



## ECONOMIC AND SOCIAL COUNCIL

Thirty-sixth session

OFFICIAL RECORDS

1272nd meeting

Monday, 8 July 1963

at 3.20 p.m.

PALAIS DES NATIONS, GENEVA

## CONTENTS

## Agenda item 15:

Questions relating to science and technology (*continued*)

(a) Report by the Secretary-General on the results of the United Nations Conference on Science and Technology for the Benefit of Less Developed Areas

(b) Main trends of inquiry in the field of natural sciences, the dissemination of scientific knowledge and the application of such knowledge for peaceful ends

(c) Organization and functioning of scientific abstracting services

(d) International co-operation in the peaceful uses of outer space

General debate . . . . . 57

President: Mr. A. PATIÑO (Colombia)

## Present:

Representatives of the following States: Argentina, Australia, Austria, Colombia, Czechoslovakia, El Salvador, Ethiopia, France, India, Italy, Japan, Jordan, Senegal, Union of Soviet Socialist Republics, United Kingdom of Great Britain and Northern Ireland, United States of America, Uruguay, Yugoslavia.

Observers for the following Member States: Algeria, China, Indonesia, Greece, Hungary, Luxembourg, Mexico, Norway, Poland, Portugal, Romania, South Africa, Venezuela.

Observers for the following non-member States: Federal Republic of Germany, Holy See, Switzerland.

Representatives of the following specialized agencies: International Labour Organisation, Food and Agriculture Organization of the United Nations, United Nations Educational, Scientific and Cultural Organization, International Civil Aviation Organization, International Bank for Reconstruction and Development, World Health Organization, Universal Postal Union, International Telecommunication Union, World Meteorological Organization, Inter-Governmental Maritime Consultative Organization.

The representative of the International Atomic Energy Agency.

## AGENDA ITEM 15

## Questions relating to science and technology

(a) Report by the Secretary-General on the results of the United Nations Conference on Science and Technology for the Benefit of Less Developed Areas (E/3772 and

Corr.2 and Add.1); (b) Main trends of inquiry in the field of natural sciences, the dissemination of scientific knowledge and the application of such knowledge for peaceful ends (E/3765); (c) Organization and functioning of scientific abstracting services (E/3618); (d) International co-operation in the peaceful uses of outer space (E/3770, E/3794 and Corr.1) (*continued*)

## GENERAL DEBATE

1. Mr. MAHEU, Director-General, United Nations Educational, Scientific and Cultural Organization, said that UNESCO was fully aware of the great responsibilities laid upon it by its Constitution with regard to science. That occasion was not the first on which the organization had concerned itself with the application of science and technology to the developing countries. The subject occupied a prominent place among the priorities laid down by the General Conference for the ten-year programme on natural sciences adopted in 1960. The UNESCO was currently administering twenty-seven Special Fund projects, in the field of science and technology, in respect of both teaching and research. That was proof of the organization's interest in the United Nations Conference on the Application of Science and Technology for the Benefit of the Less Developed Areas, which had roused the whole world to a sense of the importance of science and technology and had by that very fact increased the need of the developing countries for assistance. It had also demonstrated the complexity of the process of the implantation or development of a technical civilization by showing that the mere transfer of knowledge and techniques was not sufficient. Lastly, it had emphasized the usefulness of close and more systematic co-operation between international organizations working in that field. With those three considerations in mind, he had drawn up a programme for systematic action which he had submitted in May to the Executive Board of UNESCO and which had been approved by the Board in broad outline. The Second regional conference on organization and planning of scientific and technological research and the meeting of the International Advisory Committee on Research in the Natural Sciences Programme of UNESCO at Ottawa had enabled him to test that action programme, and had confirmed his belief that he could draw up a programme for future action on the lines described. The Executive Board had decided to give to science the same priority as to education, and consequently the secretariat department dealing with science would be headed by an assistant director-general, like the Department of Education. A proposal that appropriations for activities in science should be increased by more than 50 per cent was to be



placed before the General Conference, and an increase in the UNESCO general budget was also to be requested. In that connexion, he had been happy to hear the Secretary-General point out at the 1271st meeting that if science were to be given its due place, the budgets of the various organizations concerned with science would have to be increased. He also thanked the United Kingdom representative, who had recognized that principle, and the Indian representative, who had suggested that there was no point in dispensing with an independent scientific body unless the existing organizations dealing with science and technology were strengthened. The UNESCO was also setting up a special secretariat department for the application of science to development.

2. Bearing in mind that the implantation of science was both a social and an intellectual process, UNESCO aimed at a long-term effort in depth, which would result in the establishment of the social and intellectual infrastructure necessary for the development of science, so that science could be made independent of outside assistance. That was the only way of overcoming underdevelopment and of enabling a country to achieve economic as well as political independence. At the same time, the immediate transfer of the necessary technical knowledge should not be neglected. The general effort described did not conflict either with the more technical work of the other specialized agencies or with the general political and economic activities of the United Nations. It was a supplementary effort on the basis of which systematic co-ordination might be established.

3. The UNESCO effort in depth should include economic and scientific analyses of the needs of the various countries for scientific and technical knowledge and personnel. In addition, the increasingly numerous countries so desiring should be helped in planning their scientific development policy in relation to their needs. A research centre for science and development might perhaps be set up, which would be the counterpart to the international institute for the planning of educational development which was to be opened in Paris. That should be followed by the organization of broadly based training, at all levels, of the scientific and technical personnel required for development, and a research programme since UNESCO could not neglect either basic or technological research. Attention should, however, be confined to problems concerning more than one discipline or to certain sectors in the vanguard of scientific research.

4. Lastly, so far as concerned co-ordination, for the reasons given both by the Secretary-General and by the representative of FAO, the Executive Board of UNESCO did not think there was any need to set up a new body in the United Nations system for the application of science and technology to development. On the other hand, UNESCO favoured closer co-ordination of activities on the basis of the broad general principles which had been outlined. There would probably be no difficulty in agreeing on the procedure for such co-ordination. The organization had the Advisory Committee to which reference had already been made. The committee was available to anyone wishing to consult it and could be fitted in with what-

ever arrangements it was decided to make, either under ACC or the Council. The essential point was that the policies of the various organizations and the major objectives set for the United Nations system as a whole should be clearly defined.

5. Mr. DUPRAZ (France) recalled that, having initiated or supported various measures aimed at resolving the different problems arising in the sphere of scientific research, the dissemination of scientific knowledge and its application to peaceful ends and in developing countries, France had clearly demonstrated the great importance it attached to the matter, as well as the acute awareness of the problem which was essential for a comprehension of its implications and range. Care must be taken neither to underestimate the importance of science and technology and the contribution they could make towards overcoming the problems facing developing countries, nor to subordinate everything else to them and regard them as a kind of universal panacea for the ills of mankind.

6. He wished first of all to pay a tribute to the results achieved by the Conference on the Application of Science and Technology, to its sponsors, including the late Mr. Dag Hammarskjöld, and to its organizers, for it had afforded an opportunity of clarifying the precise function of science and technology in the world. It must, however, not be forgotten — as had also been pointed out by the Secretary-General of the Conference — that whilst those concerned with the future of mankind had to take due account of the potentialities of science and technology, reliance should not be placed on science and technology alone, for the accumulation of knowledge, like that of wealth, could not purvey true happiness, nor did it profit human societies, any more than individuals, if they gained the whole world and lost their souls.

7. If science and technology were to contribute to the solution of the problems facing the world without impairing the human personality and basic values, science must not be superimposed upon economic, political and human conditions with which it could have no affinity. That was one of the definite conclusions of the Geneva Conference to which all representatives, and especially the representatives of developing countries, had subscribed. Science could produce its beneficial effects only if it was rooted in and grafted upon local thought. Its applications might likewise remain ineffectual unless they were adapted to local living conditions and to the aspirations of the peoples they were intended to serve. He was convinced that preparation of the terrain was an essential preliminary to the implantation of science. As the Secretary-General had pointed out in paragraph 229 of his report (E/3772), "The scientific spirit — the technical approach even in the humblest workaday affairs — should be accepted as something indigenous and honoured, not alien and certainly not beneath the dignity of anyone." No country, moreover, could build up a scientific structure, capable of fulfilling its allotted function, except by progressive stages. Planning was therefore essential if development was to possess the necessary coherence. Furthermore, no country, however great and however powerful, could develop all scientific disciplines.



In attempting everything, it would risk failure. If, on the other hand, a country concentrated its efforts on certain specific, carefully selected, subjects, it could make rapid progress in the chosen field, and owing to the interrelatedness of the various scientific disciplines, might later on be easily able to tackle other branches.

8. He wished to explain his country's view of the role of the United Nations and its specialized agencies in the sphere of science and technology, and particularly of the action to be taken as a result of the Geneva Conference — i.e., the role of science and technology in developing countries. In the first place, the United Nations could not and must not assume the functions of States. Each country must remain responsible for the development and direction of its scientific institutions, whether in respect of research, pure science or the different applications of science. The international agencies must, furthermore, be careful not to give the impression that scientific aid could furnish an automatic solution to the problems of development. With those reservations, the United Nations system could make a notable contribution to the development and application of science and technology. The French delegation wished to stress the outstanding part which UNESCO could play in that connexion. By its very terms of reference it had been given immediate responsibility for what was the basis of all scientific activity, namely research and pure science, for without pure science there could be no applied science or technology. It was not in itself a research organization, nor should it ever become one, but it could act as adviser and sponsor, strive to co-ordinate research, organize seminars, and so on, and would gain in effectiveness if it were to direct its efforts along those lines.

9. The UNESCO, moreover, had an immense task to accomplish in relation to education for what might be called the preparation of the ground. At that level, the recent establishment of a regional centre for the training of educational planners, administrators and supervisors assumed a special importance. Lastly, so far as concerned the UNESCO cultural mandate, there again the foundation had to be prepared by deepening and strengthening the intellectual resources of each country, so that they could take without impairment the graft of the scientific spirit.

10. There would be a danger of UNESCO departing from its true mission, however, if it gave the applications of science and technology the same place among its activities as its three fundamental tasks. In fact, the applications of science and technology depended on particular branches of knowledge that came within the province of various specialized agencies. It was in cases where there were aspects not covered by the existing specialized agencies that the United Nations seemed to have the responsibility for filling the gap. That situation involved a problem of co-ordination which could be solved if the agencies displayed what the Secretary-General had called in paragraph 223 of his report a willingness to engage in a mutual cancellation of marginal claims in favour of stronger main branches. The question would be raised again with reference to the general co-ordination of the United Nations system, a task en-

trusted by the Charter to the Economic and Social Council. It might be necessary to contemplate strengthening the activities of the Council in that sphere by methods including closer association with ACC.

11. A particularly interesting suggestion that had been made by the Conference on the Applications of Science and Technology was that relating to the establishment of an advisory committee on science and technology. The French delegation raised no objection of principle to the suggestion, for in its view such a committee would in some cases facilitate the transition to new ways. It was essential, however, that the committee should not become one of those anonymous, impersonal, administrative bodies paralysed by a formalistic procedure. It should, on the contrary, be a group of people, a group of counsellors chosen for their competence and moral worth in liaison with governments and thus provide the advantages of both governmental choice and appointment on personal merit.

12. Lastly, although the tasks of the United Nations included some that were occasionally discharged by active intervention which gave rise to legitimate misgivings on account of the threat it represented to the sovereignty to which States were still deeply attached, there was one task which the French delegation unreservedly approved — the provision of information, for which science and technology offered ideal subjects. It was, perhaps, in that field that the needs were most urgent. All research workers mentioned the difficulty they experienced in keeping themselves informed of current work or of results already obtained elsewhere; a difficulty which resulted in overlapping and serious loss of time. That was why every action taken by France had included provision for enlarging the sources of information. Similarly, the report "Current trends in scientific research" (E/3362/Rev.1) and the French comments on it (E/3505/Add.2), stressed the same point. The French delegation therefore hoped that the United Nations and the specialized agencies would concentrate on their responsibilities for the provision of information.

13. Mr. DAVIES, Secretary-General, World Meteorological Organization, said that the science of the atmosphere and the applications of the relevant scientific knowledge had a direct or indirect bearing on many activities in the economic and social fields. The full scope of the WMO interest in activities falling within the purview of the Council would be reviewed under agenda item 4, and he would therefore confine his comments to the four questions relating to science and technology under consideration, with particular reference to international co-operation in the peaceful uses of outer space. Detailed information on his organization's interest in the remaining three questions could more appropriately be given in the Co-ordination Committee; he would therefore merely affirm that interest and give an assurance of the earnest desire of WMO to collaborate fully with other organizations concerned in action aimed at implementing the relevant decisions which the Council might take.

14. The subject of international co-operation in the peaceful uses of outer space covered the most modern of



scientific and technical advances likely to be of assistance in economic development. In pursuance of General Assembly resolution 1802 (XVII), he was submitting to the Council the second report of WMO on the advancement of the atmospheric sciences and their application in the light of developments in outer space (E/3794). The aim in preparing that document, which was self-contained, had been to bring the first report (E/3662) up to date rather than to present once more a comprehensive review of the subject in full scientific detail. Thus, the rather detailed description given in the first report of the types of data available from satellites and so on had not been repeated, but significant new developments during the past year were included.

15. On the other hand, full information was given in the second report on the activities of WMO in that field as well as of the decisions taken and the plans developed by the organization. The quadrennial Congress of WMO, in April 1963, had enabled all aspects of those new and interesting developments to be reviewed and the policy of the organization established for the coming four-year period. At its subsequent session in May 1963, the WMO Executive Committee had taken important decisions affecting implementation of the policy decisions of the WMO Congress. He was glad to report that the Congress had formally accepted the responsibilities placed upon WMO by the relevant General Assembly resolutions and had endorsed the previous action taken, including the first report. The way was thus clear for WMO fully to meet the responsibilities placed upon it by its own basic Convention, and by past and future United Nations requests, in its capacity as the governmental organization responsible for international meteorology, including the use of satellites and rockets for meteorological purposes. Incidentally, the publicity given to satellites had tended to conceal the great value of rockets for exploring the atmosphere. As always, WMO was willing and anxious to collaborate with other governmental and non-governmental bodies working in the same sphere.

16. Recent developments had confirmed the general conclusions contained in the first report regarding the nature and scope of satellite data in so far as the atmospheric sciences were concerned. Likewise, the great impact of such data on the atmospheric sciences had been confirmed and clarified. In other words, the broad guidelines for further progress proposed in the first report had been shown to be basically sound, and WMO had thus been moving in the right direction from the outset.

17. Two important developments mentioned in the second report were, first, the progress made between the Soviet Union and the United States in bilateral talks on satellite programmes, including a programme for meteorological satellites and, second, the invention of a relatively inexpensive device known as automatic picture translation (APT), which, if present hopes were fulfilled, would make it possible for any country to receive meteorological data direct from satellites in the form of photographic reproduction of cloud and weather systems over an area roughly 1,600 km in radius immediately surrounding the ground station. The value of such an apparatus to all countries, and especially to those where, for geographic

or other reasons, conventional meteorological data were relatively limited, would be obvious.

18. The most important decision taken by WMO in the past year was perhaps the endorsement by its Congress of the concept of an over-all world weather service involving the use of conventional and satellite data and the establishment of national, regional and world centres. The name "World Weather Watch" had now been accepted for that programme. Another important event was the decision to establish a WMO advisory committee, comprising twelve eminent scientists, with the responsibility for advising on all research and operational questions. The International Council of Scientific Unions, which was the main non-governmental organization in that field, was being consulted on the composition of the committee, and steps had been taken to complete the nominations as soon as possible. In order that consideration of questions to be referred to the advisory committee might not be delayed, working groups of high-level scientists had been established some time before and had done useful preparatory work. Details of the studies made by one of those groups, the Working Group on the Research Aspects of Meteorological Satellites, were given in annex D to the second report. The annex included in particular a tentative list of outstanding research problems in the atmospheric sciences, to the solution of which data obtained from meteorological satellites would probably make a major contribution.

19. The WMO Congress had also decided that a comprehensive analysis of the world weather system should be undertaken as a preliminary to the adoption of a complete international programme for its improvement. That decision had arisen from the great advances in technology, especially in artificial satellites. The studies would be carried out with special reference to an analysis of the national requirements to be placed on the system and the advances in technology that should be utilized to meet those requirements; and to an over-all plan for observational methods and networks, communications systems, processing centres, data distribution and other essential functions of such a system. A small planning unit had been set up in the secretariat to be responsible for that work; and it would at the same time act as a permanent secretariat for the Advisory Committee.

20. A further earnest of the desire of WMO to take all possible steps to ensure that the new technological developments, and particularly artificial satellites, would be applied effectively and efficiently for the benefit of every country was the decision to create a WMO Development Fund, amounting to \$1.5 million for the coming period, to supplement the assistance available to developing countries under EPTA and the Special Fund. The new fund would be used to meet requests for assistance which, for one reason or another, might not fall within the terms of reference of either of those technical aid programmes. However, the commencement of operations would be conditional upon the prior approval of a plan for the fund's utilization, including management and operation procedures; and a draft plan had already been sent to all WMO members for comment. He would add that, in carrying out the world plans which were to be

developed, WMO would require the full and active support of every country at the national level; and that technical assistance, whatever the source, would be sufficient only to fill the unavoidable gaps.

21. Sir Ronald WALKER (Australia) said that his country's experience had demonstrated the vital role which science and technology must play in all economic development. With that in mind, the Australian Minister for External Affairs had made in 1958 one of the first positive proposals that the United Nations should devote greater efforts to applying science and technology to the problems of developing countries. That proposal had culminated in Professor Auger's report "Current Trends in Scientific Research" and had helped to prepare the ground for the convening of the Conference on the Application of Science and Technology. Preparations for the Conference had aroused great interest in scientific circles in Australia, and the Australian delegation had played an active part in the proceedings. It was particularly concerned that the Conference should not be an isolated event and that the search for better ways of ensuring the maximum practical benefit from modern scientific and technological advances should continue. Australia expected the Council to take some important decisions on the practical follow-up of the Conference as an important factor in the Development Decade.

22. From many points of view, the Conference had been a success. It had enabled many influential scientists from developed countries to become better informed about the complex processes of the transfer of knowledge and expertise to developing countries through technical assistance programmes and in other ways. A major benefit had been the greater understanding acquired by delegations of advanced countries of the problems of developing countries. Moreover, the Conference had drawn attention to the essential link between applied science and technology and the needs of economic development. The Conference had been marked by extremely frank discussions, characteristic of scientists speaking as experts, and not as government representatives. Representatives of the advanced countries had commented on the needs of developing countries as they saw them, and the representatives of the latter had commented freely and critically on the working of existing arrangements for scientific and technological aid. That frankness had contributed to the establishment of personal relations between representatives of developing and more advanced countries on the basis of increased mutual understanding and respect.

23. On the other hand, the Conference had not been an unqualified success; it had suffered from trying to cover too vast a field, and some of its discussions had needlessly duplicated debates in other international bodies. The original proposal made by the Scientific Advisory Committee had envisaged a relatively narrow theme and a clear indication of its scope, but the Committee had later suggested that the Conference should concentrate mainly on the means of accelerating development through the application of the latest advances of science and technology, and that emphasis should be placed on the better utilization of human resources, raw materials and

energy, on the use of the latest achievements in science and technology, on the development of energy as a basis of industrial development, and on the utilization of the latest advances in agricultural techniques. Other items on which stress had been laid were the training of personnel, the organization of scientific research in developing countries and the improvement of public health.

24. By the time the Conference met, that already wide programme had been further broadened by the inclusion of sections on the organization and planning of economic development and the social problems of development and urbanization, and by provision for the discussion of general methods of promoting development, as distinct from the specific problems of applying science and technology. Although the broad discussion of development policies had been interesting, it had led to the inclusion of a number of somewhat commonplace observations which in themselves hardly justified the convening of a Conference of distinguished scientists and technical experts.

25. On the other hand, the report contained many examples of discussions highly relevant to the basic purpose of the Conference. For example, relatively new methods of aerial survey for mapping and new methods of prospecting for minerals were important points, as was performance testing in stockbreeding, which might play a significant rôle in developing countries. Other interesting debates had been held on the mechanization of farming, the possibility of improving traditional methods of food preservation, recent progress in steel-making which enabled relatively small plants to operate efficiently, the need for a suitable transport aircraft to replace the DC3 and the possibilities of an inexpensive transistor radio. Nevertheless, the overloading of the Conference with less relevant material had reduced the impact of the more significant contributions and had increased the cost.

26. It was essential to ensure that follow-up arrangements would be concentrated on the specific problems of science and technology. Moreover, there had been a tendency in the Conference to stress not only the application of the latest advances but also the enormous cope for the application of existing science and technology. The main objective so far as concerned science and technology in the United Nations Development Decade was to open up channels of communication and to enable the peoples of the developing countries to draw on the existing and growing store of useful knowledge. Thus, the most important discussions of the Conference had proved to be those on the organization and planning of scientific and technical policies, international co-operation, and problems of transfer and adaptation and the training of scientific and technical personnel in the developing countries.

27. The problem for the developing countries was not merely to draw upon the knowledge of the advanced countries; their own specific difficulties must be studied, and they should not accept a completely dependent role. Although they would of course find it useful to draw upon the research of other countries, they must have adequate numbers of their own research workers and



institutions as soon as possible. The wealthy advanced countries should, as part of their contribution to the Development Decade, divert a larger proportion of their own scientific efforts to the problems of developing countries, instead of allowing their list of priorities to be excessively influenced by military or commercial considerations, as was often the case.

28. Australian experience showed that a key to the effective adaptation of science and technology to national needs lay in the establishment of scientific and technological organizations. A national research organization could act as a channel for receiving and adapting existing knowledge from other countries, but it must also develop its own research programmes and play a part in influencing national policies for economic development, including the development of an educational system which recognized the contribution of scientific and technical progress to human welfare. Australia had found that money put into research institutions proved to be an extremely profitable investment. However, the efforts of the developing countries must be accompanied by increased efforts on the part of the scientifically advanced countries, although that might require some sacrifices in the developed countries and a re-examination of their priorities. Australia had for many years been establishing increasingly close links between its own research institutions and those of other countries, particularly in Europe, North America and Asia.

29. The Secretary-General rightly pointed out in the report that much of the necessary work must be done on a national or bilateral basis and that the role of the United Nations must be mainly to stimulate appropriate action by others, rather than to attempt too much itself. It was also true that it would be undesirable to set up a new specialized agency for science and technology, and that the tasks to be carried out by the United Nations would be more effectively performed by developing the work of existing organs. Some of the references made at the Conference to gaps in the United Nations machinery were exaggerated and reflected an inadequate knowledge of the wide range of scientific and technological facilities that the United Nations already made available to developing countries. In fact, the limitations on what the United Nations could do arose less from organizational deficiencies than from shortage of money and staff.

30. The report strikingly reflected the stimulus which the Conference had already provided for the scientific and technological work of all the United Nations agencies. In that connexion, it was important to define the spheres of action of various agencies, particularly UNESCO, which had the initiative in matters relating to the general development of science, including scientific education, the establishment of national research organizations and scientific and technological libraries in the developing countries and the formulation of policies to encourage ready acceptance of modern science and technology. On the other hand, UNESCO should not branch out into scientific and technological research which naturally fell within the scope of other agencies. It was to be hoped that the reviews which the secretariats of the United Nations and some specialized agencies were making of their

growing responsibilities in science and technology would soon lead to specific suggestions for further action. They should bring out the need for a more orderly approach to United Nations scientific activities, and particularly for better co-ordination of technical assistance at the country level. In view of the duplication and competition which still existed, his delegation noted with satisfaction the decision of ACC to set up a sub-committee on science and technology.

31. Finally, there was the problem of deciding how best to keep the whole question under regular review. That was a task for which the Economic and Social Council must assume more responsibility than in the past. His government therefore supported the Secretary-General's proposal in paragraph 236 of his report regarding the establishment of an advisory committee on science and technology. The committee should not be a large one, and it was unnecessary for its membership to include economists and administrators as well as scientists; the important point was that it should consist primarily of really outstanding and authoritative scientists. Since ACC already had its own sub-committee, the Australian delegation did not endorse the suggestion that it should nominate the members of the advisory committee, but would suggest that the Council entrust that responsibility to the Secretary-General. The committee, however, should report to the Council. The terms of reference of the Committee would need careful definition, to enable it to keep under review the use made of science by all members of the United Nations family, to draw attention to opportunities neglected and to shortcomings and to consider specific questions referred to it by the Council or the Secretary-General.

32. Mr. KOPCOK (Yugoslavia) said that the Conferences on the Application of Science and Technology had marked a turning point in the approach to problems of science and technology and particularly to their role in developing countries. The Conference had been unanimous in its wish to help in speeding up the development of developing countries through a study of the complex problems of the application and dissemination of scientific and technological advances within the framework of the Development Decade. The question which then arose was what could be and had to be done to implement suggestions and proposals, and what were the methods whereby the solution of major development problems might be accelerated through the application of modern science and technology.

33. The Secretary-General had rightly stressed in his report the question of the material resources necessary for the application of decisions and resolutions adopted at the Conference; the report made it clear once again that the forms and particularly the extent of international financing did not suffice to meet the developing countries' ever-increasing needs. That raised the question whether the objectives of the Development Decade, of which the Conference was a part, could be satisfactorily met, though they represented only a minimum programme.

34. The Secretary-General had also submitted some interesting proposals on the effective and rapid application of science and technology in developing countries.

Although the Yugoslav delegation welcomed some of those proposals, it wished to add some comments on them in order to draw attention to what it regarded as priority matters. The most interesting proposal seemed to be that United Nations efforts to train scientific and technical personnel in the developing countries should be intensified. The Yugoslav delegation was prepared to support any action undertaken for that purpose, either in the existing forms or in new directions, and it considered that the establishment of scientific research institutes in the developing countries should be given priority. It also agreed with the Secretary-General that some problems of the application of science and technology should be dealt with on a regional basis, and linked closely with the work of the regional economic commissions.

35. His delegation could not, however, support the Secretary-General's proposal to set up an advisory committee on science and technology, composed of eminent scientists and economists. In accordance with the conclusions adopted by the non-aligned countries' Conference on the Problems of Economic Development held at Cairo in 1962 and the attitude taken by those countries at the Conference on the Application of Science and Technology, the Yugoslav delegation considered that it would be better to set up an intergovernmental committee, whose recommendations would have more weight and authority than those of independent experts.

36. Although his delegation was aware that the bulk of resources for the application of science and technology in the developing countries took the form of bilateral aid, it wished to stress the need for expanding multilateral forms of scientific and technical co-operation, particularly within the United Nations. The part to be played by the United Nations Special Fund was vital in that connexion, and the resources of that Fund should be increased.

37. Finally, there was the proposal advanced at the Conference, but not taken up in the Secretary-General's report, that the possibility should be explored of setting up a new international organization to ensure the continuity of United Nations efforts towards the effective application of science and technology for the benefit of developing countries. The importance of the fact that the memorandum containing that proposal had been signed by representatives of thirty-six developing countries should not be underestimated. The Secretary-General referred to the proposal in paragraph 225 of his report, but expressed the conclusion that the possibilities of utilizing the existing agencies should rather be developed to the fullest extent. The Yugoslav delegation, however,

believed that the establishment of a new organization was essential for speeding up the training of scientific and technical personnel in the developing countries.

38. Mr. DIOP (Senegal) said that the newly independent African States were well aware that political independence was not an end in itself but the means by which they must bring their people the benefits of better living conditions, including the benefits of training and education. He was therefore gratified by the results of the Conference on the Application of Science and Technology, and wished to congratulate those to whose initiative the Conference had been due.

39. The main use to which the great progress that had been achieved in science and technology should be put was that of exploiting and developing the surface and mineral resources of the planet so as to provide the whole population of the globe with decent living conditions. That was, he thought, a more important and urgent task than journeys to the moon, Venus or Mars. Insufficient stress had been placed on the preliminary requirements that must be fulfilled before scientific and technological knowledge could be transferred in conditions guaranteeing complete success. It was indeed generally recognized that the human output factor was more important to the success of a country's economic and social development than the possession of machines. In other words, if the transfer of knowledge was to be of value, the receiving country must have senior and middle-grade personnel capable of assimilating and using the knowledge. The availability of such personnel depended on the educational level of the mass of the population among which they were recruited. In Senegal, for example, only 30 per cent of school-age children were receiving primary education, although the Government devoted 30 to 33 per cent of the national budget to education at that level. The more senior personnel were therefore recruited from only a very limited section of the population. Consequently, education must be intensified both by means of the country's own resources and by means of bilateral aid and multilateral assistance from the United Nations. It was essential to increase the number of fellowships for vocational training, and in that connexion he warmly welcomed the forthcoming opening of the African Institute for Economic Development and Planning at Dakar. Not enough emphasis had been placed on the fact that a mere transfer of knowledge would do little to change the developing countries' lot; and it was for that reason that he had felt bound to utter a cry of alarm.

The meeting rose at 5.45 p.m.