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8th meeting

Friday, 19 July 1974, at 10.55 a.m.

Chairman: Mr. A. YANKOV (Bulgaria).

Scientific research (*continued*)

[*Agenda item 13*]

Development and transfer of technology (*continued*)

[*Agenda item 14*]

1. Mr. EHRMAN (Panama) said that since there was no lack of exchange of scientific information among the developing countries or any transfer of such information from the developed to the developing countries, there was no unity of view concerning the problems of scientific research. Better means of scientific communication would have to be established, so that marine information would be accessible to all countries.
2. His Government recognized the need for unrestricted marine scientific research, but it would have to be regulated, to avoid the risk of abuse. For that reason it maintained the sovereign right to regulate such activities in its territorial waters.
3. It was difficult to separate scientific research from the question of marine pollution and protection of the marine environment, because it was scientific research which would show the way to combat pollution and protect the seas.
4. There were two divergent approaches to the question, neither of which his delegation could accept as a solution. The first was that pollution was an invention of the developed countries to gain economic control of the developing countries and that drastic controls were necessary; but excessive restrictive measures resulting from improper interpretation of scientific experiment would cut down the development of the developing countries. The second approach favoured development at all costs; and the consequences of development without scientific planning would be disastrous, because the very basis of development would be destroyed by pollution and inadequate use of resources. Panama had known two such examples, connected with the building of the Panama Canal, the first resulting in the disappearance of several species of fish and the second in the transformation of the Barraza, Santo Domingo and Bella Vista beaches into a noisome bay whose foul-smelling air reached the urban sectors along the Bay of Panama.
5. Development must be carried out with the scientific cooperation of all countries, sharing and learning from experience and mistakes.
6. Mr. STEVENSON (United States of America) said his delegation believed that the coastal State should have the right to authorize and regulate scientific research in the territorial sea but that the existing right to conduct research in the area beyond the limits of national jurisdiction, as provided in the Declaration of Principles Governing the Sea-Bed and the Ocean Floor, and the Subsoil Thereof, beyond the Limits of National Jurisdiction¹ of 1970, should continue.
7. If a zone was established at a distance of 200 miles from the coast, it would include at least one third of the ocean, of particular importance to scientists. The two fundamental marine science questions before the Conference were: first, to determine whether to promote marine science; and secondly, to decide how to accommodate other interests in the conduct of marine science. He believed that there was a consensus in favour of encouraging marine scientific research and that the

rules regarding it should ensure the greatest benefit to all and protect coastal State interests in the economic zone. The régime to be created must reflect that consensus.

8. Marine research was often difficult, time-consuming and expensive, and therefore beyond the limited resources of many developing countries. The only way to ensure that research conducted by countries willing to use some of their resources for that purpose was of benefit to all countries, including the developing countries, would be to create a régime which would guarantee that research was conducted for the universal benefit.

9. A consent régime would not foster scientific research, but would tend to preclude it or undermine its scientific validity. Oceanic processes did not respect man-made boundaries; and while useful research could often be conducted on the long coastlines of his country and its neighbours in the Western Hemisphere without the consent of all the coastal States concerned, that would not be true, for example, in the Gulf of Guinea if only some of the States gave consent.

10. To ensure that all States benefited from marine scientific research, it was important to avoid restrictions on the wide dissemination of findings. Scientific knowledge must flow not only to the coastal and researching States but to all mankind.

11. Ideally, a more complete understanding of oceanic processes would occur if marine scientists were free to carry out research anywhere in the seas without restriction; but the legitimate rights and interests of coastal States must be accommodated. To that end, his delegation had prepared in 1973 a draft treaty proposal (A/AC.138/SC.III/L.44) containing a list of coastal rights embodied in the following obligations for anyone wishing to conduct research in the zone: advance notification and a detailed description of the proposed research; the coastal State to have the right to participate directly or through an international organization of its choice; sharing of all data and samples with the coastal State; assistance to the coastal State in interpreting the results of the research; early publication of the significant results in an open, readily available scientific publication; compliance with all applicable international environmental standards; and flag-State certification that the research would be conducted in accordance with the treaty by a qualified institution and would be purely scientific. That list was an effort to meet the legitimate concerns of coastal States and was based on a study of the national laws of other States.

12. He said that participation would allow the coastal State to satisfy itself that the research was in fact scientific; that open publication would provide additional assurance that the research was not commercially oriented, since collectors of proprietary data were rarely willing to share it with competitors; that compliance with international environmental standards would ensure protection of the environment of the economic zone; that coastal States should have the right to authorize and regulate scientific drilling which was an environmental threat; and that respect for the rights and interests of the coastal State would prevent unreasonable interference with fishing or seabed exploitation.

13. If a researcher met the obligations listed, he should be able to conduct research without coastal State consent. There should, however, be a mechanism for compulsory settlement of disputes concerning research activities available to both the coastal and researching State. He would welcome views on ways of balancing the interests of both sides.

¹General Assembly resolution 2749 (XXV).

14. He believed that the draft articles provided a balance between rights and duties which protected the coastal States' interests while fostering the conduct of marine scientific research and ensuring that it would benefit everyone.
15. With regard to the transfer of technology, he did not support the suggestion made by some representatives that it should be made dependent on coastal State right of consent or that consent would be a useful bargaining lever for obtaining technology transfer. To be effective, technology transfer must be regular and sustained and not the result of negotiations with the occasional research vessel seeking permission. A consent régime would increase research costs and thus reduce the amount of research and the attendant technology transfer; and neither scientific objectives nor the developing countries' objectives would be served if cost became a major factor in determining where research should take place. Transfer of marine science technology would best be accomplished through multi-lateral effort, not through *ad hoc* bargaining for consent to do research.
16. He recalled his delegation's statement in 1972 to Sub-Committee III of the Committee on the Peaceful Uses of the Sea-Bed and the Ocean Floor beyond the Limits of National Jurisdiction, expressing its willingness in principle to commit funds to support multilateral efforts in all appropriate international agencies, with a view to creating and enlarging the ability of developing States to interpret and use scientific data for their economic benefit and other purposes; to augment their expertise in the field of marine science research; and to have available scientific research equipment, including the capacity to maintain and use it. Such funds would be in addition to financial efforts by the International Sea-Bed Authority. He now wished to re-emphasize his country's willingness to participate in such programmes.
17. Mr. VARGAS (Mexico) said that his country had a sea coast about 10,000 kilometres long—the second longest in Latin America—a continental shelf of about 400,000 square kilometres and about 15 million hectares of coastal lakes and estuaries. Its coastal waters on the Pacific Ocean, the Gulfs of Mexico and California, and the Caribbean Sea were rich in fish. In order to ensure the full use of the sea, the rational development and exploitation of its resources and the gathering of data on the marine environment, it was essential to conduct scientific research on the sea and its resources, both renewable and non-renewable. His delegation considered, however, that such research should not be regarded as an unrestricted activity. Along with many developing countries, Mexico believed that it should be subject to a measure of control and regulation both in national maritime areas and in the international area of the sea-bed. Unrestricted freedom of scientific research was no longer acceptable.
18. His delegation's views on marine scientific research had already been stated at the 28th meeting of Sub-Committee III of the sea-bed Committee but he wished to supplement its basic points. The distinction between pure and applied scientific research was artificial and basic and applied research were simply stages in the same process. Any State, regardless of its geographic position, or any international organization, could conduct scientific research in the sea, as long as it respected the rights of the coastal States and took into account the interests of the international community, in particular the interests and needs of the developing countries. His delegation also agreed with the delegations which had proposed that scientific research in the marine environment should be subject to a set of basic principles providing, among other things, that such research should be conducted in a reasonable way and without unjustified interference with other uses of the sea; that it should conform with the relevant laws and regulations of the coastal State in areas subject to the sovereignty and jurisdiction of the State concerned; that it should not cause pollution or harm to marine species; that it should not be the basis for any legal claim on any part of the sea or its resources; and that it should take into account the degree of social and economic development and the national priorities of the coastal State.
19. The coastal State should have the right to participate or be represented in all stages of the scientific research, from planning up to the final stage of evaluating results when such research was conducted in the maritime areas within the sovereignty and jurisdiction of the coastal State.
20. No scientific research should take place in the territorial sea, the patrimonial sea or the continental shelf without the coastal State's prior authorization. However, the coastal State should not withhold its authorization unreasonably if the established requirements had been fulfilled.
21. It was the sovereign right of the coastal State to establish reasonable conditions for authorizing scientific research in any of those maritime areas by individuals or foreign institutions, such conditions to take account of the purposes of the research, including its economic implications, the type, means and site of research, the name, captain, tonnage, type and class of ship and its ship-borne scientific facilities; the names of the scientists taking part, the name of the person in charge of the project, and the name of the sponsoring institute; the proposed timetable and other relevant information.
22. Such information should be given to the coastal State within six months of the date proposed for starting research; the coastal State would be allowed a period not exceeding three months to reply to a properly submitted request, but the period could be reduced if a scientist or representative of the coastal State participated in the planning and preparatory work or in the implementation and evaluation of results.
23. By authorizing scientific research in the maritime areas under its sovereignty or jurisdiction a coastal State should acquire the following rights: to participate or be represented in all phases of such research, to make appropriate use of and share in the samples obtained, to have access to all information and the results obtained from it, to require publication of the results, to obtain adequate technical assistance to understand fully the information resulting from the research, particularly in its scientific and economic aspects, and the right to control and supervise the research.
24. The coastal State would grant appropriate facilities for the conduct of the research it had authorized; and it would be desirable for the State to co-operate in subregional, regional and multinational research when such research was conducted in accordance with the relevant principles and rules.
25. He stressed the importance of satellites in scientific research, particularly in connexion with marine and land resources. In the exploitation of fisheries, weather forecasting and pollution, for example, satellites were already an important factor which in some cases could be detrimental to the States which lacked technological means. Satellites could also on occasion be used instead of oceanographic vessels for marine scientific research in order to evade the requirements laid down by the coastal State concerning the marine area under its sovereignty or jurisdiction. Careful study must be given to the kind of regulation and control required for satellites used for marine scientific research which affected the natural resources, renewable and non-renewable, over which a coastal State exercised full sovereignty.
26. Mr. HARAN (Israel) said his country had few natural resources and would derive no substantial advantage from extending its jurisdiction over marine resources, but would be adversely affected by the extension of such jurisdiction by other States. On the other hand, it was favourably positioned for marine research and would spare no efforts to develop and encourage its potential in that field. Consequently, his Government had established an oceanographic and limnological research organization whose main research facility, the Israel Oceanographic Institute, was in Haifa. Both the Institute and

its extension, the Elat Marine Biological Laboratory, had small research vessels which were working in the Mediterranean and the Red Sea.

27. Freedom of research was one of the imperatives of modern society and had been of the greatest benefit to mankind. Scientific research, which must not and, in fact, could not be kept a secret, clearly offered the greatest promise to the developing countries in coping with some of the problems facing them. One of the conditions for assuring the developing countries access to scientific knowledge was that they must help to maintain the freedom of research and encourage others to do likewise. Freedom of research was particularly necessary for marine research. The preservation and improvement of the marine environment and the rational and effective use of its resources required the deep understanding and fullness of knowledge that only unhampered oceanographic and marine research could provide.

28. Freedom to carry out scientific research was one of the universally recognized freedoms of the high seas, subject only to the need to protect the marine environment. In the territorial sea, coastal States had rights and interests which had long been recognized by all, including the right to allow or prohibit scientific research. In view of the widening of the territorial sea in many parts of the globe, it would help marine research if a formula could be found that would stipulate that permission to conduct such research would be refused only for very serious reasons.

29. The proposed economic zone would be of enormous size, covering nearly one fifth of the world oceans. Most marine research was carried out in an area only a few hundred kilometres from the coast and would be jeopardized unless a liberal régime was provided for marine research. That could be done by drawing up a list of the obligations of those carrying out research in the area, rather than by enforcing a consent régime like that applied to the territorial sea. The obligations could include, *inter alia*, flag State certification that research was being conducted by a qualified institution, publication of research results and compliance with applicable international environmental standards. The issue was of decisive importance and might well determine the whole future of marine research.

30. The proposed convention on the law of the sea would make only a small contribution to the transfer of technology to the developing countries. The convention should contain provisions relating to the transfer of technology, but they should be seen only as a stepping stone for further efforts. The principal efforts must be made in the international organizations possessing the necessary expertise.

31. Mr. FINUCANE (Ireland) said that his country, which had a long coastline and a large continental shelf area, was particularly interested in marine research and transfer of technology. Marine research was fundamental to the efficient understanding, management and orderly development of marine resources.

32. Much marine research was fundamental and did not lead directly to economic exploitation. Its pursuance was a legitimate objective in itself; an increased understanding of the oceans should be encouraged and expanded as far as possible. The difference between pure and applied research was increasingly difficult to define and was subject to change as a result of technological development. Consequently, any country wishing to carry out marine research within the territorial sea or economic zone of a coastal State should obtain the State's consent beforehand. In order not to interfere with the conduct of scientific research, consent should not be arbitrarily refused or delayed unreasonably.

33. Marine research should be conducted with maximum efficiency and rationalization, and with maximum regard for the safety of personnel and equipment. Programmes should be designed to contribute as far as possible to the growth of scien-

tific knowledge, while interfering as little as possible with marine ecology. Accordingly, a coastal State should be able to make regulations for the conduct of marine research in its area of coastal State jurisdiction. Marine research had economic, social and political implications and the interests of coastal States in the economic zone could best be protected by the coastal State itself by the application of a reasonable consent régime.

34. On the high seas, marine research should be carried out freely, within the jurisdiction of the International Sea-Bed Authority, and subject only to achieving the most efficient and rational development of marine science programmes. Countries or institutions wishing to carry out marine research in the area should notify the Authority in sufficient time for it to consider the programmes in relation to others. The Authority should draw the attention of countries proposing programmes to similar ones being carried out by other countries and should promote joint programmes as far as possible. The Authority should also promote and encourage the carrying out of marine research in such a way as to lead to the orderly and equitable exploration and exploitation of international ocean space. In some instances, the economic zone might be arbitrary in terms of the physical characteristics of the adjacent ocean; certain coastal States might accordingly have a legitimate interest in programmes being carried out adjacent to that economic zone. The Authority should therefore notify coastal States of programmes in areas adjacent to their economic zone and should promote their participation in those programmes.

35. The results of all marine research should be disseminated in such a way as to increase as far as possible international scientific understanding of the oceans. They should therefore be disseminated as widely, fully and quickly as possible.

36. His delegation attached the highest importance to the subject of technology transfer. As a country with limited resources, Ireland fully understood the position of representatives from developing countries who had spoken on the urgency of establishing suitable mechanisms for the transfer of relevant and meaningful technology.

37. Mr. RODRIGUEZ (Venezuela) said that the regulation of scientific research was an important aspect of the concept of the patrimonial sea. Research could affect the exploitation of the resources of the exclusive economic zone, and must therefore be defined clearly so as to protect and ensure the continuity of *bona fide* research in the future. Research must be distinguished from industrial exploration and from commercial and military activities. *Bona fide* research should be subject to the previous consent of coastal States. Scientific progress must not be held up.

38. His delegation believed that a new era of research was beginning. Unilateral research by the developed countries could give way to bilateral agreements to promote research. International machinery could be established, perhaps with the participation of the International Sea-Bed Authority, to serve as a clearing-house for projects put up by various countries and to facilitate the formalities for research in the exclusive economic zone.

39. Technological progress had a direct effect on productivity and was therefore a fundamental factor of under-development. It was in the interest of the whole international community to seek ways of narrowing the technology gap by facilitating the transfer of technology from the developed countries to the developing countries. The new sea-law package deal should therefore include general, clear and exact provisions concerning the transfer of technology. First, the priorities set by receiving countries must be taken into account, without narrowing their options. The technology should not be limited to anti-pollution and marine environment protection, but should cover a wide range of subjects of importance to marine science. Secondly, the technical and scientific structure of the devel-

oping countries must be taken into account, as must the need to reinforce the structure by training national technical personnel. He reiterated his delegation's concern over the general rise in training costs in major international education institutions. Thirdly, the organizations and bodies of the United Nations that encouraged the international transfer of technology must be given greater support. Fourthly, the developed countries must take action at home to provide the developing countries with access to all sources of technology without any discrimination. Fifthly, the direct and indirect costs of the transfer of technology could be very high and his delegation did not wish to see the economically weaker coastal States barred from a more intensive and rational exploitation of the sea by economic and financial difficulties in acquiring advanced technology. What was involved was not international assistance, but justice between peoples.

40. Mr. LO Yu-ju (China) said the contention of many countries of the third world that marine scientific research should be appropriately regulated was entirely proper and should be taken as the basis for discussion at the Conference. The super-Powers, however, in disregard of the just demands of the majority of States, strongly opposed the regulation by coastal States of scientific research in sea areas under national jurisdiction. Marine research, like any other scientific research, directly or indirectly served definite political, economic or military purposes. If such scientific research was permitted freely, the coastal States would be unable to safeguard their sovereignty and protect their national security. In the hands of the super-Powers, marine research was a means of contending for maritime hegemony and for pursuing policies of aggression and plunder. The so-called "freedom of scientific research" advocated by them was only the freedom to violate the sovereignty of other States and to monopolize marine research. To counter that, it was entirely necessary that many countries, particularly those of the third world, should insist on the appropriate regulation of marine research. His delegation fully supported their stand.

41. Marine research should be governed by the following basic principles. First, anyone wishing to conduct marine research in the sea area within the national jurisdiction of another coastal State must obtain the prior consent of that State and observe its relevant laws and regulations. Secondly, a coastal State had the right to take part in any scientific research carried out by other countries in the sea area under its national jurisdiction and to obtain the data and results thereof. Such data and results could not be published or transferred without the prior consent of the coastal State concerned. Thirdly, marine research in the international sea area beyond national jurisdiction should be subject to regulation by the international régime and international machinery to be established. Fourthly, all States should promote international co-operation in marine research and actively assist the developing countries to enhance their capability to conduct marine research independently, on the basis of mutual respect for sovereignty and equality and mutual benefit.

42. The developing countries had great potential for developing their marine science and technology independently. That could be done by unremitting effort in the light of a country's own specific characteristics and conditions and by advancing along the road of independence and self-reliance. Self-reliance did not mean self-seclusion or the rejection of foreign aid. All countries should exchange marine environment preservation and marine research techniques. His country wished to learn from the useful experience of other countries in that respect. There should be an active transfer of technology to developing countries, without any conditions or demands for special privileges. The technology transferred must be practical, efficient, economic and convenient to use. Experts and other personnel dispatched to the recipient countries should conscientiously pass on technical know-how to the peoples of those countries

whose laws and national customs should be respected. They must not ask for special facilities or engage in illegal activities.

43. The question of marine research and the transfer of technology could be reasonably resolved only on the basis of respect for national sovereignty and the equality of all countries. His delegation's basic stand was that the sovereignty of all States should be safeguarded and their national economic interests defended, and super-Power hegemonism should be opposed.

44. Mr. STRÖMBERG (Sweden) said that the effective conduct of ocean research was dependent on ease of access and flexibility of movement. The sealing of large areas of the ocean by imposing strict rules on the conduct of scientific research would delay and might even obstruct a final understanding of many of the natural processes of the oceans, of which only the most gross features were generally known. The distribution of resources and of man's activities and their effects on the environment made research necessary in waters and on the sea-bed rather close to the continents. Marine pollution was a case in point. Any rules would have to be temporary and subject to modification as knowledge increased. It was for the very reasons he had outlined that Swedish scientists had strongly supported the views expressed by the International Council of Scientific Unions (ICSU) and its Scientific Committee on Oceanic Research at the 38th meeting of Sub-Committee III of the sea-bed Committee.

45. His delegation in principle favoured maximum freedom of scientific research; marine research should not form the legal basis for any claim to any part of the marine environment or its resources. It was important to distinguish between exploration leading to exploitation, which should be regulated by the International Authority when carried out beyond territorial waters and economic zones, and open scientific research which should be interfered with as little as possible. There was little reason to change existing regulations governing scientific research within territorial waters. The coastal State should have sovereign rights to the area but should co-operate as far as possible with other nations in studying marine science within the area.

46. His delegation was aware that the concept of an economic zone would raise problems for scientific research. Because of the economic importance of possible resources, a coastal State must have the right to participate in oceanographic research in the economic zone and should have the right to be informed of all the results of the investigation. The results should be printed and disseminated; the resources of the area should not be harmed. Existing regulations for the continental shelf concerning geological aspects were satisfactory, but would require reconsideration should the economic zone extend beyond the shelf.

47. Less strict regulations should apply to investigation of the water mass above the sea-bed and to studies of the benthic fauna and of the interaction between the sediment and the water. The coastal States should be notified well in advance of any intention to carry out a research project into any of those matters within their economic zones.

48. Scientific research in areas beyond the economic zones should be stimulated. The International Authority must, however, be notified in advance. That would have the advantage of informing the scientific and international community about projects, thereby facilitating international co-operation and reducing the risk of duplication. International knowledge of research projects would reduce the risk of any research contrary to the general principles of the future convention. Such research would require the formal consent of the Authority, which could also have the right to have observers participating in the projects. His delegation was therefore in favour of suggestions that would stimulate marine research for the benefit of mankind and the publishing and the dissemination of results through international channels.

49. It was also in favour of increased support to the developing countries to help them to increase their capabilities and to make use of the results of the research. The transfer of technology was imperative for that purpose, as was assistance to take advantage of scientific results produced elsewhere.

50. Mr. KNOKE (Federal Republic of Germany) said that, in his delegation's opinion, there was a close substantive link between marine scientific research and the transfer of marine technology. That was because in recent years marine scientific research had grown increasingly dependent on the use of the most up-to-date equipment and processes, while the application, development and transfer of marine technology called for increasingly precise information on the sea and the marine environment. In view of that link, solutions to the problem involved could best be reached if both items were discussed together.

51. The discussions in the Third Committee should be confined to fundamental research for peaceful purposes and should not extend to commercial prospecting, exploration and exploitation. Fundamental research for peaceful purposes must be conducted with as few restrictions as possible. In order to benefit all States and all interested international organizations, including the future Sea-Bed Authority, there should be as much international co-operation, participation of foreign scientists and publication of research results as possible.

52. In the territorial sea, scientific research should be subject to the express consent of the coastal State. In the adjacent areas beyond the territorial sea, where the coastal State might be expected to enjoy special rights on the basis of existing or future conventions, scientific research must be conducted in close co-operation with the coastal State, but should not be subject to complicated bureaucratic procedures. The nationals of coastal States must be given the opportunity to participate in the planning of research projects and the evaluation of results, as well as in research expeditions.

53. In the remaining area of the high seas, the sea-bed and the ocean floor, there should be free research for the benefit of all States and interested international organizations.

54. In all areas of the sea, marine scientific research should be conducted with due regard to other uses of the sea and with strict and adequate safeguards for the protection of the marine environment.

55. His Government accorded high priority to international co-operation in the field of scientific research, and a large number of scientists and research vessels from his country were already taking part in international research projects. However, co-operation should be further intensified and expanded with a view to strengthening the capacity of all States to conduct research themselves.

56. Special emphasis should be given to international co-operation in the development and transfer of marine technology. Problems relating to investment, the participation of companies and the protection of technical know-how could, he believed, be overcome through joint efforts. The basis for such efforts should be, as far as the developed countries were concerned, a more exact knowledge of the scientific and technical needs of the developing countries and, as far as the developing countries were concerned, a better appreciation of the needs of companies of scientifically advanced countries engaged in the development of marine technology and the production of scientific and technical equipment. The following list of measures, although not comprehensive, deserved consideration and might perhaps serve as a basis for the Committee's discussions on ways of promoting the transfer of marine technology: intensive education and training of experts from developing countries at institutions and establishments of developed countries and at regional training centres in developing countries; dispatch of technical experts to developing countries; development of rational technical processes and durable technical

equipment, adapted to the special needs of the developing countries; provision of technical equipment together with the knowledge and capability to operate and maintain it; and promotion of joint ventures by both developed and developing countries for the development and application of marine technology in developing countries.

57. His delegation believed that the more general discussions on the transfer of technology which had taken place within the framework of the Economic and Social Council, the United Nations Conference on Trade and Development, the United Nations Industrial Development Organization and the United Nations Institute for Training and Research would be of interest to the Committee. It therefore requested the Secretariat to prepare a paper on the subject, outlining the action taken and the results achieved. The Committee should also draw on the experience of international organizations, particularly the International Atomic Energy Agency, in the field of technical assistance.

58. Mr. DE LAS CASAS BRIEVE (Peru) said that his country's position concerning scientific research within the zone subject to the jurisdiction of the coastal State had been set forth in document A/AC.138/SC.III/L.45 and was the fruit of 27 years' experience.

59. Peru belonged to the school of thought which favoured dividing the ocean into two areas for the purposes of conducting scientific research: an area of 200 miles where the coastal State would have the right to regulate all activities; and an international area where scientific research would be subject to international regulations. In the first area, any scientific research undertaken must comply strictly with the regulations of the coastal State and be authorized by it. The following information should be communicated to the coastal State by those wishing to conduct the research: the objectives and tasks of their research; the means to be used; the scientific staff to be employed; the zones in which the activities were to be conducted; and the dates proposed and an undertaking to transmit to the coastal State the primary data and results of investigation and any samples obtained. Research activities under those conditions had been carried out in the area under Peru's jurisdiction by, *inter alia*, the United States, the Soviet Union and Japan. Peruvian scientists had participated in all the research activities, and Peru's consent had been sought for any changes made in the conditions laid down in the relevant authorization. The results of the research should be made available by the participating countries through publication in readily available scientific magazines. His delegation believed that the concept of a 200-mile area over which the coastal State would exercise its jurisdiction could perfectly well be reconciled with such other concepts as the national sea, the economic zone or the patrimonial sea.

60. Peru had also gained valuable experience in the development of technology, as a result of which its fishing industry had made rapid strides. It had taken existing technology, adapted it to its own special circumstances, and succeeded in creating an authentic technology of its own. In addition, as a result of joint research agreements with other countries and with the United Nations Development Programme, three highly efficient fisheries research institutes had been established on the western coast of South America. In every instance, Peru had found the crucial step to be the passage from mere utilization to the actual elaboration of technical knowledge.

61. His delegation advocated the expansion of regional research programmes in which the personnel of regional or sub-regional institutes worked together with high-level experts from international organizations or the more advanced countries to solve common scientific and technological problems.

62. In conclusion, he suggested that the representative of UNCTAD should be invited to speak about the transfer of technology.

63. Mr. FARINHA DA CONCEICAO (Portugal) observed that the distinction made by some scientists between fundamental and applied research was not accepted by everyone since fundamental research, although not directed at a specific goal, sometimes generated knowledge which had a practical application. Consequently, his delegation preferred not to make a rigid distinction between the two. For that reason, it was of the view that the exclusion of industrial exploration and other activities aimed at the direct exploitation of marine resources from the definition of marine scientific research in WG.3/Paper No. 4 prepared for Sub-Committee III of the seabed Committee (see A/9021 and Corr.1 and 3, vol. 1, p. 103) would have been regarded only as a limitation on the related activities referred to therein. It should be recognized that scientific knowledge of the marine environment resulting from research could be used in activities in some way linked to the exploitation of the resources of the sea, provided that the relevant regulations were complied with.
64. Turning to Working Paper No. 5 prepared by the same Working Group (*ibid.*), he suggested that the subject of the conduct and promotion of marine scientific research required further study by the Group.
65. As far as research in the jurisdictional zones of the coastal State was concerned, his delegation was prepared to support a co-operative arrangement under which the coastal State could authorize the conduct of scientific research in exchange for being allowed to participate in the activities and being informed without delay of the results.
66. Although all States attached the greatest importance to marine scientific research, many lacked the means to conduct it. Moreover, research work, to be fully beneficial to all mankind, should be conducted in all parts of the marine environment. Consequently, his delegation felt that there should be co-operative programmes in which scientific research was carried out jointly by States and the competent specialized agencies.
67. The co-operative effort should be so organized as to promote: the training of experts from the developing countries; the delivery of equipment and exchange of scientific data and samples; the participation by developing States in the work carried out on board research ships and in laboratories and data-processing centres; and where possible, the participation of scientists from the coastal State in the design of the research programme.
68. Mr. NTAMILA (United Republic of Tanzania) observed that although science and technology had served the noble goal of liberating man both intellectually and physically from degrading social and environmental régimes, they had also been made to serve colonial and imperialistic interests by enhancing the economic, political and military aggrandizement of some nations. His delegation sincerely hoped that the Conference would not facilitate the selfish exploitation of the oceans by such nations.
69. Certain of the statements made by representatives of the technologically advanced States gave the distinct impression that developing countries were apathetic about conducting scientific research. Such an impression was certainly not borne out by the proceedings of the many regional conferences for the application of science and technology sponsored by the United Nations Educational, Scientific and Cultural Organization (UNESCO), nor by the existence of a scientific and technical commission within the Organization of African Unity. Moreover, many developing countries had apportioned a considerable percentage of their limited financial resources for the purpose of establishing national infrastructures for the promotion of science and technology. Indeed, in view of the problems facing developing countries in many areas of human life and endeavour, it was tempting to assert that the need for scientific and technological research and the transfer of technology was greater for the third world than for the technologically advanced States.
70. Marine scientific and technological research was a prerequisite for the efficient management of both the living and non-living resources of the ocean. With regard to fish, there was a need to obtain accurate information on reproductive cycles, food relationships, ocean current movements, population dynamics, light intensity and temperature variations, salinity changes, plankton concentrations, species distribution, growth rates, and so forth. With regard to marine flora, it had been recognized that algal species held a vast potentiality as human food, animal feed, manure, sources of drugs and other industrially important products. As far as non-living resources were concerned, sound policies must be evolved to guide exploitation of the mineral-bearing nodules on the sea-bed and exploration for petroleum under the continental shelf.
71. All nations needed safe shipping routes in order to conduct their international trade, as well as the assurance that their security and sovereignty would not be threatened by the transportation of military personnel and equipment from one part of the world to another. With regard to marine pollution, steps must be taken to preserve the balance of the marine system and hence the quality of life for future generations of mankind.
72. In view of the above, his delegation had reached the following conclusions. First, scientific and technological research must be conducted in order to be able to carry out effectively the complex task of managing and exploiting the natural resources of the oceans. Since such research was an urgent necessity, there was little point in drawing a distinction between applied and fundamental research. Secondly, research was a prerequisite for national and world survival. Thirdly, research must be conducted for the understanding of marine systems without which there could be no viable resource management and exploitation policy. Fourthly, successful research programmes required the co-operation of States, the organizations of the United Nations family, and non-governmental organizations at the regional and international levels. Fifthly, co-operative research programmes, particularly those in which advantaged and disadvantaged States participated, would be viable only if they were conducted on a basis of equality. That implied prior consultations and consent, and also the transfer of technology in the areas of pollution abatement, oceanography and sea-bed technology. The United Nations should therefore spare no effort in order to find ways and means of offsetting the costs of the transfer of appropriate technology to developing countries; one such way was by establishing regional training and research institutions.
73. His delegation maintained its previous position that no one international organization should be designated as the sole competent authority on matters of marine scientific research or even on marine pollution at the current stage.
74. Both the Intergovernmental Oceanographic Commission and the United Nations Conference on the Human Environment held at Stockholm in 1972 had recommended that any research programmes undertaken in the zones under the jurisdiction of coastal States must be subject to the consent of the coastal States and provide for their participation. His delegation fully endorsed that view and believed that to go against it would be an unrealistic and anachronistic step.

The meeting rose at 1.05 p.m.