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INTRODUCTION

1. The present report is submitted to the General Assembly in response to its resolution 43/18 of 1 November 1988, in which the Secretary-General was requested, inter alia, to report on developments pertaining to the United Nations Convention on the Law of the Sea ^{1/} and all related activities on the implementation of that resolution. The present report is the sixth such report submitted to the General Assembly. Part one of the report gives an overview of developments relating to the law of the sea; part two outlines the activities of the Office for Ocean Affairs and the Law of the Sea in the discharge of its mandate. It is significant that the Assembly requested a special report to be submitted to its forty-fourth session on the protection and preservation of the marine environment, highlighting the dominant role of the oceans in maintaining the global ecological balance and in controlling and moderating world climate.

2. There has been a significant change in the international political climate. Confrontation has given way to co-operation in many areas of conflicts and competition. The international community must direct its attention to those areas where this new spirit has not yet manifested itself. An important area that can benefit from the participation of all States is the law of the sea. In the new political climate now obtaining, it should be possible for all States to make a renewed effort to achieve universal participation in the 1982 United Nations Convention on the Law of the Sea.

3. From its ongoing exchanges and consultations with the relevant organisations and agencies of the system, the Office for Ocean Affairs and the Law of the Sea can attest to an increasing awareness by States of the general importance of the ocean sector and to a growing interest in formulating more comprehensive policies for marine development and management. Organisations are also experiencing a notable increase in the number and nature of the requests from States for specialised advice and assistance, both on a sectoral as well as on a more comprehensive basis. The Office for Ocean Affairs and the Law of the Sea has experienced numerous cases, where, in the process of helping States create broad policy and legislative frameworks, it has also found it necessary to promote actively co-ordination of sectoral aspects and to refer Governments directly to specific organisations. In this process, it has often been necessary to underline a very important feature of the Convention, namely, the balance it strikes between rights and obligations, as well as the requirements of different uses of the sea. Over-emphasis on a particular sector, it is now increasingly understood, can seriously interfere with that balance, with consequent reactions from States. This reaction has been witnessed at the two recent plenary conferences on drugs and on the transboundary movement of hazardous wastes where certain proposals ran counter to the equally fundamental need to protect navigational freedoms. The same problem has been evident in regional forums, for example, the draft protocol on the protection of special areas and wildlife in the Caribbean (see para. 57). The relevant organisations have therefore been alerted to the need to ensure not only that advice and assistance to individual States is generally in conformity with established norms, but also to the problems that can arise in international discussion of new issues where elements may run counter to basic principles that were accepted by the Third United Nations Conference on the Law of the Sea.

4. Above all, greater co-ordination is an urgent requirement for the system in facing the activity surrounding questions of global change and the role of and influences on the ocean. The concerned organisations have agreed, at the last meeting of the Inter-secretariat Committee on Scientific Programmes Relating to Oceanography (ICSPRO), that they must use major forthcoming conferences of various kinds to facilitate information exchange and co-ordination, for example, the ministerial level Conference on Environment in Asia and the Pacific, the Pacific Congress, the Second World Climate Conference, the Scientific Conference on Sea-Land-Atmosphere Interface, regional fisheries conferences and sessions of fisheries commissions, the regional follow-up Conference on the Report of the World Commission on Environment and Development, etc.

5. The most recent ad hoc inter-agency consultations (14-17 July 1989) on ocean affairs convened by the Special Representative of the Secretary-General for the Law of the Sea agreed that special attention will have to be given to the nature of the input to the 1992 conference on environment and development, and to its follow-up, to take into full account the ocean's highly influential role in climate change, as well as direct concerns as to the health of the marine environment. The importance of the framework provided in the United Nations Convention on the Law of the Sea for the progressive development of international environmental law and the formulation of more effective management strategies must also be fully recognised. As pointed out in the report of the Secretary-General submitted to the General Assembly at its forty-third session, 2/ the Convention on the Law of the Sea provides the necessary framework for additional agreements, as well as a valuable precedent for global agreement⁸ on other environmental issues and a fund of basic principles and obligations that could be applied equally well to such global issues as protection of the atmosphere and climate.

PART ONE

DEVELOPMENTS RELATING TO THE UNITED NATIONS CONVENTION ON THE LAW OF THE SEA

I. STATUS OF THE CONVENTION

6. The United Nations Convention on the Law of the Sea closed for signature on 9 December 1984, having received a total of 159 signatures. It will enter into force 12 months after the date of deposit of the sixtieth instrument of ratification or accession. As at 15 October 1989, 42 instruments of ratification have been deposited with the Secretary-General, as follows: Antigua and Barbuda, Bahamas, Bahrain, Belize, Brazil, Cameroon, Cape Verde, Côte d'Ivoire, Cuba, Cyprus, Democratic Yemen, Egypt, Fiji, Gambia, Ghana, Guinea, Guinea-Bissau, Iceland, Indonesia, Iraq, Jamaica, Kenya, Kuwait, Mali, Mexico, Nigeria, Oman, Paraguay, Philippines, Senegal, Saint Lucia, Sao Tomé and Príncipe, Somalia, Sudan, Togo, Trinidad and Tobago, Tunisia, United Republic of Tanzania, Yugoslavia, Zaire, Zambia and the United Nations Council for Namibia.

7. Seven States ^{3/} have ratified the Convention since the last report of the Secretary-General. Among these, two States ^{4/} made declarations, which brings a total of 12 States ^{5/} that have made declarations upon ratification. It is of some significance to note that, on 16 October 1988, the Secretary-General received from the Government of the Philippines a declaration concerning an objection by Australia to the understanding recorded upon signature by the Philippines and confirmed upon ratification. ^{6/} It declared, *inter alia*, that "the Philippine Government intends to harmonise its domestic legislation with the provisions of the Convention" and that the "necessary steps are being undertaken to enact legislation dealing with archipelagic sea lanes passage and the exercise of Philippine sovereign rights over archipelagic waters, in accordance with the Convention". The Australian Government and the States Parties to the Convention were assured that "the Philippines will abide by the provisions of the said Convention".

II. STATE PRACTICE AND NATIONAL POLICY

A. State practice

8. The United Nations Convention on the Law of the Sea has continued to exert a dominant influence on the maritime practices of States. Even before the entry into force of the Convention, it has become part of the currency of the international law of the sea.

9. It is generally agreed that the 12-mile limit provided for in article 3 of the Convention has become a norm of the international law of the sea. Some 108 States now claim a territorial sea of 12 nautical miles. ^{7/} Among the States that have recently adopted a 12-mile territorial sea are the United States of America ^{8/} and the United Republic of Tanzania. ^{9/}

10. It is noteworthy that the United Republic of Tanzania has reduced its territorial sea claim from 50 nautical miles to 12 nautical miles, thus conforming to the norm contained in the Convention, ^{10/}

11. In a Presidential Proclamation of 27 December 1988, the United States of America extended its territorial sea from 3 nautical miles to 12 nautical miles. The Proclamation expressly stated that: "In accordance with international law, as reflected in the applicable provisions of the 1982 Convention on the Law of the Sea, within the territorial sea of the United States, the ships of all countries enjoy the right of innocent passage and the ships and aircraft of all countries enjoy the right of transit passage through international straits".

12. On 23 September 1989, the United States and the Soviet Union issued a joint statement declaring, *inter alia*, that their "Governments are guided by the provisions of the 1982 United Nations Convention on the Law of the Sea, which, with respect to traditional uses of the oceans, generally constitute international law and practice and balance fairly the interests of all States. They recognize the need to encourage all States to harmonise their internal laws, regulations and practice with those provisions".

13. Together with the joint statement, the Governments issued a series of provisions entitled "Uniform interpretation of rules of international law governing innocent passage". There it was made clear that "the relevant rules of international law governing innocent passage of ships in the territorial sea are stated in the 1982 United Nations Convention on the Law of the Sea, . . . particularly in part II, section 3", and that "all ships, including warships, regardless of cargo, armament or means of propulsion, enjoy the right of innocent passage through the territorial sea in accordance with international law, for which neither prior notification nor authorisation is required". The remaining provisions interpreted, among other things, several relevant articles of the Convention, namely: articles 19, 21, 22, 23, 24 and 25.

14. Some 74 States have claimed exclusive economic zones and 18 States have claimed exclusive fishing zones.

15. It has been reported that the Netherlands is in favour of the establishment of an exclusive economic zone. ^{11/} In its opinion, the establishment of an exclusive economic zone by the Netherlands will enable it to apply through national legislation generally accepted international environmental standards with regard to navigation in the exclusive economic zone - in particular the competence to regulate all dumping and incineration activities in that zone. ^{12/}

16. The Government of the Netherlands has also concluded that the establishment of exclusive economic zones would constitute a positive step towards furthering the protection and preservation of the North Sea environment. Before adopting any legislation on the matter, that Government hopes to persuade other North Sea countries to establish exclusive economic zones at the next International North Sea Ministers Conference to be held in the Netherlands in 1990. In this connection, it has been stressed that if exclusive economic zones are established in the North Sea, international co-operation will have a key role to play in the protection and

preservation of the marine environment. France and Norway have already established *exclusive economic zones*.

B. Coastal and ocean management

1. Integrated management of coastal and ocean resources

17. As a result of population growth, pressure for development and the introduction of new technologies, which permit a greater variety of uses of the ocean space, both developed and developing countries are facing increasingly similar problems of marine and coastal resources exploitation beyond their optimal sustainability and of environmental degradation caused by the physical alteration of marine and coastal ecosystems. Also, multiple use interactions often result in conflicts, which arise when more than one use of a resource or marine area precludes or adversely impinges upon the use of other resources, or the same space, by other users. The inherent complexity of such conflicts between resource users may also jeopardize the optimum management and sustainable use of the resources.

18. Effective solutions to current problems require the integrated management of marine resources and ocean space with a view to avoiding or minimising conflicts among competing uses of the ocean and protecting the long-term values and benefits presented by the extension of marine areas under national jurisdiction. For that purpose, it is necessary for States to establish the appropriate planning infrastructure through which national marine policy objectives can be set and translated into concrete programmes and projects. They must also develop the institutional mechanisms and resource management processes that can bring people and institutions together to co-ordinate resource use and management decisions.

2. New challenges and new opportunities for the 1990s

19. Issues of concern to ocean management include the co-ordinated and rational exploitation of the ocean resources, the protection of the marine environment and the control of interactions among the various uses of the sea.

20. However, although the concept of coastal area management on the one hand and the broader concept of ocean management on the other have existed separately for almost two decades, it is only in the last 10 years that coastal area management has gained momentum, as shown by the fact that some 20 developing countries, together with a number of developed countries, have formulated or are in the process of formulating nationwide or local level coastal management programmes.

21. Among those which have adopted ocean management programmes in recent years, a few countries have adopted an entirely novel approach, covering both the coastal areas and the wider marine area under national jurisdiction, in a single, comprehensive plan. Their experience (examples of which are set forth below) provides valuable information as to the future trend that may emerge in the coming years.

(a) Coastal area management efforts

22. The Association of South-East Asian Nations (**ASEAN**) has taken the initiative to develop integrated coastal management strategies to ensure sustainable development of their renewable resources. **13/** A regional project was formulated having six pilot sites for developing management plans and for testing their implementability. The pilot sites are **located** in Indonesia, Thailand, the Philippines, Malaysia, Brunei Darussalam and Singapore. A holistic, integrated approach is adopted to resolve the various coastal resource management issues. The planning process follows a systematic course of activities that leads to the formulation of a general policy on coastal area management, zoning schemes and issue-oriented and area-specific management plans. The **approach** adopted, however, varies with the sociocultural and political conditions of **the** country concerned.

23. Encouraging initiatives have also taken place throughout Latin America. Among the most significant developments is the coastal **area management programme** initiated by Brazil in 1982. **14/** This programme, with the participation of 17 Brazilian coastal states, is supported by an elaborate national institutional and development structure. Similarly, Colombia is in the process of formulating coastal management **plans** for its Caribbean and Pacific coasts. **15/** These plans will take into account the different nature of problems found in each area. Ecuador, with the most recent programme of all, has focused its efforts on the solution of specific problems such as pollution, degradation of the water supply and the management of its shrimp industry. **16/** In other countries, such as Trinidad and Tobago and Barbados, coastal area management forms part of specific programmes, such as tourist development and environmental protection.

(b) Ocean management efforts

24. Ocean management efforts in the Netherlands began in 1979 with the development of a long-term, harmonized North Sea policy whose major objectives were to promote an increasingly co-ordinated and balanced development of activities in relation to the North Sea. **17/** The harmonization of North Sea policies is considered to be an ongoing process in which developments and problems are increasingly dealt with in a co-ordinated fashion. The policy has three elements that are subject to periodic review: a policy framework; a programme of action; and an institutional framework. Among the most important outcomes of the programme of action are the adoption of a Water Quality Plan in 1986, **the** decision to set up a Netherlands Coast **Guard** in the same year, and the adoption of a Shipping **Policy** Plan in 1988.

25. The Ocean Resources Management Programme of the state of Oregon (United States of America) was established by the Oregon Ocean Resources Management Act of 1987. The programme extends Oregon's comprehensive state-wide planning and **coastal** zone management programme seaward to provide a co-ordinated, comprehensive policy and management framework for state and federal agencies and Oregon's local governments. **18/** It is an unprecedented effort to integrate area-wide comprehensive land-use planning, coastal zone management and ocean resources planning and management. Full implementation of the Act will result in two planning documents to guide state and federal decisions concerning offshore activities.

26. A different approach has been selected by Indonesia where an Action Plan for Sustainable Development of Indonesia's Marine and Coastal Resources has been prepared under the auspices of the National Development Planning Board of Indonesia with medium-term (five-year) policies and programmes to complement its 1989-1994 five-year national development plan. 19/ The Action Plan, currently under consideration, establishes a comprehensive strategy for the management and development of Indonesia's marine and coastal resources. It follows a multi sectoral approach to management and economic activities and it considers both marine and coastal resources. It also recommends that an inter-agency co-ordination mechanism be established to oversee the implementation of the Action Plan.

III. SETTLEMENT OF CONFLICTS AND DISPUTES

27. International law imposes upon neighbouring States the obligation to delimit the boundary of the exclusive economic zone and the continental shelf by agreement "in order to achieve an equitable solution" (arts. 74 and 83). A large number of maritime boundary disputes have already been resolved by negotiations leading to agreements and the number is increasing. Recent examples are the Agreement between the Government of Solomon Islands and the Government of Australia, establishing certain sea and sea-bed boundaries (11 September 1988); the Agreement between the Government of France and the Government of the United Kingdom of Great Britain and Northern Ireland relating to the delimitation of the territorial sea in the Strait of Dover (2 November 1988); the Agreement between the Government of the United Kingdom and the Government of Ireland concerning the delimitation of areas of the continental shelf between the two countries (7 November 1988); and the Agreement between the Government of Trinidad and Tobago and the Government of Venezuela on the delimitation of marine and submarine areas (first phase) (4 August 1989). It may be noted that the treaty between Australia and Papua New Guinea expressly states that the parties take into account the United Nations Convention on the Law of the Sea,

28. Under the Convention, if no agreement can be reached, States are under a duty to seek a solution through dispute settlement procedures, such as conciliation, arbitration or judicial settlement. Several important disputes have already been resolved by such modes of settling disputes.

29. The land, island and maritime frontier dispute between El Salvador and Honduras is still before the Chamber of the International Court of Justice.

30. The International Court of Justice has been seized since 16 August 1988 with the dispute concerning the delimitation of Denmark's and Norway's fishing zones and continental shelf areas in the waters between the east coast of Greenland and the Norwegian island of Jan Mayen, where there is an area of some 75,000 square kilometres to which both parties lay claim.

31. On 30 March 1989, Canada and France (Saint-Pierre and Miquelon) signed two agreements in respect of their fisheries and maritime boundary disputes: the Agreement between the Government of Canada and the Government of France relating to

fisheries for the years 1989-1991 and the Agreement establishing a Court of Arbitration for the purpose of carrying out the delimitation of maritime areas between Canada and France.

32. The Court of Arbitration, consisting of five members, "is requested to carry out the delimitation as between the parties of the maritime areas appertaining to France and of those appertaining to Canada". The Court is to establish a single delimitation that will govern all rights and jurisdiction that the parties may exercise under international law in these maritime areas. The adjudication is expected to take three years,

33. On 31 July 1989, an arbitral tribunal handed down its Award in the arbitration between Guinea-Bissau and Senegal. On 2 August 1989, Guinea-Bissau rejected the Award, Guinea-Bissau submitted the dispute concerning the maritime delimitation to the International Court of Justice (Press Release 89/17 of 24 August 1989).

Joint development

34. Australia and Indonesia are currently engaged in establishing a zone of co-operation for the purpose of exploiting petroleum resources in the Timor Sea. Although they had been able to conclude agreements in 1971 and 1972 delimiting the continental shelf between the two countries with respect to the area to the east and west of Timor, they were, however, unable to find any solution to the delimitation of the continental shelf boundary between the Indonesian province of East Timor and northern Australia. Australia based its claim on the national prolongation principle - on geomorphology, whereas Indonesia's claim rested on the distance criterion. The present negotiations are a consequence of the parties' failure to find a mutually acceptable boundary-line.

35. The zone will be divided into three areas. The joint development régime will really apply only to area A where joint control will be exercised through a joint authority. Negotiations are continuing on issues such as administrative arrangements, the mining regime, the applicable law, including matters relating to criminal law, employment law, taxation and so on,

IV, OTHER DEVELOPMENTS RELATING TO THE LAW OF THE SEA

A. P e a c e f u l

Naval armaments and disarmament

36. The Disarmament Commission continues to deal with the question of naval arms limitation and disarmament, as well as the desirability of applying confidence-building measures at sea, through special consultations under the responsibility of the Chairman. The report of the Secretary-General on the study on the naval arms race 20/ and the reports of the Chairman (A/CN.10/102, A/CN.10/113 and most recently, A/CN.10/102/134) have provided a solid basis for further efforts, 21/ The parties in the consultations continue to maintain that any future measures should be embodied in legal instruments and be in harmony with

general principles of international law, including the 1982 United Nations Convention on the Law of the Sea. It is repeatedly emphasised that the Convention includes balanced provisions that would meet the security needs of both flag and coastal States, provided they are strictly implemented,

37. Certain developments in international law are **considered** particularly desirable. The practicability of updating some of the existing *laws of naval warfare* is receiving closer attention, particularly of updating the Hague Convention VIII of 1907 relative to laying of automatic submarine contact mines through a new protocol on the use of sea mines and torpedoes - an additional protocol to the 1981 Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons Which May Be Deemed to Be **Excessively** Injurious or to Have Indiscriminate Effects. It is to be noted that a draft protocol on sea mines has been prepared by **Sweden** (A/CN.10/129). There is also the possibility, particularly in the light of the **Falkland/Malvinas conflict** and Iran-Iraq war, of further work on the development of international law concerning exclusion **zones**, with particular reference to the safety of non-belligerent vessels engaged in peaceful maritime activities,

38. There is also considerable support for the development of a multilateral agreement for the prevention of incidents at sea beyond the territorial sea. An agreement of this nature, it is stressed, should be so formulated as to respond to the needs of all interested nations for enhancing safety at sea, without diminishing the traditional freedom of navigation. Such an agreement would be in addition to those bilateral agreements already existing, namely, the Agreement between the United States and the Soviet Union on the Prevention of Incidents *On and Over the High Seas* (1972); the Agreement between the United Kingdom and the Soviet Union concerning the Prevention of Incidents at Sea beyond the Territorial Sea (1986); and the new Agreement between the Federal Republic of **Germany** and the Soviet Union concerning the Prevention of Incidents at Sea beyond the Territorial Sea (1988). Talks have also been held between France and the Soviet Union, aimed at an understanding concerning naval incidents. It has already been suggested that such a multilateral agreement could derive certain principles from the existing bilateral arrangements, taking into account instruments such as the International Maritime Organisation (IMO) Convention on Regulations for Preventing Collisions at Sea.

39. More recently, attention has been ~~given~~ to the threats posed by accidents at sea involving nuclear warheads and nuclear reactors. From the studies conducted so far of past accidents, there is little evidence of radioactive **effects** on marine life. ~~22/~~ However, the number of accidents appears to be increasing, as experienced by Norway with passing Soviet submarines. Certainly, questions of prompt notification are involved. The 1986 Convention on Early Notification of a Nuclear Accident obliges States parties to notify forthwith those States which are or may be physically affected by such accidents. It should be noted that article 198 of the United Nations Convention on the Law of the Sea obliges a State, when it becomes aware of cases in which "the marine environment is in imminent danger of being damaged by pollution", to notify immediately other States that it deems likely to be affected by such damage.

B. Maritime law

1. Illicit traffic in drugs and psychotropic substances

40. On 19 December 1988, the United Nations Convention against Illicit Traffic in Narcotic Drugs and Psychotropic Substances was adopted. The Convention, it was said, reflected, inter alia, the deep concern at "the magnitude of and rising trend in the illicit production of, demand for and traffic in narcotic drugs and psychotropic substances, which pose a serious threat to the health and welfare of human beings and adversely affect the economic, cultural and political foundations of society" (see Preamble). 23/

41. The United Nations Convention against Illicit Traffic in Narcotic Drugs and Psychotropic Substances deals explicitly with illicit traffic by sea (art. 17). States are under an obligation to co-operate to the fullest extent possible to suppress illicit traffic by sea, in conformity with the international law of the sea (see also art. 108 of the United Nations Convention on the Law of the Sea). A party which has reasonable grounds to suspect that a vessel is engaged in illicit traffic may so notify the flag State and "request authorisation from the flag State to take appropriate measures with regard to that vessel". The flag State may authorise the requesting State, inter alia, to board and search the vessel and, if evidence of involvement in illicit traffic is found, to take appropriate action with respect to the vessels, persons and cargo on board. Such action should not endanger "the safety of life at sea, the security of the vessel and the cargo, nor prejudice the commercial and legal interest of the flag State or any other interested State". The flag State must be promptly informed of any action taken.

42. It is expressly stated that such action may be carried out only by warships or military aircraft, or other ships or aircraft clearly marked and identifiable as being on government service and authorised to that effect. 24/

43. Action taken against illicit traffic at sea shall take due account of the need not to interfere with or affect the rights and obligations and the exercise of jurisdiction of coastal States in accordance with the international law of the sea.

2. Salvage

44. On 25 April 1989, the International Convention on Salvage was adopted in London. It was noted, inter alia, that substantial developments, in particular the increasing concern for the protection of the environment has demonstrated the need to review the international rules presently contained in the Convention for the Unification of Certain Rules of Law relating to Assistance and Salvage at Sea of 1910. The Convention also recognized the major contribution that efficient and timely salvage operations can make to the safety of vessels and other property in danger and to the protection of the environment (see Preamble).

45. The Convention does not apply to fixed or floating platform⁶ or to mobile offshore drilling units when such platform⁸ or units are on location engaged in the exploration, exploitation or production of sea-bed mineral resources (art. 3), nor

does **it** apply to warships or other non-commercial vessels owned or operated by a State and entitled, at the time of salvage operations, to sovereign immunity. When a State party **decides** to apply the Convention to its warships or other State-owned non-commercial vessels, **it** shall notify the **Secretary-General** of the **IMO**, specifying the terms and conditions of such application.

46. The new Convention incorporates a new rule guaranteeing the salvage company special compensation for the work performed to prevent pollution **at sea** even when the **aalvor** has failed to earn a reward. Article 14 of the Convention states that if the **aalvor** by his salvage operations has prevented or minimised damage to the **environment**, the special compensation payable by the owner to the **salvor** may be increased up to a maximum of 30 per cent of the expenses incurred by the **salvor**. If a tribunal deems **it** fair and just to do **so**, it may increase any such special compensation *further*, "**but** in no event shall the total increase be **more** than 100 per cent of the expenses incurred by the **salvor**".

47. Any States may make reservation⁸ in respect of the following: (a) when the salvage operations takes place in inland waters and all vessels involved are of inland navigation; (b) when the salvage operations take place in inland waters and no vessel is involved; (c) when the property involved is maritime cultural property of prehistoric, **archaeological** or historic interest and is situated *on* the sea-bed.

3. Maritime safety

New IMO instruments

48. Several international conferences that were held together at the end of 1988 adopted protocols, amending both the 1974 International Convention for the Safety of Life at Sea (**SOLAS**) and the 1978 **SOLAS** Protocol and the 1966 Load Lines Convention (see special report of the Secretary-general on the law of the **sea**, (A/44/461 and Corr. 1, annex) for a list of conventions) in order to introduce a Global Maritime Distress and Safety System (**GMDSS**), and a new harmonised system of **survey** and certification for ships. These protocols are expected to enter into force on 1 February 1992.

49. The **GMDSS** has been developed over the course of many years and after a great deal of discussion involving IMO, the International **Telecommunication** Union (**ITU**) and **INMARSAT**. The basic concept of the system is that search and rescue authorities **ashore**, as well as shipping in the immediate vicinity of the ship in distress, will be rapidly alerted to a distress incident *so* that they can assist in a **co-ordinated** search and rescue operation with the minimum delay. The search itself will also be conducted according to procedures laid down by the 1979 International Convention on Maritime Search and Rescue, as amplified in the IMO Manual *on* Search and Rescue. The **GMDSS**, for its part, will provide the means of communication regardless of the area in which the ship is located. The system will also provide urgency and safety communications and the dissemination of maritime safety information, including navigational and meteorological warnings. Although satellites will play an important role (through **INMARSAT**), they will not completely replace existing maritime radio communications.

C. Protection and preservation of the marine environment

50. The General Assembly has already received a special report of the Secretary-General on the protection and preservation of the marine environment, containing recent developments related to the protection and preservation of the marine environment (A/44/461 and Corr.1).

1. Oil pollution

51. The activities of IMO are likely to be affected by the commitment now evident among a number of Member States to expand and strengthen international co-operation on oil pollution. Although there have been no recent oil spills as devastating as the oil spills of the past, and although the potential for accidents can never be completely removed, the number and location of oil spills in the current year have raised important questions as to whether more can be done with respect to preventive regulations and their enforcement, and to combating pollution. The effectiveness of the action taken to minimise pollution damage depends on how well a coastal State is prepared to deal with such emergencies. Rapid and effective response requires advance planning, identifying the resources to be protected and manpower, as well as machinery and other equipment and material to be mobilised. IMO, through its technical co-operation activities, assists States in formulating contingency plans and has prepared a Manual on Oil Pollution. A similar manual on chemical pollution is being developed.

52. Both shippers and Governments are looking more closely at whether the current blend of market forces (lower oil prices and increased trade) and the evidence of a lack of adequate regulations, including contingency planning, will jeopardise protection of the marine environment. The highly competitive shipping business is only recently showing signs of coming out of a deep 15-year recession and shipowners are searching for the most efficient, lowest-cost method of operation - ranging from keeping aging tanker fleets in service to re-registering ships in countries offering greater economic advantage. While most of the recent accidents have been attributed to lapses of individual ship captains, rather than to the age of vessels or to companies known as slipshod operators, recent changes in the shipping field none the less indicate a need to study carefully the risks posed by the transportation of huge quantities of crude oil. The number of large tankers now idle is about one fourth of the laid-up fleet of three years ago. The largest merchant fleets in 1988 were Liberia, 89.6 million tons; Panama, 69.7 million tons; Japan, 38.5 million tons; Greece, 37.9 million tons; and Cyprus, 32.2 million tons.

53. The July summit meeting of the Group of Seven major industrialised democracies requested IMO to put forward proposals for further action to prevent oil pollution of the oceans and appealed to all countries to adhere to and implement fully the international conventions for the prevention of oil pollution. As a consequence, IMO called a special meeting in September to take up these questions, with emphasis on emergency responses to oil spills.

54. Within the context of the Antarctic Treaty system, concerns not only over the oil spill that occurred in January but also over global environmental problems

(depletion of the ozone layer and climate change), have led to the adoption of an agenda for the fifteenth Antarctic Treaty Consultative Meeting in October, which gives considerable prominence to several environmental issues. The meeting will discuss the integration of new measures with existing measures to produce a comprehensive framework for the protection of the Antarctic environment; the role of Antarctica in understanding and monitoring global change, marine pollution and related liability; extending the application of protected areas in Antarctica; improving measures governing waste disposal; and the issue of data collection and management, including data relevant to measures adopted for the conservation of Antarctica. Related issues include improved charting and the communication of weather and ice information, in particular to assist navigational safety.

2. Special areas and particularly sensitive sea areas

55. Certain sea areas which, because of oceanographic and ecological conditions and the particular character of its traffic pattern require adoption of stricter discharge conditions, have been designated as "Special Areas" under the 1973 International Convention for the Prevention of Pollution from Ships and its protocol (MARPOL 73/78): the Mediterranean, Baltic, Black and Red Seas, and the Gulfs under annex I (oil) and annex V (garbage); the Gulf of Aden under annex I; and the Baltic and Black Seas under annex II (noxious liquid substances carried in bulk). The North Sea is expected to be designated under annex V at the October meeting of the Marine Environment Protection Committee.

56. The work of IMO work in establishing criteria for particularly sensitive sea areas is limited to actions within the purview of the Organisation: for example, an area can be designated a "Special Area" under MARPOL 73/78; or the Special Area discharge restrictions can be applied to ships operating in the area; or special routing measures can be established under the IMO Convention on the International Regulations for Preventing Collisions at Sea or a buffer zone can be established around the area and maritime activities restricted in the area and its buffer zone.

57. A draft protocol concerning specially protected areas and wild life in the wider Caribbean region will be finalised later this year. However, an important unresolved matter is the draft clause in the draft protocol that authorises States to take measures to regulate passage, anchoring and stopping of vessels. It has been proposed that the clause should contain reference to the procedure on Special Areas set forth in article 211, paragraph 6, of the United Nations Convention on the Law of the Sea, namely, that coastal State regulations that go beyond those that are generally accepted international rules and standards can be imposed only with concurrence of the competent international organization (IMO). The fundamental concern here is to ensure that regulation is consistent with the right of innocent passage and with the freedom of navigation in the exclusive economic zone. However, a number of countries have announced that they cannot agree to such a restriction of their prerogatives with respect to regulation of vessel passage. The matter has been left to the Conference to resolve.

3. Ocean dumping

58. The various procedures for minimizing harmful effects adopted within the framework of the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter of 1972, the London Dumping Convention (LDC), provide effective guidance for the selection of dumping sites, dumping techniques and monitoring programmes. These processes in turn create greater awareness concerning the damaging effect that might be caused by dumping at sea if no proper hazard assessment and licensing control methods are applied. LDC procedures have also been effective in promoting the control of all sources of marine pollution and the value of a comprehensive waste management approach.

59. Developments within the London Dumping Convention, which in turn affect regional regimes, are in many respects reflective of a growing trend towards more holistic and comprehensive measures for the protection of the marine environment. They have certainly contributed to emerging efforts on harmonizing the decision processes required to determine optimal waste disposal options - whether on land or at sea.

(a) Scientific questions

60. Issuance of a permit for dumping first requires consideration of whether an adequate scientific basis exists for assessing the consequences of such dumping, and annex III of the London Dumping Convention provides guidance in that respect. However, there are continuing difficulties over what constitutes either an adequate scientific basis for assessing the consequences of dumping or determining the acceptable level of risk for considering sea disposal or, for that matter, considering other forms of discharge to the marine environment. These questions are under active consideration in many forums, including the London Dumping Convention, and clearly merge when considering disposal at sea in relation to the "precautionary principle" (endorsed for example by the 1967 International Conference on the Protection of the North Sea) (see also United Nations Environment Programme (UNEP) Governing Council decision 15/27). 25/

61. That principle reflects the concern as to how to address adequately substances for which scientific evidence of harm does not exist, but for which there is a potential for widespread dispersal and unforeseen ecological effects. For many scientists, regulation on the basis of a presumed effect runs counter to the conviction that regulation must be tied to actual impact assessment and that science can be expected to identify conditions under which risks are so low that they could be considered to be of no practical consequence to human health or the marine environment.

62. In the growing debate, there is a new focus on the term "significant damage" and similar terms widely used in existing instruments, and a new understanding that the evaluation of damage or detriment entails value judgements that do not fall predominantly within the fields of scientific or technical considerations. Here and elsewhere, economic considerations can be expected to play a greater role: in appreciation of the status and trends in marine pollution, areas for priority attention, the costs imposed by pollution and benefits afforded by its control, the

relative desirability of alternative waste disposal options, etc. The role of economics would be most effective if closely linked to science.

(b) Incineration at sea

63. The 1986 Consultative Meeting of States Parties to the London Dumping Convention, by resolution LDC.35 (11), agreed that States that have not yet used this method of disposal should, before starting such operations, **consider** alternative land-based options with a view to developing safer and more environmentally acceptable solutions. It also calls for an immediate halt on exports of liquid wastes by parties for burning in the waters of non-contracting States. The parties further agreed to take all possible steps to **minimize** or reduce **substantially** the use of marine incineration of noxious liquid wastes by 1 January 1991 and to make a re-evaluation in 1992, with a view to proceeding towards the termination of the practice by 31 December 1994. That re-evaluation will look at the scientific and technical aspects and at the practical **availability** of land-based alternatives. Attention will also be given to the experience of the Oslo Commission in phasing out incineration at sea.

(c) Legal issues

64. The Consultative Meeting of States Parties to the London Dumping Convention (October 1988) agreed that there are no fundamental inconsistencies between the United Nations Convention on the Law of the Sea and the London Dumping Convention that would suggest the need for amendment. They also **agreed** that the London Dumping Convention should be interpreted in the light of developments in international law since its adoption in 1972, including those established in part XII of the United Nations Convention on the Law of the Sea. It was indicated that, inter alia, the requirements of articles VII, paragraph 1 (c), and paragraph 2 of the London Dumping Convention (implementation to vessels, platforms etc. under the jurisdiction of a party; measures to be taken in the territory of a party) should be interpreted accordingly. The Meeting endorsed the conclusion of its legal group that a party could apply the London Dumping Convention not only in its territorial waters but also in the exclusive economic **zone** and on its continental shelf, in accordance with **international law**.

65. Consultative parties have, however, noted the divergence of views in its legal group as to whether an exclusive **economic zone**, as such, must be established before a coastal State could exercise jurisdiction over the dumping conducted in that area. Several proposals were made that this matter should be explicitly clarified through **amendments** to article VII, concerning the adoption of measures by parties in their respective territories to prevent and punish conduct in contravention of the London Dumping Convention. The Meeting agreed that the matter would be examined again after the entry into force of the United Nations Convention on the Law of the Sea.

4. Transboundary movement of hazardous wastes

66. The parties to the London Dumping Convention had adopted a resolution (LDC.24 (10)) in 1986, which recommended that wastes not be exported for sea disposal, especially those containing annex I and II substances "unless there are both compelling reasons for such export and clear evidence that the waste would be disposed of in compliance with the requirements of the London Dumping Convention". At the next Consultative Meeting in October, parties will be examining resolution 2 adopted with the 1989 Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, which called for a review of the relationship between the London Dumping Convention and the new Convention, with a view to recommending any additional measures needed within the London Dumping Convention to control and prevent dumping of hazardous wastes at sea. Article 9 of the Basel Convention, defining illegal traffic, covers traffic that results in deliberate disposal (for example, ocean dumping) of hazardous wastes or other wastes in contravention of the Convention and of general principles of international law. Resolution 2 mentioned above notes that the disposal of wastes at sea is subject to provisions of the London Dumping Convention. A brief description of the Basel Convention is contained in the report of the Secretary-General (A/44/479). It may be noted that the Basel Convention excludes wastes that derive from the normal operations of ships, the discharge of which is covered by MARPOL 73/78, and that IMO regulations concerning safety of life at sea and pollution from ships in any event cover the transportation of dangerous and polluting substances.

5. Radioactive waste disposal

67. The Basel Convention specifically excludes radioactive substances from its scope; the Conference however called for harmonization of the procedures of the new convention with internationally agreed practices for international transactions involving radioactive wastes (resolution 5). An IAEA group, involving also experts from the Nuclear Energy Agency of OECD, IMO and the European Economic Community (EEC), is presently working on the structure of a code of practice and its basic principles and elements, for example, that all international radioactive waste transactions should take place with the express consent of the countries concerned in accordance with their laws and regulations and in conformity with internationally accepted safety standards; that no radioactive waste should be exported to any country that lacks the technical and/or administrative capacity safely to manage and dispose of such wastes and that wastes that are to be the subject of a transboundary movement should be transported in conformity with generally accepted international rules and standards. A new International Radioactive Waste Management Advisory Committee has also been established to review and guide development of the entire radioactive waste management and disposal programme of IAEA (see A/44/480). The group will also serve as a forum for the exchange of information on generic radioactive waste management and disposal issues of global significance and for review of relevant internationally agreed codes.

66. An international consensus has been reached in the area of exemption of radiation sources and practices from regulatory control; this is documented in the IAEA Safety Series. 26/ The principles are applicable to efforts at rationalizing

the procedures for the management of very low-level radioactive wastes. Their disposal in incineration facilities, or into the sea at coastal disposal sites, or as discharges into the atmosphere, are described in the Safety Series as some of the possible activities for exemption. A new report entitled "**Assessing** the Impact of Deep Sea Disposal of Low Level Radioactive Waste on Living Marine Resources", has also been issued as IAEA Technical Reports Series No. 288.

69. A new regional convention is being drawn up to protect the South-East Pacific against radioactive pollution within the **200-mile zone** and the continental shelf when it extends beyond that limit. Under this agreement, parties would agree to prohibit any dumping of radioactive waste or other radioactive substances and any burial in the subsoil. The instrument, like the London Dumping Convention, would rely *on* the recommendations of IAEA. *The* draft benefits from more recent developments in co-operation in cases of emergency, in that the parties would be obliged to promote contingency plans and maintain the resources necessary for effective implementation. Furthermore, in the case of **force majeure**, the parties would co-operate to **minimize** the danger, ensure prompt communications and co-ordinate the use of communication media.

D. Marine scientific research and ocean services

70. The oceans, 70 per cent of the world, are still called its "**last frontier**") in many important areas, knowledge and capabilities *for* analysis and application are still very sparse, with major implications *for* economic development as well as environmental protection. All the relevant **organizations** and agencies of the United Nations system are very much aware of the basic need to improve radically the scientific understanding of the **oceans**, for all **purposes**, and are actively co-operating through the Inter-secretariat Committee on Scientific Programmes Relating to Oceanography (ICSPRO) in up-dating the basic framework within which international co-operation in the marine sciences takes place - the Long-term and Expanded Programme of Oceanic Research (LEPOR), originally formulated in the 1960s. *The* International Hydrographic Organisation (IHO) has also reported a continuing highly unsatisfactory situation as regards surveying and charting of marine areas, which are basic requirements for maritime and coastal development.

71. In the last 10 years, technological developments have had an enormous influence on ocean research and the way it is planned and undertaken. Scientific instrumentation for continuous and automated measurements of ocean parameters have been developed; and manned and remotely operated submarine vehicles permit study of the complex environment of the deep ocean. Satellites sensing of ocean temperatures, waves, sea-surface levels, and ocean colour related to biological productivity, have passed through the stages of development and validation to become operational tools alongside the traditional but still essential fleet of research vessels. Satellites will thus revolutionise marine observations over the next 20 years and their measurements should be made available to all scientists working on global studies. Developments in the computer sciences now allow long-term data collection, dissemination and storage, as well as handling and evaluation on a greater scale than previously conceived. Furthermore, **computerized** communication systems allow scientists around the world to exchange data,

information and ideas and thus facilitate truly global scientific co-operation. Existing international frameworks for ocean data analysis and exchange have established a system which works, and which is often cited as an example for other environmental services. However, it must also be noted that these exchange mechanisms are under-funded and, in some countries, are no longer operating, so that valuable data needed for studies of climate and pollution trends is being lost. These advances of recent times provide important new opportunities for rational use and management of the marine environment and its resources on the basis of sound scientific findings, interpreted for common use, and on the basis of concerted ocean observations which produce the data base needed for reliable predictions of change.

72. At the same time, it is emphasized that the new era of ocean development has scarcely begun, so that ensuring sustainable development in the future utilisation of marine resources and environment will require special attention. Also, there will be major complicating factors by virtue of the dominant role the oceans play in maintaining the life--supporting system on earth, and concern over the environment and its changes is likely to shape the future of many of the programmes in marine research and ocean services.

73. It must be emphasised that far from being a mature science, oceanography is still in the process of discovery and the chief **source** of new understanding comes from new observations, not from theory. Global prediction models must be verified in any event against observations of the state of the ocean, such as sea level, temperature and salinity, and must be compared with measured fluxes of heat, water, particles and gases between the atmosphere, the ocean and the ocean **floor**. The ocean sciences are thus entering on an intensive data-gathering phase that will last through to the late 1990s and perhaps beyond.

74. Developments in and demands on the marine sciences have obvious effects, not only on the role of the United Nations system in promoting and facilitating scientific investigation, but also on related matters, including the effective implementation of the **régime** for the conduct of marine scientific research and the resolution of any legal difficulties associated with the deployment and operation of ocean data acquisition **systems**. 27/ The organisations of the **system**, both at the ICSPRO meeting and at the recent inter-agency consultation on ocean affairs, have generally concluded that the priority need is to promote practical approaches that could be taken to minimize or resolve any legal difficulties that might be identified in the process of accelerating scientific investigation of the oceans.

75. This section of the report thus deals primarily with the updating of LEPOR, and those of its components which address the role of the oceans in global climate change, including such aspects as sea-level rise, as well as such priority needs as integrated global ocean monitoring. A brief indication is also given of priorities areas for resource and pollution-related research within the compass of LEPOR.

1. Updating the Long-term and Expanded Programme of Oceanic Research

76. The Intergovernmental Oceanographic Commission (IOC) and the interested organizations, including in particular the ICSPRO members, have drawn up a greatly strengthened and coherent framework for LEPOR, and in so doing have also formulated effective priorities for co-operation and co-ordination in the United Nations system. 28/ The IOC Assembly has since agreed that the updating of LEPOR offered an opportunity to IOC and the United Nations system as a whole to adjust goals at a time when world political opinion is focused on the importance of environmental issues and the need to understand global change, of which the ocean is a major element. The IOC Assembly also noted the expansion and proliferation of international climate research initiatives external to the World Climate Research Programme, and the need to ensure a strong and co-ordinated oceanographic component.

77. The priority areas requiring concerted action by States and international co-ordination by the organizations concerned are as follows:

(a) Global climate research programmes and the associated large-scale oceanographic experiments to observe and understand air-sea interaction, the impact of the ocean on climate, and the impact of changing climate on the ocean (World Meteorological Organisation (WMO), UNEP and IOC);

(b) Research and monitoring of marine pollution to measure and assess the effects of human activity, notably those resulting in degradation and contamination, especially in the coastal interface zones (IMO, UNEP, WMO, FAO, WHO and IOC);

(c) Study of the marine environment as a whole - both coastal and open-ocean - its physical and biological parameters and processes with emphasis upon its role as a residence for living resources, its geological and geophysical properties, including non-living resources in shallow and deep-ocean areas, and the interfaces between the ocean, its floor, and the atmosphere (United Nations, Food and Agriculture Organisation of the United Nations (FAO), UNESCO, WMO and IOC);

(d) Accelerated development of ocean services, including observing and monitoring systems leading to a World Ocean Watch in support of marine research and ocean use, as a common service to States and their marine user communities (WMO, UNEP and IOC).

78. The updated plan recognises that a special problem for international science will be the cost, scale and complexity of global ocean studies and monitoring, so that it is imperative to establish clear goals, to strengthen international co-operation on research and co-ordination of common services, and to have long-term commitments from Governments and from scientists themselves. Co-operation should extend to the sharing of technical facilities, such as ships and satellites, and to the facilitation of access to the exclusive economic zones for ocean study and monitoring purposes,

79. The delays in satellite launching, the possible hiatus that may occur following the present generation of experimental **satellites**, and policy issues on access and charging for data have raised serious **concerns**, **particularly** in relation to the long-term observational strategy for the ocean. It is thus emphasised that, as the large-scale research efforts associated with **global** Change *wind down* (late 1990s), **it** will be important not to allow these developed capabilities to wane.

80. International programming must also be directed at improving the present situation of poor integration of ocean research with national development planning and policy-making for ocean **uses** and **resources**. Ocean affairs are usually fragmented among government departments with **separate** responsibilities for **energy**, mineral resources, pollution control, **fishing**, shipping and defence, with little **provision** for access to and **support** for **valuable** research work.

2. Global climate and the oceans

61. The planet is 70 per cent ocean, and from the global perspective it is not possible to separate the science of the **global** ocean from that of the land and atmosphere. The present report none the less **emphasizes** the importance of greatly improving the understanding of the ocean's role, since there are **concerns** that the ocean components of global studies may not be receiving the attention they deserve. This was also brought up at the April hearing of the National Ocean Policy Study Group of the United States Senate on the role of the **oceans** in **global** climate change, where many **experts** testified that too little attention has been paid to the ocean component.

62. A great deal of effort **is** now being devoted to clarifying the extent of the problems involved in reaching conclusions in the field of **global** climate change, for example, on sea-level rise, where there would be other causal factors at work in many locations, **and** where, without major scientific breakthroughs, **it** will be virtually impossible to make predictions about **precise** locations. The scientific problems extend to anticipated sea-surface temperature anomalies, where there would be serious impacts on oceanic systems, and to the **role** of **marine** biota in absorbing carbon dioxide and generating oxygen. From the meteorological perspective, there are also complications since, while general atmospheric circulation **models** agree fairly well on projected global temperature **changes**, they show little consistency in prediction of precipitation and water resource changes, or of regional or national scale changes in temperature. These discrepancies are due to shortcomings in understanding the **global** water cycle and the interactions between the atmosphere and the oceans. In addition, limited observation data over tropical regions and the **oceans**, especially in the Southern Hemisphere, introduce errors in input to the models, and also inhibit the ability to detect real anomalies. The Climate System Monitoring of WMO **is** designed to provide synthesised information of the state of the climate **system** and diagnostic insights into significant large-scale anomalies of regional and **global** consequence. Global analyses are normally based on surface, upper-air and other data from satellites, aircraft, buoys **and** ship reports, exchanged via the Global Telecommunication System. The identification of anomalies requires statistics from long-time series of data from each individual observing station. Thus, anomalies cannot be accurately identified and monitored in

data-sparse areas. To learn more from these regions means **fostering** data collection and research in developing countries. These twin strategies - more climate research and technical co-operation with **developing** countries - may seem obvious, but they are not **being** applied. Telling examples have been given by WMO as to the inadequacy of the existing capabilities; for example, in the entire African continent, there are no systematic measurements of greenhouse gases and the situation is little better in South America (see the statement of the Secretary-General of IMO, in the Herald Tribune, of 14 July).

83. The two major large-scale oceanographic programmes that aim at **describing** the general oceanic circulation and the mechanisms controlling its nature, as well as the prediction of its **change** are the Tropical Oceans and Global Atmosphere (TOGA) and the World Ocean Circulation Experiment (WOCE). TOGA, *now in operation*, is designed to determine the predictability of inter-annual climate variations, including those associated with the El Niño oscillation phenomenon whereas WOCE, now entering its field phase, examines the ocean's role in longer-time scale climate change and is designed to develop models for predicting such changes. A proposal for a major TOGA study of ocean-atmosphere interaction processes in the West Equatorial Pacific has now been developed to produce a better understanding of heat and water flux between the ocean and atmosphere for both short and long-term climate prediction models. As a focus for Indian Ocean studies, a study group has been formed to address the important question of Indian monsoon variability. The 1988 WOCE Conference endorsed the implementation plan, and approved commencement of field studies in 1990 on two core projects; the **global** description and the southern ocean.

84. The ocean has been described as the fly-wheel of global climate, ameliorating latitudinal **variations** and seasonal extremes. Its role is a complex one, however. Firstly, the ocean will take up some portion of the greenhouse gases from the atmosphere, particularly carbon dioxide, eventually sequestering them in the deep sea. Measurements are now possible to quantify the increase in oceanic carbon dioxide and will be made during WOCE. Secondly, since the *ocean redistributes* heat, atmospheric warming could produce patterns of ocean surface temperature substantially different from those that exist at present, with possible changes in ocean currents themselves. It is expected that by the end of the next **decade** these changes should be predictable. Thirdly, as the ocean is heated, ocean waters will expand, possibly causing substantial increases in sea-levels. The work now taking place should allow calculations that could reduce the great uncertainty in the magnitude of sea-level rise and its distribution as well as estimates as to its rate of change. Scientists also understand that changes in ocean **circulation** and heating will also result in changes in the surface temperature that may not always be towards surface warming, since the areas of large-scale upwelling may **change**. Existing models can only suggest the nature of such effects but within the next decade these should undergo great improvements. A critically important goal of WOCE is to establish the representativeness of the specific WOCE data **sets** for the long-term behaviour of the **ocean**, since this will be necessary for the development of a strategy for a global integrated ocean observing system for climate **monitoring**.

85. An improved understanding of ocean circulation will also *provide* the basis for modelling the biogeochemical systems in the ocean and their changes. Programmes,

such as the Joint Global Ocean Flux Study, designed to clarify the processes controlling the time-varying oceanic fluxes of carbon and biogenic elements, will build on this basis. Knowledge of these processes will also enable large-scale modelling of pollutant distributions and their effects. The decade of the 1980s can thus be described as the era of ocean resource identification and experiment planning, most notably through the combination of WOCE and the Joint Global Ocean Flux Study. The concept of co-ordinated global studies to investigate both the operation of the present ocean/atmosphere climate machine and its sensitivity to natural and human disturbance factors, is now firmly established.

86. The scope of the scientific investigation required calls for maximum efforts of co-ordination and promotion of participation by all States. WMO and IOC both currently face urgent demands to improve radically observations, especially from data-sparse areas, and have therefore emphasised how critical it is that there be an international consensus, within the context of the law of the sea, on the need to improve radically the scope, frequency and distribution of meteorological and oceanographic data collected from exclusive economic zones, in support of existing international programmes (TOGA and WOCE) and the two new programmes - the global operational ocean observing system to be developed jointly by WMO and IOC, and the Global Atmosphere Watch launched by WMO. The Global Atmosphere Watch will monitor, on a global and regional basis, the chemical composition of the atmosphere and so improve understanding of the behaviour of the atmosphere and its interactions with the oceans and the biosphere.

3 . Sea-level rise

87. In some parts of the world, it is feared that the most serious socio-economic impacts of global change will come from sea-level rise. The South Pacific Forum, 29/ for instance, has agreed to draw world attention to the way the global problem may affect the South Pacific and to represent regional views at appropriate international forums. One half of humanity lives in coastal areas and one third more within 60 kilometres of the sea, and many coastal regions are already under great pressure, owing to accelerating population growth, pollution, flooding problems and upland water diversion. Global climate studies have identified the humid tropical regions as being most vulnerable to change of sea level and increased storminess. 30/ While it is generally concluded that seas would rise slowly, and that damage can be offset by engineering solutions and other adaptations, there will also be inevitable losses to important wetlands, mangroves, corals and beaches where protection is not possible or too expensive, as is likely in the developing world.

88. Mathematical modelling of the air-sea-land interchanges only crudely simulate the regional consequences of the global greenhouse change. Without regional climate scenarios, the assessment of climate impacts are riddled with uncertainty and the development of rational response options cannot easily progress beyond the speculative. Regional climate change and sea-level rise are thus being studied at the regional level by UNEP, with IOC assistance. Studies are presently completed or under way for the Mediterranean, the wider Caribbean, East Asia, South Asia, South Pacific and South-East Pacific regions.

89. It is a complex issue. In the South Pacific, for example, it is clear that impacts resulting from rising sea-level, whether induced by climate change or resulting from tectonic activity, will be different in different island types. Some are high islands of volcanic or mixed geological origin; some are atolls where sea-level rise will be of greater importance than most climatic impacts. Coastal inundation is an obvious impact, but its extent is difficult to evaluate in the dynamic context of most coasts, some of which are rising, some sinking (owing to tectonic activity) and many actively prograding as a result of silt deposition. The interplay between these processes means that each situation will be different, requiring careful evaluation of the rates of the processes. Loss of outlying islands in particular may also have implications on issues relating to limits of national jurisdiction in the future.

90. It must be noted that serious concerns have been expressed regarding the scientific basis for some reports on climate change impact and particularly with regard to sea-level rise. The IOC Assembly has expressed its fears as to their possible influence on the formulation of governmental policies, which might carry serious and unnecessary economic and social implications. It stressed that the Scientific Committee for Oceanographic Research (SCOR)-IOC Committee on Climatic Changes and the Ocean must take an active role in projecting rational and scientifically based reaction to both the role of the ocean in climate change and the impact on the ocean of climate change.

91. While regional and local strategies for managing estuaries, wetlands and other low-lying land can be developed, the warnings and the possible avoidance mechanisms demand global observations, global studies and agreements. Thus, more effort is required on setting up the network for the IOC Global Sea Level Observing System (GLOSS) in various oceanic regions, particularly in the tropics, South Atlantic and in Antarctica, and on ensuring regular and timely submission of sea-level data to international processing centres. That data is needed not only for the international programmes like WOCE, but also for regional and national research and operational applications, including storm-surge studies and prediction and hydrographic surveys. GLOSS has to serve many purposes, and has to cover the entire spectrum in time and space, from short-lived tsunami to the changes related to tectonic processes.

Integrated global ocean monitoring

92. The IOC Assembly has emphasized the need for active and strengthened involvement in the WMO-UNEP Intergovernmental Panel on Climate Change and in preparations for the Second World Climate Conference in 1990, as well as in the expected work on a convention on global climate, in recognition of the dominating role of the ocean in global change. A specific goal is to ensure recognition of the need for ocean monitoring as an integral part of the global environment studies. Since existing ocean observing systems are insufficient, in space and time, to provide the data necessary to understand, monitor, and predict the state of and changes in the processes involved in climate change, the IOC Assembly has stressed the urgent need for substantial modernisation and expansion of the existing ocean observing systems to produce integrated global ocean monitoring. Clearly, the data provided by the global system would also be of great importance

to various other scientific and operational applications at regional, subregional and national levels. The IOC Assembly has consequently instructed IOC, in consultation with **WMO**, to develop a statement, emphasizing the importance of the ocean in global environmental change, which will specify the high priority areas in which immediate action can be taken using techniques available today. This statement is to be presented to the United Nations, the WMO-UNEP Intergovernmental Panel on Climate Change, and the **specialized** agencies to ensure that the development of an integrated global monitoring system is taken into account in their planning.

93. Progress in this area will open new frontiers for marine research and ocean services. Indeed, some see the desired global system as leading to a World Ocean Watch, analogous to the World Weather Watch.

4. Ocean data acquisition systems

94. A documentary analysis is being prepared of the prior steps taken on the question of the legal status of the ocean data acquisition systems (**ODAS**); it will thus take account of the preliminary draft convention done in 1972 and the comments from various States at the time; the 1974 and 1979 meetings of the IOC Group of Experts on the Private Law Aspects of ODAS; the United Nations Convention on the Law of the Sea and other international agreements. ICSPRO members will consider the paper at its next session in early 1990, at **which time** it will decide on whether or not to establish a joint group of experts to carry out the preparatory work associated with drawing up a possible draft international instrument on the matter. In the mean time, **IMO** is reviewing the technical annexes to the preliminary draft **convention** done in 1972.

95. With specific reference to drifting buoys, the IOC Assembly has noted with concern the reluctance within a significant part of the researcher community to allow their data to be made available globally in real-time over the Global Telecommunications System. In order to cater to these concerns, a facility to provide for separate processing is under study. The Drifting-Buoy Co-operational Panel (**WMO/IOC**) has also been studying questions of quality control since drifting buoys, to fulfil their potential as basic tools in marine scientific or operational activities, have to deliver data of unquestionable quality. The concept of regionalism is important to the work of this **Panel**, as demonstrated by the successes of the European Group on Ocean Stations.

E. Fisheries management and development

1. State of world fisheries

96. Preliminary figures made available to **FAO** indicate a substantial increase in the world fish catch for 1988 to over 96 million tons, as compared to 90.7 million tons in 1987. The major part of this increase has come from developing countries, especially from off the western coast of South America. Production by China has continued the dramatic increase begun in 1983 - with an annual average increase of

over 14 per cent - much of this coming from aquaculture, both inland and marine, but catches from wild stocks have also grown. In Peru and Chile, catches of shoaling pelagic fish increased in 1988, but the total was lower than in 1986, with signs that some of the stocks are being over-exploited. Total catches by African countries show little change, although Morocco again increased its production. Catches by developed countries, totalling 45 million tons in 1988, showed a 1.5 per cent increase. In Canada, there was a sharp increase of over 200,000 tons, and catches by EEC vessels also increased. Both of the world's leading producers, Japan and the Union of Soviet Socialist Republics, also increased their production, with catches by USSR vessels reaching the record level of 12.6 million tons.

97. The trends and prospects in the next 25 years were reviewed by the Committee on Fisheries (COFI), ~~31/~~ together with their implications for the priorities of FAO. The conclusion is that there appear to be few opportunities to increase significantly the catch of demersal species and, while better possibilities may lie with the small pelagic species, the stocks are subject to considerable fluctuation and new products and new markets would be needed to bring these species to the consumer economically. Thus, the existing opportunities must continue to receive the main attention, but this calls for greater emphasis on rational and timely management, on reduction of post-harvest losses, including by-catch discards, and on further development of aquaculture. Benefits can be won also through institutional reform and an integrated approach to policy formulation and planning for the fisheries sector. The Committee thus accorded high priority to the further strengthening of the long-established role of FAO in the collection, analysis and dissemination of information and data on all aspects of fisheries, which provide the vital basis for the planning of management systems and development programmes. The Committee has noted that fisheries management has become an increasingly complex and difficult task, calling for a strategic rather than a short-term approach. FAO has thus to function as a centre for policy advice and analysis and for integrated research into fisheries biology, economics and technology, with particular attention to management concepts, options and methods, including cost-effective systems for the monitoring, control and surveillance of fishing operations and such issues as conflicts in the use of coastal resources, the identification and appraisal of investment opportunities, the need for adjustment in specific circumstances and the socio-economic conditions of artisanal fishing communities.

98. An increased priority is now evident for fisheries research. COFI has now recommended that it receive equal attention along with the five priority action areas originally laid down at the 1984 World Fisheries Conference (protection of the aquatic environment; improvement of fisheries information, data and statistics; investment; training; and the role of women in fisheries). The international fisheries research study recommended by the 1986 Fisheries Development Donor Consultation, supported by over 17 donor countries and due for completion early next year, is expected to improve substantially the assessment of priorities for future fisheries research in developing countries and the analysis of institutional weaknesses that may be preventing full use of existing information.

99. COFI has expressed serious concern at the growing risks to the sustained development and proper management of fisheries arising from environmental

degradation, pollution and the deleterious effects of marine debris and waste. It called upon FAO to give high priority in its fisheries programme to the monitoring and prevention of environmental degradation in both marine and inland waters and in aquaculture, and to promote inter-country co-operation in protecting the aquatic environment. It also encouraged FAO to give more attention to the impact of natural environmental fluctuations and climatic changes on fisheries. It may also be noted that a 1988 ILO resolution on protection of the livelihood of fishermen refers also to the importance of marine environmental protection and sound fishery management.

2 . Standardization of marking and identification systems of fishing vessels

100. While there are international regulations covering fishing vessels and gear in the interests of navigational safety, for the purpose of determining ownership no such international regulations, guidelines or common practices have existed for the marking of fishing vessels and gear deployed outside of national jurisdictions. The problem also relates to the protection of living marine resources from entanglement in fishing nets. The need for a standard system for marking and identification of fishing vessels operating or likely to operate in waters of States other than those of the flag State was recognised in the 1984 Strategy for Fisheries Management and Development, COFI has now formally endorsed an international standardization system and recommended that the standard be adopted on a voluntary basis. 32/

101. The standard cover all types of fishing vessels, large and small, so that their adoption on a voluntary basis allows States to decide on the size of fishing vessels to which the marks should be applied. Some have explained, however, that because of existing practices, bilateral fishing agreements, and the special problems of small fishing vessels, time will be needed to implement the system. EEC, for instance, has endorsed the specifications, noting however, that for such reasons, small vessels operating outside of EEC waters should not be required to be marked in accordance with the specifications. Several countries also referred to the need to make exceptions for small vessels; others pointed to the problem of illegal fishing and poaching by unmarked fishing vessels and endorsed the specifications as a basic means to protect their fishery resources and their artisanal fishing vessels and gear.

3. Regional fisheries bodies

102. The situation in regional fisheries has changed quite dramatically since the first regional bodies were established: there are now more trained personnel in the regional management has become a more important issue; and the role of socio-economic factors in management is now more widely recognized. Indeed, the fisheries sector has generally become more complex and the Committee on Fisheries has emphasised the desirability of adapting regional bodies to the changing situation. But evaluation is difficult given the different levels of development, the relative importance of fisheries in the regions concerned and the age of the

bodies. Further effort will thus be needed to introduce improved performance evaluation. The Committee has recommended, however, that an in-depth review should be done of the structure and functions of the Indo-Pacific Fishery Commission, with a view to revitalising that body and strengthening its activities in the technical and policy fields. It has also recommended to the Indian Ocean Fishery Commission (IOFC) that, since the Red Sea, the Gulf of Aden and the Arabian Sea are not presently covered by any of its subsidiary bodies, it should consider incorporating these waters in the area of competence of its Committee for the Development and Management of the Fishery Resources of the Gulfs, which would thus cover the whole north-west part of the Indian Ocean. 33/

(a) Western central Atlantic

103. Following the success of the Organisation of Eastern Caribbean States (OECS) in adopting harmonised fisheries legislation and establishing a fisheries desk to serve its members, the Caribbean Community (CARICOM) has begun to develop a common policy on foreign fishing access and other aspects of fisheries law and management. At a meeting later this year, work is expected to begin on an agreement to co-ordinate, harmonise and administer access to fisheries resources in CARICOM.

(b) Eastern central Atlantic

104. At its last session, the Sub-Committee on Management of Resources within the Limits of National Jurisdiction of the Committee for Eastern Central Atlantic Fisheries (CECAF) examined the implications of the United Nations Convention on the Law of the Sea for fisheries management and development. States, including those that have not yet ratified the Convention, were encouraged to review their legislation in order to avoid possible conflicts with the provisions of the Convention, most particularly on such fundamental issues as the extent of jurisdictional zones.

105. At that meeting, there was considerable discussion of practical problems encountered with the rule on "total allowable catch" (art. 62 of the Convention), particularly problems of receiving reliable data, on which correct stock evaluation depends, and of adequately accommodating the economic and biological realities of the subregion. The meeting concluded that a formal determination of the surplus would entail a high level of risk.

106. The provisions of the Convention on coastal State penalties for violations of fishery laws and regulations in the exclusive economic zone (art. 73, para. 3) also came under discussion. The provision specifies that penalties may not include imprisonment, in the absence of agreements to the contrary by the States concerned, or any other form of corporal punishment. However, some countries considered that illegal fishing could be considered criminal, given the food shortage in some coastal countries, and deserved a penalty which would maximise the deterrent and punitive effect of the law - including imprisonment. It was also recognised that violations of fishery laws were essentially motivated by economic considerations, and that economic penalties, such as withdrawal of the licence, the imposition of heavy fines, and confiscation of the catch, gear or even the vessel, could have a powerful deterrent effect.

107. In the north of the CECAF *region*, the Sub-Regional Commission on Fisheries has decided to establish a regional register of fishing vessels similar to that used by the South Pacific Forum Fishery Agency. It also adopted the text of a regional convention on hot pursuit to establish joint surveillance operations. It provides that a Contracting State, in whose territorial sea a pursued vessel tries to take refuge, has a duty to arrest the vessel and escort it to the pursuing patrol boat. The text contains provisions on sanctions and on the division of fines and payments for compounding between the Contracting States contributing to the arrest of the vessel.

108. There has been a substantial growth in foreign fishing effort in the CECAF region generally and stocks are now fully exploited. CECAF has now decided to consider strengthening its mandate with respect to resource management and the socio-economic aspects of fisheries. At its 1988 session, it also adopted two important management recommendations which freeze the fishing effort on several stocks (cephalopods, mackerels and horse mackerels) in the northern area and regulate the mesh opening of beach seines in the Gulf of Guinea. 34/

(c) Mediterranean

109. Fish catches have continued to rise significantly despite the *growing* level of pollution. At its 1989 session, the General Fisheries Council for the Mediterranean (GFCM) tried to ascertain the main reasons for the increase: whether it was because of an improvement in fishery statistics, an increase in the fishing effort, or an increased productivity of Mediterranean waters, owing largely to runoff of nutrient material of human origin. Since a more detailed study of environmental impacts is needed, a scientific meeting has been requested on the interaction of fisheries with the environment in the GFCM area, with the participation of IOC, IMO, UNEP, EEC and other organisations.

110. GFCM has also recommended several new management measures⁸ a closed season for trawl fishing, a progressive reduction of the ~~size~~ of the fleet of small trawlers fishing juveniles close to shore, and a minimum mesh opening for bottom trawlers exploiting demersal resources. In addition, the Council has recommended an interesting new international scheme to rationalise the exploitation of red coral resources: designated area- of the continental shelf would be closed on a rotating basis; they would stay closed to harvesting except in designated years agreed to by the participating countries; and the opening of each area would be the subject of an agreement scheduling the years when harvesting is permitted. In this way, in any one year, there would be at least one zone open for harvesting by licenced fishermen. Harvesting would be supervised and certain biological norms would be observed so that abundance would not fall below critical levels. Thus, the resources would be still nationally managed but in a co-ordinated fashion. 35/

(d) Pacific

111. Events in the North and South Pacific have focused on the practice of driftnet fishing and its deleterious effects (see below). Co-operation in the South Pacific has been further strengthened with the new directive given by the 1989 South Pacific Forum meeting to the Forum Fishery Agency (FFA) to investigate, promote and

implement the design and development of an integrated programme of regional fisheries surveillance. Japan has agreed to begin discussions with FFA countries on a multilateral fisheries agreement, as was done in the 1967 Treaty with the United States, although no progress has as yet been reported.

(e) Indian Ocean

112. In view of increased fishing of tuna stocks in recent years, coastal States and fishing nations have acknowledged the need for a resource management mechanism. The Indian Ocean Fisheries Commission (IOFC) Committee for the Management of Indian Ocean Tuna had made certain recommendations, ~~36/~~ and in April, FAO convened a Conference for the adoption of a draft agreement for the establishment of an Indian Ocean tuna commission.

113. There was considerable discussion of the powers and functions of the Commission, particularly on the meaning of "management", which should signify the means of achieving the objectives of conservation and development through optimum utilisation; on specifying protection of the interests of coastal States as one of the objectives; on reference to the concepts embodied in article 64 of the United Nations Convention on the Law of the Sea; and on promoting the development of the fishing capacity of developing coastal States. Some countries have also raised the issue of limiting the objectives of the proposed commission to management of stocks.

4. The driftnet issue

114. Over a thousand Japanese, South Korean and Taiwanese fishing vessels have been using driftnets to catch mainly squid, tuna and billfish in the high seas of the North Pacific. Driftnets, also called gillnets, are nylon monofilament nets, suspended vertically in the water to depths of approximately 30 feet, which form a kind of curtain, 7 to 30 miles wide, through which nothing larger than the opening of the mesh can pass. Some fishermen also catch salmon in this way. There has also been a massive expansion of driftnet operations in the South Pacific, targetting albacore tuna, heightening concerns about the impact of this practice on the conservation of resources. Coastal States fear that the practice involves indiscriminate catch of other fish stocks and thus wasteful by-catch discards; entrapment of mammals and seabirds; potentially devastating effects on the ocean ecology and damage to marine life caused by lost nets; and serious impacts on the tuna fisheries of the South Pacific countries and the coastal salmon fisheries of Canada and the United States of America.

115. The parties to the International Convention for the High Sea Fisheries of the North Pacific Ocean (Canada, Japan and the United States) agreed in May on a series of measures to control Japanese driftnet operations through on-board international observers, restrictions as to the number of boats, the fishing zones and seasons; and the United States, pursuant to the Driftnet Impact Monitoring, Assessment and Control Act of 1987, has since concluded co-operative agreements with Japan, the Republic of Korea and the Taiwan Province of China in the interests of improved conservation in the region. Japan has agreed to impose new regulations on ship registration and catch reports and, in September, announced that it would reduce by

two thirds the number of fishing boats permitted to deploy driftnets. Further limitations on Japanese **driftnet operations** would await its detailed study of impacts. In September also, the United States and the Soviet Union, being particularly concerned over the declining numbers of salmon, agreed to co-operate in monitoring **driftnet** operations by the three countries concerned, and agreed in principle to adopt sanctions against nations that **defy** new drift-netting limits and to encourage scientific research on impacts,

116. South Pacific countries remain deeply concerned about the practice. Pursuant to the Tarawa Declaration adopted at the Twentieth South Pacific Forum in July 1989, ~~29/~~ a **Conference** will be convened at Wellington, New Zealand, in November to adopt a convention banning **driftnet** operations in the region. In the mean time, as an interim measure, member countries of the Forum Fishery Agency are prohibiting trans-shipment of driftnet-caught tuna and banning port calls by such vessels in order to restrict ~~their~~ activities and thus make ~~it~~ uneconomic to operate in the region. South Pacific countries are also working actively in various international forums towards a more comprehensive ban on this type of *fishing*.

117. The Tarawa Declaration affirms that **driftnet** fishing is not consistent with international legal requirements for high seas fisheries conservation and management and environmental protection and preservation. It recalls the relevant provisions of the United Nations Convention on the Law of the Sea and, in particular, articles 63, 64, ~~87~~, 116, 117, 118 and ~~119~~, which regulate the fishing of stocks straddling the exclusive economic zones and **adjacent** high seas areas of highly migratory species and which provides for the freedom of the high seas and the conservation and management of the living resources of the high seas. The Convention **prohibits** the catching of anadromous stocks (like salmon) in waters beyond the **exclusive** economic zone, except where such restriction causes economic dislocation to a State other than the State of origin (the State in whose rivers anadromous stocks originate). In such cases, the "States **concerned** shall maintain consultations with a view to achieving agreement on terms and conditions of such fishing, giving due regard to the conservation requirements and the needs of the State of origin in respect of these stocks" (see art. ~~66~~, para. 3 (a)).

V. THE PREPARATORY COMMISSION FOR THE INTERNATIONAL SEA-FISHING AUTHORITY AND FOR THE INTERNATIONAL TRIBUNAL FOR THE LAW OF THE SEA

118. The Preparatory Commission met twice during 1989: it held its seventh session at Kingston from 27 February to 23 March, and a summer meeting in New York from 14 August to 1 September. It has decided to hold its eighth session at Kingston from 5 March to 30 March 1990. Provision has been made for servicing a summer meeting of the Preparatory Commission in 1990 in New York.

A. The plenary 37/

1. The implementation of resolution II of the Third United Nations Conference on the Law of the Sea

119. Following the registration of the four pioneer invertorr, France, India, Japan and the Soviet Union, in 1967, the Chairman of the Preparatory Commission undertook consultations on the implementation of the obligations of the registered pioneer investors and their oertifying States,

120. Baaed on the results of these preliminary canaultatione, the Chairman submitted on 3 March 1969 a pager containing his ideas on the dirohargr of obligations by the registered pioneer investors and their certifying States. In the exchage of views that followed, it became *apparent* that certain matter8 relating to the discharge of obligationa, such as an agreement on a plan for exploration, required the assistance of the Qroug of Technical Experts. Aooordingly, having obtained an agreed mandate for a mootng of the Qroug of Teohnioal Experts, the Group met between 7 and 16 August at United Nations Headquarters (LOS/PCN/108). It proposed an exploration plan providing for the consideration of the Preparatory Commission (LOS/PCN/BUR/R.5).

121. The Qroug was also requested to assist the Preparatory Commission on matters relating to the training of personnel, taking into aooount the work done by the Ad Hoc Working Group on Training in Special Commission 2 (LOS/PCN/SCN.2/L.6/Rev.1). The Group identified the priority disciplines for training, the skills required and the areas of training in preparation for deep sea-bed mining (LOS/PCN/BUR/R.6).

122. In the light of the reports of the Group of Teohnioal Experts and as a result of further consultations, the Chairman on 1 September 1989 submitted a revision of the paper of 3 March 1989. Consultationa on the implementation of obligations will continue at the eighth session of the Preparatory Commission,

2 . The preparation o f draft agreements, rules, regulations and procedures for the International Sea-Bed Authority

123. At the seventh acaaion and the summer meeting of the Commission, the plenary de. It with the following matters: (a) a proposal submitted by the delegation of EEC with respect to the voting rights of international organizations; (b) an examination of matters relating to the establishment of a finance committee; (c) the special procedure for the approval of plans of work; and (d) the draft headquarters agreement.

124. During the debate on the EEC proposal, the following issues were identified as requiring further attention: quorum for opening of meetings and quorum for decision-making; definition of the expression "members present and voting"; and conaequencee of a transfer of competence. The Chairman will undertake consultations before the discussion on the matter would be resumed in the plenary.

125. The plenary discussed the question of the establishment of a finance committee. The main issues were the composition of the committee, its functions and the decision-making. A general trend emerged that both the Assembly and the Council of the International Sea-Bed Authority would need the assistance and advisory expertise of a subsidiary organ on financial matters. A proposal that States with the highest contributions to the administrative budget of the Authority should have a right to a substantial representation on the finance committee proved a moot controversial issue. On the question of decision-making, it was the general view that it was necessary to avoid any rule that would paralyse the Committee's work. The discussion in the plenary and in an informal consultation revealed that composition, functions and decision-making were viewed as three main closely linked elements which required an integrated solution.

126. The plenary had a very brief discussion on the question of special procedures for the approval of plans of work. It was agreed that, as far as decision-making procedures for the approval of plans of work are concerned, they will form part of the rules of procedures of the Legal and Technical Commission; and that applications for the approval of plans of work will be considered in the Commission in accordance with the Regulations on Prospecting, Exploration and Exploitation of Polymetallic Nodules in the Area,

127. The plenary completed the first reading of the draft Agreement between the International Sea-Bed Authority and Jamaica regarding the headquarters of the International Sea-Bed Authority, and provisionally approved a substantial number of articles.

128. At the eighth session, the plenary will complete its consideration of the revised draft headquarters agreement and proceed with the examination of the draft rules of the finance committee and the draft protocol on the privileges and immunities of the Authority (LOS/PCN/WP.49). The Chairman also intends to undertake, time permitting, informal consultations on hard-core issues.

B. Special Commission 1 38/

129. Special Commission 1 is mandated to undertake studies on the problems which would be encountered by developing land-based producer States likely to be most seriously affected by the production of minerals derived from the international sea-bed area ("the Area"), with a view to minimizing their difficulties and helping them to make the necessary economic adjustment, including studies on the establishment of a compensation fund, and to submit recommendations to the International Sea-Bed Authority thereon.

130. At the seventh session, a list of 66 provisional conclusions was prepared that will form the basis of the Commission's recommendations to the Authority. The provisional conclusions fall under the following headings: projection of production from the Area; relationship between production from the Area and existing land-based production; identification, definition and measurement of effects on developing land-based producer States; determination of the problems/difficulties that would be encountered by the affected developing

land-based producer States and formulation of measures to minimise problems/difficulties of affected developing land-based producer States (LOS/PCN/SCN.1/1989/CRP.16).

131. The *Commission* began the first reading of its provisional conclusions and has discussed 16 of them.

132. The *Ad Hoc* Working Group continued its negotiations on certain unresolved issues, particularly those concerning the system of compensation for developing land-based producer States, which would be adversely affected by deep sea-bed mining and the question of subsidisation of deep sea-bed mining,

133. During the next session, the consideration of the remaining provisional conclusions will be resumed.

C. Special Commission 2 39/

134. Special Commission 2 is charged with the preparation of the establishment of the Enterprise - the operational arm of the International Sea-Bed Authority.

135. The Special Commission considered the structure and organisation of the Enterprise and the drafting of a training programme under paragraph 12 (a) (ii) of resolution II.

136. The Chairman's Advisory Group on Assumptions continued to monitor metal price movements, long-term projections and technical developments relating to sea-bed mining,

137. The *Ad Hoc* Working Group on Training, established to prepare draft principles, policies, guidelines and procedures for the training programme, completed its work at the spring session of the Preparatory Commission.

138. At the summer meeting of the Preparatory Commission, the Special Commission adopted a draft proposal to establish a training programme for the Enterprise which was adopted by the plenary on 31 August 1989 (LOS/PCN/SCN.2/L.6/Rev.1).

139. It has been noted that the adoption of the training programme represented the "first concrete preparatory measure taken by the signatories to the United Nations Convention on the Law of the Sea on behalf of and for the benefit of the future Enterprise of the Authority" (LOS/PCN/L.75/Add.1).

140. The Special Commission completed an article-by-article review of the provisions of the Convention relating to the structure and organisation of the Enterprise (LOS/PCN/SCN.2/WP.16).

141. At its next session, the Special Commission will take up for consideration the implementation of the training programme, transitional arrangements for the Enterprise and exploration under paragraph 12 of resolution II.

D. Special Commission 3 40/

142. Special Commission 3, which is preparing the rules, regulations and procedures for the exploration and exploitation of the deep sea-bed, concluded the first reading of the **draft** regulations on the transfer of technology until 10 years after commencement of commercial production by the Enterprise, together with the amendments contained in document LOS/PCN/SCN.3/WP.14. Among the issues discussed were limitations on undertakings (art. 97), scope of the regulations (art. 90); and the procedure for obtaining technology (art. 94), which are contained in document LOS/PCN/SCN.3/WP.6/Add.4.

143. On the issue of limitations on undertakings, concern was expressed that national security considerations could be used by industrialised States as a loophole to avoid fulfilling their obligations to transfer technology. On the other hand, it was stated that the inclusion of article 302 of the Convention, permitting limitations on undertakings on the basis of national security, was warranted and that the existence of such a provision was a sine qua non.

144. The scope of the draft regulations only applies to the transfer of technology used in exploration and exploitation of **polymetallic** nodules in the Area. It was pointed out that it would be difficult to conceive of an integrated operation to be carried out by the Enterprise that would exclude processing. It was difficult to understand why the transfer of technology would be limited only to the recovery of **polymetallic** nodules, while the Enterprise was in fact going to be involved in processing. It was pointed out that such transfer was limited to activities in the Area (i.e., the international sea-bed) and that activities in the Area did not, under the Convention, cover processing,

145. Some delegations proposed that the Secretary-General of the International Sea-Bed Authority should be empowered to invoke the undertakings since this was considered to be an administrative matter. Giving such discretionary power to the Secretary-General would simplify the procedures and ensure the timely and effective operation of the Enterprise. If such a responsibility were given to the Council, the procedure would become too time-consuming and cumbersome and the Enterprise would be subject to a political body that would interfere with the sound commercial principles upon which the Enterprise would operate. The Enterprise must be guided by market principles and have sufficient autonomy to carry out its tasks.

146. Another view expressed was that the mandatory transfer of technology should not become an automatic transfer and that the Enterprise should be subject to the directives and control of the Council in accordance with article 170 of the Convention.

147. At the summer meeting of the Preparatory Commission, the Special Commission embarked on the first reading of the draft regulations on production authorization.

148. The Special Commission will continue its consideration of the draft regulations on production authorizations (LOS/PCN/SCN.3/WP.6/Add.1). At the spring session of 1990 at Kingston, the Special Commission will take up a new subject, namely, the protection and preservation of the marine environment from activities in the Area,

149. A seminar on production policies was held under the aegis of Special Commission 3, on 15 and 17 August 1989.

E. Special Commission 4 41/

150. This Special Commission, which is dealing with the preparation of recommendations regarding practical arrangements for the establishment of the International Tribunal for the Law of the Sea, completed the examination of the draft protocol on the privileges and immunities of the International Tribunal for the Law of the Sea. The secretariat was requested to revise the draft in the light of the suggestions made.

151. At the summer meeting of the Preparatory Commission, the Special Commission discussed the issues concerning the principles governing the relationship agreements between the Tribunal and the United Nations, as well as its specialized agencies, the International Sea-Bed Authority and other international institutions and organizations.

152. The Chairman continued his informal consultations on matters relating to the seat of the Tribunal. These were held with the Chairman of the Group of 77, and with a number of interested delegations, including the delegation of the Federal Republic of Germany.

153. On the question concerning the prompt release of vessels and crews, the Special Commission has approved redrafts of the relevant provisions of the draft Rules of the Tribunal.

154. At the eighth session, the Special Commission will take up for consideration the institutional structure and initial staffing needs of the International Tribunal for the Law of the Sea. It will also continue examination of the main issues relating to the draft agreements to be concluded between the Tribunal and the United Nations and the International Court of Justice and the International Sea-Bed Authority and, if necessary, with other international bodies having competence in the field of the law of the sea and relevant ocean affairs.

155. The Chairman will also continue informal consultations on the questions related to the seat of the Tribunal, with a view to reaching a generally acceptable solution.

Other matters

156. One of the most significant developments of the summer meeting of the Preparatory Commission took place on 1 September 1989 when a series of statements were made in the plenary, supporting the idea of universal participation in the 1982 United Nations Convention on the Law of the Sea. The Chairman of the Group of 77 stated that his Group has always been ready and continues to be ready to hold discussions on any issue relating to the Convention and the work of the Commission and that any delegation or group of delegations, be they currently involved in the work of the Preparatory Commission or not, whether signatories to the Convention or

not, ~~were~~ welcome to open dialogue with the Group of 77. This declaration, he said, ~~was~~ Without any preconditions, other than the fact that those willing to talk must indicate a positive approach to serious and meaningful talks. This ~~has been~~ our position and shall continue to be our position. This, however, is not meant to slow down the ratification process which must proceed on course”.

157. The Chairman of the Group of 77 further stated that ~~it~~ was the position of his Group that the ~~secretariat~~ of the International Sea-Bed Authority should be efficient *and* ~~cost-effective~~ and that its ~~size~~ should be *no* larger than that required to enable the Authority to carry out its functions efficiently, This responded to ~~the concern~~ of those States, which had *not* yet ratified the Convention, mainly *on* the ground that they ~~feared~~ the financial implications of a large bureaucracy.

158. The other important interest groups *in* the Commission supported ~~the~~ notion of universal participation *in* the Convention and reaffirmed their own willingness to negotiate outstanding ~~issues~~. This was the first occasion that the ~~members~~ of the Preparatory Commission addressed this question.

159. The Preparatory Commission has set the end of 1991 ~~as~~ the target date for the completion of its work. The establishment of this target date was to ensure that the work of the Preparatory Commission was completed before the entry into force of the Convention, bearing in mind that 42 of the required 60 instruments of ratification or accession have now been deposited.

VI, DEVELOPMENTS RELATING TO THE INTERNATIONAL TRIBUNAL

Architectural competition for the construction and design of the International Tribunal for the Law of the Sea

160. The Federal Republic of Germany had indicated its intention to hold an international architectural competition for the design of the building to accommodate the International Tribunal for the Law of the Sea at Hamburg, ~~42/~~ For this purpose, an international jury was constituted and a preliminary clarification meeting of the jury ~~was~~ held on 12 and 13 April 1969, On that occasion, the 16 international architects and architectural firms invited to participate in the competition visited the site and were thereafter briefed by the jury on the requirements and the purposes for which the building was to be used. The architects were also permitted to pose questions and the jury clarified the terms and conditions applicable to the competition.

161. The subsequent stage of the competition was also held at Hamburg, on 12 and 13 September 1989. The jury examined the 15 designs submitted by the international and national architects, without attribution of authorship, and decided on the ranking to be allocated to the designs. Thereafter, the jury decisions were communicated to the press and the public. The winning design was from Professor Alexander ~~Freiherr~~ von Branca of Munich,

162. On tire occasion of the second meating of the jury, the Federal and Hamburg authorities established a panel of eminent persons ("Kuratorium") from the Federal Republic of Germany who would promote the fulfilment of the requirements for the completion of the building and the early functioning of the Tribunal at Hamburg. The Kuratorium is headed by the First Mayor of Hamburg and its President is former Chancellor Helmut Schmidt,

PART TWO

ACTIVITIES OF THE OFFICE FOR OCEAN AFFAIRS AND THE LAW OF THE SEA

I. INTRODUCTION

163. The consolidation of marine **affairs activities** at United Nations Headquarters in the **Office** for Ocean Affairs and the Law of the **Sea** in 1987 has resulted in closer co-ordination among and integration of the Organisation's diverse efforts in **this** field. **Them** activities taken as a whole are **designed** to promote the uniform and **consistent** application and **widespread acceptance** of the 1982 United Nations **Convention on** the Law of the Sea and to enable **Member** States to benefit from the new **régime** for **th4 oceans**.

164. In **summary**, the Office for Ocean Affairs and the Law of the Sea provides information, **advice** and **assistance** to **States**, global, regional and subregional **organisations**, academic inrtitutione, **scholars** and others, on the legal, political, economic, environmental, scientific and technical aspects of the Convention and the implications of its **implementation** by **States**. States, particularly developing States, continue to give growing importance to **the** marine **sector** in their development policies. **Their** needs include advice and **assistance** regarding the **developmental** requirement8 of States in **giving effect** to and benefiting from the **new régime** for **th4 oceans** and in fulfilling obligations under it, overall marine policy and programmes, the **institutional** implication8 thereof, marine **affairs** management, and the adoption and adaptation of national laws in conformity with the Convention.

165. The Office continue8 to monitor and report on developments related to **the** ocean **régime** at *the* global, regional, subregional and national levels. As requested by the **General Assembly**, it prepares and submits, with the co-operation of **th4 agencies** and bodies of the United Nations, an annual report on developments relating to ocean affairs and the law of the sea. At the request of the **General Assembly**, in paragraph 15 of its resolution 43/18, the Office **has** prepared, for submission to the Assembly at its forty-fourth session, a special report on recent developments related to the protection and preservation of the marine environment in the light of the relevant **provisions** of the 1982 United Nations Convention on the Law of the Sea (A/44/461 and Corr.1). The Office also contributes to and prepares reports on marine-related **matters** for submission to other intergovernmental bodies, **as** required, such au, the report of the **Secretary-General** on economic and technical aspects of marine affairs, 43/ submitted to the Economic and Social Council at its second regular session in 1989.

166. While the Office continues to carry out **the** necessary research, study and analytical work in support of there activities, for subjects of a technical nature, the Office seeks the input of experts in the **specialized** fields, and to that end, has convened groups of technical experts. The Office has also continued to supplement its research and reference materials and to strengthen its capacity for information/data collection, analysis and dissemination, through, among other **means**, expanding its reference library collection and through continuing development of the Law of the Sea Information System (LOSIS).

167. The Office also provides a focal point within the United Nations Secretariat for related activities and participates in several United Nations inter-agency programmes and activities, fostering co-operation between **offices and departments** of the United Nations, its agencies and bodies and promoting a consistent approach towards the new **régime** for the oceans.

166. The Office also serves as the secretariat for the Preparatory Commission for the International Sea-Bed Authority and for the International Tribunal for the Law of the Sea, providing the necessary substantive and administrative support to the negotiations of this intergovernmental body in its task of preparing for the establishment of the Authority and the Tribunal, upon entry into force of the Convention.

169. The unified approach in fulfilling the **responsibilities** of the Secretary-General has resulted from the consolidation of marine affairs activities within the Office, and this will be reflected in programmatic terms in the 1992-1997 medium-term plan *now* under preparation. The plan will also provide an appropriate response to the increased demands of Member States in the light of the prospective entry into force of the Convention, at which time there is anticipated to be a concerted thrust to **maximize** the benefits of States under the new **régime** and a greater importance for States to fulfil their obligations under the Convention. The plan will also address the additional responsibilities of the Secretary-General upon entry into force of the Convention, the **servicing** of the intergovernmental bodies to be convened, including the Commission on the Limits of the Continental Shelf, and the functions flowing from the relationship to be established with the International Sea-Bed Authority and with *the* International Tribunal for the Law of the Sea.

II. SERVICING THE PREPARATORY COMMISSION

170. Part one of the present report describes the progress of work *of* the Preparatory Commission during the current year. In conformity with **General Assembly resolution 43/18**, special emphasis has been given to the integrated servicing of the Preparatory Commission, including the implementation of resolution II of the Third United Nations Conference on the Law of the Sea. In 1989, in addition to a number of meetings of the subsidiary **organs**, there were 101 meetings of the main organs of the Preparatory Commission, which included 6 formal meetings of the Plenary, 21 meetings of the Plenary as a Working Group on the organs of the International Sea-Bed Authority, and between 15 and 21 meetings for each of the four Special Commissions.

171. In responding to requests from the Commission, the Office prepared studies, working papers and draft legal texts and provided **information**, data and analyses to the seventh session of the Preparatory Commission, including its **summer** meeting in 1989, which had before it: draft rules of procedure of the Economic Planning Commission; draft headquarters agreement for the International Sea-Bed Authority; draft protocol on the privileges and immunities of the International Sea-Bed Authority; updated data on production, consumption, export and import of the metals to be extracted from polymetallic nodules; information on recycling and

substitution of these metals; exploration for deep-sea polymetallic nodules; draft provisions on the structure and organisation of the Enterprise; production authorizations for sea-bed mining; issues concerning relationship agreements between the International Tribunal for the Law of the Sea and other international organisational and an indicative list of issues specific to such relationship agreements.

172. The Office convened and provided substantive and administrative support to the Group of Technical Experts to the General Committee of the Preparatory Commission, which met in New York, from 7 to 16 August 1989. The Group was convened to prepare for the consideration of the Preparatory Commission a comprehensive plan for the early stages of exploration of one mine site in the area reserved for the Authority in the central region of the north-east Pacific, and also to prepare a comprehensive exploration plan from the first stages of exploration to the stage where a decision for exploitation could be taken. The Group was also requested to assist the Preparatory Commission on matters relating to the training of personnel of the Enterprise.

III. ADVICE AND ASSISTANCE TO STATES

A . Assistance to Governments and intergovernmental bodies

173. As indicated earlier in the present report (see para. 20), the responses of States to the challenge of marine resource development within the framework of the United Nations Convention on the Law of the Sea are substantial and have taken different forms depending upon, among other factors, the state of economic development, the degree of priority accorded to the marine sector and development goals.

174. There has been an increasing number of requests for assistance from Member States concerning the planning for marine areas, following a discernible trend towards a comprehensive, integrated approach in national policy-making and planning and management of marine areas. Follow-up assistance has been provided to Mauritania, Senegal and the United Republic of Tanzania. Among others, a new request was received from Morocco. This request is for assistance in, inter alia, the establishment of a regional maritime data bank, and the organization of a seminar for officials of the region on integrated maritime development planning. It stemmed from the Rabat Declaration and the recommendations of the Ministerial Conference on Fisheries Co-operation Among African States Bordering the Atlantic Ocean, held at Rabat, Morocco, on 30 March and 1 April 1989. The Office was represented at a United Nations Industrial Development Organisation (UNIDO)-sponsored meeting of experts on the establishment of a Mediterranean regional centre for research and development in marine industrial technology, held at UNIDO headquarters at Vienna, on 21 April 1989. A report by the Special Representative of the Secretary-General on the Law of the Sea was submitted to the meeting, covering the views and comments of the Mediterranean countries and international agencies. The need for the establishment of a regional centre was agreed upon at the meeting.

175. **Organisational and substantive support has continued for an ongoing project on the establishment of an oceanographic institute in Yemen (jointly with the United Nations Educational, Scientific and Cultural Organisation (UNESCO)), and for assisting the Marine Affairs Institute at Trinidad and Tobago,**

176. **In assisting regional intergovernmental bodies, the Office is co-operating with the Economic Commission for Latin America and the Caribbean (ECLAC) in preparing guideline8 and recommendations on sea-use planning and coastal management for the States of the region. The initial activity, in this context, consists of organizing an expert group meeting, to be held at ECLAC headquarters, at Santiago, from 28 November to 1 December 1989. The Office also provided assistance to the Economic and Social Commission for Asia and the Pacific (ESCAP) in its work with regard to offshore installations and structures in the exclusive economic zones (seminar held at Bangkok, from 6 to 10 February 1989).**

177. **At the request of the secretariat of the Permanent South Pacific Commission, the Office contributed to a Meeting of Experts for the Co-operation on Ocean Mining and Uses of the Sea (scientific, technical, legal, environmental and planning components), held at Quito, from 12 to 16 June 1989. In addition, the Office has continued to provide substantive advice and support for the ongoing activities undertaken following the First Conference on Economic, Scientific and Technical Co-operation in Marine Affairs in the Indian Ocean in the Context of the New Ocean Régime (Indian Ocean Marine Affairs Co-operation). At the request of the States of the Zone of Peace and Co-operation of the South Atlantic, the Office is organizing, with the financial support of the United Nations Development Programme, two meetings to be held, respectively, in West Africa (Congo) and Latin America (Uruguay) on the implementation of the 1982 United Nations Convention on the Law of the Sea as it relates to the States of the region.**

B. Training

178. **Assistance to States has also been provided in the form of training. In the field of sea-use planning, the Office has continued its advisory role and substantive contribution in the formulation and conduct of the annual maritime training programme of the World Maritime University, held at Malmö, Sweden, from 20 to 26 August 1989, in co-operation with the International Centre for Ocean Development of Canada. Specifically, the Office conducted a simulation • ㊦㊧㊨㊩㊪㊫ ㊬㊭ presents lectures, the major aim of which is to examine various planning and management approaches for the development of the exclusive economic zone and to discuss basic requirements (human resources, information, organisational arrangements and financial resources) for the formulation and implementation of an exclusive economic zone plan of action and its effective incorporation within the national planning framework.**

C. Fellowship programme

179. **Three annual fellowship awards have been made under the Hamilton Shirley Amerasinghe Memorial Fellowship on the Law of the Sea since 1986. The recipient of the third award, Miss Maria Luisa Carvallo, a legal adviser**

attached to the Ministry of Foreign Affairs of Chile, has commenced her fellow-la-residence programme at the Research Centre for International Law, University of Cambridge, under the supervision of Professor E. Lauterpacht. This research programme will be followed by a period of internship of three months with the Office for Ocean Affairs and the Law of the Sea. A candidate for the fourth annual award will be selected when the Fellowship Advisory Panel meets on 5 December 1989, and the award will thereafter be made by the Special Representative of the Secretary-General for the Law of the Sea,

180. The fellowship provides all the facilities, including travel costs and subsistence allowances, for post-graduate research and study on the law of the sea, its implementation, and related marine affairs, at one of the participating institutions, and thereafter, for internship with this Office,

181. Facilities for research or study are made available by the following educational institutions that are presently participating in the programme: Centre for Ocean Law and Policy, University of Virginia, United States of America; Dalhousie Law School, Halifax, Canada; Graduate Institute of International Studies, Geneva, Switzerland; Marine Policy Center, Woods Hole Oceanographic Institution, Massachusetts, United States; Netherlands Institute for the Law of the Sea, University of Utrecht, the Netherlands; Research Centre for International Law, University of Cambridge, England; School of Law, University of Georgia, United States; School of Law, University of Miami, United States; School of Law, University of Washington, United States; and William S. Richardson School of Law, University of Hawaii, United States,

182. Given the continued interest in the programme, a considerable number of nominations and applications of candidates from various countries were again received this year. The effect of prevailing economic factors on the Fellowship Trust Fund have made it impossible to accommodate more than one fellow per year. Thus, while the Office continues its efforts to obtain additional funding and to make arrangements with funded programmes, it would welcome further contributions to the Trust Fund from Member States, philanthropic institutions and others. A contribution of \$US 2,500.00 has been received from Mr. Jack R. Stevenson.

D . Advice, special studies and meetings

183. The Office continues to provide advice on matters related to the law of the sea and ocean affairs in response to requests of States, intergovernmental and other organizations. These involve the clarification of various provisions of the Convention, and their interrelationships, particularly as they affect the rights and duties of States. In addition, responses may require analysis of the implications of the Convention for individual States, in the context of their geographical situation, and legal and political systems. Such analyses hold particular importance for States conducting legislative and policy reviews relating to the process of ratification. In some cases, it involves a detailed review of the required draft national legislation in the light of the Convention.

184. The Office is represented at, provides substantive advice and prepares special studies for, and presents topical papers to meetings of intergovernmental and governmental bodies and organisations. In 1989, such meetings included: Meeting of Legal and Fisheries Experts and second meeting on Indian Ocean Marine Affairs Co-operation statute (Jakarta, Indonesia); Asian-African Legal Consultative Committee (twenty-eighth session of the Committee, Nairobi, Kenya); International Studies Conference - International Studies Association (London, United Kingdom); Conference on Contemporary Issues in United States Law and Sea Policy - Centre for Ocean Law and Policy (Washington, D.C.); Food and Agriculture Organisation of the United Nations Diplomatic Conference for the Adoption of a Draft Agreement for the Establishment of the Indian Ocean Tuna Commission (Rome, Italy); Law of the Sea Institute - twenty-third annual conference (Noordwijk, Netherlands); second meeting of experts for the development of a protocol concerning specially protected areas and development of the marine environment of the wider Caribbean region (UNEP - Kingston, Jamaica); The British Institute of International and Comparative Law - Conference on Joint Development of Offshore Oil and Gas (London, United Kingdom); Indian Ocean Marine Affairs Co-operation Standing Committee, fourth meeting (Colombo, Sri Lanka); Committee for Co-ordination of Joint Prospecting for Mineral Resources in South Pacific Offshore Areas (eighteenth annual session, Canberra, Australia); and Pacem in Maribus, seventeenth session (Moscow, Soviet Union).

E. Analytical studies

155. The series of analytical studies, prepared by the Office as part of its programme, provide a better understanding of the provisions of the Convention by accurate and objective analysis of the negotiating process and dealing particularly with topics that need to be evaluated and assessed in the interest of furthering important developments in the law of the sea. The studies set forth the legislative history of specific provisions, based on an examination of the documents not only of the Third United Nations Conference on the Law of the Sea, but also, when appropriate, of all relevant materials such as those of the International Law Commission, the first and second United Nations conferences on the law of the sea (and the provisions of the 1988 Geneva Conventions) and the Sea-Bed Committee. To complement the legal background, other multilateral instruments are referred to whenever relevant. The studies continue to be in great demand by Member States and other users.

186. Among the subjects addressed in the current year was a legislative history on Navigation on the High Seas, 44/ which has been published. Another, concerning archipelagic States is to be issued shortly, and work is under way on legislative histories dealing with the exclusive economic zone; artificial islands, offshore installations and structures; and passage through straits.

157. The studies prepared by the Office now include the economic and technical aspects of marine affairs. Two studies have been completed - one dealing with the prevention and resolution of conflict in sea-use planning, and the other, elaborating a simulation exercise for sea-use planning. Both are to be published in the near future. In 1989, two studies in a series in the field of sea-bed

mineral development have been completed, one on-site selection for manganese nodule processing plants? 45/ and another, providing a financial analysis of a manganese nodule mining venture, which will be submitted for publication shortly.

F. State practice (national legislation and treaties)

188. In order to better assist States with implementation of the Convention and also to promote uniform and consistent application of its complex set of norms, the Office continues to collect, analyse and disseminate national and international materials reflecting developments in State practice in relation to the law of the sea. The collection of national legislation covers such subjects as baselines, territorial sea, contiguous zone, exclusive economic zone, continental shelf and marine scientific research. Extracts from these materials are also made available on request.

189. During the year, several publications dealing with State practice were issued. One, entitled Current Developments in State Practice, 46/ contains material recently received by the Office and reproduces national legislation dealing mainly with the extent of maritime jurisdiction and the régime applicable to it. Another is a compilation of National Legislation on the Continental Shelf. 46/ A third presents National Legislation, Regulations and Supplementary Documents on Marine Scientific Research in Areas under National Jurisdiction. 46/ In the near future, a publication concerning State practice on baselines will be issued.

G. Technical guides for the implementation of the Convention

190. The Office is preparing a series of studies in the form of handbooks on specific aspects of the Convention, particularly those of a highly technical nature. The first study, entitled Baselines - An Examination of the Relevant Provisions of the United Nations Convention on the Law of the Sea, 47/ was published in 1989, drawing upon the advice provided by a group of experts convened at United Nations Headquarters. This publication examines all the provisions of the Convention dealing with baselines and attempts to give technical guidance on their application without prejudging controversial matters of law. The publication, although not exhaustive, is intended to provide an understanding of the underlying intent of the provisions of the Convention and, to this extent, to be of assistance to a wide variety of users.

191. A second handbook, now in preparation for publication, is on the practical implementation of the régime for marine scientific research in areas under national jurisdiction. In connection with this study, the Office also drew upon the advice of a group of experts, which met at United Nations Headquarters in September 1989. It is intended to guide States in exercising their rights and fulfilling their obligations under the régime. In respect of the above two studies, the Office is grateful for the financial contribution provided by the Governments of Japan and the Federal Republic of Germany, respectively, for the convening of the group of experts and for the publication of the studies.

IV. MONITORING OF DEVELOPMENTS AND THE PROVISION OF INFORMATION ON OCEAN AFFAIRS AND THE LAW OF THE SEA

A. Law of the Sea Information System

192. The Office has proceeded with the further development of its computerised Law of the Sea Information System (LOSIS) as a dynamic tool. This system is composed of a group of databases, each containing information relating to the different aspects of the law of the sea. These are currently being supplemented by the collection of additional marine-related data, 48/

193. Of these databases, the Country Marine Profile Database (MARPRO) has 98 categories of information for more than 240 countries and entities.

194. The National Marine Legislation Database (LEGISLAT) currently contains 3,641 coded references to national laws and regulations. After completion of the analysis and entry of the currently available legislation and regulations from each country, the next phase of this activity will be the transmission of computerised lists of national laws to Governments for verification and updating.

195. The Minerals Database (MINDAT) presently contains 25 categories of information on copper, nickel, manganese and cobalt, by country and globally, covering production, consumption, imports and exports of the minerals in various forms, and prices, for the period 1971-1986. MINDAT can be statistically manipulated and has graphic representation capabilities. Further development will be to obtain information on resources and reserves.

196. The United Nations Convention on the Law of the Sea includes certain provisions which require the application of complex mathematical formulations. The working of these formulations can be studied at present only on the basis of assumptions regarding future mineral situations. To assess the impact of data changes in these assumptions, two new databases have been developed: PRODAUTH, which concerns the provisions of the Convention dealing with the production ceiling for sea-bed mining) and FINTERM, which deals with the financial terms applicable for sea-bed mining contractors.

B. The Law of the Sea Bulletin

197. The Law of the Sea Bulletin serves as the primary means for the timely dissemination, in one document and on a continuing basis, of updated information relating to the law of the sea and to marine affairs. Now in its seventh year, the Bulletin is viewed by States, intergovernmental bodies, non-governmental organizations, universities and scholars as a most useful vehicle for keeping abreast of important developments covering a wide range of activities in the field of marine affairs.

198. The Bulletin provides an up-to-date table of ratifications with the texts of declarations and objections to declarations or statements made in accordance with articles 287, 298 and 310 of the United Nations Convention on the Law of the Sea.

It includes, inter alia, national legislation, bilateral agreements and multilateral treaties, as well as information on decisions of the International Court of Justice, arbitral tribunals or other dispute settlement procedures. Thus, it reflects some of the most important aspects of the practice of States regarding the law of the sea, which are relevant to the assessment of the degree of acceptance of the Convention.

199. The final issue each year reflects the work of the Preparatory Commission in that year. It sums up the activities of the organs and bodies of the Commission, identifies the documentation under review and, as appropriate, records the decisions that have been adopted. It also lists the membership and participants in the work of the Commission.

200. The demand for the Bulletin, which is prepared, edited and distributed by the Office for Ocean Affairs and the Law of the Sea, is met by the distribution of more than 1,000 copies to Governments, intergovernmental and non-governmental organisations, United Nations information centres and the secretariats of the United Nations system, as well as to a variety of tipecialititti from academic and research communities.

C. Annual documents collection

201. A consolidated publication containing the first two volumes (1985-1987) in the new series entitled Annuallaw and policy, main'airs: documents, compiled and edited by the Office, was published by UNIFO Publishers, Ltd. (United States of America) in 1989. Subsequent volumes will be published annually. The annual review provides a comprehensive compilation of documents reflecting current predominant developments in legal and policy matters relating to ocean affairs and the law of the sea. It includes such documentary materials as the annual report of the Secretary-General on the law of the sea, relevant Conventions, draft conventions, resolutions, decisions, seleated extracts from reports, studies, working papers, etc. of the United Nations and other international and regional organisations. The review also incorporates additional references and an index, which is cumulative in order to facilitate the tracing of tha origins and previous history of developments. The annual review for 1988 is currently being prepared.

D. Information on maritime limits and baselines

202. States deposit information with the Office about their baselines, and limits of their maritime zones along with geographical co-ordinates thereof. The Office systematically records this information, and in response to requests by depositing States for widespread international notification, circulates notes to all Member States containing this information.

E . Information circular on developments in ocean affairs and the law of the sea

203. Having assumed the responsibility for maintaining and circulating, within the Organisation, current and up-to-date information on national and international activities relating to the seas and oceans, the Office has instituted a periodic review of such developments. This review is circulated to other offices and departments of the Organization concerned with ocean-related activities and those connected with peace and security in relation to the uses of the seas.

F. Select bibliographies on ocean affairs and the law of the sea

204. As a service to Member States, intergovernmental and other organisations, scholars and interested persons, the Office continues to publish a select bibliography on the law of the sea and marine affairs. The fourth bibliography in this series: The law of the sea: a select bibliography - 1988, 49/ was published in early 1989. A comprehensive bibliography on the law of the sea and marine affairs, covering 20 years of work in this field (1968-1988), will be published during 1990.

G. Ocean Affairs and Law of the Sea Library and reference collection

205. The Ocean Affairs and Law of the Sea Library and reference collection continues to serve the needs of Member States, the members of delegations to the General Assembly and the Preparatory Commission, permanent missions to the United Nations, secretariat staff and persons from academic institutions who are interested in all aspects of the United Nations Convention on the Law of the Sea and its related field of marine affairs. The Library and reference collection also supports the research and archival needs of the Office of the Special Representative in the implementation of its programme of activities. A specialised library is also maintained at the Office of the Special Representative at Kingston, Jamaica, to facilitate the work of that Office and in servicing the Preparatory Commission. As in previous years, the Library and reference collection has worked in collaboration with the Dag Hammarskjöld Library.

V. CO-OPERATION WITHIN THE UNITED NATIONS SYSTEM

206. The General Assembly, in its resolution 43/18 on the law of the sea, recognised that the problems of ocean space are closely interrelated and need to be considered as a whole. It further recognised that the United Nations Convention on the Law of the Sea encompasses all uses and resources of the seas and that all related activities within the United Nations system need to be implemented in a manner consistent with it. The Assembly called upon the Secretary-General to continue to assist States in the implementation of the Convention and to support their efforts towards the full realisation of benefits under it and, thus, invited organs and organisations of the United Nations system to co-operate and lend

assistance in those endeavours. The Office has continued its close co-operation with, and assistance to United Nations agencies and bodies, and other departments of the United Nations. In 1989, as in 1988, the Special Representative of the Secretary-General for the Law of the Sea convened an Ad Hoc Inter-agency Meeting on Ocean Affairs at Geneva in July, which brought together representatives of 12 organisations and bodies. 50/ This meeting addressed such issues as co-ordination at the regional and subregional levels; marine environment] and the role of the oceans in global environment.

207. The other formal mechanism through which co-operation and co-ordination were effected was the Inter-secretariat Committee on Scientific Programmes Relating to Oceanography (ICSPRO), which held its twenty-fifth session in Paris in April, with representatives from the Office as well as four other ICSPRO members (UNESCO, IMO, FAO and WMO).

Joint/co-operative activities

208. The Office has continued its co-sponsorship of and participation in the Joint Group of Experts on Scientific Aspects of Marine Pollution (GESAMP) (nineteenth session, May 1989, Athens) and the joint Intergovernmental Oceanographic Commission (IOC) of UNESCO and the United Nations Programme on Ocean Science in Relation to Non-Living Resources (third session, Bordeaux, February 1989). In the field of technical bibliographic information and data, as a co-sponsor with UNESCO/IOC and FAO of the Aquatic Sciences and Fisheries Information System (ASFIS) and as an international co-ordinating input centre for the Aquatic Sciences and Fisheries Abstracts (ASFA), the major information module of ASFIS, the Office has continued to support the development of this inter-agency bibliographic information system. In this connection, it monitors documents and publications relating to the law of the sea and other marine-related activities from which abstracts and bibliographic data are prepared for inclusion in the ASFA computer-searchable database and the corresponding ASFA monthly journal.

209. The Office also participated in an IOC-organized initiative to update the Long-term and Expanded Programme of Oceanic Exploration and Research (LEPOR), an outline 51/ of which was submitted to the Economic and Social Council at its second regular session of 1989. The Council, in its decision 19891180 of 27 July 1989, took note of the outline,

210. Extensive informal co-ordination has also been carried out on a bilateral basis over the year. The Office also has been represented at the meetings of governing bodies of several United Nations organisations, when appropriate.

Notes

1/ Official Records of the Third United Nations Conference on the Law of the Sea, vol. XVII (United Nations publication, Sales No. E.84.V.3), document A/CONF.62/122.

2/ A/43/718.

Notes (continued)

3/ Antigua and Barbuda, **Brasil**, **Cyprus**, Kenya, Oman, Somalia and Zaire.

4/ **Brasil** and Oman.

5/ **Brasil**, Cape Verde, Cuba, Demooratio Yemen, Egypt, **Guinea-Bissau**, Iceland, Oman, the **Philippines**, Tunisia, the United Republic of Tanaania and Yugoslavia.

6/ **C.N.173.1988.TREATIES-1 ; Law of the Sea Bulletin**, No. 12, p. 10.

7/ Algeria, Antigua and Barbuda, Bangladesh, **Barbados**, Belgium, Brunei Darussalam, Bulgaria, Canada, Cape Verde, **Chile**, China, Colombia, **the Comoros**, Cook Islands, Costa Rica, Côte d'Ivoire, Cuba, **Cyprus**, Demooratio Kampuchea, Democratic People's Republic of Korea, Demooratio Yemen, Djibouti, **Dominica**, **Egypt**, Equatorial Guinea, Ethiopia, **Fiji**, **France**, Gabon, the Gambia, the German Democratic Republic, Ghana, Grenada, Guatemala, Guinea, Guinea-Bissau, Guyana, Haiti, Honduras, Iceland, India, Indonesia, Iran (Islamic Republic of), Iraq, Ireland, Italy, Jamaica, Japan, Kenya, Kiribati, Kuwait, Lebanon, the Libyan Arab Jamahiriya, Madagascar, Malaysia, Maldives, Malta, Mauritania, Mauritius, Mexico, Monaco, Morocco, Mozambique, Myanmar, Nauru, the Netherlands, New Zealand, Niue, Oman, Pakistan, Papua New Guinea, Poland, Portugal, the Republic of Korea, Romania, Saint Kitts and Nevis, Saint Luoia, Saint Vincent and the Grenadines, Samoa, Sao Tome and Principe, Saudi Arabia, Senegal, the **Seychelles**, the Solomon Islands, South Africa, Spain, Sri Lanka, the Sudan, Surinamo, Sweden, Thailand, Tonga, Trinidad and Tobago, Tunisia, Turkey, Tuvalu, the Ukrainian Soviet Soocialirt Republic, the Union of Soviet Soocialist Republics, United Arab Emirates, the United Kingdom of Great Britain and Northern Ireland, United Republic of Tanaania, United States of America, Vanuatu, Venezuela, Viet Nam, Yemen, Yugoslavia, and Zaire.

8/ Proolamation of 22 December 1988,

9/ Territorial Sea and Exclusive Eoonomio Zone Act, 1989.

10/ Some 18 States have a territorial sea claim exceeding 12 nautioal miles.

11/ See "NILOS Newsletter", July 1989, vol. No. 2.

12/ See art. 210, para. 6, of the 1982 United Nations Convention on the Law of the Sea (United Nations publication, Sales No. E.83.V.5); see also the Convention on the Prevention of Marine Pollution by Dumping Waste6 and Other Matter, London, 29 December 1972 (United Nations, Treaty Series, vol. 1046, No. 15749); and the Convention for the Prevention of Marine Pollution by Dumping from Ships and Aircraft, Oslo, 15 August 1972 (ST/LEG/SER.B/16).

13/ Chua, Thia-Eng, "Developing coastal area management plans in the South-East Asian region", Coastal Zone '89. Proceedings of the Sixth Symposium on Coartal and Ocean Management (Charleston, South Carolina, United States of America), 11-14 July 1989, vol. 3, pp. 2192-2201.

Notes (continued)

14/ Hera, Renato, "Coastal ocean space management in **Brazil**", paper presented at the First International Symposium on Coastal Ocean Space Utilisation (New York), 8-10 May 1959.

15/ Ramos Mora, Amparo, "Experiencia colombiana en la planificación y manejo integrado de las zonas costeras y los usos del mar", paper presented at the Meeting of Experts for the Co-operation on Ocean Mining and Uses of the Sea - scientific, technical, legal, environmental and planning components (Quito, Ecuador) 12-16 June 1989.

16/ Ministerio de Energía y Minas/Universidad de Rhode Island, "Estructura y objetivos para el programa de manejo de recursos costeros en Ecuador", proyecto de manejo de recursos costeros en Ecuador, junio 1988.

17/ Peet, Gerard, "North Sea Management in the Netherlands", lecture presented at the IMO World Maritime University, Marine Affairs Seminar II, August 1988,

18/ The Oregon Ocean Resources Management Task Force, "Executive summary on managing Oregon's ocean resources", interim report to the Joint Legislative Committee on Land Use, 1 July 1988.

19/ Wolfe, Larry D. S. and Marshall David W. I., "An Action Plan for Sustainable Development of Indonesia's Marine and Coastal Resources", Coastal Zone '89. Proceedings of the Sixth Symposium on Coastal and Ocean Management (Charleston, South Carolina), 11-14 July 1989, vol. 3, pp. 2141-2146,

20/ A/40/535,

21/ The United States continues not to participate.

22/ An interim study has been conducted by the Japanese Agency for Science and Technology of a suspected area near the Ryukyu Islands.

23/ For the text of the United Nations Convention against Illicit Traffic in Narcotic Drugs and Psychotropic Substances, see E/CONF.82/15 and Corr.1 and 2.

24/ Art. 17, para. 10 of the United Nations Convention against Illicit Traffic in Narcotic Drugs and Psychotropic Substances is consistent with art. 111, para. 5 (right of pursuit) of the United Nations Convention on the Law of the Sea.

25/ Official Records of the General Assembly, Forty-fourth Session, Supplement No. 25 (A/44/25), annex I.

26/ "Principles for the exemption of radiation sources and practices from regulatory control", IAEA Safety Series No. 89.

Notes (continued)

27/ Views were again expressed at the last IOC Assembly on the need to take the legal aspects of observing systems into account.

28/ See "Co-ordination questions : economic and technical aspects of marine affairs: long-term and expanded programme of oceanographic research" (E/1989/111), 1 June 1989. This document will be further developed.

29/ See the final communique of the Twentieth South Pacific Forum (A/44/463, annex).

30/ See particularly WMO/UNEP publication (WMO/TD-No. 25) of April 1988, entitled "Developing policies for responding to climate change".

31/ See document COFI/89/2 and the report of the eighteenth session of the Committee on Fisheries (CL 95/7).

32/ Report of the Expert Consultation on the Technical Specifications for the Marking of Fishing Vessels, FAO Fisheries Report No. 367, see also COFI/89/INF.10 and COFI/89/7.

33/ See also document IOFC/89/9, June 1989,

34/ See report of the seventh session of the CECAF Sub-Committee, September 1988; see also FAO Fisheries Report No. 406 (FIP/R406).

35/ Committee on Resource Management of the General Fisheries Council for the Mediterranean, seventh session, 1989 (GFCM/RM/VII/89/INF.6).

36/ See A/43/718, paras. 130-132.

37/ See reports of the Chairman of the Preparatory Commission (LOS/PCN/L.72 and LOS/PCN/L.77).

38/ See reports of the Chairman of Special Commission 1 (LOS/PCN/L.68 and LOS/PCN/L.73).

39/ See reports of the Chairman of Special Commission 2 (LOS/PCN/L.70 and LOS/PCN/L.75).

40/ See reports of the Chairman of Special Commission 3 (LOS/PCN/L.69 and LOS/PCN/L.74).

41/ See reports of the Chairman of Special Commission 4 (LOS/PCN/L.71 and LOS/PCN/L.76).

42/ See A/43/718, para. 176.

43/ Document E/1989/110 of 19 June 1989.

Notes (continued)

44/ United Nations publication, Sales No. E.89.V.2.

45/ Published in 1989 by Graham and Trotman, Ltd., London.

46/ United Nations publications, Sales Nos. E.89.V.7, E.89.V.5, and E.89.V.9, respectively.

47/ United Nations publication, Sales No. E.88.V.5 (reissued in 1989 for technical reasons).

48/ For details on the databases, see A/42/688 and A/43/718.

49/ United Nations publication, Sales No. E.89.V.3.

50/ United Nations/Office for Ocean Affairs and the Law of the Sea, UNCTAD, ECA, ECE, ESCAP, ILO, FAO, UNESCO, WMO, IMO, WIPO AND IHO.

51/ See document E/1989/111, annex, 1 June 1989.
