Intergovernmental Oceanographic Commission
Reports of Governing and Major Subsidiary Bodies

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IOC Regional Committee for the Central Eastern Atlantic

Second Session

Lagos, Nigeria, 19-23 February 1990

UNESCO

In this Series | *Languages*

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IOCEA-II/3
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1. OPENING

1. The second session of the IOC Regional Committee for the Central Eastern Atlantic (IOCEA-II) was opened on Monday, 19 February 1990, at the Senate Chambers, National Assembly, Lagos (Nigeria), in the presence of the King of Badagry, De Wheno Aholu Menu-Toyi, the representative of the Nigerian Minister of National Education, Professor Babs Fufunwa, the Nigerian Minister of Science and Technology, Professor Godian O. Ezekwe, the Chairman of the IOCEA Regional Committee, Dr Sekou Konaté, the Deputy Secretary of IOC, Dr Klaus Voigt, representing the IOC Secretary, Dr Gunnar Kullenberg, as well as other personalities from Nigerian public life.

2. The Vice-Chairman of IOCEA, Dr Chidi Ibe, after briefly summing up the purpose of the meeting and thanking the Nigerian authorities, in particular the King of Badagry, welcomed the distinguished representatives of scientific and international organizations and the delegates of the member countries of the Regional Committee. He then gave the floor to the representative of the Minister of National Education and Chairman of the UNESCO National Commission for Nigeria, who read the opening address to the second session of the IOCEA Regional Committee.

3. He began by thanking UNESCO and IOC for having accepted Nigeria's offer to host the second session of the Regional Committee, and the distinguished scientists and observers present for having come to Lagos to take part in the meeting. Everyone in Nigeria was aware of the efforts being made by UNESCO in all its fields of competence to devise solutions for the problems besetting humanity. He referred to various scourges of the marine environment and to the work being done which would no doubt enable them to be remedied. In conclusion, he stressed that Nigeria would always support the development of marine sciences.

4. The Minister of Science and Technology, Professor Godian O. Ezekwe, in his turn welcomed the delegates of member countries and recalled that the offer made by Nigeria at the first session of the Regional Committee (Praia, 19-23 January 1987) to host the second session of IOCEA stemmed from its recognition of the vital role which that subsidiary regional body could play in promoting marine science and fostering the implementation of regional scientific projects. Through the intermediary of the Director of the Nigerian Institute for Oceanography and Marine Research (NIOMR), Nigeria had since 1963 been an extremely active member of the IOC Executive Council. That situation had been turned to account in order to promote regional schemes aimed at the exploration and rational exploitation of the living and non-living marine resources of the Central Eastern Atlantic.

5. Referring to his country's initiative in making available to the scientists of the subregion the NIOMR research vessel SARKIM BAKA for the first oceanographic cruise organized within the framework of the coastal erosion project, he expressed his satisfaction with the results obtained, which had led the IOC Secretariat to consider requesting extra-budgetary funding in order to ensure the continuation of this major project.

6. The cruise was in his view a living embodiment of the South-South co-operation so constantly extolled. Nigeria should give its continuing support, in both human and material terms, not only to the objectives of the project on coastal erosion but to all projects identified or to be identified as necessary to meet research and teaching requirements in the field of marine science.

7. The Minister drew delegates' attention to the vulnerability of many coastal areas in the region to the possible accelerating rise in the sea level, and to the threat to the region posed by pollution resulting from the dumping of potentially toxic wastes.

8. In conclusion, the Minister invited delegates to spare a moment in their programme for a visit to the historic town of Badagry and to His Highness the King of Badagry, and expressed the hope that the proceedings of the second session of the IOC Regional Committee for the Central Eastern Atlantic (IOCEA-II) would be crowned with every success.

9. On behalf of the IOC Secretary, the Deputy Secretary, Mr Klaus Voigt, thanked the Nigerian authorities for hosting that session of the Regional Committee and highlighted the outstanding role that Nigeria was playing in the development of the different scientific projects, in particular that entitled 'Sediment Budget along the West African Coastline' and concerning coastal erosion with a major socio-economic impact. In regard to the offer by the Nigerian authorities to make available the vessel SARKIM BAKA, which had made it possible to undertake the oceanographic cruise along the continental shelf of the Bight of Benin within the framework of the above-mentioned project, he paid tribute to Nigeria's efforts and on behalf of the IOC Secretariat thanked the Nigerian Government and in particular the NIOMR Directorate, once again. That regional venture, which had enabled the scientists of the region to pool their resources, had been a success.

10. In another field of activity, that of the International Bathymetric Chart of the Central Eastern Atlantic, he made an announcement concerning the establishment of its Editorial Board, and the offer made by France and Portugal to undertake its publication.

11. After taking stock of the progress of the Regional Committee's activities, the IOC Deputy Secretary reviewed the problems besetting the marine environment and in particular the impact of climate change on ecology and variations in sea level, the latter being of undisputed importance for countries with wide estuaries and low coastlines. Studies of the interaction between the ocean, the atmosphere and the land were extremely important.

12. In conclusion, he expressed the hope that the session would lead to the further development of regional scientific activities, and thanked the Nigerian authorities for their kind invitation and for their hospitality.

13. The Chairman of the Nigerian Organizing Committee, Vice-Chairman of the Regional Committee, speaking on behalf of the King of Badagry, then formally opened the second session of the IOC Regional Committee for the Central Eastern Atlantic.

14. The list of participants is reproduced in Annex III.

2. ADMINISTRATIVE ARRANGEMENTS

15. Before dealing with administrative arrangements, the Chairman of the Regional Committee, Mr Sekou Konaté, taking over the chair for the session, in turn conveyed his thanks to the Nigerian authorities for having agreed to host the session, and said that the inter-sessional period had seen the launching of regional activities.

16. Something had undoubtedly been achieved, but there had been the inevitable teething troubles. The next stage should yield more impressive results. It would help if the following factors were borne in mind during discussions:

(i) the need to identify the most appropriate ways and means of ensuring the development of marine science;

(ii) the need to enable those in charge of the Regional Committee to have direct contacts with the competent institutions in order to assess the possibilities for carrying out agreed programmes.

17. Finally, he considered that the next phase promised to be more rewarding, success depending on the ability to draw the right lessons from past experience and to remain convinced of the need for concerted action in the region.

2.1 Adoption of the agenda

18. The provisional agenda (IOCEA-II/1 prov.) had been distributed with circular letters No.1250 (to Member States) and No. 1251 (to organizations) in November 1989. The Regional Committee was invited to adopt the agenda, amending it as appropriate.

19. ***The Regional Committee adopted*** the agenda of the session, as reproduced in Annex I.

2.2 Designation of the rapporteurs

20. The Regional Committee was invited to designate two rapporteurs (one English-speaking and one French-speaking).

21. The delegate of Sierra Leone proposed Mr Adoté Blivi (Togo) as the French-speaking rapporteur. The proposal was approved unanimously.

22. The delegate of Nigeria proposed Ms Isatou Njie (Gambia) as the English-speaking rapporteur. The proposal was unanimously approved.

2.3 Conduct of the session, timetable and documentation

23. The Technical Secretary of IOCEA, Mr Gualter Soares, proposed a ***modus operandi*** for the session, and a timetable. He also reviewed the documentation made available to participants (the list of working documents is reproduced in Annex IV).

3. REPORT ON INTERSESSIONAL ACTIVITIES

24. The Technical Secretary submitted the report on work done since the first session, and recalled the main lines of emphasis defined by the Regional Committee in Praia, Cape Verde (19-23 January 1987), and the decisions regarding the setting up of the different regional groups of experts or task teams, together with their terms of reference, decisions that were approved by the IOC Assembly at its fourteenth session in March 1987, and in particular the topics selected within the framework of the OSNLR component.

25. ***The Regional Committee noted*** that work had begun on most of the topics and projects selected.

26. For example, within the framework of the OSNLR component, the Regional Group of Experts considered the project on coastal erosion to be a priority. The need to establish a scientific basis for long-term and large-scale coastal management and protection in the region resulted in the adoption for implementation of the project 'Sediment Budget along the West

African Coastline'. For purposes of effective execution, it was divided into two subprojects: (a) the effect of dams on the sediment flux of rivers reaching the coastline, and (b) the hydrography and dynamics of the coastal zone including the inner continental shelf. In respect of the latter subproject, a first regional oceanographical cruise, mentioned above, covering the continental shelf zone of the Gulf of Guinea, was organized from 10 to 25 October 1989, using the research vessel SARKIM BAKA which had been provided by the Nigerian authorities. IOC support enabled certain operational costs to be covered, as well as the travel and subsistance expenses of the scientists from the different countries of the region that took part. The objectives of the cruise were achieved. Analysis of the results and of the samples collected had started, and a preliminary cruise report was being prepared.

27. Pollution-related activities within the framework of Component C of WACAF/2, which included the organization of a workshop on continuous monitoring of tar balls on beaches and physical oceanography, were evaluated (first phase) at the second workshop of participants in the project on the Monitoring of Pollution in the Marine Environment of the West and Central African Region (WACAF/2) (Accra, Ghana, 13-19 June 1989). A recommendation to continue the project was adopted.

28. With regard to the preparation of the International Bathymetric Chart for the Central Eastern Atlantic, the Editorial Board was set up, and its first meeting held in Lagos (Nigeria) from 14 to 16 February 1990.

29. With regard to the development of the regional component of the Global Sea-Level Observing System (GLOSS), a preparatory mission was undertaken by a consultant from the Federal Republic of Germany for the purpose of installing the tide gauges provided by Sweden.

30. In the field of training, ***the Regional Committee noted*** that a number of grants had been made for participation in courses, and that IOC had given its support, in the form of coverage of travel and subsistence expenses, to several experts to enable them to attend regional seminars and workshops.

31. ***The Regional Committee approved*** the Report on Intersessional Activities and congratulated the IOC Secretariat on the work done.

4. MARINE SCIENCE ACTIVITIES IN THE REGION

4.1 Regional component of the IOC-UN(OALOS) programme on Ocean Science in relation to Non-Living Resources (OSNLR)

32. The Co-ordinator of the regional component of OSNLR, Dr C. Ibe, introduced this item of the agenda. He reviewed the different phases in the development of the research topics selected at the first session of IOCEA which had led to the design of the project on coastal erosion, entitled 'Sediment Budget along the West African Coastline', which comprised two subprojects:

(i) the sediment flux from continent to coastline;

(ii) the sediment dynamics of the continental shelf.

33. The Regional Co-ordinator reported to the Regional Committee on the organization and objectives of the first regional scientific cruise on board the ship SARKIM BAKA, the

progress achieved in analysing the samples gathered and the initial results obtained. The cruise had successfully achieved the objectives set. He drew attention to the need to secure adequate financing for the organization of the second oceanographic cruise, which was to follow the coast of North-West Africa, on the assumption that a country of the region would be able to provide ship-time.

34. ***The Regional Committee noted*** that two research centres had been designated by the Regional Group of Experts to be responsible for analysing the samples collected, namely NIOMR (Lagos) and CRO (Abidjan). It urged each country in the region to do what it could to ensure the success of the project.

35. After a number of delegates and observers had reported to the Regional Committee on scientific potential and existing marine resource possibilities in the North-West region of Africa, the Moroccan observer announced, on behalf of the Director of the Maritime Fisheries Institute of Morocco, the offer to make the Institute's research vessel available to IOC for the next oceanographic cruise planned in that region. The offer was to have been announced during the discussion of the agenda item on living resources.

36. ***The Regional Committee thanked*** the Moroccan observer for this generous offer.

37. The delegate of Nigeria pointed out that it had not been possible to programme geophysical work during the SARKIM BAKA cruise, for lack of the necessary equipment. This raised the problem of securing the financial resources required to rent such equipment. The possibility of granting financial assistance to the laboratories of the research centres responsible for processing the samples collected should also be considered. He added that his own institute had agreed to carry out the analyses.

38. The Regional Co-ordinator for OSNLR informed the Regional Committee that he had had discussions with the scientist working for CRO (Abidjan), himself a member of the Regional Group of Experts, with a view to overcoming the financial difficulties that appeared to be hampering that Centre's efforts to carry out the analyses, and that he would keep in touch with CRO on the question. In his view this work should be regarded as a contribution to the project by the participating countries.

39. The Chairman of the Regional Committee made the point that IOC Member States were expected to contribute to the IOC efforts to implement the regional research programmes.

40. The Technical Secretary told the Regional Committee that some analysis might possibly be undertaken in other centres, in particular in the laboratories of the Geology Institute of Acquitaine (France) and of the University of Southampton (United Kingdom). The purchase of a sedigraph for one of the region's research centres, suggested by one of the delegates, was not in his view a strong possibility, given the limited financial resources available to IOC. Such an acquisition could be envisaged only if extra-budgetary funding were made available.

41. ***The Regional Committee noted*** the approaches made by the IOC Secretariat to the Commission of the European Communities, within the framework of the UNESCO-EEC agreement on co-operation, and to the ACP Group within the framework of the planned UNESCO-ACP co-operative agreement, in order to obtain financial support for the project on coastal erosion. The Regional Co-ordinator was being kept abreast of these approaches.

42. The delegate of Togo requested that information on progress in implementing the programme and the steps taken to secure extra-budgetary funding be transmitted to all members of the OSNLR regional component.

43. ***The Regional Committee stressed*** the need to secure extra-budgetary funding and to procure the necessary equipment, and invited the IOC Secretariat to continue its efforts to that end.

4.2 Marine pollution research and monitoring

44. This item was introduced by the Technical Secretary, who informed the Committee of IOC activities in this field in the region, and particularly about its role within the framework of the WACAF/2 regional project executed jointly by the following organizations: FAO, IOC, IAEA, WHO and UNEP.

45. The FAO representative, the project co-ordinator, provided the Regional Committee with further information on the progress of the project.

46. The project was one of those approved under the UNEP Action Plan for the Protection and Development of the Marine Environment of the West and Central African Region. The Action Plan was being financed under a fund-in-trust arrangement set up by the countries of the region (from Mauritania to Namibia) and managed by UNEP's OCA/PAC Centre.

47. ***The Regional Committee took note*** of the results of Phase I of the project, and of IOC's role in co-ordinating the programme for monitoring beach pollution by tar deposits. The findings indicated that the degree of pollution of ocean waters in the region was slight. During Phase II, focusing on the coastal zone, the oil monitoring component for which IOC was responsible would be reoriented so as to place the emphasis on the physical oceanographic parameters necessary for understanding pollutant transport and distribution in the region. A regional workshop on physical oceanography was being organized.

48. ***The Committee was informed*** that shortage of funds (funds-in-trust) had affected the conduct of the project and the setting up of the co-ordinating unit in Abidjan, which had had to be postponed. UNEP was actively seeking donors to finance the establishment of the unit and of the laboratory that was to ensure the maintenance of the equipment and the training of African technicians.

49. ***The Regional Committee recommended*** that integration of the activities of the different laboratories be improved, and collaboration between the different research institutes be promoted.

4.3 Ocean mapping and the International Bathymetric Chart of the Central Eastern Atlantic

50. The Senior Assistant Secretary responsible for mapping introduced this agenda item, drawing the Committee's attention to the importance of mapping for the exploration of marine resources. He reviewed IOC activities, both current and planned, in matters of ocean mapping.

51. He then presented the summary of the proceedings of the first session of the Editorial Board for the International Bathymetric Chart of the Central Eastern Atlantic (IBCEA) which was held from 14 to 16 February 1990 within the framework of the Scientific Seminar associated with IOCEA-II. That first session was attended by experts from nine countries

(including Senegal, Guinea and Nigeria), and by the Director of the International Hydrographic Organization (IHO).

52. ***The Regional Committee expressed*** its satisfaction with the decision taken by the IBCEA Editorial Board to undertake the publication of the Chart, comprising 12 sheets on a scale of 1:1,000,000, assistance being provided by the hydrographical services of France and Portugal.

4.4 Marine ecosystems, living resources and regional component of the IOC-FAO programme on Ocean Science in relation to Living Resources (OSLR)

53. The Technical Secretary recalled the objectives of the programme on ocean science in relation to living resources and the decisions taken and the recommendation adopted by the Regional Committee at its first session to set up a regional group of experts, a recommendation approved by the IOC Assembly at its fourteenth session. The Guiding Group of Experts for OSLR had formulated a recommendation at its last meeting (5-9 February 1990) in support of the development of this regional component. For various reasons, it had not been possible to launch these activities. Continuous follow-up by a member of the Secretariat responsible for the OSLR programme would be needed for progress to be made.

54. Concluding his report, the Technical Secretary assured the Regional Committee that the group of experts would be set up in the near future, and the regional component of OSLR brought into being.

55. The Moroccan observer, representing the Scientific Institute of Maritime Fisheries of Morocco, was in favour of developing the regional component on living resources and drew attention to the spirit of co-operation that existed in this field in the IOCEA region, of which the African Conference on fisheries held in March 1988 in Rabat (Kingdom of Morocco) was a good example. He then referred to the socio-economic importance of fisheries for the African countries with Atlantic seaboards, in particular the countries of the North (Cape Verde, Senegal, Mauritania and Morocco). He also drew attention to the existence at subregional level of data relating to trawling cruises undertaken in the northern region. With regard to benthic resources, it would be important to consider interactions with the environment, in liaison with the studies conducted under the OSNLR programme. Moreover, in order to understand the impact of the variability of hydroclimatic parameters on fluctuations in pelagic resources, it would be necessary to organize the collection of such data and to develop a network of observation stations along the coast. He repeated the offer (see 4.1 above) to make available his Institute's research vessel in order to carry out an oceanographic cruise covering upwelling complexes that would also include studies on topics covered by the OSNLR programme. Finally, he expressed the view that the establishment of a subregional or regional data bank storing all relevant data was essential.

56. The delegate of Mauritania agreed with the ideas put forward, and stressed the importance of the role that IOC could play in developing such a programme.

57. The Technical Secretary stated that an IOC circular letter relating to the setting up of the regional group of experts would be sent to IOC Action Addressees as soon as possible.

58. The delegate of Nigeria drew attention to the benefit that could accrue from a subregional project (Gulf of Guinea) on prawn recruitment (an important economic resource). The joint development of such a project under the auspices of the Regional Committee would

be a distinguished 'first' for IOCEA. Nigeria would make one of the NIOMR research vessels available to IOCEA for the purpose of executing the project.

59. ***The Regional Committee thanked*** Nigeria for the generous offer to make available a research vessel.

60. The delegates of Ghana and Côte d'Ivoire stressed the importance attached by their countries to carrying out studies on sardinella stocks.

61. The delegate of France supported the project submitted by Nigeria on penaeid prawns, pointing out that such a study might be modelled on the results obtained in other countries, in particular Côte d'Ivoire, where most of the biological parameters of the ***Penaeus notialis*** prawn were well known. He supported the projects submitted by Ghana and Côte d'Ivoire on sardinella stocks, and by Morocco, Mauritania and Senegal on North-West African pelagic fish stocks. These two schemes fitted perfectly into IOC's SARP programme. However, account would have to be taken of the data amassed over the past 20 or more years in all these countries, of the manner in which they had been processed and of results already obtained. These projects could perfectly well cover problems of sardinella recruitment and recruitment of other pelagic fish in connection with medium-term modifications in ecosystems, but taking a new angle.

62. The delegate of Senegal considered that it might be useful to diversify the research programmes of the OSLR component. These programmes should be designed to meet the aims of development policies. It was in his view a matter of urgency to set up a group of experts to formulate and set up such a programme.

63. The delegate of Sierra Leone, while supporting the proposals aimed at setting up a regional group of experts, urged that an appropriate review be made of the regions and hence the countries concerned by the different projects.

64. The FAO representative recalled that his organization was in principle in favour of any project or proposal whose purpose was to add to knowledge of the living resources of coastal marine environments and to exploit them in a rational way. Such proposals should also be submitted to FAO through the official government channels, so as to ensure that they received special attention - particularly if they had the support of the countries of the region concerned by the projects.

65. The delegate of the USSR informed the Regional Committee that his government had concluded intergovernmental agreements with a number of countries in the region. These agreements included a component relating to co-operative scientific exploration, using Soviet vessels. He expressed interest in taking part in the regional component of the OSLR programme, and suggested that efforts be made to co-ordinate its activities with those of CECAF (FAO). In that regard, particular attention should be given to the International Marine Fisheries Programme for the period 1989-1991, which involved the following countries: Gambia, Guinea-Bissau, Guinea, Mauritania and Sierra Leone. A project relating to that programme had been submitted by the USSR at the meeting of the CECAF Working Group in 1989, and adopted by the majority of participants. Research had already begun under the programme, in which Guinea, Mauritania, Sierra Leone and the USSR were participating. This scientific exploration was being conducted on board one of the most modern research vessels, the ATLANTIDA. The results of the studies undertaken might well constitute a major contribution to the OSLR regional component.

66. ***The Regional Committee took note*** of the offer of co-operation made by the Soviet Union, which possessed data on environmental parameters and on biological research.

67. ***The Regional Committee adopted Recommendation IOCEA-II.1.***

4.5 Ocean dynamics and climate

68. This agenda item was introduced by the Deputy Secretary of IOC. Submitting his report on TOGA and WOCE (a special presentation of which had been given at the Scientific Seminar associated with IOCEA-II), he informed the Regional Committee of the organization in Honolulu (Hawaii), from 10 to 20 July 1990, of the International TOGA Scientific Conference. He drew attention to the importance of the WOCE programme for the oceanographic community of West Africa, in that the WOCE data would provide a broader framework for the monitoring programmes being executed along the Eastern Atlantic seaboard. Numerical models could also give an insight into regional processes, which would have to be studied by the teams working in West African waters. Countries or groups of countries wishing to propose programmes for inclusion in CORE-1 and CORE-3 would be able to do so. Should the responsible working groups decide that these proposals could contribute to the objective of WOCE, they would be taken into account by the WOCE programme.

69. The delegate of France informed the Regional Committee that his country was taking part in the observation of tropical ocean regions under the ocean observing programme conducted aboard merchant ships. TOGA data could be obtained from the Brest Centre in two ways: (i) through IOC, and (ii) direct from the Centre, by countries with the appropriate information technology.

70. Some delegates drew attention to the fact that African scientists did not generally take part in the planning and execution of international projects.

71. ***The Regional Committee asked*** IOC to make provision for a fund to assist scientists in the IOCEA region to take part in the planning and implementation of projects relating to the WOCE and TOGA programmes.

72. ***The Regional Committee noted*** that IOC was to allocate a number of travel grants to enable scientists from developing countries to attend the forthcoming International TOGA Scientific Conference, to be held in Honolulu (16-20 July 1990) under the auspices of IOC, WMO, ICSU and SCOR.

4.6 UNESCO's activities in West and Central Africa

73. At the invitation of the Chairman of the Regional Committee, the Co-ordinator of the COMARAF programme introduced this item. The report on the activities relating to the first phase of the COMARAF programme had been submitted and discussed at the third meeting of the Regional Co-ordinating Committee, held in Abidjan (6-9 February 1990). The initial recommendations for developing the project concerned training and research activities and the regular issue of COMARAF publications.

74. The evaluation of the project, two years after its launching, indicated that on-site activities as these had been planned had been completed. The programme relating to the Bight of Benin was to be organized in 1990. Individual and group training grants had been awarded to young African scientists. The equipment required for three subregional programmes (mangrove productivity, coastal lagoon productivity and coral reef ecology and management)

had been provided for the region. This equipment would make it possible to take measurements that were comparable and compatible. With regard to the three publications launched under the COMARAF programme (bilingual newsletter, technical service and documentary service bulletins), these were currently being issued on a regular basis. The directory of the scientists taking part in the regional project published in December 1988 would shortly be updated.

75. In the light of these results, the project was seen as being a major step towards the main objective to be attained, namely, to set up an active regional network involving the institutions, centres and multidisciplinary teams concerned with marine coastal zone studies. Accordingly, the Co-ordinating Committee had strongly recommended at its last meeting (Abidjan) that the second phase of the project be extended (1992-1996).

76. There were plans for research and training activities in Sierra Leone (mangrove productivity), in Benin and in Nigeria (coastal lagoon productivity) in 1990.

77. For the future, it was suggested that IOCEA use all the experience acquired in executing the project in order to develop complementary programmes. COMARAF would pursue its activity in line with the programme established, but with more emphasis on the following two activities: (i) hydrodynamics and processes in the coastal zone, and (ii) productivity of coastal marine systems. In order to foster co-operation and the exchange of information, COMARAF intended to make its publications available to regional projects likely to be developed in the field of African coastal and marine systems.

78. ***The Regional Committee was informed*** of the mode of operation of ROSTA by its representative. The Vice-Chairman of the Regional Committee hoped that some information could be given on the criteria used by ROSTA for the release of funds. In his view, this would ensure more effective financial commitments.

79. ***The Regional Committee recognized*** the need to organize training workshops and to strengthen national capacities.

80. Several delegates raised the problem of the selection of participants for meetings. The Regional Committee agreed that member countries should pay particular attention to this question.

81. ***The Regional Committee expressed the view*** that the funds made available for projects served by their nature as a catalyst only, and that the major contributions should be provided by the Member States.

82. ***The Regional Committee took note*** of the outcome of the third meeting of the Regional Co-ordinating Committee for the COMARAF Programme.

5. OCEAN SERVICES

5.1 Global Sea-Level Observing System (GLOSS)

83. The Chairman of the Regional Committee invited Mr Alcock, a GLOSS expert, to introduce the subject. He began by sketching in the historical background, and then referred to the main relevant IOC decisions, in particular the adoption by the Assembly, at its fifteenth session (July 1989), of the GLOSS Implementation Plan.

84. That plan comprised the following components:

(i) description of the application of sea-level measuring to scientific and practical questions;

(ii) a network of GLOSS sea-level observing stations (at present about 300);

(iii) description of the applications for TOGA, WOCE, long-term studies on climate, studies on tectonic movements, and for research activities and practical schemes at regional and national levels;

(iv) description of procedures for data collection and exchange, indication of international sea-level monitoring centres;

(v) description of regional sea-level observing systems; and

(vi) the list of GLOSS national Contact Points.

85. With regard to the IOCEA region, a list of GLOSS stations had been drawn up, together with a list of national Contact Points. In 1989, a mission by a consultant from the Federal Republic of Germany was organized in the region, with IOC support, in order to advise those responsible for the installation of the proposed GLOSS stations. Another mission in the region by the same experts was to take place during March, April and May 1990 in order to undertake the installation of GLOSS tide gauge stations. The tide gauges to be used were part of a set of ten donated to IOCEA by Sweden. Specialists in the region could receive training in sea-level observation at courses operated under IOC auspices.

86. ***The Regional Committee noted*** with approval that an operational network of tide gauge stations was to be established in the near future.

87. ***The Regional Committee noted*** that the GLOSS special regional team would shortly be established, and that its Chairman would act as regional co-ordinator.

88. ***The Regional Committee thanked*** France for organizing a training course on sea-level measurement and its exploitation for French-speaking scientists (two formulas were envisaged, depending upon the availability of teachers and the possibility of IOC financing), which was to be held in September 1990 at the Service Hydrographique et d'Océanographie de la Marine in Brest (France).

89. ***The Regional Committee adopted Recommendation IOCEA-II.2.***

5.2 IOC-WMO Integrated Global Ocean Services System (IGOSS)

90. The Deputy Secretary of IOC described the international operational system used for the global collection and exchange of oceanic data and the timely preparation and dissemination of oceanic products and services. IGOSS had been planned, developed and co-ordinated jointly by IOC and WMO, and consisted of national facilities and services provided by Member States themselves, which shared data for mutual benefit.

91. IGOSS implementation in the IOCEA region was still very weak. In order to secure the broadest possible participation of IOCEA Member States in the system, and in particular to obtain appropriate advice on the development of national infrastructures and the supply of conventional equipment under VCP or other appropriate arrangements, the IOCEA countries

were invited to consider ways and means of increasing their participation and to identify national Contact Points for GLOSS to the IOC/WMO Co-ordinator of the system, in Paris (IOC/UNESCO).

92. ***The Regional Committee requested*** assistance from the IOC Secretariat to secure the active participation of IOCEA Member States in this system.

5.3 Development of the International Oceanographic Data and Information Exchange (IODE) system to meet regional needs

93. The IOC associate expert introduced the subject. He provided information on the main results and recommendations of the thirteenth session of the IOC Committee on International Oceanographic Data and Information Exchange (IODE), held at United Nations headquarters (New York, 17-24 January 1990). Progress had been made in the development of the GF3 system to facilitate data exchange, and efforts would be made to develop that system for different types of marine data by focusing on formating for use on personal microcomputers.

94. With regard to the ASFIS system, the setting up of a joint IOC-FAO-UN group of experts was recommended. A work plan had been devised for the updating of the International Directory of Marine Scientists. The importance was stressed of ensuring closer collaboration between IODE and such global scientific programmes as TOGA, WOCE, OSLR, OSNLR, etc. In addition, it was recommended that the Special Team on the exchange of marine geological and geophysical data should work in close collaboration with the OSNLR programmes and the ocean mapping programmes.

95. With regard to training, a number of countries offered to host training courses. In addition, the preparation of standard training course modules on oceanographic data and information management was proposed, it was recommended that standard software be designed for the processing and exchange of oceanographic data by means of personal microcomputers.

96. Communication difficulties with certain IOC regional programmes were highlighted; in addition, it was recommended that a regional Contact Point be set up in each region to liaise with the Committee responsible for IODE and the Secretariat for matters relating to IODE.

97. The IOC associate expert also described the IOC RECOSCIX-WIO information exchange project currently being executed which was aimed at setting up a co-operative network within the ASFIS framework for the IOCINCWIO (Western Indian Ocean) region.

98. Several delegates expressed the wish to see the region endowed with an information and data exchange network based on data-handling centres.

99. ***The Regional Committee asked*** for a mission to be organized in order to explore the possibility of developing a regional information network.

100. The delegate of Guinea presented the proposal to establish at CERESCOR, Conakry, a data base for physical oceanography (environmental parameters) capable of assuming regional responsibilities. This centre would be based on bilateral Guinea-USSR co-operation and IOC support.

101. ***The Regional Committee approved*** the establishment in Conakry of this regional physical oceanographic data centre which should facilitate the access of countries and scientists

in the region to oceanographic data and information. It expressed its thanks to the Guinean Government for its efforts in this field.

102. Some delegates drew attention to communication difficulties in the region, which could affect the transmission of data and information. The use of fax machines could help to overcome such problems.

103. The delegate of France notified the Regional Committee of the possibility of obtaining copies of scientific documents from ORSTOM in Montpellier (France).

104. ***The Regional Committee asked*** IOC to look into the possibility of securing extra-budgetary funds in order to expand the capabilities of the Conakry data centre.

5.4 Regional shelf seas and coastal zone monitoring system

105. The Assistant Secretary of IOC informed the Regional Committee of the decision taken by the IOC Assembly, at its fifteenth session (July 1989), regarding the preparation of a programme on ocean dynamics and circulation on the continental shelf (IOC/INF-769), and a plan and strategy for a global integrated ocean observing system (resolutions XV-3 and XV-4). He stressed the importance of the programme on coastal dynamics, in particular for the developing countries, their territorial waters and the economic zones in which activities were concentrated. Such a programme could have an impact upon coastal zone management, the exploration and exploitation of living and non-living resources, on programmes relating to problems of climate change, marine environment pollution and on such scientific experiments as WOCE and JGOFS.

106. The IOC Assembly decided to set up an ad hoc group of experts to help organize a workshop (scheduled for late 1990/early 1991) on ocean dynamics and circulation on the continental shelf, for the purpose of making as comprehensive an evaluation as possible of the state of knowledge of shelf seas in the main regions. In accordance with resolution XV-3, every effort must be made to secure the broadest possible participation in this workshop by scientists from both developing and developed countries, and support given for the implementation of IOC regional projects in the field of physical oceanography.

107. ***The Regional Committee noted*** the importance of such programmes, which were intended to strengthen existing lines of research in the field of living and non-living resources.

108. ***The Regional Committee noted*** the need to appoint a scientist to the ad hoc group of experts which was to contribute to the preparation of a plan and a strategy for the establishment of a global integrated ocean observing system.

6. TRAINING, EDUCATION AND MUTUAL ASSISTANCE (TEMA) IN THE FIELD OF MARINE SCIENCE

109. The Technical Secretary provided information on TEMA activities, which had included group courses and workshops and individual training, as well as study grants for scientists to enable them to participate in international scientific meetings relevant to current programmes. The Seminar on Partnership in Ocean Sciences and Services for Sustainable Development (Bremerhaven, Federal Republic of Germany, 19-22 September 1989) was reviewed, and a report was given on the Draft Outline for an Action Plan for the Implementation of the

UNESCO-IOC Comprehensive Plan for a Major Assistance Programme to Enhance the Marine Science Capabilities of Developing Countries.

110. ***The Regional Committee noted*** the need to establish what urgent needs for TEMA were being experienced by regional programmes, and to suggest appropriate ways of meeting those needs.

7. IOCEA MEDIUM-TERM PLAN (1990-1995)

111. This item of the agenda was presented by the Technical Secretary. The Regional Committee was invited to formulate an indicative programme implementation plan for 1990-1995 and to consider what activities should be developed during the period 1990-1991, taking account of the priorities of Member States emerging from the present session. The Regional Committee was informed of the resolution adopted by UNESCO at its last General Conference, in November 1989, strengthening co-operation with the African Member States and launching a special programme entitled 'Priority: Africa'.

112. A group of delegates proposed the following plan to the Regional Committee, which adopted it:

Medium-term plan of activities for 1990-1995

113. The IOCEA region should be granted special assistance on the basis of UNESCO's 'Priority: Africa' programme.

114. In order to make provision for appropriate future participation by scientists in the region in such projects as WOCE, TOGA etc., such participation being at present somewhat insubstantial on account of the intergovernmental nature of the meetings, a special fund should be set up.

115. In view of the public interest shown in the protection of the marine environment, it was essential to increase the level of research and marine pollution monitoring activities, and of the financing required on the part of IOC.

116. In addition, extra-budgetary fund-raising efforts should be pursued in order to ensure implementation of the projects adopted.

117. Efforts and activities during the 1990-1995 period, and more particularly during 1990-1991, should be focused on the following fields:

A. Non-Living Resources (OSNLR)

(i) The second phase of the hydrodynamic study relating to the project 'Sediment Budget along the West African Coastline', focusing on coastal erosion, should be completed (1990-1991):

(a) continuation of the hydrodynamic study and completion of the geophysical part;

(b) IOC assistance to scientists for analyses of the data collected requiring resources not available in the region.

(ii) Implementation of the subproject on the Effect of Damming Rivers on the Supply of Sediment to the Coastal Zone.

(iii) Training course in oceanography.

(iv) Organization of a workshop on the results of IOCEA cruises.

B. Global Sea-Level Observing System (GLOSS)

(i) Additional provision of tide gauges.

(ii) Participation/integration of experts in the IOCEA region in the GLOSS group of experts (1990-1991).

(iii) Training in tide-gauge data collection and analysis (1990-1991).

(iv) Provision of spare parts and consumable items for the tide gauges already installed (1990-1991).

(v) Supply of the equipment needed for tide gauge data analysis.

(vi) Setting up of the special IOCEA team for GLOSS, the team leader acting as co-ordinator (1990-1991).

C. International Oceanographic Data and Information Exchange (IODE)

(i) Establishment of a special team to be responsible for developing a system similar to the RECOSCIX system set up in the IOCINCWIO region (1990-1991).

(ii) Assistance to the Physical Oceanographic Data Centre established at CERESCOR, Conakry, Guinea, subsequently supported by a network of laboratories engaged in data exchange in the region.

(iii) Assistance to documentation centres located in the region for scientific documentation.

D. Integrated Global Ocean Services System (IGOSS)

(i) Participation by scientists of the IOCEA region in IGOSS activities.

(ii) Preparation of specific IGOSS projects for the region (1990-1991).

E. Training, Education and Mutual Assistance (TEMA)

(i) Organization of enhanced training opportunities for scientists of the region.

(ii) Organization of workshops and participation by scientists from the region in international workshops, conferences and courses.

(iii) Provision of oceanographic equipment for the region.

F. Ocean Science in relation to Living Resources (OSLR)

(i) Establishment of a group of experts to be responsible for the regional component of the IOC-FAO programme on oceanology and living resources (1990-1991).

(ii) Meeting of the group of experts to draw up the plan of action (1990-1991).

(iii) Organization of two oceanographic cruises.

(iv) Organization of workshops to present and analyse the results of oceanographic cruises.

(v) Co-operation with FAO on the projects already prepared.

(vi) Study and evaluation of prawn recruitment in the coastal zones of Cameroon, Benin, Côte d'Ivoire and Nigeria. This co-operative activity was to be undertaken on board a research vessel supplied by Nigeria (1990-1991).

8. CO-OPERATION WITH OTHER ORGANIZATIONS

118. The delegate of IMO informed the Regional Committee that his organization was engaged in long-term technical co-operation with IOC on providing scientific information to ensure the effective implementation of the two conventions, namely: (i) the London Convention on Dumping of Wastes at Sea, and (ii) the MARPOL Convention for the Prevention of Pollution from Ships. The London Convention regulates the sea dumping of waste on a worldwide scale. Article I of that Convention provides that the Contracting Parties shall take effective measures to prevent marine pollution caused by the dumping of waste, and shall endeavour to promote control of all sources of marine pollution.

119. In that context, the IMO delegate drew the attention of the Regional Committee to the organization of the West and Central African Seminar on waste management and dumping at sea, to be held in Abidjan, Côte d'Ivoire (28 May-1 June 1990). The seminar was to be held under the aegis of the International Maritime Organization (IMO), the Intergovernmental Oceanographic Commission (IOC) and the United Nations Environment Programme (UNEP). Its main objectives were, on the one hand, to keep the countries of West Africa and the Centre informed of progress made in reducing marine pollution, thanks to the control of dumping at sea, and, on the other, to encourage accession to the Convention by other countries. Grants were available for participation in the seminar, and a letter of invitation enclosing the list of participants would be sent to the Contact Points.

120. The IMO delegate also replied to a number of questions concerning the role of his organization with regard to the dumping of oil wastes.

121. ***The Regional Committee thanked*** Côte d'Ivoire for having agreed to host the seminar in Abidjan.

122. ***The Regional Committee noted*** that there was some co-operation among international organizations on the prevention of marine pollution, including, in particular, WHO, FAO, IAEA, the World Bank and certain regional organizations. The Committee was informed of the organization of a United Nations Conference on Environment and Development in Brazil in 1992.

123. The delegate of UNEP drew the Regional Committee's attention to the fact that the African Ministerial Conference on the Environment (AMCEN) was to hold a meeting on marine and oceanographic issues on 6 and 7 March 1990. Discussions would probably focus on the question of the proposed convention on the dumping of waste at sea in the WACAF region. He went on to stress that if UNEP was contacted in the event of accidents involving pollution, it would at once do its utmost to secure the technical assistance of the United Nations Specialized Agencies.

9. ELECTION OF THE CHAIRMAN AND VICE-CHAIRMAN

124. The Technical Secretary invited proposals for the posts of Chairman and Vice-Chairman, reminding the Committee that under the present Guidelines for the Structure and Responsibilities of IOC Subsidiary Bodies, the Chairman and Vice-Chairman should be elected for the intersessional period and the third session of the Regional Committee. The Chairman and Vice-Chairman of the present session were eligible for re-election.

125. The delegate of Ghana proposed Mr Sekou Konaté of Guinea as Chairman and Dr Chidi Ibe of Nigeria as Vice-Chairman. This motion was seconded by the delegates of Senegal, Côte d'Ivoire, Benin and Nigeria. There being no other candidates, Mr Konaté and Dr Ibe were re-elected unanimously.

10. DATE AND PLACE OF THE THIRD SESSION

126. The Technical Secretary informed the Regional Committee that, in view of the budget constraints under which IOC operated and of the time required to launch projects and to obtain results from the different research projects undertaken, a three-year intersessional period was recommended.

127. ***The Regional Committee adopted*** the proposal. The third session should in principle take place in 1993.

128. The Technical Secretary invited those countries interested in hosting the next session to discuss the requisite conditions with the IOC Secretary, as the obligations of a host country were considerable and should be clearly understood before any offer was made.

129. The delegate of Senegal announced that his country was in principle offering to host the third session, but that the dates would be fixed by mutual agreement between the IOC Secretariat and Senegal.

11. ADOPTION OF THE REPORT

130. ***The Regional Committee authorized*** the Secretariat of IOC, in consultation with the Chairman, the Vice-Chairman and the delegate of Côte d'Ivoire, Dr Zabi, to finalize the report.

12. CLOSURE

131. The Chairman of the IOCEA-II local organizing committee welcomed participants to the closing ceremony. He presented the Director-General of the Federal Ministry for Science and Technology, Professor E.E. Okon, whose efforts had made it possible to undertake the

activities that had led to the success of IOCEA-II, and thanked him for having agreed to come to close the session. He also conveyed his thanks to the Federal Minister of Education, the Federal Minister of Science and Technology, the Director of NIOMR, the Secretary-General of the National Commission for UNESCO and the IOC Secretary.

132. On behalf of the Regional Committee, its Chairman thanked the Government of Nigeria, and in particular the Organizing Committee, for its unsparing efforts to ensure the success of IOCEA-II.

133. The Director-General of the Federal Ministry of Science and Technology observed that the hopes expressed at the opening ceremony had been fulfilled by the session's results. He went on to express his appreciation for the spirit of friendship that had reigned throughout the discussions, and conveyed his thanks, on behalf of the Government and the people of Nigeria, to IOC for having chosen his country as the venue for the meeting.

134. The Chairman of the Regional Committee added his thanks, on behalf of the Committee, to the supporting staff, the interpreters and IOC Secretariat, for having helped to make the session a success.

135. The session was declared closed at approximately 5 p.m. on 23 February 1990.

ANNEX I

AGENDA

1. OPENING

2. ADMINISTRATIVE ARRANGEMENTS

   2.1 Adoption of the agenda
   2.2 Designation of the rapporteurs
   2.3 Conduct of the session, timetable and documentation

3. REPORT ON INTERSESSIONAL ACTIVITIES

4. MARINE SCIENCE ACTIVITIES IN THE REGION

   4.1 Regional component of the IOC-UN(OALOS) programme on Ocean Science in relation to Non-Living Resources (OSNLR)
   4.2 Marine pollution research and monitoring
   4.3 Ocean mapping and the International Bathymetric Chart of the Central Eastern Atlantic
   4.4 Marine ecosystems, living resources and regional component of the IOC-FAO programme on Ocean Science in relation to Living Resources (OSLR)
   4.5 Ocean dynamics and climate
   4.6 UNESCO's activities in West and Central Africa

5. OCEAN SERVICES

   5.1 Global Sea-Level Observing System (GLOSS)
   5.2 IOC-WMO Integrated Global Ocean Services System (IGOSS)
   5.3 Development of the International Oceanographic Data and Information Exchange (IODE) system to meet regional needs
   5.4 Regional shelf seas and coastal zone monitoring system

6. TRAINING, EDUCATION AND MUTUAL ASSISTANCE (TEMA) ACTIVITIES

7. IOCEA MEDIUM-TERM PLAN (1990-1995)

8. CO-OPERATION WITH OTHER ORGANIZATIONS

9. ELECTION OF CHAIRMAN AND VICE-CHAIRMAN

10. DATE AND PLACE OF THE THIRD SESSION

11. ADOPTION OF THE SUMMARY REPORT

12. CLOSURE

ANNEX II

RECOMMENDATIONS

Recommendation IOCEA-II.1

Marine ecosystems, living resources and regional component of the IOC/FAO programme on Ocean Science in relation to Living Resources

The IOC Regional Committee for the Central Eastern Atlantic,

Recalling Recommendation IOCEA-I.1 and its annex calling for the establishment of a group of experts on ocean science in relation to living resources in the Central Eastern Atlantic, to be responsible for drawing up proposals for OSLR projects at the regional level,

Noting with satisfaction that the IOC Assembly at its fifteenth session, which was held in Paris from 4 to 19 July 1989, took into account this important question of the establishment of a group of experts on ocean science in relation to living resources,

Emphasizing the great interest that the Member States of the IOC Regional Committee for the Central Eastern Atlantic have in ocean science in relation to living resources, especially with regard to greater co-operation at the regional level and with international organizations such as FAO,

Noting in addition that all the components of living marine resources should be taken into consideration in the preparation of the plan of action of the proposed group of experts which should place emphasis on the following points:

(i) the importance of fishery (pelagic and demersal) resources for which a draft research programme is envisaged by Cape Verde, Morocco, Mauritania and Senegal for the northern part of the Central Eastern Atlantic, a programme in which any Member State wishing to do so may participate; and the need to carry out in the near future a research project on shrimps, as envisaged by Benin, Cameroon, Côte d'Ivoire, Ghana, Guinea, Equatorial Guinea, Nigeria, Sierra Leone and Togo, one component of this being the inventory of stocks in marine waters under the jurisdiction of Member States wishing to participate in the project,

(ii) the very important role and place of phytoplankton and zooplankton in the knowlege of living marine resources,

(iii) the recognized importance of the phytobenthos and zoobenthos, first of all in the trophic chain and secondly in the spatio-temporal evaluation of the evolution of the marine environment,

(iv) study of the hydroclimate of the marine environment to obtain a better knowledge of the conditions in which living marine resources develop, with a view to their rational exploitation,

Urges the Secretary of IOC to draw the attention of the Executive Council at its twenty-third session to the pressing need to set up the regional group of experts on ocean science in relation

to living resources, which should hold at least one working meeting during the 1991-1992 biennium;

Requests the IOC Assembly, at its sixteenth session, to provide the IOC Secretariat with adequate means to enable it to launch the activities of the group of experts during the 1991-1992 biennium.

Recommendation IOCEA-II.2

Global Sea-Level Observing System (GLOSS)

The IOC Regional Committee for the Central Eastern Atlantic,

Recalling Recommendation IOCEA-I.4 on the GLOSS component of IOCEA,

Noting with satisfaction resolution XV-8 on GLOSS, adopted by the IOC Assembly at its fifteenth session,

Recommends that the IOC Executive Council at its twenty-third session and the Group of Experts on GLOSS at their meeting in Miami, United States of America, in October 1990, consider the following points:

(i) while Sweden's offer of five tide gauges to the countries of the region is welcome, it is recommended that IOC envisage the means of ensuring the continued operation of these gauges by providing consumable items such as pens, ink, chart paper and spare parts;

(ii) the Permanent Service at Bidston having indicated the existence of unprocessed historical data from some tide gauges of the IOCEA region, IOC is urged to provide a number of centres in the region with the equipment required for the processing and study of these data and to pay for some scientists from the IOCEA region to travel to the Proudman Oceanographic Laboratory at Bidston to process these data there;

(iii) the inclusion of experts from the IOCEA region in the Group of Experts on GLOSS is essential and should be formally approved.

ANNEX III

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ANNEX IV

LIST OF WORKING DOCUMENTS*

Document code	Title
IOCEA-II/1	Agenda
IOCEA-II/1 Add.	Timetable (English only)
IOCEA-II/2	Annotated provisional agenda
IOCEA-II/3	Report
IOCEA-II/4 prov.	Provisional list of documents (English only)
IOCEA-II/5 prov.	Provisional list of participants
IOCEA-II/6	Report on intersessional activities (English only)
IOCEA-II/7	Report of the scientific seminar preceding the second session of IOCEA

* The working documents are those prepared specifically for the session. No stocks are kept, and these documents cannot therefore be made available after the session, with the exception of the final report.

ANNEX V

LIST OF ACRONYMS

ACP	African, Caribbean and Pacific Group of States
AMCEN	African Ministerial Conference on the Environment
ASFIS	Aquatic Sciences and Fisheries Information System (FAO-IOC-UN)
CEC	Commission of the European Communities
CECAF	Fishery Committee for the Eastern Central Atlantic (FAO)
CERESCOR	Centre de recherches scientifiques de Conakry (Guinea)
COMARAF	UNESCO(COMAR)/UNDP Regional Project on Coastal Systems of Africa
COR	Centre for Oceanographic Research
FAO	Food and Agriculture Organization of the United Nations
GLOSS	Global Sea-Level Observing System
IAEA	International Atomic Energy Agency
IBCEA	International Bathymetric Chart of the Central Eastern Atlantic
ICSU	International Council of Scientific Unions
IGOSS	IOC-WMO Integrated Global Ocean Services System
IHO	International Hydrographic Organization
IMO	International Maritime Organization
IOC	Intergovernmental Oceanographic Commission
IOCEA	IOC Regional Committee for the Central Eastern Atlantic
IOCINCWIO	IOC Regional Committee for the Co-operative Investigation in the North and Central Western Indian Ocean
IODE	International Oceanographic Data and Information Exchange
JGOFS	Joint Global Ocean Flux Study
MARPOL	International Convention for the Prevention of Pollution from Ships
NIOMR	Nigerian Institute for Oceanography and Marine Research
OCA-PAC	Oceans and Coastal Areas Programme Activity Centre

ORSTOM	Institut français de recherche scientifique pour le développement en coopération
OSLR	Ocean Science in relation to Living Resources
OSNLR	Ocean Science in relation to Non-Living Resources
RECOSCIXWIO	Regional Co-operation in Scientific Information Exchange in the Western Indian Ocean
ROSTA	Regional Office for Science and Technology for Africa
SARP	Sardine-Anchovy Recruitment Project
SCOR	Scientific Committee on Oceanic Research
TEMA	Training, Education and Mutual Assistance in the Marine Sciences
TOGA	Tropical Ocean and Global Atmosphere
UN	United Nations
UNEP	United Nations Evironment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
VCP	Voluntary Co-operation Programme
WACAF	Project on Monitoring of Pollution in the Marine Environment of the West and Central African Region
WHO	World Health Organization
WMO	World Meteorological Organization
WOCE	World Ocean Circulation Experiment