locked States have the right of access to and from the sea and enjoy freedom of transit through the territory of transit States;

- States are bound to prevent and control marine pollution and are liable for damage caused by violation of their international obligations to combat such pollution;

- All marine scientific research in the EEZ and on the continental shelf is subject to the consent of the coastal State, but in most cases they are obliged to grant consent to other States when the research is to be conducted for peaceful purposes and fulfils specified criteria;

- States are bound to promote the development and transfer of marine technology "on fair and reasonable terms and conditions", with proper regard for all legitimate interests;

- States Parties are obliged to settle by peaceful means their disputes concerning the interpretation or application of the Convention;

- Disputes can be submitted to the International Tribunal for the Law of the Sea established under the Convention, to the International Court of Justice, or to arbitration. Conciliation is also available and, in certain circumstances, submission to it would be compulsory. The Tribunal has exclusive jurisdiction over deep seabed mining disputes.

ANNEX 2

Text of selected Articles of the 1982 United Nations Convention on the Law of the Sea

Article 61

Conservation of the living resources

1. The coastal State shall determine the allowable catch of the living resources in its exclusive economic zone.
2. The coastal State, taking into account the best scientific evidence available to it, shall ensure through proper conservation and management measures that the maintenance of the living resources in the exclusive economic zone is not endangered by over-exploitation. As appropriate, the coastal State and competent international organizations, whether subregional, regional or global, shall co-operate to this end.
3. Such measures shall also be designed to maintain or restore populations of harvested species at levels which can produce the maximum sustainable yield, as qualified by relevant environmental and economic factors, including the economic needs of coastal fishing communities and the special requirements of developing States, and taking into account fishing patterns, the interdependence of stocks and any generally recommended international minimum standards, whether subregional, regional or global.
4. In taking such measures the coastal State shall take into consideration the effects on species associated with or dependent upon harvested species with a view to maintaining or restoring populations of such associated or dependent species above levels at which their reproduction may become seriously threatened.
5. Available scientific information, catch and fishing effort statistics, and other data relevant to the conservation of fish stocks shall be contributed and exchanged on a regular basis through competent international organizations, whether subregional, regional or global, where appropriate and with participation by all States concerned, including States whose nationals are allowed to fish in the exclusive economic zone.

Article 62

Utilization of the living resources

1. The coastal State shall promote the objective of optimum utilization of the living resources in the exclusive economic zone without prejudice to article 61.
2. The coastal State shall determine its capacity to harvest the living resources of the exclusive economic zone. Where the coastal State does not have the capacity to harvest the entire allowable catch, it shall, through agreements or

other arrangements and pursuant to the terms, conditions, laws and regulations referred to in paragraph 4, give other States access to the surplus of the allowable catch, having particular regard to the provisions of articles 69 and 70, especially in relation to the developing States mentioned therein.

3. In giving access to other States to its exclusive economic zone under this article, the coastal State shall take into account all relevant factors, including, inter alia, the significance of the living resources of the area to the economy of the coastal State concerned and its other national interests, the provisions of articles 69 and 70, the requirements of developing States in the subregion or region in harvesting part of the surplus and the need to minimize economic dislocation in States whose nationals have habitually fished in the zone or which have made substantial efforts in research and identification of stocks.
4. Nationals of other States fishing in the exclusive economic zone shall comply with the conservation measures and with the other terms and conditions established in the laws and regulations of the coastal State. These laws and regulations shall be consistent with this Convention and may relate, inter alia, to the following:
    (a) licensing of fishermen, fishing vessels and equipment, including payment of fees and other forms of remuneration, which, in the case of developing coastal States, may consist of adequate compensation in the field of financing, equipment and technology relating to the fishing industry;
    (b) determining the species which may be caught, and fixing quotas of catch, whether in relation to particular stocks or groups of stocks or catch per vessel over a period of time or to the catch by nationals of any State during a specified period;
    (c) regulating seasons and areas of fishing, the types, sizes and amount of gear, and the types, sizes and number of fishing vessels that may be used;
    (d) fixing the age and size of fish and other species that may be caught;
    (e) specifying information required of fishing vessels, including catch and effort statistics and vessel position reports;
    (f) requiring, under the authorization and control of the coastal State, the conduct of specified fisheries research programmes and regulating the conduct of such research, including the sampling of catches, disposition of samples and reporting of associated scientific data;
    (g) the placing of observers or trainees on board such vessels by the coastal State;
    (h) the landing of all or any part of the catch by such vessels in the ports of the coastal State;
    (i) terms and conditions relating to joint ventures or other co-operative arrangements;
    (j) requirements for the training of personnel and the transfer of fisheries technology, including enhancement of the coastal State's capability of undertaking fisheries research;

(k) enforcement procedures.

5. Coastal States shall give due notice of conservation and management laws and regulations.

ANNEX 3

Summary of the main contents of the 27 principles of the Rio Declaration on Environment and Development

Principle (P) 1 places human beings at the centre of concerns for sustainable development. P 2 asserts the sovereignty of States to exploit their own resources according to their policy objectives but places on them the obligation to cause no damage to the environment of other States beyond the limits of national jurisdiction. P 3 States the right to development and P 4 demands that environment protection forms an integral part of development. P 5 calls on States and all people to collaborate in the eradication of poverty and P 6 demands that special priority be given to developing countries, particularly the least developed and most environmentally vulnerable. P 7 calls on States to cooperate in environment conservation and acknowledges the special responsibility born by developed countries because of their burden on the global environment and the technological and financial resources they command. P 8 asks States to reduce and eliminate unsustainable patterns of production, consumption and to promote appropriate demographic policies. P 9 promotes international cooperation in capacity-building and knowledge and technology transfer. P 10 promotes broad-based participation in decision-making, the free flow of information and access to the judicial and administrative proceedings. P 11 calls on States to enact effective environmental legislation. P 12 asks States to promote a supportive and open international economic system and refrain from using environmental measures as arbitrary barriers to trade. P 13 requires States to develop national law and to cooperate in the development of international law regarding liability and compensation of victims of pollution and environmental harm. P 14 calls on States to discourage the transfer to other States of substances that cause serious harm. P 15 requires States to widely apply the precautionary approach, i.e. the lack of full scientific certainty shall not be used to postpone cost-effective measures to prevent serious or irreversible environmental damage. P 16 calls on national authorities to promote the internalisation of environmental costs, i.e. the polluter should bear the cost of pollution. P 17 requests the undertaking of environmental impact assessments for proposed activities that are likely to have significant environmental impacts. P 18 and P 19 commit States to give early notification of emergencies, disasters, etc. and of other activities resulting in transboundary environmental impacts and call on the international community to help States afflicted by disasters and emergencies. P 20 urges the full participation by women in environmental management and development. P 21 asks that youth be mobilized to forge a global partnership. P 22 requires States to recognize and duly support the identity, culture and interests of indigenous people and enable their effective participation in achieving sustainable development. P 23 requires the protection of the environment and natural resources of people under oppression, domination and occupation. P 24 calls on States to protect the environment in times of armed conflicts. P 25 recognizes the interdependence and indivisibility of peace, development and environmental protection. P 26 commits States to resolve all environmental disputes peacefully and P 27 requires all States and people to cooperate in good faith and in a spirit of partnership in the fulfilment of the principles of this declaration.

ANNEX 4

Summary of the main provisions of the 1995 Global Programme of Action for the Protection of the Marine Environment from Land-Based Activities (GPA)

GPA identifies nine source categories and sets specific objectives and targets to be met by States within given time frames. With regards to **sewage**, States are expected to establish by the year 2000 waste treatment and disposal quality criteria, objectives and standards based on the nature and assimilative capacity of the receiving environment. By the year 2025, all sewage, waste waters and solid wastes should be disposed of in conformity with national and international environmental quality guidelines.

Emissions and discharges of **persistent organic pollutants** should be reduced or eliminated, giving immediate attention to the identification and introduction of substitutes for such substances. Cleaner production processes are to be introduced to reduce or eliminate hazardous by-products and wastes associated with production, incineration and combustion, e.g. dioxins, furans, hexachlorobenzene and polycyclic aromatic hydrocarbons. Further, best environmental practice for pest control in agriculture and aquaculture should be promoted.

A further objective is to reduce or eliminate emissions and discharges of **radioactive substances,** of **heavy metals,** and of **oil (hydrocarbons)**, in order to prevent, reduce and eliminate pollution of the marine and coastal environment.

Another source category are **nutrients**. The objective of the Action Programme is to identify marine areas where nutrient inputs are causing or are likely to cause pollution, to reduce nutrient inputs into the areas identified and to reduce the number of marine areas where eutrophication is evident. This is an area of particular interest since agricultural practices are a source of nutrient enrichment of coastal waters. Agricultural activities and deforestation contribute also to another category affecting the marine environment: **sediment mobilization**.

Litter threatens marine life through entanglement, suffocation and ingestion and is widely recognized to degrade the visual amenities of marine and coastal areas. The target is that by the year 2025 States should provide all urban areas with adequate waste collection, disposal and treatment services.